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ACURA

MDX

Service Manual 2007

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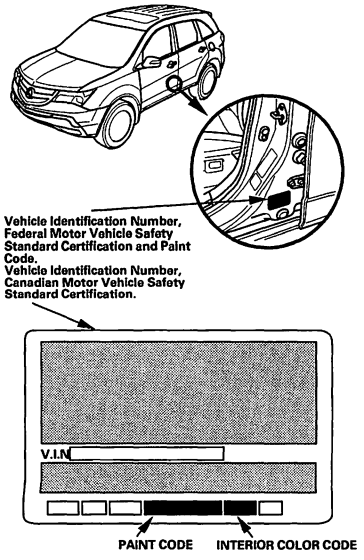
Chassis and Paint Codes

Vehicle Identification Number

2HN YD2 8 2 * 7 H 500001

a b c d e f g h

a. Manufacturer, Make and Type of Vehicle
2NH: Honda of Canada Mfg.,
Honda Canada Inc.,
Acura Multipurpose passenger vehicle
b. Line, Body and Engine Type
YD2: Acura MDX/J37A1
c. Body Type and Transmission Type
8: 5-door/5-speed Automatic
d. Vehicle Grade (Series)
USA models
2: MDX
3: TECH
4: TECH with Rear Entertainment System
5: SPORT
8: SPORT with Rear Entertainment System
Canada Model
2: MDX
5: TECH
8: ELITE
e. Check Digit
f. Model Year
7: '07
g. Factory Code
H: Alliston, Ontario Factory in Canada
h. Serial Number
000001—: Canada models
500001—: USA models



Engine Number

J37A1 - 1000001

a b

a. Engine Type
J37A1: 3.7 L SOHC VTEC Sequential Multiport Fuel-injected engine
b. Serial Number

Transmission Number

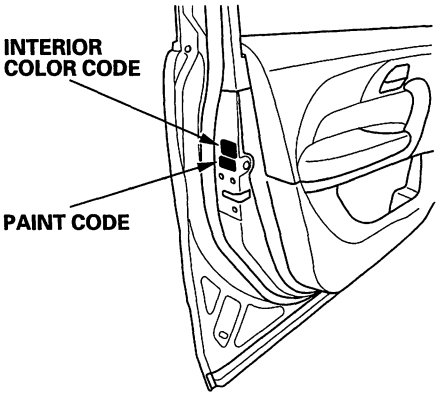
BYFA - 9000001

a b

a. Transmission Type
BYFA: 5-speed Automatic
b. Serial Number

Paint Code

Code	Color	USA models	Canada models
B-533M	Steel Blue Metallic	○	○
G-525M	Aberdeen Green Metallic	○	○
NH-578	Taffeta White	○	
NH-677P	Aspen White Pearl	○	○
NH-689M	Billet Silver Metallic	○	○
NH-705M	Nimbus Gray Metallic	○	○
NH-707	Formal Black	○	○
R-529P	Dark Cherry Pearl	○	○
YR-545M	Desert Rock Metallic	○	



BACK

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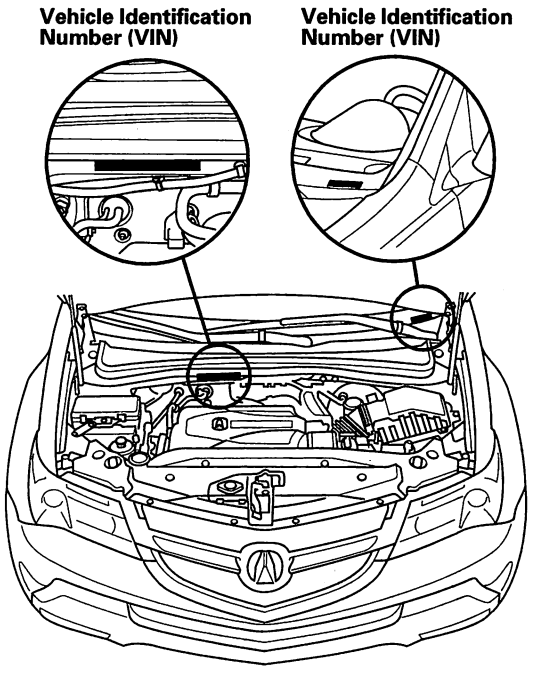
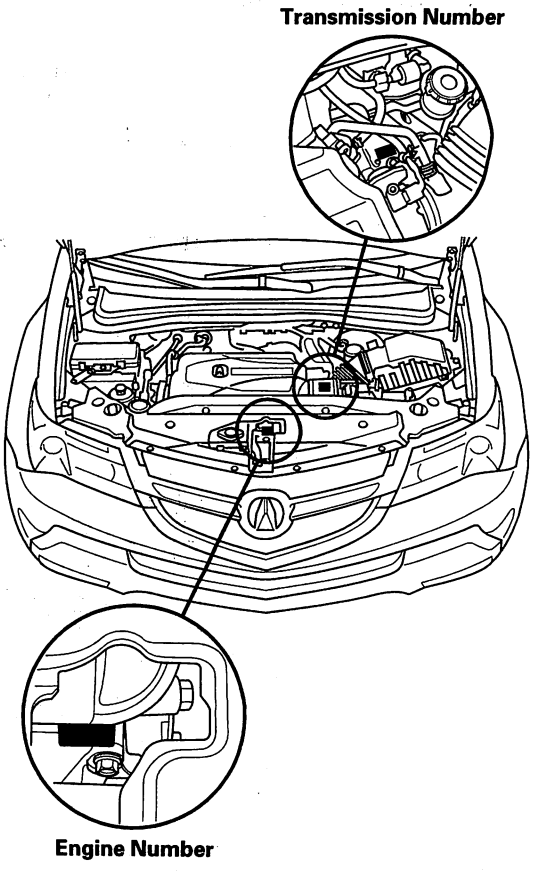
Identification Number Locations





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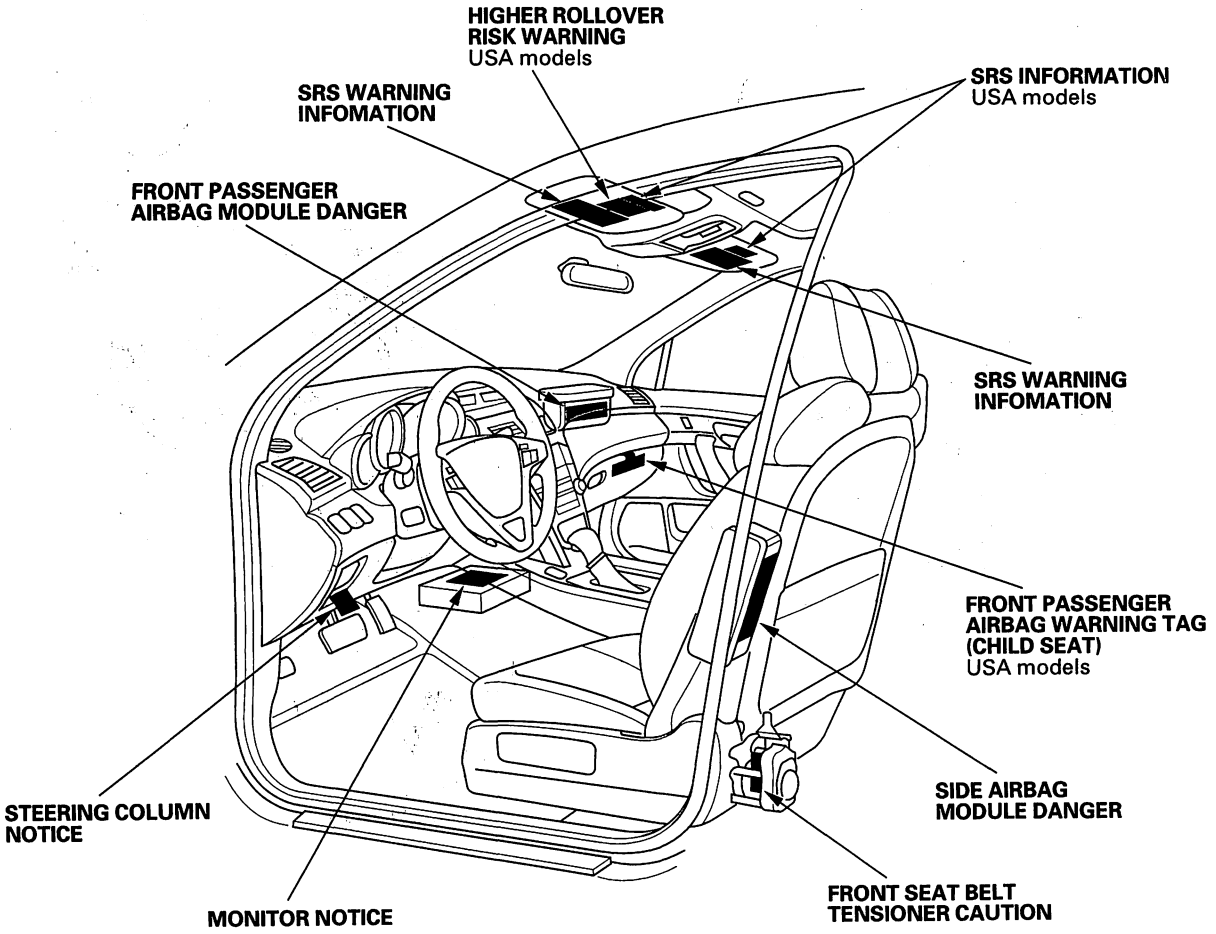
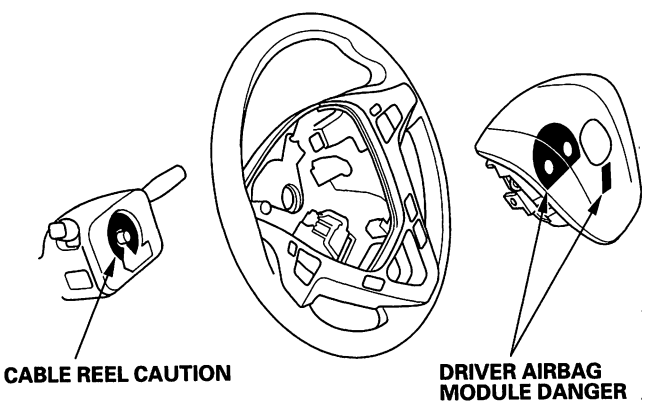
Danger/Warning/Caution Label Locations

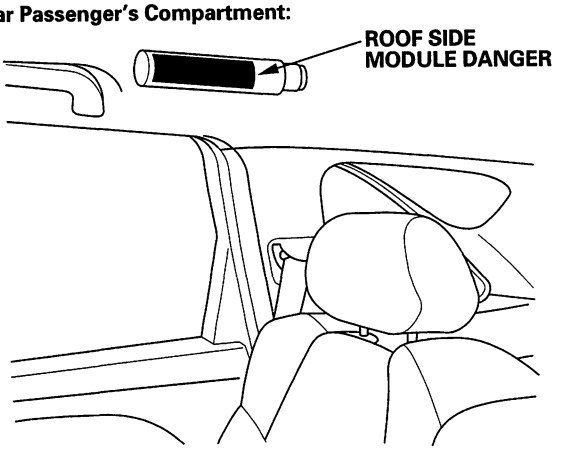
Front Passenger's Compartment:



Steering Wheel:



Rear Passenger's Compartment:



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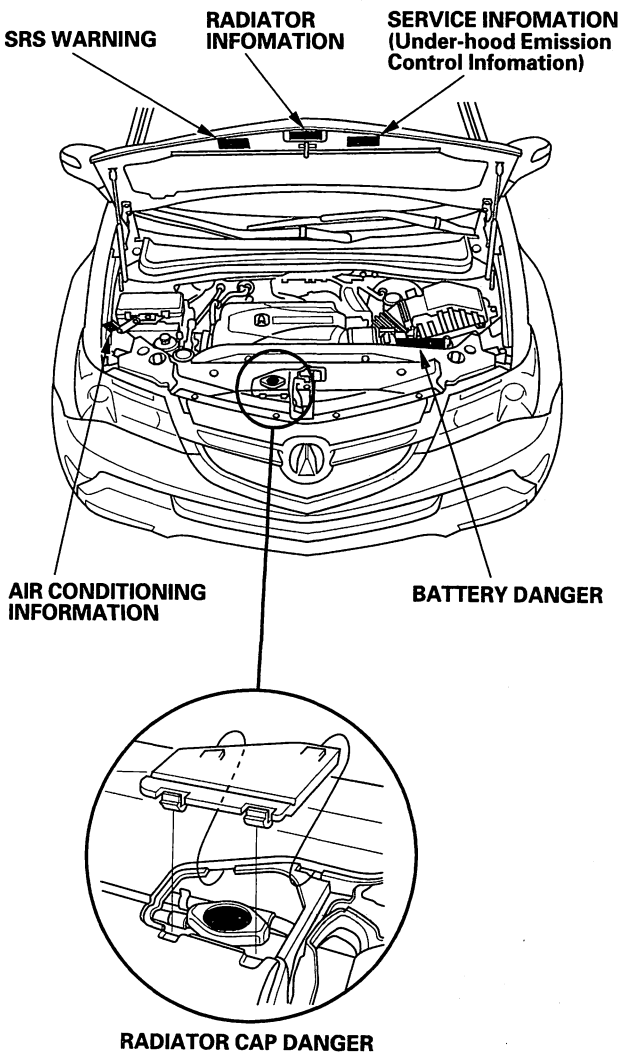

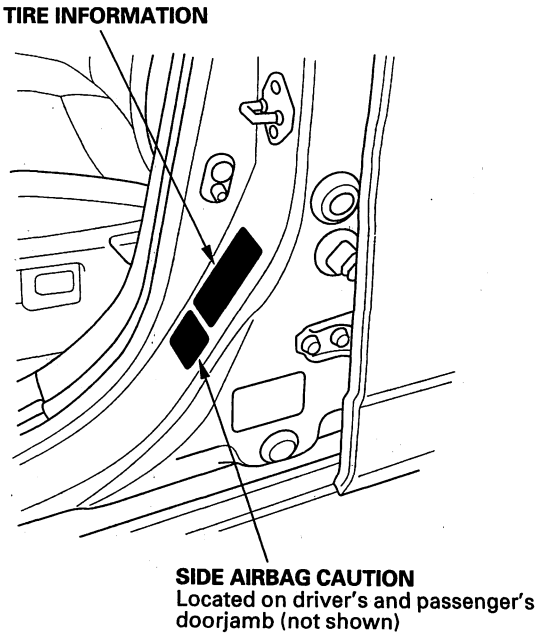

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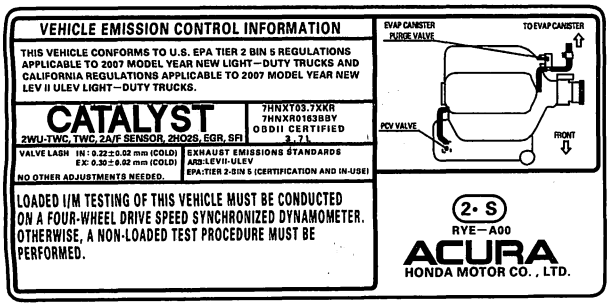
Under-hood Emission Control Label

Emission Group Identification

Example:



FEDERAL in CANADA
THIS VEHICLE CONFORMS TO U.S. EPA TIER 2 BIN 5 REGULATIONS APPLICABLE TO 2007 MODEL YEAR NEW LIGHT-DUTY TRUCKS AND CALIFORNIA REGULATIONS APPLICABLE TO 2007 MODEL YEAR NEW LEV II ULEV LIGHT-DUTY TRUCKS.

Test Group and Evaporative Family

Test Group:

7 HNX T 03.7 XKR
a b c d e

- **a. Model Year**
  7: '07
- **b. Manufacturer Subcode**
  HNX: HONDA
- **c. Family Type**
  T: LDT
- **d. Displacement Group**
- **e. Sequence Characters**
  XKR

Evaporative Family:

7 HNX R 0163 BBY
a b c d e

- **a. Model Year**
  7: '07
- **b. Manufacturer Subcode**
  HNX: HONDA
- **c. Family Type**
  R: Refueling
- **d. Canister Work Capacity**
- **e. Sequence Characters**

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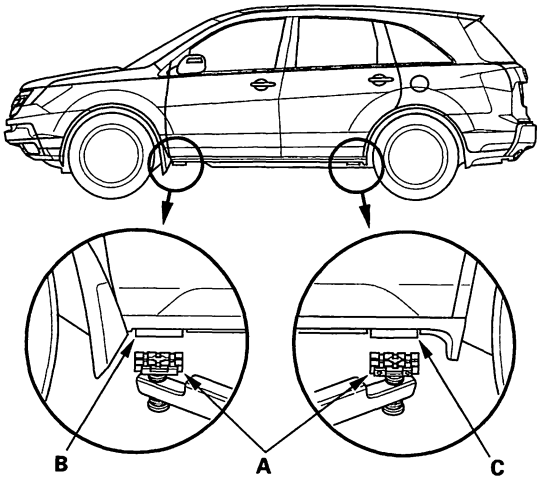
Lift and Support Points

NOTE: If you are going to remove heavy components such as the suspension or the fuel tank from the rear of the vehicle, first support the front of the vehicle with tall safety stands. When substantial weight is removed from the rear of the vehicle, the center of gravity can change causing the vehicle to tip forward on the lift.

Vehicle Lift

1. Position the hoist lift blocks (A) under the vehicle's front support points (B) and rear support points (C).



2. Raise the lift a few inches, and rock the vehicle gently to be sure it is firmly supported.

3. Raise the lift to its full height, and inspect the vehicle support points for solid contact with the lift blocks.

Safety Stands

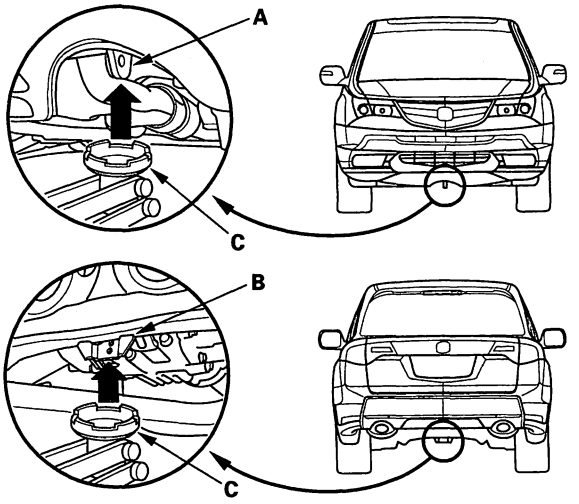
To support the vehicle on safety stands, use the same support points (B and C) as for a vehicle lift. Always use safety stands when working on or under any vehicle that is supported only by a jack.

Floor Jack

1. When lifting the front of the vehicle, set the parking brake. When lifting the rear of the vehicle, put the gearshift lever in the P position.

2. Block the wheels that are not being lifted.

3. Position the floor jack under the front jacking bracket (A) or the rear jacking bracket (B). Center the jacking bracket on the jack lift platform (C) and jack up the vehicle high enough to fit the safety stands under it.



4. Position the safety stands under the support points and adjust them so the vehicle is level.

5. Lower the vehicle onto the stands.

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Towing

If the vehicle needs to be towed, call a professional towing service. Never tow the vehicle behind another vehicle with just a rope or chain. It is very dangerous.

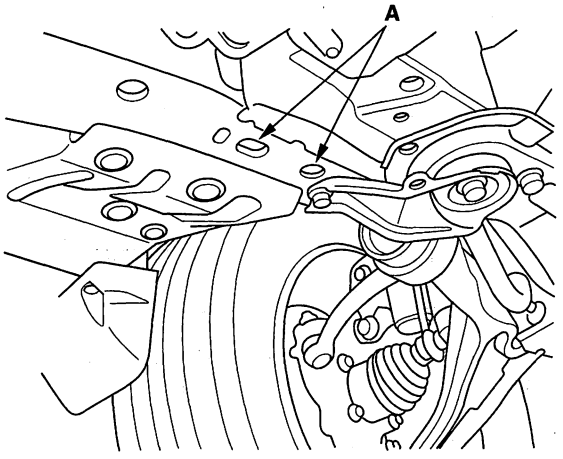
Emergency Towing
There are three popular methods of towing a vehicle.

Flat-bed Equipment — The operator loads the vehicle on the back of a truck. **This is the only way of transporting the vehicle.**

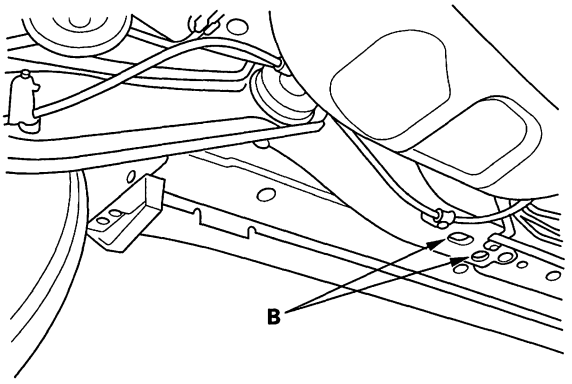
To accommodate flat-bed equipment, the vehicle is equipped with front tie down hook slots (A), and rear tie down hook slots (B).

The tie down hook slots can be used secure the vehicle to the truck.

Front:



Rear:



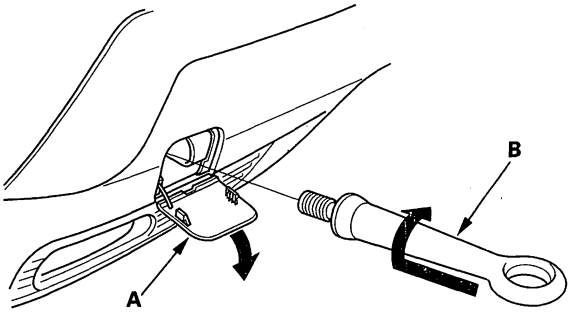
Towing Hook Installation
The detachable front towing hook is for towing very short distance, such as freeing the car. The hook mounts to the anchor in the front and rear bumper.

NOTICE

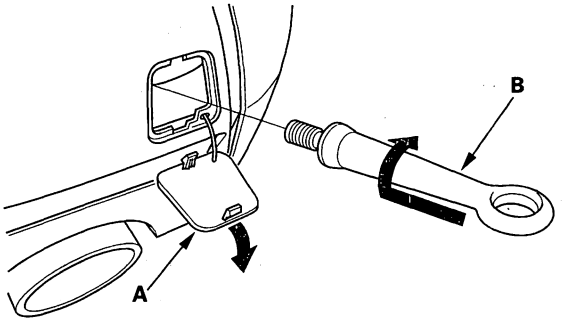
- To avoid damage to the vehicle, use the towing hook for straight flat ground towing only. Do not tow on an angle.
- The tow hook should not be used to tow the vehicle onto a flat-bed. Do not use it as a tie down.

1. Remove the cover (A) from the front bumper.

Front bumper:



Rear bumper:



2. Remove the towing hook placed behind a cover under the cargo area.

3. Screw in the towing hook (B), and tighten it securely by hand.

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Wheel Lift Equipment — The tow truck uses two pivoting arms that go under the tires (front or rear) and lift them off the ground. The other two wheels remain on the ground. **Never tow the vehicle with wheel lift equipment.**

Sling-type Equipment — The tow truck uses metal cables with hooks on the ends. These hooks go around parts of the frame or suspension, and the cables lift that end of the vehicle off the ground. The vehicle's suspension and body can be seriously damaged if this method of towing is attempted. **This method of towing the vehicle is unacceptable.**

The only recommended way of towing the vehicle is on a flat-bed truck.

NOTICE

- Towing the vehicle with only two wheels on the ground will damage parts of the SH-AWD system. If the vehicle is damaged, it should be towed on a flat-bed truck or trailer.
- Trying to lift or tow the vehicle by the bumpers will cause serious damage. The bumpers are not designed to support the vehicle's weight.

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Parts Marking

To deter vehicle theft, certain major components are marked with the vehicle identification number (VIN). Original parts have self-adhesive labels. Replacement body parts have generic self-adhesive labels. These labels should not be removed. The original engine or transmission VIN plates are not transferable to the replacement engine or transmission.

NOTE: Be careful not to damage the parts marking labels during body repair. Mask the labels before repairing the part.

Precautions for Super Handling All Wheel Drive (SH-AWD) System

This vehicle is equipped with the Super Handling All Wheel Drive (SH-AWD) system. The SH-AWD system distributes driving torque between the front and rear wheels when accelerating and when wheel spin occurs.

The SH-AWD system does not have a manual switch to disable the AWD system. Whenever service work requires spinning the front or rear wheels with the engine, always lift up and support the vehicle so all four wheels are off the ground.

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Standards and Service Limits

Engine Electrical

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition coil	Rated voltage		12 V	
	Firing order		1—4—2—5—3—6	
Spark plug	Type		NGK: IZFR6K11 DENSO: SKJ20DR-M11	
	Gap		1.0—1.1 mm (0.039—0.043 in.)	———
Ignition timing	At *idle* Check the *red* mark	In N or P position	10±2 °BTDC	
Drive belt	Tension		Auto-tensioner	
Alternator	Output	At 13.5 V and normal engine temperature	130 A	
	Coil (rotor) resistance	At 68 °F (20 °C)	2.3 –2.7 k Ω	
	Slip ring O.D.		14.2—14.4 mm (0.56—0.57 in.)	13.8 mm (0.54 in.)
	Brush length		10.5 mm (0.41 in.)	1.5 mm (0.06 in.)
	Brush spring tension		2.94—3.53 N (0.30—0.36 kgf, 0.66—0.80 lbf)	
Starter	Output		1.8 kW	
	Commutator mica depth		0.50—0.90 mm (0.020—0.035 in.)	0.20 mm (0.008 in.)
	Commutator runout		0.02 mm (0.0008 in.) max.	0.05 mm (0.002 in.)
	Commutator O.D.		28.9—29.0 mm (1.138—1.142 in.)	28.0 mm (1.102 in.)
	Brush length		15.0—16.0 mm (0.59—0.63 in.)	9.0 mm (0.35 in.)
	Brush spring tension (new)		22.3—27.3 N (2.27—2.78 kgf, 5.00—6.13 lbf)	

Engine Assembly

Item	Measurement	Qualification	Standard or New	Service Limit
Compression	Pressure	Minimum	930 kPa (9.5 kgf/cm², 144 psi)	———
	Check the engine with the starter cranking	Maximum variation	200 kPa (2.0 kgf/cm², 28 psi)	———

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Cylinder Head

Item	Measurement	Qualification	Standard or New	Service Limit
Head	Warpage		———	0.05 mm (0.002 in.)
	Height		120.95—121.05 mm (4.7618—4.7657 in.)	———
Camshaft	End play		0.05—0.20 mm (0.002—0.008 in.)	0.20 mm (0.008 in.)
	Camshaft-to-holder oil clearance		0.050—0.089 mm (0.0020—0.0035 in.)	0.15 mm (0.006 in.)
	Total runout		0.03 mm (0.001 in.) max.	0.04 mm (0.002 in.)
	Cam lobe height	Intake, primary	35.112 mm (1.3823 in.)	———
		Intake, mid	36.394 mm (1.4328 in.)	———
		Intake, secondary	35.112 mm (1.3823 in.)	———
		Exhaust	36.389 mm (1.4326 in.)	———
Valve	Clearance (cold)	Intake	0.20—0.24 mm (0.008—0.009 in.)	———
		Exhaust	0.28—0.32 mm (0.011—0.013 in.)	———
	Stem O.D.	Intake	5.485—5.495 mm (0.2159—0.2163 in.)	5.455 mm (0.2148 in.)
		Exhaust	5.450—5.460 mm (0.2146—0.2150 in.)	5.420 mm (0.2134 in.)
	Stem-to-guide clearance	Intake	0.020—0.045 mm (0.0008—0.0018 in.)	0.08 mm (0.003 in.)
		Exhaust	0.055—0.080 mm (0.0022—0.0031 in.)	0.11 mm (0.004 in.)
Valve seat	Width	Intake	1.25—1.55 mm (0.049—0.061 in.)	2.00 mm (0.079 in.)
		Exhaust	1.25—1.55 mm (0.049—0.061 in.)	2.00 mm (0.079 in.)
	Stem installed height	Intake	46.75—47.55 mm (1.841—1.872 in.)	47.80 mm (1.882 in.)
		Exhaust	46.68—47.48 mm (1.838—1.869 in.)	47.73 mm (1.879 in.)
Valve spring	Free length	Intake	51.48 mm (2.027 in.)	———
		Exhaust	51.05 mm (2.010 in.)	———
Valve guide	I.D.	Intake	5.515—5.530 mm (0.2171—0.2177 in.)	5.55 mm (0.219 in.)
		Exhaust	5.515—5.530 mm (0.2171—0.2177 in.)	5.55 mm (0.219 in.)
	Installed height	Intake	21.20—22.20 mm (0.835—0.874 in.)	———
		Exhaust	20.60—21.60 mm (0.811—0.850 in.)	———
Rocker arm	Arm-to-shaft clearance	Intake	0.026—0.067 mm (0.0010—0.0026 in.)	0.067 mm (0.0026 in.)
		Exhaust	0.026—0.077 mm (0.0010—0.0030 in.)	0.077 mm (0.0030 in.)

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Standards and Service Limits

Engine Block

Item	Measurement	Qualification	Standard or New	Service Limit
Block	Warpage of deck		0.07 mm (0.003 in.) max.	———
	Bore diameter		90.000—90.015 mm (3.5433—3.5439in.)	———
Piston	Skirt O.D. at 16.0 mm (0.63 in.) from bottom of skirt		89.893—89.996 mm (3.5426—3.5431 in.)	———
	Clearance in cylinder		0.004—0.032 mm (0.0001—0.0013 in.)	0.08 mm (0.003 in.)
	Ring groove width	Top	1.240—1.255 mm (0.0488—0.0494 in.)	1.27 mm (0.050 in.)
		Second	1.220—1.235 mm (0.0480—0.0486 in.)	1.25 mm (0.049 in.)
		Oil	2.805—2.825 mm (0.1104—0.1112 in.)	2.85 mm (0.112 in.)
Piston ring	Ring-to-groove clearance	Top	0.055—0.085 mm (0.0022—0.0033 in.)	0.15 mm (0.006 in.)
		Second	0.030—0.060 mm (0.0012—0.0024 in.)	0.13 mm (0.005 in.)
	Ring end gap	Top	0.30—0.40 mm (0.012—0.016 in.)	0.60 mm (0.024 in.)
		Second	0.40—0.55 mm (0.016—0.022 in.)	0.70 mm (0.028 in.)
		Oil	0.20—0.70 mm (0.008—0.028 in.)	0.80 mm (0.031 in.)
Piston pin	O.D.		21.962—21.965 mm (0.8646—0.8648 in.)	21.954 mm (0.8643 in.)
	Pin-to-piston clearance		−0.0050 to +0.0010 mm (−0.00020 to +0.00004 in.)	0.004 mm (0.0002 in.)
Connecting rod	Pin-to-rod clearance		0.005—0.014 mm (0.0002—0.0006 in.)	0.019 mm (0.0007 in.)
	Small-end bore diameter		21.970—21.976 mm (0.8650—0.8652 in.)	———
	Large-end bore diameter		60.0 mm (2.36 in.)	———
	End play installed on crankshaft		0.15—0.35 mm (0.006—0.014 in.)	0.45 mm (0.018 in.)
Crankshaft	Main journal diameter		71.976—72.000 mm (2.8337—2.8346 in.)	———
	Rod journal diameter		56.976—57.000 mm (2.2431—2.2441 in.)	———
	Rod/main journal taper		0.005 mm (0.0002 in.) max.	0.010 mm (0.0004 in.)
	Rod/main journal out-of-round		0.005 mm (0.0002 in.) max.	0.010 mm (0.0004 in.)
	End play		0.10—0.35 mm (0.004—0.014 in.)	0.45 mm (0.018 in.)
	Runout		0.025 mm (0.0010 in.) max.	0.030 mm (0.0012 in.)
Crankshaft bearing	Main bearing-to-journal oil clearance		0.019—0.045 mm (0.0007—0.0018 in.)	0.050 mm (0.0020 in.)
	Rod bearing clearance		0.020—0.044 mm (0.0008—0.0017 in.)	0.050 mm (0.0020 in.)

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Engine Lubrication

Item	Measurement	Qualification	Standard or New	Service Limit
Engine oil	Capacity	Engine overhaul	5.0 L (5.3 US qt)	
		Oil change, including filter	4.3 L (4.5 US qt)	
		Oil change, without filter	4.0 L (4.2 US qt)	
Oil pump	Inner-to-outer rotor clearance		0.03—0.09 mm (0.002—0.004 in.)	0.20 mm (0.008 in.)
	Pump housing-to-outer rotor clearance		0.10—0.19 mm (0.004—0.007 in.)	0.20 mm (0.008 in.)
	Pump housing-to-outer rotor axial clearance		0.02—0.07 mm (0.001—0.003 in.)	0.12 mm (0.005 in.)
	Oil pressure with oil temperature at 176 °F (80 °C)	At idle	70 kPa (0.7 kgf/cm², 10 psi)	
		At 3,000 rpm	490 kPa (5.0 kgf/cm², 71 psi)	

Cooling System

Item	Measurement	Qualification	Standard or New
Radiator	Coolant capacities (including engine, heater, hoses, and reservoir) Use Acura Long Life Antifreeze/ Coolant Type 2	Engine overhaul	9.2 L (2.43 US gal)
		Coolant change	7.3 L (1.93 US gal)
Coolant reservoir	Coolant capacity		0.7 L (0.19 US gal)
Radiator cap	Opening pressure		93—123 kPa (0.95—1.25 kgf/cm², 14—18 psi)
Thermostat	Opening temperature	Begins to open	169—176 °F (76—80 °C)
		Fully open	194 °F (90 °C)
	Valve lift at fully open		10.0 mm (0.39 in.) min.

Fuel and Emissions

Item	Measurement	Qualification	Standard or New
Fuel pressure regulator	Pressure with regulator vacuum hose disconnected		390—440 kPa (4.0—4.5 kgf/cm², 57—64 psi)
Fuel tank	Capacity		79.5 L (21.0 US gal)
Engine idle	Idle speed without load	In N or P position	710±50 rpm
	Idle speed with high electrical load (A/C switch ON, temperature set to Max Cool, blower fan on High, rear window defogger ON, and headlights on high beam)	In N or P position	710±50 rpm

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Standards and Service Limits

Automatic Transmission and A/T Differential

Item	Measurement	Qualification	Standard or New	Service Limit
Automatic transmission fluid	Capacity Use Acura ATF-Z1	Fluid change	2.8 L (3.0 US qt)	
		Overhaul	7.9 L (8.3 US qt)	
ATF pressure	Line pressure	At 2,000 rpm in N or P position	960—1,050 kPa (9.8—10.7 kgf/cm², 139—152 psi)	910 kPa (9.3 kgf/cm², 132 psi)
	5th clutch pressure	At 2,000 rpm in D position	920—1,000 kPa (9.4—10.1 kgf/cm², 133—145 psi)	870 kPa (8.9 kgf/cm², 126 psi)
	4th clutch pressure	At 2,000 rpm in D position	930—1,010 kPa (9.5—10.3 kgf/cm², 135—147 psi)	880 kPa (9.0 kgf/cm², 128 psi)
	3rd clutch pressure	At 2,000 rpm in D position	930—1,010 kPa (9.5—10.3 kgf/cm², 135—147 psi)	880 kPa (9.0 kgf/cm², 128 psi)
	2nd clutch pressure	At 2,000 rpm in M position 2nd gear	930—1,010 kPa (9.5—10.3 kgf/cm², 135—147 psi)	880 kPa (9.0 kgf/cm², 128 psi)
	1st clutch pressure	At 2,000 rpm in M position 1st gear	930—1,010 kPa (9.5—10.3 kgf/cm², 135—147 psi)	880 kPa (9.0 kgf/cm², 128 psi)
	1st-hold clutch pressure	At 2,000 rpm in M position 1st gear	750—840 kPa (7.6—8.6 kgf/cm², 109—122 psi)	700 kPa (7.1 kgf/cm², 102 psi)
Torque converter	Stall speed Check with vehicle on level ground		1,950 rpm	1,800—2,100 rpm
Clutch	Clutch end-plate-to-top-disc clearance	1st	———	1.15—1.35 mm (0.045—0.053 in.)
		2nd	———	1.05—1.25 mm (0.041—0.049 in.)
		3rd	———	0.9—1.1 mm (0.035—0.043 in.)
		4th	———	0.75—0.95 mm (0.030—0.037 in.)
		5th	———	0.75—0.95 mm (0.030—0.037 in.)
		1st-hold	———	0.6—1.0 mm (0.024—0.039 in.)
	Clutch return spring free length	1st	68.3 mm (2.69 in.)	66.3 mm (2.61 in.)
		2nd	48.3 mm (1.90 in.)	46.3 mm (1.82 in.)
		3rd	52.0 mm (2.05 in.)	50.0 mm (1.97 in.)
		4th	37.4 mm (1.47 in.)	35.5 mm (1.39 in.)
		5th	53.7 mm (2.11 in.)	51.7 mm (2.64 in.)
	Clutch disc thickness		1.94 mm (0.076 in.)	———
	Clutch plate thickness	1st	1.6 mm (0.06 in.)	When discolored
		2nd	1.8 mm (0.07 in.)	When discolored
		3rd	1.8 mm (0.07 in.)	When discolored
		4th	1.6 mm (0.06 in.)	When discolored
		5th	1.6 mm (0.06 in.)	When discolored
		1st-hold	1.8 mm (0.07 in.)	When discolored
	1st clutch end-plate thickness	Mark 1	3.1 mm (0.122 in.)	When discolored
		Mark 2	3.2 mm (0.126 in.)	When discolored
		Mark 3	3.3 mm (0.130 in.)	When discolored
		Mark 4	3.4 mm (0.134 in.)	When discolored
		Mark 5	3.5 mm (0.138 in.)	When discolored
		Mark 6	3.6 mm (0.142 in.)	When discolored
		Mark 7	3.7 mm (0.146 in.)	When discolored
		Mark 8	3.8 mm (0.150 in.)	When discolored
		Mark 9	3.9 mm (0.154 in.)	When discolored
	1st-hold clutch plate B thickness		5.0 mm (0.197 in.)	When discolored

BACK

Protected by AR

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch (cont'd)	2nd, 3rd, 4th, and 5th clutch end plate thickness	Mark 1	2.1 mm (0.083 in.)	When discolored
		Mark 2	2.2 mm (0.087 in.)	When discolored
		Mark 3	2.3 mm (0.091 in.)	When discolored
		Mark 4	2.4 mm (0.094 in.)	When discolored
		Mark 5	2.5 mm (0.098 in.)	When discolored
		Mark 6	2.6 mm (0.102 in.)	When discolored
		Mark 7	2.7 mm (0.106 in.)	When discolored
		Mark 8	2.8 mm (0.110 in.)	When discolored
		Mark 9	2.9 mm (0.114 in.)	When discolored
Stator shaft	I.D. at needle bearing contact area	Torque converter side	27.000—27.021 mm (1.063—1.064 in.)	When worn or damaged
		ATF pump side	31.000—31.025 mm (1.220—1.221 in.)	———
	I.D. at mainshaft sealing ring contact area		31.000—31.025 mm (1.220—1.221 in.)	31.05 mm (1.222 in.)
ATF pump	Gear-to-body thrust clearance		0.03—0.06 mm (0.001—0.002 in.)	0.07 mm (0.003 in.)
	Gear-to-body clearance	Drive gear	0.210—0.265 mm (0.008—0.010 in.)	———
		Driven gear	0.070—0.125 mm (0.003—0.005 in.)	———
	Driven gear I.D.		14.016—14.034 mm (0.5518—0.5525 in.)	When worn or damaged
	Driven gear shaft O.D.		13.980—13.990 mm (0.5504—0.5508 in.)	When worn or damaged
Reverse shift fork	Fork finger thickness		5.90—6.00 mm (0.220—0.236 in.)	5.4 mm (0.213 in.)
Park gear and pawl	———		———	When worn or damaged
Regulator valve body	Shift fork shaft bore I.D.		14.000—14.010 mm (0.5512—0.5516 in.)	———
	Shift fork shaft/servo valve bore I.D.		37.000—37.039 mm (1.4567—1.4582 in.)	37.045 mm (1.4585 in.)
	Mainshaft sealing ring contact I.D.		31.000—31.025 mm (1.220—1.221 in.)	31.05 mm (1.222 in.)
Main valve body	Intermediary shaft sealing ring contact I.D.		35.000—35.025 mm (1.3780—1.3789 in.)	35.05 mm (1.3799 in.)
ATF guide collar	Secondary shaft sealing ring contact I.D.		29.000—29.021 mm (1.1417—1.1426 in.)	29.05 mm (1.1437 in.)
Mainshaft	Diameter at stator shaft needle bearing contact area		22.984—23.000 mm (0.9049—0.9055 in.)	When worn or damaged
	5th gear collar diameter at needle bearing contact area		39.981—39.991 mm (1.5741—1.5744 in.)	When worn or damaged
	5th gear collar length		48.7—48.8 mm (1.917—1.921 in.)	———
	5th gear collar flange thickness		4.5—4.7 mm (0.177—0.185 in.)	When worn or damaged
	5th gear I.D.		46.000—46.016 mm (1.8110—1.8116 in.)	When worn or damaged
	5th gear axial clearance		0.10—0.22 mm (0.004—0.009 in.)	———
	Sealing ring thickness		1.90—1.96 mm (0.074—0.077 in.)	1.85 mm (0.073 in.)
	Sealing ring groove width		2.025—2.060 mm (0.080—0.081 in.)	2.08 mm (0.082 in.)

(cont'd)

Protected by AR

Standards and Service Limits

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter at bearing contact area	Torque converter housing bearing	40.505—40.515 mm (1.5947—1.5951 in.)	When worn or damaged
		5th gear	34.975—34.991 mm (1.3770—1.3776 in.)	When worn or damaged
	Diameter of 2nd gear at needle bearing contact area		61.975—61.991 mm (2.2400—2.2406 in.)	When worn or damaged
	Reverse gear collar O.D.		39.979—40.000 mm (1.5740—1.5748 in.)	When worn or damaged
	Reverse selector hub O.D.		55.885—55.900 mm (2.200—2.201 in.)	When worn or damaged
	Cotter thickness	4th gear	1.99—2.02 mm (0.078—0.080 in.)	———
		2nd gear	7.74—7.52 mm (0.295—0.296 in.)	———
	I.D. of gears	5th gear	41.000—41.016 mm (1.6142—1.6148 in.)	When worn or damaged
		Idler gear	70.000—70.019 mm (2.7559—2.7567 in.)	When worn or damaged
		Reverse gear	46.000—46.016 mm (1.8110—1.8116 in.)	When worn or damaged
	Axial clearance of gears	2nd gear	0.005—0.040 mm (0.0002—0.0016 in.)	———
		5th gear	0.12—0.27 mm (0.0047—0.0106 in.)	———
		Idler gear	0.005—0.040 mm (0.0002—0.0016 in.)	———
		Reverse gear	0.10—0.25 mm (0.0039—0.0098 in.)	———
	61 mm washer thickness	A	1.525 mm (0.0600 in.)	When worn or damaged
		B	1.505 mm (0.0593 in.)	When worn or damaged
		C	1.485 mm (0.0585 in.)	When worn or damaged
		D	1.465 mm (0.0577 in.)	When worn or damaged
		E	1.445 mm (0.0569 in.)	When worn or damaged
		F	1.425 mm (0.0561 in.)	When worn or damaged
		G	1.405 mm (0.0553 in.)	When worn or damaged
	50.8 mm washer thickness	A	1.91 mm (0.0752 in.)	When worn or damaged
		B	1.93 mm (0.0760 in.)	When worn or damaged
		C	1.95 mm (0.0768 in.)	When worn or damaged
		D	1.97 mm (0.0776 in.)	When worn or damaged
		E	1.99 mm (0.0783 in.)	When worn or damaged
		F	2.01 mm (0.0791 in.)	When worn or damaged
		G	2.03 mm (0.0799 in.)	When worn or damaged
		H	2.05 mm (0.0807 in.)	When worn or damaged
		I	2.07 mm (0.0815 in.)	When worn or damaged
		J	2.09 mm (0.0823 in.)	When worn or damaged
		K	2.11 mm (0.0831 in.)	When worn or damaged
		L	2.13 mm (0.0839 in.)	When worn or damaged
		M	2.15 mm (0.0846 in.)	When worn or damaged
		N	2.17 mm (0.0854 in.)	When worn or damaged
		O	2.19 mm (0.0862 in.)	When worn or damaged
		P	2.21 mm (0.0870 in.)	When worn or damaged
		Q	2.23 mm (0.0878 in.)	When worn or damaged
		R	2.25 mm (0.0886 in.)	When worn or damaged
		S	2.27 mm (0.0894 in.)	When worn or damaged
		T	2.29 mm (0.0902 in.)	When worn or damaged
		U	2.31 mm (0.0909 in.)	When worn or damaged
		V	2.33 mm (0.0917 in.)	When worn or damaged
		W	2.35 mm (0.0925 in.)	When worn or damaged
		X	2.37 mm (0.0933 in.)	When worn or damaged
		Y	2.39 mm (0.0941 in.)	When worn or damaged
		Z	2.41 mm (0.0949 in.)	When worn or damaged
		AA	2.43 mm (0.0957 in.)	When worn or damaged
		AB	2.45 mm (0.0965 in.)	When worn or damaged
	35 x 47 mm thrust washer thickness		5.97—6.00 mm (0.2350—0.2362 in.)	When worn or damaged

BACK

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Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft	Diameter at bearing contact area	2nd gear	43.986—43.999 mm (1.7317—1.7322 in.)	When worn or damaged
		Torque converter housing bearing	32.002—32.015 mm (1.2599—1.2604 in.)	When worn or damaged
		Torque converter housing bearing (shaft end side)	28.592—28.608 mm (1.1257—1.1263 in.)	When worn or damaged
	Diameter of 1st gear collar at needle bearing contact area		38.975—38.991 mm (1.5344—1.5351 in.)	When worn or damaged
	I.D. of gears	1st gear	44.000—44.013 mm (1.7323—1.7328 in.)	When worn or damaged
		2nd gear	50.00—50.02 mm (1.9685—1.9693 in.)	When worn or damaged
	Axial clearance of gears	1st gear	0.100—0.145 mm (0.004—0.006 in.)	———
		2nd gear	0.060—0.228 mm (0.0024—0.0090 in.)	———
	52 mm thrust washer thickness	M	2.405 mm (0.095 in.)	When worn or damaged
		L	2.430 mm (0.096 in.)	When worn or damaged
		K	2.455 mm (0.097 in.)	When worn or damaged
		J	2.480 mm (0.098 in.)	When worn or damaged
		I	2.505 mm (0.099 in.)	When worn or damaged
		H	2.530 mm (0.100 in.)	When worn or damaged
		G	2.555 mm (0.101 in.)	When worn or damaged
		F	2.580 mm (0.102 in.)	When worn or damaged
		E	2.605 mm (0.103 in.)	When worn or damaged
		D	2.630 mm (0.104 in.)	When worn or damaged
		C	2.655 mm (0.105 in.)	When worn or damaged
		B	2.680 mm (0.106 in.)	When worn or damaged
		A	2.705 mm (0.106 in.)	When worn or damaged
	1st gear collar length		63.3—63.4 mm (2.4921—2.4961 in.)	———
	Sealing ring thickness		1.91—1.97 mm (0.075—0.078 in.)	1.86 mm (0.073 in.)
	Sealing ring groove width		2.025—2.060 mm (0.080—0.081 in.)	2.08 mm (0.082 in.)
	ATF feed pipe O.D.	1st clutch	11.47—11.48 mm (0.4516—0.4520 in.)	11.45 mm (0.4508 in.)
		1st-hold clutch	5.97—5.98 mm (0.2350—0.2354 in.)	5.95 mm (0.2343 in.)
	Feed pipe bushing I.D.	1st clutch	11.518—11.530 mm (0.4535—0.4539 in.)	11.545 mm (0.4545 in.)
		1st-hold clutch	6.018—6.030 mm (0.2369—0.2374 in.)	6.045 mm (0.2380 in.)

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Protected by AR

Standards and Service Limits

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft (cont'd)	65 mm thrust shim thickness	0A	0.80 mm (0.031 in.)	When worn or damaged
		A	0.84 mm (0.033 in.)	When worn or damaged
		B	0.88 mm (0.035 in.)	When worn or damaged
		C	0.92 mm (0.036 in.)	When worn or damaged
		D	0.96 mm (0.038 in.)	When worn or damaged
		E	1.00 mm (0.039 in.)	When worn or damaged
		F	1.04 mm (0.041 in.)	When worn or damaged
		G	1.08 mm (0.043 in.)	When worn or damaged
		H	1.12 mm (0.044 in.)	When worn or damaged
		I	1.16 mm (0.046 in.)	When worn or damaged
		J	1.20 mm (0.047 in.)	When worn or damaged
		K	1.24 mm (0.049 in.)	When worn or damaged
		L	1.28 mm (0.050 in.)	When worn or damaged
		M	1.32 mm (0.052 in.)	When worn or damaged
		N	1.36 mm (0.054 in.)	When worn or damaged
		O	1.40 mm (0.055 in.)	When worn or damaged
		P	1.44 mm (0.057 in.)	When worn or damaged
		Q	1.48 mm (0.058 in.)	When worn or damaged
		R	1.52 mm (0.060 in.)	When worn or damaged
		S	1.56 mm (0.061 in.)	When worn or damaged
		T	1.60 mm (0.063 in.)	When worn or damaged
		U	1.64 mm (0.065 in.)	When worn or damaged
		V	1.68 mm (0.066 in.)	When worn or damaged
		W	1.72 mm (0.068 in.)	When worn or damaged
		X	1.76 mm (0.069 in.)	When worn or damaged
		Y	1.80 mm (0.071 in.)	When worn or damaged
		Z	1.84 mm (0.072 in.)	When worn or damaged
		AA	1.88 mm (0.074 in.)	When worn or damaged
		AB	1.92 mm (0.076 in.)	When worn or damaged
		AC	1.96 mm (0.077 in.)	When worn or damaged
		AD	2.00 mm (0.079 in.)	When worn or damaged
		AE	2.04 mm (0.080 in.)	When worn or damaged
		AF	2.08 mm (0.082 in.)	When worn or damaged
		AG	2.12 mm (0.083 in.)	When worn or damaged
		AH	2.16 mm (0.085 in.)	When worn or damaged
		AI	2.20 mm (0.087 in.)	When worn or damaged
		AJ	2.24 mm (0.088 in.)	When worn or damaged
		AK	2.28 mm (0.090 in.)	When worn or damaged
		AL	2.32 mm (0.091 in.)	When worn or damaged

BACK

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Item	Measurement	Qualification	Standard or New	Service Limit
Intermediary shaft	I.D. of 3rd gear		36.000—36.016 mm (1.4173—1.4179 in.)	When worn or damaged
	Axial clearance of 3rd gear		0.005—0.045 mm (0.0002—0.0018 in.)	———
	Cotter thickness		2.99—3.02 mm (0.1177—0.1189 in.)	———
	Sealing ring thickness		1.89—1.95 mm (0.0744—0.0768 in.)	1.84 mm (0.0724 in.)
	Sealing ring groove width		2.025—2.060 mm (0.080—0.081 in.)	2.08 mm (0.082 in.)
	53 mm splined washer thickness	A	3.995 mm (0.1573 in.)	When worn or damaged
		B	4.015 mm (0.1581 in.)	When worn or damaged
		C	4.035 mm (0.1589 in.)	When worn or damaged
		D	4.055 mm (0.1596 in.)	When worn or damaged
		E	4.075 mm (0.1604 in.)	When worn or damaged
		F	4.095 mm (0.1612 in.)	When worn or damaged
		G	4.115 mm (0.1620 in.)	When worn or damaged
		H	4.135 mm (0.1628 in.)	When worn or damaged
		I	4.155 mm (0.1636 in.)	When worn or damaged
		J	4.175 mm (0.1644 in.)	When worn or damaged
		K	4.195 mm (0.1652 in.)	When worn or damaged
		L	4.215 mm (0.1659 in.)	When worn or damaged
		M	4.235 mm (0.1667 in.)	When worn or damaged
		N	4.255 mm (0.1675 in.)	When worn or damaged
	26.5 mm washer thickness	A	1.05 mm (0.041 in.)	When worn or damaged
		B	1.13 mm (0.044 in.)	When worn or damaged
		C	1.21 mm (0.048 in.)	When worn or damaged
		D	1.29 mm (0.051 in.)	When worn or damaged
		E	1.37 mm (0.054 in.)	When worn or damaged
		F	1.45 mm (0.057 in.)	When worn or damaged
		G	1.53 mm (0.060 in.)	When worn or damaged
		H	1.61 mm (0.063 in.)	When worn or damaged
		I	1.69 mm (0.067 in.)	When worn or damaged
		J	1.77 mm (0.070 in.)	When worn or damaged
		K	1.85 mm (0.073 in.)	When worn or damaged
		L	1.93 mm (0.076 in.)	When worn or damaged
		M	2.01 mm (0.079 in.)	When worn or damaged
		N	2.09 mm (0.082 in.)	When worn or damaged
Reverse idler gear	Gear shaft O.D.		13.99—14.00 mm (0.5508—0.5512 in.)	When worn or damaged
	I.D. of transmission housing of gear shaft contact area		14.006—14.024 mm (0.5514—0.5521 in.)	———
	I.D.		18.007—18.020 mm (0.7089—0.7094 in.)	When worn or damaged
	Axial clearance		0.07—0.38 mm (0.003—0.015 in.)	———
	Thrust washer thickness	Transmission housing	0.97—1.05 mm (0.038—0.041 in.)	———
		Holder side	0.97—1.05 mm (0.038—0.041 in.)	———

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Standards and Service Limits

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coil
Main valve body spring (see page 14-347)	Torque converter check valve spring		1.1 mm (0.043 in.)	8.6 mm (0.339 in.)	35.0 mm (1.378 in.)	12.6
	Lock-up shift valve spring		1.0 mm (0.039 in.)	6.6 mm (0.260 in.)	35.5 mm (1.398 in.)	18.2
	Shift valve E spring		0.7 mm (0.028 in.)	6.6 mm (0.260 in.)	42.4 mm (1.669 in.)	17.6
	Shift valve A spring		0.9 mm (0.035 in.)	6.6 mm (0.260 in.)	50.5 mm (1.988 in.)	23.3
	Shift valve B spring		0.8 mm (0.031 in.)	6.6 mm (0.260 in.)	49.1 mm (1.933 in.)	21.7
	Modulator valve spring		1.6 mm (0.063 in.)	10.4 mm (0.409 in.)	33.5 mm (1.319 in.)	9.8
	CPC valve A spring		0.7 mm (0.028 in.)	6.1 mm (0.240 in.)	17.8 mm (0.701 in.)	7.9
	Servo control valve spring		0.9 mm (0.035 in.)	9.6 mm (0.378 in.)	30.2 mm (1.189 in.)	8.4
	Lubrication control valve spring		0.9 mm (0.035 in.)	8.7 mm (0.343 in.)	25.0 mm (0.984 in.)	7.2
	Lock-up timing valve spring		0.6 mm (0.024 in.)	6.6 mm (0.260 in.)	30.8 mm (1.213 in.)	11.1
	Relief valve spring		1.0 mm (0.039 in.)	9.6 mm (0.378 in.)	28.1 mm (1.106 in.)	7.7
Secondary valve body spring (see page 14-349)	CPC valve C spring		0.7 mm (0.028 in.)	6.1 mm (0.240 in.)	17.8 mm (0.701 in.)	7.9
	Shift valve D spring		0.7 mm (0.028 in.)	6.6 mm (0.260 in.)	42.4 mm (1.669 in.)	17.6
	Reverse CPC valve spring		0.8 mm (0.031 in.)	6.1 mm (0.240 in.)	24.4 mm (0.961 in.)	14.6
	Shift valve C spring		0.8 mm (0.031 in.)	6.6 mm (0.260 in.)	49.1 mm (1.933 in.)	21.7
	CPC valve B spring		0.7 mm (0.028 in.)	6.1 mm (0.240 in.)	17.8 mm (0.701 in.)	7.9
	Reverse control valve spring		0.8 mm (0.031 in.)	6.6 mm (0.260 in.)	49.1 mm (1.933 in.)	21.7
Regulator valve body spring (see page 14-350)	3rd accumulator spring		3.1 mm (0.122 in.)	19.6 mm (0.772 in.)	41.4 mm (1.630 in.)	5.5
	Coolant check valve spring		0.9 mm (0.035 in.)	6.7 mm (0.264 in.)	31.5 mm (1.240 in.)	14.2
	Lock-up control valve spring		0.7 mm (0.028 in.)	6.6 mm (0.260 in.)	42.9 mm (1.689 in.)	14.2
			0.8 mm (0.031 in.)	6.6 mm (0.260 in.)	44.3 mm (1.744 in.)	25.5
	Regulator valve spring B		1.4 mm (0.055 in.)	8.8 mm (0.346 in.)	44.0 mm (1.732 in.)	12.0
	Regulator valve spring A		1.85 mm (0.073 in.)	14.7 mm (0.579 in.)	86.9 mm (3.421 in.)	16.2
	Stator reaction spring		5.5 mm (0.217 in.)	37.4 mm (1.472 in.)	30.3 mm (1.193 in.)	2.1

BACK

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Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coil
Accumulator body spring (see page 14-351)	4th accumulator spring		3.3 mm (0.130 in.)	19.6 mm (0.772 in.)	39.1 mm (1.539 in.)	5.8
	2nd accumulator spring		3.1 mm (0.122 in.)	19.6 mm (0.772 in.)	53.4 mm (2.102 in.)	7.5
	1st accumulator spring A		2.3 mm (0.091 in.)	19.6 mm (0.772 in.)	60.8 mm (2.394 in.)	9.7
	1st accumulator spring B		2.5 mm (0.098 in.)	12.8 mm (0.504 in.)	46.0 mm (1.811 in.)	9.5
	5th accumulator spring A		2.4 mm (0.094 in.)	19.6 mm (0.772 in.)	65.5 mm (2.579 in.)	12.0
	5th accumulator spring B		2.4 mm (0.094 in.)	13.2 mm (0.520 in.)	50.5 mm (1.988 in.)	10.1
	1st-hold accumulator spring		2.0 mm (0.079 in.)	13.1 mm (0.516 in.)	42.9 mm (1.689 in.)	9.8

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential carrier	Pinion shaft contact area I.D.		18.000—18.025 mm (0.7087—0.7096 in.)	———
	Carrier-to-pinion shaft clearance		0.013—0.054 mm (0.0005—0.0021 in.)	0.1 mm (0.004 in.)
	Driveshaft contact area I.D.		30.025—30.055 mm (1.182—1.183 in.)	———
	Carrier-to-driveshaft clearance		0.045—0.096 mm (0.002—0.004 in.)	0.13 mm (0.005 in.)
	Carrier-to-intermediate shaft clearance		0.080—0.126 mm (0.003—0.005 in.)	———
	Tapered roller bearing starting torque (preload)	For new bearing	3.9—5.1 N·m (40—52 kgf·cm, 35—45 lbf·in.)	Adjust
		For used bearing	3.6—4.8 N·m (37—49 kgf·cm, 32—43 lbf·in.)	Adjust
A/T differential pinion gear	Backlash		0.05—0.15 mm (0.002—0.006 in.)	———
	I.D.		18.042—18.066 mm (0.7103—0.7113 in.)	———
	Pinion gear-to-pinion shaft clearance		0.055—0.095 mm (0.0022—0.0037 in.)	0.12 mm (0.005 in.)

(cont'd)

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Standards and Service Limits

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Transfer output shaft	Diameter at bearing contact area	Transmission housing side	21.977—21.990 mm (0.8652—0.8657 in.)	21.92 mm (0.8630 in.)
		Torque converter housing side	40.002—40.018 mm (1.5749—1.5755 in.)	39.95 mm (1.5728 in.)
	Axial clearance		0—0.39 mm (0—0.015 in.)	———
	28.5 mm thrust washer thickness	A	1.82 mm (0.0717 in.)	When worn or damaged
		B	1.84 mm (0.0724 in.)	When worn or damaged
		C	1.86 mm (0.0732 in.)	When worn or damaged
		D	1.88 mm (0.0740 in.)	When worn or damaged
		E	1.90 mm (0.0748 in.)	When worn or damaged
		F	1.92 mm (0.0756 in.)	When worn or damaged
		G	1.94 mm (0.0764 in.)	When worn or damaged
		H	1.96 mm (0.0772 in.)	When worn or damaged
		I	1.98 mm (0.0780 in.)	When worn or damaged
		J	2.00 mm (0.0787 in.)	When worn or damaged
		K	2.02 mm (0.0795 in.)	When worn or damaged
		L	2.04 mm (0.0803 in.)	When worn or damaged
		M	2.06 mm (0.0811 in.)	When worn or damaged
		N	2.08 mm (0.0819 in.)	When worn or damaged
		O	2.10 mm (0.0827 in.)	When worn or damaged
		P	2.12 mm (0.0835 in.)	When worn or damaged
		Q	2.14 mm (0.0843 in.)	When worn or damaged
		R	2.16 mm (0.0850 in.)	When worn or damaged
		S	2.18 mm (0.0858 in.)	When worn or damaged
		T	2.20 mm (0.0866 in.)	When worn or damaged
		U	2.22 mm (0.0874 in.)	When worn or damaged
		V	2.24 mm (0.0882 in.)	When worn or damaged
		W	2.26 mm (0.0890 in.)	When worn or damaged
		X	2.28 mm (0.0898 in.)	When worn or damaged
		Y	2.30 mm (0.0906 in.)	When worn or damaged
		Z	2.32 mm (0.0913 in.)	When worn or damaged
		AA	2.34 mm (0.0921 in.)	When worn or damaged
Transfer assembly fluid	Capacity Hypoid gear oil SAE 90 or SAE 80W-90 viscosity, API classified GL4 or GL5 only	Fluid change	0.43 L (0.45 us qt)	
		Overhaul	0.45 L (0.48 us qt)	
Transfer assembly	Diameter of transfer hypoid drive gear/shaft assembly at tapered roller bearing contact area	Transfer cover side	50.002—50.018 mm (1.9686—1.9692 in.)	49.95 mm (1.9665 in.)
		Transfer gear side	24.987—25.000 mm (0.9837—0.9843 in.)	24.93 mm (0.9815 in.)
	Diameter of transfer output shaft (hypoid gear) at tapered roller bearing contact area	Transfer gear side	40.002—40.018 mm (1.5749—1.5755 in.)	39.95 mm (1.5728 in.)
		Companion flange side	31.975—31.988 mm (1.2589—1.2594 in.)	31.92 mm (1.2567 in.)
	Transfer gear backlash		0.06—0.16 mm (0.002—0.006 in.)	Adjust
	Tapered roller bearing total starting torque (preload)		2.64—4.23 N·m (26.9—43.1 kgf·cm, 23.3—37.4 lbf·in.)	Adjust

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Rear Differential

Item	Measurement	Qualification	Standard or New
Rear differential fluid	Capacity	Fluid change	2.53 L (2.67 US qt)
	Use Acura ATF-Z1	Overhaul	2.77 L (2.93 US qt)

Steering

Item	Measurement	Qualification	Standard or New	Service Limit
Steering wheel	Rotational play measured at outside edge with engine running		0—10 mm (0—0.39 in.)	———
	Starting load measured at outside edge with engine running		29 N (3.0 kgf, 6.6 lbf)	If higher, check gearbox and pump
Gearbox	Angle of rack guide screw loosened from locked position		15±5 °	
Pump	Output pressure with shut-off valve closed		8,920—9,420 kPa (91—96 kgf/cm², 1,290—1,370 psi)	
Power steering fluid	Capacity Use Acura Power Steering Fluid	Reservoir capacity	0.34 L (0.36 US qt)	
		System overhaul	1.03 L (1.09 US qt)	

Suspension

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel alignment	Camber	Front	−0 °30 ′±1 °	
		Rear	−0 °30 ′±45 ′	
	Caster	Front	4 °12 ′±35 ′	
	Total Toe-in	Front	0±2 mm (0±0.08 in.)	
		Rear	2±2 mm (0.08±0.08 in.)	
	Front wheel turning angle	Inside wheel	38 °12 ′±2°	
		Outside wheel	31 °44 ′ (Reference)	
Aluminum wheel	Runout	Axial	0—0.3 mm (0—0.01 in.)	2.0 mm (0.08 in.)
		Radial	0—0.3 mm (0—0.01 in.)	1.5 mm (0.06 in.)
Wheel bearing	End play	Front	0—0.05 mm (0—0.002 in.)	
		Rear	0—0.05 mm (0—0.002 in.)	

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Standards and Service Limits

Brakes

Item	Measurement	Qualification	Standard or New	Service Limit
Parking brake	Number of clicks when pedal pressed with 294 N (30 kgf, 66 lbf) of force (reference)		9 to 11 clicks	
	Drum I.D		210.0—210.1 mm (8.268—8.272 in.)	211.0 mm (8.307 in.)
	Shoe lining thickness		3.9 mm (0.15 in.)	1.0 mm (0.04 in.)
Brake pedal	Pedal height (carpet removed)		178 mm (7 in.)	
	Free play		1—5 mm (0.04—0.20 in.)	
Master cylinder	Piston-to pushrod clearance		0 mm (0 in.)	
Brake disc	Thickness	Front	27.9—28.1 mm (1.10—1.11 in.)	26.0 mm (1.02 in.)
		Rear	10.9—11.1 mm (0.43—0.44 in.)	9.0 mm (0.35 in.)
	Runout		———	0.04 mm (0.0016 in.)
	Parallelism		———	0.015 mm (0.0006 in.)
Brake pad	Thickness	Front	10.6—11.2 mm (0.42—0.44 in.)	1.6 mm (0.06 in.)
		Rear	9.6—10.2 mm (0.38—0.40 in.)	1.6 mm (0.06 in.)

Air Conditioning

Item	Measurement	Qualification	Standard or New
Refrigerant	Type		HFC-134a (R-134a)
	Capacity of system	Dual	600—650 g (20.3—22.0 oz)
Refrigerant oil	Type		DENSO ND-OIL 8 (P/N 38897-PR7-A01AH or 38899-PR7-A01)
	Capacity of components	Condenser	35 mL (1 1/6 fl·oz)
		Evaporator (front)	40 mL (1 1/3 fl·oz)
		Evaporator (rear)	30 mL (1 fl·oz)
		Each line and hose	10 mL (1/3 fl·oz)
		Compressor	125—137 mL (4 2/9—4 5/8 fl·oz)
Compressor (DENSO)	Field coil resistance	At 68 °F (20 °C)	3.9 —4.3 Ω
	Pulley-to-pressure plate clearance		0.35—0.60 mm (0.014—0.024 in.)

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Design Specifications

Item	Measurement	Qualification	Specification
DIMENSIONS	Overall length		4,844 mm (190.7 in.)
	Overall width		1,954 mm (77.0 in.)
	Overall height		1,733 mm (68.2 in.)
	Wheelbase		2,750 mm (108.3 in.)
	Track	Front	1,720 mm (67.7 in.)
		Rear	1,715 mm (67.5 in.)
	Ground clearance		207 mm (8.15 in.)
	Seating capacity		Seven (7)
WEIGHT (USA)	Gross Vehicle Weight Rating (GVWR)		5,292 lbs
WEIGHT (CANADA)	Gross Vehicle Weight Rating (GVWR)		2,700 kg
ENGINE	Type		Water-cooled, 4-stroke SOHC VTEC V6 gasoline engine
	Cylinder arrangement		60 °V6-cylinder, transverse
	Bore and stroke		90.0 x 96.0 mm (3.54 x 3.78 in.)
	Displacement		3,664 cm^3 (mL) (224 cu in.)
	Compression ratio		11.0
	Valve train		Belt driven, SOHC VTEC 4 valves per cylinder
	Ignition system		DLI (Distributorless Ignition)
	Lubrication system		Forced, wet sump, with trochoid pump
	Oil pump displacement	At 6,000 rpm	58.4 L (61.7 US qt)/minute
	Water pump displacement	At 6,000 rpm	172 L (182 US qt)/minute
	Fuel required		Premium UNLEADED gasoline with 91 Pump Octane Number or higher
STARTER	Type		Gear reduction
	Normal output		1.8 kW
	Nominal voltage		12 V
	Hour rating		30 seconds
	Direction of rotation		Counterclockwise as viewed from gear end
AUTOMATIC TRANSMISSION	Type	BYFA	Electronically-controlled automatic, 5-speed forward, 1 reverse
	Primary reduction		Direct 1:1
	Gear ratio	1st	2.697
		2nd	1.606
		3rd	1.071
		4th	0.766
		5th	0.538
		Reverse	1.888
	Final reduction	Type	Single helical gear
		Gear ratio	4.533

(cont'd)

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Design Specifications

Item	Measurement	Qualification	Specification
STEERING	Type		Hydraulic power-assisted rack and pinion
	Gear ratio		47.4
	Overall ratio		17.0
	Turns, lock-to-lock		3.29
	Steering wheel diameter		380 mm (15.0 in.)
SUSPENSION	Type	Front	Independent strut with stabilizer, coil spring
		Rear	Independent multi-link with trailing arm, stabilizer, coil spring
	Shock absorber front and rear	Without active damper system	Telescopic, hydraulic, nitrogen gas-filled
		With active damper system	Magent rheological variable active damper
TIRES	Size of front and rear tires		P255/55R18 104H
	Size of spare tire		T165/80D17 104M
WHEEL ALIGNMENT	Camber	Front	−0 °30 ′
		Rear	−0 °30 ′
	Caster	Front	4 °12 ′
	Total Toe-in	Front	0 mm (0 in.)
		Rear	2 mm (0.08 in.)
	Front wheel turning angle	Inside wheel	38 °12 ′
		Outside wheel	31 °44 ′
	SAI at camber (kingpin axis)		12 °48 ′
BRAKES	Type of service brake	Front	Power-assisted self-adjusting ventilated disc
		Rear	Power-assisted self-adjusting solid disc
	Type of parking brake		Foot type mechanical actuating, rear wheels
	Pad friction surface area (swept area)	Front	63.5 cm^2 (9.84 sq in.) x2
		Rear	25.3 cm^2 (3.92 sq in.) x2
	Parking brake shoe friction surface area		60.2 cm^2 (9.33 sq in.) x2
AIR CONDITIONING	Cooling capacity	Front	3,506 kcal/h (13,910 BTU/h)
		Rear	1,728 kcal/h (6,860 BTU/h)
	Compressor	Type/Manufacturer	Swash plate/DENSO
		Number of cylinders	10
		Capacity	177 mL/rev. (10.8 cu in./rev.)
		Maximum speed	8,400 rpm
		Lubricant capacity	125 mL (4 2/9 fl·oz)
		Lubricant type	ND-OIL 8 (DENSO)
	Condenser	Type	Corrugated fin
	Evaporator	Type	Corrugated fin
	Blower	Type	Stabilized swirling flow
		Motor input (Front)	245 W/12 V
		Motor input (Rear)	115 W/12 V
		Speed control (Front)	Infinite variable
		Speed control (Rear)	Infinite variable
		Maximum capacity (Front)	525 m^3/h (18,510 cu ft/h)
		Maximum capacity (Rear)	275 m^3/h (9,695 cu ft/h)
	Temperature control		Air-mix type
	Compressor clutch	Type	Dry, single plate, Poly-V belt drive
		Electrical power consumption at 68 °F (20 °C)	35 W maximum at 12 V
	Refrigerant	Type	HFC-134a (R-134a)
		Quantity (Dual)	600—650 g (20.3—22.0 fl oz)

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Item	Measurement	Qualification	Specification
ELECTRICAL RATINGS	Battery		12 V—76 AH/20 HR, 65 AH/5 HR
	Fuses	Main under-hood fuse/relay box	120 A, 60 A, 50 A, 40 A, 30 A, 20 A, 15 A, 7.5 A
		Under-hood fuse/relay box	40 A, 30 A, 20 A, 15 A, 10 A 7.5 A
		Under-dash fuse/relay box	30 A, 20 A, 15 A, 10 A, 7.5 A
		Rear fuse/relay box	40 A, 30 A, 20 A, 10 A, 7.5 A
	Light bulbs	Headlight high beam	12 V—60 W
		Headlight low beam	12 V—35 W (HID)
		Daytime running light	12 V—60 W
		Front turn signal lights	12 V—24 CP
		Front side turn signal lights	LED
		Front parking lights	12 V—3 CP
		Front side marker light	12 V—3 CP
		Fog light	12 V—55 W
		Rear turn signal lights	12 V—21 W
		Brake/taillights	LED/LED
		Rear side market light	12 V—3 CP
		High mount brake light	LED
		Back-up lights	12 V—18 W
		License plate lights	12 V—3 CP
		Ceiling light	12 V—8 W
		Cargo area light	12 V—5 W
		Front map light	12 V—5 W
		Rear map light	12 V—6.2 W
		Ambient light	LED
		Vanity mirror lights	12 V—2 W
		Glove box light	12 V—3.4 W
		Door coutesy light	12 V—2 CP
		Gauge lights	LED
		Indicator lights	14 V—1.4 W, 10 V—0.6 W

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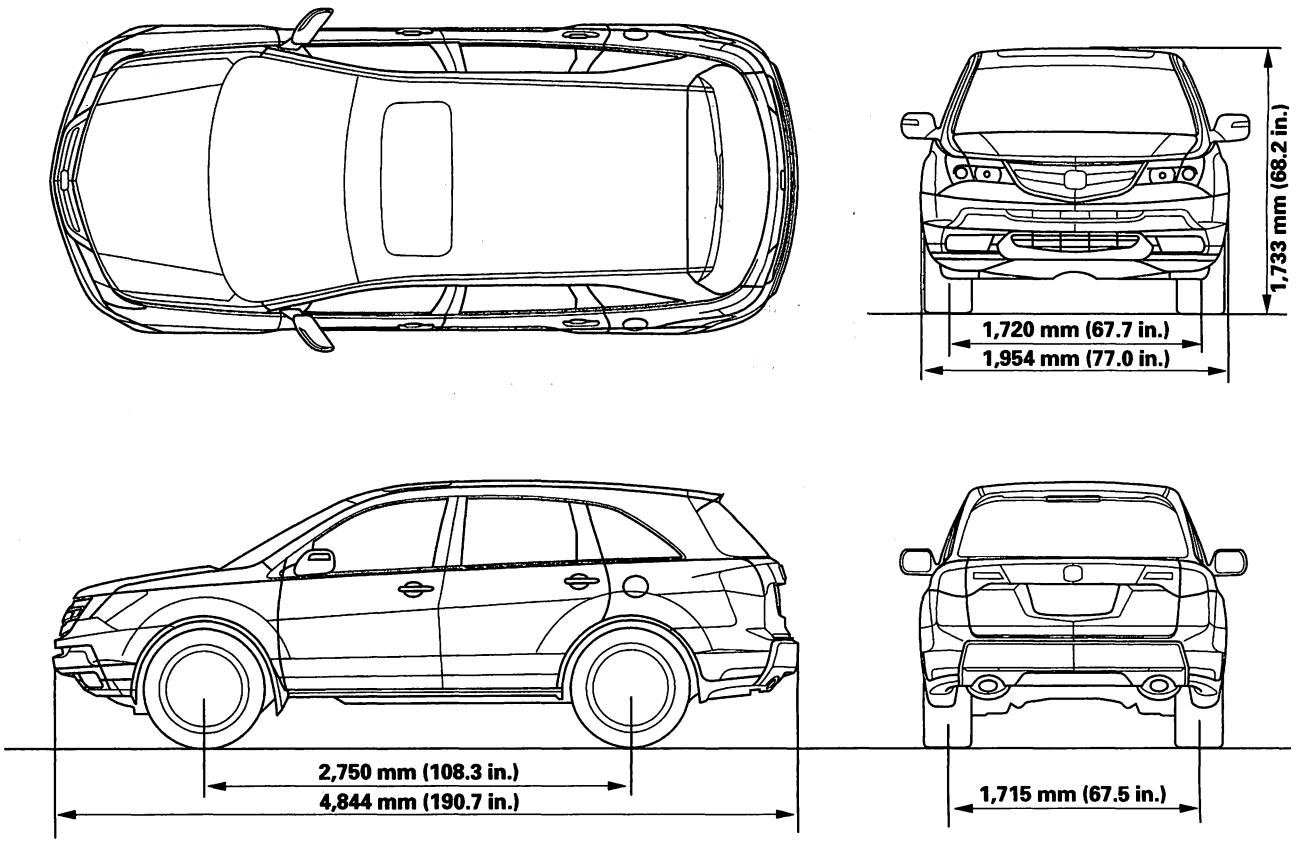
Body Specifications



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Maintenance

Lubricants and Fluids **3-2**

Maintenance Minder
- General Information 3-4
- Maintenance Main Items 3-7
- Maintenance Sub Items 3-8

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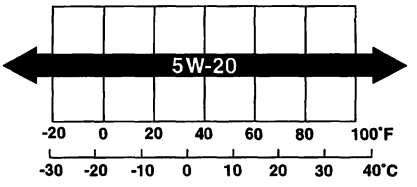
Lubricants and Fluids

For details of the lubrication points and type of lubricants to be applied, refer to the illustrated index and various work procedures (such as Assembly/Reassembly, Replacement, Overhaul, Installation, etc.) contained in each section.

Item	Lubrication Points	Lubricant
A	Engine	Acura Motor Oil: American Honda P/N 08798-9023A (5W-20), Honda Canada P/N CA66806 (5W-20) Look for the API certification seal on the oil container as shown below. Make sure it says "For Gasoline Engines." SAE viscosity: See chart below.
B	Automatic transmission	Acura Automatic Transmission Fluid (ATF-Z1): American Honda P/N 08200-9001A, Honda Canada P/N CA66689 Always use Acura ATF-Z1. Using a non-Acura ATF can affect shift quality.
C	Transfer assembly	Hypoid gear oil GL4 or GL5 Use a SAE 90 or SAE 80W-90 viscosity hypoid gear oil, API classified GL4 or GL5 only. Viscosity SAE 90: above 0 °F (—18 °C) SAE 80W-90: below 0 °F (—18 °C)
D	Rear differential	Acura Automatic Transmission Fluid (ATF-Z1): American Honda P/N 08200-9001A, Honda Canada P/N CA66689
E	Brake system (including VSA lines)	Acura DOT 3 Brake Fluid: P/N 08798-9008A Always use Acura DOT 3 Brake Fluid. Using a non-Acura brake fluid can cause corrosion and decrease the life of the system.
F G H I J K	Brake booster clevis Battery terminals Fuel fill door Hood hinges and hood latch Door hinges: upper and lower Tailgate hinges	Multipurpose grease
L	Caliper piston boot, caliper pins, and boots	Honda Silicone Grease: P/N 08C30-B0234M
M	Power steering system	Honda Power Steering Fluid Acura Power Steering Fluid: P/N 08206-9002A Always use Acura Power Steering Fluid. Using any other type of power steering fluid or automatic transmission fluid can cause increased wear and poor steering in cold weather.
N	Air conditioning compressor	Compressor oil: DENSO ND-OIL 8 (P/N 38897-PR7-A01AH or 38899-PR7-A01) for refrigerant HFC-134a (R-134a)
O	Cooling system	Acura Long Life Antifreeze/Coolant Type 2

API CERTIFICATION SEAL

Recommended Engine Oil
Engine oil viscosity for ambient temperature ranges



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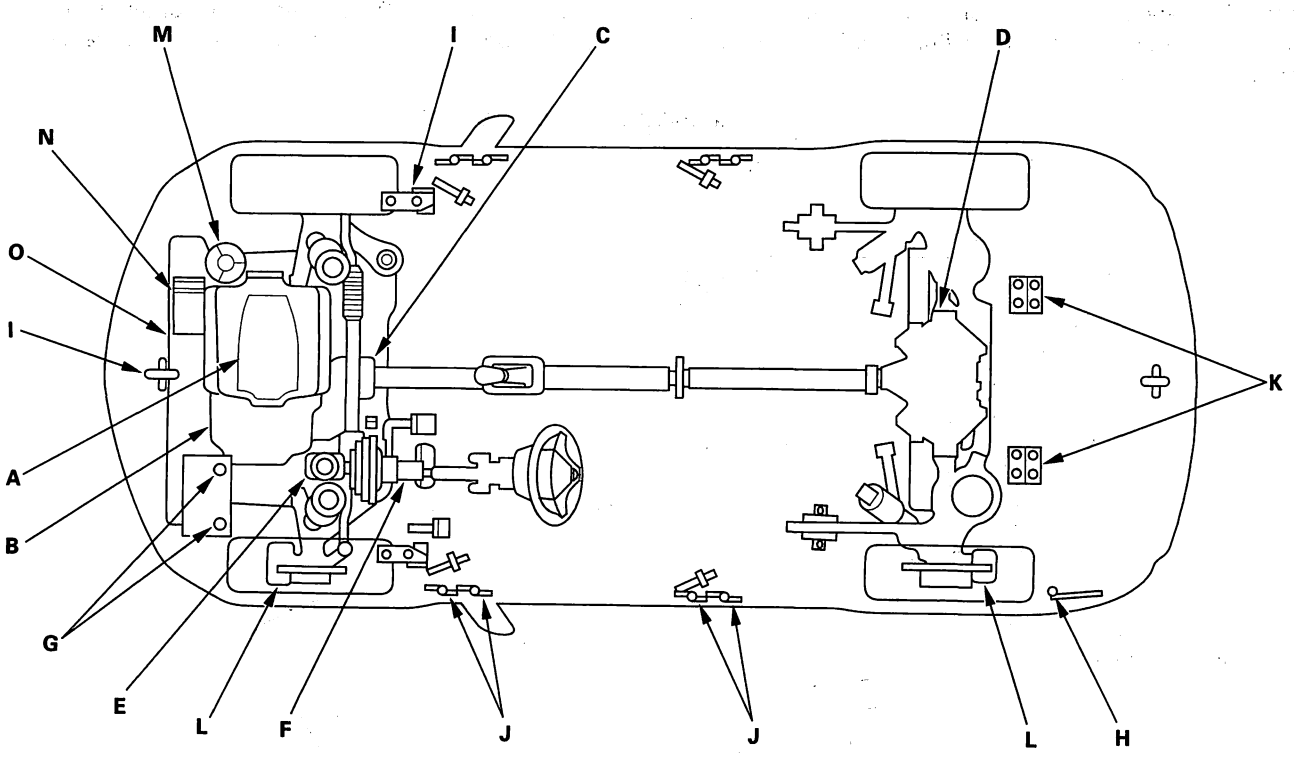
NOTE:
- Lubricate the following areas using the recommended lubricants and fluids.
- In corrosive areas, more frequent lubrication is necessary.



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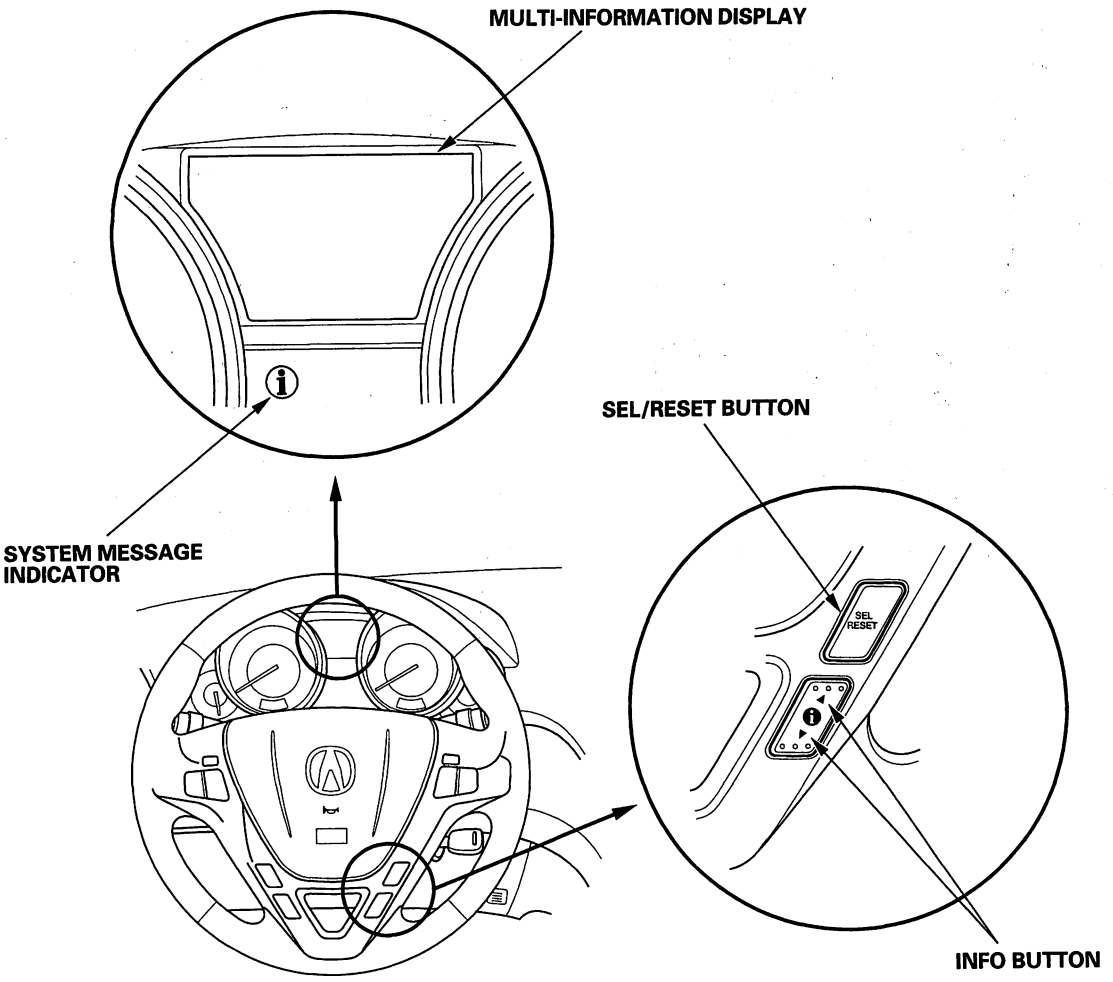
Maintenance Minder

General Information

Multi-Information Display

The maintenance minder is an important feature of the multi-information display. Based on engine operating conditions and accumulated engine revolutions, the MDX's onboard computer (PCM) calculates the remaining engine oil and automatic transmission fluid life. The system also displays the codes for other scheduled maintenance items needing service.



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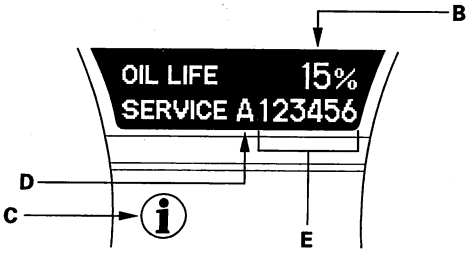
Service Information

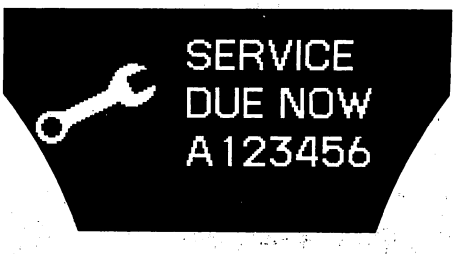
1. The remaining engine oil life (A) is shown as a percentage on the multi-information display. To see the current engine oil life, turn the ignition switch to the ON (II) position, then push and release the Sel/Reset Button repeatedly until the engine oil life displays.

2. When the ignition switch is in the ON (II) position, and the remaining engine oil life is 6 % to 15 %, the remaining engine oil life and other scheduled maintenance item(s) needing service are displayed. The maintenance system message "SERVICE DUE SOON" (A) also come on. To cancel the message, press the Info Button. The display continues to show the remaining engine oil life (B) and the message indicator (C) until it is reset.

   - Complete list of maintenance main items (D) (see page 3-7).
   - Complete list of maintenance sub items (E) (see page 3-8).



3. When the ignition switch is in the ON (II) position, and the remaining engine oil life is 1 % to 5 %, the maintenance system message "SERVICE DUE NOW" is displayed along with the same maintenance item code(s). If the maintenance system message display is cancelled, a "SERVICE" message appears.



4. When the ignition switch is in the ON (II) position, and the remaining engine oil life is 0 %, the maintenance system message "SERVICE PAST DUE" is displayed along with the same maintenance item code(s).

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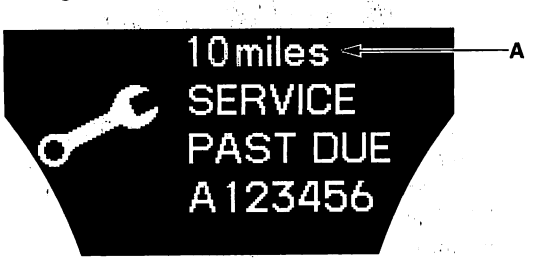
General Information (cont'd)

5. If the indicated maintenance is not done, the "SERVICE PAST DUE" message shows a negative mileage, for example "—10," on the display. If the negative mileage is between 0 and —9, the message is displayed for only a few seconds when the ignition switch is turned to the ON (II) position. The negative mileage (A) remains displayed after the vehicle is driven more than 10 miles (for USA models) or 10 km (for Canada models) after 0 % oil life is reached, and the display cannot be cancelled. This means the indicated maintenance item(s) should have been done more than 10 miles (or 10 km) ago.

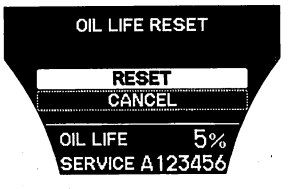


Resetting the Maintenance-Information Display

NOTE:
- The vehicle must be stopped to reset the display.
- If a required service is done and the display is not reset, or if the maintenance display is reset without doing the service, the system will not show the proper maintenance timing. This can lead to serious mechanical problems because there will be no accurate record of when the required maintenance is needed.
- The engine oil life and the maintenance items can be reset independently only with the HDS.

1. Turn the ignition switch to ON (II) position.
2. If system message(s) are displayed, press the Info button to cancel the display.
3. Push and release the Sel/Reset button repeatedly until the engine oil life indicator is displayed.
4. Press and hold the Sel/Reset button for about 10 seconds, the "OIL LIFE RESET" mode display appears.

   NOTE:
   - If you are resetting the display when the engine oil life is more than 15 %, make sure any maintenance item(s) requiring service are done before resetting the display.
   - To cancel the "OIL LIFE RESET" mode, press the Info button repeatedly until the "CANCEL" indicator is displayed, then press the Sel/Reset button.



5. Press Info button repeatedly until the "RESET" indicator is displayed, then press the Sel/Reset button.
   The maintenance item code(s) will disappear, and the engine oil life will reset to "100 %."

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Maintenance Main Items

If the message "SERVICE DUE NOW" does not appear more than 12 months after the display is reset, change the engine oil every year.

NOTE:
- Replace the brake fluid every 3 years, independent of the maintenance messages in the multi-information display.
- Inspect idle speed every 160,000 miles (256,000 km).
- Adjust the valves during services A, B, 1, 2 or 3 if they are noisy.

Symbol	Maintenance Main Items
A	Replace engine oil (see page 8-6). Engine oil capacity without oil filter: 4.0 L (4.2 US qt).
B	Replace engine oil and oil filter (see page 8-7). Engine oil capacity with oil filter: 4.3 L (4.5 US qt).
	Inspect front and rear brakes (see page 19-3). • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mounting bolts.
	Check parking brake adjustment (see page 19-7). Number of clicks (9 to 11 when the parking brake pedal is pressed with 294 N (30 kgf, 66 lbf) of force.
	Inspect tie-rod ends, steering gearbox, and gearbox boots (see page 17-9). • Check rack grease and steering linkage. • Check boots for damage and leaking grease. • Check fluid lines for damage or leaks.
	Inspect suspension components (see page 18-3). • Check bolts for tightness. • Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-4). Check boots for cracks and boot bands for tightness.
	Inspect brake hoses and lines including VSA (see page 19-35). Check the master cylinder and VSA modulator for damage and leakage.
	Inspect all fluid levels and condition of fluids. • Engine coolant (see page 10-6). • Automatic transmission fluid (ATF-Z1) (see page 14-265). • Rear differential fluid (see page 15-69). • Power steering fluid (see page 17-13). • Brake fluid (see page 19-9). • Windshield washer fluid.
	Inspect exhaust system (see page 9-9)*. Check catalytic converter heat shields, exhaust pipes, and muffler for damage, leaks, and tightness.
	Inspect fuel lines (see page 11-334)*, and connections (see page 11-336)*. Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.

NOTE: According to state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Acura recommends that all maintenance services be done at the recommended interval, to ensure long-term reliability.

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Maintenance Minder

Maintenance Sub Items

Number	Maintenance Sub Items
1	Rotate tires, and check tire inflation and condition. Follow the pattern shown in the Owner's Manual.
2	Replace air cleaner element (see page 11-364). If the vehicle is regularly driven in dusty conditions, replace every 15,000 miles (24,000 km).
	Replace dust and pollen filter (see page 21-114). • Replace the filter at 15,000 miles (24,000 km) intervals if the vehicle is driven mostly in urban areas that have high concentrations of soot in the air from industry and diesel-powered vehicles. • Replace the filter whenever airflow from the heating and cooling/climate control system is less than normal.
	Inspect drive belt (see page 4-33). Look for cracks and damage, and inspect auto tensioner; no adjustment is needed.
3	Replace automatic transmission fluid (see page 14-266) and transfer fluid (see page 14-268). • Automatic transmission fluid capacity: 2.8 L (3.0 US qt), use Acura ATF-Z1. • Transfer fluid capacity: 0.43 L (0.45 US qt), use hypoid gear oil GL4 or GL5.
4	Replace spark plugs (see page 4-24). Use IZFR5K11 (NGK) or SKJ20DR-M11 (DENSO).
	Replace timing belt (see page 6-20). If the vehicle is regularly driven in very high temperatures (over 110 °F, 43 °C), or in very low temperatures (under −20 °F, −29 °C), replace every 60,000 miles (USA)/ 100,000 km (Canada) and inspect water pump (see page 10-5).
	Inspect the valve clearance (cold) (see page 6-8). • Otherwise adjust only if noisy. • Intake: 0.20—0.24 mm (0.008—0.009 in.), Exhaust: 0.28—0.32 mm (0.011—0.013 in.).
5	Replace engine coolant (see page 10-6). Capacity (including the reserve tank): 7.3 L (1.93 US gal), use Acura Long Life Antifreeze/Coolant Type 2.
6	Replace rear differential fluid (see page 15-69). • Driving in mountainous areas at very low vehicle speeds or trailer towing results in higher level of mechanical (shear) stress to fluid. This requires differential fluid changes more frequently than recommended by the maintenance minder. If the vehicle is regularly driven in these conditions, have the differential fluid changed at 7,500 miles (12,000 km), then every 15,000 miles (24,000 km). • Capacity: Clutch chambers 2.53 L (2.67 US qt), use Acura ATF-Z1.

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SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If engine electrical maintenance is required)

The Acura MDX SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done only by an authorized Acura dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Acura dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags and/or side airbags.
- Do not bump or impact the SRS unit, front impact sensors, side impact sensors, or roll rate sensor when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.

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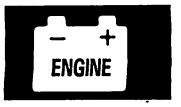

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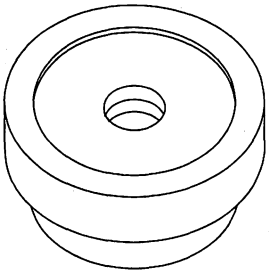
Special Tools

Ref. No.	Tool Number	Description	Qty
①	07746-0010300	Attachment, 42 x 47 mm	1
②	07749-0010000	Handle driver	1



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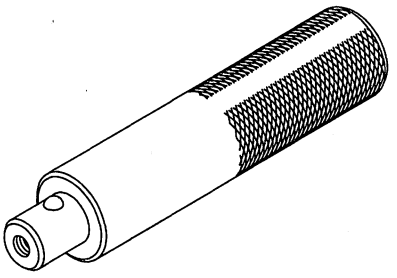

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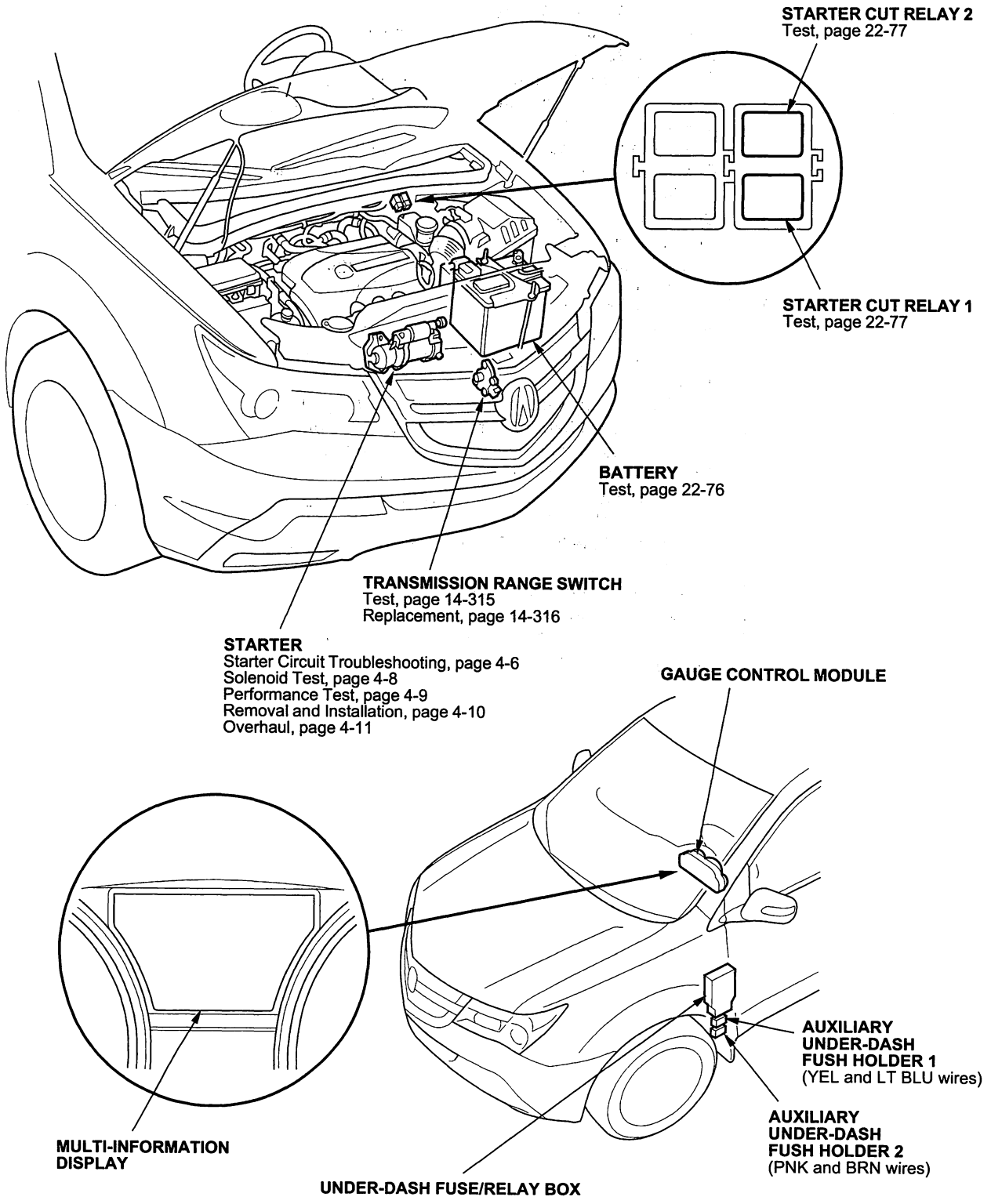
Starting System

Component Location Index



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Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Engine does not start (does not crank)	1. Check for loose battery terminals or connections. 2. Test the battery for a low charge (see page 22-76). 3. Check the starter (see page 4-6). 4. Check starter cut relay 1 and starter cut relay 2 (see page 22-77). 5. Check the transmission range switch (see page 14-315). 6. Check the ignition switch or wire (see page 22-79).	Poor ground at G101
Engine cranks, but does not start	1. Check for PGM-FI DTCs. 2. Check the fuel pressure (see page 11-333). 3. Check for a plugged or damaged fuel line (see page 11-334). 4. Check for a plugged fuel filter (see page 11-345). 5. Check the throttle body (see page 11-362). 6. Check for low engine compression (see page 6-6). 7. Check for a damaged or broken timing belt.	
Engine is hard to start	1. Check for PGM-FI DTCs. 2. Check the fuel pressure (see page 11-333). 3. Check for a plugged or damaged fuel line (see page 11-334). 4. Check for a plugged fuel filter (see page 11-345).	
Engine cranks slowly	1. Check for loose battery terminals or connections. 2. Test the battery for a low charge (see page 22-76). 3. Check the starter for binding (see page 4-11). 4. Check for excessive drag in the engine.	
MID message check starting system	1. Check for a blown STRLD (7.5 A) fuse in the auxiliary under-dash fuse holder 2 below the driver's under-dash fuse/relay box. 2. Check for a faulty starter cut relay 1. 3. Check for a faulty starter cut relay 2. 4. Check for open in the BRN wire between starter cut relay 1 and starter cut relay 2.	

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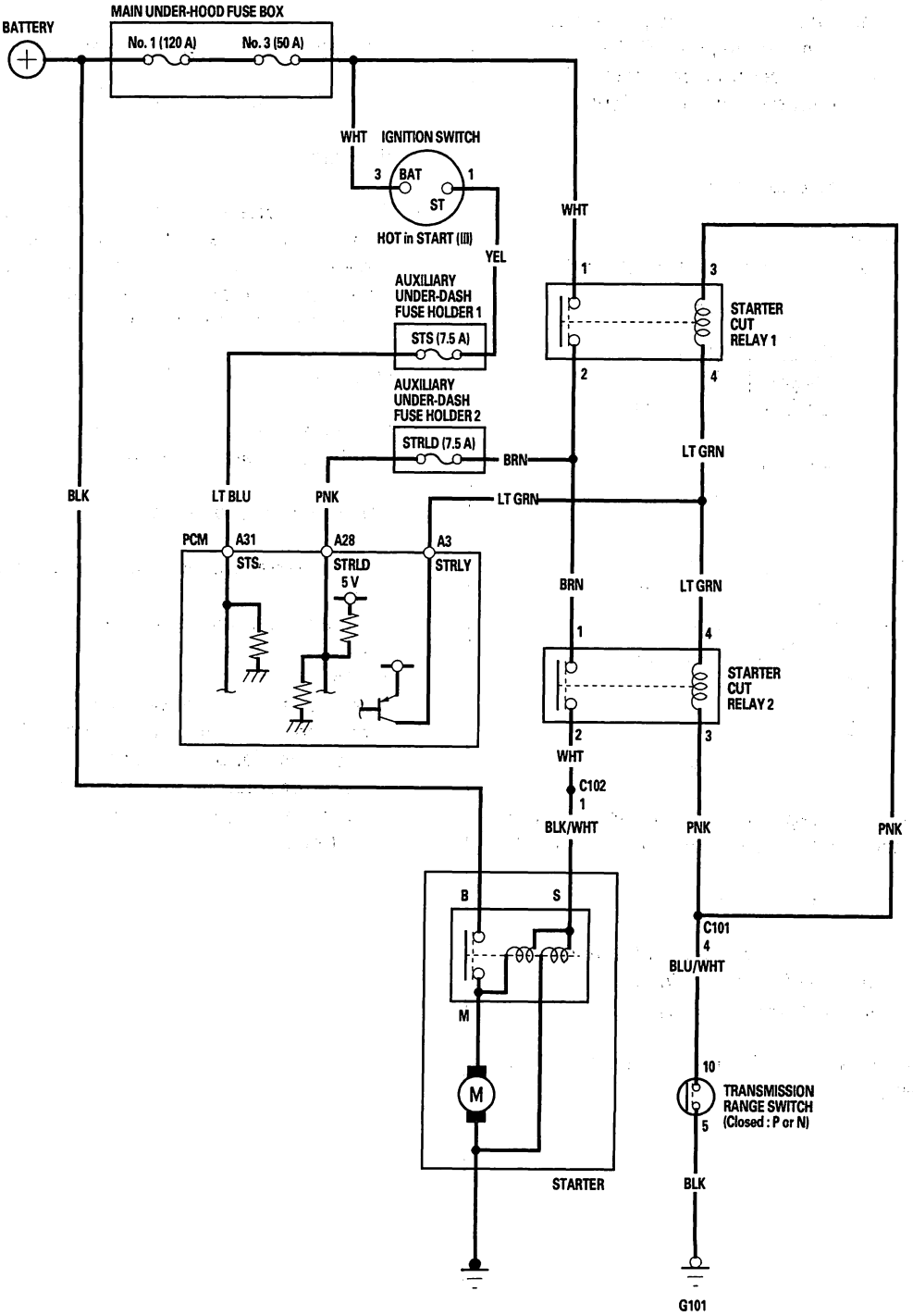
Circuit Diagram



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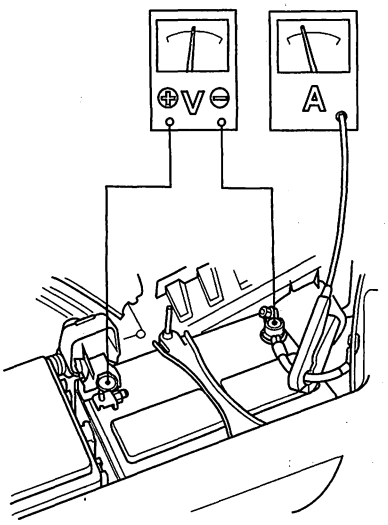
Starter System Circuit Troubleshooting

NOTE:
- Air temperature must be between 59 and 100 °F (15 and 38 °C) during this procedure.
- After the inspection, you must reset the powertrain control module (PCM). Otherwise, the PCM will continue to stop the fuel injectors from functioning.
- The battery must be in good condition and fully charged.

1. Hook up the following equipment:
   - Ammeter, 0—400 A
   - Voltmeter, 0—20 V (accurate within 0.1 volt)



2. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).

3. Turn the ignition switch ON (II).

4. Make sure the HDS communicates with the vehicle and the PCM. If it doesn't communicate troubleshoot the DLC circuit (see page 11-223).

5. Select PGM-FI, INSPECTION, then ALL INJECTORS OFF on the HDS.

6. Set the parking brake, then with the shift lever in the N or P position, turn the ignition switch to START (III).

   Does the starter crank the engine normally?

   YES—The starting system is OK. Go to step 13.

   NO—Go to step 7.

7. Check the battery condition. Check the electrical connections at the battery, the negative battery cable to the body, the engine ground cables, and the starter for looseness and corrosion. Then try cranking the engine again.

   Does the starter crank the engine?

   YES—Repairing the loose connection corrected the problem. The starting system is OK. Go to step 13.

   NO—Check these items:

   - If the starter will not crank the engine at all, go to step 8.
   - If the starter cranks the engine erratically or too slowly, go to step 10.
   - If the starter does not disengage from the torque converter ring gear when you release the key, replace the starter, or remove and disassemble it, and check for the following:
     – Starter solenoid and switch malfunction
     – Dirty drive gear or damaged overrunning clutch

BACK

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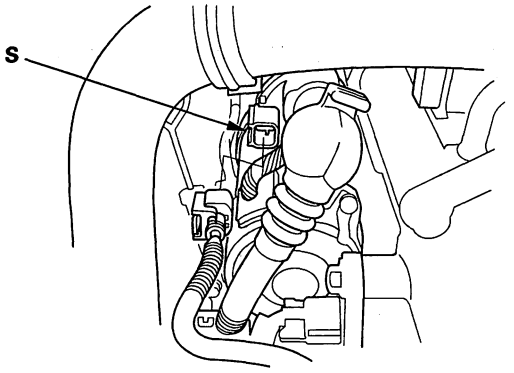
8. Make sure the shift lever is in the N or P position, then disconnect the connector from the starter solenoid S terminal. Connect a jumper from the battery positive terminal to the solenoid S terminal.



Does the starter crank the engine?

YES—Go to step 9.

NO—Remove the starter, and repair or replace it as necessary. ■

9. Check the following items in the order listed until you find the problem:

- A blown STS (7.5 A) fuse in the auxiliary under-dash fuse holder 1 located below the driver's under-dash fuse/relay box.
- A blown STRLD (7.5 A) fuse in the auxiliary under-dash fuse holder 2 located below the driver's under-dash fuse/relay box.
- Check for an open or short in the WHT wire and connectors between the starter cut relay 1 and the main under-hood fuse box.
- Check for an open or short in the BRN wire and connectors between the starter cut relay 2, the PCM and the starter cut relay 1.
- Check for an open or short in the WHT wire, BLK/WHT wire, and connectors between the starter cut relay 2 and the starter.
- Check for a faulty ignition switch (see page 22-79).
- Check for a faulty transmission range switch and connector (see page 14-315).
- Check for a faulty starter cut relay 1 and the starter cut relay 2 (see page 22-77).

10. While cranking the engine, check the cranking voltage and the current draw.

Is the cranking voltage greater than or equal to 8.0 V and is the current draw less than or equal to 375 A?

YES—Go to step 11.

NO—Replace the starter, or remove and disassemble it, and check for the following:

- Drag in the starter armature
- Shorted armature winding
- Excessive drag in the engine

11. Check the engine speed while cranking the engine.

Is the engine speed above 100 rpm?

YES—Go to step 12.

NO—Replace the starter, or remove and disassemble it, and check for the following:

- Open circuit in starter armature commutator segments
- Excessively worn starter brushes
- Open circuit in the starter brushes
- Dirty or damaged helical splines or drive gear
- Faulty drive gear clutch

12. Remove the starter, and inspect its drive gear and the torque converter ring gear for damage. Replace any damaged parts.

13. Select PCM reset (see page 11-4) to cancel ALL INJECTORS OFF on the HDS.

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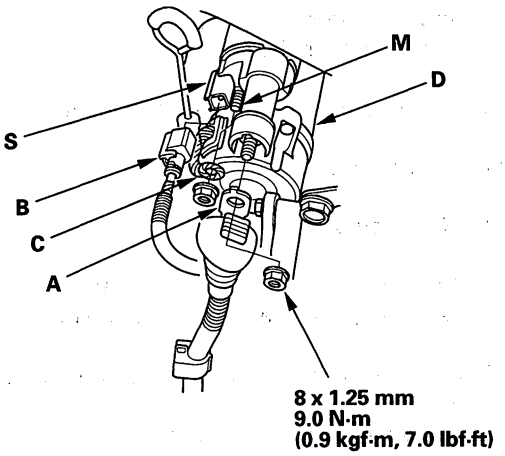
Starter Solenoid Test

1. Make sure you have the anti-theft codes for the audio system and navigation system (if equipped). Make sure the ignition switch is OFF.
2. Remove the battery and battery base (see step 12 on page 5-3).
3. Disconnect the negative cable from the battery first, then disconnect the positive cable.
4. Disconnect the positive starter cable (A), S terminal connector (B), and motor cable (C).



5. Check the hold-in coil for continuity between the S terminal and the armature housing (ground) (D). There should be continuity.
   - If there is continuity, go to step 6.
   - If there is no continuity, replace the solenoid.
6. Check the pull-in coil for continuity between the S terminal and the M terminal. There should be continuity.
   - If there is continuity, the solenoid is OK.
   - If there is no continuity, replace the solenoid.
7. Reconnect the starter cable, S terminal connector, and motor cable.
8. Connect the positive cable to the battery first, then connect the negative cable.
9. Install the battery and battery base (see step 56 on page 5-21).
10. Do the steering column position memorization (see page 17-28).
11. Enter the anti-theft codes for the audio system and navigation system (if equipped).
12. Set the clock.

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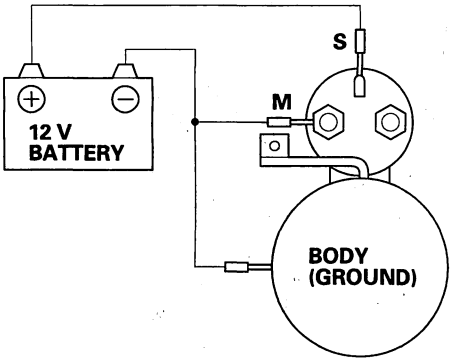
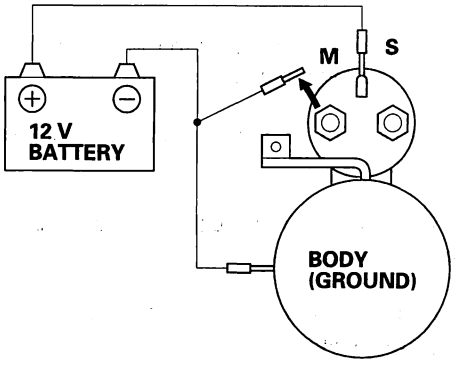
Starter Performance Test

1. Disconnect the wire from the M terminal.
2. Make a connection for this test using the thickest (gauge) wire possible (preferably the same gauge as used on the vehicle).

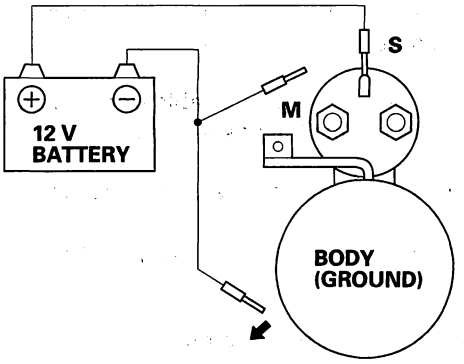
   NOTE: To avoid damaging the starter, never leave the battery connected for more than 10 seconds.



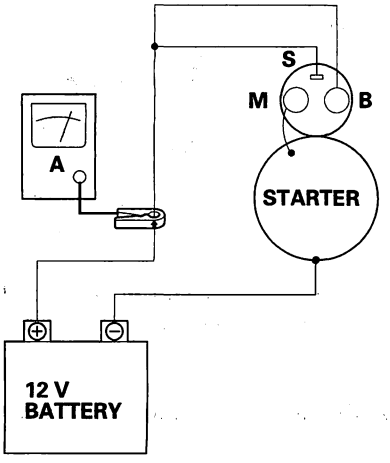
3. Connect the battery as shown. Make sure you disconnect the starter motor wire from the solenoid. If the starter pinion moves out, it is working properly.
4. Disconnect the battery from the M terminal. If the pinion does not retract, the hold-in coil of the solenoid is working properly.



5. Disconnect the battery from the starter body. If the pinion retracts immediately, it is working properly.



6. Clamp the starter firmly in a vise.
7. Reconnect the wire to the M terminal.
8. Connect the starter to the battery as shown in the diagram, and confirm that the motor starts and keeps rotating.



9. If the electric current meets the specification when the battery voltage is at 11.5 V, the starter is working properly.

   Specification
   Electric Current: 90 A or less

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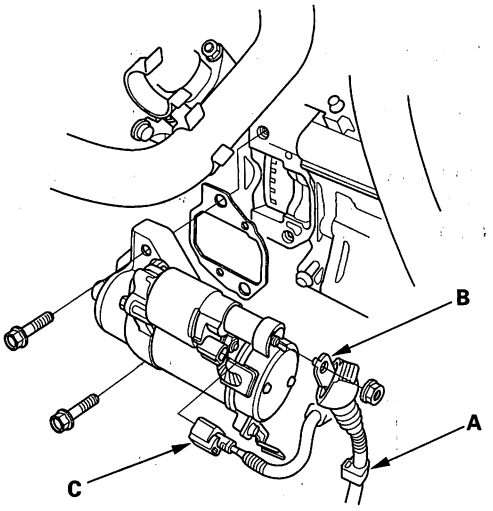
Starter Removal and Installation

Removal

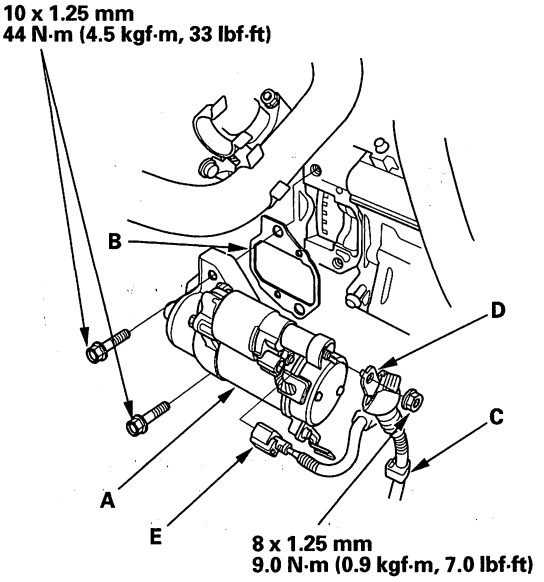
1. Make sure you have the anti-theft codes for the audio system and navigation system (if equipped). Make sure the ignition switch is OFF.
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.
3. Remove the air cleaner assembly (see page 11-363).
4. Remove the battery and battery base (see step 12 on page 5-3).
5. Remove the harness clamp (A).



6. Disconnect the positive starter cable (B) from the B terminal, then disconnect the connector (C) from the S terminal.
7. Remove the two bolts holding the starter.

Installation

1. Install the starter (A) using a new gasket (B), then install the harness clamp (C), and positive starter cable (D) and S terminal connector (E). Make sure the crimped side of the B terminal is facing out, away from the starter.



2. Install the battery base and battery (see step 56 on page 5-21).
3. Install the air cleaner assembly (see page 11-363).
4. Connect the positive cable to the battery first, then connect the negative cable.
5. Start the engine to make sure the starter works properly.
6. Do the steering column position memorization (see page 17-28).
7. Enter the anti-theft codes for the audio system and navigation system (if equipped).
8. Set the clock.

BACK

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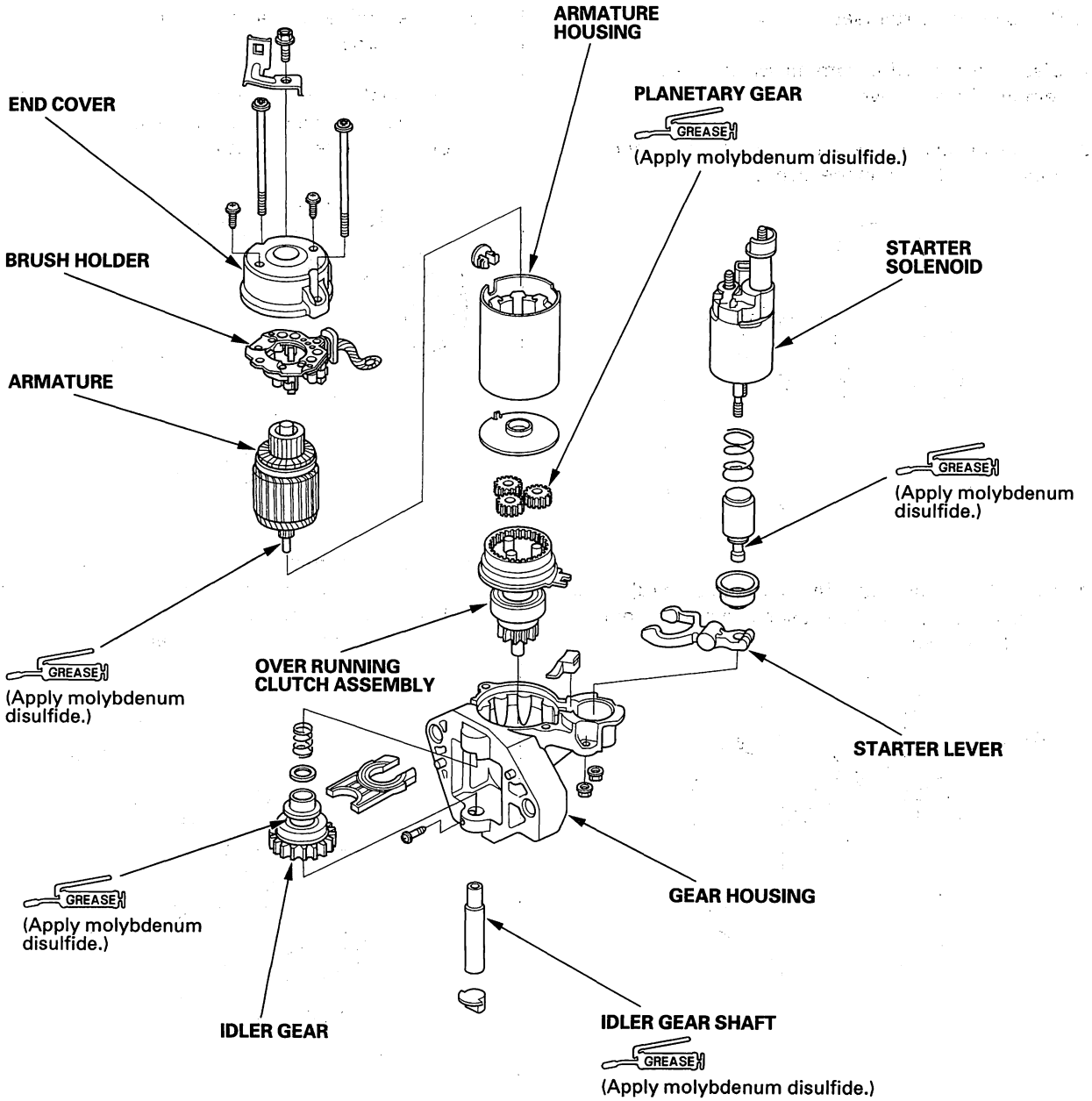
Starter Overhaul

Disassembly/Reassembly



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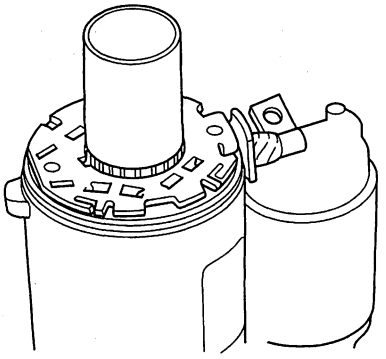
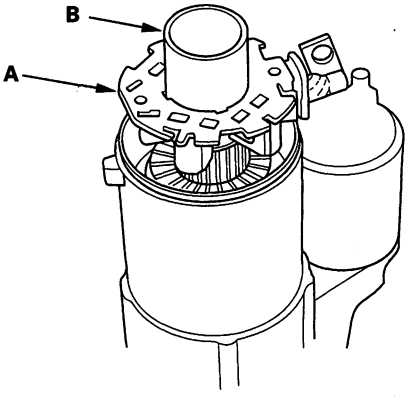
Starter Overhaul (cont'd)

Brush Holder Removal

1. Remove the starter (see page 4-10).
2. Disconnect the wire from the M terminal, and remove the end cover.
3. Place a plastic pipe with an outside diameter of 29.4 mm (1.16 in.) on the armature.

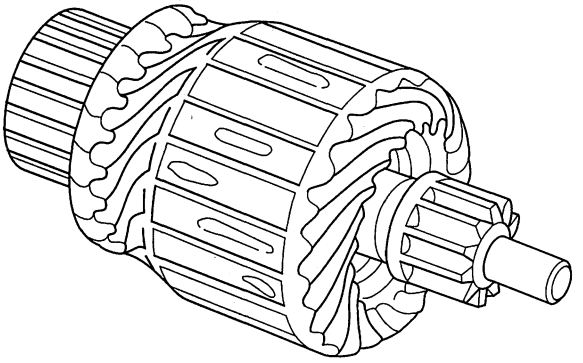


4. Move the brush holder (A) up to the pipe (B) while holding the pipe so the brushes do not pop out from the holder.

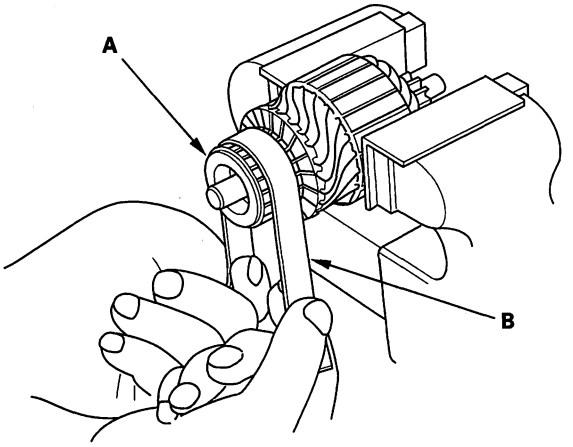


Armature Inspection and Test

5. Disassemble the starter as shown at the beginning of this procedure.
6. Inspect the armature for wear or damage from contact with the permanent magnet. If there is wear or damage, replace the armature.



7. Check the commutator (A) surface. If the surface is dirty or burnt, resurface it with an emery cloth or a lathe to the following specifications, or recondition with #500 or #600 sandpaper (B).



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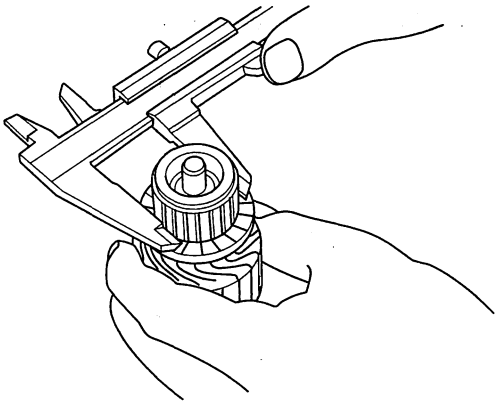
8. Check the commutator diameter. If the diameter is below the service limit, replace the armature.

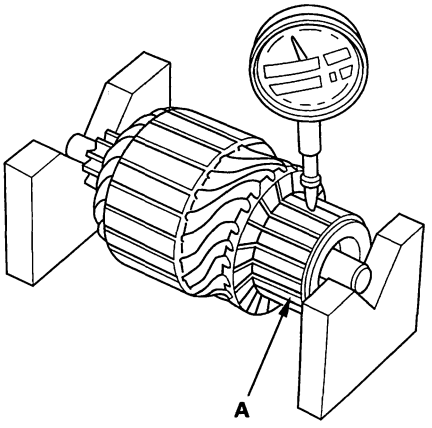
Commutator Diameter
Standard (New): 28.90—29.00 mm (1.138—1.142 in.)
Service Limit: 28.00 mm (1.102 in.)



9. Measure the commutator (A) runout.

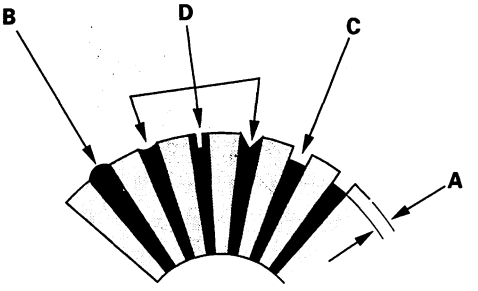
- If the commutator runout is within the service limit, check the commutator for carbon dust or brass chips between the segments.
- If the commutator runout is not within the service limit, replace the armature.

Commutator Runout
Standard (New): 0.02 mm (0.0008 in.) max.
Service Limit: 0.05 mm (0.0002 in.)

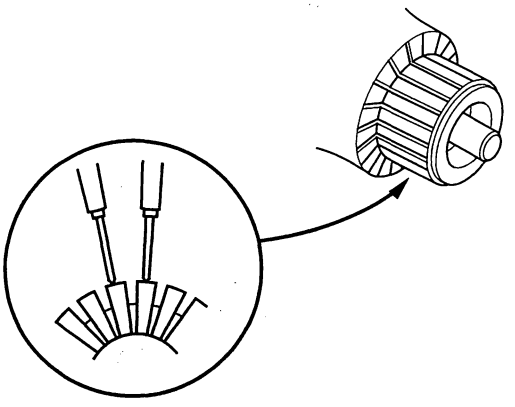


10. Check the mica depth (A). If the mica is too high (B), undercut the mica with a hacksaw blade to the proper depth. Cut away all the mica (C) between the commutator segments. The undercut should not be too shallow, too narrow, or V-shaped (D).

Commutator Mica Depth
Standard (New): 0.50—0.90 mm (0.020—0.035 in.)
Service Limit: 0.20 mm (0.008 in.)



11. Check for continuity between the segments of the commutator. If there is an open circuit between any segments, replace the armature.



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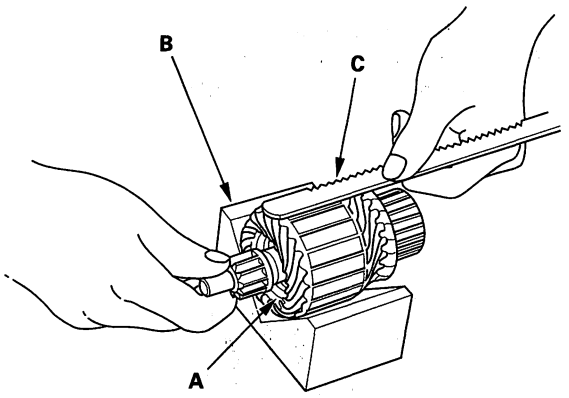
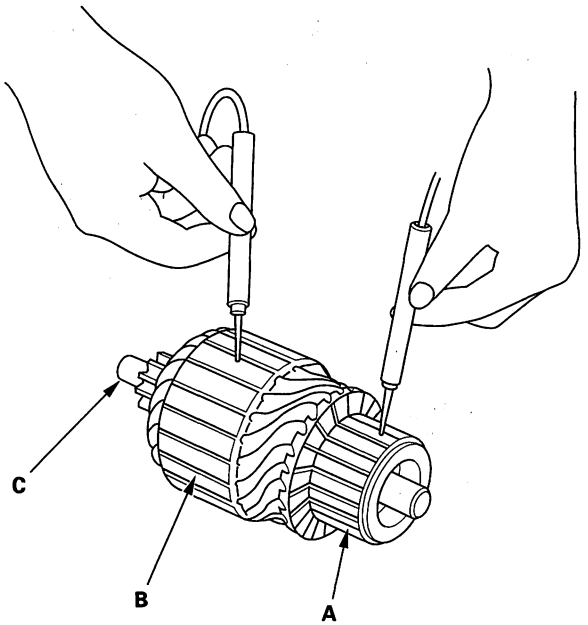
Starter Overhaul (cont'd)

12. Place the armature (A) on an armature tester (B). Hold a hacksaw blade (C) on the armature core. If the blade is attracted to the core or vibrates while the core is turned, the armature is shorted. Replace the armature.



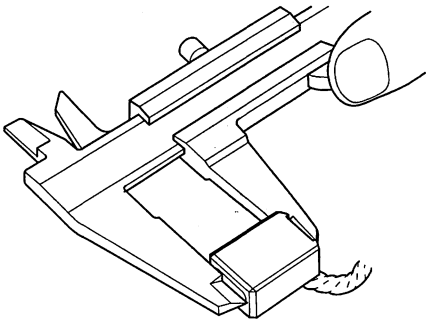
13. Use an ohmmeter to check for continuity between the commutator (A) and the armature coil core (B), and between the commutator and the armature shaft (C). If there is continuity, replace the armature.



Starter Brush Inspection

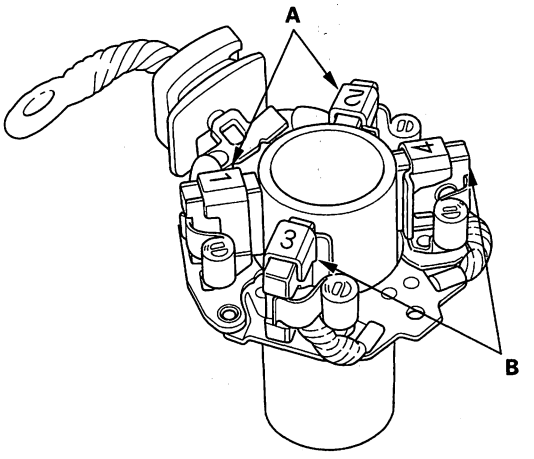
14. Measure the brush length. If it is shorter than the service limit, replace the brush holder assembly.

Brush Length
Standard (New): 15.0—16.0 mm (0.59—0.63 in.)
Service Limit: 9.0 mm (0.35 in.)



Starter Brush Holder Test

15. Check for continuity between the (+) brush (A) and (—) brush (B). If there is continuity, replace the brush holder assembly.



BACK

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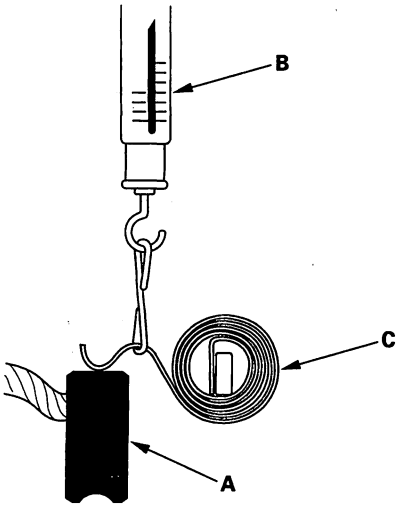
Brush Spring Inspection

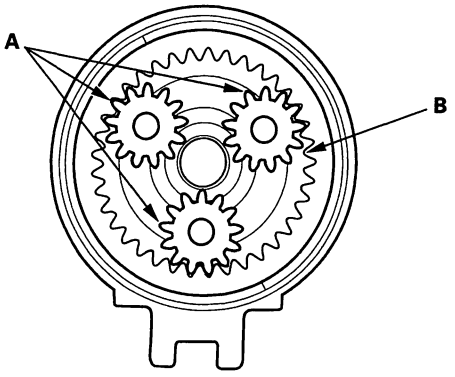
16. Insert the brush (A) into the brush holder, and bring the brush into contact with the commutator, then attach a spring scale (B) to the spring (C). Measure the spring tension at the moment the spring lifts off the brush. If it is not within the standard, replace the brush holder assembly.

Spring Tension
Standard (New): 22.3—27.3 N
(2.27—2.78 kgf, 5.00—6.13 lbf)



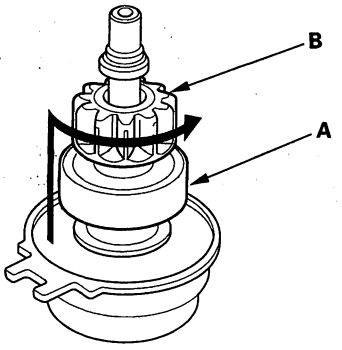
Planetary Gear Inspection

17. Check the planetary gears (A) and internal gear (B). Replace them if they are worn or damaged.



Overrunning Clutch Inspection

18. Slide the overrunning clutch (A) along the shaft. Replace it, if it does not slide smoothly.



19. Hold the drive gear (B), and turn the overrunning clutch in the direction shown to make sure it turns freely. Also make sure the overrunning clutch locks in the opposite direction. If it does not lock, replace the overrunning clutch assembly.

20. If the starter drive gear is worn or damaged, replace the overrunning clutch assembly; the gear is not available separately.
Check the condition of the torque converter ring gear. Replace it if the starter drive gear teeth are damaged.

(cont'd)

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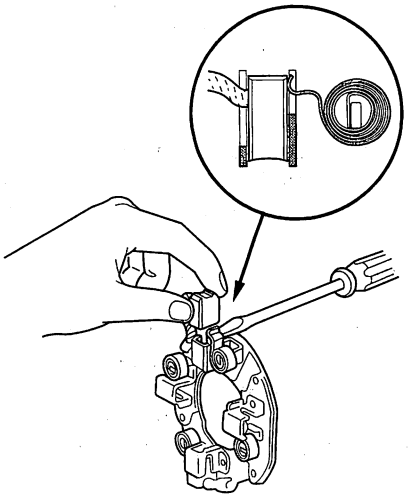
Starter Overhaul (cont'd)

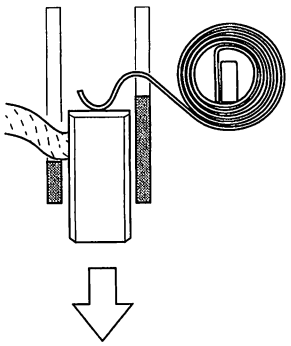
Starter Reassembly

21. When you replace the brush holder or the armature housing, you need to seat the new brushes. Slip a strip of #500 or #600 sandpaper, with the grit side up, between the commutator and each brush, and smoothly turn the armature. The contact surface of the brushes will be sanded to the same contour as the commutator.

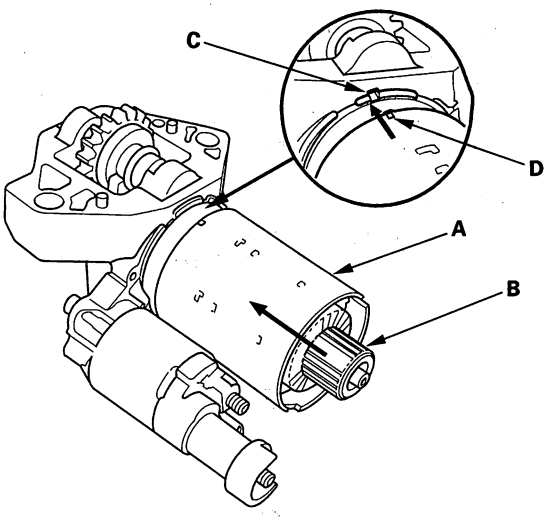
22. Pry back each brush spring with a screwdriver, then position the brush on the brush holder about halfway out of its holder. Release the spring to hold it in place.



23. Push each brush down until it seats against the commutator, then release the spring against the end of the brush.

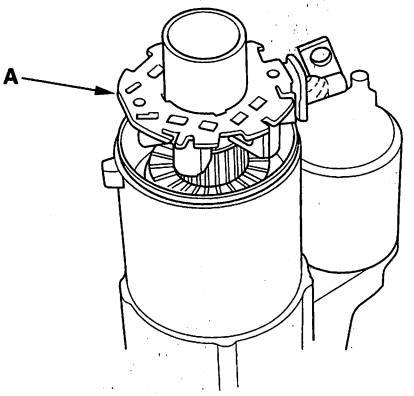


24. Install the armature housing (A) and armature (B) by aligning the slotted point (C) to the projection (D).



25. Install the armature into the housing.

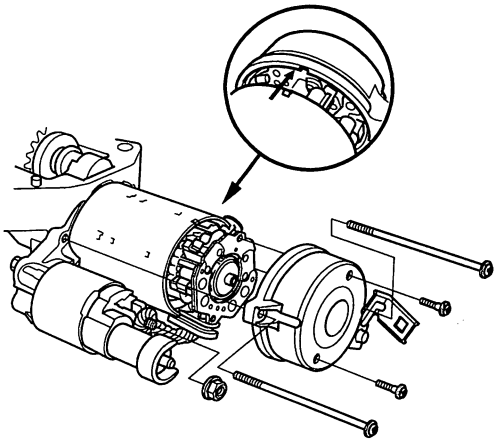
26. Place the brush holder assembly on the armature, then move the brush holder (A) down to the armature.



BACK

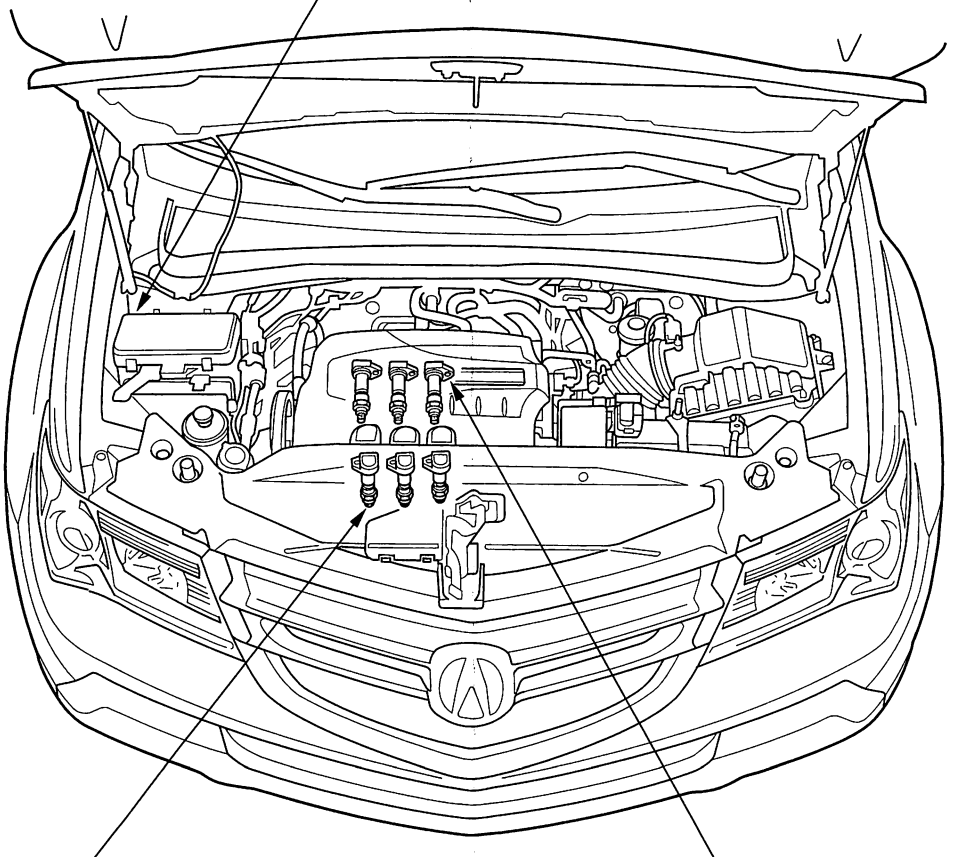
Protected by AR

27. Install the end cover to retain the brush holder.



Protected by AR

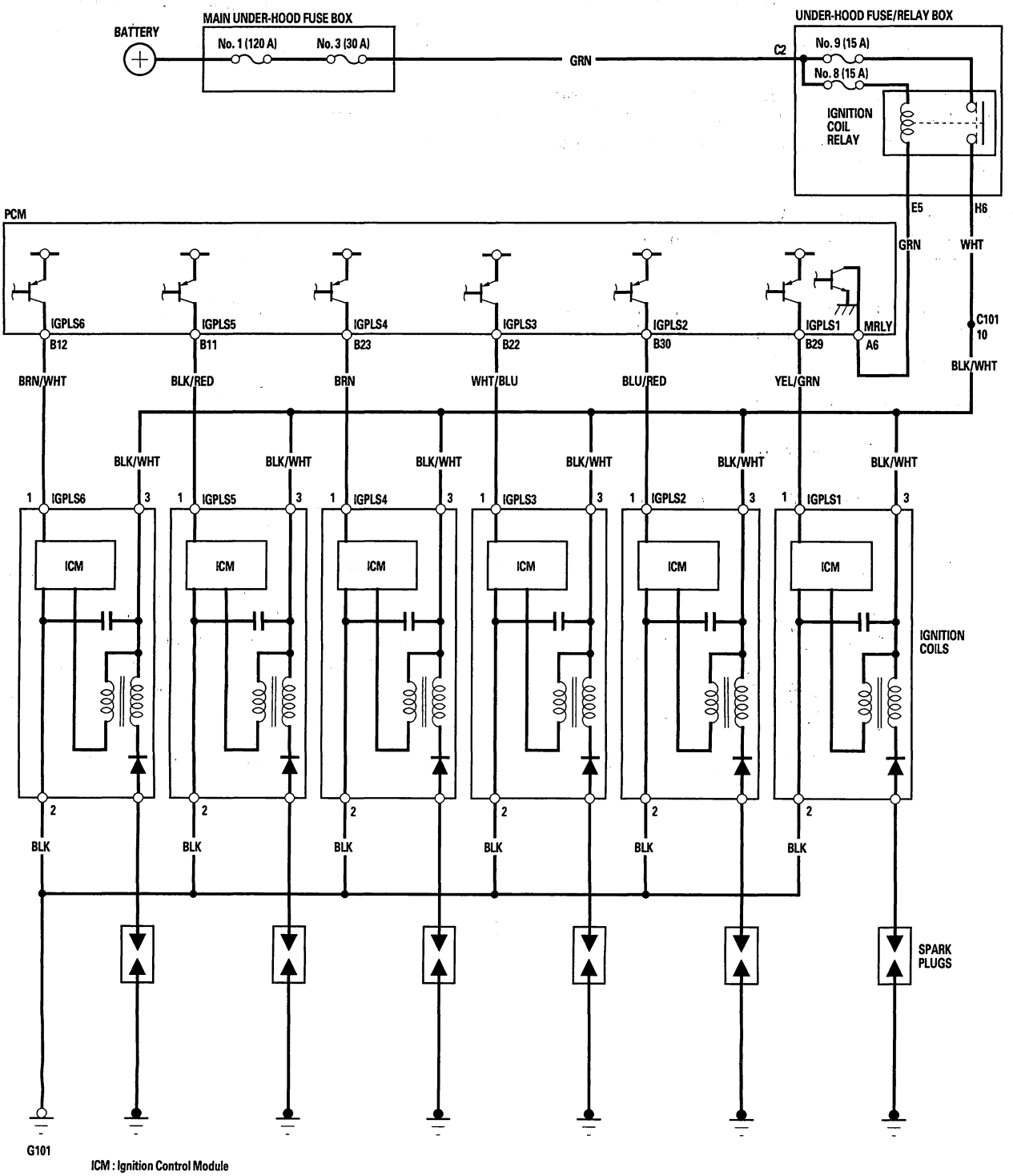
Component Location Index



BACK

Protected by AR

Circuit Diagram



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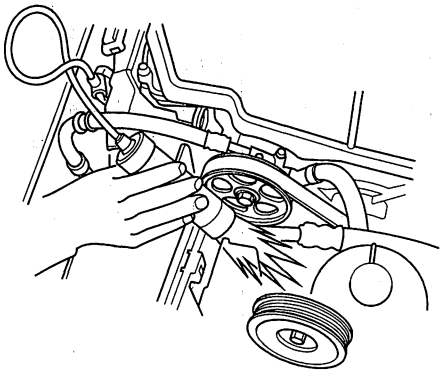
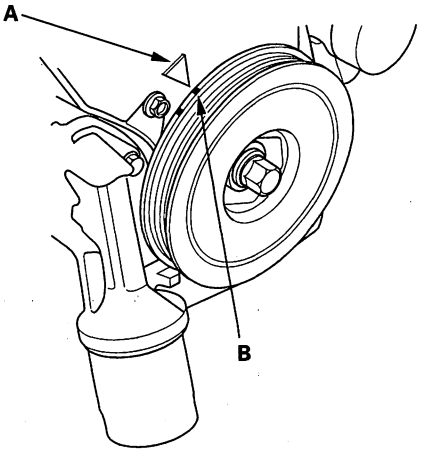
Ignition Timing Inspection

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit (see page 11-223).
4. Check for DTCs. If a DTC is present, diagnose and repair the cause before inspecting the ignition timing.
5. Start the engine. Hold the engine at 3,000 rpm with no load (in park or Neutral) until the radiator fan comes on, then let it idle.
6. Check the idle speed (see page 11-310).
7. Jump the SCS line with the HDS.
8. Connect the timing light to the service loop.



9. Aim the light toward the pointer (A) on the timing belt cover. Check the ignition timing under a no load condition (headlights, blower fan, rear window defogger, and air conditioner are turned off).

   Ignition Timing:
   10 °±2 °BTDC (RED mark (B)) at idle in Park or Neutral



10. If the ignition timing differs from the specification, check the cam timing. If the cam timing is OK, update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the ignition system works properly, replace the original PCM (see page 11-244).
11. Disconnect the HDS and the timing light.

BACK

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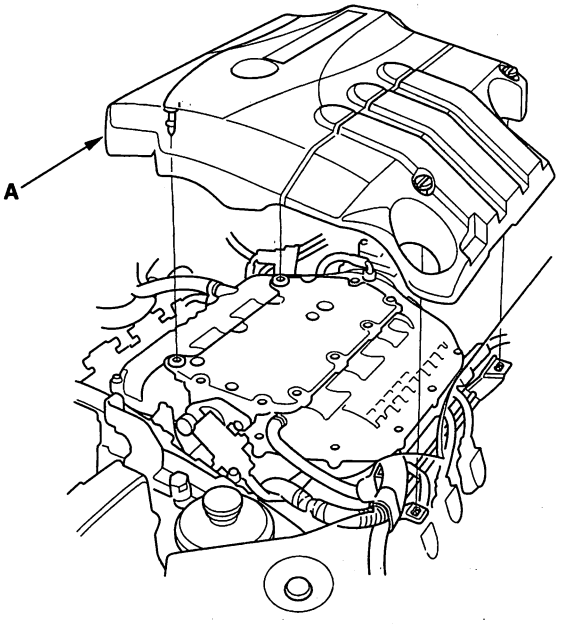
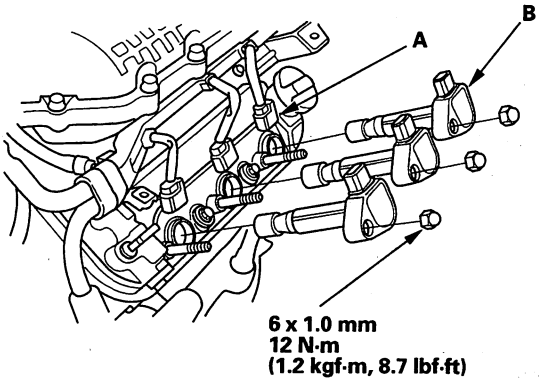
Ignition Coil Removal/Installation

1. Remove the engine cover (A).



2. Disconnect the ignition coil connector (A), then remove the ignition coils (B).



3. Install the ignition coils in the reverse order of removal.

Ignition Coil Relay Circuit Troubleshooting

1. Check the No. 8 (15 A) fuse and No. 9 (15 A) fuse in the under-hood fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

   NO—Replace the fuse. If the fuse continues to blow, locate and repair the short in the circuit between the under-hood fuse/relay box and the ignition coils. ■

2. Remove the relay control module from the under-hood fuse/relay box, and test it (see page 22-78).

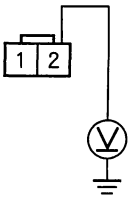
   Is the relay OK?

   YES—Go to step 3.

   NO—Replace the relay control module in the under-hood fuse/relay box. ■

3. Measure the voltage between the relay control module connector C terminal No. 2 and body ground.

RELAY CONTROL MODULE 2P CONNECTOR C



Wire side of female terminals

Is there battery voltage?

YES—Go to step 4.

NO—Repair open in the wire between relay control module connector C terminal No. 2 and the main under-hood fuse box. ■

(cont'd)

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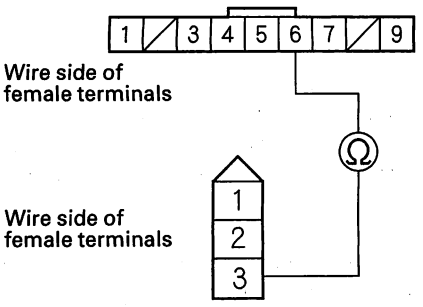
Ignition Coil Relay Circuit Troubleshooting (cont'd)

4. Check for continuity between the relay control module connector H terminal No. 6 and No. 1 ignition coil 3P connector terminal No. 3.

RELAY CONTROL MODULE CONNECTOR H



No. 1 IGNITION COIL 3P CONNECTOR

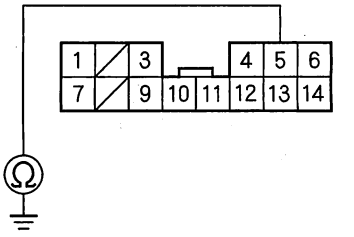
Is there continuity?

YES—Go to step 5.

NO—Repair open in the wire between the relay control module connector H terminal No. 6 and ignition coil 3P connector terminal No. 3.■

5. Check for continuity between the relay control module connector E terminal No. 5 and body ground.

RELAY CONTROL MODULE CONNECTOR E



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the relay control module connector E terminal No. 5 and the powertrain control module (PCM) (A6).■

NO—Go to step 6.

6. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).

7. Turn the ignition switch ON (II).

8. Make sure the HDS communicates with the vehicle and the PCM. If it doesn't communicate, troubleshoot the DLC circuit (see page 11-223).

9. Jump the SCS line with the HDS, then turn the ignition switch OFF.

NOTE: This step must be done to protect the PCM from damage.

10. Disconnect PCM connector A (49P).

BACK

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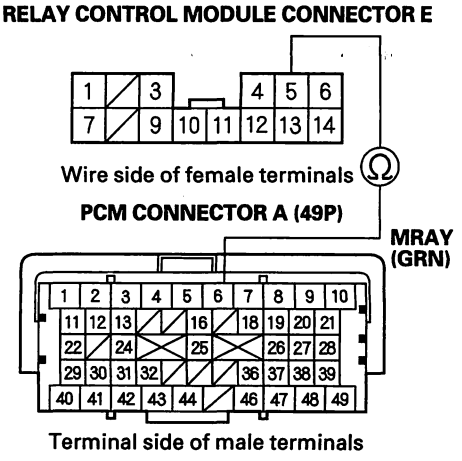
11. Check for continuity between relay control module connector E terminal No. 5 and PCM connector terminal A6.



Is there continuity?

YES—The system is OK at this time. Check for loose or poor connections at the relay control module connector E and the PCM (A6). ■

NO—Repair open in the wire between the relay control module connector E terminal No. 5 and the PCM (A6). ■

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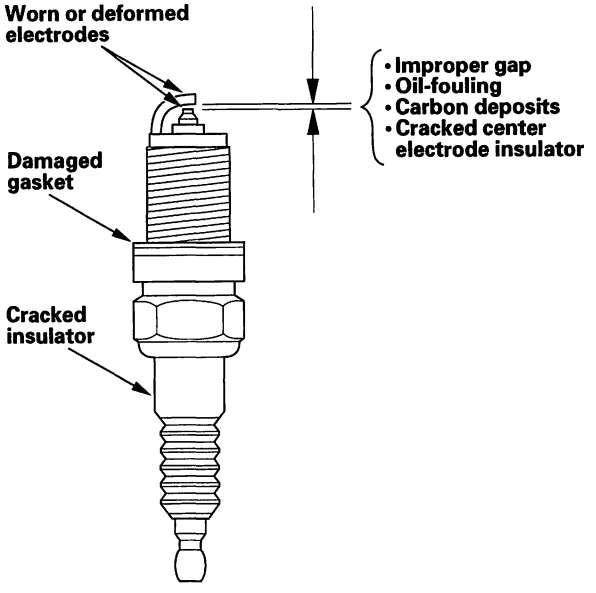
Spark Plug Inspection

1. Remove the spark plugs and inspect the electrodes and the ceramic insulator.

   - Burned or worn electrodes may be caused by:
     – Advanced ignition timing
     – Loose spark plug
     – Plug heat range too hot
     – Insufficient cooling

   - Fouled plugs may be caused by:
     – Retarded ignition timing
     – Oil in combustion chamber
     – Incorrect spark plug gap
     – Plug heat range too cold
     – Excessive idling/low speed running
     – Clogged air cleaner element
     – Deteriorated ignition coils

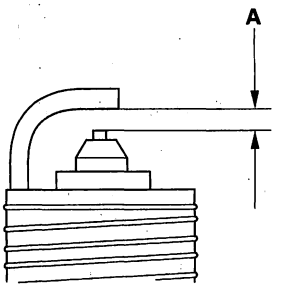


2. If the spark plug electrode is dirty or contaminated, clean the electrode with a plug cleaner.

   NOTE:
   - Do not use a wire brush or scrape the iridium electrode since this will damage the electrode.
   - When using a sand blaster spark plug cleaner, do not clean for more than 20 seconds to avoid damaging the electrode.

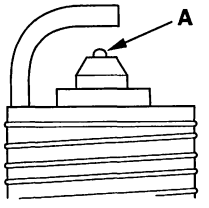
3. Do not adjust the gap (A) of iridium tip plugs; replace the spark plug if the gap is out of specification.

   Electrode Gap
   Standard (New): 1.0—1.1 mm (0.039—0.043 in.)



4. Replace the plug at the specified interval, if the center electrode is rounded (A). Use only the listed spark plugs.

   Spark Plugs
   NGK: IZFR6K11
   DENSO: SKJ20DR-M11



5. Apply a small amount of anti-seize compound to the plug threads, and screw the plugs into the cylinder head, finger-tight. Torque them to 18 N·m (1.8 kgf·m, 13 lbf·ft).

BACK

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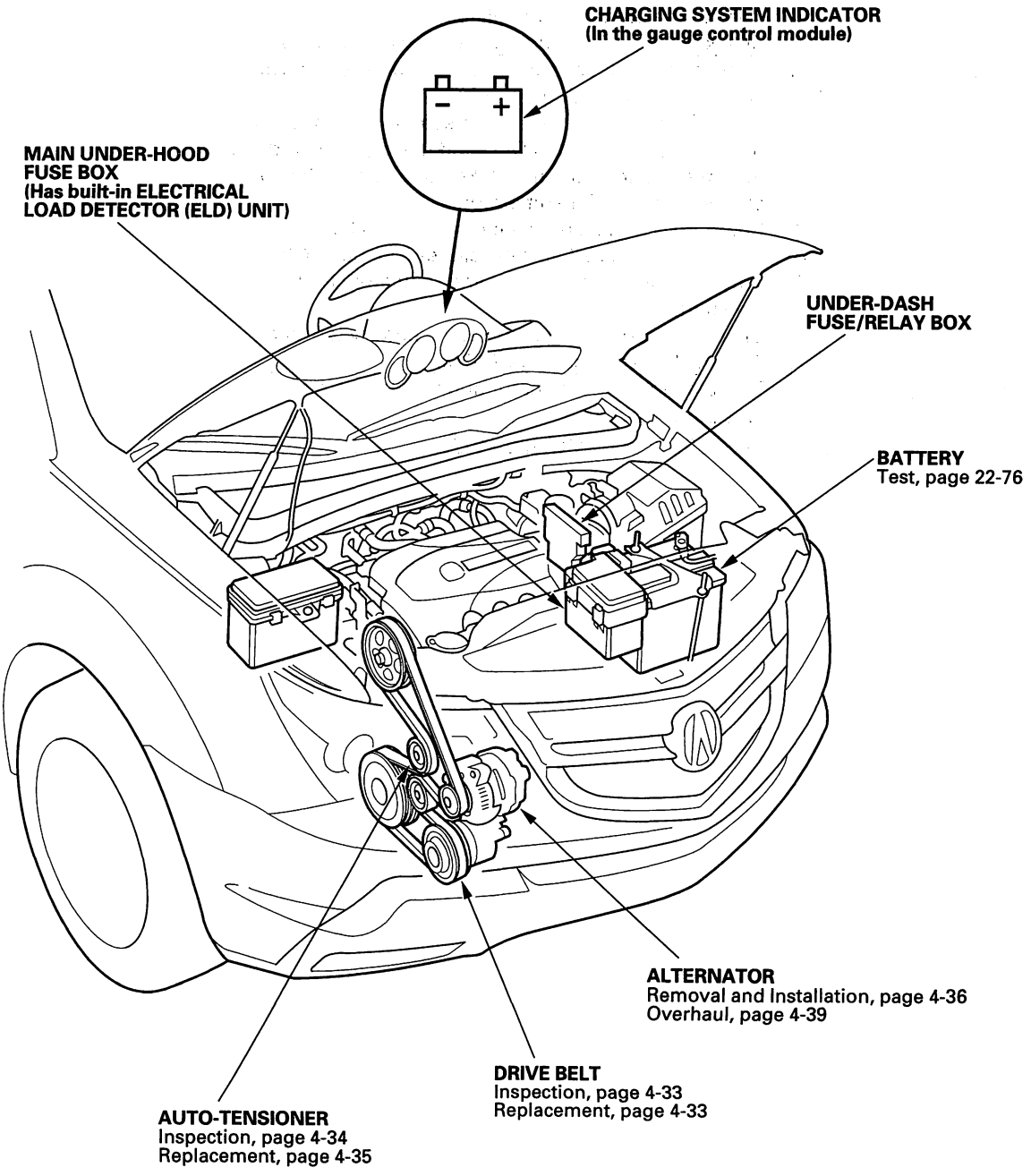
Charging System

Component Location Index



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Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Charging system indicator does not come on with the ignition switch ON (II)	Troubleshoot the charging system indicator circuit (see page 4-28).	
Charging system indicator stays on	1. Troubleshoot the charging system indicator circuit (see page 4-28). 2. Check for a broken drive belt (see page 4-33). 3. Check the drive belt auto-tensioner (see page 4-34).	
Battery discharged	1. Check for a poor connection and for open or shorted wire(s) in the charging system. 2. Check for excessive parasitic electrical current draw with the ignition switch OFF, and the key removed. The multiplex control unit may take up to 10 minutes to turn off (sleep mode) for some models. 3. Check for a broken drive belt (see page 4-33). 4. Check the drive belt auto-tensioner (see page 4-34). 5. Troubleshoot the alternator and regulator circuit (see page 4-30). 6. Check for a poor connection at the battery terminal. 7. Test the battery (see page 22-76).	
Battery overcharged	1. Troubleshoot the alternator and regulator circuit (see page 4-30). 2. Test the battery (see page 22-76).	

BACK

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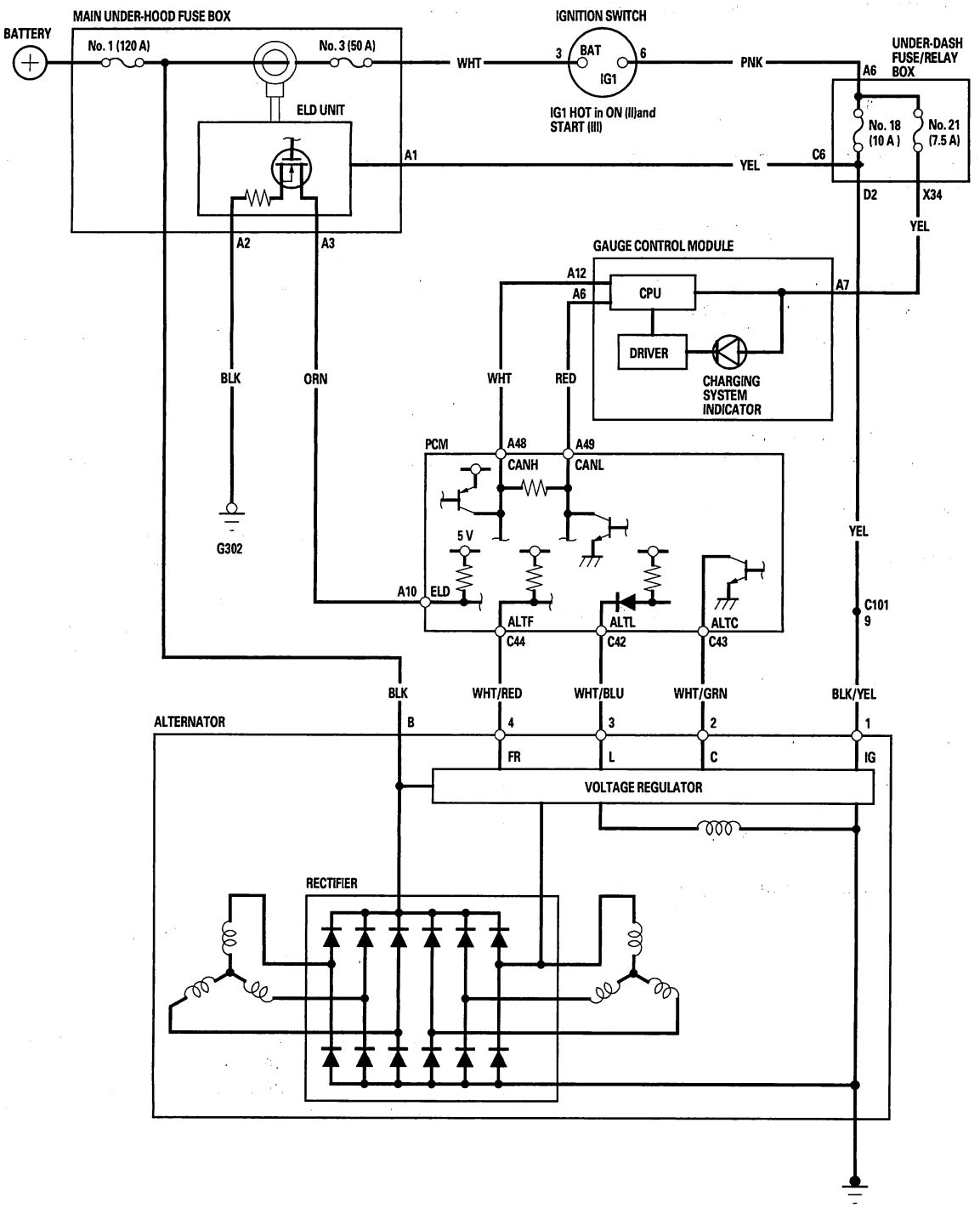
Circuit Diagram



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Charging System Indicator Circuit Troubleshooting

1. Turn the ignition switch ON (II).

   Does the charging system indicator come on?

   YES—Go to step 2.

   NO—Go to step 14.

2. Start the engine. Hold the engine speed at 2,000 rpm for 1 minute.

   Does the charging system indicator go off?

   YES—Charging system indicator circuit is OK. Go to the alternator and regulator circuit troubleshooting (see page 4-30). ■

   NO—Go to step 3.

3. Do the gauge control module self-diagnostic function procedure (see page 22-315).

   Does the charging system indicator flash?

   YES—Go to step 4.

   NO—Replace the gauge control module (see page 22-337). ■

4. Turn the ignition switch OFF.

5. Disconnect the alternator 4P connector.

6. Turn the ignition switch ON (II).

   Does the charging system indicator go off?

   YES—Replace the alternator (see page 4-36), or repair the alternator (see page 4-39). ■

   NO—Go to step 7.

7. Turn the ignition switch OFF.

8. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).

9. Turn the ignition switch ON (II).

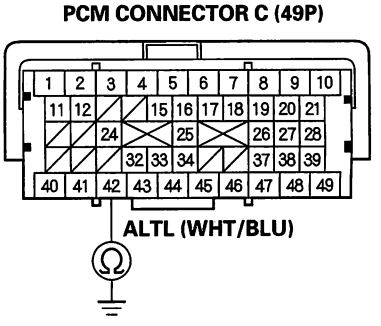
10. Make sure the HDS communicates with the vehicle and the powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit (see page 11-223).

11. Jump the SCS line with the HDS, then turn the ignition switch OFF.

    NOTE: This step must be done to protect the PCM from damage.

12. Disconnect PCM connector C (49P).

13. Check for continuity between PCM connector terminal C42 and body ground.



Terminal side of male terminals

Is there continuity?

YES—Repair short in the wire between the alternator and the PCM. ■

NO—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244). ■

BACK

Protected by AR

14. Do the gauge control module self-diagnostic function procedure (see page 22-315).

    Does the charging system indicator flash?

    YES—Go to step 15.

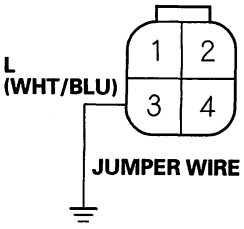
    NO—Replace the gauge control module (see page 22-337). ■

15. Turn the ignition switch OFF.

16. Disconnect the alternator 4P connector.

17. Connect alternator 4P connector terminal No. 3 and body ground with a jumper wire.

ALTERNATOR 4P CONNECTOR



Wire side of female terminals

18. Turn the ignition switch ON (II).

    Does the charging system indicator come on?

    YES—Replace the alternator (see page 4-36), or repair the alternator (see page 4-39). ■

    NO—Go to step 19.

19. Connect the HDS to the DLC (see step 2 on page 11-3).

20. Turn the ignition switch ON (II).

21. Make sure the HDS communicates with the vehicle and the PCM. If it doesn't communicate, troubleshoot the DLC circuit (see page 11-223).

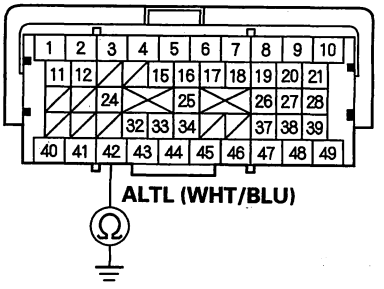
22. Jump the SCS line with the HDS, then turn the ignition switch OFF.

    NOTE: This step must be done to protect the PCM from damage.

23. Disconnect PCM connector C (49P).

24. Check for continuity between PCM connector terminal C42 and body ground.

PCM CONNECTOR C (49P)



Terminal side of male terminals

Is there continuity?

YES—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244). ■

NO—Repair open in the wire between the alternator and the PCM. ■

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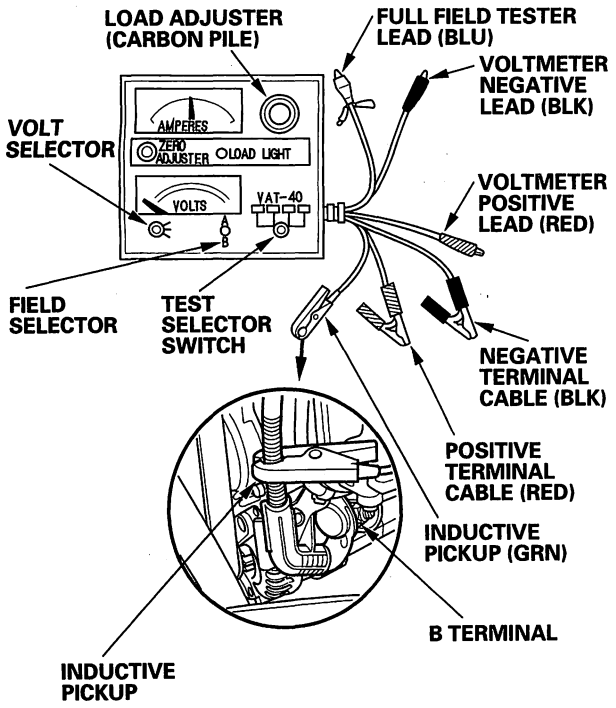
Alternator and Regulator Circuit Troubleshooting

1. Make sure the battery connections are good and the battery is fully charged (see page 22-76).

2. Remove the engine cover (see step 1 on page 4-21).

3. Connect a VAT-40 (or equivalent tester), and turn the selector switch to position 1 (starting).



4. Start the engine. Hold the engine speed at 3,000 rpm, with no load, until the radiator fan comes on, then let it idle.

5. Raise the engine speed to 2,000 rpm, and hold it there.

   Is the voltage over 15.1 V?

   YES—Replace the alternator (see page 4-36) or rear housing assembly (see page 4-39). ■

   NO—Go to step 6.

6. Release the accelerator pedal, and let the engine idle.

7. Turn off all the accessories. Select the charging test on the tester.

8. Remove the inductive pickup, and zero the ammeter.

9. Place the inductive pickup over the B terminal wire of the alternator so the arrow points away from the alternator.

10. Raise the engine speed to 2,000 rpm, and hold it there.

    Is the voltage less than 13.5 V?

    YES—Go to alternator control circuit troubleshooting (see page 4-31). ■

    NO—Go to step 11.

11. Apply a load with the VAT-40 until the battery voltage drops between 12—13.5 V.

    Is the amperage 87.5 A or more?

    YES—The charging system is OK. ■

    NOTE: If the charging system indicator is still on, replace the alternator (see page 4-36).

    NO—Replace the alternator (see page 4-36), or repair the alternator (see page 4-39). ■

BACK

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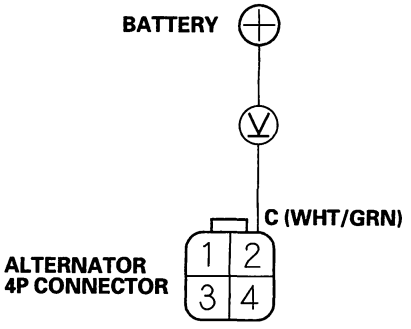
Alternator Control Circuit Troubleshooting

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit (see page 11-223).
4. Check for DTCs. If a DTC is present, diagnose and repair the cause before continuing with this test.
5. Disconnect the alternator 4P connector from the alternator.
6. Start the engine, and turn on the headlights to high beam.
7. Measure the voltage between alternator 4P connector terminal No. 2 and the positive terminal of the battery.



Wire side of female terminals

Is there less than 1 V?

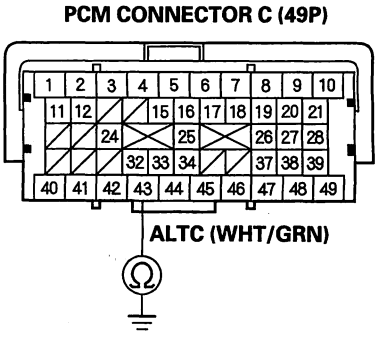
YES—Go to step 8.

NO—Go to step 11.

8. Jump the SCS line with the HDS, then turn the ignition switch OFF.

   NOTE: This step must be done to protect the PCM from damage.

9. Disconnect PCM connector C (49P).
10. Check for continuity between PCM connector terminal C43 and body ground.



Terminal side of male terminals

Is there continuity?

YES—Repair short in the wire between the alternator and the PCM. ■

NO—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244). ■

11. Jump the SCS line with the HDS, then turn the ignition switch OFF.

    NOTE: This step must be done to protect the PCM from damage.

12. Disconnect PCM connector C (49P).

(cont'd)

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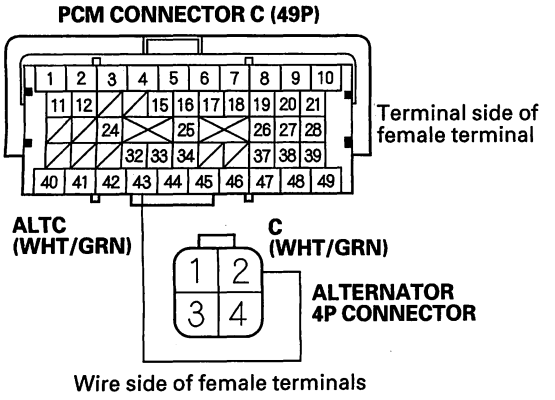
Alternator Control Circuit Troubleshooting (cont'd)

13. Check for continuity between PCM connector terminal C43 and alternator 4P connector terminal No. 2.



Is there continuity?

YES—Replace the alternator (see page 4-36), or repair the alternator (see page 4-39). ■

NO—Repair open in the wire between the alternator and the PCM. ■

BACK

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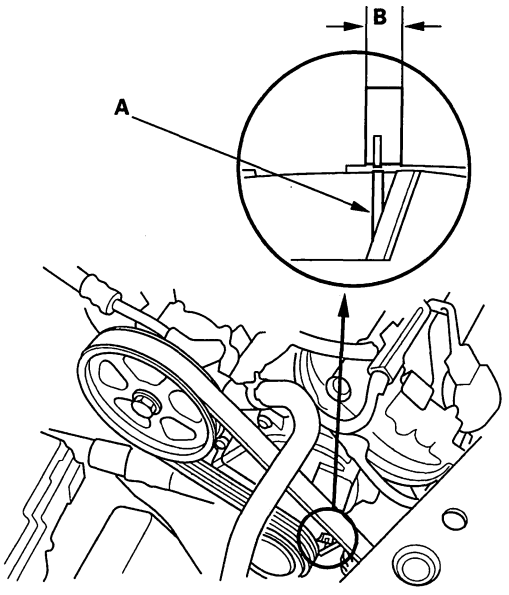
Drive Belt Inspection

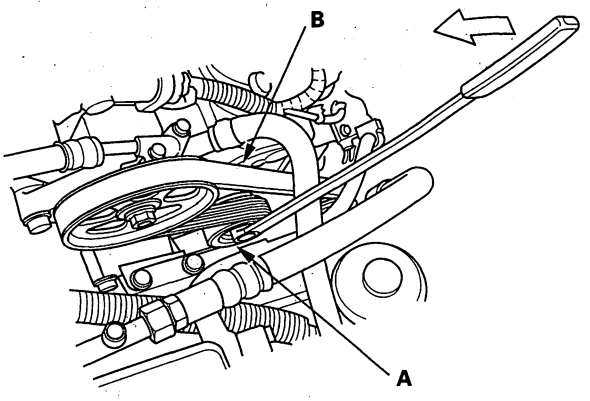
1. Inspect the belt for cracks and damage. If the belt is cracked or damaged, replace it.
2. Check that the auto-tensioner indicator (A) is within the standard range (B) as shown. If it is out of the standard range, replace the drive belt (see page 4-33).

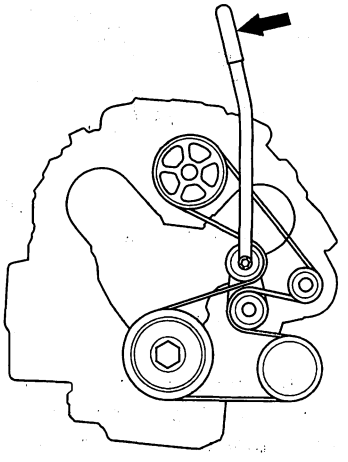


Drive Belt Replacement

Special Tools Required
Belt tension release tool Snap-on YA9317 or equivalent, commercially available

1. Move the auto-tensioner (A) using the belt tension release tool to relieve tension from the drive belt (B), then remove the drive belt.





2. Install the new belt in the reverse order of removal.

BACK

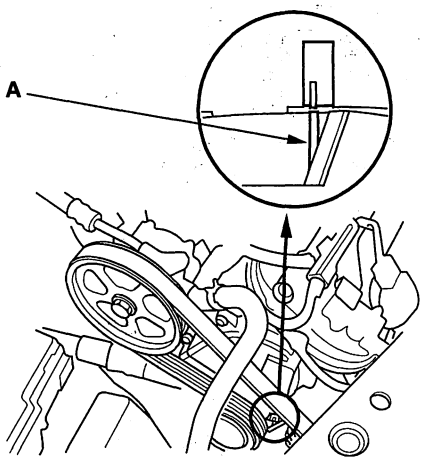
Protected by AR

Drive Belt Auto-tensioner Inspection

Special Tools Required
Belt tension release tool Snap-on YA9317 or equivalent, commercially available

1. Turn the ignition switch ON (II), then make sure to turn the A/C switch OFF.

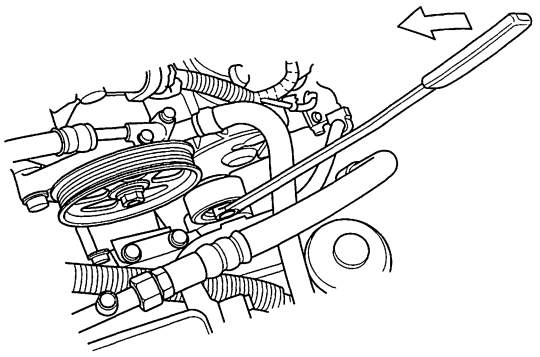
2. With the engine OFF, check the position of the auto-tensioner indicator's pointer (A). Start the engine, then check the position again with the engine idling. If the position of the indicator moves or fluctuates a lot, replace the auto-tensioner (see page 4-35).



3. Check for abnormal noise from the tensioner pulley. If you hear any abnormal noise, replace the auto-tensioner pulley.

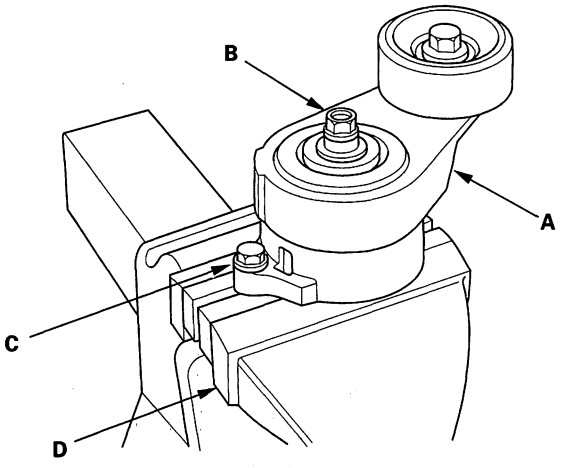
4. Remove the drive belt (see page 4-33).

5. Move the auto-tensioner within its limit using the belt tension release tool in the direction shown. Check that the tensioner moves smoothly and without any abnormal noise. If the tensioner does not move smoothly or you hear abnormal noise, replace the auto-tensioner.



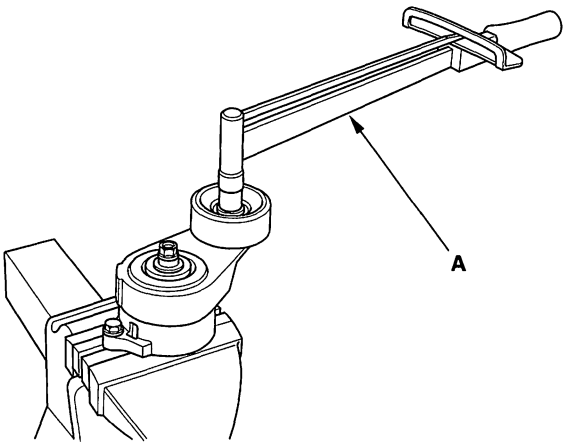
6. Remove the auto-tensioner (see page 4-35).

7. Clamp the auto-tensioner (A) by using a 10 mm bolt (B), 8 mm bolt (C), and a vise (D) as shown. Do not clamp the auto-tensioner itself.



8. Attach a torque wrench (A) to the pulley bolt. Measure the torque when the tensioner is turned counterclockwise. If the torque is less than the specified value, replace the auto-tensioner.

Auto-tensioner Spring Torque:
50.5 N·m (5.15 kgf·m, 37.2 lbf·ft)



BACK

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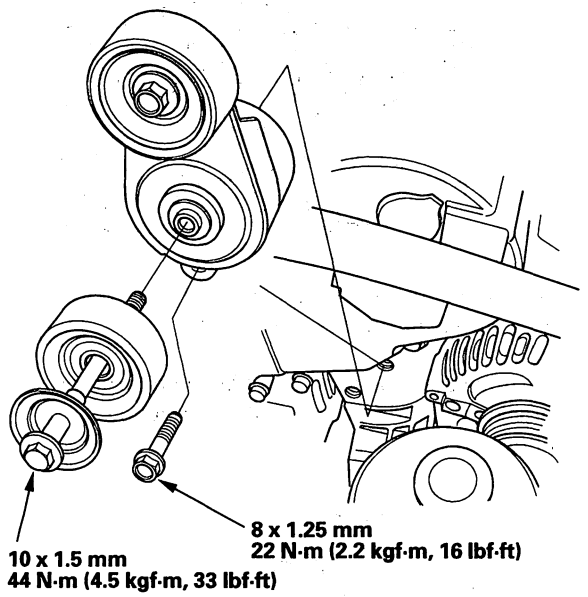
Drive Belt Auto-tensioner Replacement

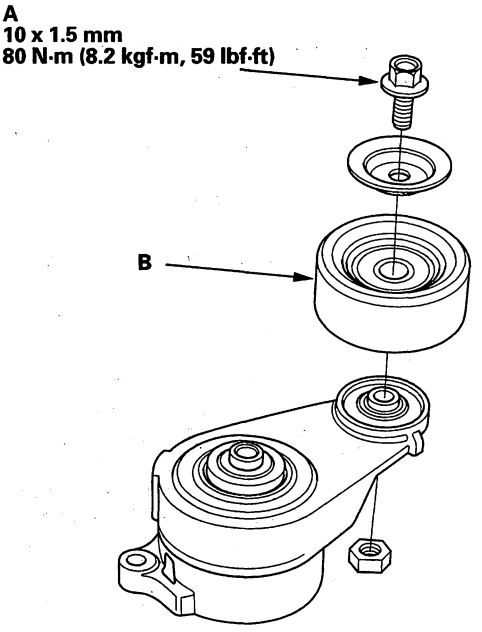
1. Remove the drive belt (see page 4-33).
2. Remove the splash shield (see step 31 on page 5-5).
3. Remove the auto-tensioner.



4. Install the auto-tensioner in the reverse order of removal.

Tensioner Pulley Replacement

1. Remove the auto-tensioner (see page 4-35).
2. Remove the pulley bolt (A) (left-hand threads), and remove the tensioner pulley (B).



3. Install the tensioner pulley in the reverse order of removal.

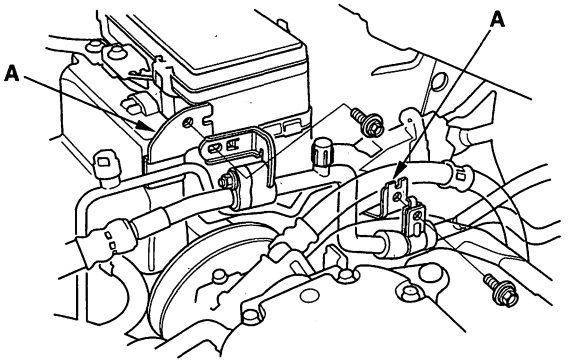
BACK

Protected by AR

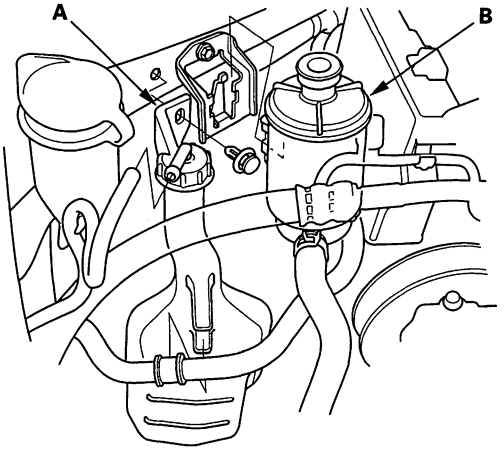
Alternator Removal and Installation

Removal

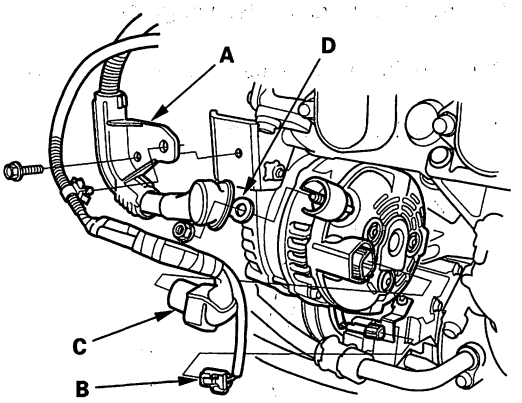
1. Make sure you have the anti-theft codes for the audio system and navigation system (if equipped). Make sure the ignition switch is OFF.
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.
3. Remove the engine cover (see step 1 on page 4-21).
4. Remove the drive belt (see page 4-33).
5. Remove the A/C suction line from brackets (A).



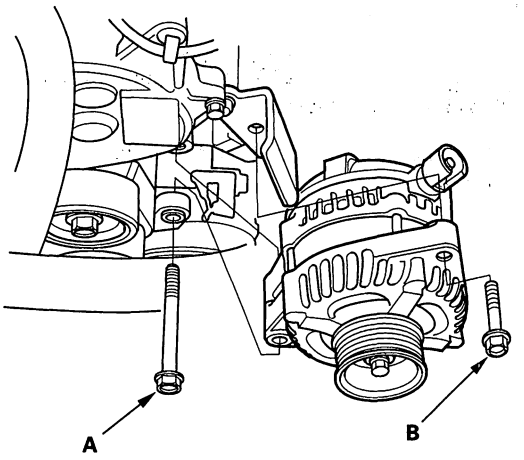
6. Remove the coolant reservoir (A), then remove power steering fluid reservoir (B) from the bracket.



7. Remove the harness bracket (A), then disconnect the A/C compressor clutch connector (B).



8. Disconnect the alternator connector (C) and the BLK wire (D) from the alternator.
9. Remove the mounting bolt (A) and alternator bracket mounting bolt (B), then remove the alternator.

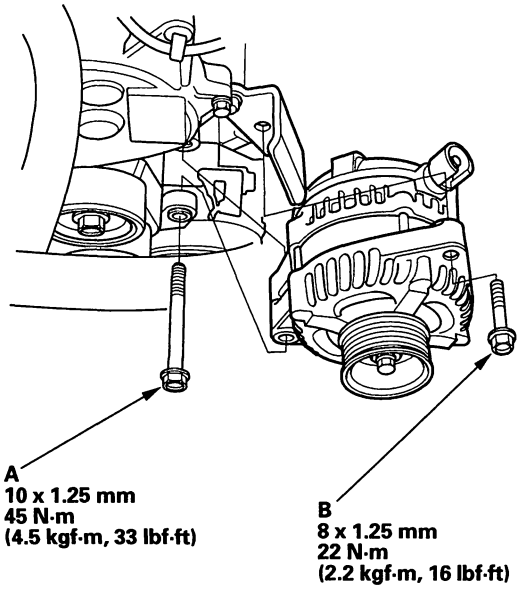


BACK

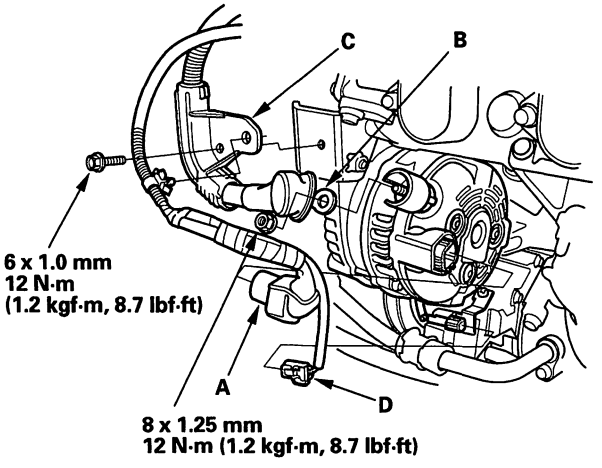
Protected by AR

Installation

1. Install the alternator, and tighten the mounting bolt (A) and bracket mounting bolt (B).

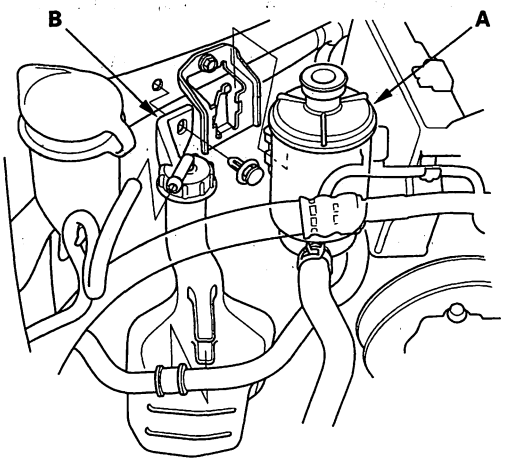


2. Connect the alternator connector (A), BLK wire (B) to the alternator.

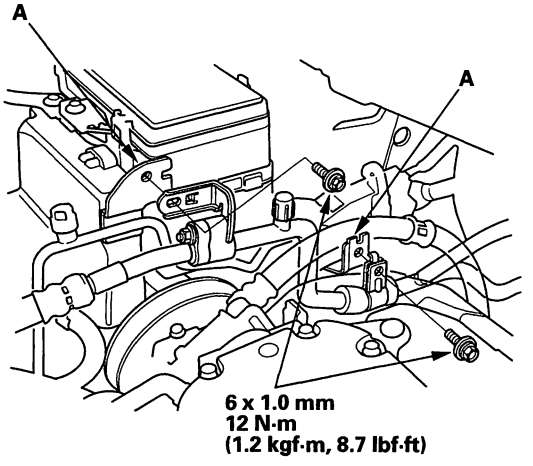


3. Install the harness bracket (C), then connect the A/C compressor clutch connector (D).

4. Install the power steering fluid reservoir (A) to the bracket, then install the coolant reservoir (B).



5. Install the A/C suction line to the brackets (A).



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Alternator Removal and Installation (cont'd)

6. Install the drive belt (see page 4-33).
7. Install the engine cover (see step 1 on page 4-21).
8. Connect the positive cable to the battery first, then connect the negative cable.
9. Do the steering column position memorization (see page 17-28).
10. Enter the anti-theft codes for the audio system and navigation system (if equipped).
11. Set the clock.

BACK

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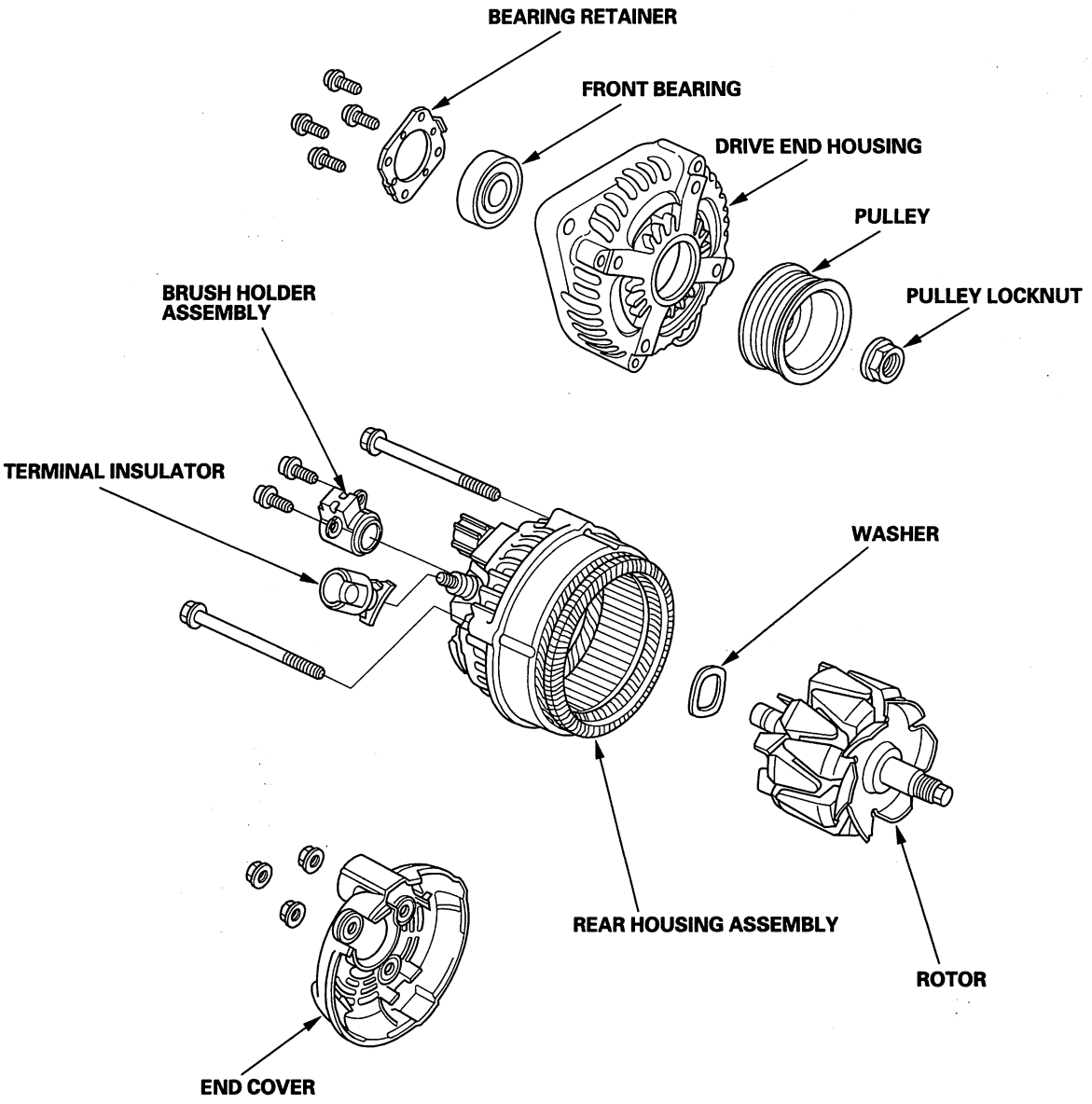
Alternator Overhaul

Exploded View



(cont'd)

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Alternator Overhaul (cont'd)

Special Tools Required
- Handle driver 07749-0010000
- Attachment, 42 x 47 mm 07746-0010300

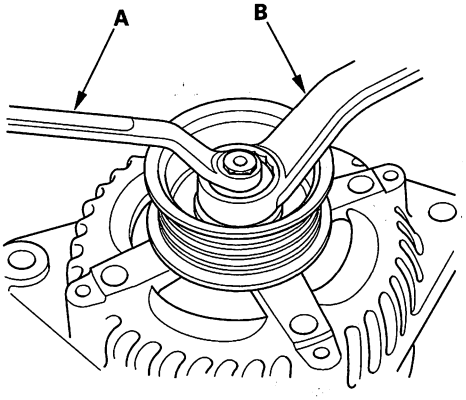
NOTE: Refer to the Exploded View as needed during this procedure.

Alternator Disassembly

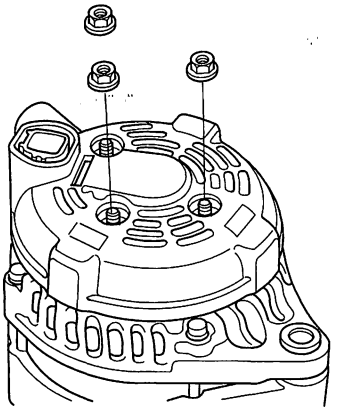
1. Test the alternator and regulator before you remove them (see page 4-28).

2. Remove the alternator (see page 4-36).

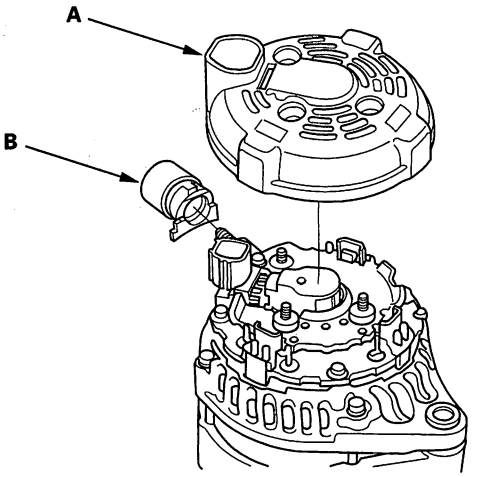
3. If the front bearing needs replacing, remove the pulley locknut with a 10 mm wrench (A) and a 22 mm wrench (B). If necessary, use an impact wrench.



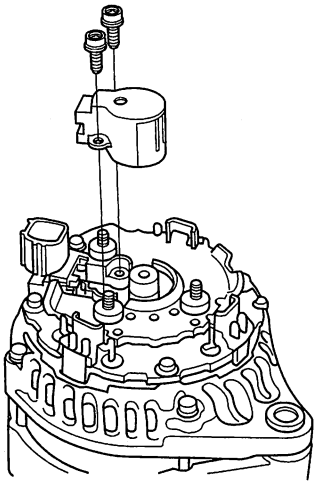
4. Remove the three flange nuts.



5. Remove the end cover (A) and the insulator (B).



6. Remove the brush holder.



BACK

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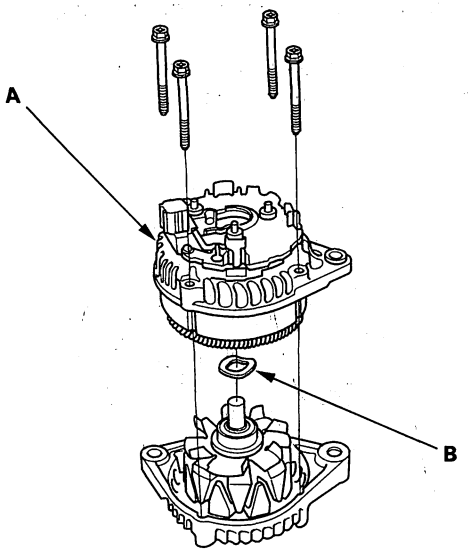
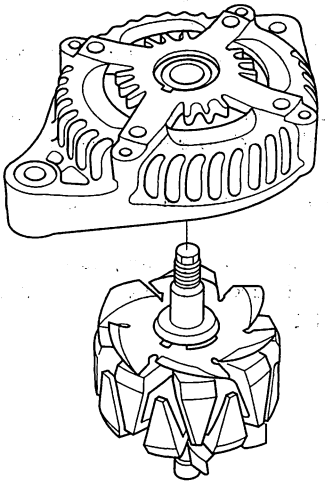
7. Remove the four bolts, then remove the rear housing assembly (A) and washer (B).



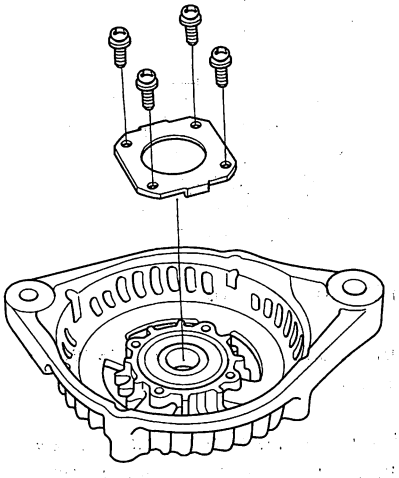
8. If you are not replacing the front bearing, go to step 13. Remove the rotor from the drive end housing.



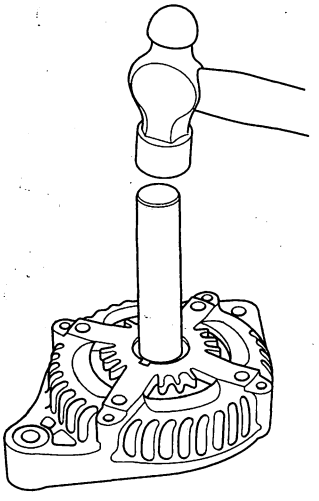
9. Inspect the rotor shaft for scoring, and inspect the bearing journal surface in the drive end housing for seizure marks.

   - If the rotor is damaged, replace the rotor assembly.
   - If the rotor is OK, go to step 10.

10. Remove the front bearing retainer plate.



11. Drive out the front bearing with a brass drift and hammer.



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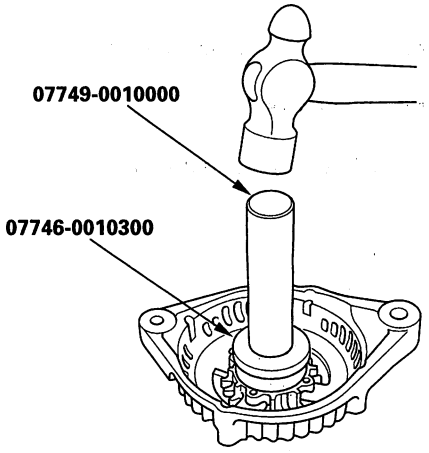
Alternator Overhaul (cont'd)

12. With a hammer, driver handle, and attachment, install a new front bearing in the drive end housing.

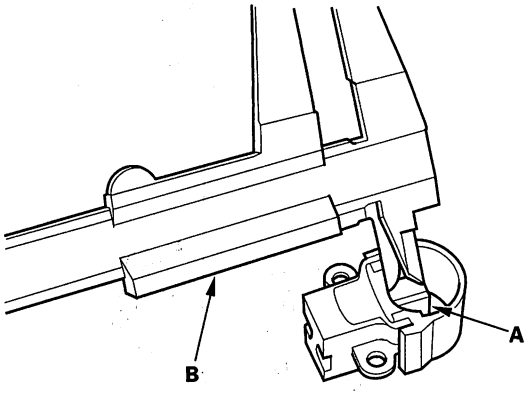


Alternator Brush Inspection

13. Measure the length of both brushes (A) with a vernier caliper (B).

- If either brush is shorter than the service limit, replace the brush holder assembly.
- If the brush length is OK, go to step 14.

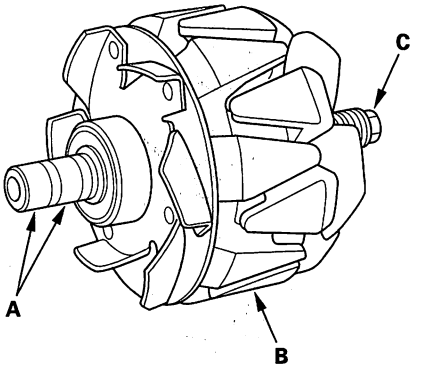
Alternator Brush Length
Standard (New): 10.5 mm (0.41 in.)
Service Limit: 1.5 mm (0.06 in.)



Rotor Slip Ring Test

14. Check for continuity between the slip rings (A).

- If there is continuity, go to step 15.
- If there is no continuity, replace the rotor assembly.



15. Check for continuity between each slip ring and the rotor (B) and the rotor shaft (C).

- If there is no continuity, replace the rear housing assembly, and go to step 16.
- If there is continuity, replace the rotor assembly.

16. Assemble the alternator in the reverse order of disassembly, and note these items:

- Be careful not to get any grease or oil on the slip rings.
- If you removed the pulley, tighten its locknut to 110 N·m (11.2 kgf·m, 81.0 lbf·ft) when you reinstall it.

BACK

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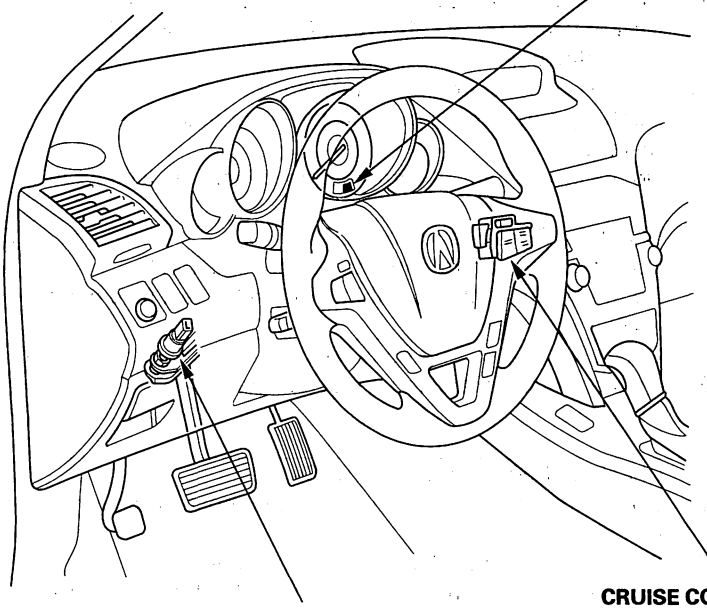
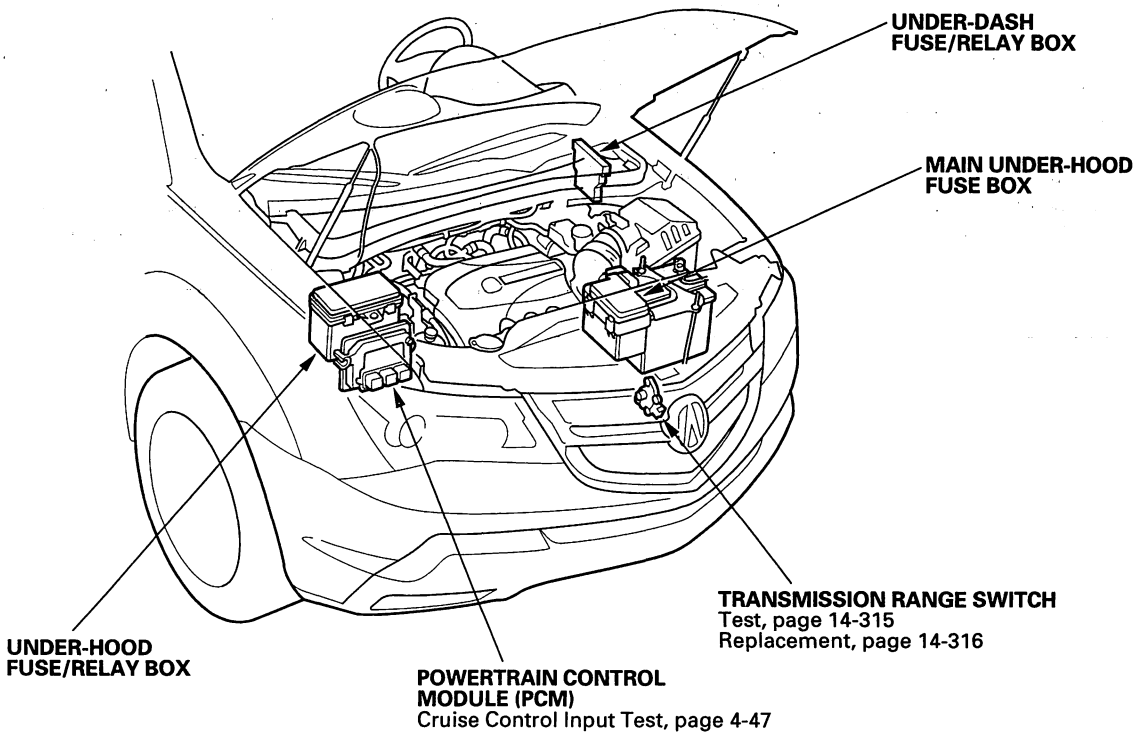
Component Location Index





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Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Cruise control cannot be set	1. Check for PGM-FI and body DTCs. 2. Check the No. 11 (15 A) fuse in the main under-hood fuse box, and the No. 18 (10 A) fuse in the under-dash fuse/relay box. 3. Do the cruise control input test (see page 4-47). 4. Do the gauge control module self-diagnostic function to test the switch. 5. Do the cruise control combination switch test (see page 4-49).	
Cruise control can be set, but the cruise control main switch indicator does not come on	1. Check for PGM-FI and body DTCs. 2. Do the cruise control input test (see page 4-47). 3. Do the cruise control combination switch test (see page 4-49).	Faulty gauge control module
Cruise control can be set, but the cruise control indicator does not come on	1. Check for PGM-FI and body DTCs. 2. Do the cruise control input test (see page 4-47).	Faulty gauge control module
Vehicle does not decelerate or accelerate accordingly when the set/decel or resume/accel switch is pressed	1. Check for PGM-FI and body DTCs. 2. Do the gauge control module self-diagnostic function to test the switch. 3. Do the cruise control input test (see page 4-47). 4. Do the cruise control combination switch test (see page 4-49).	Open circuit, loose or disconnected terminals: YEL/RED or LT GRN/BLK wire
Set speed does not cancel when the brake pedal is pressed	1. Check for PGM-FI and body DTCs. 2. Check the brake pedal position switch adjustment (see page 19-6). 3. Do the cruise control input test (see page 4-47).	Short to power in BRN wire
Set speed does not cancel when the cruise control main switch is turned off	1. Check for PGM-FI and body DTCs. 2. Do the cruise control input test (see page 4-47). 3. Do the cruise control combination switch test (see page 4-49).	Short to ground in PNK wire
Set speed does not cancel when the cancel switch is pressed	1. Check for PGM-FI and body DTCs. 2. Do the gauge control module self-diagnostic function to test the switch. 3. Do the cruise control input test (see page 4-47). 4. Do the cruise control combination switch test (see page 4-49).	Open circuit, loose or disconnected terminals: YEL/RED or LT GRN/BLK wire

BACK

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Symptom	Diagnostic procedure	Also check for
Set speed will not resume when the resume/accel switch is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the brake pedal)	1. Check for PGM-FI and body DTCs. 2. Check the brake pedal position switch adjustment (see page 19-6). 3. Do the gauge control module self-diagnostic function to test the switch. 4. Do the cruise control input test (see page 4-47). 5. Do the cruise control combination switch test (see page 4-49).	• Open circuit, loose or disconnected terminals: LT GRN/BLK wire • Faulty brake pedal position switch

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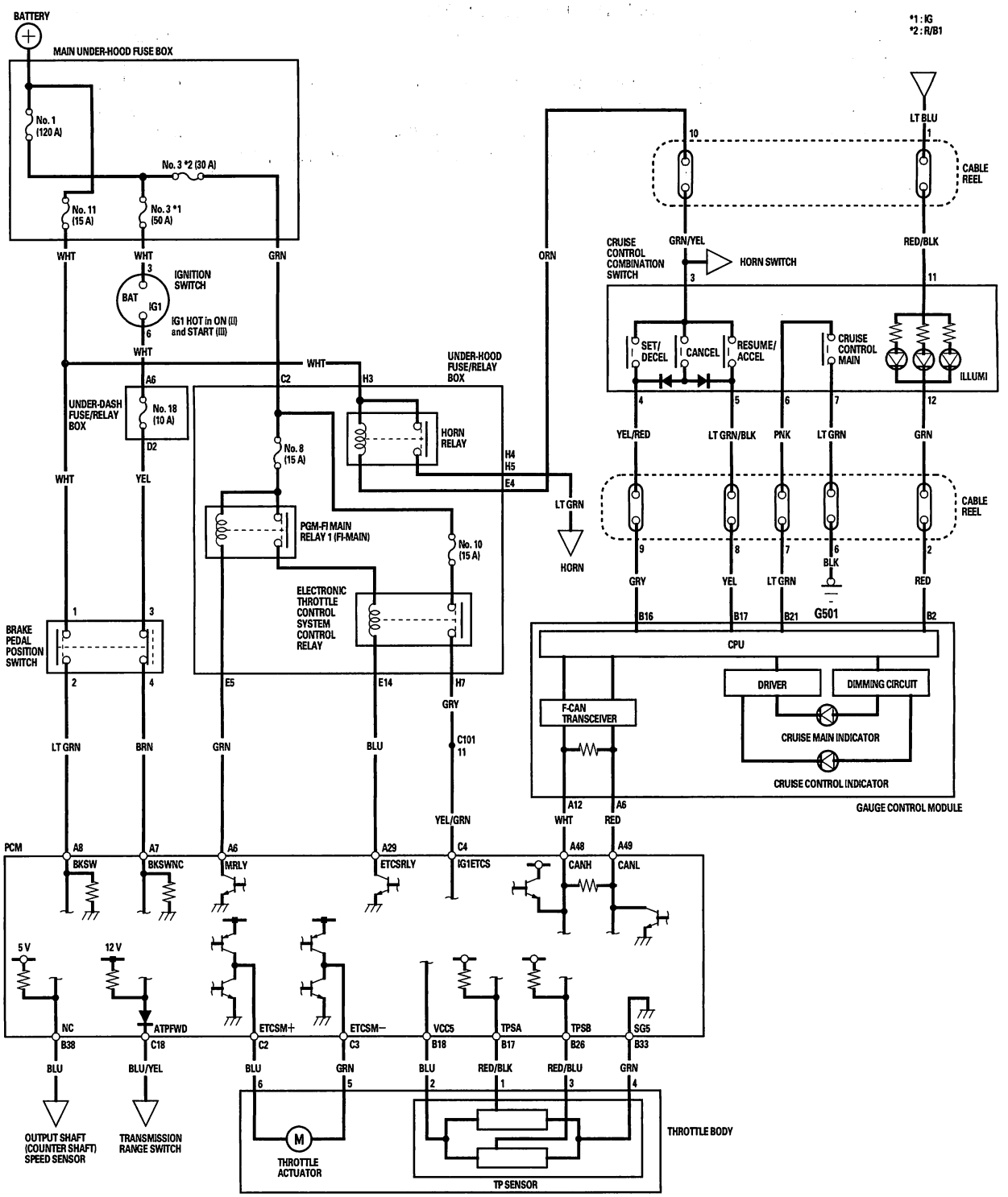
Cruise Control

Circuit Diagram



BACK

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Cruise Control Input Test

1. Connect the Honda Diagnostic System (HDS) to the Data Link Connector (DLC) (see step 2 on page 11-3).
2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the PCM. If it doesn't communicate, troubleshoot the DLC circuit (see page 11-223).
4. Do the following tests while monitoring parameters in the PGM-FI DATA LIST with the HDS.

   NOTE: Intermittent failures are often caused by loose circuit connections. While monitoring cruise control inputs, flex their circuits, and note if any of the test results change.

Signal to be tested	Test condition	Parameter: Desired result	Possible cause if result is not obtained
Cruise control main switch signal	Cruise control main switch ON and OFF	CRUISE CONTROL MAIN SW should indicate ON when the cruise control main switch is turned on and OFF when the cruise control main switch is turned off.	• Faulty cruise control combination switch • An open in the wire between the gauge control module and the cruise control combination switch • A wire shorted to ground between the gauge control module and the cruise control main switch • An open in the wire between the cruise control combination switch and the ground
Brake switch signal	Cruise control main switch ON, brake pedal pressed, then released	CRUISE BRAKE SW should indicate OFF when the brake pedal is pressed and ON should be indicated when the brake pedal is released.	• Faulty brake pedal position switch • Blown No. 10 (18 A) fuse in the under-dash fuse/relay box • An open in the wire between the PCM and the brake pedal position switch • A wire shorted to ground between the PCM and the brake pedal position switch
Set switch signal	Set/decel switch pressed and released	CRUISE CONTROL SET SW should indicate ON when the set/decel switch is pressed and OFF when the set/decel switch is released.	• Faulty cruise control combination switch • An open in the wire between the gauge control module and the cruise control combination switch • A wire shorted to ground between the gauge control module and the cruise control combination switch • An open in the wire between the cruise control combination switch and ground
Resume switch signal	Resume/accel switch pressed and released	CRUISE CONTROL RESUME SW should indicate ON when the resume switch is pressed and OFF when the resume switch is released.	• Faulty cruise control combination switch • An open in the wire between the gauge control module and the cruise control combination switch • A wire shorted to ground between the gauge control module and the cruise control combination switch

(cont'd)

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Cruise Control Input Test (cont'd)

Signal to be tested	Test condition	Parameter: Desired result	Possible cause if result is not obtained
Cancel switch signal	Cancel switch pressed and released	CRUISE CONTROL CANCEL SW should indicate ON when the cancel switch is pressed and OFF when the cancel switch is released.	Faulty cruise control combination switch
Cruise control indicator signal	Start the engine, turn the cruise control main switch on, and drive the vehicle to above 25 mph (40 km/h). Set and cancel the cruise control	CRUISE INDICATOR should indicate ON when the cruise control is set and OFF when the cruise control is cancelled.	Faulty gauge control module
Transmission range switch signal	Shift in D position	SHIFT/TRANS RANGE SW should indicate ON in D, D3 and OFF in P, R, N.	• Faulty transmission range switch • An open in the wire between the PCM and the transmission range switch • A wire shorted to ground between the PCM and the transmission range switch • Poor ground G101

BACK

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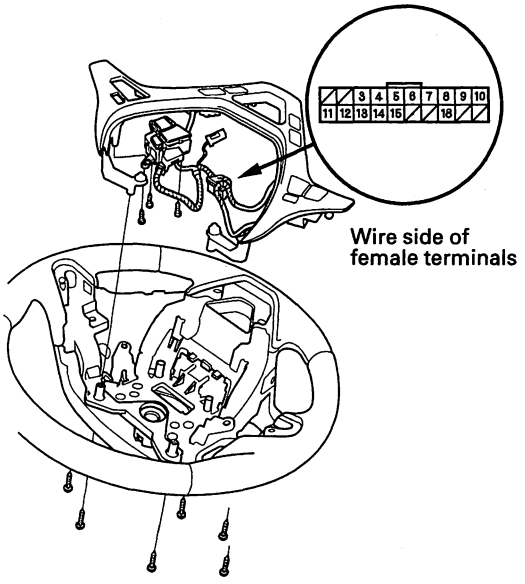
Cruise Control Combination Switch Test/Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) in the SRS before doing repairs or service.

1. Remove the driver's airbag (see page 24-137).
2. Remove the steering wheel (see page 17-22).
3. Remove the six screws, then remove the cruise control combination switch.



4. Check for continuity between the terminals in each switch position according to the table.

- If there is continuity, and it matches the table, but switch failure occurred on the cruise control input test, check and repair the wire harness on the switch circuit.
- If there is no continuity in one or both positions, replace the switch.

Position \ Terminal	3		4	5	6	7
Cruise control main switch (ON)					○	○
Cruise control main switch (OFF)						
Set/decel (PRESSED)	○		○			
Resume/accel (PRESSED)	○			○		
Cancel (PRESSED)	○	▶	○	○		

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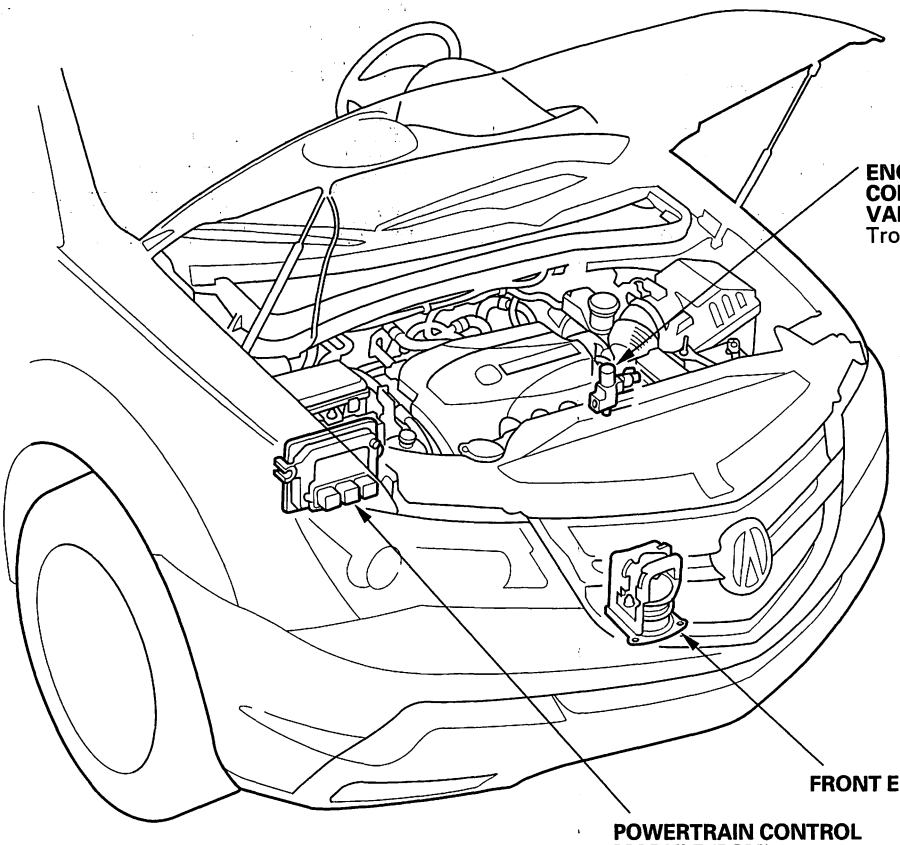
Engine Mount Control System

Component Location Index



BACK

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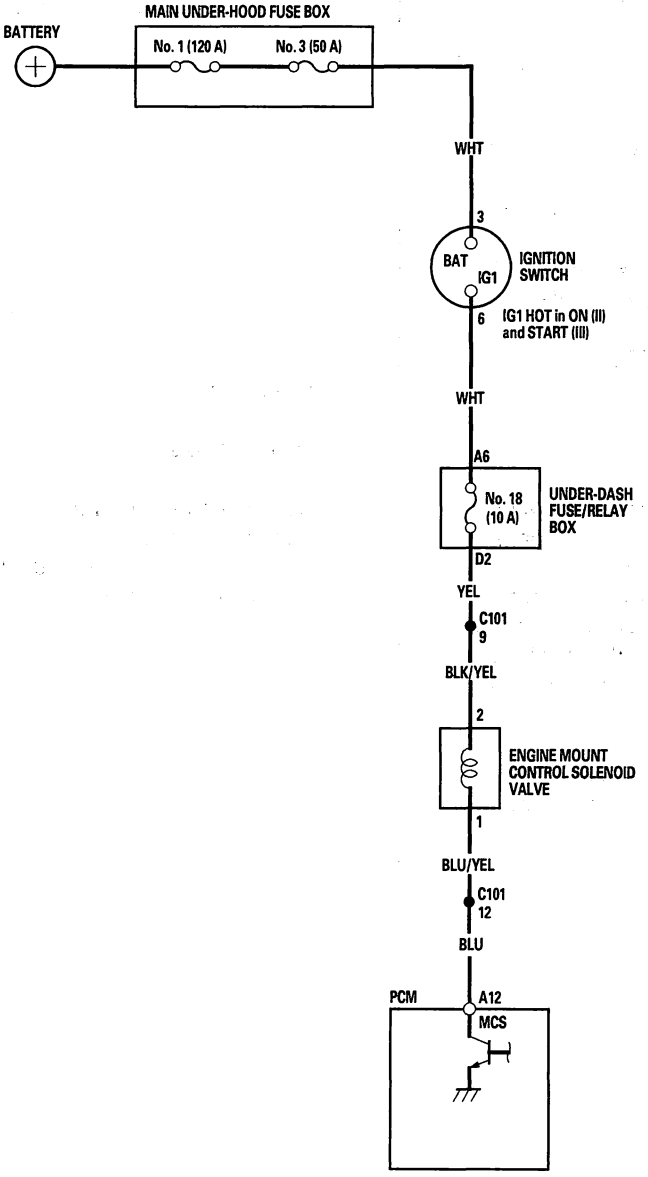
Circuit Diagram



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Troubleshooting

Special Tools Required
Vacuum pump/gauge, 0—30 in.Hg Snap-on YA4000A or equivalent, commercially available

NOTE: Check the vacuum hoses and lines for damage and proper connections before troubleshooting.

Follow this procedure if the engine vibrates excessively when idling.

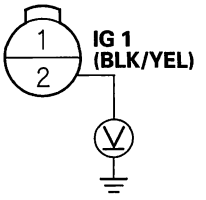
1. Start the engine, and let it idle (see page 11-310).
2. Raise the engine speed from idling to 2,000 rpm.
3. Check the MOUNT CTRL SOL in the PGM-FI DATA LIST with the Honda Diagnostic System (HDS).

   Is ON indicated at idling and OFF indicated at 2,000 rpm?

   YES—Go to step 4.

   NO—Update the powertrain control module (PCM) if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the engine mount control system works properly, and the PCM was updated, the troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244).■
4. Disconnect the engine mount control solenoid valve 2P connector from the engine mount control solenoid valve.
5. Turn the ignition switch ON (II).
6. Measure the voltage between engine mount control solenoid valve 2P connector terminal No. 2 and body ground.

ENGINE MOUNT CONTROL SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 7.

NO—Repair open in the wire between engine mount control solenoid valve 2P connector terminal No. 2 and No. 18 (10 A) fuse in the under-dash fuse/relay box.■

BACK

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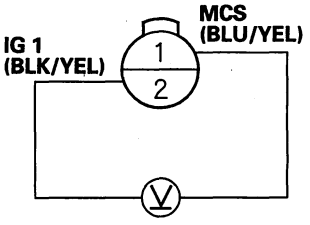
7. Measure the voltage between engine mount control solenoid valve 2P connector terminals No. 1 and No. 2, with the engine at idle.

ENGINE MOUNT CONTROL SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

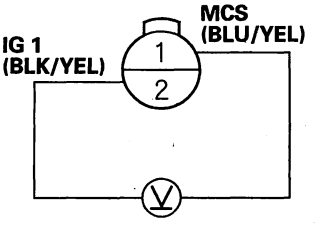
YES—Go to step 8.

NO—Repair open in the wire between PCM (A12) and the engine mount control solenoid valve 2P connector. If the wire is OK, update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), and recheck. If the engine mount control system works properly, and the PCM was updated, the troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244).■

8. Raise the engine speed above 1,000 rpm.

9. Measure the voltage between engine mount control solenoid valve 2P connector terminals No. 1 and No. 2.

ENGINE MOUNT CONTROL SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Repair short to body ground in the wire between PCM (A12) and the engine mount control solenoid valve. If the wire is OK, update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), and recheck. If the engine mount control system works properly, and the PCM was updated, the troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244).■

NO—Go to step 10.

(cont'd)

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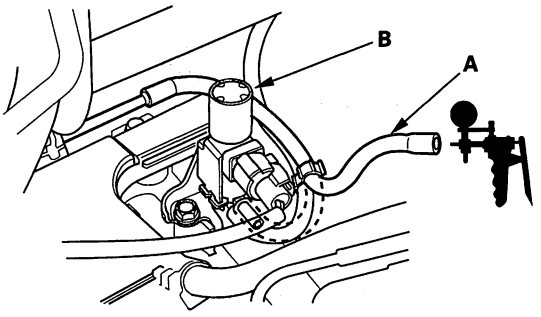
Troubleshooting (cont'd)

10. Disconnect the vacuum hose (A) that is closest to the solenoid connector from the engine mount control solenoid valve (B), and connect a commercially available vacuum pump/gauge, 0—30 in.Hg, to the hose. Apply about 20 in.Hg of vacuum, and wait for 20 seconds.



Do the engine mount hold vacuum?

YES—Go to step 11.

NO—Either the vacuum hose or one of the engine mount has a vacuum leak. Repair as needed.■

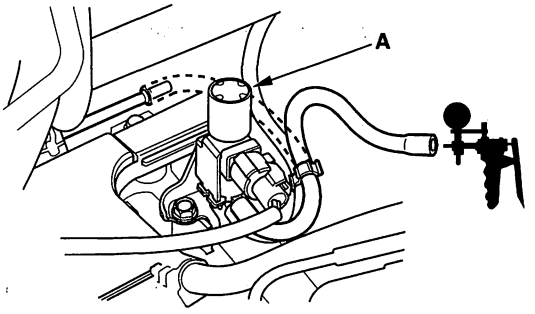
11. Release the vacuum, then apply vacuum again.

Is there a noticeable change in idle smoothness with and without vacuum applied?

YES—Go to step 12.

NO—Replace the front engine mount.■

12. Connect a commercially available vacuum pump/gauge, 0—30 in.Hg, to the engine mount control solenoid valve (A) that is closest to the solenoid connector.



Is there manifold vacuum at idle, and a decrease in manifold vacuum when you raise the engine speed above 1,000 rpm?

YES—The system is OK.■

NO—Replace the engine mount control solenoid valve.■

BACK

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Engine Mechanical

Engine Assembly
Engine Removal 5-2
Engine Installation 5-12
Engine Mount Replacement 5-23

Cylinder Head **6-1**

Engine Block **7-1**

Engine Lubrication **8-1**

Intake Manifold and Exhaust System **9-1**

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Engine Assembly

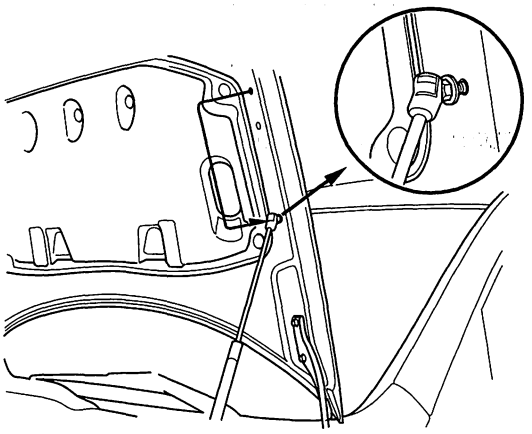
Engine Removal

Special Tools Required
- Front subframe adapter EQS02BMDXSB0
- Engine support hanger A and Reds AAR-T-12566
- Engine hanger balance bar VSB02C000019
- Engine hanger adapter set VSB02C000031

These special tools are available through the American Honda Tool and Equipment program, 1-888-424-6857.

NOTE:
- Use fender covers to avoid damaging painted surfaces.
- To avoid damaging the wiring and terminals, unplug the wiring connectors carefully while holding the connector portion.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring, hoses, or interfere with other parts.

1. Remove the support struts from the engine hood. Move the engine hood to a vertical position, then reinstall the support strut as shown.



2. Relieve the fuel pressure (see page 11-330).

3. Drain the power steering system fluid, then plug the fluid reservoir and return hose (see page 17-13).

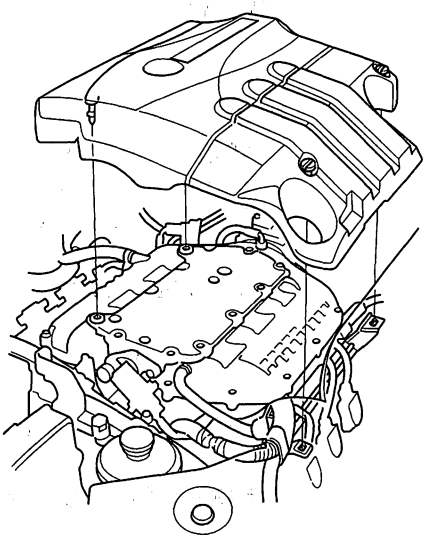
4. Remove the bulkhead cover (see page 20-203).

5. Make sure you have the anti-theft codes for the audio system and navigation system (if equipped).

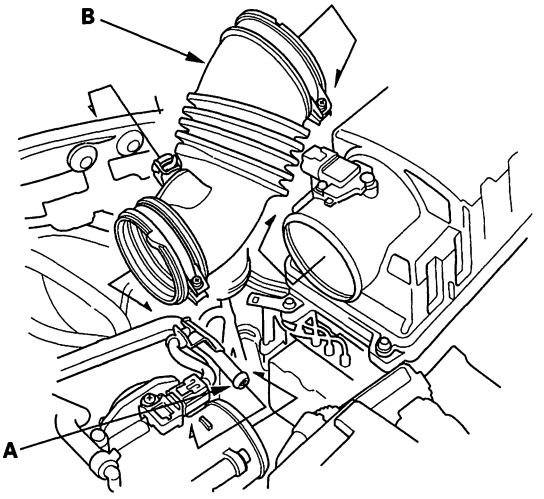
6. Disconnect the negative cable from the battery first, then disconnect the positive cable.

7. Remove the battery.

8. Remove the engine cover.



9. Remove the breather pipe (A), then remove the air intake duct (B).



10. Remove the air cleaner assembly (see page 11-363).

BACK

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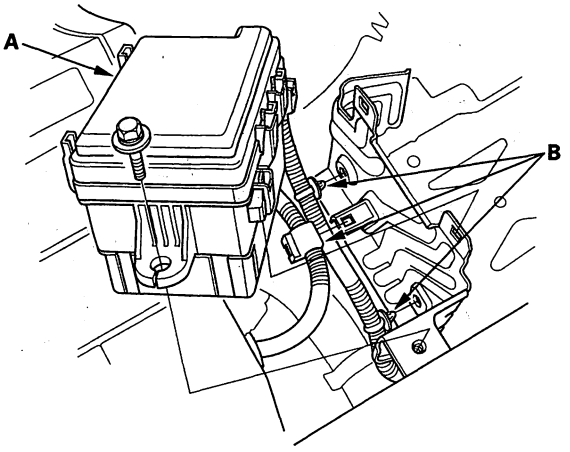
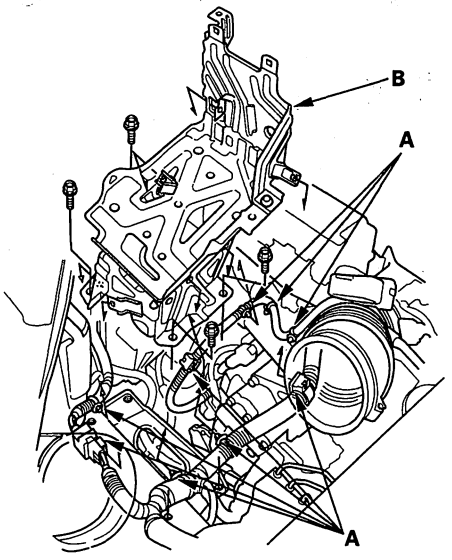
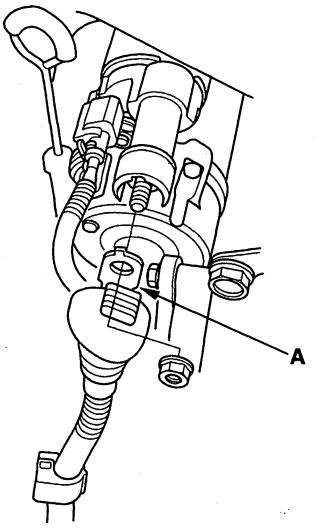
11. Remove the main under-hood fuse box (A), then remove the harness clamps (B).



12. Remove the harness clamps (A), then remove the battery base (B).

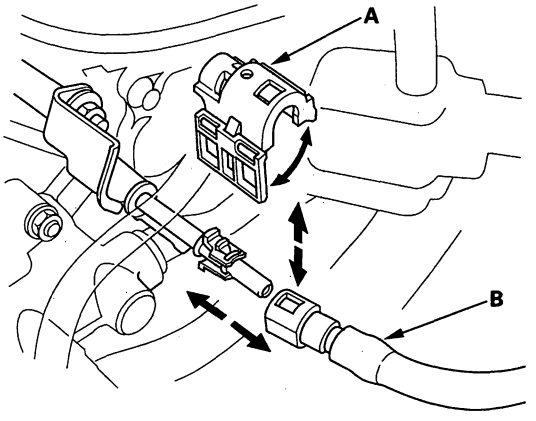


13. Remove the positive starter cable (A).



14. Remove the shift cable (see page 14-309).

15. Remove the quick-connect fitting cover (A), then disconnect the fuel feed hose (B) (see page 11-338).



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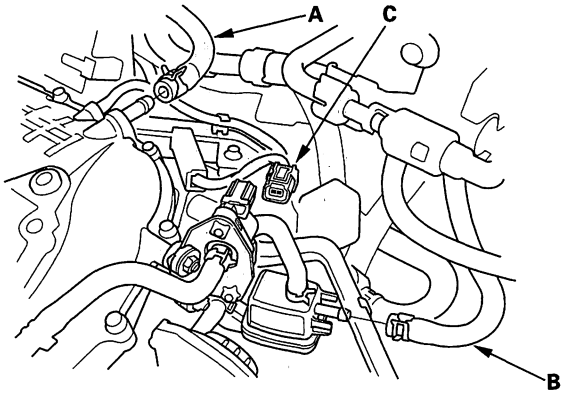
Engine Removal (cont'd)

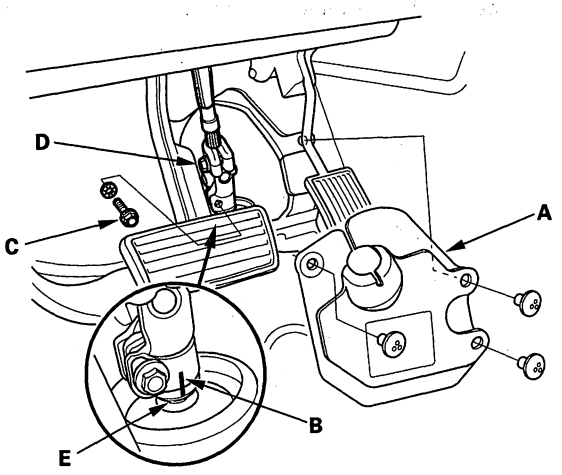
16. Remove the brake booster vacuum hose (A), and evaporative emission (EVAP) canister hose (B).



17. Disconnect the evaporative emission (EVAP) canister purge valve connector (C).

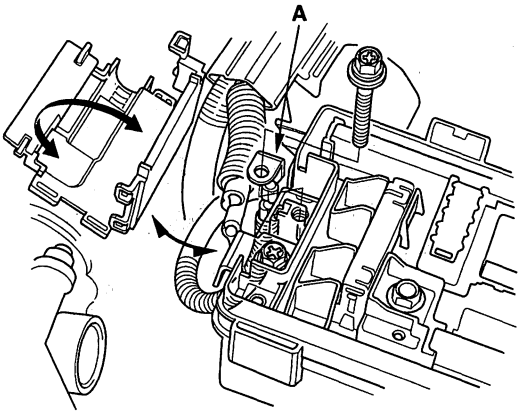
18. Remove the steering wheel (see page 17-22).

19. Remove the steering joint cover (A).



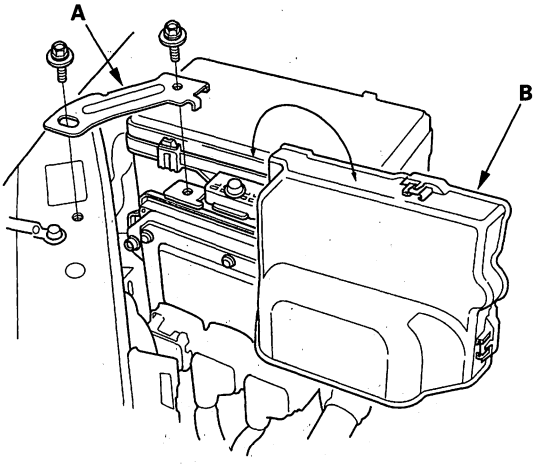
20. Make a reference mark (B) across the steering joint and steering gearbox pinion shaft. Remove the steering joint bolt (C), and loosen the steering joint bolt (D), then disconnect the steering joint from the steering gearbox pinion shaft (E).

21. Remove the alternator cable (A) from the main under-hood fuse box.



22. Remove the coolant reservoir from the bracket.

23. Remove the bracket (A), then remove the powertrain control module (PCM) cover (B).



BACK

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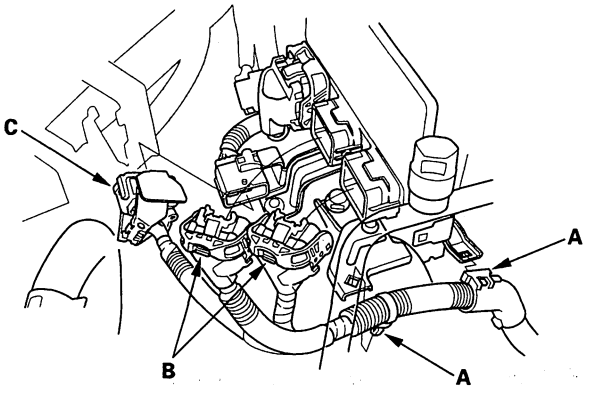
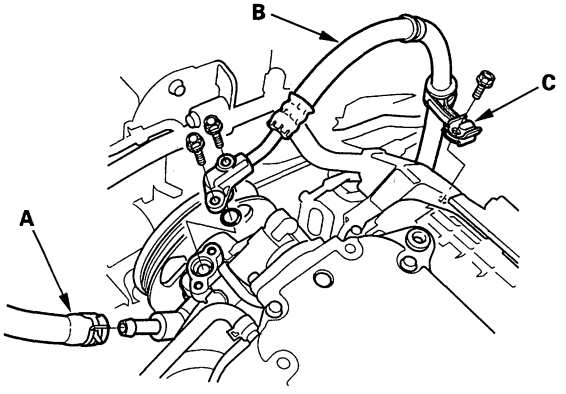
24. Remove the harness clamps (A), then disconnect the two PCM connectors (B) and engine wire harness connector (C).



25. Remove the drive belt (see page 4-33).

26. Remove the power steering (P/S) pump inlet hose (A) and P/S pump outlet hose (B) from the P/S pump, then plug the P/S lines and P/S pump.



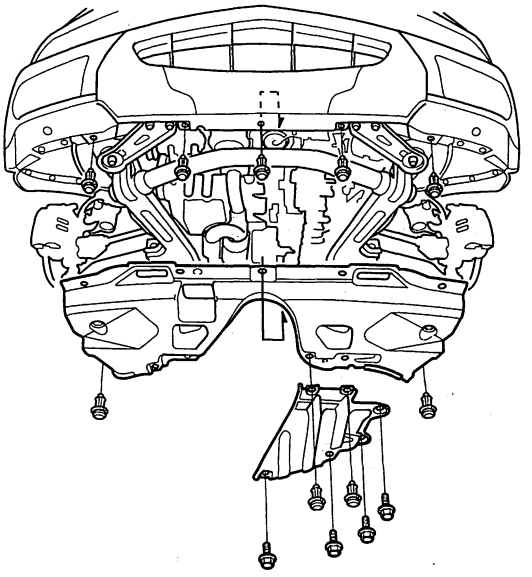
27. Remove the P/S hose clamp (C) from the cylinder head cover.

28. Remove the radiator cap.

29. Raise the vehicle on the lift to full height.

30. Remove the front wheels.

31. Remove the splash shield.

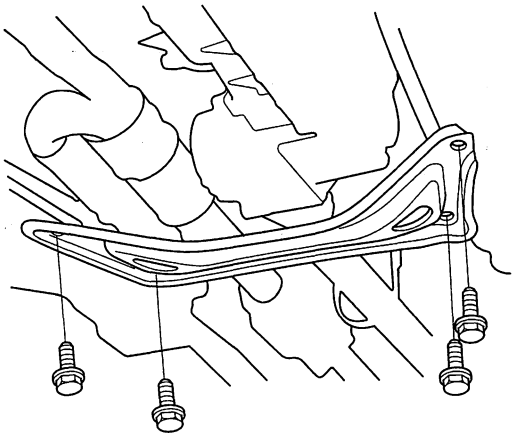


32. Loosen the drain plug in the radiator, and drain the engine coolant (see page 10-6).

33. Drain the automatic transmission fluid (ATF) (see page 14-303).

34. Drain the engine oil (see page 8-6).

35. Remove the front subframe stiffener.



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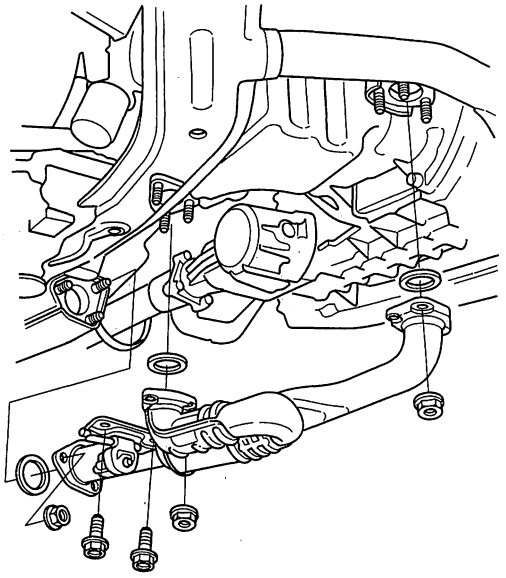
Engine Removal (cont'd)

36. Remove exhaust pipe A.



37. Separate the stabilizer links from the dampers (see page 18-20).

38. Separate the tie-rod end ball joints from the knuckles (see step 4 on page 18-15).

39. With active damper system: Remove the suspension stroke sensors from the lower arms.

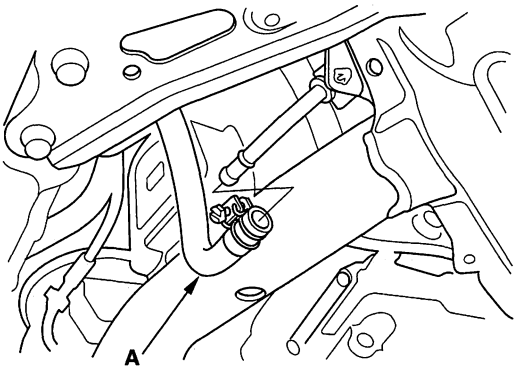
40. Separate the knuckles from the lower arms (see step 7 on page 18-15).

41. Remove the driveshafts (see page 16-4). Coat all precision-finished surfaces with new engine oil. Tie plastic bags over the driveshaft ends.

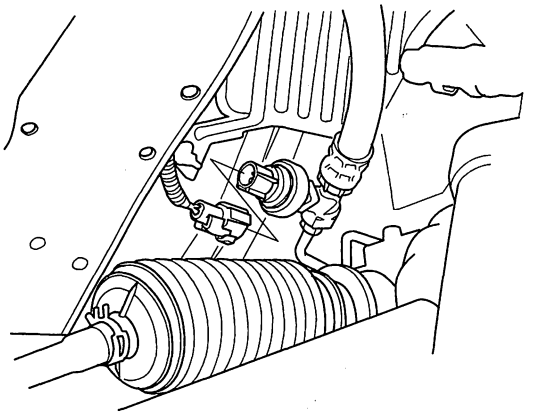
42. Remove the propeller shaft from the transfer shaft flange (see page 16-39).

43. Remove the transfer assembly (see page 14-270).

44. Remove the P/S hose (A), then plug the line and hose.



45. Disconnect the power steering pressure switch connector.



BACK

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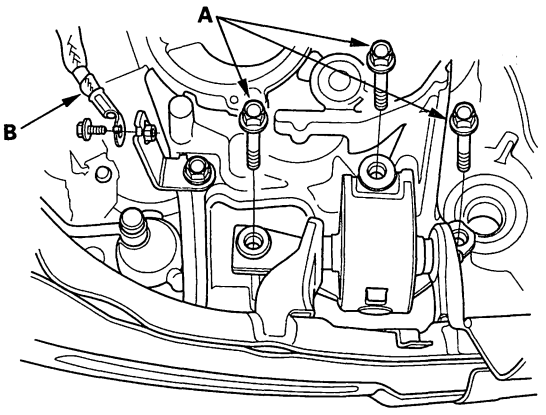
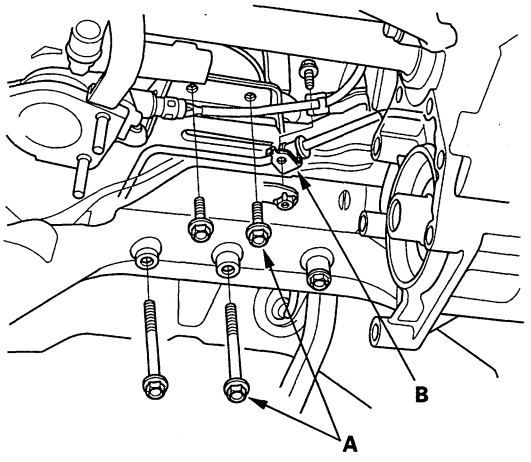
46. Remove the transmission lower mount bolts (A) and ground cable (B).

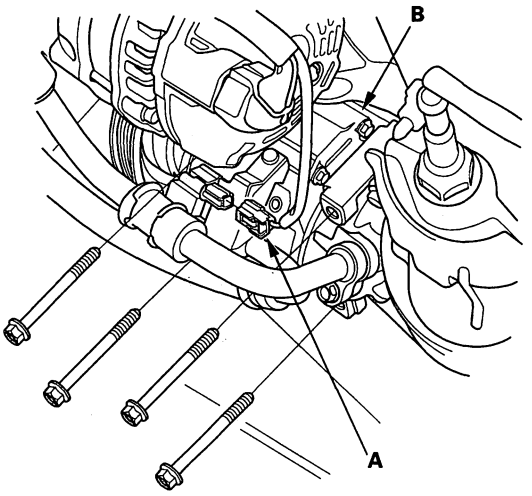


47. Remove the rear mount bolts (A), and power steering line bracket (B).

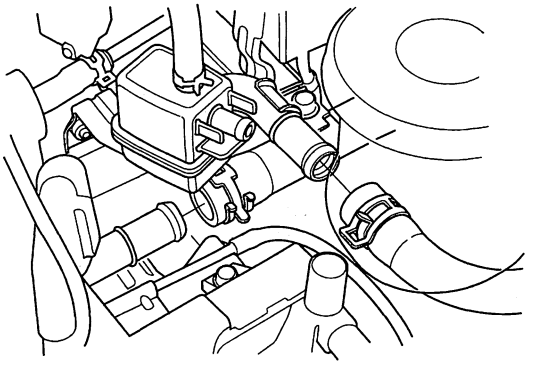


48. Lower the vehicle on the lift.

49. Disconnect the A/C compressor clutch connector (A), then remove the A/C compressor (B) without disconnecting the A/C hoses.



50. Remove the heater hoses.



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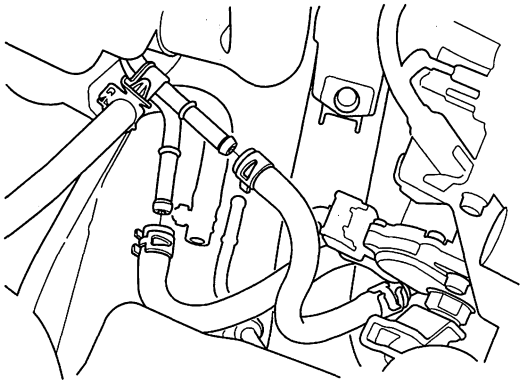
Engine Removal (cont'd)

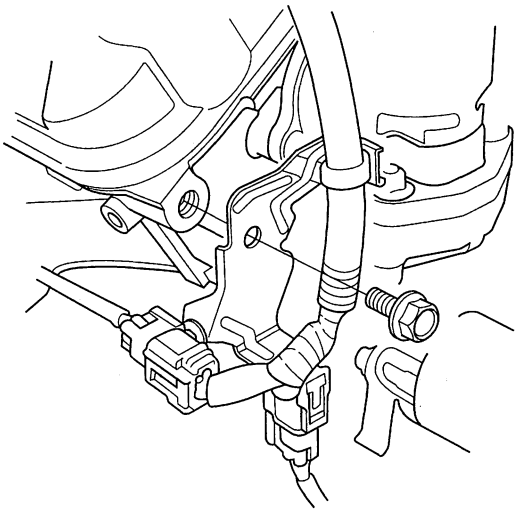
51. Remove the upper radiator hose (A) and lower radiator hose (B).

52. Remove the ATF cooler hoses from the transmission, then plug the ATF cooler hoses and lines.

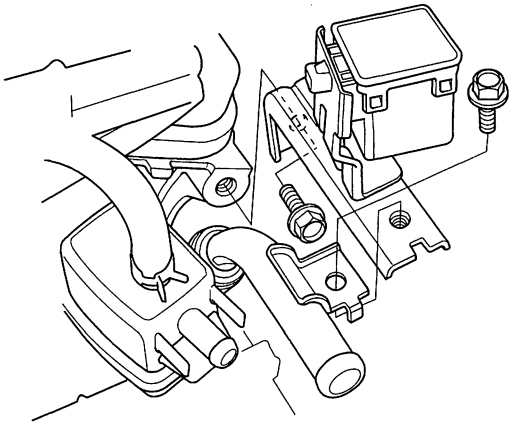


53. Remove the radiator (see page 10-10).

54. Remove the connector bracket from the front cylinder head; use the bracket bolt hole to attach the engine balancer bar front arm.



55. Remove the bracket from the rear cylinder head; use the bracket bolt hole to attach the engine balancer bar rear arm.



BACK

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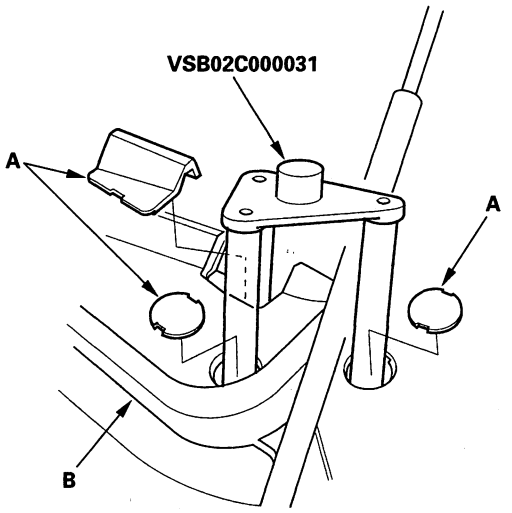
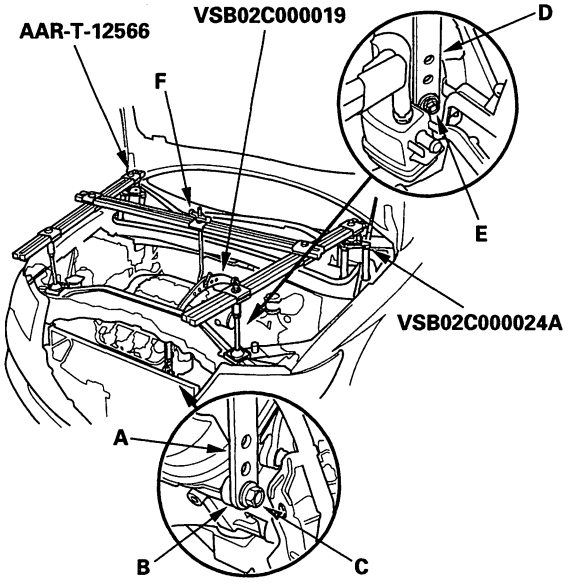
56. Remove the service caps (A) for the front damper flange nuts from the cowl cover (B). Position the engine hanger adapters (VSB02C000031) with the "FRONT"mark facing forward over the damper flange nuts.



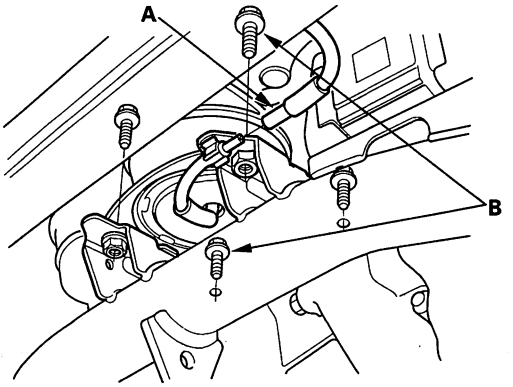
57. Install the engine hanger balance bar (VSB02C 000019); attach the front arm (A) to the front cylinder head with a spacer (B) and 10 x 1.25 mm bolt (C), attach the rear arm (D) to the rear cylinder head with 8 x 1.25 mm bolt (E).



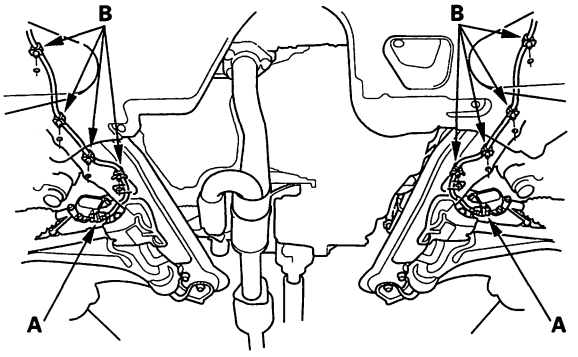
58. Install the engine support hanger (AAR-T-12566) to the vehicle, and attach the hook to the slotted hole in the engine hanger balance bar. Tighten the wing nut (F) by hand to lift and support the engine/ transmission.

59. Raise the vehicle on the lift to full height.

60. Disconnect the front engine mount control solenoid valve tube (A), then remove the front engine mount bolts (B).



61. With active damper system: Disconnect the front suspension stroke sensor connectors (A), then remove the harness clamps (B).



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BACK

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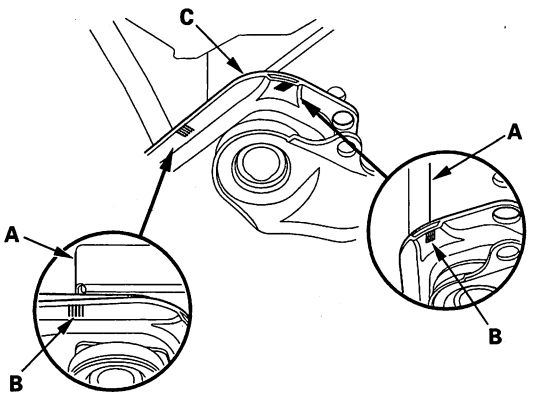
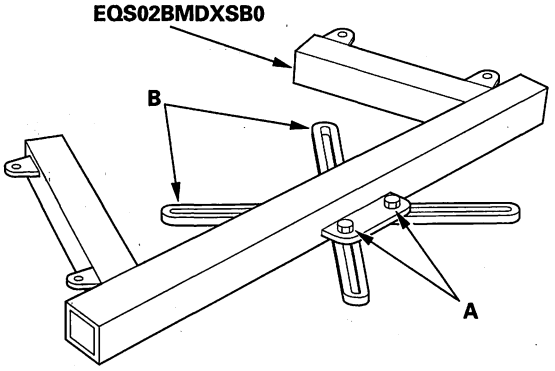
Engine Removal (cont'd)

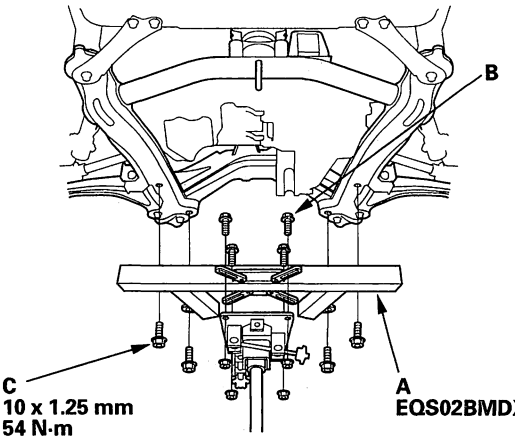
62. Make reference marks (A) on the body across the marks (B) on the edge of the front subframe (C).



63. Loosen the four bolts (A) holding the adjustable arms (B) of the front subframe adapter (EQS02 BMDXSBO) to its center plate.

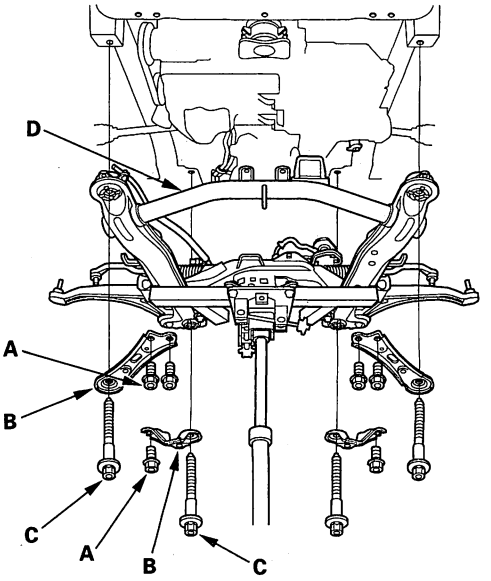


64. Line up the slots in the arms with the bolt holes on the corner of the jack base, then attach the front subframe adapter (A) to the jack base with the bolts (B) that came with the jack. Tighten all bolts securely.



65. Raise the jack to vehicle height, then attach the front subframe adapter to the front subframe using the subframe stiffener mounting bolts (C) and bolt holes.

66. Remove the six 12 x 1.25 mm bolts (A) securing the subframe stiffeners (B), the four subframe mounting bolts (C), and the stiffeners, then lower the front subframe (D).



BACK

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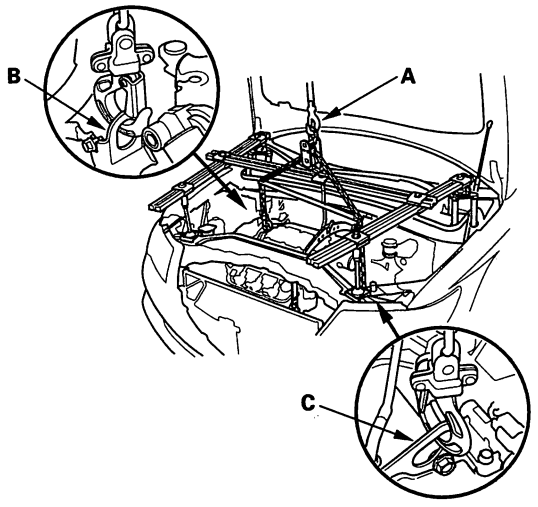
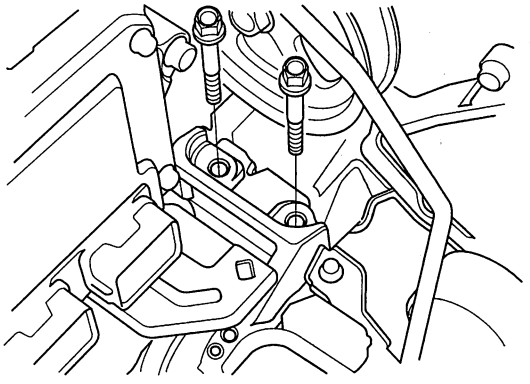
67. Lower the vehicle and attach a chain hoist (A) to the engine hook (B) and transmission hook (C). Lift up on the engine/transmission until it's securely supported by the chain hoist, and remove the engine support hanger from the engine and vehicle.



68. Remove the mounting bolts from the upper half of the side engine mount bracket.



69. Check that the engine/transmission is completely free of vacuum hoses, fuel and coolant hoses, and electrical wiring.

70. Slowly lower the engine/transmission about 150 mm (6 in.). Check once again that all hoses and electrical wiring are disconnected and free from the engine/transmission, then lower it all the way.

71. Disconnect the chain hoist from the engine/transmission.

72. Raise the vehicle all the way on the lift, and remove the engine/transmission from under the vehicle.

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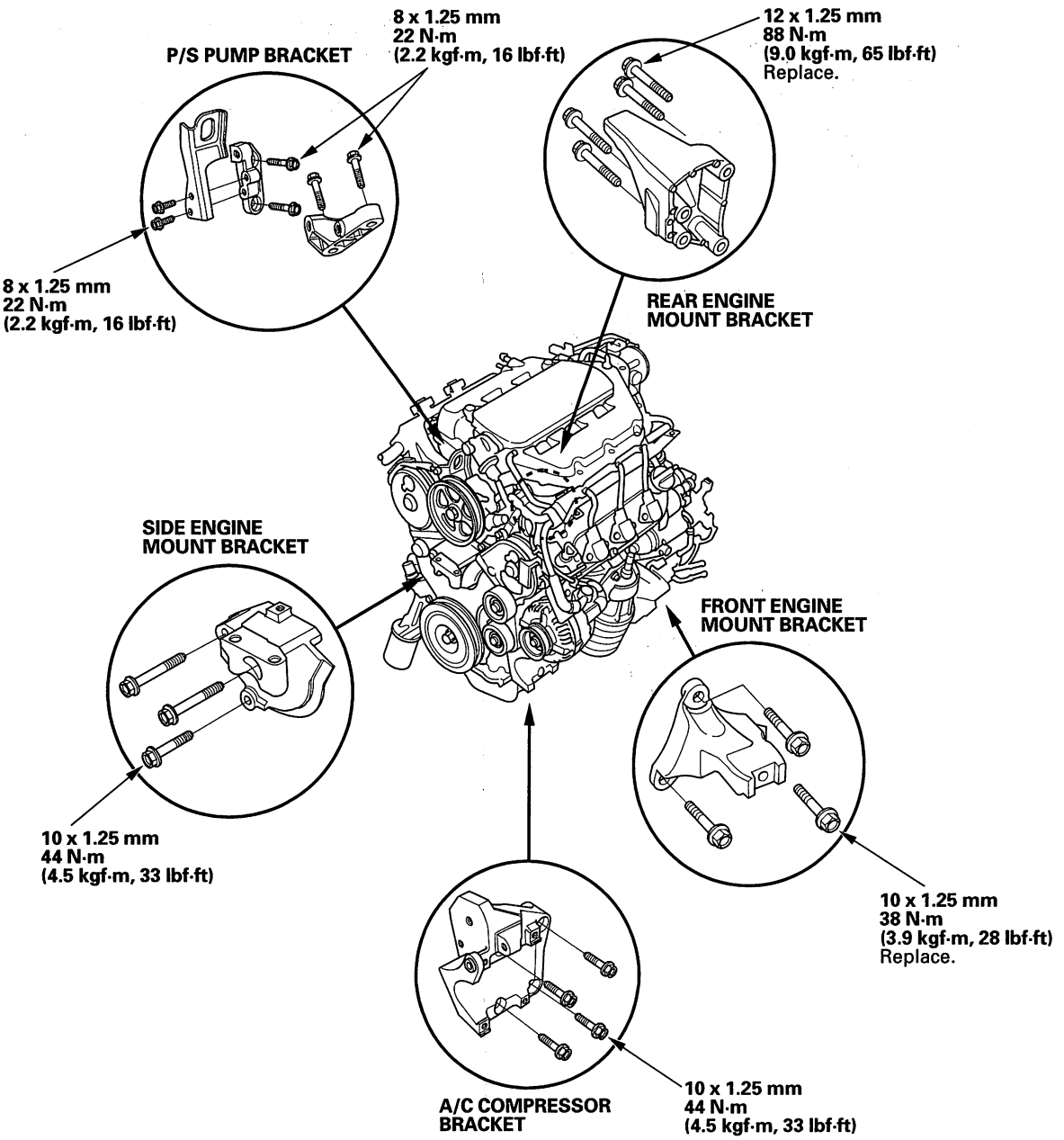
Engine Assembly

Engine Installation

Special Tools Required
- Front subframe adapter EQS02BMDXSB0
- Engine support hanger A and Reds AAR-T-12566
- Engine hanger balance bar VSB02C000019
- Engine hanger adapter set VSB02C000031

These special tools are available through the American Honda Tool and Equipment program, 1-888-424-6857.

1. Install the engine mount bracket and accessory brackets, and tighten their bolts to the specified torque.



BACK

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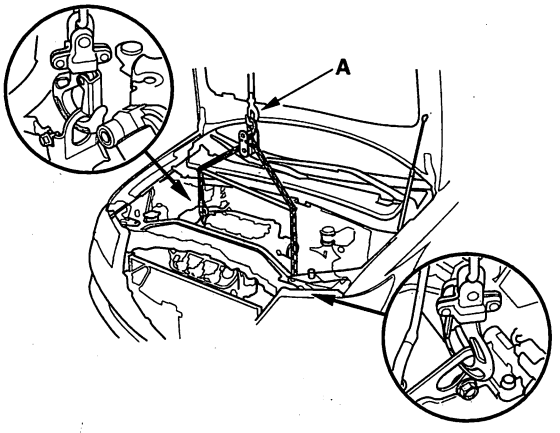
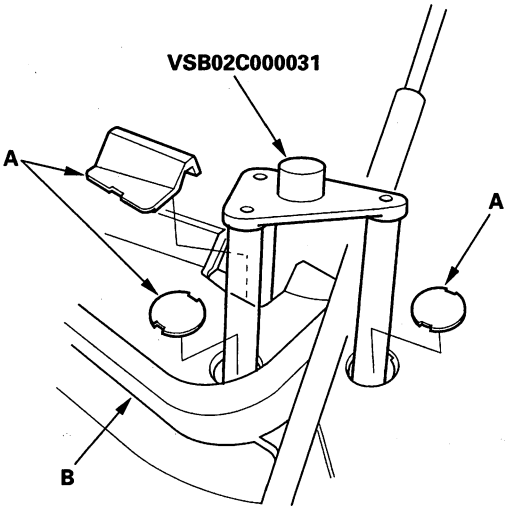
2. Position the engine/transmission under the vehicle. Be sure that they are properly aligned. Carefully lower the vehicle until the engine and transmission are properly positioned in the engine compartment. Make sure the vehicle is not resting on any part of the engine or transmission. Lift and support the engine with a chain hoist (A), and carefully raise the engine/transmission into place.

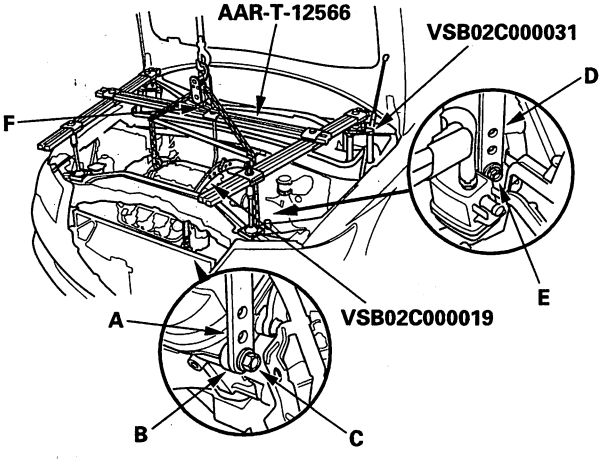
   NOTE: Reinstall the mounting bolts/support nuts in the sequence given in the following steps. Failure to follow this sequence may cause excessive noise and vibration, and reduce engine mount life.



3. Remove the service caps (A) for the front damper flange nuts from the cowl cover (B). Position the engine hanger adapters (VSB02C000031) with the "FRONT" mark facing forward over the damper flange nuts.



4. Install the engine hanger balance bar (VSB02C 000019); attach the front arm (A) to the front cylinder head with a spacer (B) and 10 x 1.25 mm bolt (C), attach the rear arm (D) to the rear cylinder head with 8 x 1.25 mm bolt (E).



5. Install the engine support hanger (AAR-T-12566) to the vehicle, and attach the hook to the slotted hole in the engine hanger balance bar. Tighten the wing nut (F) by hand to lift and support the engine/ transmission.

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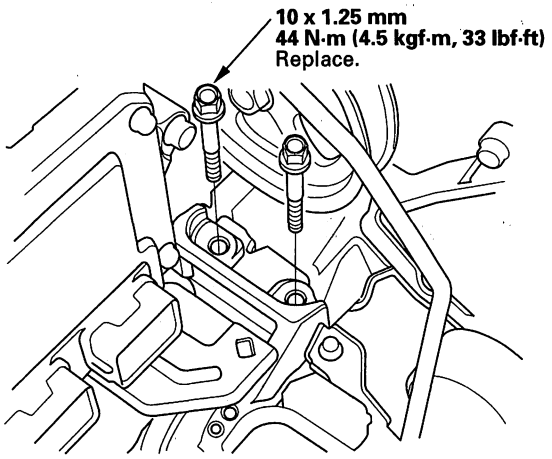
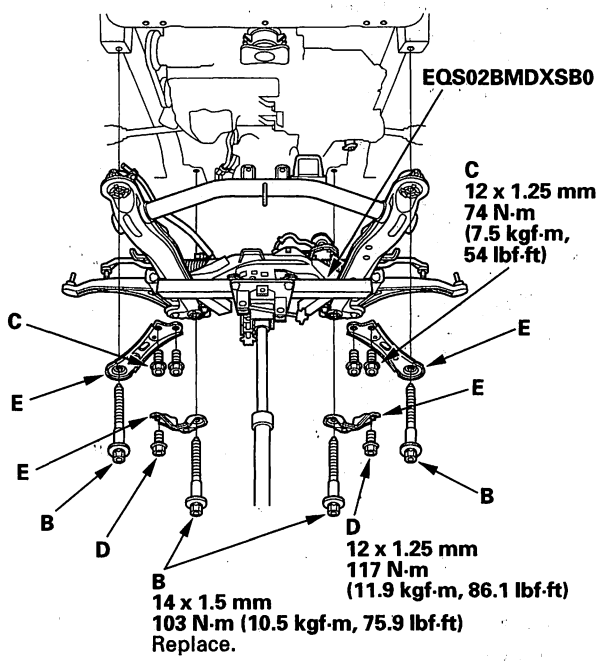
Engine Installation (cont'd)

6. Install new mounting bolts into the upper half of the side engine mount bracket. Tighten the bolts to the specified torque.



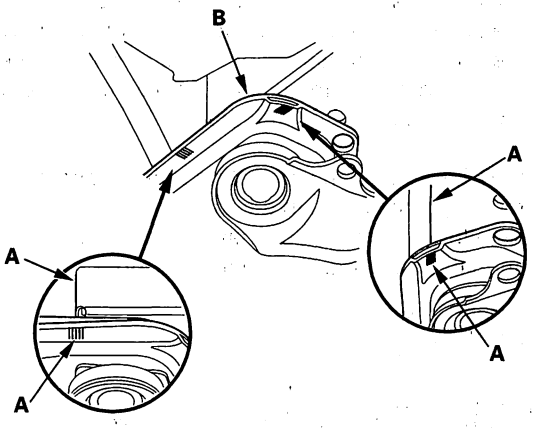
7. Remove the chain hoist, then raise the vehicle on the lift to full height.

8. Using the subframe adapter (EQS02BMDXSB0) and a jack, raise the front subframe up to the body.



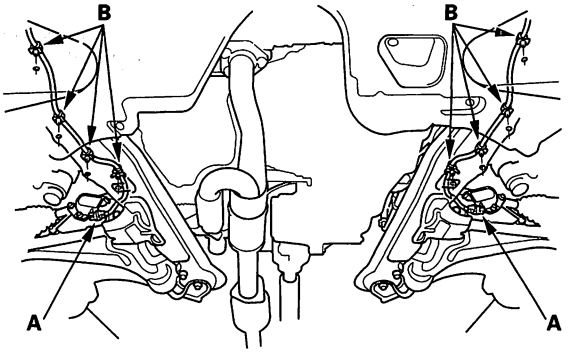
9. Loosely install the new front subframe mounting bolts (four) (B), the 12 x 1.25 mm bolts (six) (C) (D), and the stiffeners (E).

10. Align all reference marks (A) on the front subframe (B) with the body, then tighten the bolts on the front subframe to the specified torque.



11. Remove the jack and front subframe adapter.

12. With active damper system: Connect the front suspension stroke sensor connectors (A), then install the harness clamps (B).



BACK

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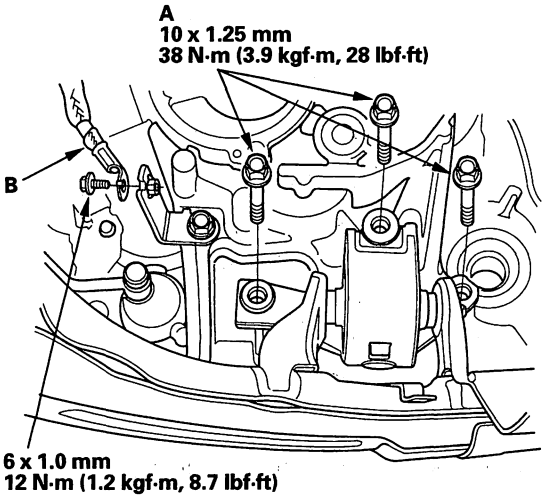
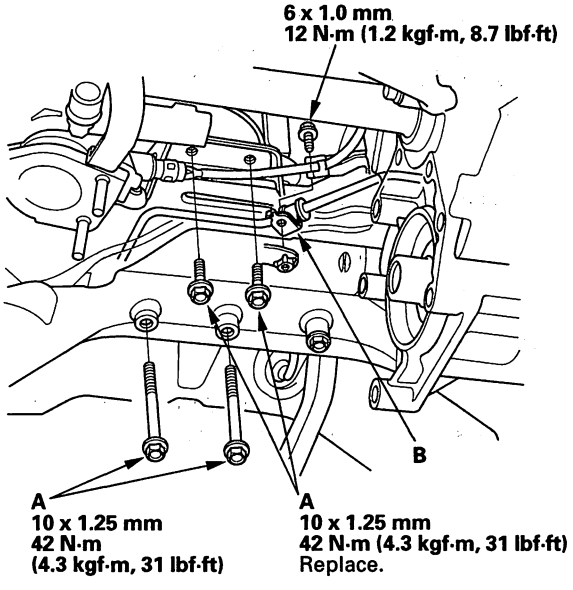
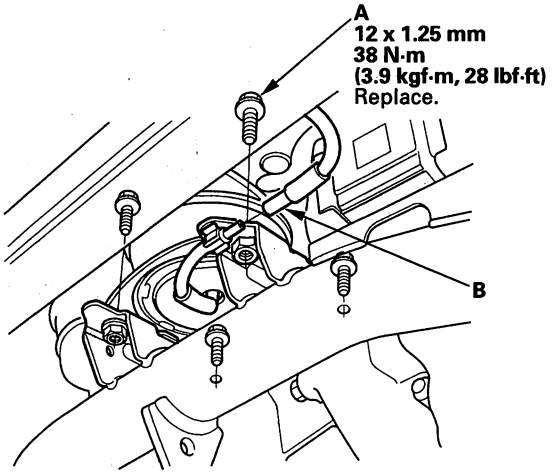
13. Tighten the transmission lower mount bolts (A) and ground cable (B).



14. Tighten the rear mount bolts (A) and power steering line bracket (B).

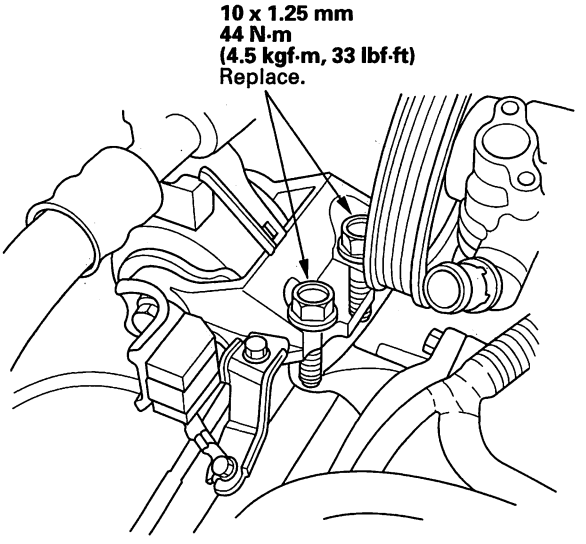


15. Tighten the front mount bolts (A), then connect the front engine mount control solenoid valve tube (B).



16. Lower the vehicle on the lift.

17. Loosen the mounting bolts for the upper half of the side engine mount bracket, then retighten them to the specified torque.



18. Remove the engine support hanger and engine hanger balance bar.

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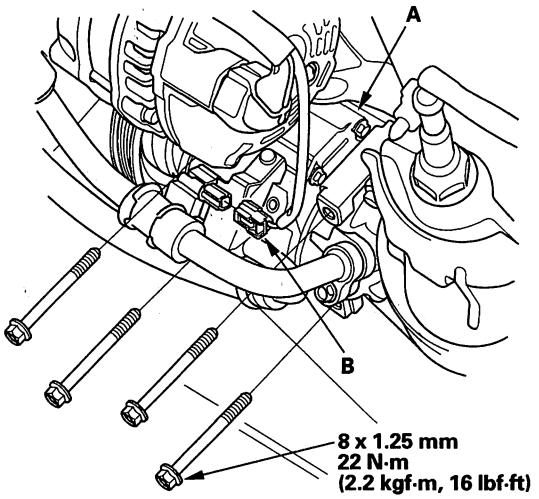
Protected by AR

Engine Installation (cont'd)

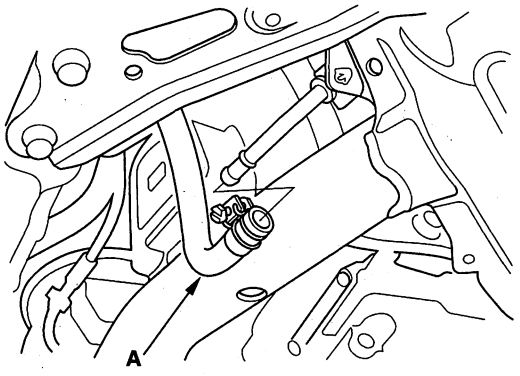
19. Install the A/C compressor (A), then connect the A/C compressor clutch connector (B).



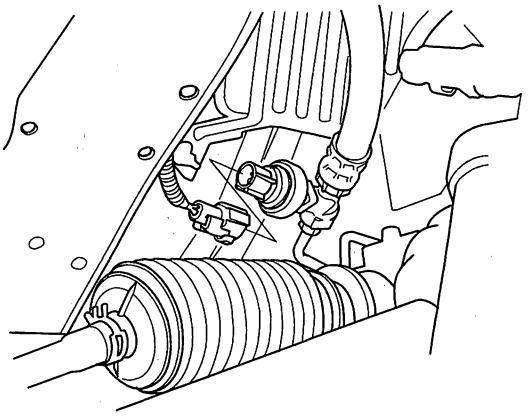
20. Install the radiator (see page 10-10).

21. Raise the vehicle on the lift to full height.

22. Install the power steering (P/S) hose (A).



23. Connect the power steering pressure switch connector.



24. Install the transfer assembly (see page 14-272).

25. Install the propeller shaft on transfer shaft flange (see page 16-39).

26. Wipe the driveshaft clean. Install a new set ring on the end of each driveshaft, then install the driveshafts. Make sure each ring "clicks" into place in the differential and intermediate shaft.

27. Connect the suspension lower arms to the knuckles (see step 9 on page 18-18).

28. Connect the tie-rod end ball joints to the knuckles (see step 4 on page 18-17).

29. Connect the stabilizer links (see page 18-20).

30. With active damper system: Connect the suspension stroke sensors to the lower arms.

BACK

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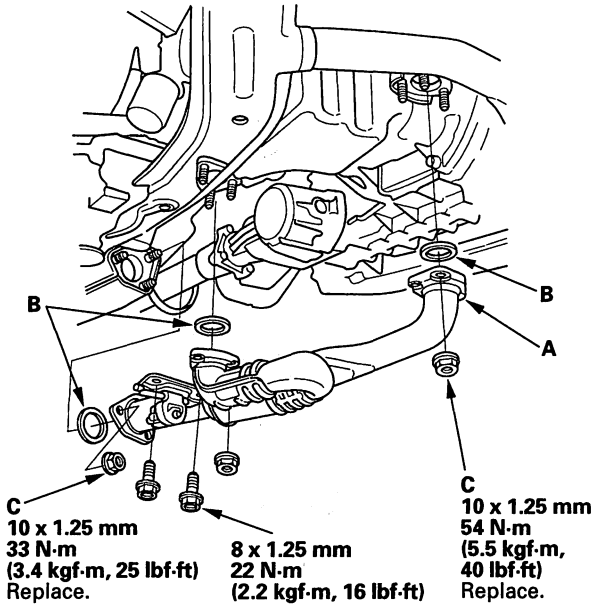
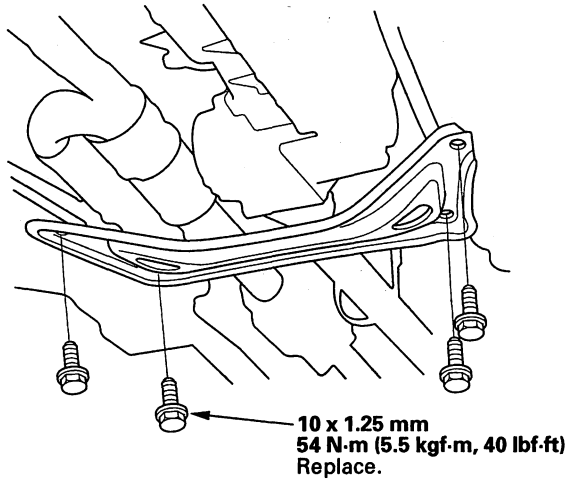
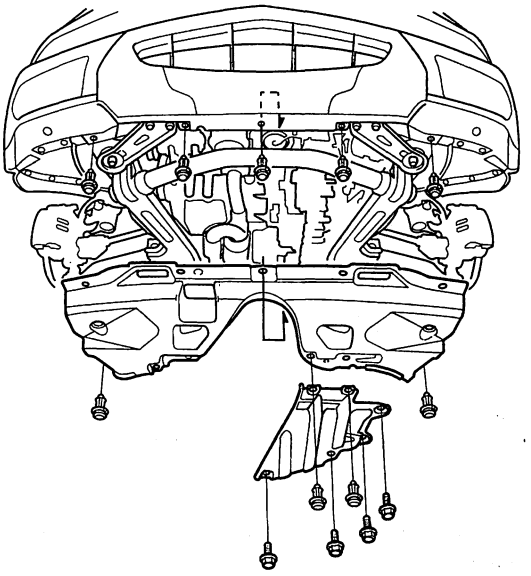
31. Install exhaust pipe A using new gaskets (B) and new self-locking nuts (C).



32. Install the front subframe stiffener using new bolts.



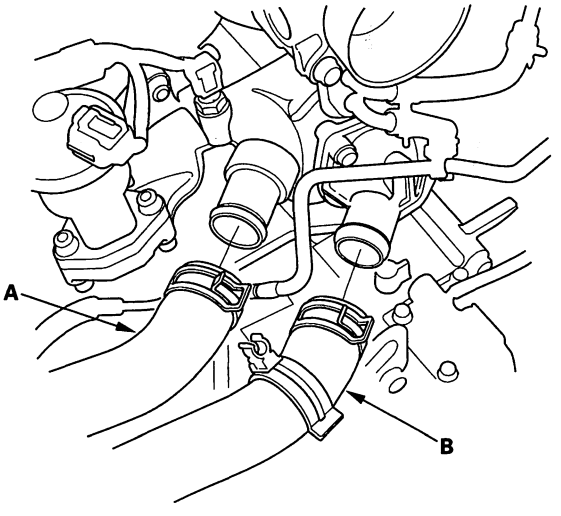
33. Install the splash shield.



34. Install the front wheels.

35. Lower the vehicle on the lift.

36. Install the upper radiator hose (A) and lower radiator hose (B).



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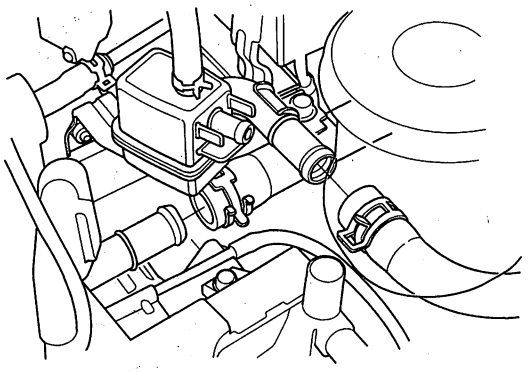
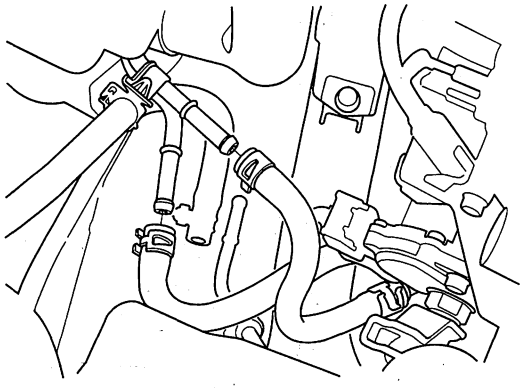
Engine Installation (cont'd)

37. Install the heater hoses.

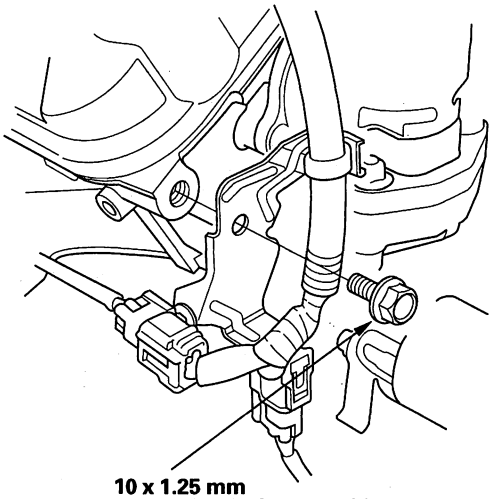


38. Install the automatic transmission fluid (ATF) cooler hoses to the transmission, and secure the hoses with the clamps.

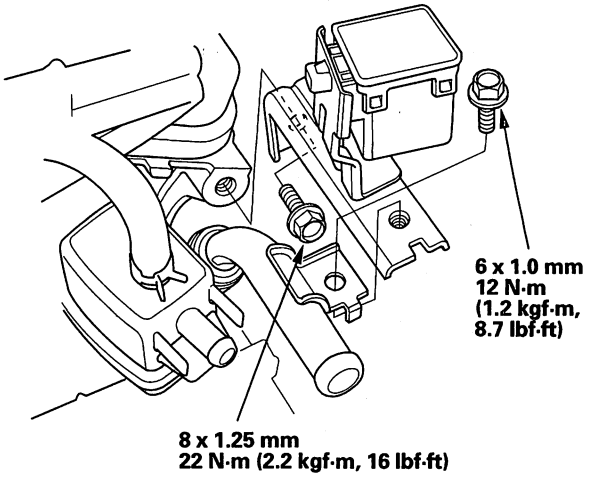
NOTE: Check the installation location of the clamps (see page 14-302).



39. Install the connector bracket to the front cylinder head.



40. Install the bracket to the rear cylinder head.



BACK

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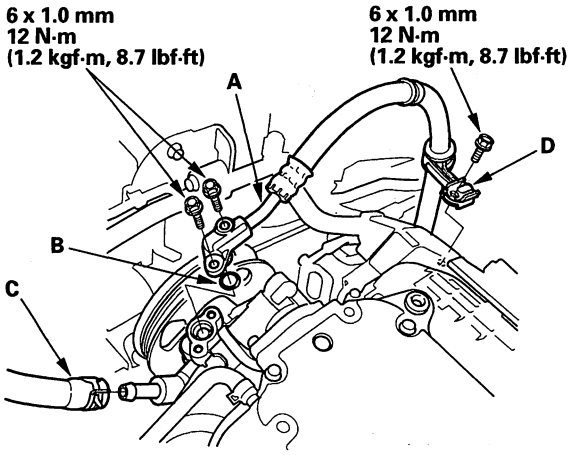
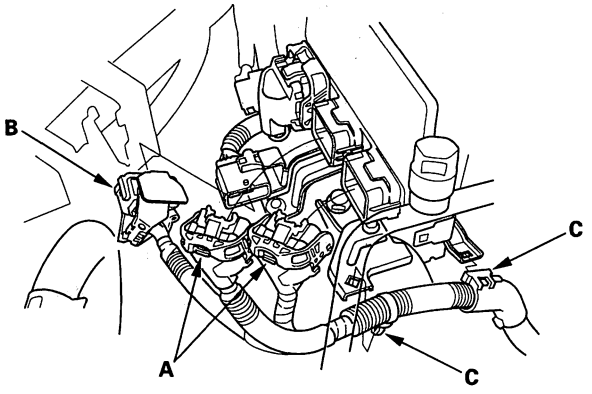
41. Install the power steering (P/S) pump outlet hose (A) with a new O-ring (B), and install the P/S pump inlet hose (C).



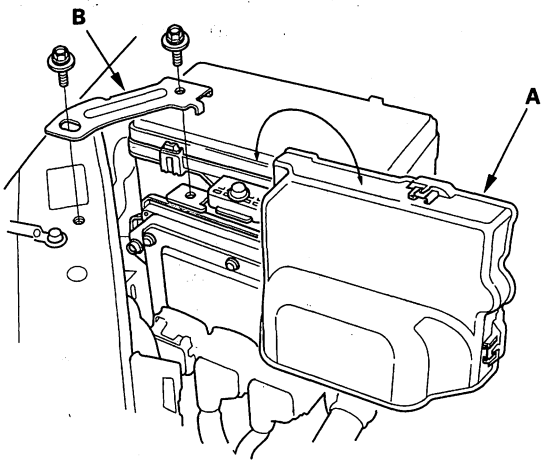
42. Install the P/S hose clamp (D) to the cylinder head cover.

43. Install the drive belt (see page 4-33).

44. Connect the powertrain control module (PCM) connectors (A) and engine wire harness connector (B), then install the harness clamps (C).

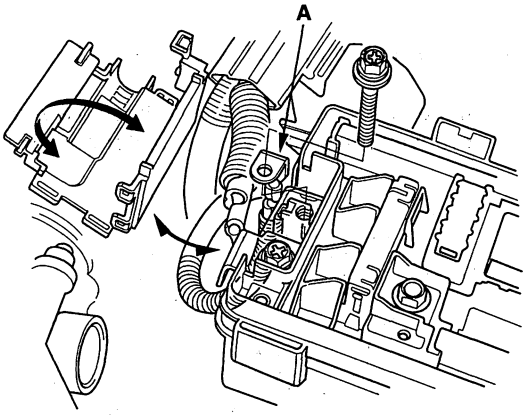


45. Install the PCM cover (A), then install the bracket (B).



46. Install the coolant reservoir to the bracket.

47. Install the alternator cable (A) to the main under-hood fuse box.



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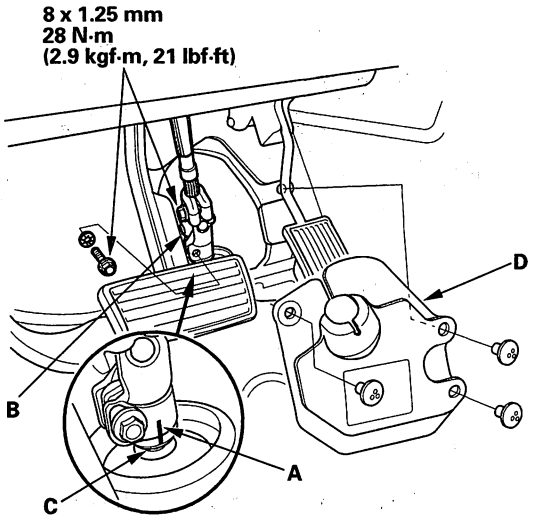
Engine Installation (cont'd)

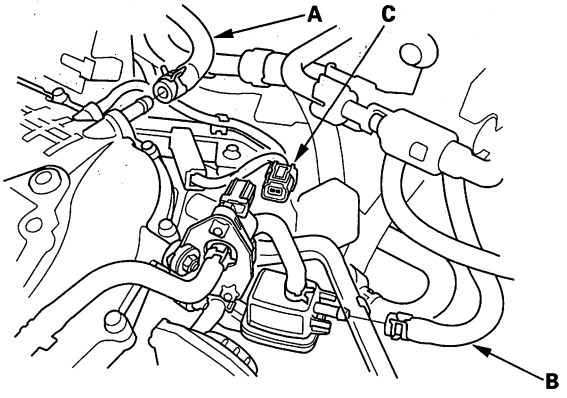
48. Align the reference mark (A) on the steering joint and steering gearbox pinion shaft. Connect the steering joint (B) to the steering gearbox pinion shaft (C). Tighten the steering joint bolt.



49. Install the steering joint cover (D).

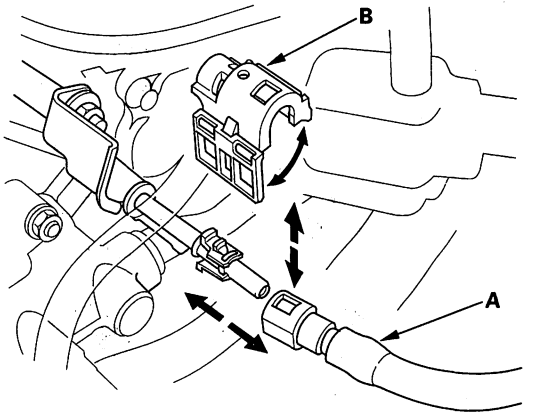
50. Install the steering wheel (see page 17-24).

51. Install the brake booster vacuum hose (A) and evaporative emission (EVAP) canister hose (B).



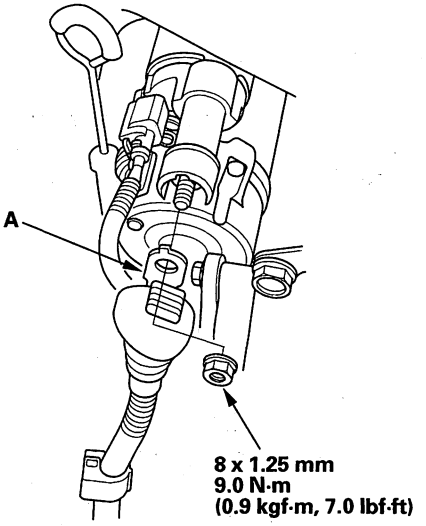
52. Connect the evaporative emission (EVAP) canister purge valve connector (C).

53. Connect the fuel feed hose (A) (see page 11-340), then install the quick-connect fitting cover (B).



54. Install the shift cable (see page 14-309).

55. Install the positve starter cable (A).



BACK

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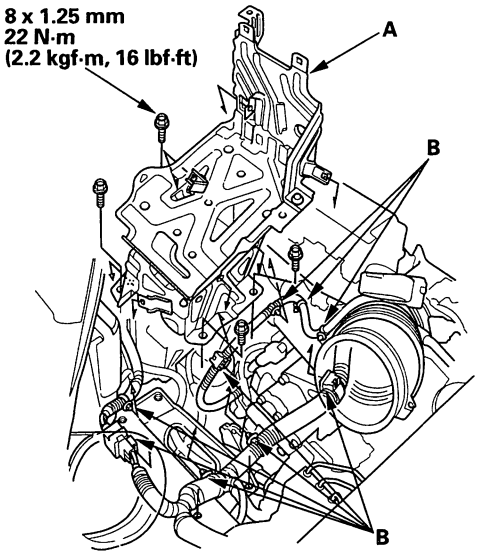
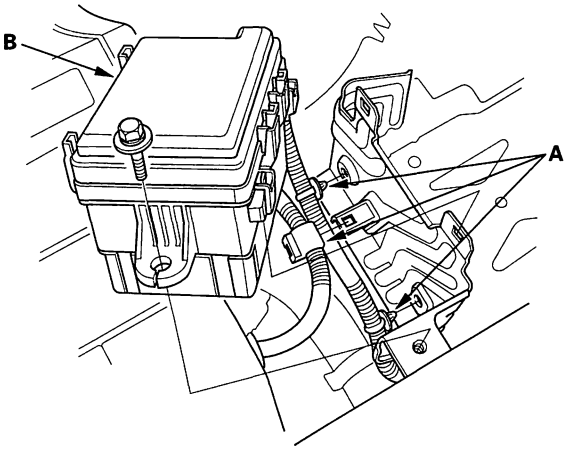
56. Install the battery base (A), then install the harness clamps (B).

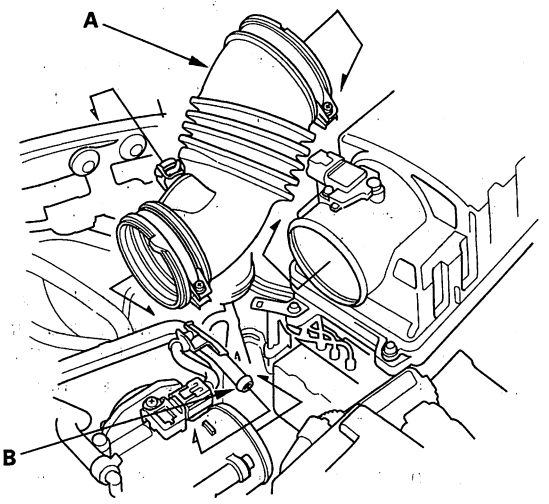


57. Install the harness clamps (A), then install the main under-hood fuse box (B).

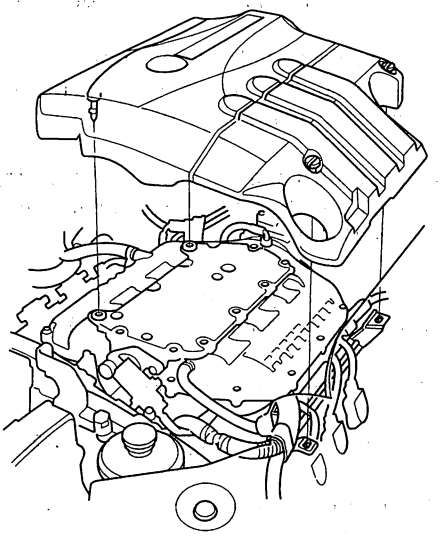


58. Install the air cleaner assembly (see page 11-363).

59. Install the air intake duct (A), then install the breather pipe (B).



60. Install the engine cover.



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Engine Installation (cont'd)

61. Install the bulkhead cover (see page 20-203).
62. Install the service caps on the cowl cover.
63. Install the battery. Clean the battery posts and cable terminals, then assemble them and apply grease to prevent corrosion.
64. Move the shift lever to each gear, and verify that the A/T gear position indicator follows the transmission range switch.
65. Check for fuel leaks. Turn the ignition switch ON (II) (do not operate the starter) so the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation two or three times, then check for fuel leaks at any point in the fuel line.
66. Refill the engine with engine oil (see step 4 on page 8-6).
67. Refill the transmission with ATF (see page 14-266).
68. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 10 on page 10-7).
69. Install the return hose to the power steering fluid reservoir. Refill the power steering system fluid (see page 17-13).
70. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure (see page 11-4).
71. Inspect the idle speed (see page 11-310).
72. Inspect the ignition timing (see page 4-20).
73. Do the steering column position memorization (see page 17-28).
74. Do the headlight intial position learning procedure (see page 22-231).
75. Enter the anti-theft codes for the audio system and navigation system (if equipped).
76. Set the clock.

BACK

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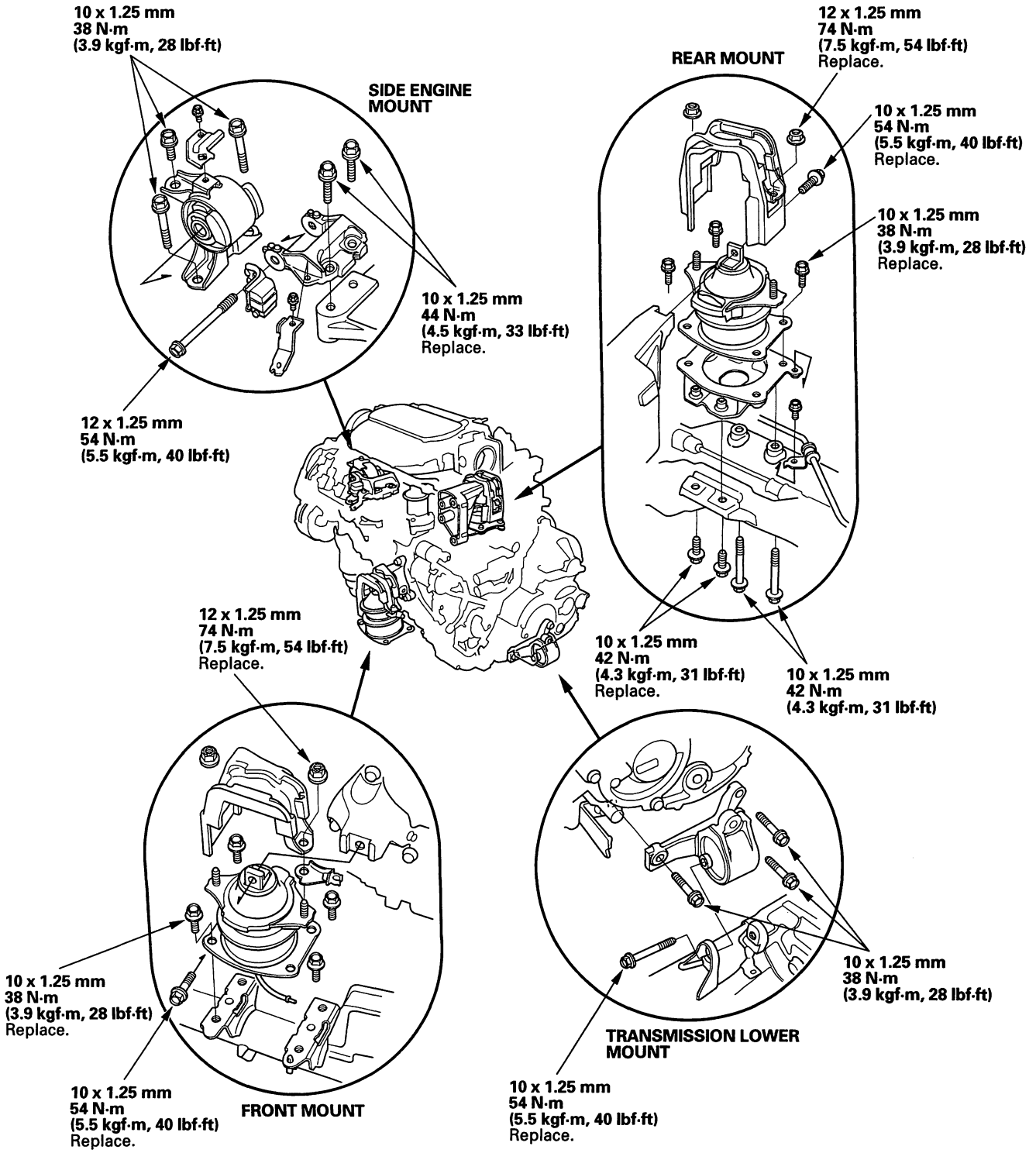
Engine Mount Replacement



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Engine Mechanical

Cylinder Head

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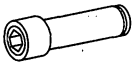
Cylinder Head

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07AAJ-PNAA101	Air Pressure Regulator	1
②	07HAH-PJ7A100	Valve Guide Reamer, 5.5 mm	1
③	07JAA-001020A	Socket, 19 mm	1
④	07JAB-001020A	Holder Handle	1
⑤	07MAB-PY3010A	Holder Attachment, 50 mm, Offset	1
⑥	07PAD-0010000	Stem Seal Driver	1
⑦	07PAF-0030100	Camshaft Oil Seal Driver	1
⑧	07VAJ-P8A010A	VTEC Air Adapter	1
⑨	070AJ-0030100	VTEC Air Stopper	1
⑩	07742-0010100	Valve Guide Driver, 5.5 mm	1
⑪	07757-PJ1010A	Valve Spring Compressor Attachment	1

①

②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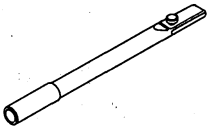
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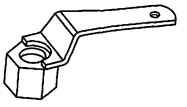
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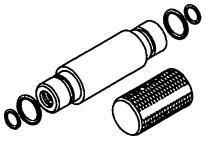
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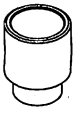
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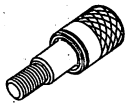
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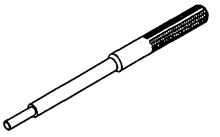
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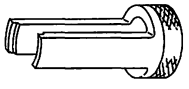
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BACK

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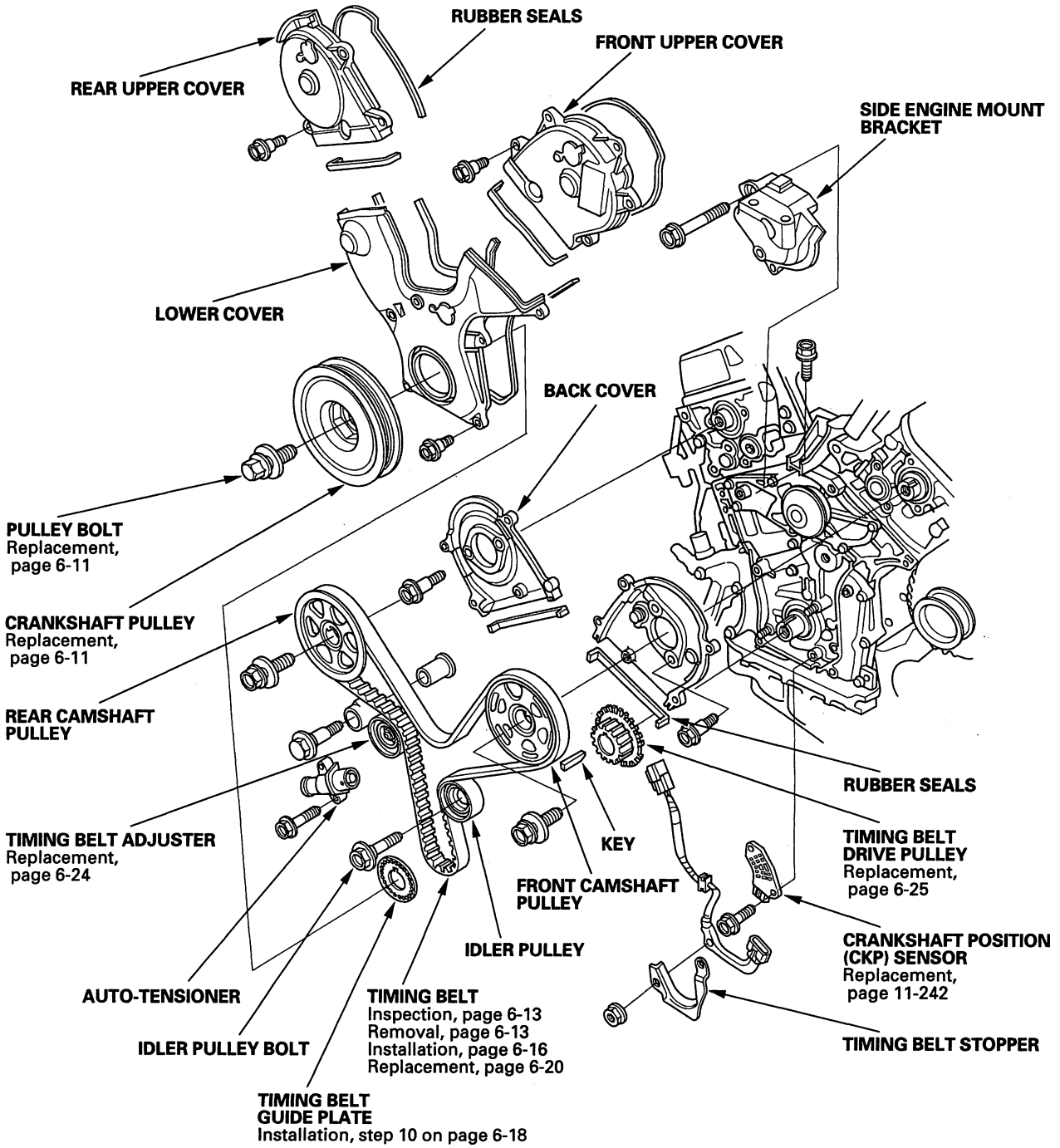
Component Location Index



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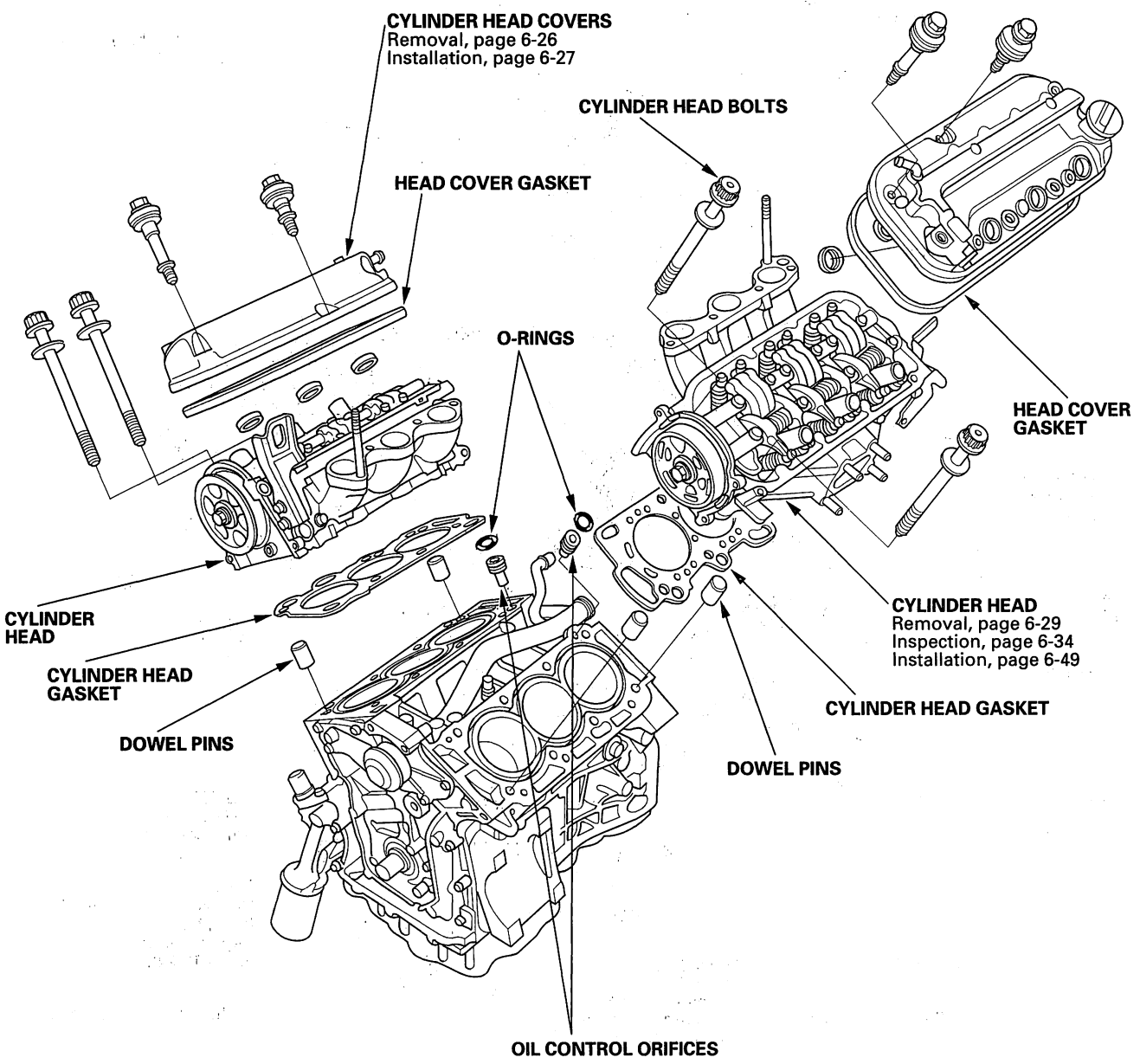
Component Location Index (cont'd)



BACK

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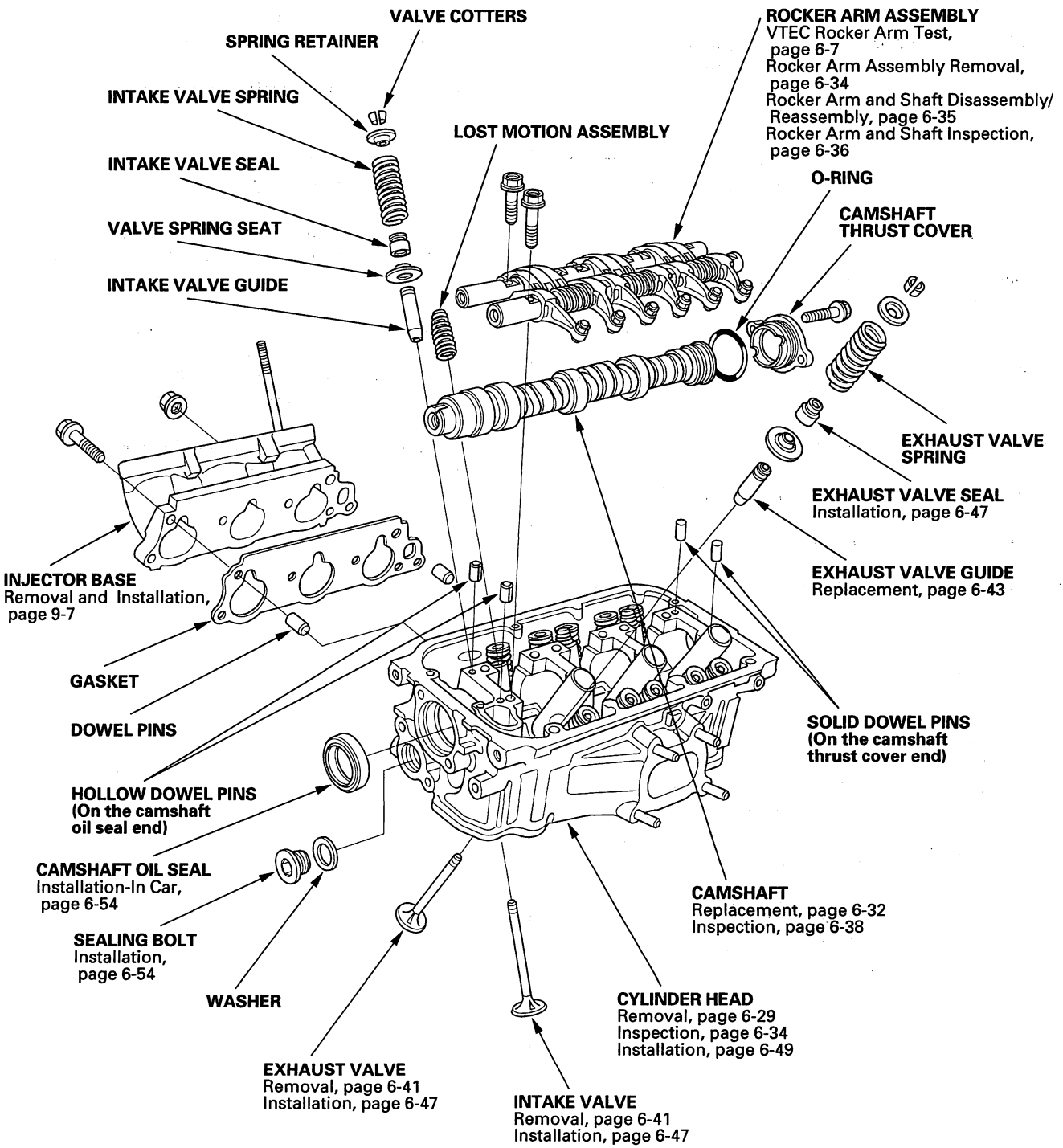

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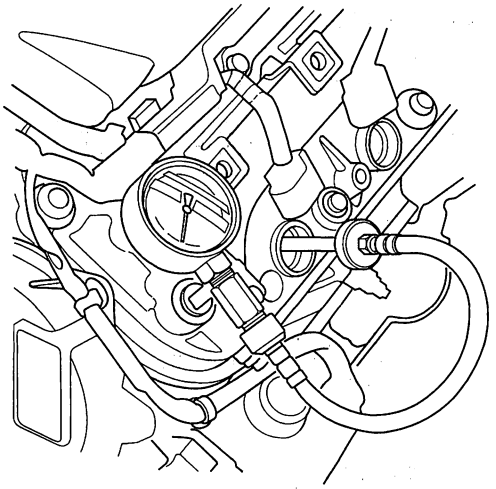
Engine Compression Inspection

NOTE: After the inspection, you must reset the powertrain control module (PCM). Otherwise, the PCM will continue to stop the fuel injectors from functioning.

1. Warm up the engine to normal operating temperature (cooling fan comes on).
2. Turn the ignition switch OFF.
3. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
4. Turn the ignition switch ON (II).
5. Make sure the HDS communicates with the vehicle and the PCM. If it doesn't communicate, troubleshoot the DLC circuit (see page 11-223).
6. Select PGM-FI, INSPECTION, then ALL INJECTORS OFF function on the HDS.
7. Turn the ignition switch OFF.
8. Remove the six ignition coils (see page 4-21).
9. Remove the six spark plugs.
10. Attach the compression gauge to a spark plug hole.



11. Open the throttle fully, crank the engine with the starter motor and measure the compression.

    Compression Pressure:
    Above 930 kPa (9.5 kgf/cm², 135 psi)

12. Measure the compression on the remaining cylinders.

    Maximum Variation:
    Within 200 kPa (2.0 kgf/cm², 28 psi)

13. If the compression is not within specifications, check the following items, then remeasure the compression.

    - Damaged or worn valves and seats
    - Damaged cylinder head gasket
    - Damaged or worn piston rings
    - Damaged or worn piston and cylinder bore

14. Select PCM reset (see page 11-4) to cancel the ALL INJECTORS OFF function on the HDS.

BACK

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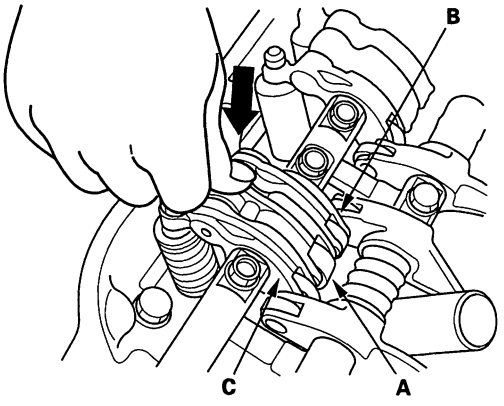
VTEC Rocker Arm Test

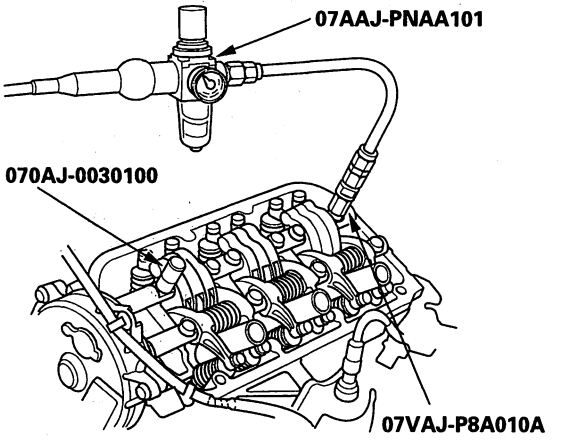
Special Tools Required
- VTEC air adapter 07VAJ-P8A010A
- VTEC air stopper 070AJ-0030100
- Air pressure regulator 07AAJ-PNAA101

1. Start the engine and let it run for 5 minutes, then turn the ignition switch OFF.
2. Remove the intake manifold (see page 9-3).
3. Remove the cylinder head covers (see page 6-26).
4. Set the No. 1 piston at top dead center (TDC) (see step 3 on page 6-8).
5. Push on the intake mid rocker arm (A) for the No. 1 cylinder. The mid rocker arm should move independently of the primary rocker arm (B) and secondary rocker arm (C).
   - If the mid rocker arm moves freely, go to step 6.
   - If the intake mid rocker arm does not move, remove the mid, primary, and secondary intake rocker arms as an assembly, then check that the rocker arm pistons in the mid and primary rocker arms move smoothly. If any rocker arm needs replacing, replace the mid, primary, and secondary rocker arms as an assembly, and retest.

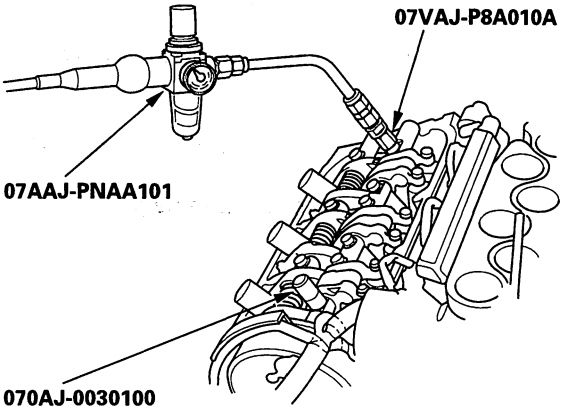


6. Repeat step 5 on the remaining intake mid rocker arms with each piston at TDC. When all the mid rocker arms pass the test, go to step 7.
7. Check that the air pressure on the shop air compressor gauge indicates over 690 kPa (7.0 kgf/cm², 100 psi).
8. Inspect the valve clearance (see page 6-8).
9. Remove the No. 1 and No. 6 intake rocker shaft mounting bolts, then install the VTEC air adapter and VTEC air stopper, and connect the air pressure regulator as shown.

FRONT:



REAR:



10. Loosen the valve on the regulator, and apply the specified air pressure.

Specified Air Pressure:
440—540 kPa (4.5—5.5 kgf/cm², 64—78 psi)

NOTE: If the rocker arm pistons do not move after applying air pressure; move the primary or secondary rocker arm up and down manually.

(cont'd)

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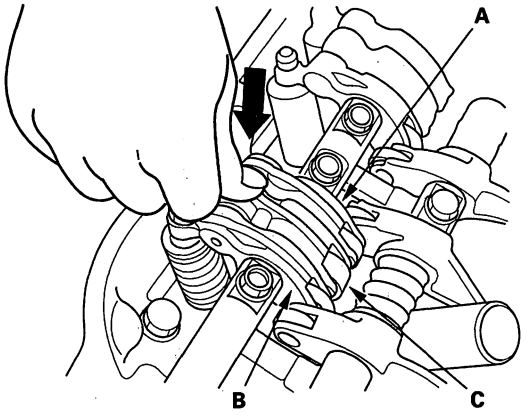
VTEC Rocker Arm Test (cont'd)

11. Make sure that the intake primary rocker arm (A) and intake secondary rocker arm (B) are mechanically connected by the piston and that the mid rocker arm (C) does not move when pushed manually. If any intake mid rocker arm moves independently of the primary and secondary rocker arms, replace the rocker arms as a set.

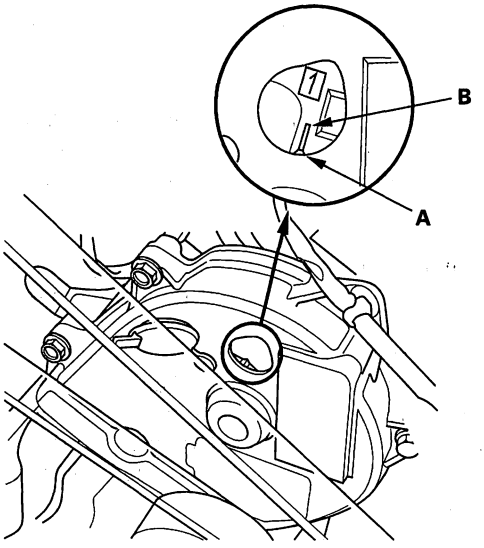


12. Remove the special tools.
13. Tighten the rocker shaft bolts to 24 N·m (2.4 kgf·m, 17 lbf·ft)
14. Install the cylinder head covers (see page 6-27).
15. Install the intake manifold (see page 9-5).

Valve Clearance Adjustment

NOTE: Adjust the valves only when the cylinder head temperature is less than 100 °F (38 °C).

1. Remove the intake manifold (see page 9-3).
2. Remove the cylinder head covers (see page 6-26).
3. Set the No. 1 piston at top dead center (TDC). Align the pointer (A) on the front upper cover with the No. 1 piston TDC mark (B) on the front camshaft pulley.



BACK

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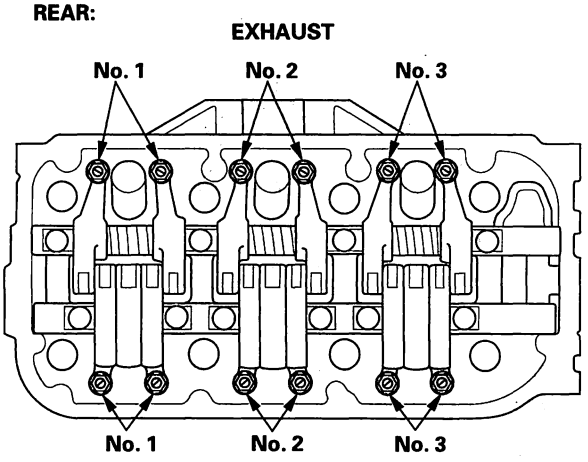
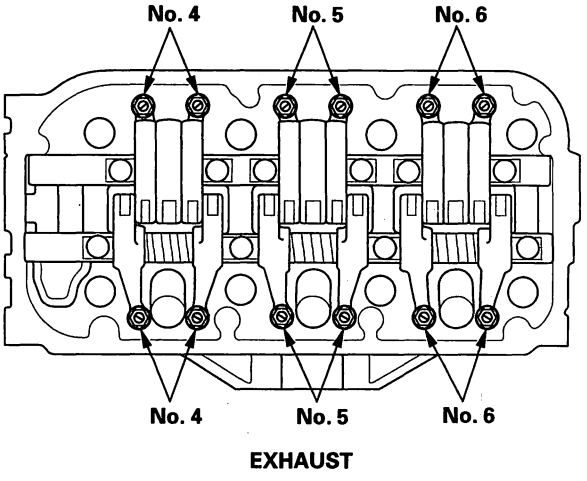
4. Select the correct thickness feeler gauge for the valves you're going to check.

Valve Clearance
Intake: 0.20—0.24 mm (0.008—0.009 in.)
Exhaust: 0.28—0.32 mm (0.011—0.013 in.)

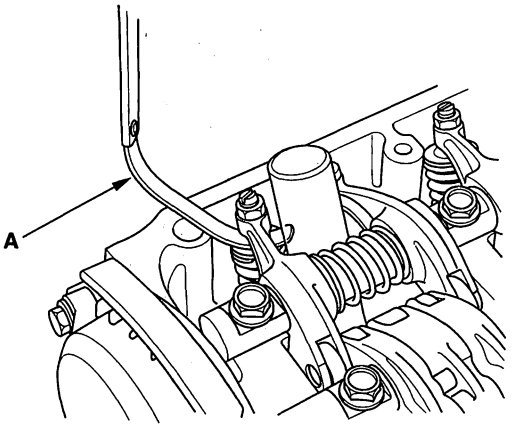
REAR:



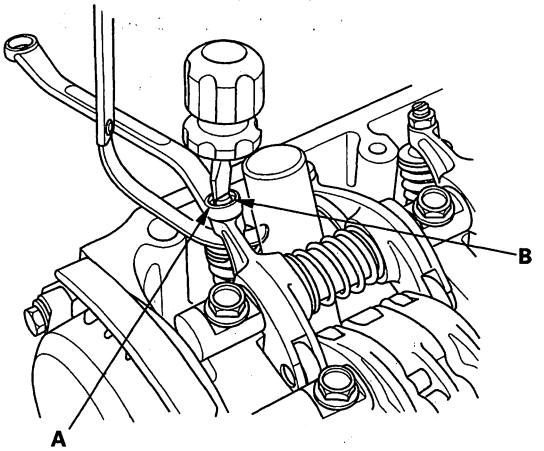
FRONT:



5. Insert the feeler gauge (A) between the adjusting screw and the end of the valve stem on No. 1 cylinder and slide it back and forth; you should feel a slight amount of drag.



6. If you feel too much or too little drag, loosen the locknut (A), and turn the adjusting screw (B) until the drag on the feeler gauge is correct.



7. Tighten the locknut and recheck the clearance. Repeat the adjustment, if necessary.

(cont'd)

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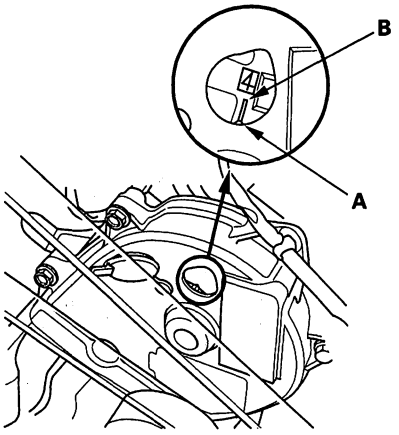
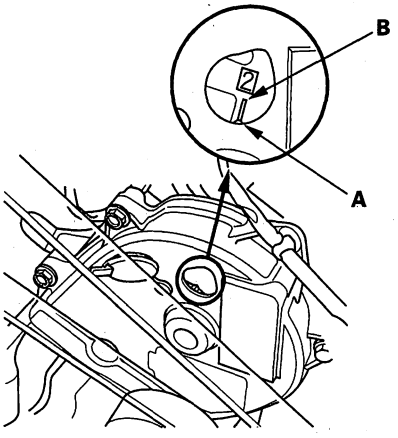
Valve Clearance Adjustment (cont'd)

8. Rotate the crankshaft clockwise. Align the pointer (A) on the front upper cover with the No. 4 piston TDC mark (B) on the front camshaft pulley.



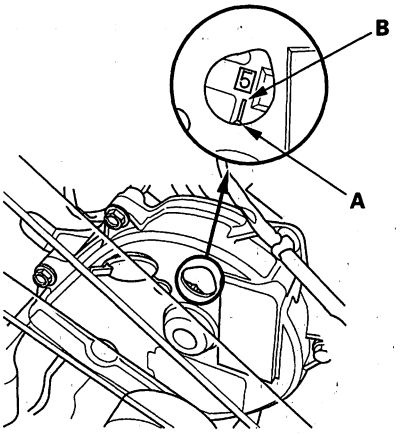
9. Check and, if necessary, adjust the valve clearance on No. 4 cylinder.

10. Rotate the crankshaft clockwise. Align the pointer (A) on the front upper cover with the No. 2 piston TDC mark (B) on the front camshaft pulley.



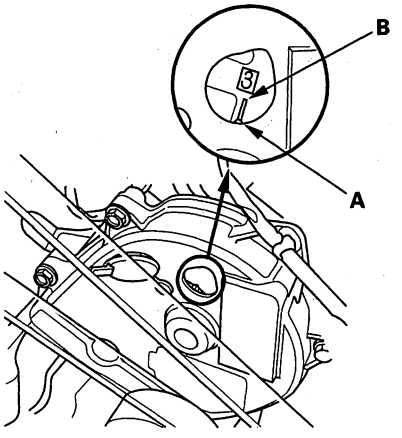
11. Check and, if necessary, adjust the valve clearance on No. 2 cylinder.

12. Rotate the crankshaft clockwise. Align the pointer (A) on the front upper cover with the No. 5 piston TDC mark (B) on the front camshaft pulley.



13. Check and, if necessary, adjust the valve clearance on No. 5 cylinder.

14. Rotate the crankshaft clockwise. Align the pointer (A) on the front upper cover with the No. 3 piston TDC mark (B) on the front camshaft pulley.



15. Check and, if necessary, adjust the valve clearance on No. 3 cylinder.

BACK

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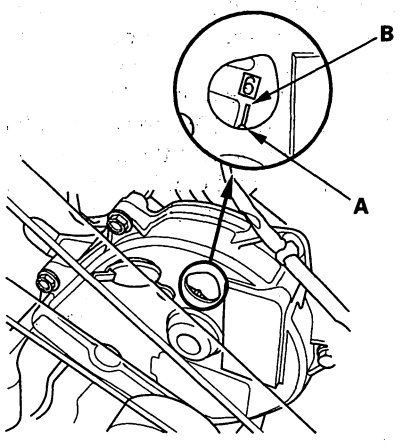
16. Rotate the crankshaft clockwise. Align the pointer (A) on the front upper cover with the No. 6 piston TDC mark (B) on the front camshaft pulley.



17. Check and, if necessary, adjust the valve clearance on No. 6 cylinder.

18. Install the cylinder head covers (see page 6-27).

19. Install the intake manifold (see page 9-5).

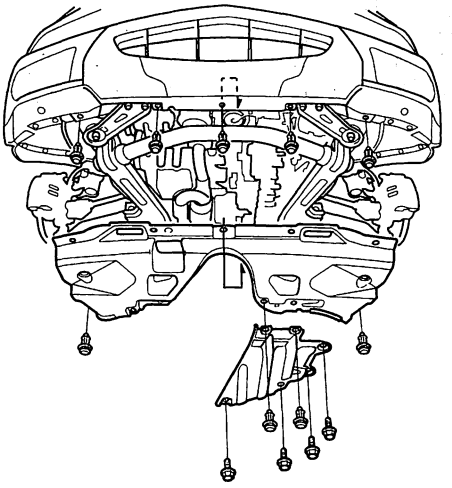
Crankshaft Pulley Removal and Installation

Special Tools Required
- Holder handle 07JAB-001020A
- Holder attachment, 50 mm, offset 07MAB-PY3010A
- Socket, 19 mm 07JAA-001020A , or a commercially available 19 mm socket

Removal

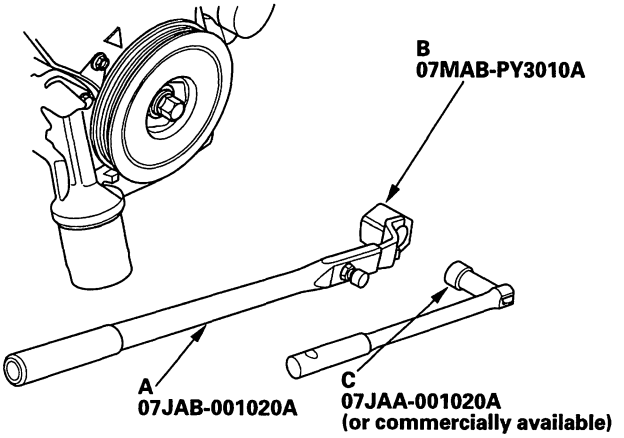
1. Remove the right front wheel.

2. Remove the splash shield.



3. Remove the drive belt (see page 4-33).

4. Hold the pulley with the holder handle (A) and holder attachment (B).



5. Remove the bolt with a heavy duty 19 mm socket (C) and breaker bar, then remove the crankshaft pulley.

(cont'd)

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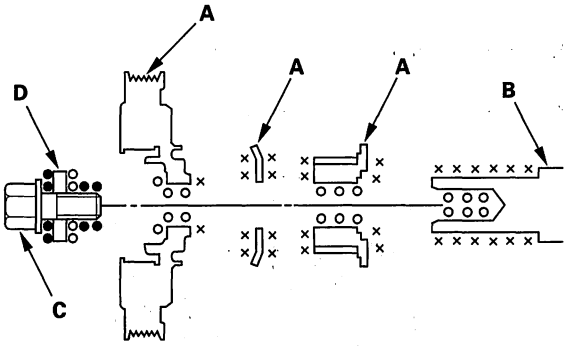
Crankshaft Pulley Removal and Installation (cont'd)

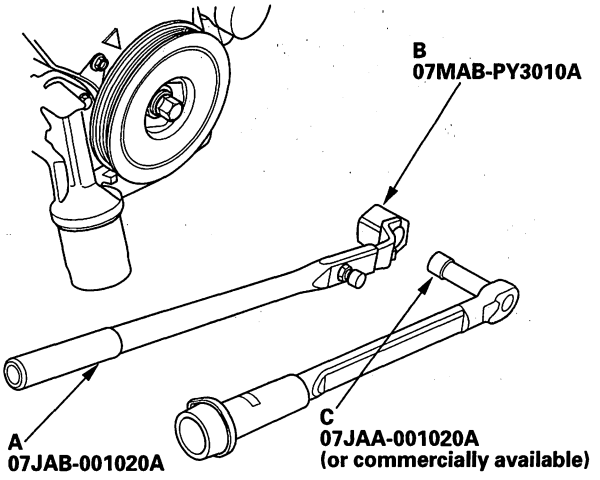
Installation

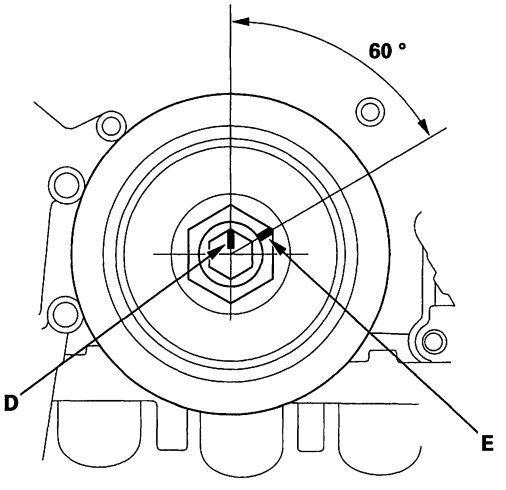
1. Remove any oil and clean the pulleys (A), crankshaft (B), bolt (C), and washer (D). Lubricate with new engine oil as shown.

×: Remove any oil
○: Clean
●: Lubricate with new engine oil



2. Install the crankshaft pulley, and tighten the bolt. Do not use an impact wrench.
   1. Hold the pulley with the holder handle (A) and holder attachment (B). Torque the bolt to 65 N·m (6.5 kgf·m, 47 lbf·ft) with a torque wrench and heavy duty 19 mm socket (C).
   2. Mark the bolt head (D) and crankshaft pulley (E) as shown, then tighten the bolt an additional 60 ° (The mark on the bolt head lines up with the mark on the crankshaft pulley).





3. Install the drive belt (see page 4-33).
4. Install the splash shield.
5. Install the right front wheel.

BACK

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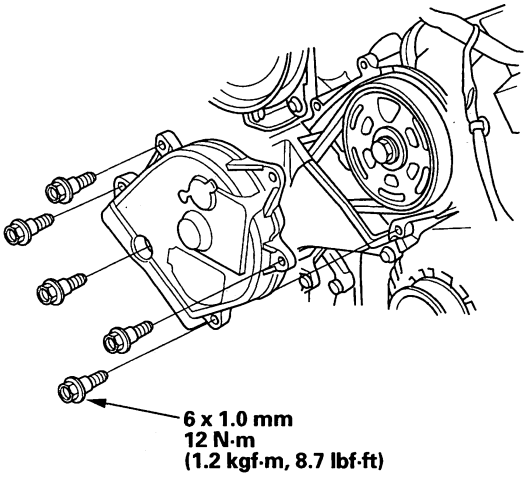
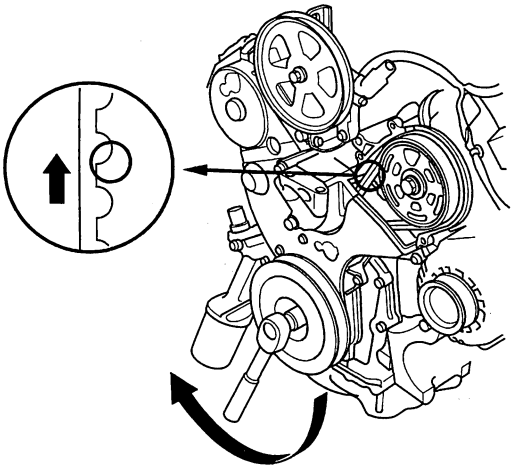
Timing Belt Inspection

1. Remove the drive belt (see page 4-33).
2. Remove the drive belt auto-tensioner (see page 4-35).
3. Remove the front upper cover.

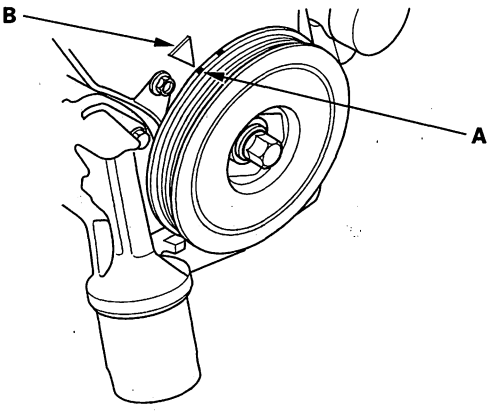


4. Inspect the timing belt for cracks and oil or coolant contamination. Replace the belt if it is cracked, or is contaminated with oil or coolant. Wipe off any oil or solvent that gets on the belt.



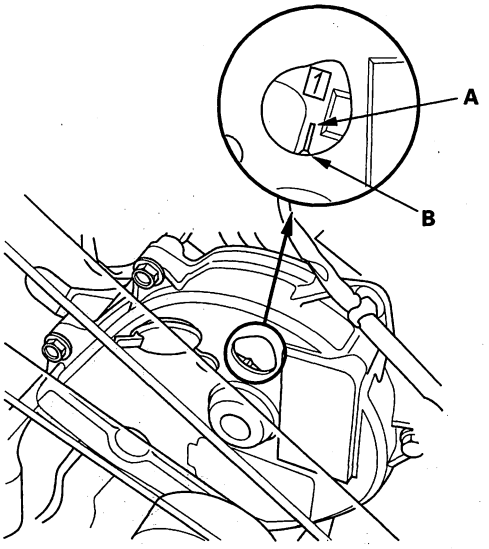
Timing Belt Removal

1. Turn the crankshaft so its white mark (A) lines up with the pointer (B).



2. Check that the No. 1 piston top dead center (TDC) mark (A) on the front camshaft pulley and the pointer (B) on the front upper cover are aligned.

   NOTE: If the marks are not aligned, rotate the crankshaft 360 degrees, and recheck the camshaft pulley mark.



(cont'd)

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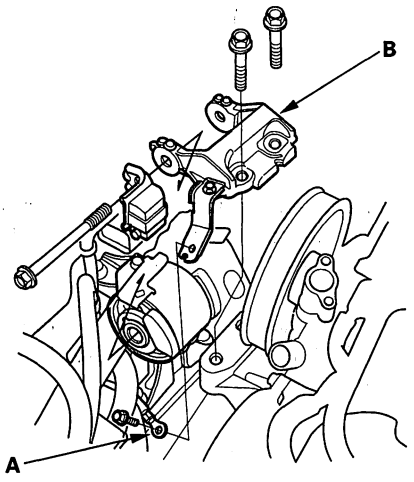
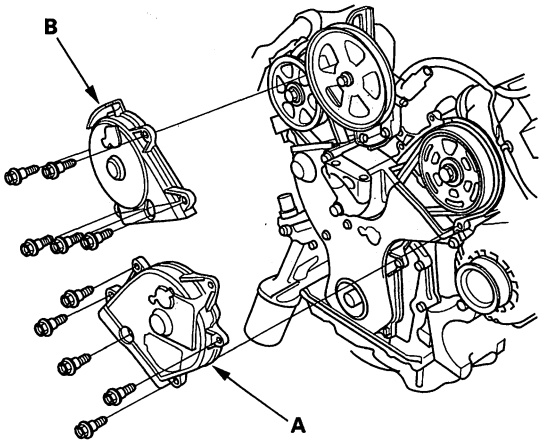
Timing Belt Removal (cont'd)

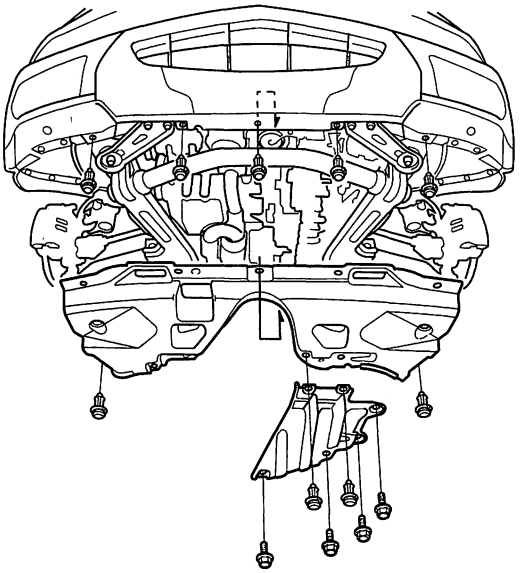
3. Remove the drive belt (see page 4-33).
4. Remove the drive belt auto-tensioner (see page 4-35).
5. For ease of removing the side engine mount, support the engine with a jack and wood block under the oil pan.
6. Remove the ground cable (A), then remove the upper half of the side engine mount bracket (B).



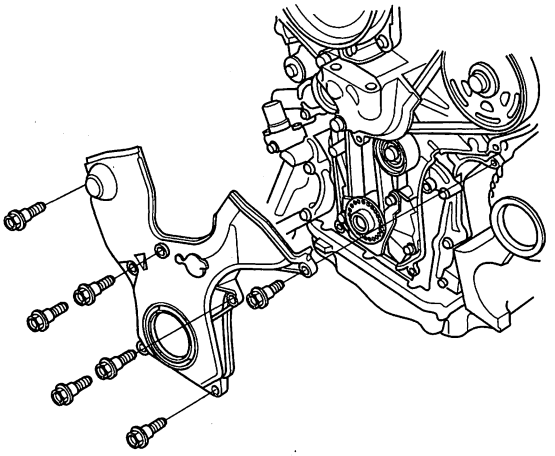
7. Remove the front upper cover (A) and rear upper cover (B).



8. Raise the vehicle on the lift, then remove the right front wheel.
9. Remove the splash shield.



10. Remove the crankshaft pulley (see page 6-11).
11. Remove the lower cover.



BACK

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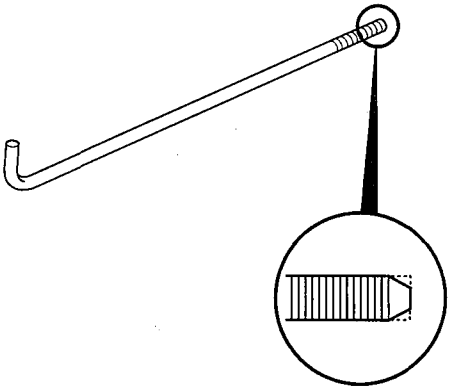
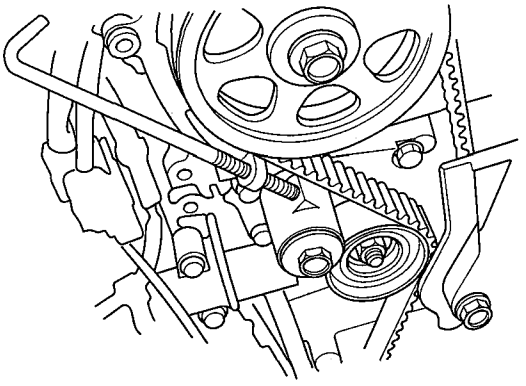
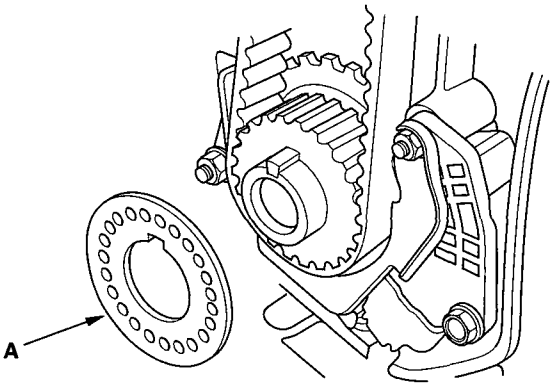
12. Remove one of the battery clamp bolts from the battery tray, and grind the end of it as shown.



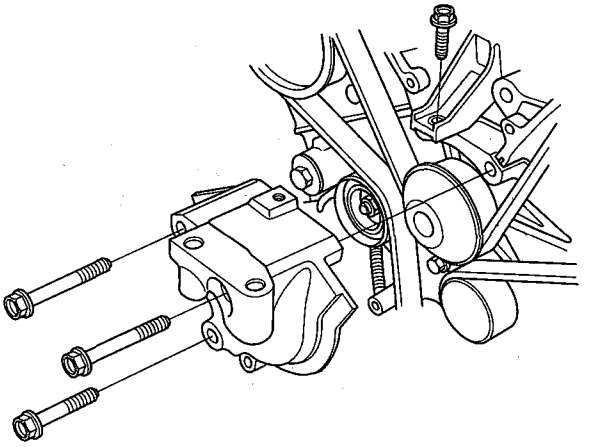
13. Thread the battery clamp bolt in as shown to hold the timing belt adjuster in its current position. Tighten it by hand; do not use a wrench.



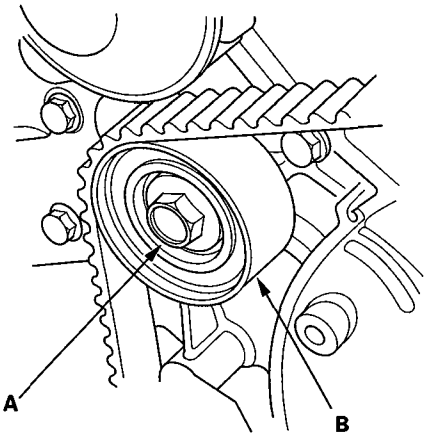
14. Remove the timing belt guide plate (A).



15. Remove the lower half of the side engine mount bracket.



16. Remove the idler pulley bolt (A) and idler pulley (B), then remove the timing belt. Discard the idler pulley bolt.



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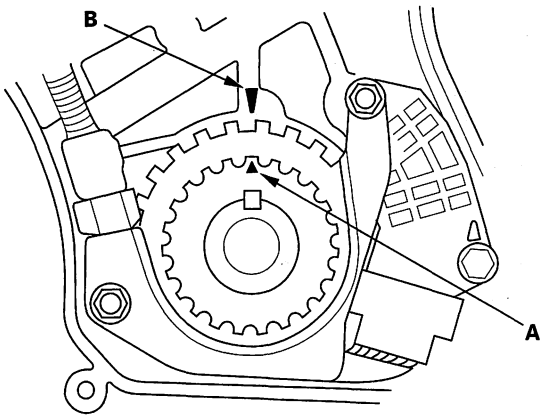
Timing Belt Installation

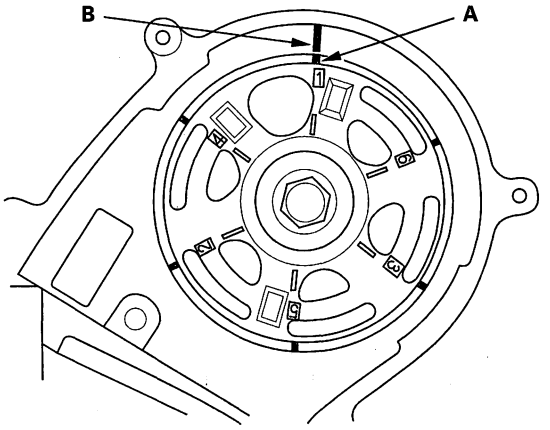
NOTE: The following is the installation procedure for a used belt. If you are installing a new belt, refer to the timing belt replacement procedure (see page 6-20).

1. Clean the timing belt pulleys, timing belt guide plate, and the upper and lower covers.
2. Set the timing belt drive pulley to top dead center (TDC) by aligning the TDC mark (A) on the tooth of the timing belt drive pulley with the pointer (B) on the oil pump.

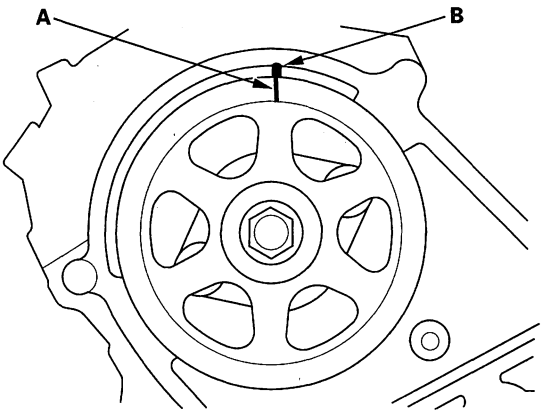


3. Set the camshaft pulleys to TDC by aligning the TDC marks (A) on the camshaft pulleys with the pointers (B) on the back covers.

FRONT:



REAR:



BACK

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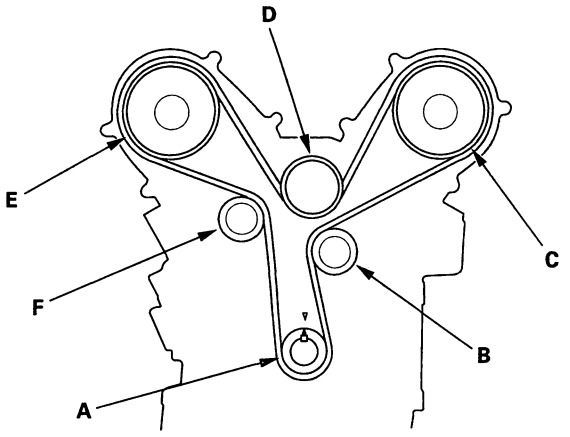
4. Loosely install the idler pulley with a new idler pulley bolt so the pulley can move but does not come off.

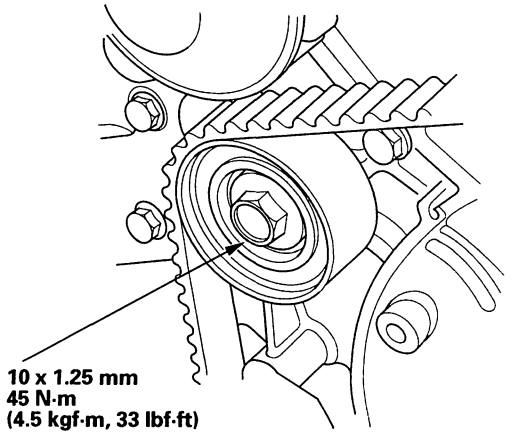
5. If the auto-tensioner has extended and the timing belt cannot be installed, do the timing belt replacement procedure (see page 6-20).

6. Install the timing belt in a counterclockwise sequence starting with the drive pulley. Take care not to damage the timing belt when installing it.

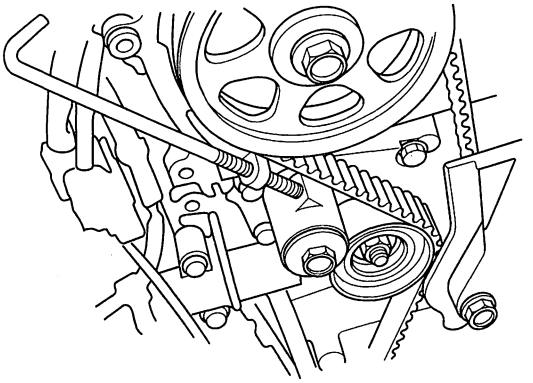
   1 Drive pulley (A)
   2 Idler pulley (B)
   3 Front camshaft pulley (C)
   4 Water pump pulley (D)
   5 Rear camshaft pulley (E)
   6 Adjusting pulley (F)



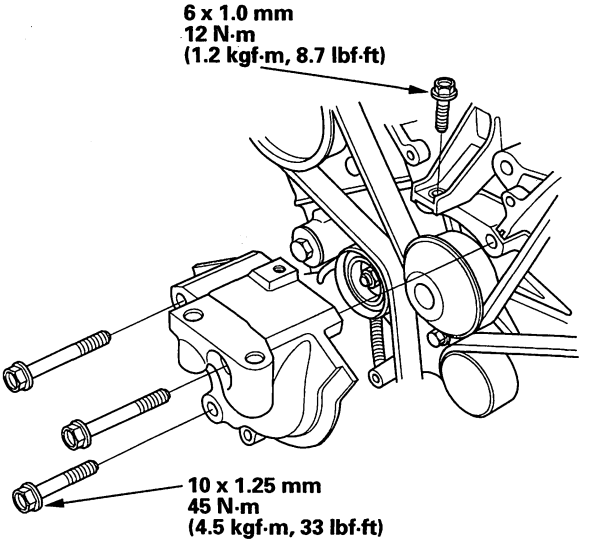
7. Tighten the idler pulley bolt.



8. Remove the battery clamp bolt from the back cover.



9. Install the lower half of the side engine mount bracket.



(cont'd)

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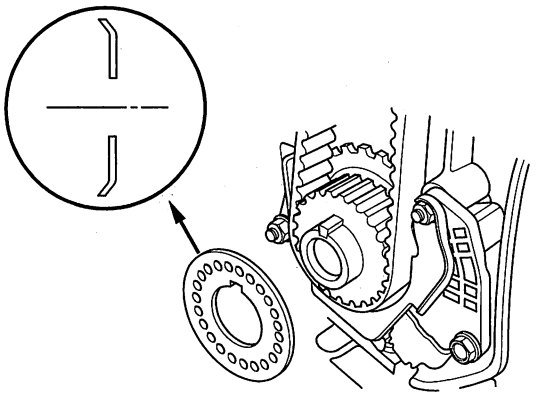
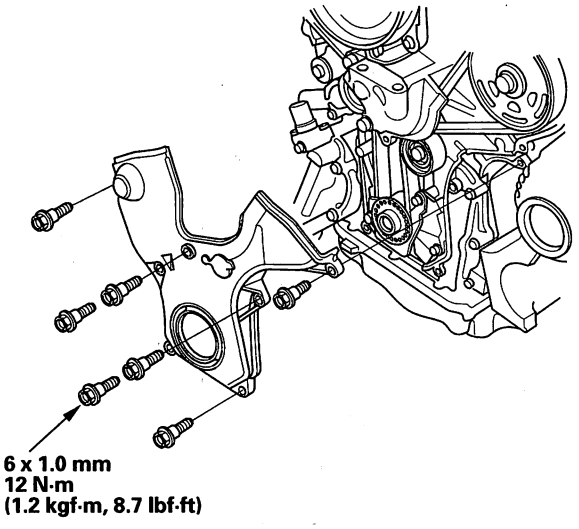
Timing Belt Installation (cont'd)

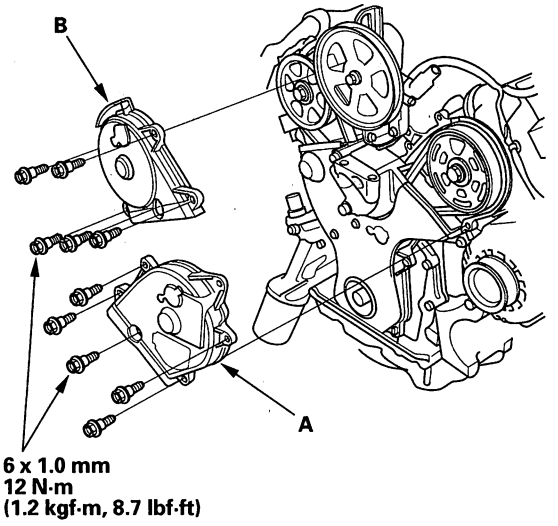
10. Install the timing belt guide plate as shown.



11. Install the lower cover.



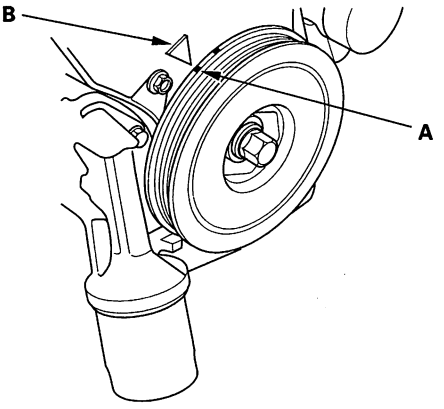
12. Install the front upper cover (A) and rear upper cover (B).



13. Install the crankshaft pulley (see page 6-12).

14. Rotate the crankshaft pulley about five or six turns clockwise so the timing belt positions itself on the pulleys.

15. Turn the crankshaft pulley so its white mark (A) lines up with the pointer (B).



BACK

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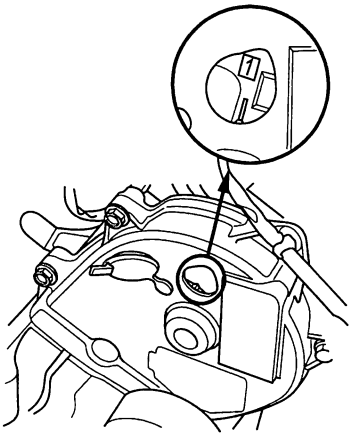
16. Check the camshaft pulley marks.

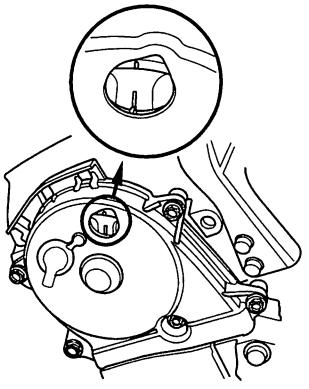
    NOTE: If the marks are not aligned, rotate the crankshaft 360 degrees, and recheck the camshaft pulley mark.

    - If the camshaft pulley marks are at TDC, go to step 17.
    - If the camshaft pulley marks are not at TDC, remove the timing belt and repeat steps 2 through 16.

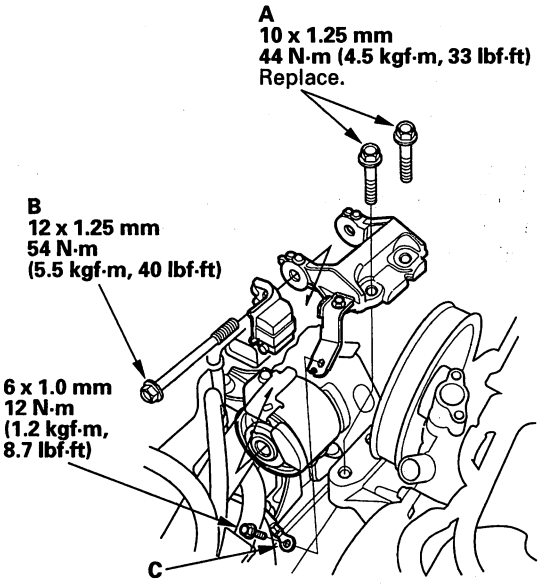
FRONT:



REAR:



17. Install the upper half of the side engine mount bracket, and tighten the new mounting bolts (A), then tighten the mass damper mounting bolt (B).

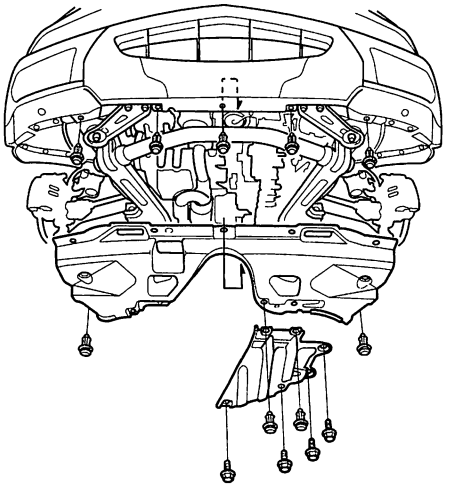


18. Install the ground cable (C).

19. Install the drive belt auto-tensioner (see page 4-35).

20. Install the drive belt (see page 4-33).

21. Install the splash shield.



22. Install the right front wheel.

23. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure (see page 11-4).

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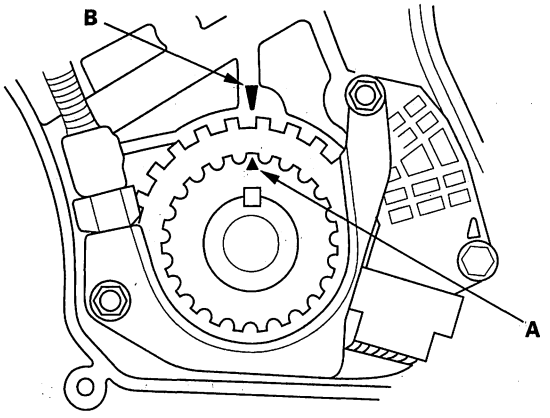
Timing Belt Replacement

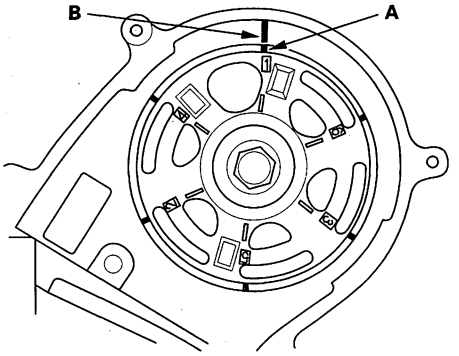
NOTE: The following procedure is for the installation of a new timing belt. If you are installing a used belt, refer to the timing belt installation procedure (see page 6-16).

1. Remove the timing belt (see page 6-13).
2. Clean the timing belt pulleys, timing belt guide plate, and the upper and lower covers.
3. Set the timing belt drive pulley to top dead center (TDC) by aligning the TDC mark (A) on the tooth of the timing belt drive pulley with the pointer (B) on the oil pump.

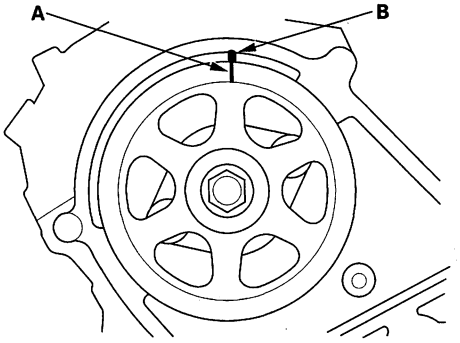


4. Set the camshaft pulleys to TDC by aligning the TDC marks (A) on the camshaft pulleys with the pointers (B) on the back covers.

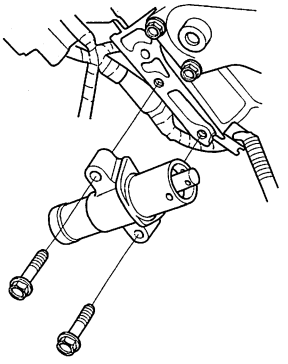
FRONT:



REAR:



5. Remove the battery clamp bolt from the back cover.
6. Remove the auto-tensioner.



BACK

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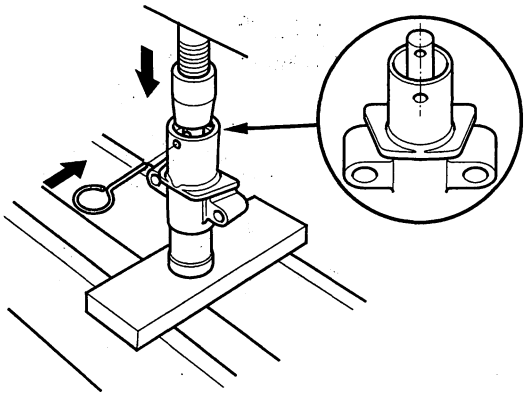
7. Align the holes on the rod and housing of the auto-tensioner.

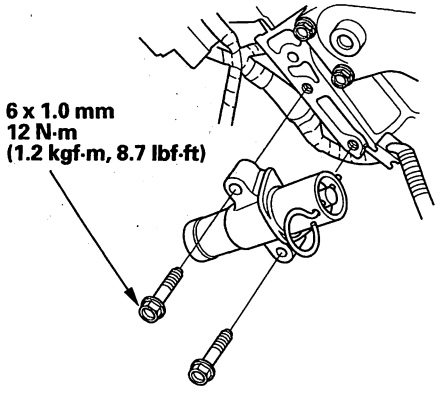


8. Use a hydraulic press to slowly compress the auto-tensioner. Insert a 2.0 mm (0.08 in.) pin through the housing and the rod.

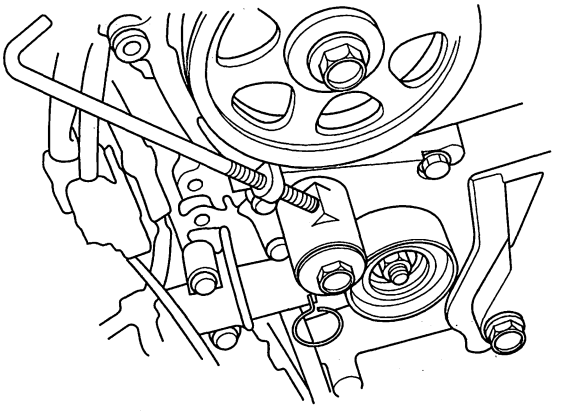
   NOTE: The compression pressure should not exceed 9,800 N (1,000 kgf, 2,200 lbf).

9. Install the auto-tensioner.

   NOTE: Make sure the pin stays in place.



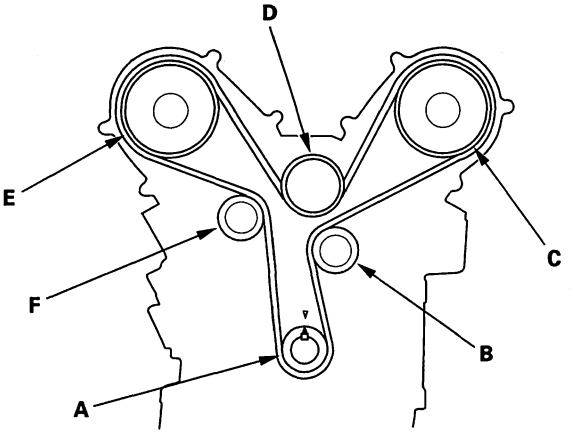
10. Thread the battery clamp bolt in as shown to hold the timing belt adjuster. Tighten it by hand; do not use a wrench.



11. Loosely install the idler pulley with a new idler pulley bolt so the pulley can move but does not come off.

12. Install the timing belt in a counterclockwise sequence starting with the drive pulley.

    1 Drive pulley (A)
    2 Idler pulley (B)
    3 Front camshaft pulley (C)
    4 Water pump pulley (D)
    5 Rear camshaft pulley (E)
    6 Adjusting pulley (F)



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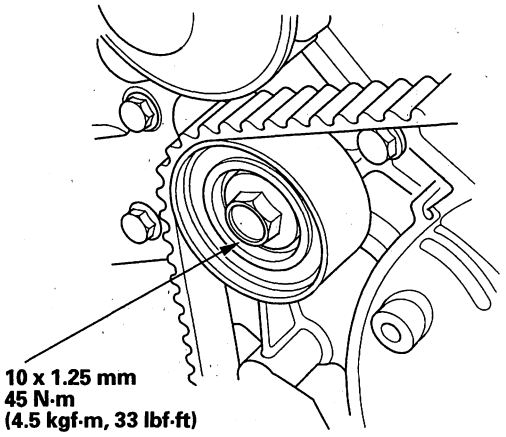
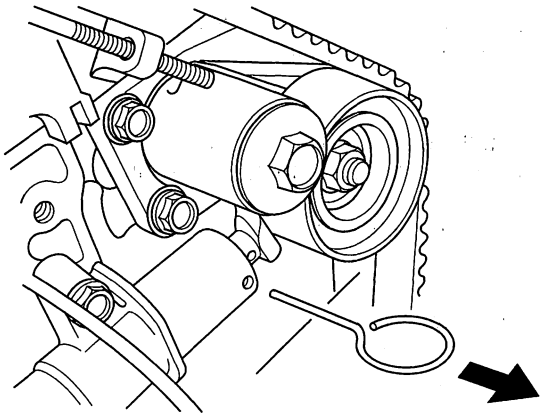
Timing Belt Replacement (cont'd)

13. Tighten the idler pulley bolt.

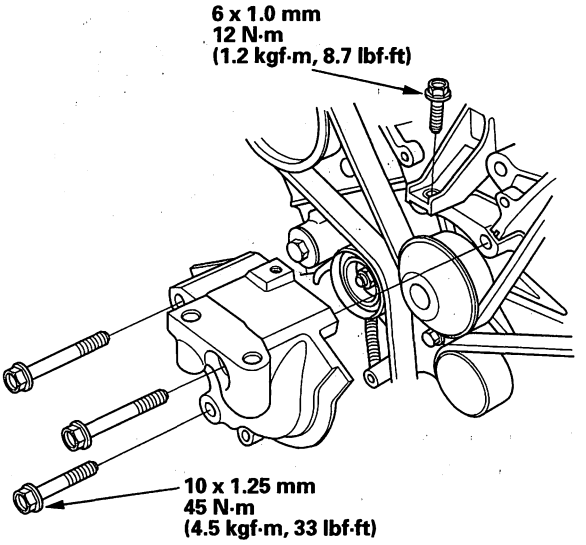


14. Remove the pin from the auto-tensioner.

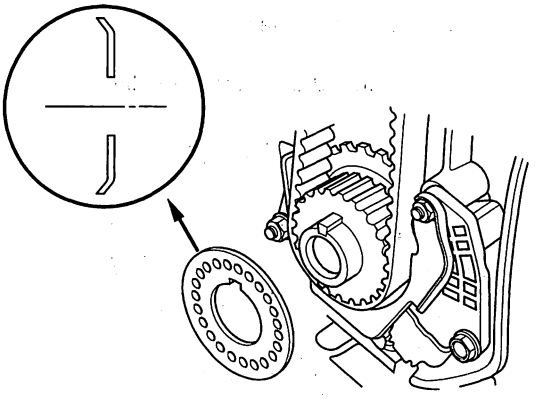


15. Remove the battery clamp bolt from the back cover.

16. Install the lower half of the side engine mount bracket.



17. Install the timing belt guide plate as shown.



BACK

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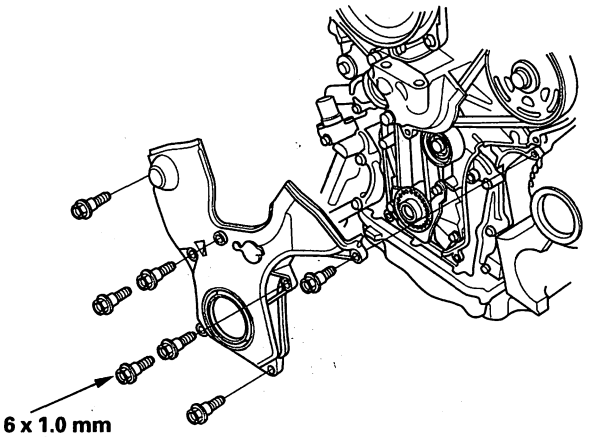
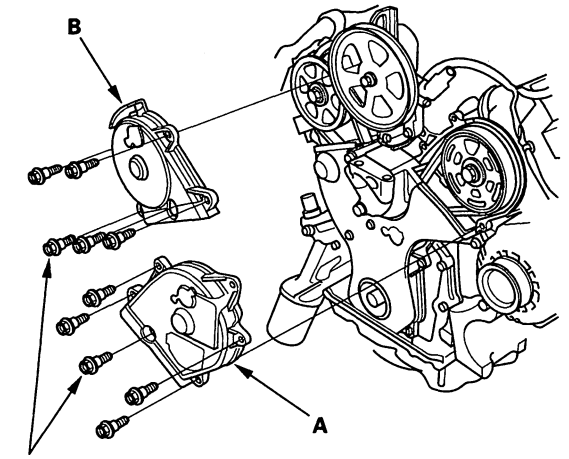
18. Install the lower cover.



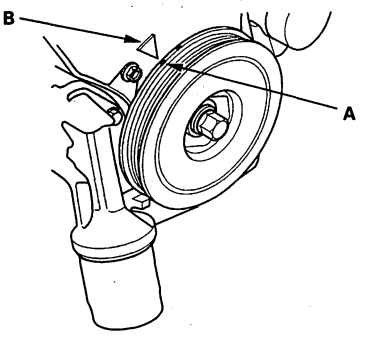
19. Install the front upper cover (A) and rear upper cover (B).



20. Install the crankshaft pulley (see page 6-12).

21. Rotate the crankshaft pulley about five or six turns clockwise so the timing belt positions itself on the pulleys.

22. Turn the crankshaft pulley so its white mark (A) lines up with the pointer (B).

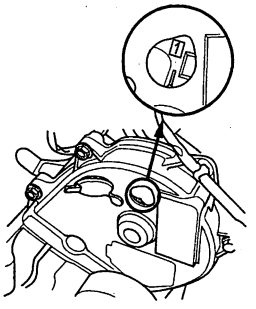


23. Check the camshaft pulley marks.

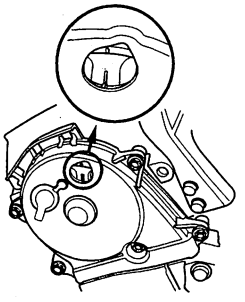
NOTE: If the marks are not aligned, rotate the crankshaft 360 degrees, and recheck the camshaft pulley mark.

- If the camshaft pulley marks are at TDC, go to step 24.
- If the camshaft pulley marks are not at TDC, remove the timing belt and repeat steps 3 through 22.

FRONT:



REAR:



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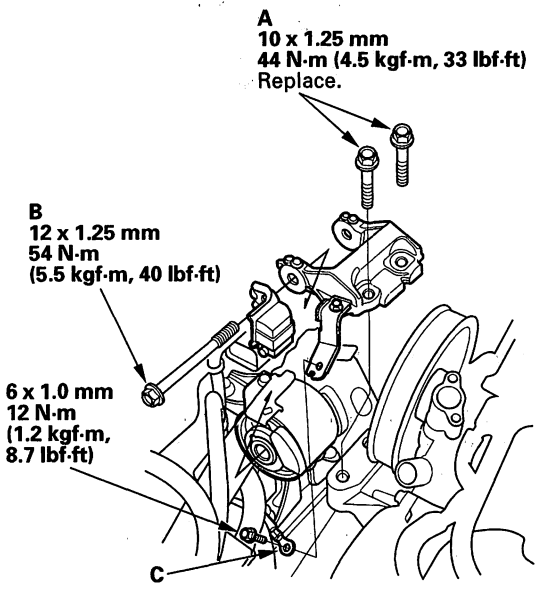
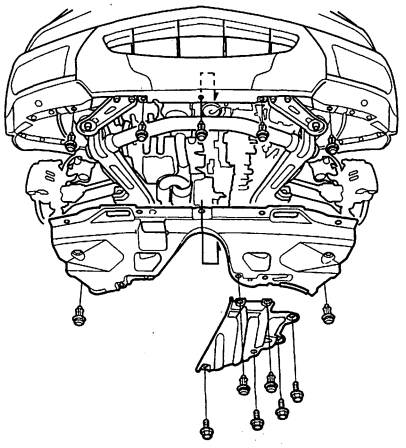
Timing Belt Replacement (cont'd)

24. Install the upper half of the side engine mount bracket, and tighten the new mounting bolts (A), then tighten the mass damper mounting bolt (B).



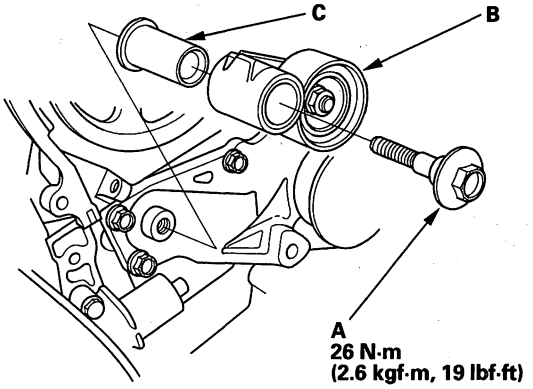
25. Install the ground cable (C).
26. Install the drive belt auto-tensioner (see page 4-35).
27. Install the drive belt (see page 4-33).
28. Install the splash shield.



29. Install the right front wheel.
30. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure (see page 11-4).

Timing Belt Adjuster Replacement

1. Remove the timing belt (see page 6-13).
2. Remove the battery clamp bolt from the back cover.
3. Remove the auto-tensioner.
4. Remove the bolt (A), then remove the timing belt adjuster (B) and collar (C).



5. Replace the timing belt auto-tensioner and timing belt (see page 6-20).

BACK

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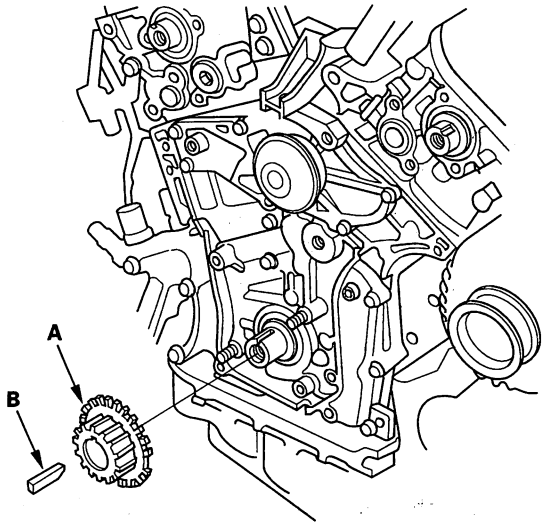
Timing Belt Drive Pulley Replacement

1. Remove the timing belt (see page 6-13).
2. Remove the crankshaft position (CKP) sensor (see page 11-242).
3. Remove the timing belt drive pulley (A) and key (B).



4. Inspect the timing belt drive pulley and key for damage. If it is cracked or damaged, replace the timing belt drive pulley.
5. Install the new timing belt drive pulley.
6. Install the CKP sensor (see page 11-242).
7. Install the timing belt (see page 6-16).
8. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-4).

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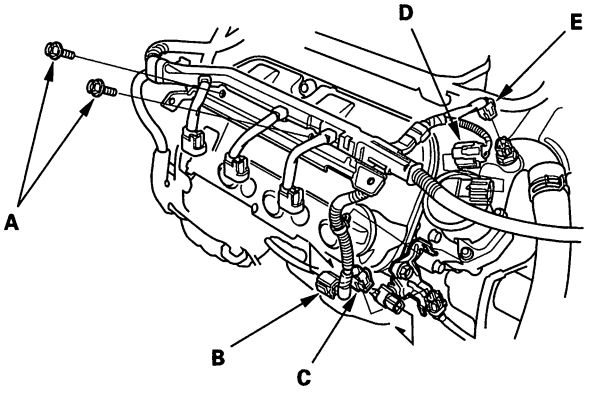
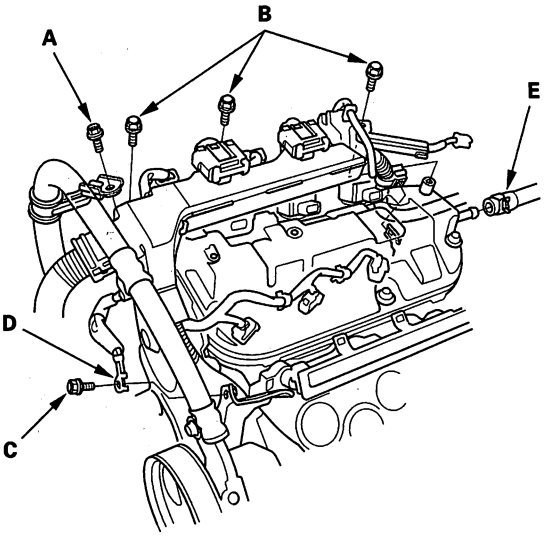
Cylinder Head Cover Removal

1. Remove the intake manifold (see page 9-3).
2. Remove the six ignition coils (see page 4-21).
3. Remove the dipstick.
4. Remove the two bolts (A) securing the harness holder, and disconnect the front air fuel ratio (A/F) sensor connector (B), front secondary heated oxygen sensor (secondary H02S) connector (C), exhaust gas recirculation (EGR) valve connector (D) and engine coolant temperature (ECT) sensor 1 connector (E).



5. Disconnect the three injector connectors from the injectors on the rear side cylinder head.
6. Remove the power steering hose bracket mounting bolt (A), the harness holder mounting bolts (B), and the engine ground cable bolt (C).



7. Remove the engine ground cable (D) and breather hose (E).

BACK

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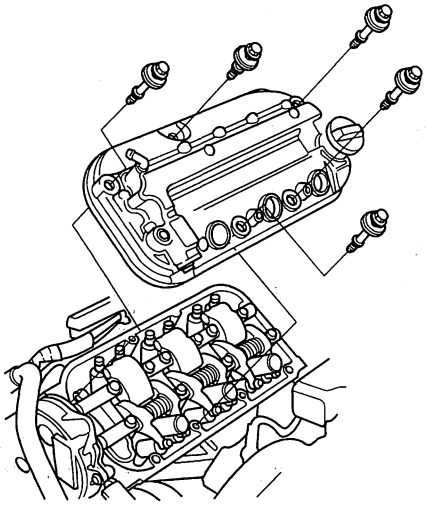
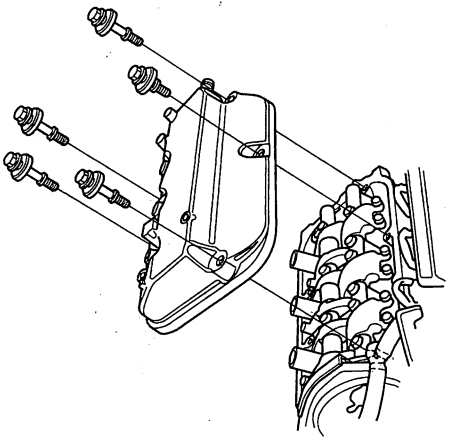
8. Remove the cylinder head cover.

FRONT:

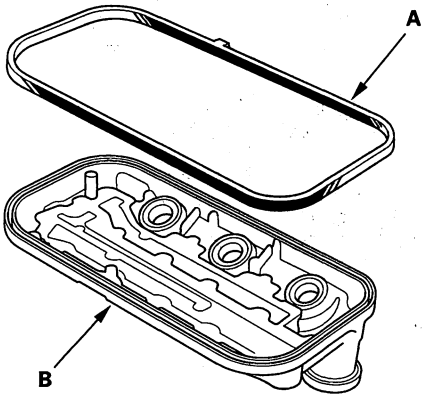


REAR:



Cylinder Head Cover Installation

1. Check the spark plug seals and head cover gasket for damage and deterioration. If any seal or gasket is damaged, replace it.
2. Thoroughly clean the head cover gasket and the groove of the cylinder cover.
3. Install the head cover gasket (A) in the groove of the cylinder head cover (B). Make sure the head cover gasket is seated securely.



4. Clean the head cover contacting surfaces with a shop towel.

(cont'd)

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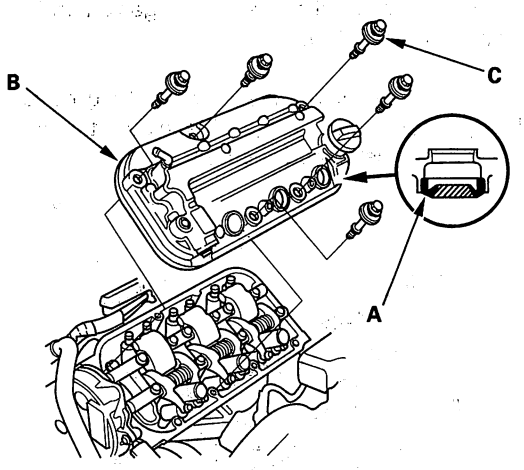
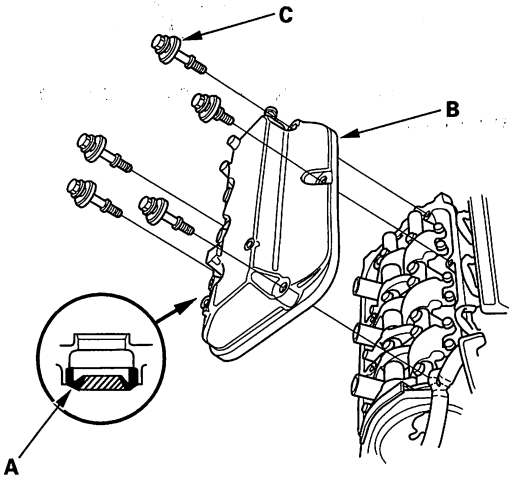
Cylinder Head Cover Installation (cont'd)

5. Set the spark plug seals (A) on the spark plug tubes, and install the cylinder head cover (B).

FRONT:

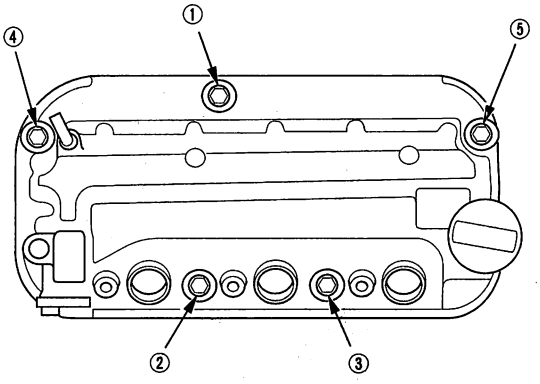


REAR:

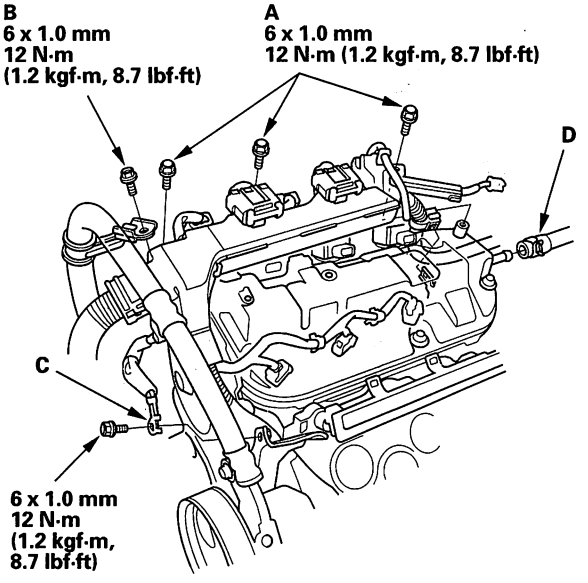


6. Inspect the cover washers (C). Replace any washer that is damaged or deteriorated.

7. Tighten the bolts in two or three steps. In the final step tighten all bolts, in sequence, 12N·m (1.2 kgf·m, 8.7 lbf·ft).



8. Tighten the harness holder mounting bolts (A) and the power steering hose bracket mounting bolt (B).



9. Install the engine ground cable (C) and breather hose (D).

BACK

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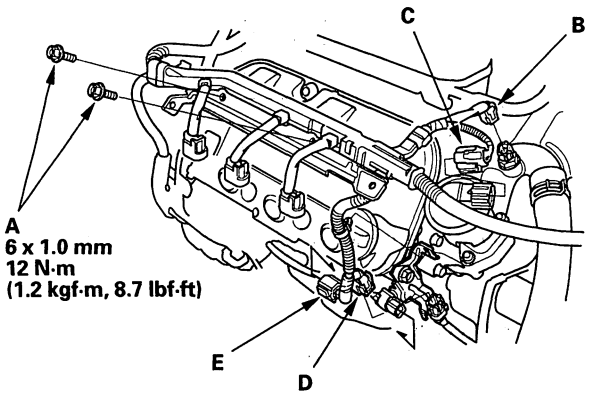
10. Connect the three injector connectors.

11. Tighten the two bolts (A) securing the harness holder, and connect the engine coolant temperature (ECT) sensor 1 connector (B), exhaust gas recirculation (EGR) valve connector (C), front secondary heated oxygen sensor (secondary H02S) connector (D) and front air fuel ratio (A/F) sensor connector (E).



12. Install the dipstick.

13. Install the six ignition coils (see page 4-21).

14. Install the intake manifold (see page 9-5).

NOTE:
- Use fender covers to avoid damaging painted surfaces.
- To avoid damage, unplug the wiring connectors carefully while holding the connector portion.
- To avoid damaging the cylinder head, wait until the engine coolant temperature drops below 100 °F (38 °C) before loosening the cylinder head bolts.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.

1. Make sure you have the anti-theft codes for the audio system and navigation system (if equipped).

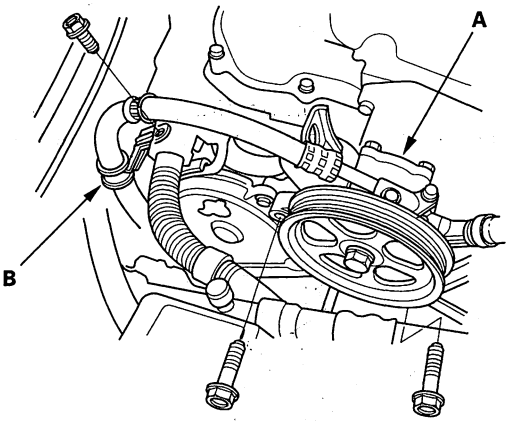
2. Relieve the fuel pressure (see page 11-330).

3. Disconnect the negative cable from the battery.

4. Drain the engine coolant (see page 10-6).

5. Remove the drive belt (see page 4-33).

6. Remove the power steering (P/S) pump (A), and P/S hose clamp (B).



(cont'd)

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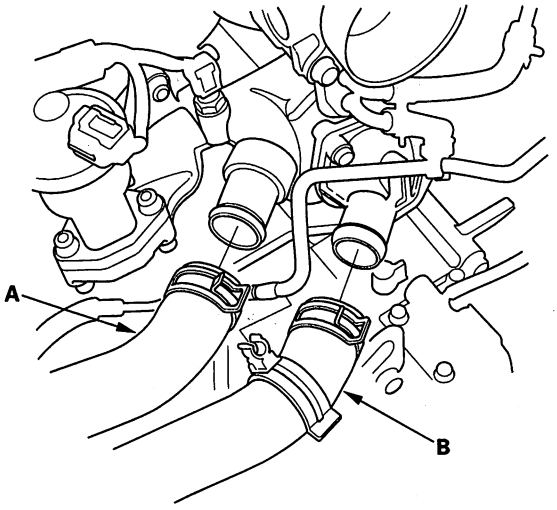
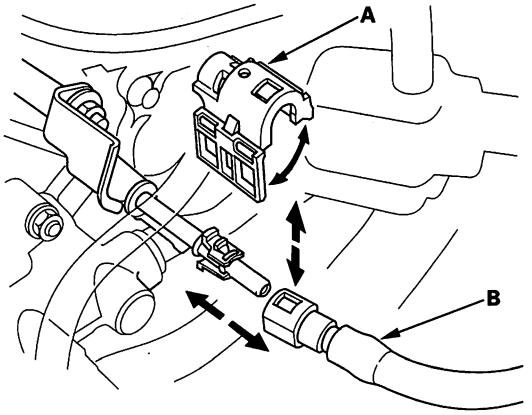
Cylinder Head Removal (cont'd)

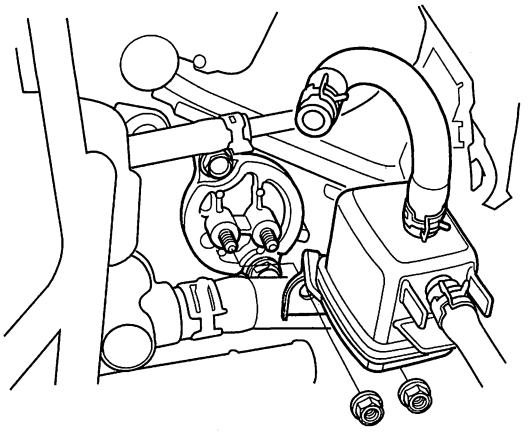
7. Remove the alternator (see page 4-36).
8. Remove the timing belt (see page 6-13).
9. Remove the intake manifold (see page 9-3).
10. Remove the six ignition coils (see page 4-21).
11. Remove the upper radiator hose (A) and lower radiator hose (B).



12. Remove the quick-connect fitting cover (A), then disconnect the fuel feed hose (B) (see page 11-338).



13. Remove the two nuts securing the purge joint.



14. Remove the engine wire harness connectors and wire harness clamps from the cylinder head.
    - Six injector connectors
    - Engine coolant temperature (ECT) sensor 1 connector
    - Crankshaft position (CKP) sensor connector
    - Exhaust gas recirculation (EGR) valve connector
    - Rocker arm oil control solenoid connector
    - Rocker arm oil pressure switch connector
    - Oil pressure switch connector
    - Two air fuel ratio (A/F) sensor connectors
    - Two secondary heated oxygen sensor (secondary HO2S) connectors
15. Remove the front warm up three way catalytic converter (front WU-TWC) (see page 11-370) and rear warm up three way catalytic converter (rear WU-TWC) (see page 11-371).

BACK

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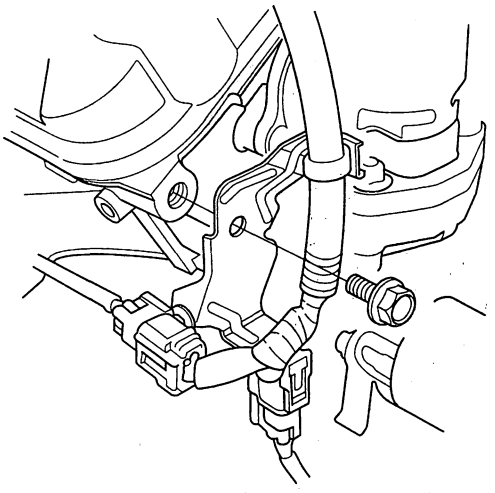
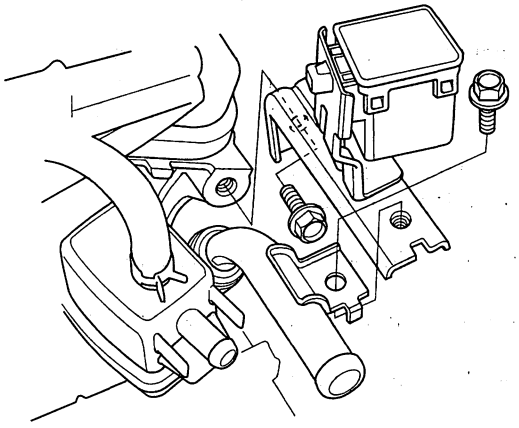
16. Remove the connector bracket from the front cylinder head.



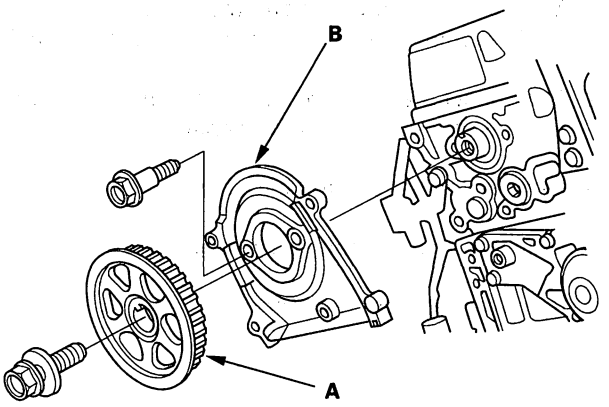
17. Remove the bracket from the rear cylinder head.



18. Remove the fuel rails (see page 11-312).

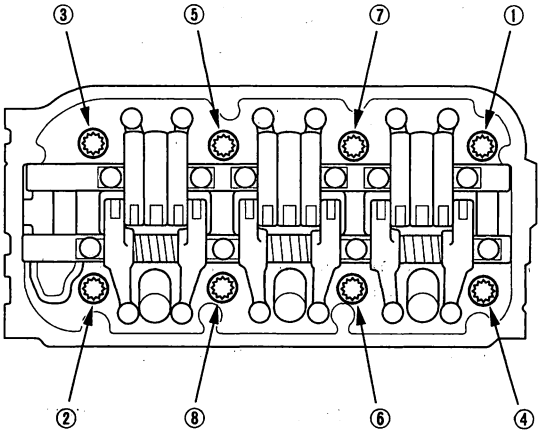
19. Remove the water passage (see page 10-9).

20. Remove the front and rear camshaft pulleys (A) and back covers (B).



21. Remove the cylinder head cover (see page 6-26).

22. Remove the cylinder head bolts. To prevent warpage, loosen the bolts in sequence 1/3 turn at a time; repeat the sequence until all the bolts are loosened.



23. Remove the cylinder head.

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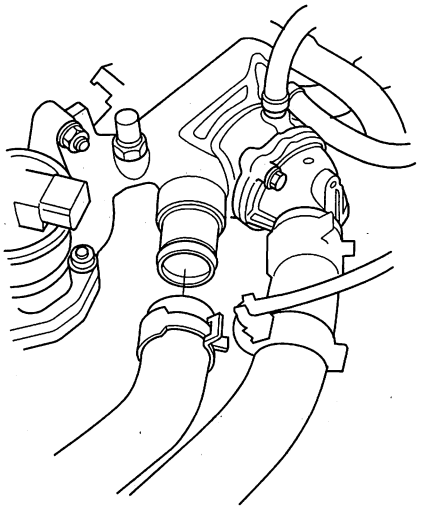
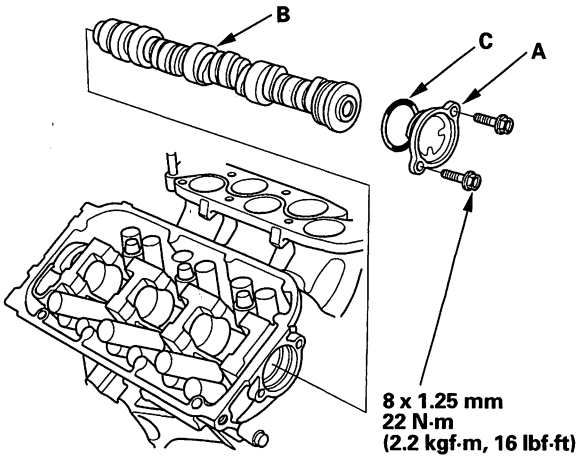
Camshaft Replacement

Front

1. Make sure you have the anti-theft codes for the audio system and navigation system (if equipped).
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.
3. Remove the battery and battery box.
4. Drain the engine coolant (see page 10-6).
5. Remove the upper radiator hose.



6. Remove the exhaust gas recirculation (EGR) valve (see page 11-388).
7. Remove the timing belt (see page 6-13).
8. Remove the rocker arm assembly (see page 6-34).
9. Remove the front camshaft pulley.
10. Remove the thrust cover (A), then remove the camshaft (B).



11. Install the camshaft in the reverse order of removal. Always use a new O-ring (C). Apply new engine oil to the journals and cam lobes.
12. Apply new engine oil to the threads of the camshaft pulley mounting bolt, then install the front camshaft pulley (see step 11 on page 6-49).
13. Install the rocker arm assembly, then tighten the mounting bolts (see step 8 on page 6-48).
14. Install the timing belt (see page 6-16).
15. Adjust the valve clearance (see page 6-8).
16. Install the upper radiator hose.
17. Install the battery and battery box. Clean the battery posts and cable terminals with sandpaper, then assemble them and apply grease to prevent corrosion.
18. Fill the radiator with engine coolant and bleed the air out from the system (see step 10 on page 10-7).
19. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure (see page 11-4).
20. Do the steering column position memorization (see page 17-28).
21. Enter the anti-theft codes for the audio system and navigation system (if equipped).
22. Set the clock.

BACK

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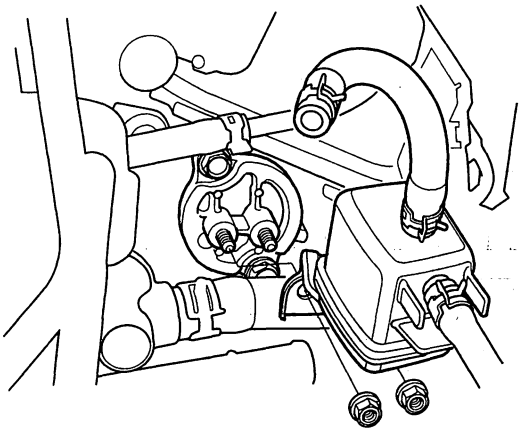
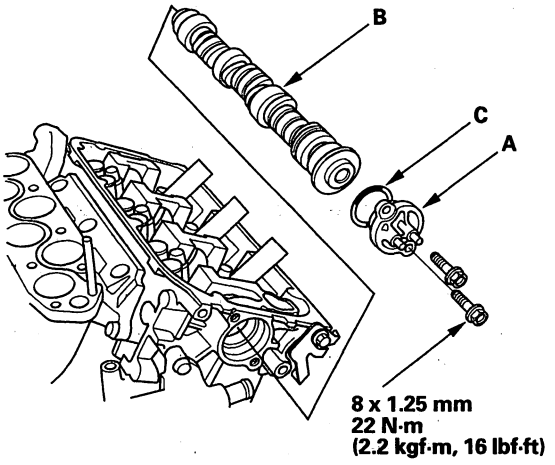
Rear

1. Remove the intake manifold (see page 9-3).
2. Remove the two nuts securing the purge joint.



3. Remove the brake lines from the master cylinder (see page 19-18).
4. Remove the timing belt (see page 6-13).
5. Remove the rocker arm assembly (see page 6-34).
6. Remove the rear camshaft pulley.
7. Remove the thrust cover (A), then remove the camshaft (B).



8. Install the camshaft in the reverse order of removal. Always use a new O-ring (C). Apply new engine oil to the journals and cam lobes.
9. Apply new engine oil to the threads of the camshaft pulley mounting bolt, then install the rear camshaft pulley (see step 11 on page 6-49).
10. Install the rocker arm assembly, then tighten the mounting bolts (see step 8 on page 6-48).
11. Install the timing belt (see page 6-16).
12. Adjust the valve clearance (see page 6-8).
13. Install the brake lines (see page 19-18) and do the brake system bleeding procedure (see page 19-9).
14. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-4).

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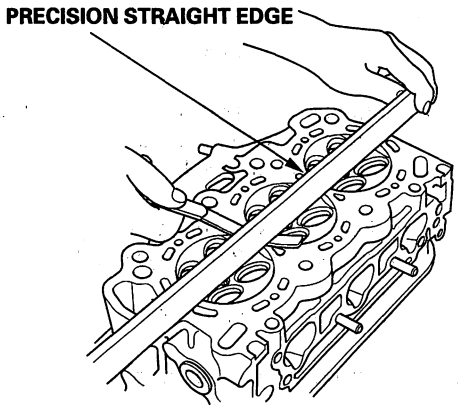
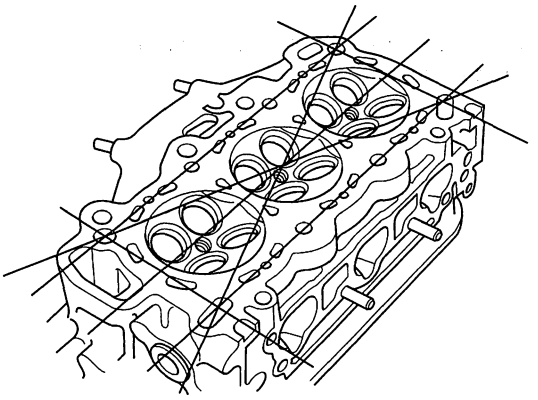
Cylinder Head Inspection for Warpage

1. Remove the cylinder head (see page 6-29).
2. Inspect the camshaft (see page 6-38).
3. Check the cylinder head for warpage. Measure along the edges, and three ways across the center.
   - If warpage is less than 0.05 mm (0.002 in.), cylinder head resurfacing is not required.
   - If warpage is between 0.05 mm (0.002 in.) and 0.2 mm (0.008 in.), resurface the cylinder head.
   - Maximum resurface limit is 0.2 mm (0.008 in.) based on a height of 121 mm (4.76 in.).

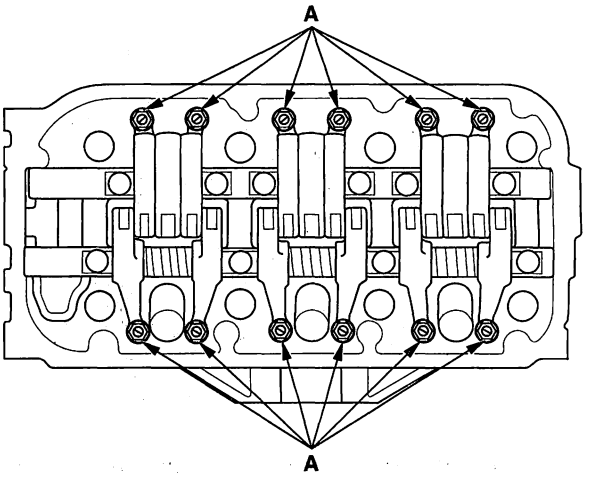
Cylinder Head Height
Standard (New): 120.95—121.05 mm (4.7618—4.7657 in.)



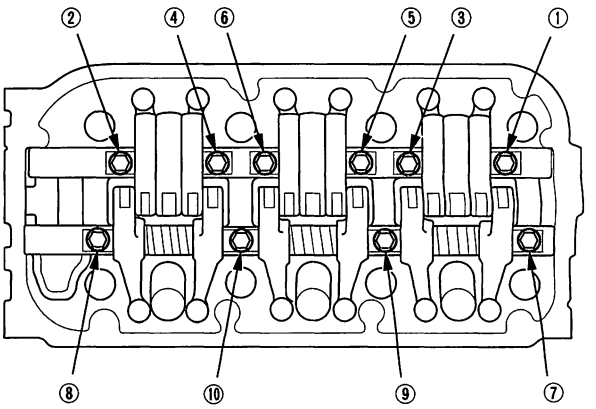


Rocker Arm Assembly Removal

1. Remove the intake manifold (see page 9-3).
2. Remove the cylinder head cover (see page 6-26).
3. Loosen the locknuts and adjusting screws (A).



4. Remove the bolts and the rocker arm assembly.
   1. Loosen the rocker shaft mounting bolts two turns at a time, to prevent damaging the valves or rocker arm assembly.
   2. When removing the rocker arm assembly, do not remove the rocker shaft mounting bolts. The bolts will keep the springs and the rocker arms on the shafts.



BACK

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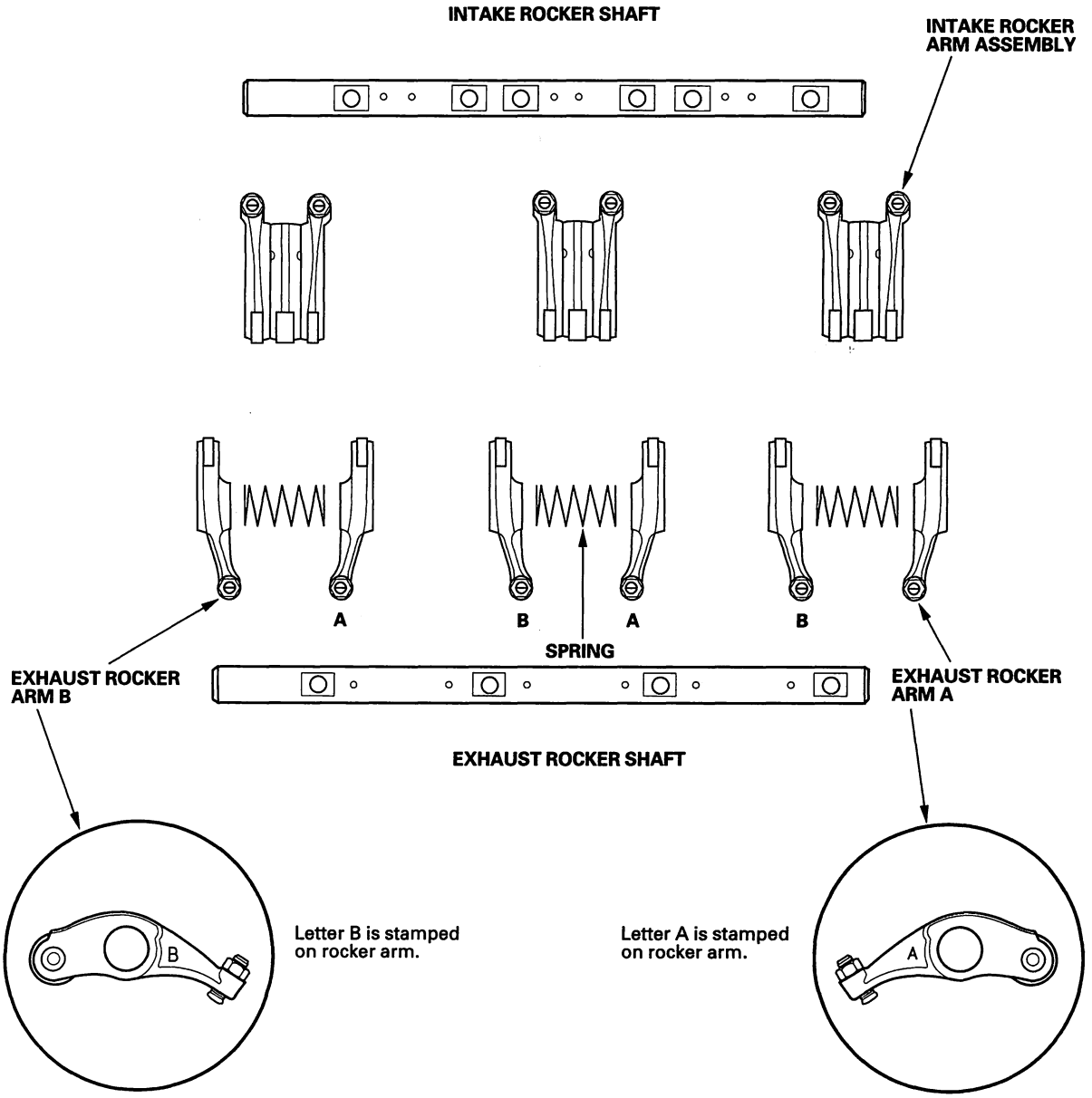
Rocker Arm and Shaft Disassembly/Reassembly

NOTE:
- Identify parts as they are removed so they can be reinstalled in their original locations.
- Inspect the rocker shafts and rocker arms (see page 6-36).
- If reused, the rocker arms must be installed in their original locations.
- When removing or installing the rocker arm assembly, do not remove the rocker shaft mounting bolts. The bolts will keep the springs and rocker arms on the shaft.
- Bundle the intake rocker arms with rubber bands to keep them together as a set.
- Prior to reassembling, clean all the parts in solvent, dry them and apply new engine oil to any contact points.
- When replacing the intake rocker arm assembly, remove the fastening hardware from the new intake rocker arm assembly.



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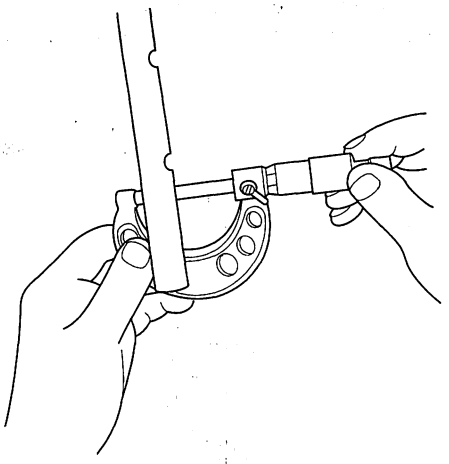
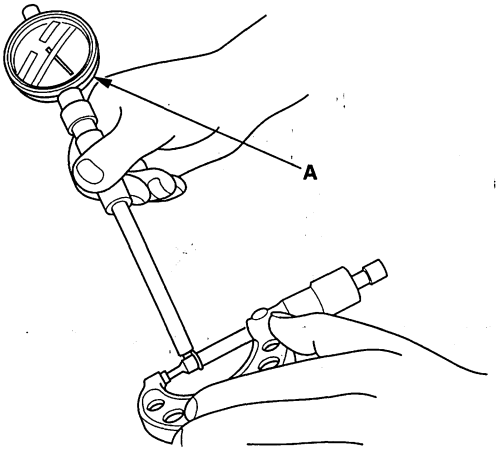
Rocker Arm and Shaft Inspection

1. Remove the rocker arm assembly (see page 6-34).
2. Disassemble the rocker arm assembly (see page 6-35).
3. Measure the diameter of the shaft at the first rocker location.



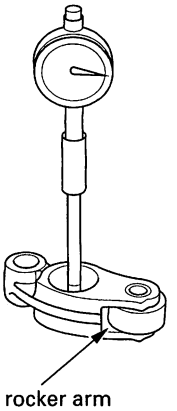
4. Zero the gauge (A) to the shaft diameter.



5. Measure the inside diameter of the rocker arm, and check it for an out-of-round condition.

Intake Rocker Arm-to-Shaft Clearance
Standard (New): 0.026—0.067 mm (0.0010—0.0026 in.)
Service Limit: 0.067 mm (0.0026 in.)

Exhaust Rocker Arm-to-Shaft Clearance
Standard (New): 0.026—0.077 mm (0.0010—0.0030 in.)
Service Limit: 0.077 mm (0.0030 in.)



6. Repeat for all rockers and both shafts. If the clearance is beyond the service limit, replace the rocker shaft and all rocker arms that are beyond the service limit. If any intake rocker arm needs replacement, replace all three rocker arms in that set (primary, mid, and secondary).

BACK

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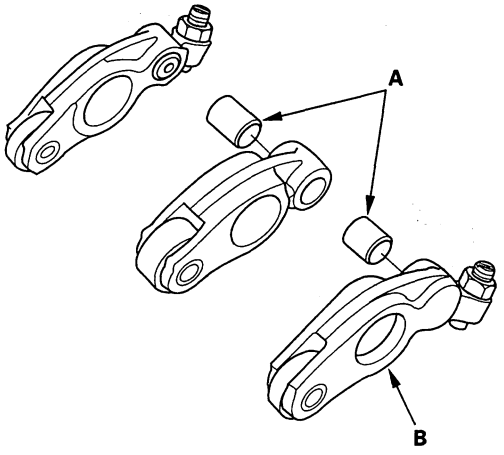
VTEC Rocker Arms

7. Inspect the rocker arm synchronizing pistons (A). Push them manually. If they do not move smoothly, replace the rocker arm set.

   NOTE:
   - Apply new engine oil to the pistons when reassembling.
   - When reassembling the primary rocker arm (B), carefully apply air pressure to the oil passage of the rocker arm.



8. Reassemble the rocker arm assembly (see page 6-35).

9. Install the rocker arm assembly (see page 6-48).

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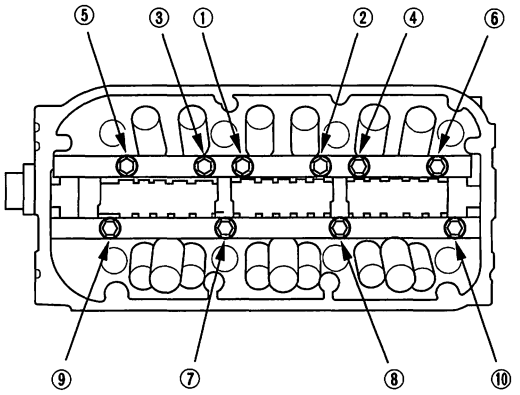
Camshaft Inspection

1. Remove the cylinder head (see page 6-29).
2. Remove the rocker arms (see page 6-34).
3. Put the rocker shafts on the cylinder head, then tighten the bolts to the specified torque.

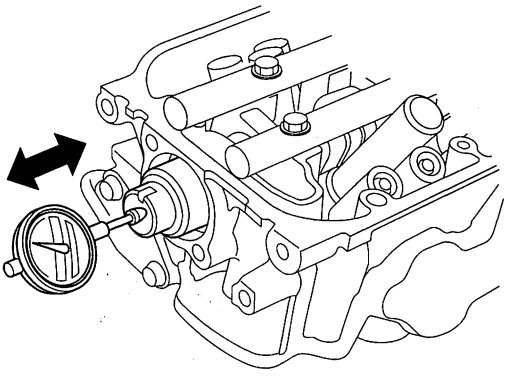
   NOTE: Apply new engine oil to the threads and flange of the exhaust rocker shaft mounting bolts.

   Specified Torque
   8 x 1.25 mm: 24 N·m (2.4 kgf·m, 17 lbf·ft)

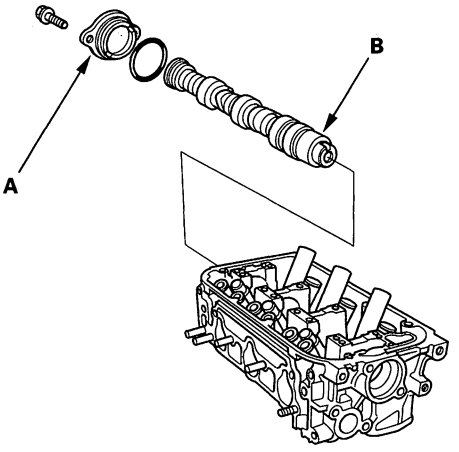


4. Seat the camshaft by pushing it toward the rear of the cylinder head.
5. Zero the dial indicator against the end of the camshaft. Push the camshaft back and forth and read the end play. If the end play is beyond the service limit, replace the thrust cover and recheck. If it is still beyond the service limit, replace the camshaft.

   Camshaft End Play
   Standard (New): 0.05—0.20 mm (0.002—0.008 in.)
   Service Limit: 0.20 mm (0.008 in.)



6. Remove the camshaft thrust cover (A), then pull out the camshaft (B).



BACK

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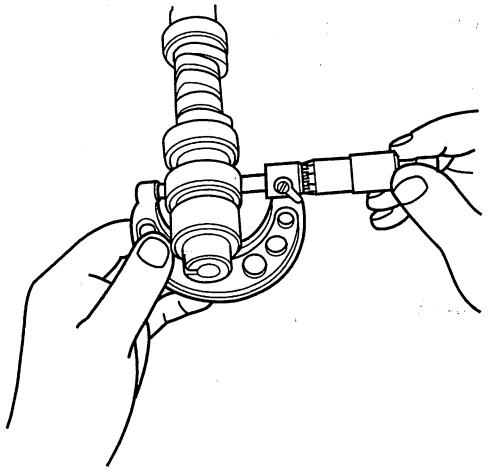
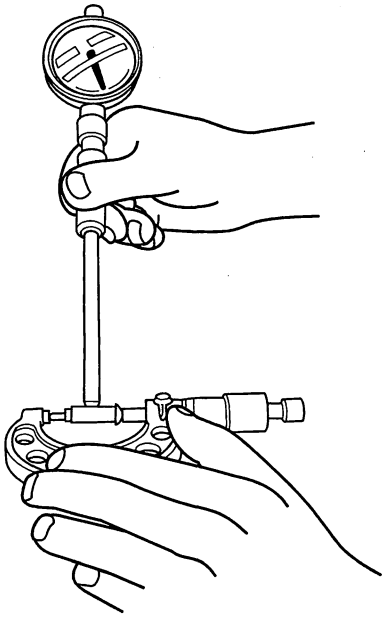
7. Wipe the camshaft clean, then inspect the lift ramps. Replace the camshaft if any lobes are pitted, scored, or excessively worn.

8. Measure the diameter of each camshaft journal.



9. Zero the gauge to the journal diameter.

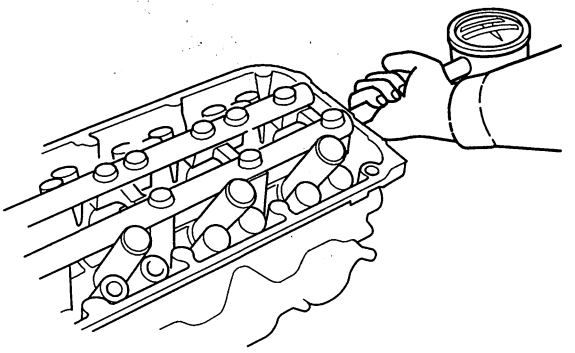


10. Clean the camshaft bearing surfaces in the cylinder head. Measure the inside diameter of each camshaft bearing surface, and check for an out-of-round condition.

- If the camshaft-to-holder clearance is within the service limit, go to step 12.
- If the camshaft-to-holder clearance is beyond the service limit and the camshaft has been replaced, replace the cylinder head.
- If the camshaft-to-holder clearance is beyond the service limit and the camshaft has not been replaced, go to step 11.

Camshaft-to-Holder Oil Clearance

Standard (New):	**0.050—0.089 mm (0.0020—0.0035 in.)**
Service Limit:	**0.15 mm (0.006 in.)**



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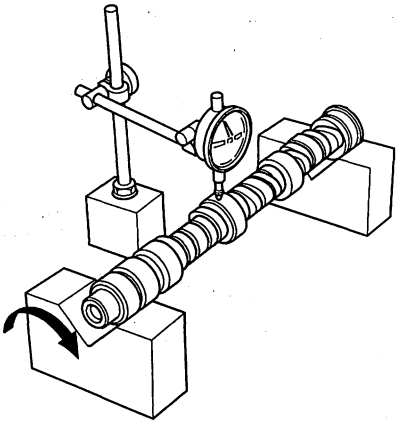
Camshaft Inspection (cont'd)

11. Check the total runout with the camshaft supported on V-blocks.

    - If the total runout of the camshaft is within the service limit, replace the cylinder head.
    - If the total runout is beyond the service limit, replace the camshaft and recheck the oil clearance. If the oil clearance is still out of tolerance, replace the cylinder head.

Camshaft Total Runout
Standard (New): 0.03 mm (0.001 in.) max.
Service Limit: 0.04 mm (0.002 in.)

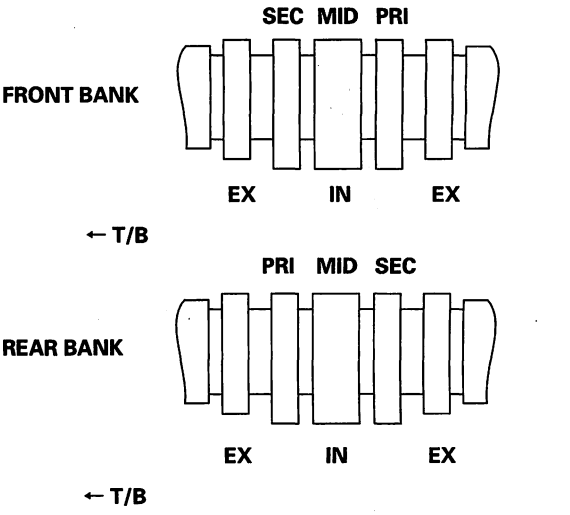


12. Measure the cam lobe height.

Cam Lobe Height Standard (New):

	INTAKE	EXHAUST
PRI	35.112 mm (1.3824 in.)	36.389 mm (1.4326 in.)
MID	36.394 mm (1.4328 in.)	
SEC	35.112 mm (1.3824 in.)	

PRI: Primary MID: Mid SEC: Secondary
IN: Intake EX: Exhaust T/B: Timing Belt



BACK

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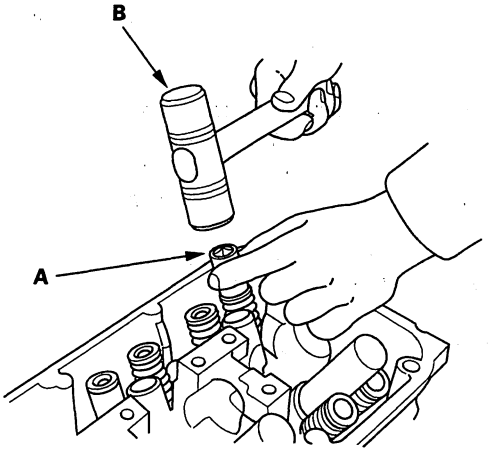
Valve, Spring, and Valve Seal Removal

Special Tools Required
Valve spring compressor attachment
07757-PJ1010A

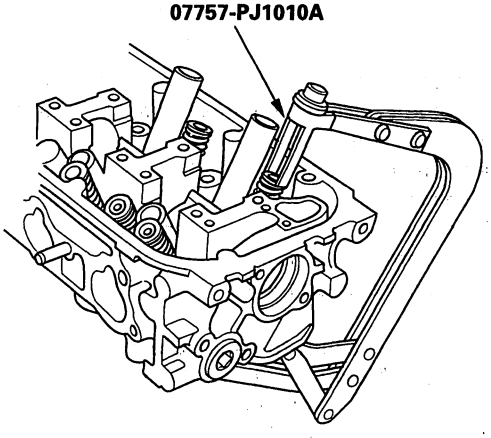
Identify the valves and valve springs as they are removed so that each item can be reinstalled in its original position.

1. Remove the cylinder head (see page 6-29).

2. Using an appropriate-sized socket (A) and plastic mallet (B), lightly tap the valve retainer to loosen the valve cotters.

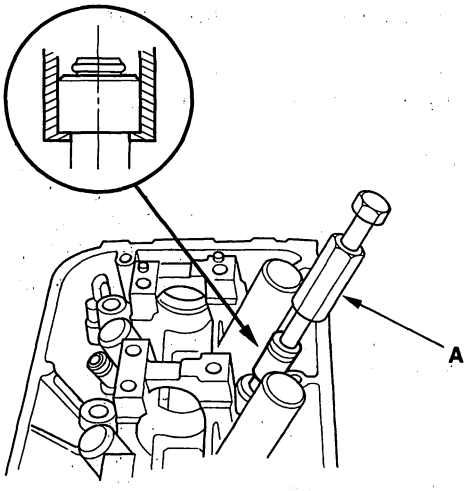


3. Install the valve spring compressor attachment and valve spring compressor. Compress the spring and remove the valve cotters.

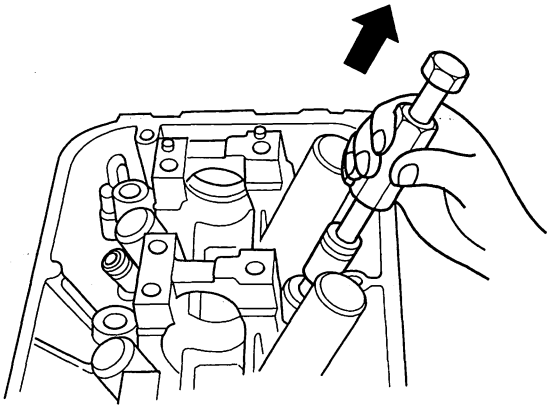


4. Remove the valve spring compressor, valve spring compressor attachment, spring retainer, and spring.

5. Install the valve guide seal remover (A).



6. Remove the valve seal.



7. Remove the valve spring seat and valve.

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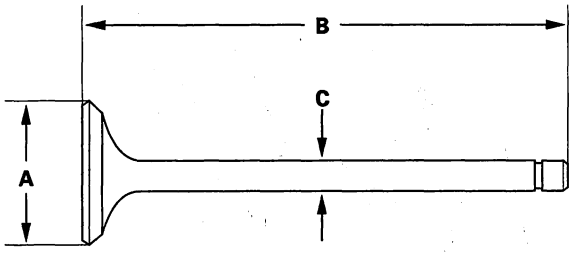
Valve Inspection

1. Remove the valves (see page 6-41).
2. Measure the valve in these areas.

Intake Valve Dimensions
A Standard (New): 35.90—36.10 mm (1.413—1.421 in.)
B Standard (New): 116.55—117.15 mm (4.589—4.612 in.)
C Standard (New): 5.485—5.495 mm (0.2159—0.2163 in.)
C Service Limit: 5.455 mm (0.2148 in.)

Exhaust Valve Dimensions
A Standard (New): 29.90—30.10 mm (1.177—1.185 in.)
B Standard (New): 113.90—114.50 mm (4.484—4.508 in.)
C Standard (New): 5.450—5.460 mm (0.2146—0.2150 in.)
C Service Limit: 5.420 mm (0.2134 in.)



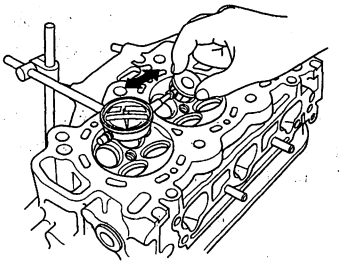
Valve Stem-to-Guide Clearance Inspection

1. Remove the valves (see page 6-41).
2. Slide the valve out of its guide about 10 mm (0.39 in.), then measure the guide-to-stem clearance with a dial indicator while rocking the stem in the direction of normal thrust (wobble method).

   - If the measurement exceeds the service limit, recheck it using a new valve.
   - If the measurement is now within the service limit, reassemble using a new valve.
   - If the measurement with a new valve still exceeds the service limit, go to step 3.

Intake Valve Stem-to-Guide Clearance
Standard (New): 0.04—0.09 mm (0.002—0.004 in.)
Service Limit: 0.16 mm (0.006 in.)

Exhaust Valve Stem-to-Guide Clearance
Standard (New): 0.11—0.16 mm (0.004—0.006 in.)
Service Limit: 0.22 mm (0.009 in.)



3. Subtract the valve stem O.D. (measured with a micrometer) from the valve guide I.D. (measured with an inside micrometer or ball gauge). Take the measurements in three places along the valve stem and three places inside the valve guide. The difference between the largest guide measurement and the smallest stem measurement should not exceed the service limit.

Intake Valve Stem-to-Guide Clearance
Standard (New): 0.020—0.045 mm (0.0008—0.0018 in.)
Service Limit: 0.08 mm (0.003 in.)

Exhaust Valve Stem-to-Guide Clearance
Standard (New): 0.055—0.080 mm (0.0022—0.0031 in.)
Service Limit: 0.11 mm (0.004 in.)

BACK

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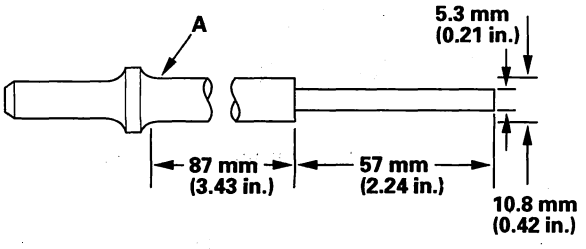
Valve Guide Replacement

Special Tools Required
- Valve guide driver, 5.5 mm 07742-0010100
- Valve guide reamer, 5.5 mm 07HAH-PJ7A100

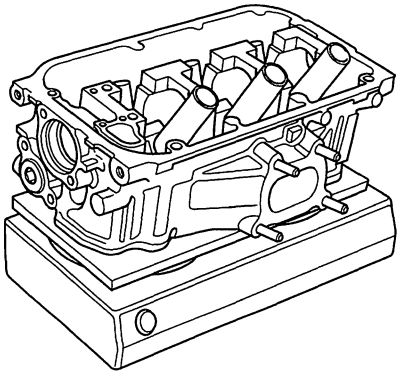
1. Inspect valve stem-to-guide clearance (see page 6-42).

2. As illustrated, use a commercially available air-impact valve guide driver (A) modified to fit the diameter of the valve guides. In most cases, the same procedure can be done using the special tool and a conventional hammer.



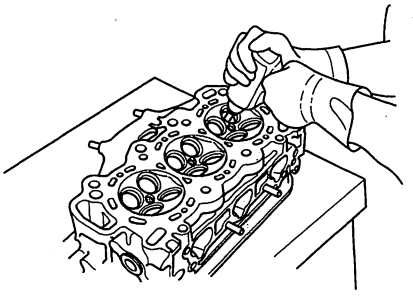
3. Select the proper replacement guides, and chill them in the freezer section of a refrigerator for about an hour.

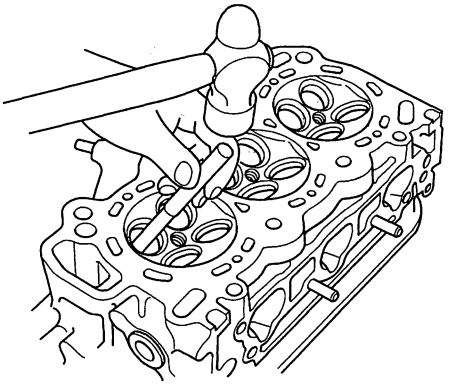
4. Use a hot plate or oven to evenly heat the cylinder head to 300 °F (150 °C). Monitor the temperature with a cooking thermometer. Do not get the head hotter than 300 °F (150 °C); excessive heat may loosen the valve seats.



5. Working from the camshaft side, use the driver and an air hammer to drive the guide about 2 mm (0.1 in.) towards the combustion chamber. This will knock off some of the carbon and make removal easier. Hold the air hammer directly in line with the valve guide to prevent damaging the driver. Wear safety goggles or a face shield.

6. Turn the head over, and drive the guide out toward the camshaft side of the head.





7. If a valve guide still won't move, drill it out with a 8 mm (5/16 in.) bit, then try again.

   NOTE: Drill guides only in extreme cases; you could damage the cylinder head if the guide breaks.

8. Take out the new guide(s) from the freezer, one at a time, as you need them.

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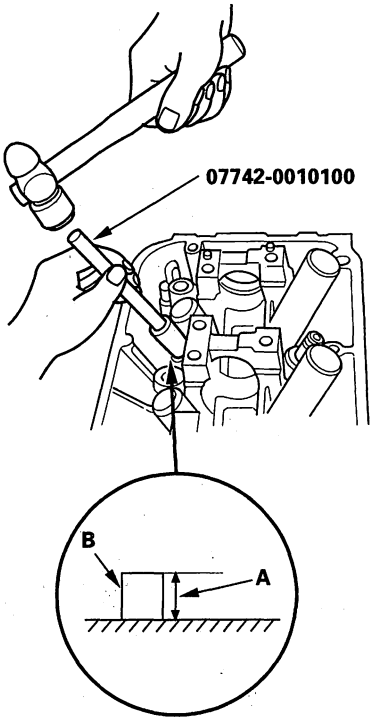
Valve Guide Replacement (cont'd)

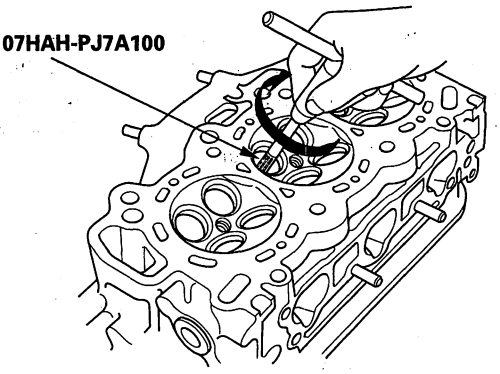
9. Apply a thin coat of new engine oil to the outside of the new valve guide. Install the guide from the camshaft side of the head; use the valve guide driver to drive the guide to the specified installed height (A) of the guide (B). If you have all 12 guides to do, you may have to reheat the head.

Valve Guide Installed Height
Intake: 21.20—22.20 mm (0.835—0.874 in.)
Exhaust: 20.60—21.60 mm (0.811—0.850 in.)



10. Coat both the reamer and the valve guide with cutting oil.

11. Rotate the reamer clockwise the full length of the valve guide bore.



12. Continue to rotate the reamer clockwise while drawing it from the bore.

13. Thoroughly wash the guide in detergent and water to remove any cutting residue.

14. Check the clearance with a valve (see page 6-42). Verify that a valve slides in the intake and exhaust valve guides without being stuck.

BACK

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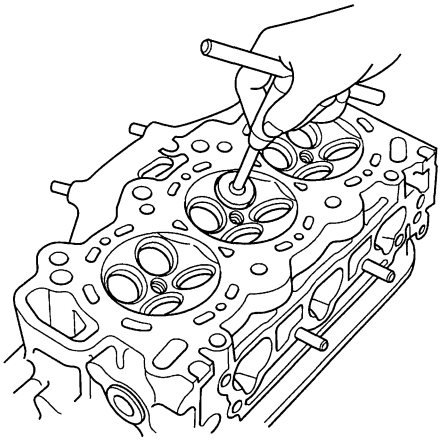
Valve Seat Reconditioning

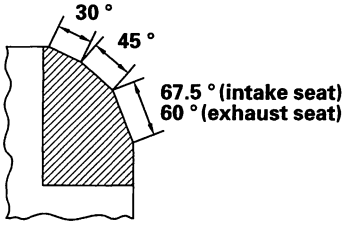
1. Inspect valve stem-to-guide clearance (see page 6-42). If the valve guides are worn, replace them (see page 6-43) before cutting the valve seats.

2. Renew the valve seats in the cylinder head using a valve seat cutter.



3. Carefully cut a 45 °seat, removing only enough material to ensure a smooth and concentric seat.

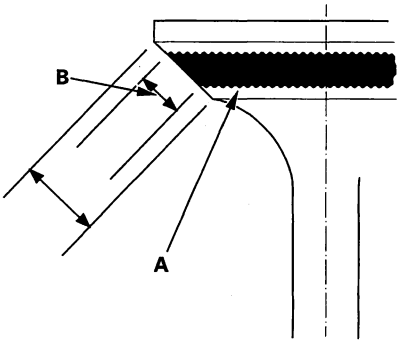
4. Bevel the upper edge of the seat with the 30 °cutter and the lower edge of the seat with the 67.5 °cutter (intake seat) or the 60 °cutter (exhaust seat). Check the width of the seat and adjust accordingly.



5. Make one more very light pass with the 45 °cutter to remove any possible burrs caused by the other cutters.

Valve Seat Width
Standard (New): 1.25—1.55 mm (0.049—0.061 in.)
Service Limit: 2.00 mm (0.079 in.)

6. After resurfacing the seat, inspect it for even valve seating. Apply Prussian Blue compound (A) to the valve face. Insert the valve in its original location in the head, then lift it and snap it closed against the seat several times.



7. The actual valve seating surface (B), as shown by the blue compound, should be centered on the seat.

- If it is too high (closer to the valve stem), you must make a second cut with the 67.5 °cutter (intake seat) or the 60 °cutter (exhaust seat) to move it down, then one more cut with the 45 ° cutter to restore seat width.
- If it is too low (closer to the valve edge), you must make a second cut with the 30 °cutter to move it up, then one more cut with the 45 °cutter to restore seat width.

NOTE: The final cut should always be made with the 45 °cutter.

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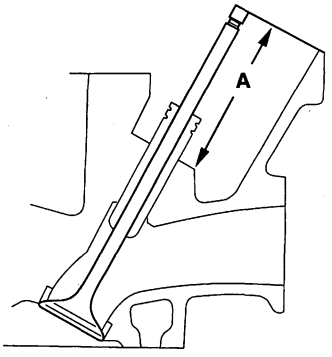
Valve Seat Reconditioning (cont'd)

8. Insert the intake and exhaust valves in the head, and measure the valve stem installed height (A).

Intake Valve Stem Installed Height
Standard (New): 46.75—47.55 mm (1.841—1.872 in.)
Service Limit: 47.80 mm (1.882 in.)

Exhaust Valve Stem Installed Height
Standard (New): 46.68—47.48 mm (1.838—1.869 in.)
Service Limit: 47.73 mm (1.879 in.)



9. If the valve stem installed height is beyond the service limit, replace the valve and recheck. If it is still beyond the service limit, replace the cylinder head; the valve seat in the head is too deep.

BACK

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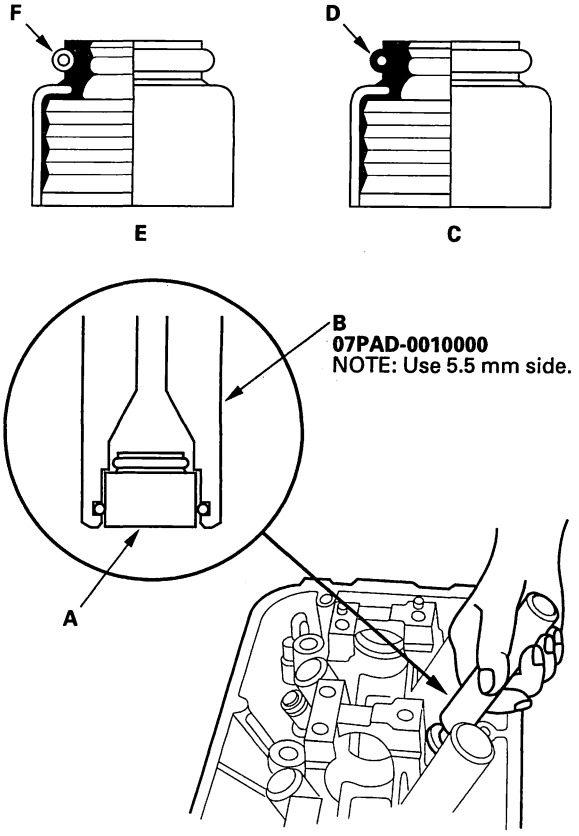
Valve, Spring, and Valve Seal Installation

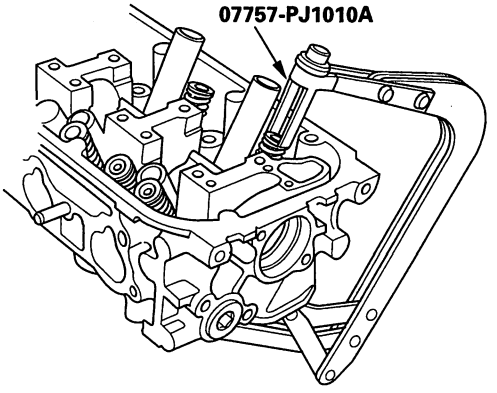
Special Tools Required
- Stem seal driver 07PAD-0010000
- Valve spring compressor attachment 07757-PJ1010A

1. Coat the valve stems with new engine oil. Install the valves in the valve guides.
2. Check that the valves move up and down smoothly.
3. Install the spring seats on the cylinder head.
4. Install the new valve seals (A) using the stem seal driver (B).

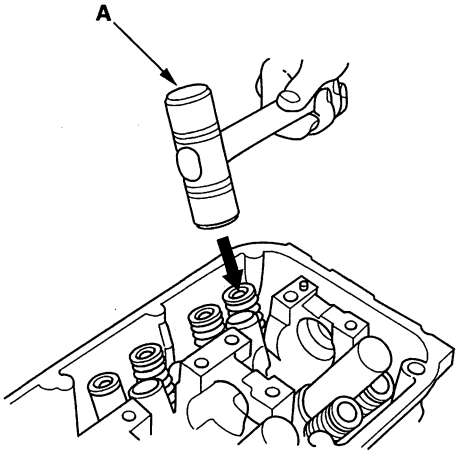
   NOTE: Exhaust valve seals (C) have a black spring (D) and intake valve seals (E) have a white spring (F); they are not interchangeable.



5. Install the valve spring and valve retainer. Place the end of the valve spring with closely wound coils toward the cylinder head.
6. Install the valve spring compressor attachment and valve spring compressor. Compress the spring and install the valve cotters.



7. Remove the valve spring compressor and valve spring compressor attachment.
8. Lightly tap the end of each valve stem two or three times with a plastic mallet (A) to ensure proper seating of the valve and valve cotters. Tap the valve stem only along its axis so you do not bend the stem.



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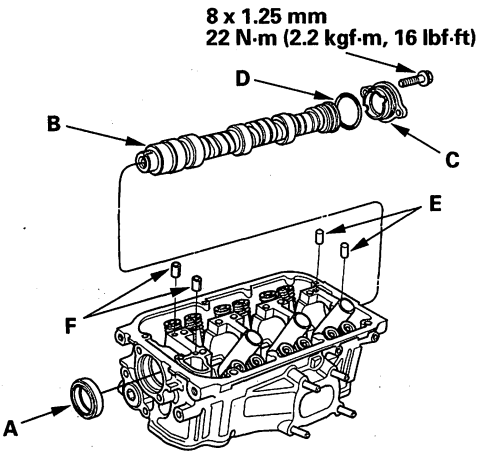
Camshaft, Rocker Arm Assembly, Camshaft Seal, and Pulley Installation

1. Apply a light coat of new engine oil around the camshaft oil seal.

2. Gently tap the new camshaft oil seal (A) into the cylinder head.

   -1 Tap the camshaft oil seal in squarely.
   -2 Install the oil seal about 0.5 —1.5 mm (0.02—0.06 in.) below the surface of the cylinder head.

FRONT:



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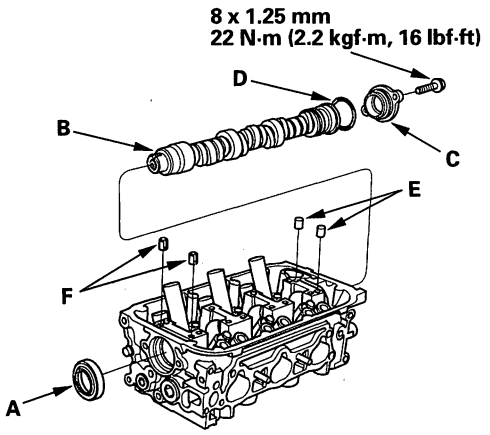


3. Insert the camshaft (B) into the cylinder head, then install the camshaft thrust cover (C). Always use a new O-ring (D).

4. Check that the oil seal lips are not distorted.

5. Install the solid dowel pins (E) and the hollow dowel pins (F).

6. Loosen the valve adjusting screws.

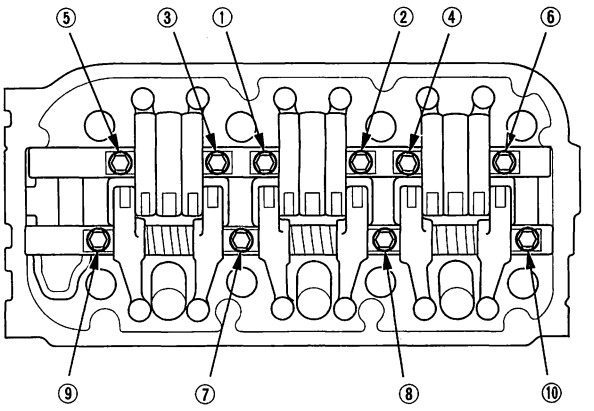
7. If the rocker arm assembly is disassembled, reassemble the rocker arm assembly (see page 6-35).

8. Set the rocker arm assembly in place, and loosely install the bolts. Make sure that the rocker arms are properly positioned on the valve stems.

9. Tighten each bolt two turns at a time in the sequence as shown to ensure that the rockers do not bind on the valves.

   NOTE: Apply new engine oil to the threads and flange of the exhaust rocker shaft mounting bolts.

   Specified Torque
   8 x 1.25 mm: 24 N·m (2.4 kgf·m, 17 lbf·ft)



10. Install the front injector base and rear injector base. Always use a new gasket (see page 9-7).

BACK

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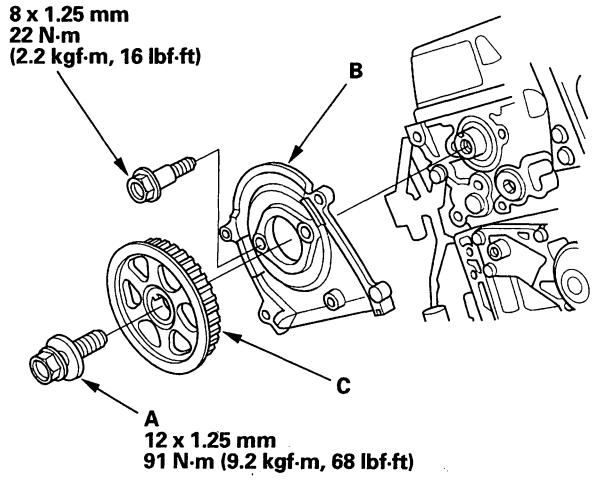
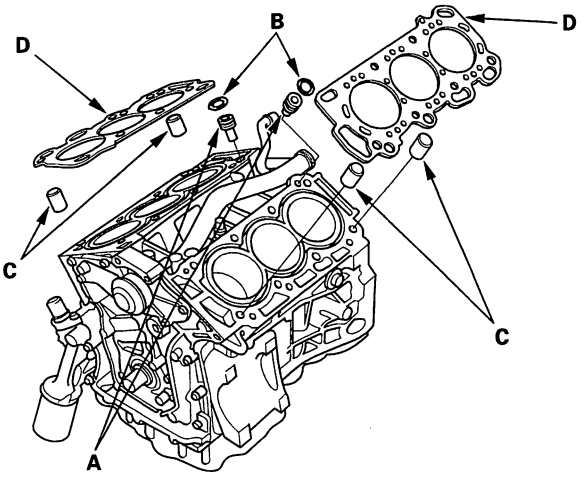
11. Apply new engine oil to the threads of the camshaft pulley mounting bolt (A). Install the back cover (B), then install the camshaft pulley (C).



Cylinder Head Installation

1. Clean the cylinder head and engine block surface.

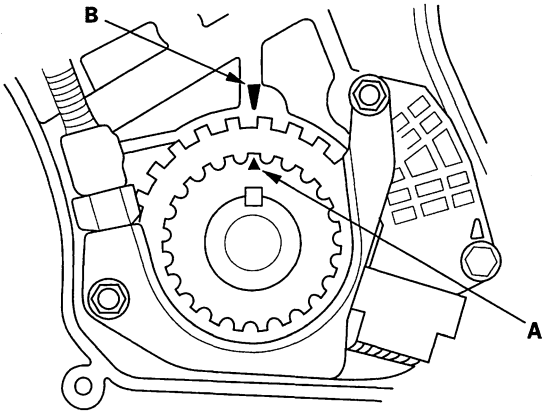
2. Clean and install the oil control orifices (A) with new O-rings (B).



3. Install the dowel pins (C) and new cylinder head gaskets (D).

4. Clean the timing belt pulleys, timing belt guide plate, and the upper and lower covers.

5. Set the timing belt drive pulley to top dead center (TDC) by aligning the TDC mark (A) on the tooth of the timing belt drive pulley with the pointer (B) on the oil pump.



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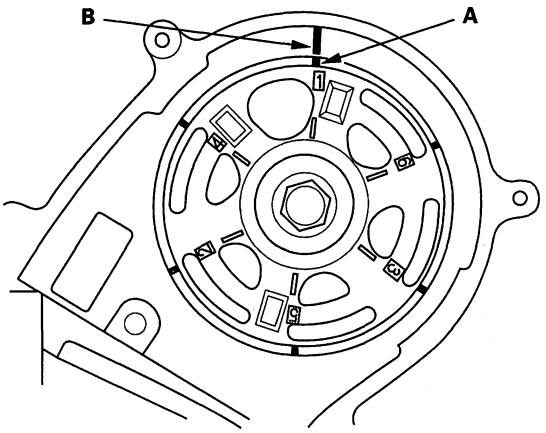
Cylinder Head Installation (cont'd)

6. Set the camshaft pulleys to TDC by aligning the TDC marks (A) on the camshaft pulleys with the pointers (B) on the back covers.

FRONT:



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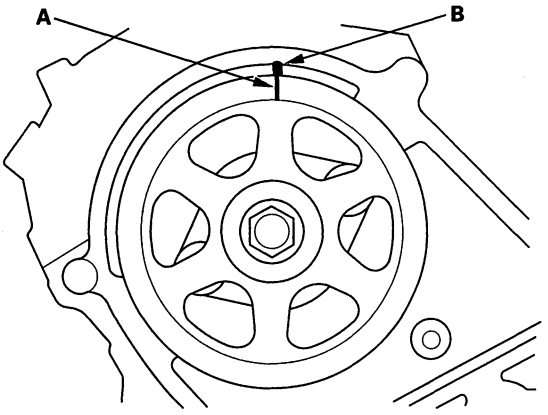
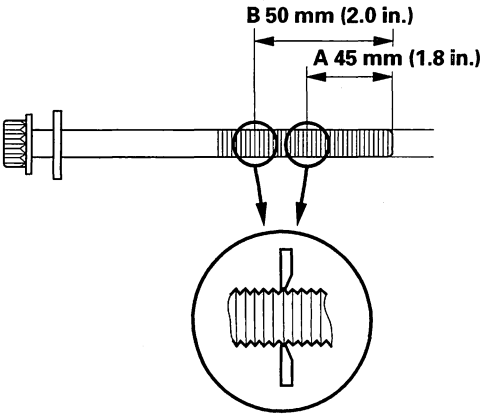


7. Put the cylinder head onto the engine block.

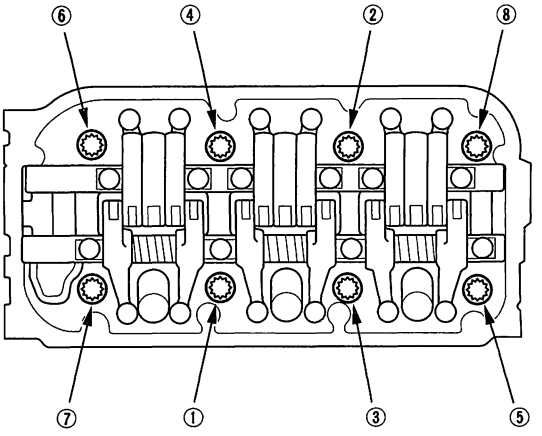
8. Measure the diameter of each cylinder head bolt at point A and point B.



9. If either diameter is less than 11.3 mm (0.44 in.), replace the cylinder head bolt.

10. Apply new engine oil to the threads and under the bolt heads of all cylinder head bolts.

11. Tighten the cylinder head bolts in sequence to 30 N·m (3.0 kgf·m, 22 lbf·ft). Use a beam-type torque wrench. When using a preset-type torque wrench, be sure to tighten slowly and do not overtighten. If a bolt makes any noise while you are torquing it, loosen the bolt and retighten it from the first step.



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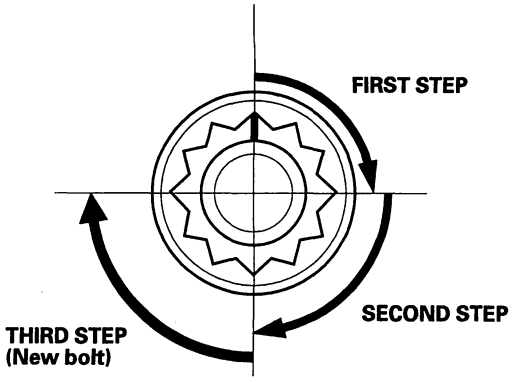
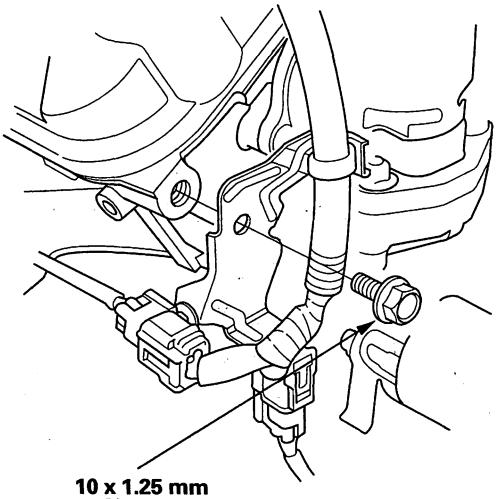
12. After torquing, tighten all cylinder head bolts in two steps (90 ° per step). If you are using a new cylinder head bolt, tighten the bolt an extra 90 °.

    NOTE: Remove the cylinder head bolt if you tightened it beyond the specified angle, and go back to step 8 of the procedure. Do not loosen it back to the specified angle.



13. Install the timing belt (see page 6-16).
14. Adjust the valve clearance (see page 6-8).
15. Install the cylinder head covers (see page 6-27).
16. Install the water passage (see page 10-9).
17. Install the front warm up three way catalytic converter (front WU-TWC) (see page 11-370) and rear warm up three way catalytic converter (rear WU-TWC) (see page 11-371).
18. Install the fuel rails (see page 11-312).
19. Install the connector bracket to the front cylinder head.



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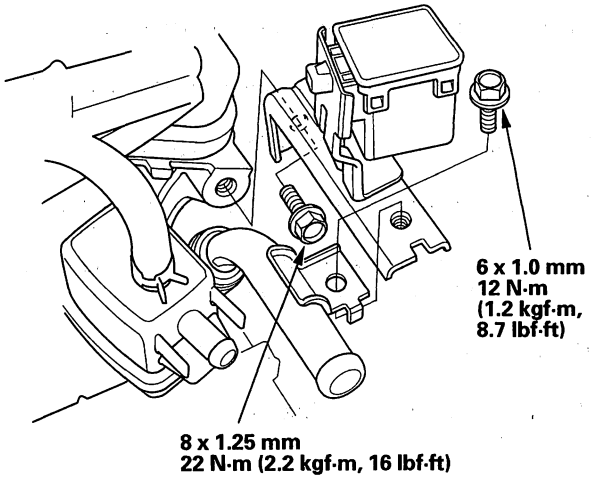
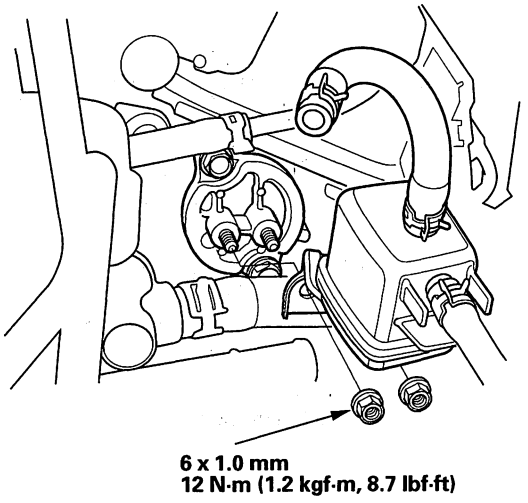
Cylinder Head Installation (cont'd)

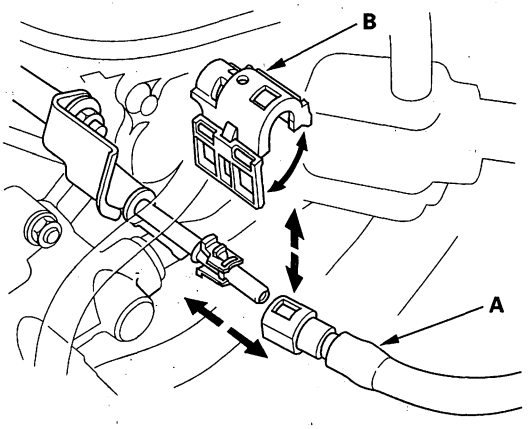
20. Install the bracket to the rear cylinder head.



21. Install the purge joint.



22. Connect the fuel feed hose (A) (see page 11-340), then install the quick-connect fitting cover (B).



23. Connect the engine wire harness connectors, and install the wire harness clamps to the cylinder head.

- Six injector connectors
- Engine coolant temperature (ECT) sensor 1 connector
- Crankshaft position (CKP) sensor connector
- Exhaust gas recirculation (EGR) valve connector
- Rocker arm oil control solenoid connector
- Rocker arm oil pressure switch connector
- Oil pressure switch connector
- Two air fuel ratio (A/F) sensor connectors
- Two secondary heated oxygen sensor (secondary HO2S) connectors

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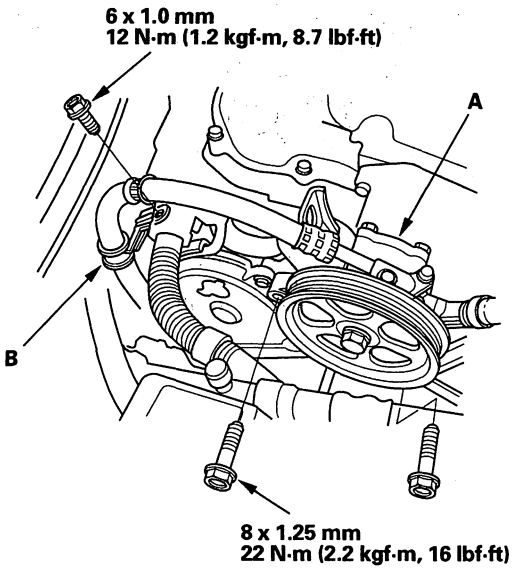
24. Install the upper radiator hose (A) and lower radiator hose (B).

25. Install the intake manifold (see page 9-5).

26. Install the alternator (see page 4-37).

27. Install the power steering (P/S) pump (A) and P/S hose bracket (B).



28. Install the drive belt (see page 4-33).

29. Clean the battery posts and cable terminals then connect them to the battery. Apply grease to the battery terminals to prevent corrosion.

30. After installation, check that all tubes, hoses and connectors are installed correctly.

31. Check for fuel leaks. Turn the ignition switch ON (II) (do not operate the starter) so the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation two or three times, then check for fuel leaks at any point in the fuel line.

32. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 10 on page 10-7).

33. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure (see page 11-4).

34. Inspect the idle speed (see page 11-310).

35. Inspect the ignition timing (see page 4-20).

36. Do the steering column position memorization (see page 17-28).

37. Enter the anti-theft codes for the audio system and navigation system (if equipped).

38. Set the clock.

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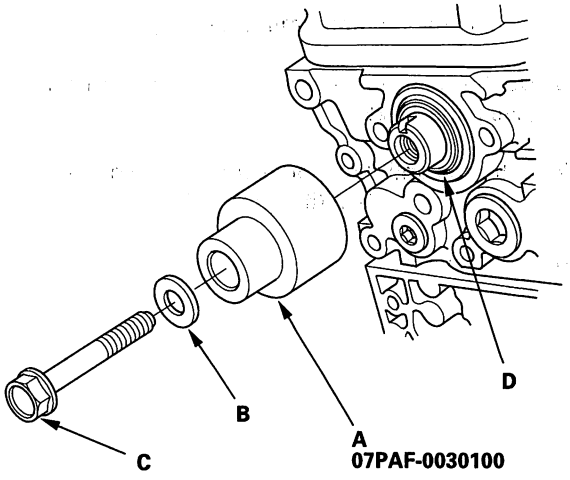
Camshaft Oil Seal Installation - In Car

Special Tools Required
Camshaft oil seal driver 07PAF-0030100

1. Remove the timing belt (see page 6-13).
2. Remove the camshaft pulley and back cover (see step 20 on page 6-31).
3. Remove the camshaft oil seal.
4. Dry the camshaft oil seal housing.
5. Apply a light coat of multipurpose grease to the lip of the camshaft oil seal.
6. Using the special tool (A), washer (B), and a 12 x 75 x 1.25 mm bolt (C), press in the camshaft oil seal (D) about 0.5—1.5 mm (0.02—0.06 in.) below the surface of the cylinder head.

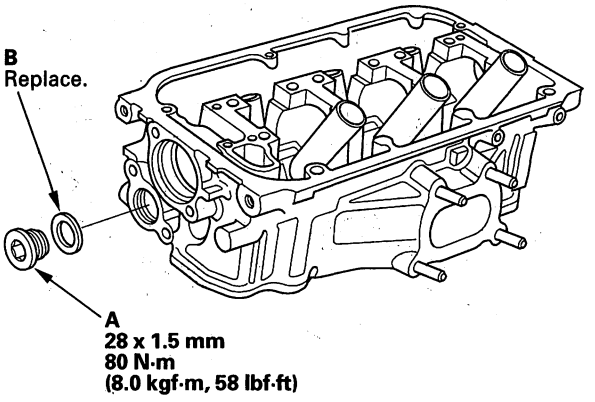


7. Apply new engine oil to the threads of the camshaft pulley mounting bolt. Install the back cover, then install the camshaft pulley (see step 11 on page 6-49).
8. Install the timing belt (see page 6-16).

Sealing Bolt Installation

NOTE: When installing the sealing bolt (A), always use a new washer (B).

FRONT:



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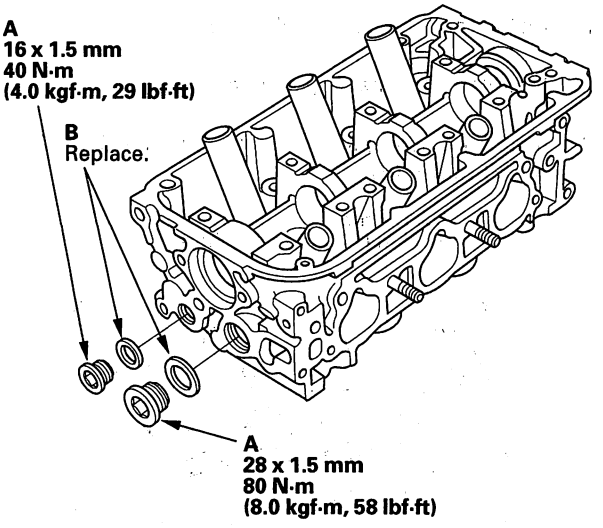

BACK

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Engine Mechanical

Engine Block

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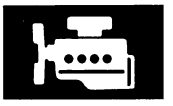

BACK

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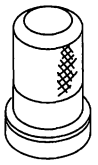
Engine Block

Special Tools

Ref. No.	Tool Number	Description	Qty
①	070AD-RCAA100	Oil Seal Driver, 64 mm	1
②	070AD-RCAA200	Driver Attachment, 106 mm	1
③	07749-0010000	Driver	1



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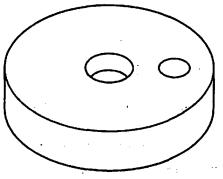

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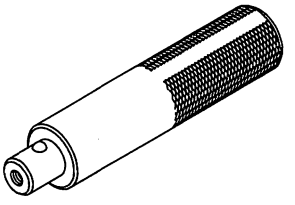

③

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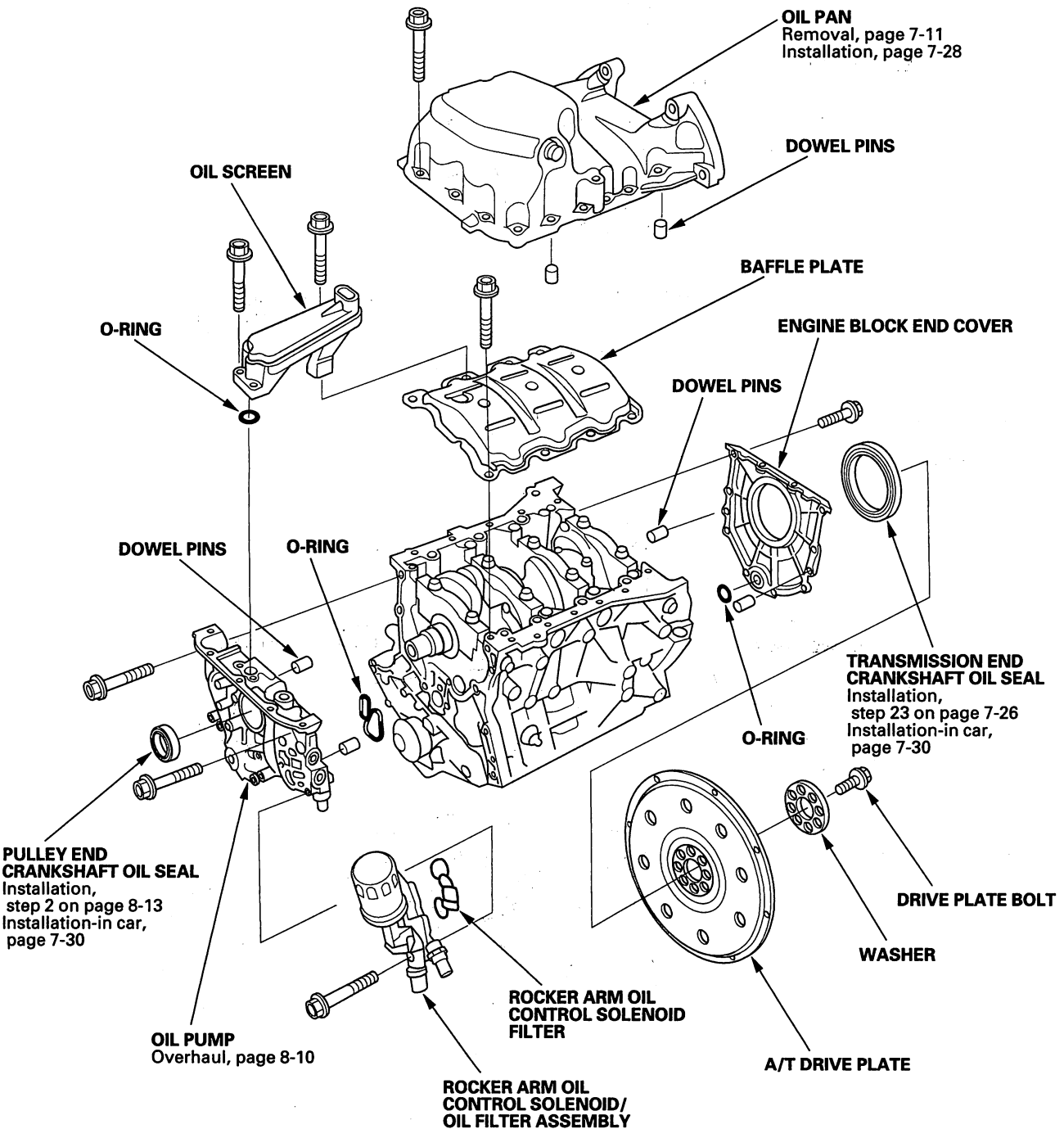
Component Location Index



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BACK

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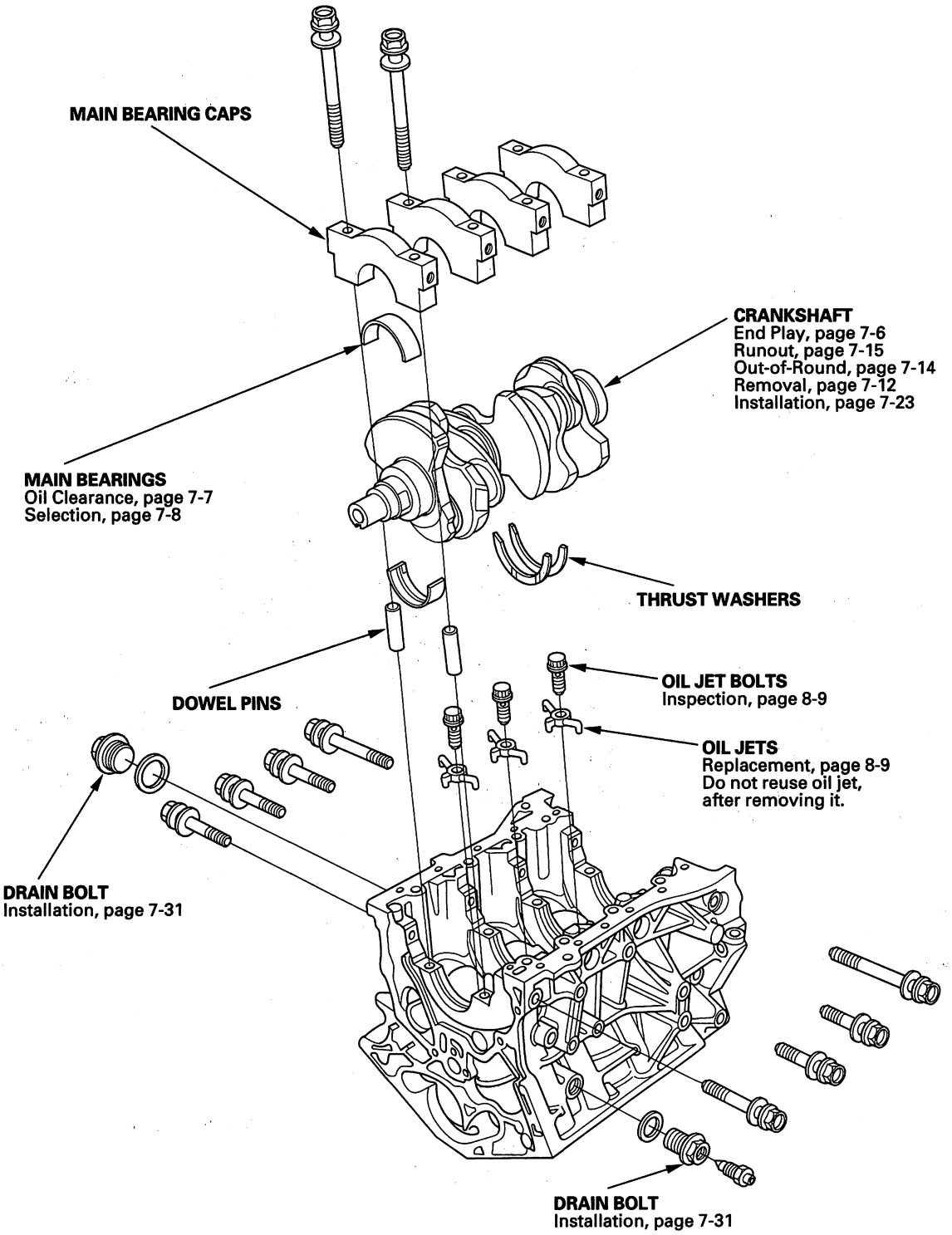
Component Location Index (cont'd)



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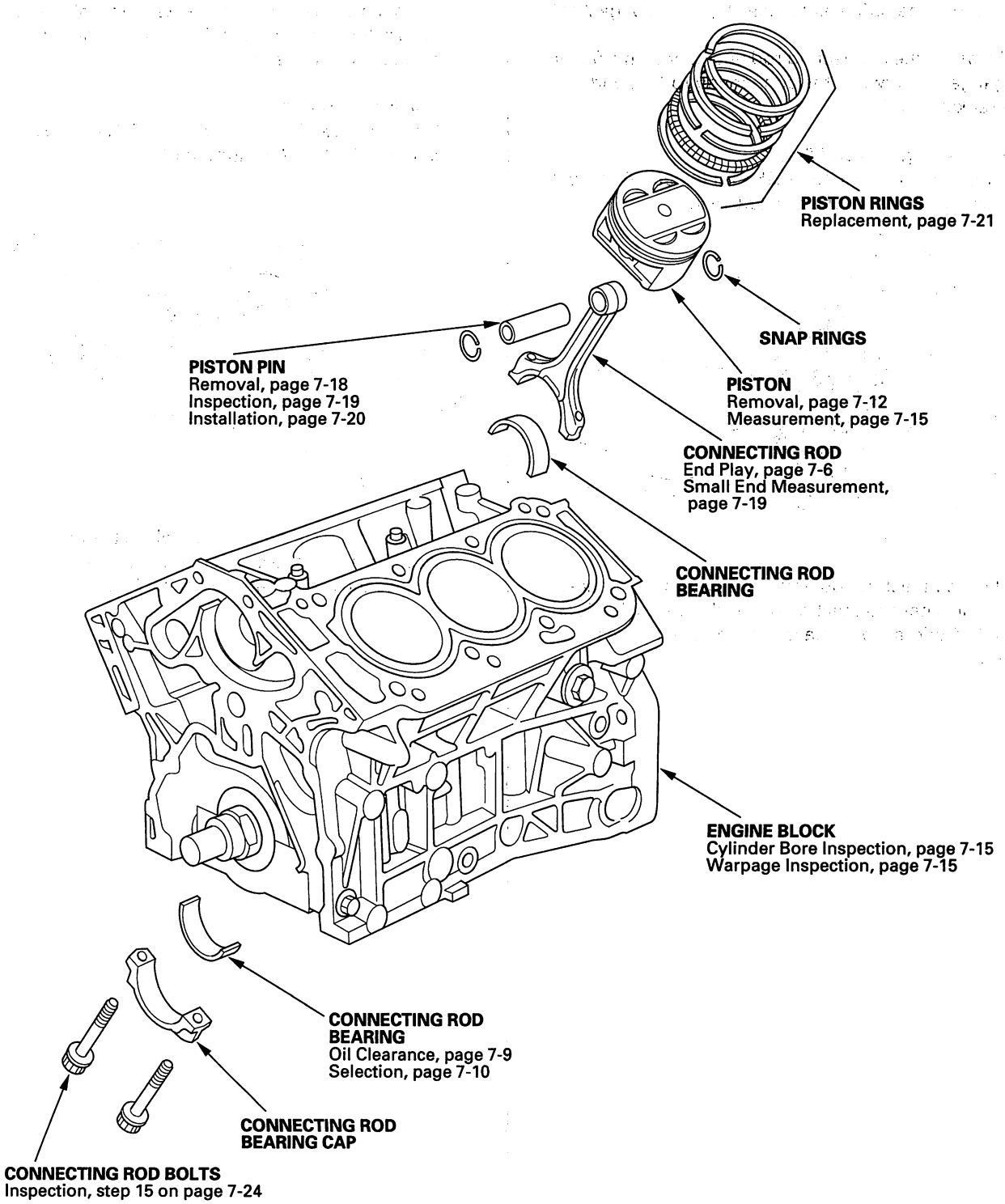

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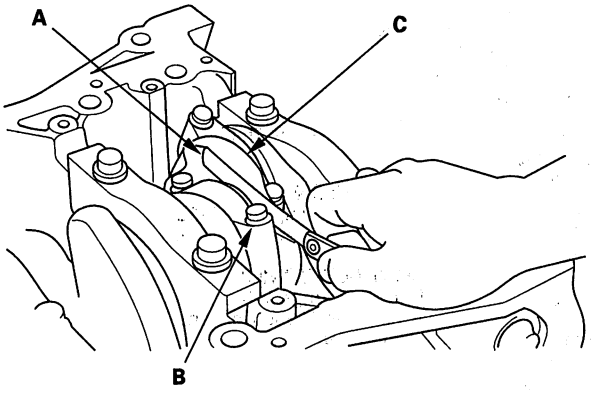
Connecting Rod and Crankshaft End Play Inspection

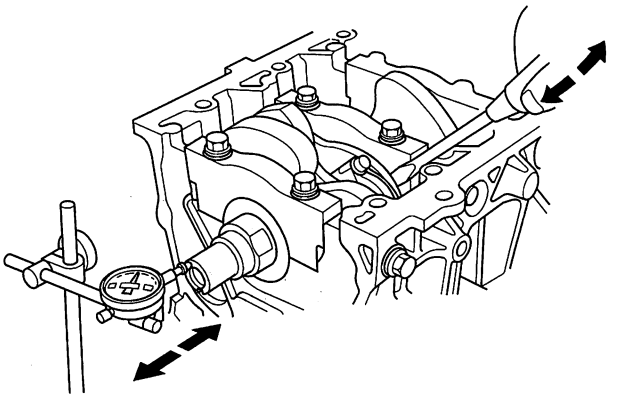
1. Remove the oil pump (see page 8-11).
2. Remove the baffle plate (see step 10 on page 7-12).
3. Measure the connecting rod end play with a feeler gauge (A) between the connecting rod (B) and crankshaft (C).

Connecting Rod End Play
Standard (New): 0.15—0.35 mm (0.006—0.014 in.)
Service Limit: 0.45 mm (0.018 in.)



4. If the connecting rod end play is out-of-tolerance, install a new connecting rod and recheck. If it is still out-of-tolerance, replace the crankshaft (see page 7-12).
5. Push the crankshaft firmly away from the dial indicator, and zero the dial against the end of the crankshaft. Then pull the crankshaft firmly back toward the indicator; the dial reading should not exceed the service limit.

Crankshaft End Play
Standard (New): 0.10—0.35 mm (0.004—0.014 in.)
Service Limit: 0.45 mm (0.018 in.)



6. If the end play is excessive, replace the thrust washers and recheck. If it is still out-of-tolerance, replace the crankshaft (see page 7-12).

BACK

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Crankshaft Main Bearing Replacement

Main Bearing Clearance Inspection

1. Remove the main bearing caps and bearing halves (see page 7-12).

2. Clean each main journal and bearing half with a clean shop towel.

3. Place one strip of plastigage across each main journal.

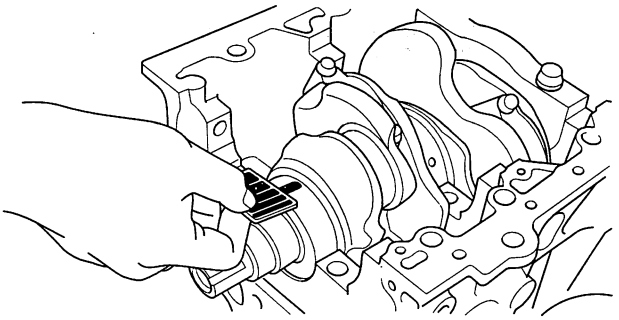
   NOTE: If the engine is still in the vehicle when you bolt the main cap down to check the clearance, the weight of the crankshaft and drive plate will flatten the plastigage further than just the torque on the cap bolt and give you an incorrect reading. For an accurate reading, support the crank with a jack under the counterweights, and check only one bearing at a time.

4. Reinstall the bearings and caps, then torque the bearing cap bolts to 74 N·m (7.5 kgf·m, 54 lbf·ft), and the bearing cap side bolts to 49 N·m (5.0 kgf·m, 36 lbf·ft) in the proper sequence (see step 22 on page 7-25).

   NOTE:
   - Apply new engine oil to the bolt threads and flanges.
   - Do not rotate the crankshaft during inspection.

5. Remove the cap and bearing half, and measure the widest part of the plastigage.

   Main Bearing-to-Journal Oil Clearance
   Standard (New): 0.019—0.045 mm (0.0007—0.0018 in.)
   Service Limit: 0.050 mm (0.0020 in.)



6. If the plastigage measures too wide or too narrow, remove the crankshaft, and remove the upper half of the bearing. Install a new, complete bearing with the same color code, and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.

7. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below that one), and check again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearings, replace the crankshaft and start over (see page 7-12).

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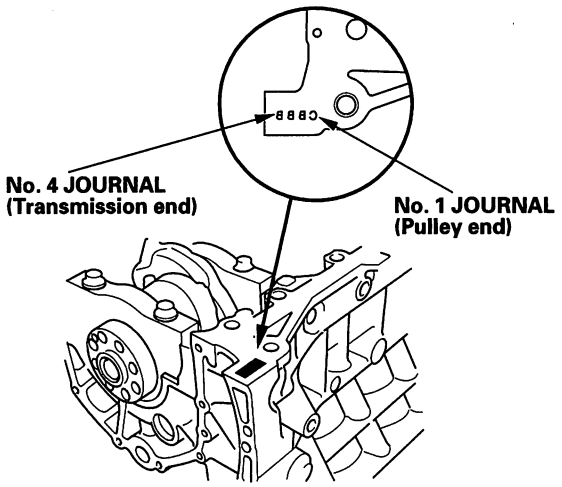
Crankshaft Main Bearing Replacement (cont'd)

Main Bearing Selection

Crankshaft Bore Code Location

Letters or bars have been stamped on the end of the block as a code for the size of each of the four main journal bores.

Use them, and the numbers stamped on the crankshaft (codes for main journal size), to choose the correct bearings. If the codes are indecipherable because of an accumulation of dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.



Bearing Identification

Color code is on the edge of the bearing

→ Larger crank bore

1 or I	A or I	B or II	C or III	D or IIII
2 or II	Red/ Pink	Pink	Pink/ Yellow	Yellow
3 or III	Pink	Pink/ Yellow	Yellow	Yellow/ Green
4 or IIII	Pink/ Yellow	Yellow	Yellow/ Green	Green
5 or IIIII	Yellow	Yellow/ Green	Green	Green/ Brown
6 or IIIIII	Yellow/ Green	Green	Green/ Brown	Brown
	Green	Green/ Brown	Brown	Brown/ Black

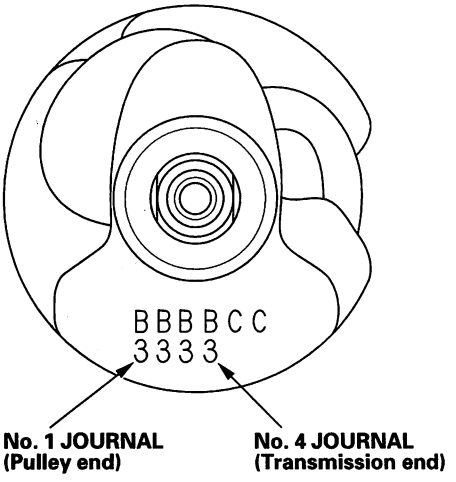
→ Smaller bearing (Thicker)

↓ Smaller main journal

↓ Smaller bearing (Thicker)

NOTE: When using bearing halves of different colors, it does not matter which color is used in the top or bottom.

Main Journal Code Locations (Numbers or Bars)



BACK

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Connecting Rod Bearing Replacement

Rod Bearing Clearance Inspection

1. Remove the connecting rod cap and bearing half (see page 7-12).

2. Clean the crankshaft rod journal and bearing half with a clean shop towel.

3. Place a strip of plastigage across the rod journal.

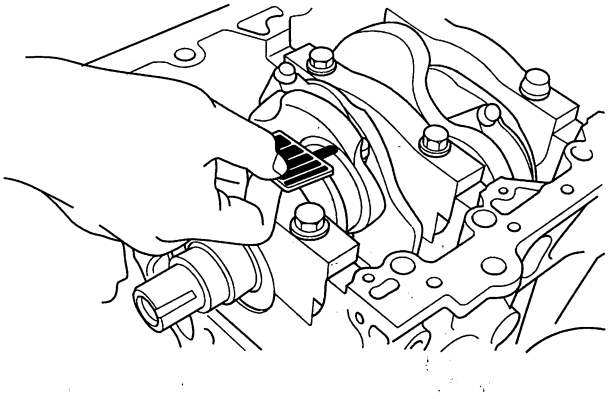
4. Reinstall the bearing half and cap, and torque the bolts.

   NOTE:
   - Apply new engine oil to the bolt threads and flanges.
   - Do not rotate the crankshaft during inspection.

   Tightening Torque:
   20 N·m (2.0 kgf·m, 14 lbf·ft) + 90 °

5. Remove the rod cap and bearing half and measure the widest part of the plastigage.

   Connecting Rod Bearing-to-Journal Oil Clearance
   Standard (New): 0.020—0.044 mm (0.0008—0.0017 in.)
   Service Limit: 0.050 mm (0.0020 in.)



6. If the plastigage measures too wide or too narrow, remove the upper half of the bearing, then install a new, complete bearing with the same color code, and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.

7. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below that one), and check clearance again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearings, replace the crankshaft and start over (see page 7-12).

(cont'd)

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Connecting Rod Bearing Replacement (cont'd)

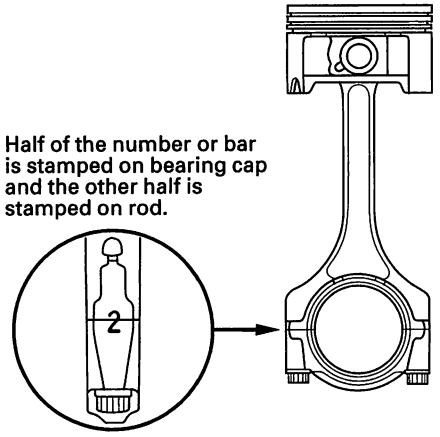
Rod Bearing Selection

Each rod falls into one of four tolerance ranges, from 0 to 0.024 mm (0.0009 in.), in 0.006 mm (0.0002 in.) increments, depending on the size of its big end bore. It's then stamped with a number or bar (1, 2, 3, or 4/I, II, III, or IIII) indicating the range. You may find any combination of 1, 2, 3, or 4/I, II, III, or IIII in any engine.

Normal Bore Size: 60.0 mm (2.36 in.)

Inspect the connecting rod for cracks and heat damage.

Connecting Rod Journal Code Locations
Numbers or bars have been stamped on the side of each connecting rod as a code for the size of the big end. Use them, and the letters or bars stamped on the crank (codes for rod journal size) to choose the correct bearings. If the codes are indecipherable because of an accumulation of dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.



Bearing Identification

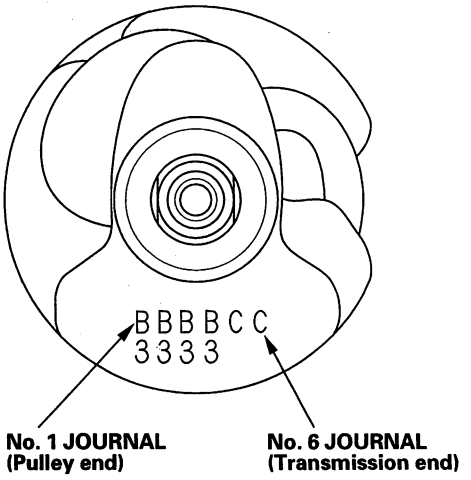
Color code is on the edge of the bearing

Smaller rod journal	Larger big end bore → 1 or I	2 or II	3 or III	4 or IIII
	Smaller bearing (Thicker) ↓			
A or I	Pink	Pink/ Yellow	Yellow	Yellow/ Green
B or II	Pink/ Yellow	Yellow	Yellow/ Green	Green
C or III	Yellow	Yellow/ Green	Green	Green/ Brown
D or IIII	Yellow/ Green	Green	Green/ Brown	Brown
E or IIIII	Green	Green/ Brown	Brown	Brown/ Black
F or IIIIII	Green/ Brown	Brown	Brown/ Black	Black

Smaller bearing (Thicker)

NOTE: When using bearing halves of different colors, it does not matter which color is used in the top or bottom.

Connecting Rod Journal Code Locations (Letters or Bars)



BACK

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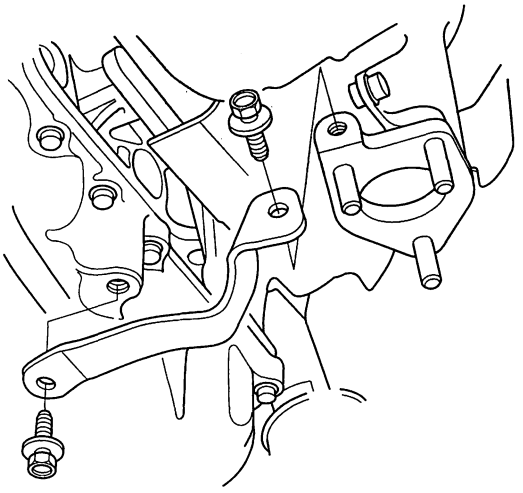
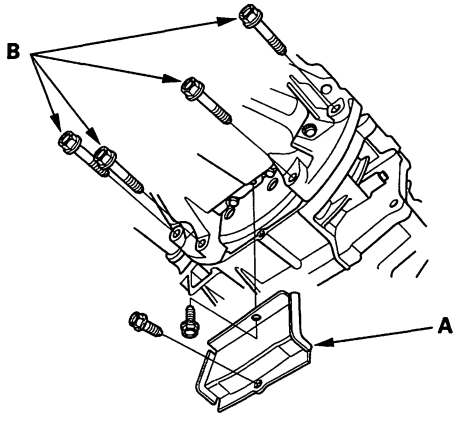
Oil Pan Removal

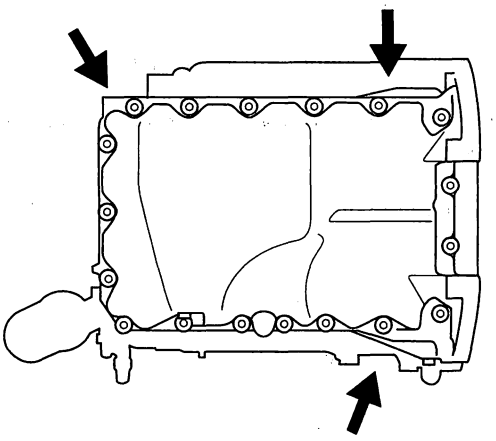
1. If the engine is already out of the vehicle, go to step 6.
2. Raise the vehicle on the lift to full height.
3. Drain the engine oil (see page 8-6).
4. Remove the splash shield (see step 31 on page 5-5).
5. Remove exhaust pipe A (see step 36 on page 5-6).
6. Remove the rear warm up three way catalytic converter (rear WU-TWC) bracket.



7. Remove the torque converter cover (A) and the four bolts (B) securing the transmission.



8. Remove the bolts securing the oil pan.
9. Using a flat blade screwdriver, separate the oil pan from the block in the places shown.



10. Remove the oil pan.

BACK

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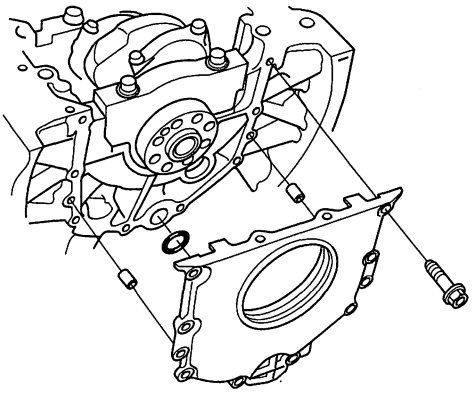
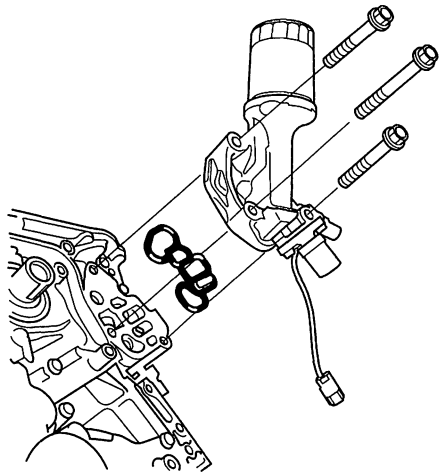
Crankshaft and Piston Removal

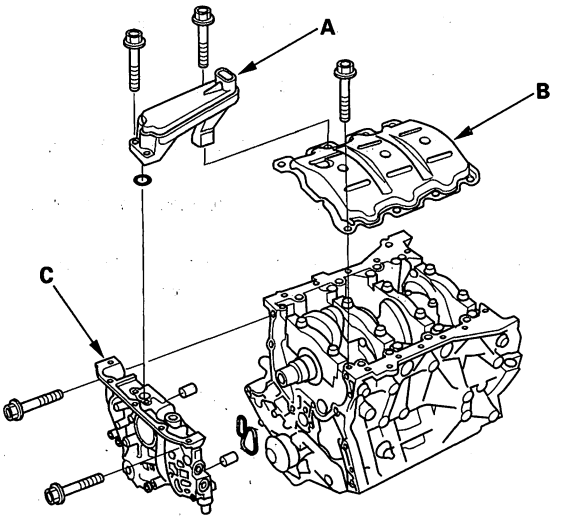
1. Remove the engine assembly (see page 5-2).
2. Remove the transmission (see page 14-275).
3. Remove the drive plate.
4. Remove the cylinder heads (see page 6-29).
5. Remove the crankshaft position (CKP) sensor (see page 11-242).
6. Remove the timing belt drive pulley from the crankshaft.
7. Remove the oil pan (see page 7-11).
8. Remove the engine block end cover.



9. Remove the rocker arm oil control solenoid/oil filter assembly.



10. Remove the oil screen (A), baffle plate (B), and oil pump (C).



BACK

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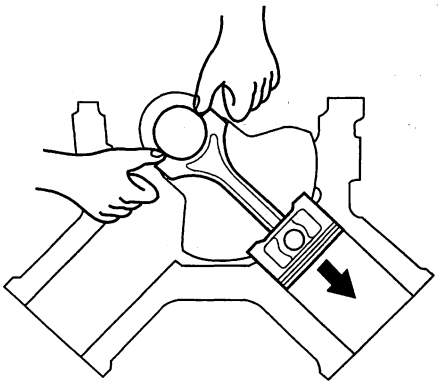
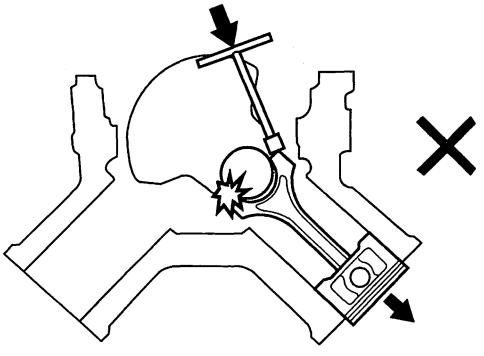
11. Remove the connecting rod caps after setting the crank pin at bottom dead center (BDC) for each cylinder. Remove the piston/connecting rod assembly by pushing on the connecting rod. Take care not to damage the crank pin or cylinder with the connecting rod.

CORRECT



INCORRECT



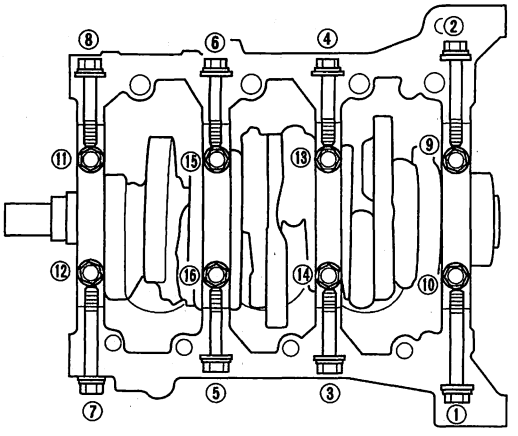
12. Remove the bearing from the cap. Keep all caps/ bearings in order.

13. Remove the upper bearing halves from the connecting rods, and set them aside with their respective caps.

14. After removing a piston/connecting rod assembly, reinstall the cap on the rod.

15. To avoid mix-up during reassembly, mark each piston/connecting rod assembly with its cylinder number.

16. Loosen the bearing cap bolts and bearing cap side bolts in sequence 1/3 turn at a time; repeat the sequence until all bolts are loosened.



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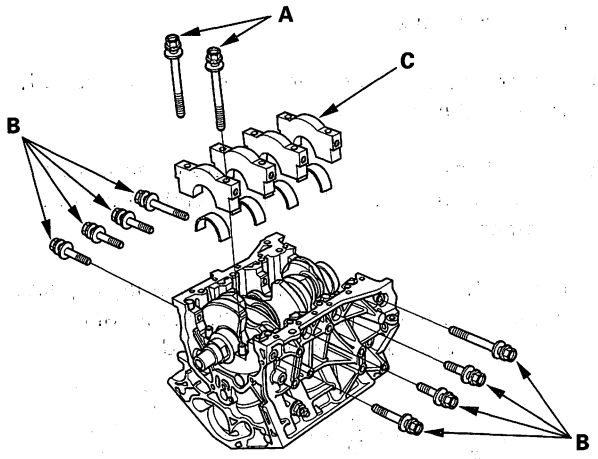
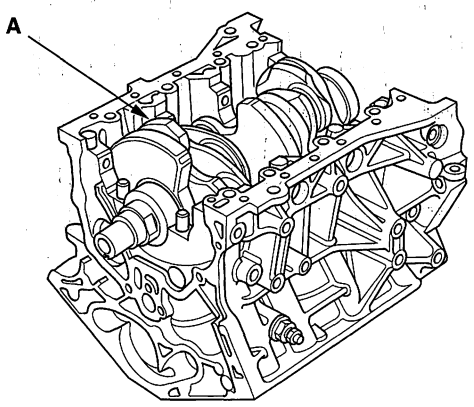
Crankshaft and Piston Removal (cont'd)

17. Remove the bearing cap bolts (A) and bearing cap side bolts (B), then remove the bearing cap (C).



18. Lift the crankshaft (A) out of the engine block, being careful not to damage the journals.



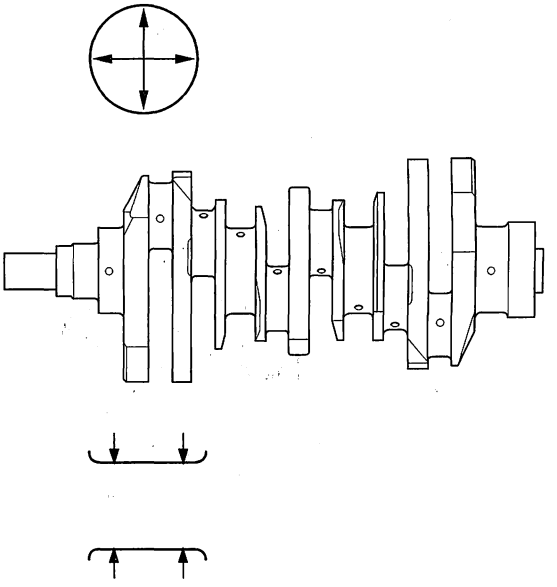
19. Reinstall the main caps and bearings on the engine block in the proper order.

Crankshaft Inspection

Out-of-Round and Taper

1. Remove the crankshaft from the engine block (see page 7-12).
2. Clean the crankshaft oil passages with pipe cleaners or a suitable brush.
3. Check the keyway and threads.
4. Measure out-of -round at the middle of each rod and main journal in two places. The difference between measurements on each journal must not be more than the service limit.

Journal Out-of-Round
Standard (New): 0.005 mm (0.0002 in.) max.
Service Limit: 0.010 mm (0.0004 in.)



5. Measure taper at the edges of each rod and main journal. The difference between measurements on each journal must not be more than the service limit.

Journal Taper
Standard (New): 0.005 mm (0.0002 in.) max.
Service Limit: 0.010 mm (0.0004 in.)

BACK

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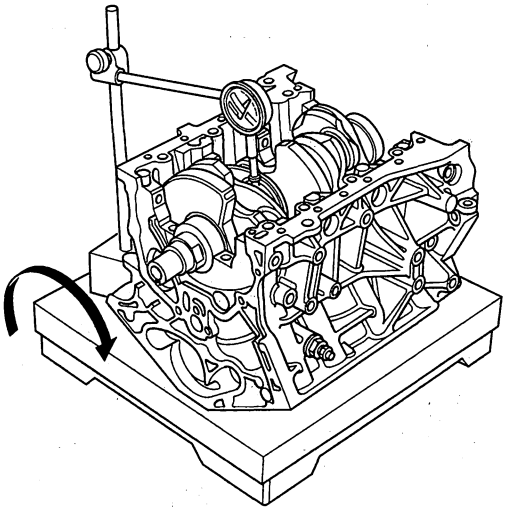
Block and Piston Inspection

Straightness

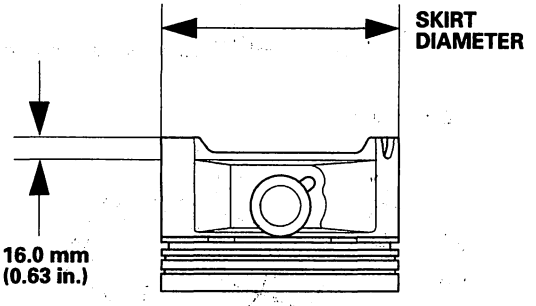
6. Place the engine block on the surface plate.
7. Clean and install the bearings on the No. 1 and No. 4 journal of the engine block.
8. Lower the crankshaft into the engine block.
9. Measure the runout on all of the main journals. Rotate the crankshaft two complete revolutions. The difference between measurements on each journal must not be more than the service limit.

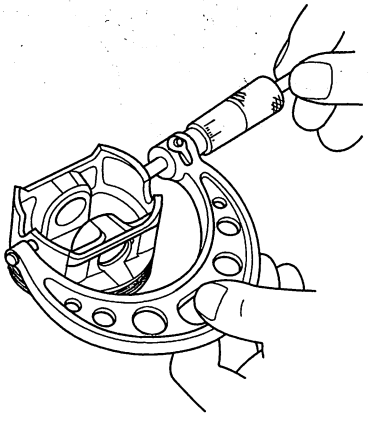
Crankshaft Total Runout
Standard (New): 0.025 mm (0.0010 in.) max.
Service Limit: 0.030 mm (0.0012 in.)



1. Remove the piston from the engine block (see page 7-12).
2. Check the piston for distortion or cracks.
3. Measure the piston diameter at a point 16.0 mm (0.63 in.) from the bottom of the skirt.

Piston Diameter
Standard (New): 89.983—89.996 mm (3.5426—3.5431 in.)





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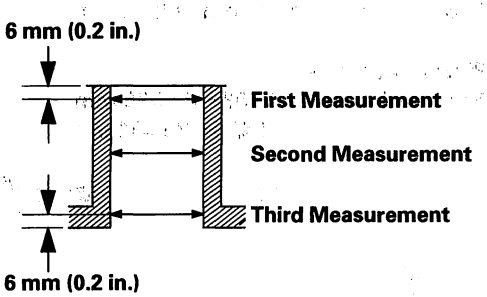
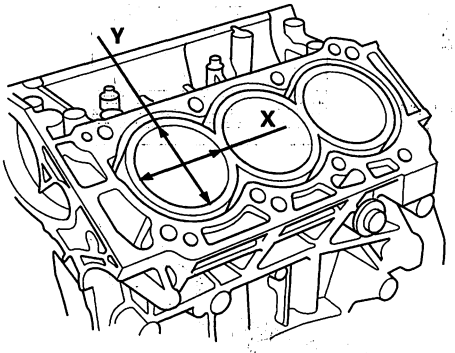
Block and Piston Inspection (cont'd)

4. Measure wear and taper in direction X and Y at three levels in each cylinder as shown.

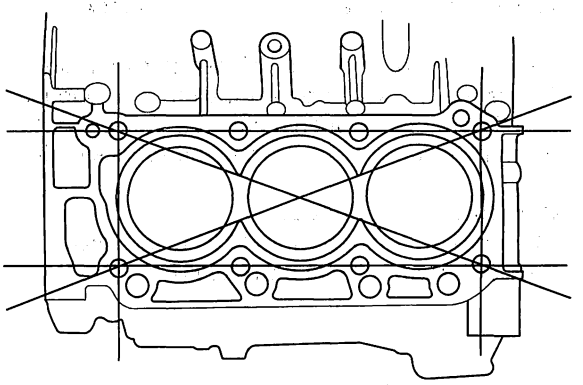
Cylinder Bore Size
Standard (New): 90.000—90.015 mm (3.5433—3.5439 in.)

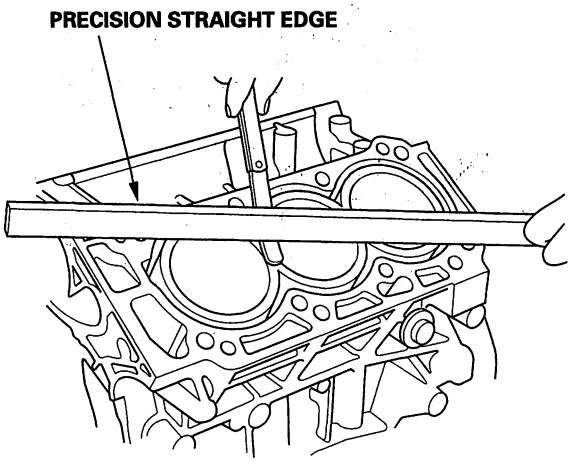




5. Check the top of the engine block for warpage. Measure along the edges and across the center as shown.

Engine Block Warpage
Standard (New): 0.07 mm (0.003 in.) max.





BACK

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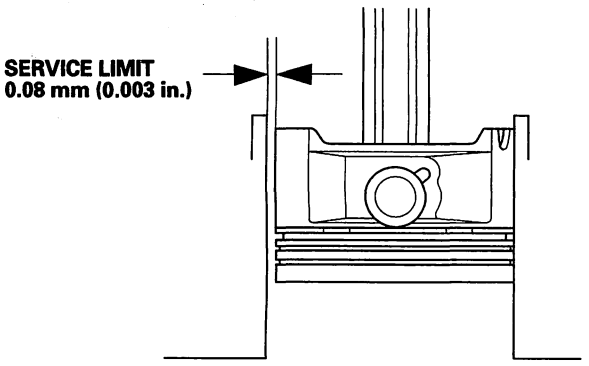
6. Calculate the difference between cylinder bore diameter and piston diameter. If the clearance is near or exceeds the service limit, inspect the piston and cylinder bore for excessive wear.

Piston-to-Cylinder Bore Clearance
Standard (New): 0.004—0.032 mm (0.0002—0.0013 in.)
Service Limit: 0.08 mm (0.003 in.)



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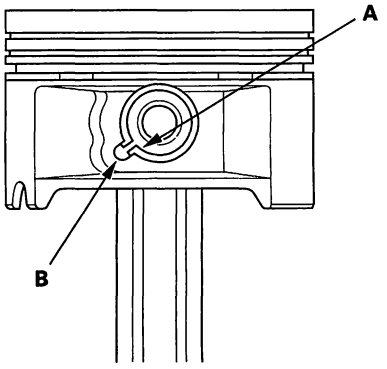
Piston, Pin, and Connecting Rod Replacement

Disassembly

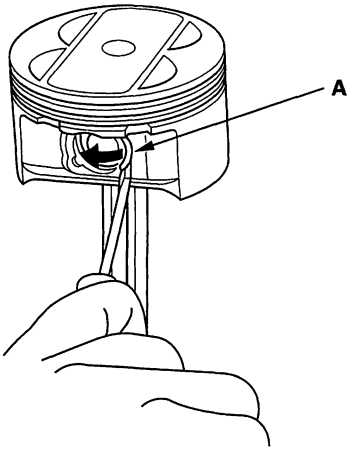
1. Remove the piston from the engine block (see page 7-12).

2. Apply new engine oil to the piston pin snap rings (A) and turn them in the ring grooves until the end gaps are lined up with the cutouts in the piston pin bores (B).

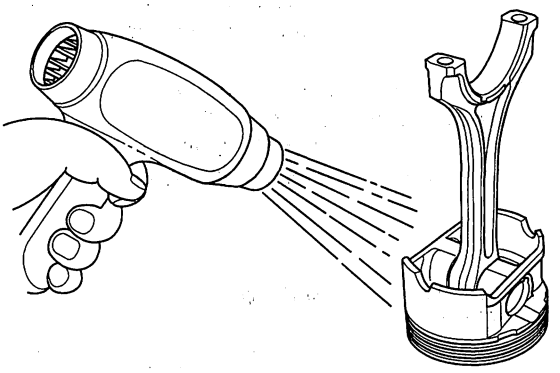
   NOTE: Take care not to damage the ring grooves.



3. Remove snap rings (A) from both sides of the piston. Start at the cutout in the piston pin bore. Remove the snap rings carefully so they do not go flying or get lost. Wear eye protection.



4. Heat the piston and connecting rod assembly to about 158 °F (70 °C), then remove the piston pin.



BACK

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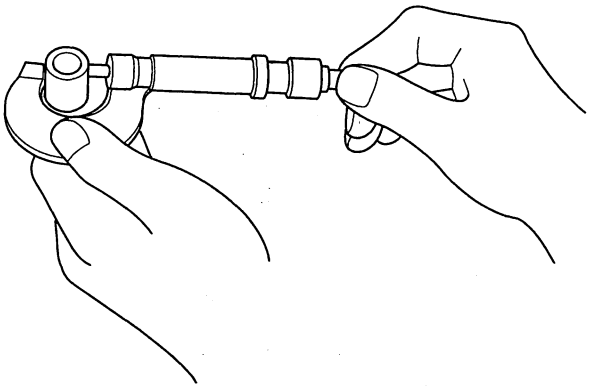
Inspection

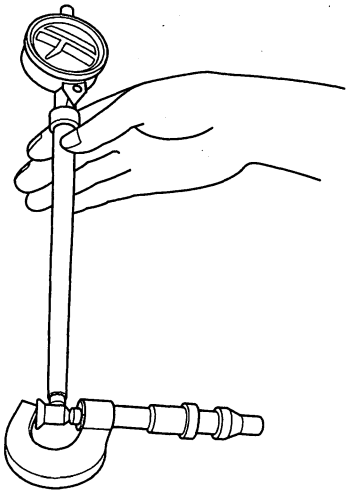
NOTE: Inspect the piston, piston pin, and connecting rod when they are at room temperature.

1. Measure the diameter of the piston pin.

Piston Pin Diameter
Standard (New): 21.962—21.965 mm (0.8646—0.8648 in.)
Service Limit: 21.954 mm (0.8643 in.)

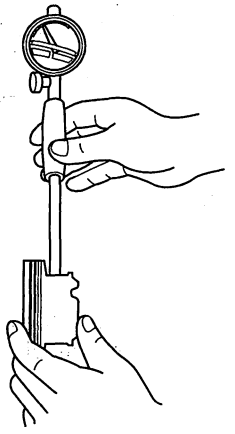


2. Zero the dial indicator to the piston pin diameter.



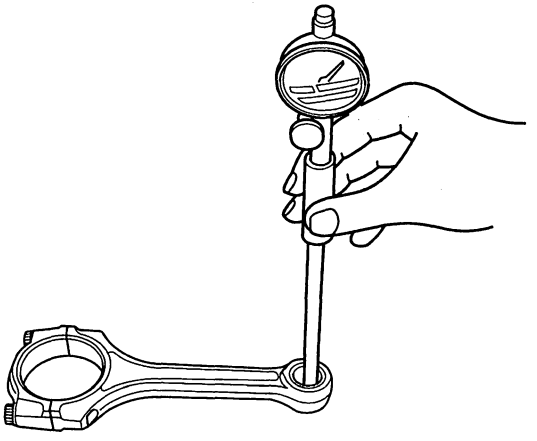
3. Check the difference between the piston pin diameter and piston pin hole diameter on the piston.

Piston Pin-to-Piston Clearance
Standard (New): —0.0050 to +0.0010 mm (—0.00020 to +0.00004 in.)
Service Limit: 0.004 mm (0.0002 in.)



4. Measure the piston pin-to-connecting rod clearance.

Piston Pin-to-Connecting Rod Clearance
Standard (New): 0.005—0.014 mm (0.0002—0.0006 in.)
Service Limit: 0.019 mm (0.0007 in.)



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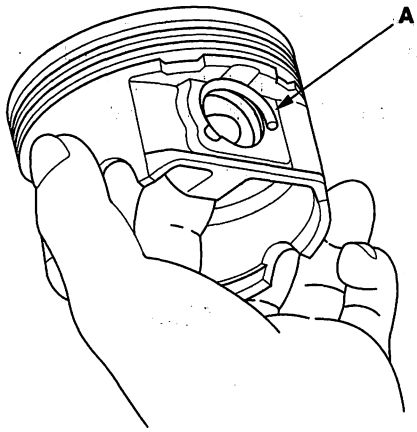
Piston, Pin, and Connecting Rod Replacement (cont'd)

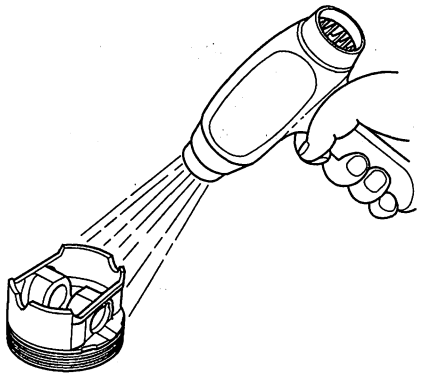
Reassembly

1. Install a piston pin snap ring (A) only on one side.



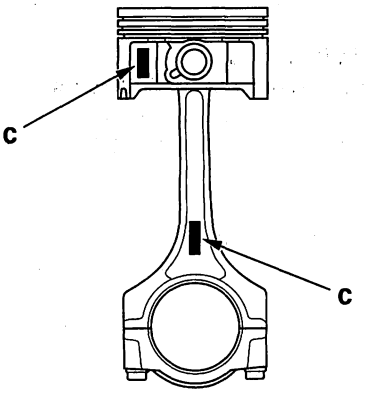
2. Coat the piston pin bore in the piston, the bore in the connecting rod, and the piston pin with new engine oil.

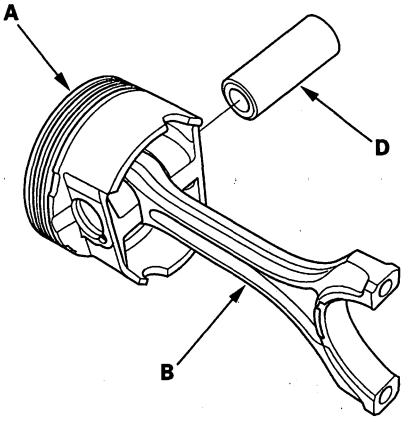
3. Heat the piston to about 158 °F (70 °C).



4. Assemble the piston (A) and connecting rod (B) with the embossed marks (C) on the same side. Install the piston pin (D).

   NOTE: Apply new engine oil to the piston pin.





5. Install the remaining snap ring.

BACK

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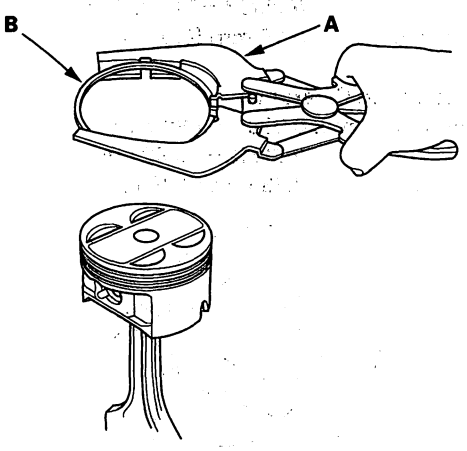
Piston Ring Replacement

1. Remove the piston from the engine block (see page 7-12).

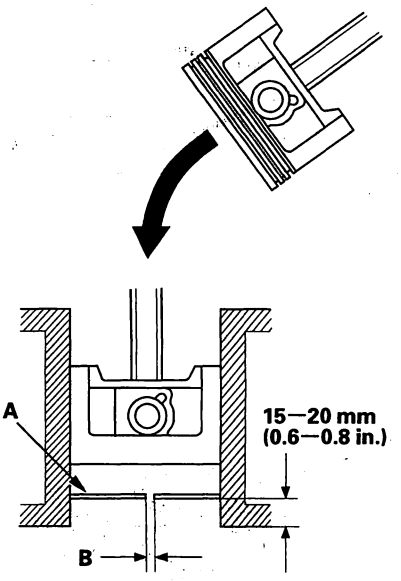
2. Using a ring expander (A), remove the old piston rings (B).



3. Clean all the ring grooves thoroughly with a squared-off broken ring, or a ring groove cleaner with a blade to fit the piston grooves. File down the blade, if necessary. The top ring and second ring grooves are 1.2 mm (0.05 in.) wide, and the oil ring groove is 2.8 mm (0.11 in.) wide. Do not use a wire brush to clean the ring grooves, or cut the ring grooves deeper with the cleaning tool.

   NOTE: If the piston is to be separated from the connecting rod, do not install new rings yet.

4. Using a piston, push a new ring (A) into the cylinder bore 15—20 mm (0.6—0.8 in.) from the bottom.



5. Measure the piston ring end-gap (B) with a feeler gauge:

   - If the gap is too small, check to see if you have the proper rings for your engine.
   - If the gap is too large, recheck the cylinder bore diameter against the wear limits (see step 4 on page 7-16).

Piston Ring End-Gap

Top Ring:
Standard (New): 0.30—0.40 mm (0.012—0.016 in.)
Service Limit: 0.60 mm (0.024 in.)

Second Ring:
Standard (New): 0.40—0.55 mm (0.016—0.022 in.)
Service Limit: 0.70 mm (0.028 in.)

Oil Ring:
Standard (New): 0.20—0.70 mm (0.008—0.028 in.)
Service Limit: 0.80 mm (0.031 in.)

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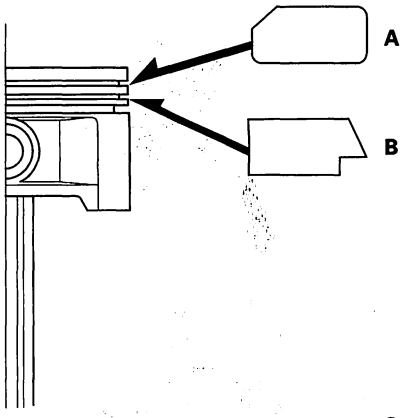
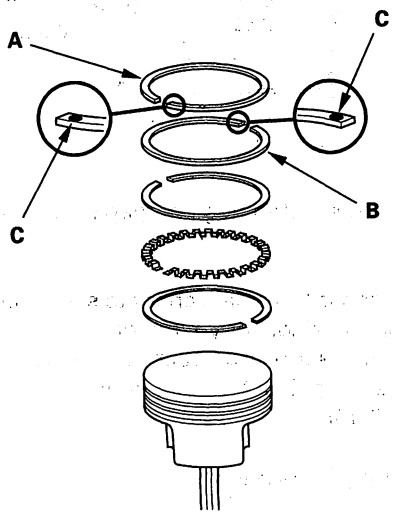
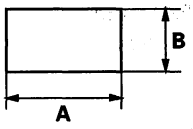
Piston Ring Replacement (cont'd)

6. Install the rings as shown. The top ring (A) has a 1E mark and the second ring (B) has a 2E mark. The manufacturing marks (C) must be facing upward.





Piston Ring Dimensions:



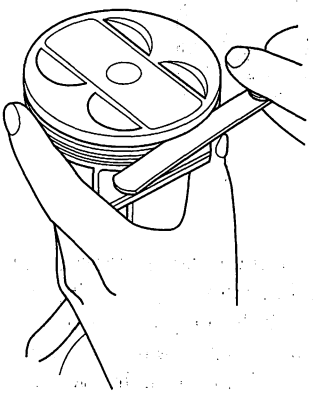
Top Ring (Standard)
A: 3.1 mm (0.12 in.)
B: 1.2 mm (0.05 in.)

Second Ring (Standard)
A: 3.4 mm (0.13 in.)
B: 1.2 mm (0.05 in.)

7. After installing a new set of rings, measure the ring-to-groove clearance:

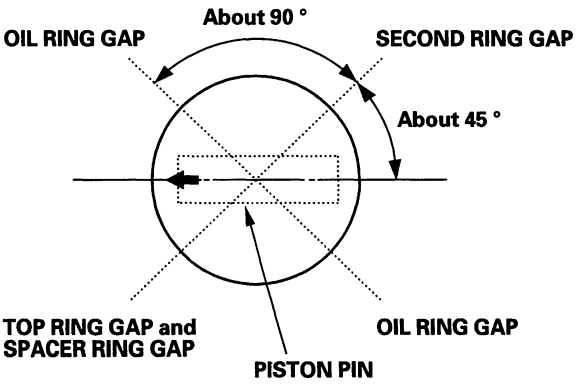
Top Ring Clearance
Standard (New): 0.055—0.085 mm (0.0022—0.0033 in.)
Service Limit: 0.15 mm (0.006 in.)

Second Ring Clearance
Standard (New): 0.030—0.060 mm (0.0012—0.0024 in.)
Service Limit: 0.13 mm (0.005 in.)



8. Rotate the rings in their grooves to make sure they do not bind.

9. Position the ring end gaps as shown:



BACK

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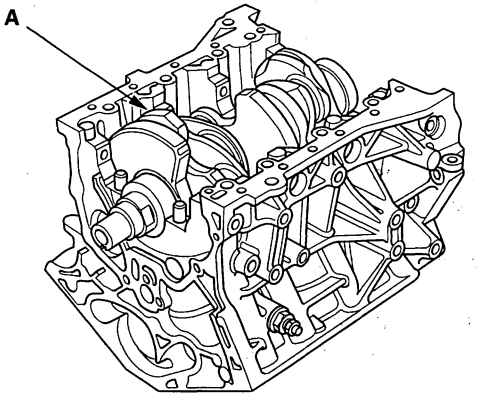
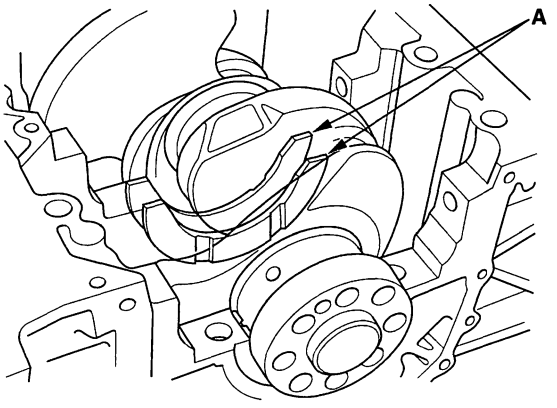
Crankshaft and Piston Installation

Special Tools Required
- Driver 07749-0010000
- Driver attachment, 106 mm 070AD-RCAA200

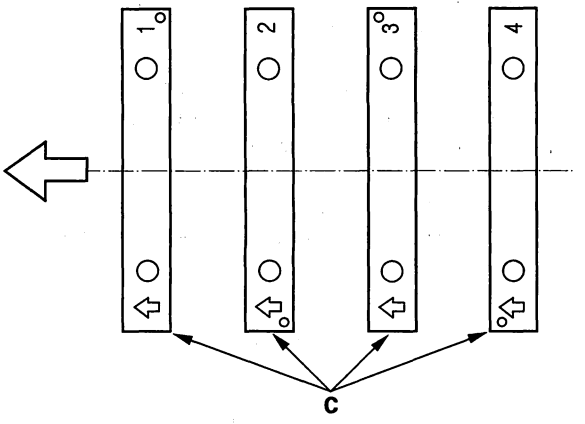
1. Check the connecting rod bearing clearance with plastigage (see page 7-9).
2. Check the main bearing clearance with plastigage (see page 7-7).
3. Install the bearing halves in the engine block and connecting rods.
4. Apply new engine oil to the inside of the main bearings and rod bearings.
5. Lower the crankshaft (A) into the engine block.

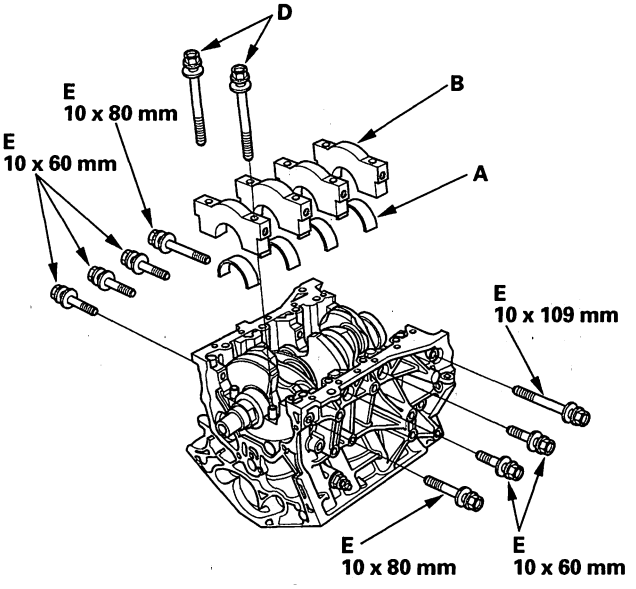


6. Apply new engine oil to the side with the thrust washer groove. Install the thrust washers (A) in the No. 3 journal.



7. Install the bearings (A) and bearing caps (B) with the arrow (C) facing the timing belt end of the engine.





8. Apply new engine oil to the bolt threads and flanges, then loosely install the bearing cap bolts (D) and bearing cap side bolts (E).

(cont'd)

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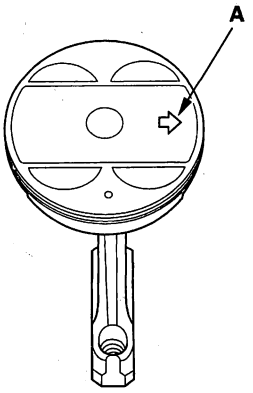
Crankshaft and Piston Installation (cont'd)

9. Set the crankshaft to bottom dead center (BDC) for the cylinder you are installing the piston in.

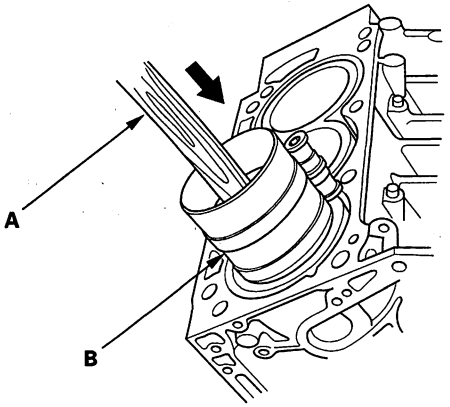
10. Apply new engine oil to the piston, inside of the ring compressor, and the cylinder bore.

11. Attach the ring compressor to the piston/connecting rod assembly, and check that the bearing is securely in place.

12. Position the piston/connecting rod assembly with the arrow (A) facing the timing belt side of the engine.

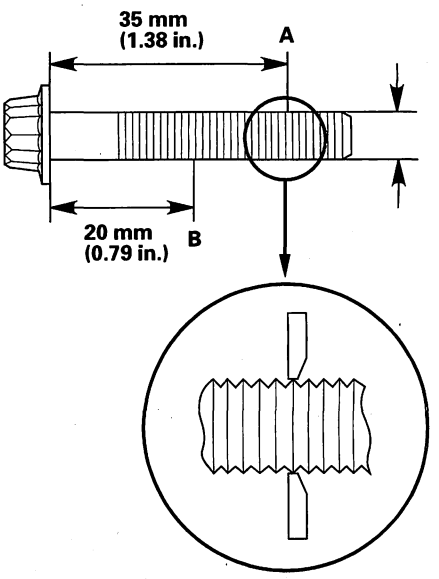


13. Position the piston/connecting rod assembly in the cylinder, and tap it in using the wooden handle of a hammer (A). Maintain downward force on the ring compressor (B) to prevent the rings from expanding before entering the cylinder bore.



14. Stop after the ring compressor pops free, and check the connecting rod-to-crank journal alignment before pushing the piston into place.

15. Measure the diameter of each connecting rod bolt at point A and point B.



16. Calculate the difference in diameter between point A and point B.

Point A—Point B = Difference in Diameter

Difference in Diameter
Specification: 0—0.1 mm (0—0.004 in.)

17. If the difference in diameter is out of tolerance, replace the connecting rod bolt.

BACK

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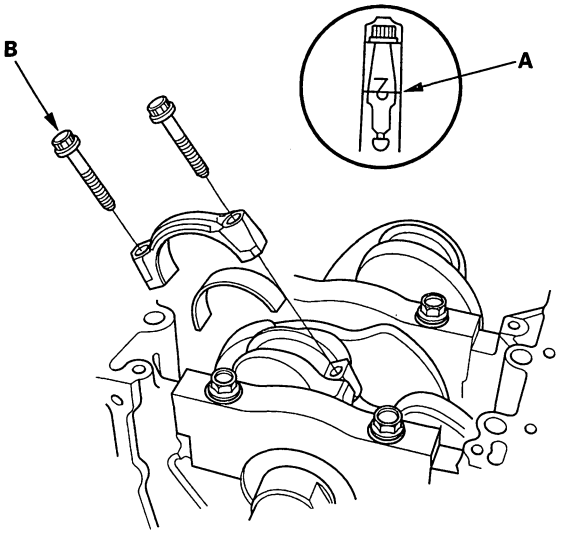
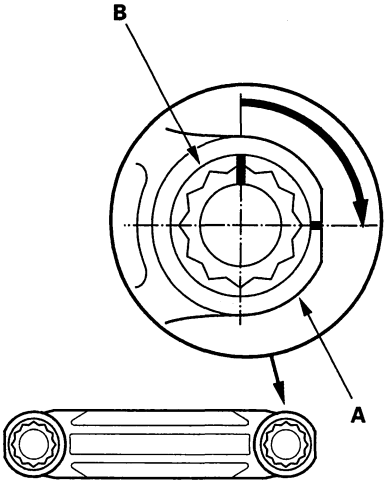
18. Line up the mark (A) on the connecting rod and cap, then install the cap.



19. Apply new engine oil to the bolt threads and flanges. Torque the bolts (B) to 20 N·m (2.0 kgf·m, 14 lbf·ft).

20. Mark the connecting rod (A) and bolt head (B) as shown.

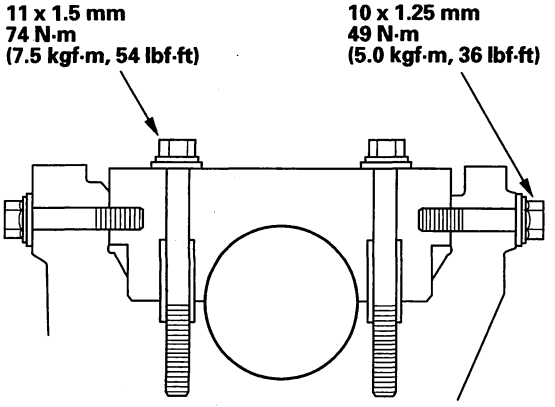


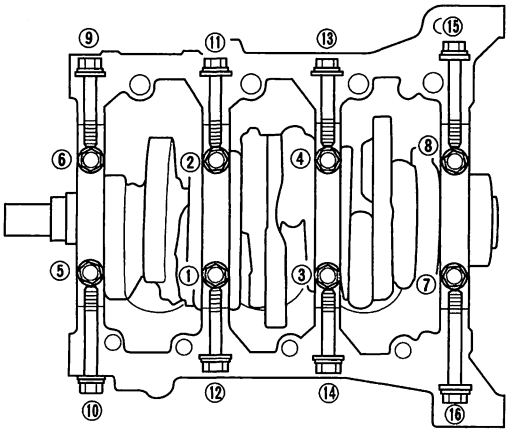
21. Tighten the bolt until the mark on the bolt head lines up with the mark on the connecting rod (turn the bolt 90 °).

NOTE: Remove the connecting rod bolt if you tightened it beyond the specified angle, and go back to step 15 of the procedure. Do not loosen it back to the specified angle.

22. Tighten the bearing cap bolts, and then the bearing cap side bolts to the specified torque in the sequence as shown. Repeat the torque sequence again to measure the bolts are properly torqued.

NOTE: Apply new engine oil to the bolt threads and flanges.





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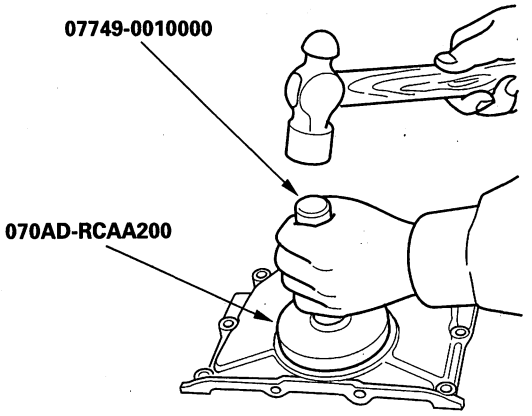
Crankshaft and Piston Installation (cont'd)

23. Apply a light coat of multipurpose grease to the crankshaft and to the lip of the seal.

24. Drive the new crankshaft oil seal until the driver attachment bottoms on the engine block end cover.

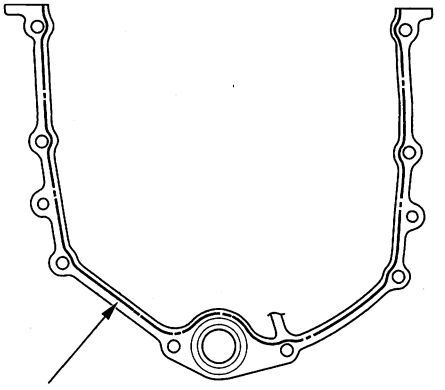


25. Remove all of the old liquid gasket from the engine block end cover mating surfaces, bolts, and bolt holes.

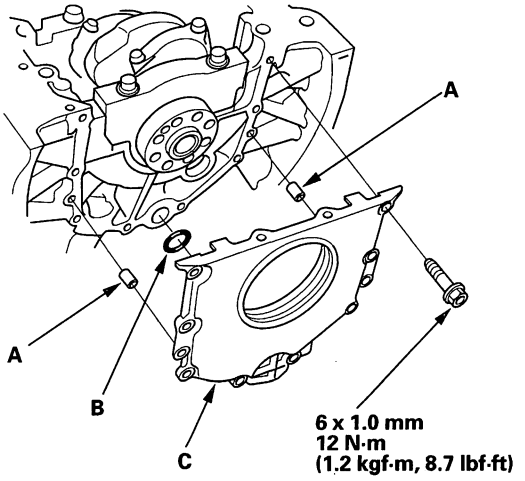
26. Clean and dry the engine block end cover mating surfaces.

27. Apply liquid gasket, P/N 08717-0004, 08718-0001, 08718-0003, or 08718-0009, evenly to the engine block mating surface of the engine block end cover. Install the component within 5 minutes of applying the liquid gasket.

NOTE:
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.



28. Install the dowel pins (A), new O-ring (B), and the engine block end cover (C) on the engine block.



29. Clean the excess grease off the crankshaft, and check the seal for distortion.

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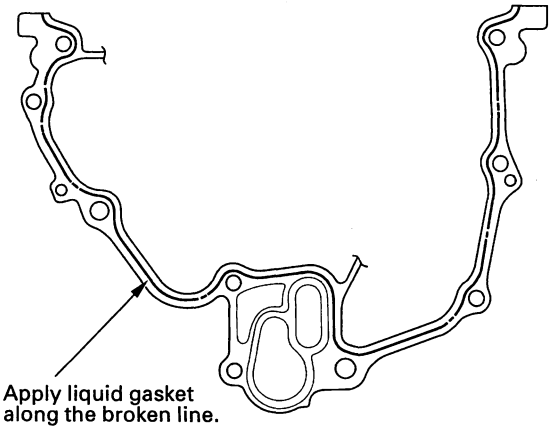
30. Install a new crankshaft oil seal in the oil pump (see step 2 on page 8-13).

31. Remove all of the old liquid gasket from the oil pump mating surfaces, bolts, and bolt holes.

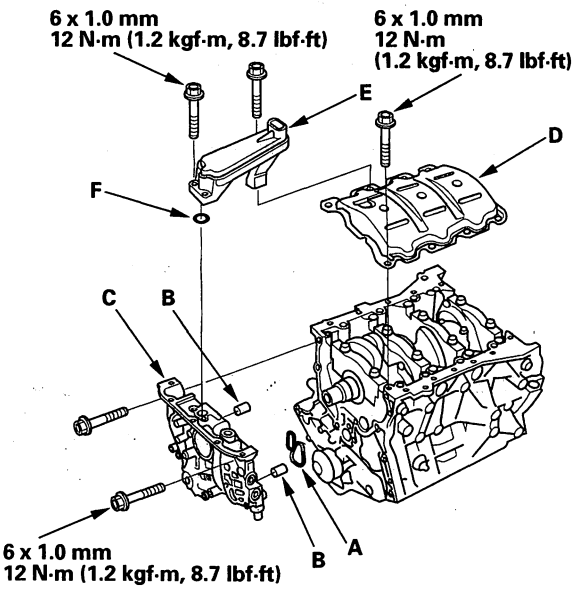
32. Clean and dry the oil pump mating surfaces.

33. Apply liquid gasket, P/N 08717-0004, 08718-0001, 08718-0003, or 08718-0009, evenly to the engine block mating surface of the oil pump. Install the component within 5 minutes of applying the liquid gasket.

    NOTE:
    - If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
    - If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.



34. Grease the lip of the oil seal, and apply oil to the new O-ring (A).

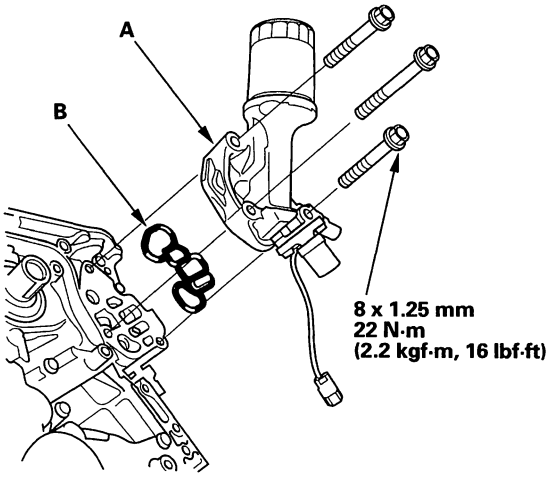


35. Install the dowel pins (B), then align the inner rotor with the crankshaft, and install the oil pump (C).

36. Clean the excess grease off the crankshaft, and check the seal for distortion.

37. Install the baffle plate (D), then install the oil screen (E) with new O-ring (F).

38. Install the rocker arm oil control solenoid/oil filter assembly (A), with a new rocker arm oil control solenoid filter (B).



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Crankshaft and Piston Installation (cont'd)

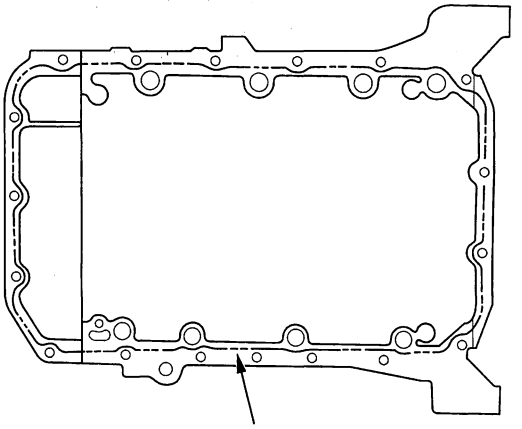
39. Install the oil pan (see page 7-28).
40. Install the crankshaft position (CKP) sensor (see page 11-242).
41. Install the cylinder heads (see page 6-49).
42. Install the drive plate.
43. Install the transmission (see page 14-287).
44. Install the engine assembly (see page 5-12).

    NOTE: When any crankshaft or connecting rod bearing is replaced, after assembly it is necessary to run the engine at idling speed until it reaches normal operating temperature, then continue to run it for about 15 minutes.

Oil Pan Installation

1. Remove all of the old liquid gasket from the oil pan mating surfaces, bolts, and bolt holes.
2. Clean and dry the oil pan mating surfaces.
3. Apply liquid gasket, P/N 08717-0004, 08718-0001, 08718-0003, or 08718-0009, evenly to the oil pan mating surface of the engine block. Install the component within 5 minutes of applying the liquid gasket.

   NOTE:
   - If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
   - If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.



4. Install the oil pan on the engine block.

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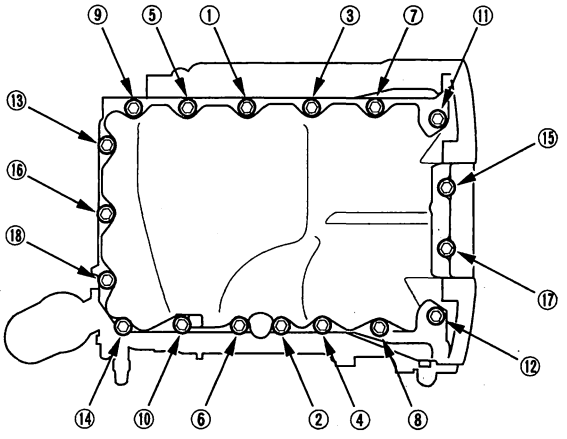
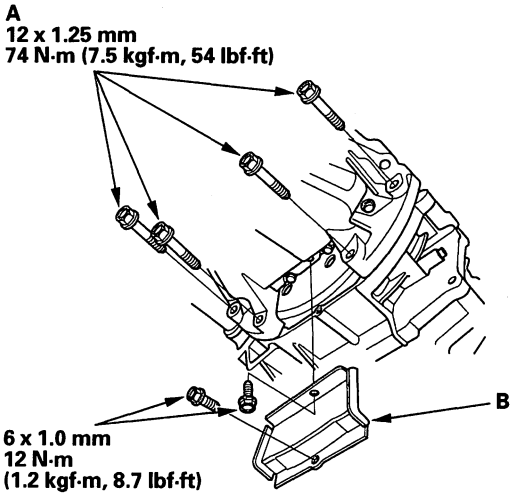
5. Tighten the bolts in two or three steps. In the final step, tighten all bolts, in sequence, to 12 N·m (1.2 kgf·m, 8.7 lbf·ft).

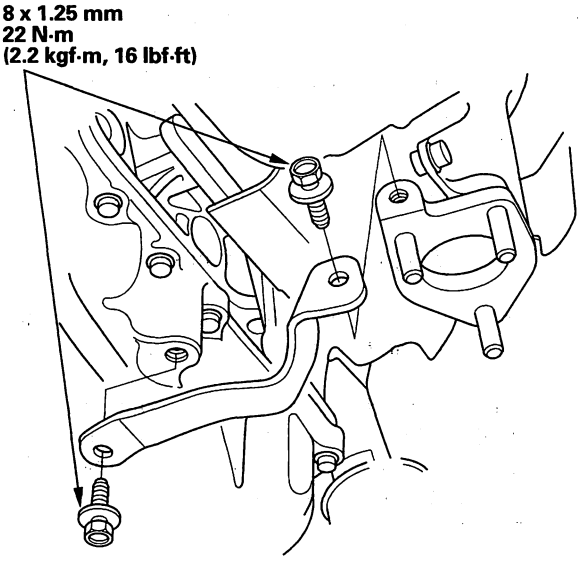
   NOTE: After assembly, wait at least 30 minutes before filling the engine with oil.



6. Tighten the four bolts (A) securing the transmission, then install the torque converter cover (B).



7. Install the rear warm up three way catalytic converter (rear WU-TWC) bracket.



8. If the engine is still in the vehicle, do the following steps.

9. Install exhaust pipe A using new gaskets and new self-locking nuts (see step 31 on page 5-17).

10. Install the splash shield (see step 33 on page 5-17).

11. Refill the engine with engine oil (see step 4 on page 8-6).

12. Lower the vehicle on the lift.

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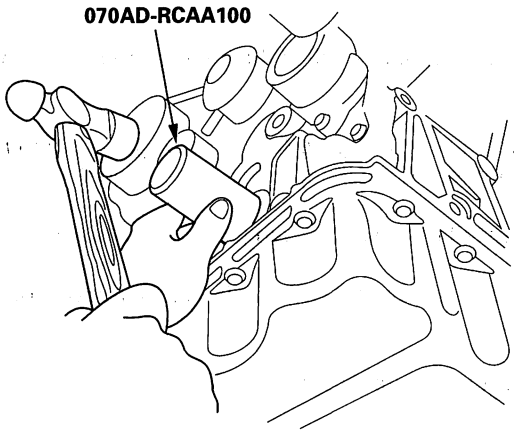
Pulley End Crankshaft Oil Seal Installation - In Car

Special Tools Required
Oil seal driver, 64 mm 070AD-RCAA100

1. Remove the crankshaft position (CKP) sensor, timing belt, and timing belt drive pulley (see page 6-25).
2. Remove the pulley end crankshaft oil seal.
3. Clean and dry the crankshaft oil seal housing.
4. Apply a light coat of multipurpose grease to the crankshaft and to the lip of the seal.
5. Using the seal driver, drive in the crankshaft oil seal until the driver bottoms against the oil pump. When the seal is in place, clean any excess grease off the crankshaft, and check that the oil seal lip is not distorted.

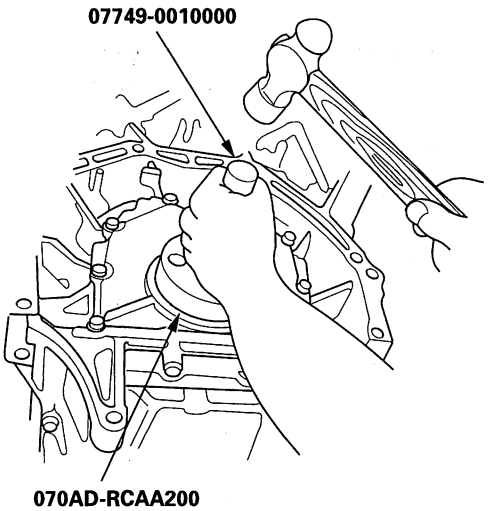


6. Install the timing belt drive pulley, timing belt, and CKP sensor (see page 6-25).

Transmission End Crankshaft Oil Seal Installation - In Car

Special Tools Required
- Driver 07749-0010000
- Driver attachment, 106 mm 070AD-RCAA200

1. Remove the transmission (see page 14-275) and the drive plate.
2. Remove the transmission end crankshaft oil seal.
3. Clean and dry the crankshaft oil seal housing.
4. Apply a light coat of multipurpose grease to the crankshaft and to the lip of the seal.
5. Using the special tools, drive in the crankshaft oil seal until the driver attachment bottoms against the engine block end cover. Align the hole in the driver attachment with the pin on the crankshaft.



6. Clean any excess grease off the crankshaft, and check that the oil seal lip is not distorted.
7. Install the drive plate, and the transmission (see page 14-287).

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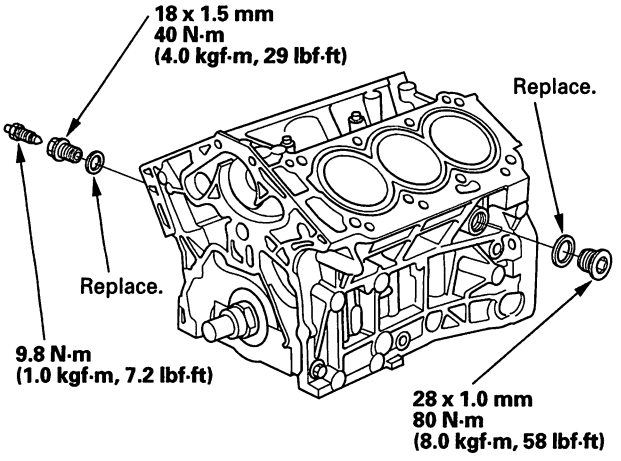
Drain Bolt Installation

NOTE: When installing the drain bolt, always use a new washer.



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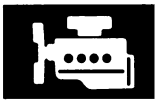
Engine Mechanical



Engine Lubrication

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Oil Pump Overhaul 8-10

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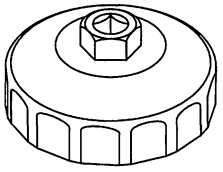
Engine Lubrication

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07HAA-PJ70100	Oil Filter Wrench	1
②	070AD-RCAA100	Oil Seal Driver, 64 mm	1



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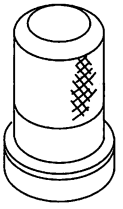

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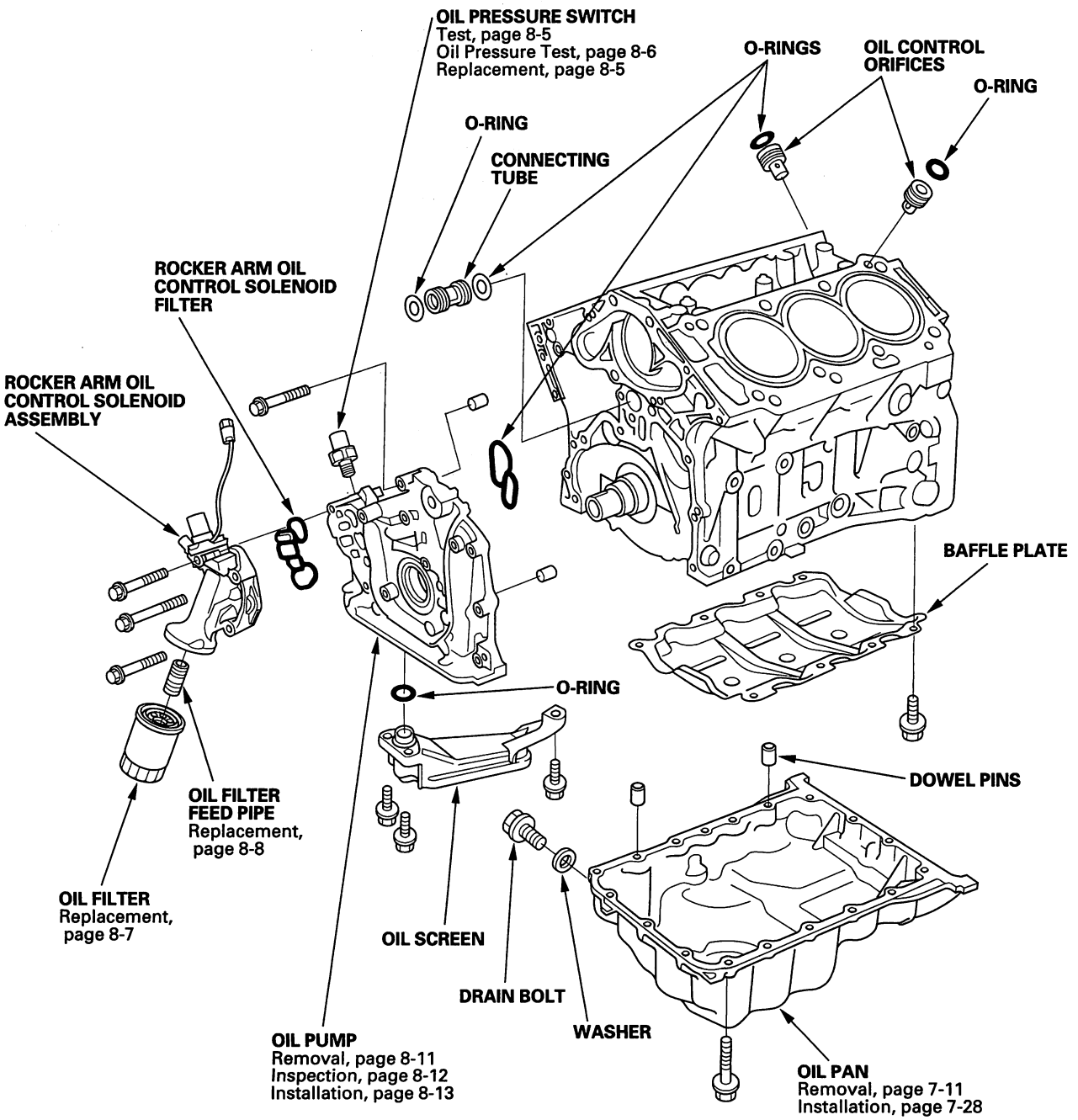
Component Location Index



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Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Excessive engine oil consumption	1. Check for a loose engine oil fill cap, oil drain bolt, or oil filter. 2. Check for oil leaks. 3. Check for worn valve guide(s) (see page 6-42) or worn valve stem seal(s) (see page 6-42). 4. Check for damaged or worn piston ring(s) (see page 7-21). 5. Check for damaged or worn engine internal parts (cylinder wall, pistons, etc.) (see page 7-15).	
Low oil pressure indicator does not come on with the ignition switch ON (II)	1. Do the gauge control module self-diagnostic function (see page 22-315). 2. Test the oil pressure switch (see page 8-5).	An open in the wire between the gauge control module and the oil pressure switch
Low oil pressure indicator stays on	1. Check the engine oil level. 2. Do the gauge control module self-diagnostic function (see page 22-315). 3. Test the oil pressure switch (see page 8-5). 4. Check the engine oil pressure (see page 8-6). 5. Check the oil filter for clogging. 6. Check the oil screen for clogging. 7. Check the relief valve. 8. Test the oil pump (see page 8-12).	A wire shorted to ground between the gauge control module and the oil pressure switch

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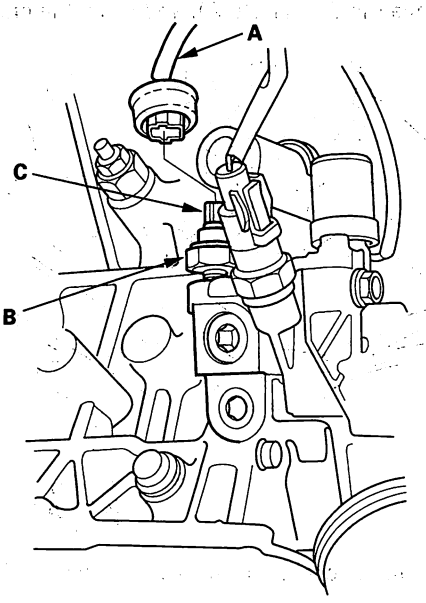
Oil Pressure Switch Test

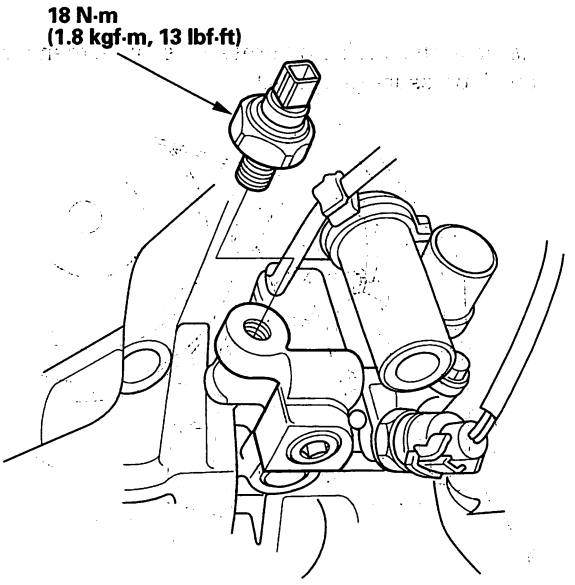
1. Remove the BLU/YEL wire (A) from the engine oil pressure switch (B).



2. Check for continuity between the positive terminal (C) and the engine (ground). There should be no continuity with the engine stopped. There should be continuity with the engine running.

Oil Pressure Switch Replacement

1. Disconnect the oil pressure switch connector, then remove the oil pressure switch.



2. Remove any old liquid gasket from the switch and switch mounting hole.
3. Apply a very small amount of liquid gasket to the oil pressure switch threads, then install the oil pressure switch.

   NOTE: Using too much liquid gasket may cause liquid gasket to enter the oil passage or the end of the new oil pressure switch.

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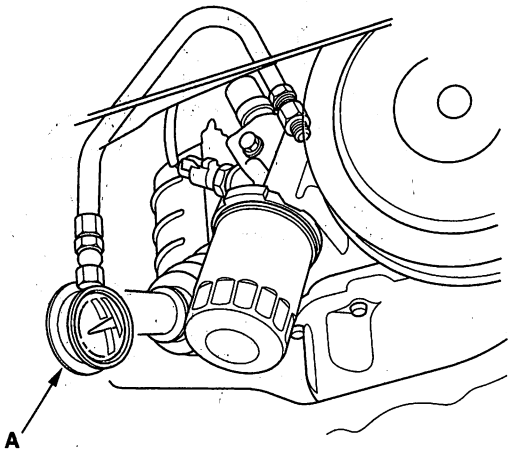
Oil Pressure Test

If the low oil pressure indicator stays on with the engine running, check the engine oil level. If the oil level is correct:

1. Remove the engine oil pressure switch, then install an oil pressure gauge (A).



2. Start the engine. Shut it off immediately if the gauge registers no oil pressure. Repair the problem before continuing.
3. Allow the engine to reach operating temperature (fan comes on at least twice). The pressure should be:

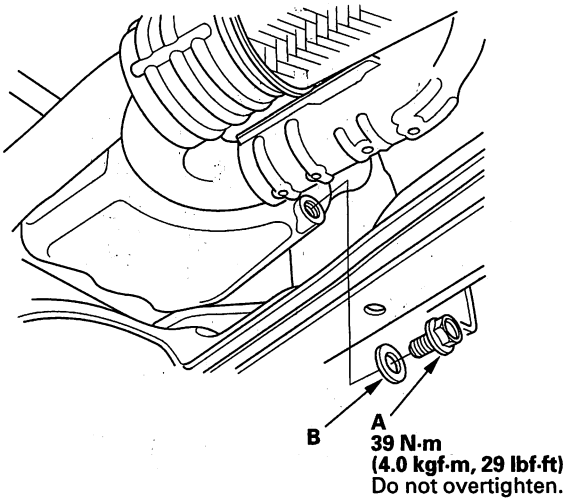
   Engine Oil Temperature: 176 °F (80 °C)
   Engine Oil Pressure:
   At Idle: 70 kPa (0.7 kgf/cm², 10 psi) min.
   At 3,000 rpm: 490 kPa (5.0 kgf/cm², 71 psi) min.

4. If oil pressure is out of specifications, inspect these items:

   - Inspect the oil pressure relief valve (see page 8-10).
   - Check the oil screen for clogging.
   - Inspect the oil pump (see page 8-12).

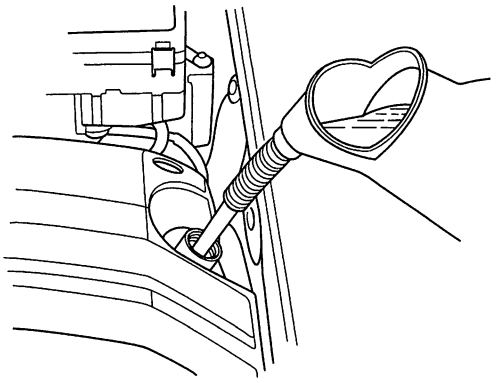
Engine Oil Replacement

1. Warm up the engine.
2. Remove the drain bolt (A), and drain the engine oil.



3. Reinstall the drain bolt with a new washer (B).
4. Refill with the recommended oil (see page 3-2).

   Capacity
   At Oil Change:
   4.0 L (4.2 US qt)
   At Oil Change including Filter:
   4.3 L (4.5 US qt)
   After Engine Overhaul:
   5.0 L (5.3 US qt)



BACK

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5. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).

6. Turn the ignition switch ON (II).

7. Make sure the HDS communicates with the vehicle and the powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit (see page 11-223).

8. Select BODY ELECTRICAL with the HDS.

9. Select ADJUSTMENT in the GAUGES MENU with the HDS.

10. Select RESET in the MAINTENANCE MINDER with the HDS.

11. Select RESETTING THE ENGINE OIL LIFE with the HDS.

    NOTE: If you changed the ATF at the same time with the engine oil, select RESETTING THE ENGINE OIL LIFE AND ATF with the HDS instead.

12. Run the engine for more than 3 minutes, then check for oil leakage.

13. Reset the multi-information display (see page 3-6).

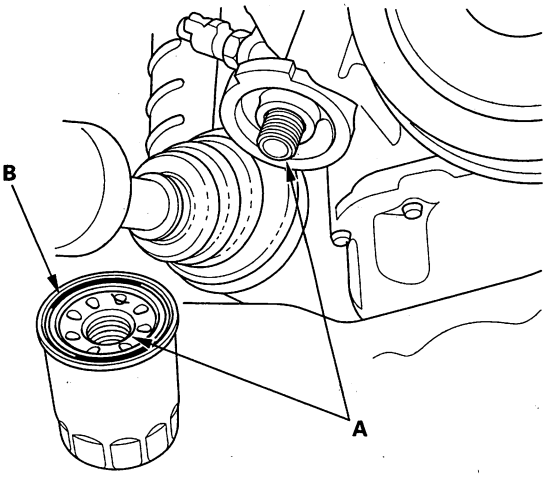
Engine Oil Filter Replacement

Special Tools Required
Oil filter wrench 07HAA-PJ70100

1. Remove the oil filter with the oil filter wrench.

2. Inspect the filter to make sure the rubber seal is not stuck to the oil filter seating surface of the engine.

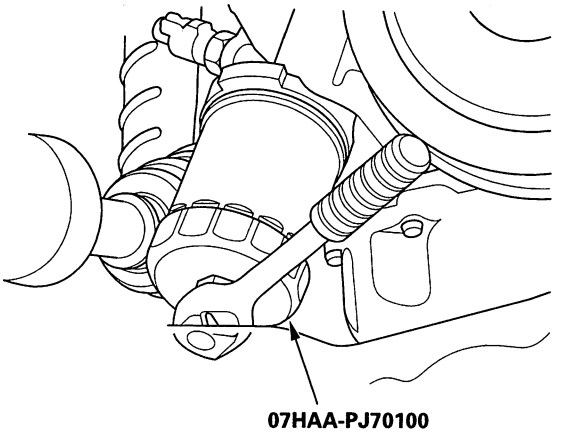
3. Inspect the threads (A) and rubber seal (B) on the new filter. Clean the seat on the engine block, then apply a light coat of new engine oil to the filter rubber seal. Use only filters with a built-in bypass system.



4. Install the oil filter by hand.

5. After the rubber seal seats, tighten the oil filter clockwise with the oil filter wrench.

Tighten: 3/4 Turn Clockwise
Tightening Torque:12 N·m (1.2 kgf·m, 8.7 lbf·ft)



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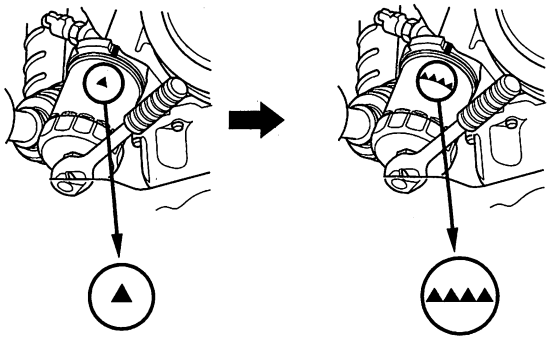
Engine Oil Filter Replacement (cont'd)

6. If four numbers or marks (1 to 4 or ▼ to ▼▼▼▼) are printed around the outside of the filter, you can use the following procedure to tighten the filter.

   - Spin the filter on until its seal lightly seats against the block, and note which number or mark is at the bottom.
   - Tighten the filter by turning it clockwise three numbers or marks from the one you noted. For example, if mark ▼ is at the bottom when the seal is lightly seated, tighten the filter until the mark ▼▼▼▼ comes around to the bottom.



Mark when rubber seal is seated.

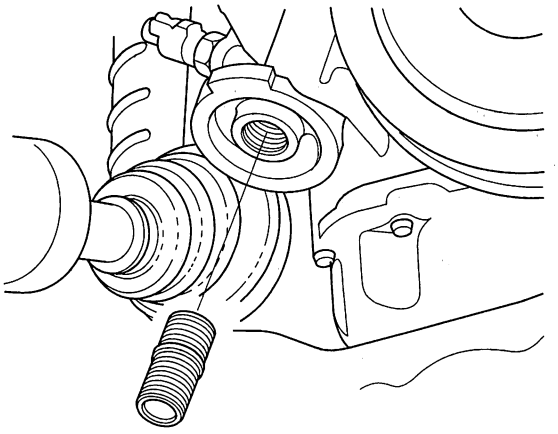
Mark after tightening.

Number or Mark when rubber seal is seated	1 or ▼	2 or ▼▼	3 or ▼▼▼	4 or ▼▼▼▼
Number or Mark after tightening	4 or ▼▼▼▼	1 or ▼	2 or ▼▼	3 or ▼▼▼

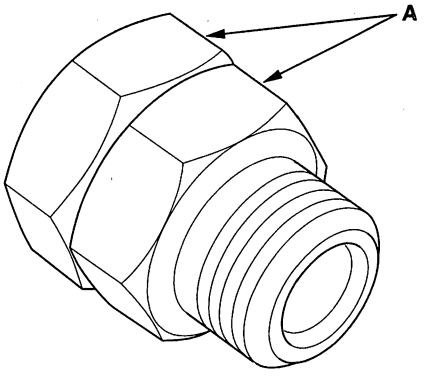
7. After installation, fill the engine with oil up to the specified level, run the engine for more than 3 minutes, then check for oil leakage.

Oil Filter Feed Pipe Replacement

1. Remove the oil filter (see page 8-7).
2. Remove the oil filter feed pipe.



3. Install two 20 x 1.5 mm nuts (A) onto the new oil filter feed pipe, and hold one nut with a wrench, then tighten the other nut.



4. Tighten the oil filter feed pipe to 49 N·m (5.0 kgf·m, 36 lbf·ft), then remove the nuts from the oil filter feed pipe.

BACK

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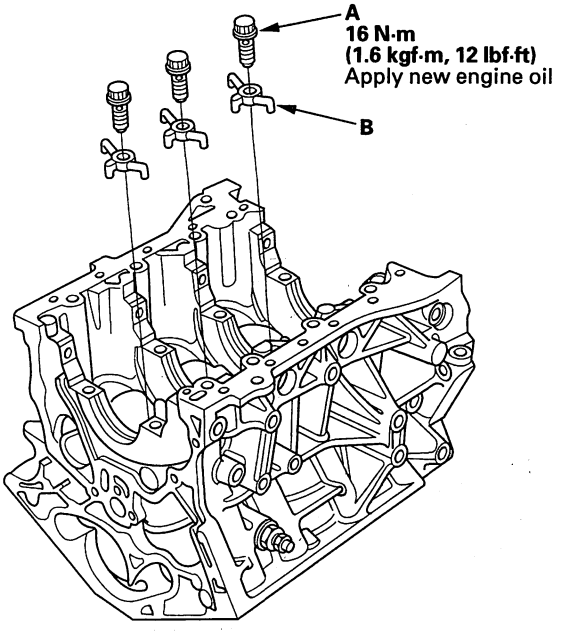
Oil Jet Replacement

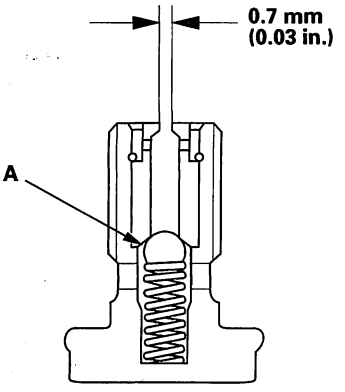
1. Remove the crankshaft from the engine block (see page 7-12).
2. Remove the oil jet bolt (A), then remove and discard oil jet (B).



3. Carefully install the new oil jet and tighten the oil jet bolt.
4. Install the crankshaft (see page 7-23).

Oil Jet Bolt Inspection

1. Remove the oil jet bolt (see page 8-9).
2. Inspect the oil jet bolt as follows.
   - Make sure that a 0.6 mm (0.02 in.) diameter drill will go through the oil intake (0.7 mm [0.03 in.] diameter). Make sure the check ball (A) moves smoothly and has a stroke of about 4.0 mm (0.16 in.)
   - Check the oil jet bolt operation with an air nozzle. It should take at least 120 kPa (1.2 kgf/cm, 17 psi) to unseat the check ball.



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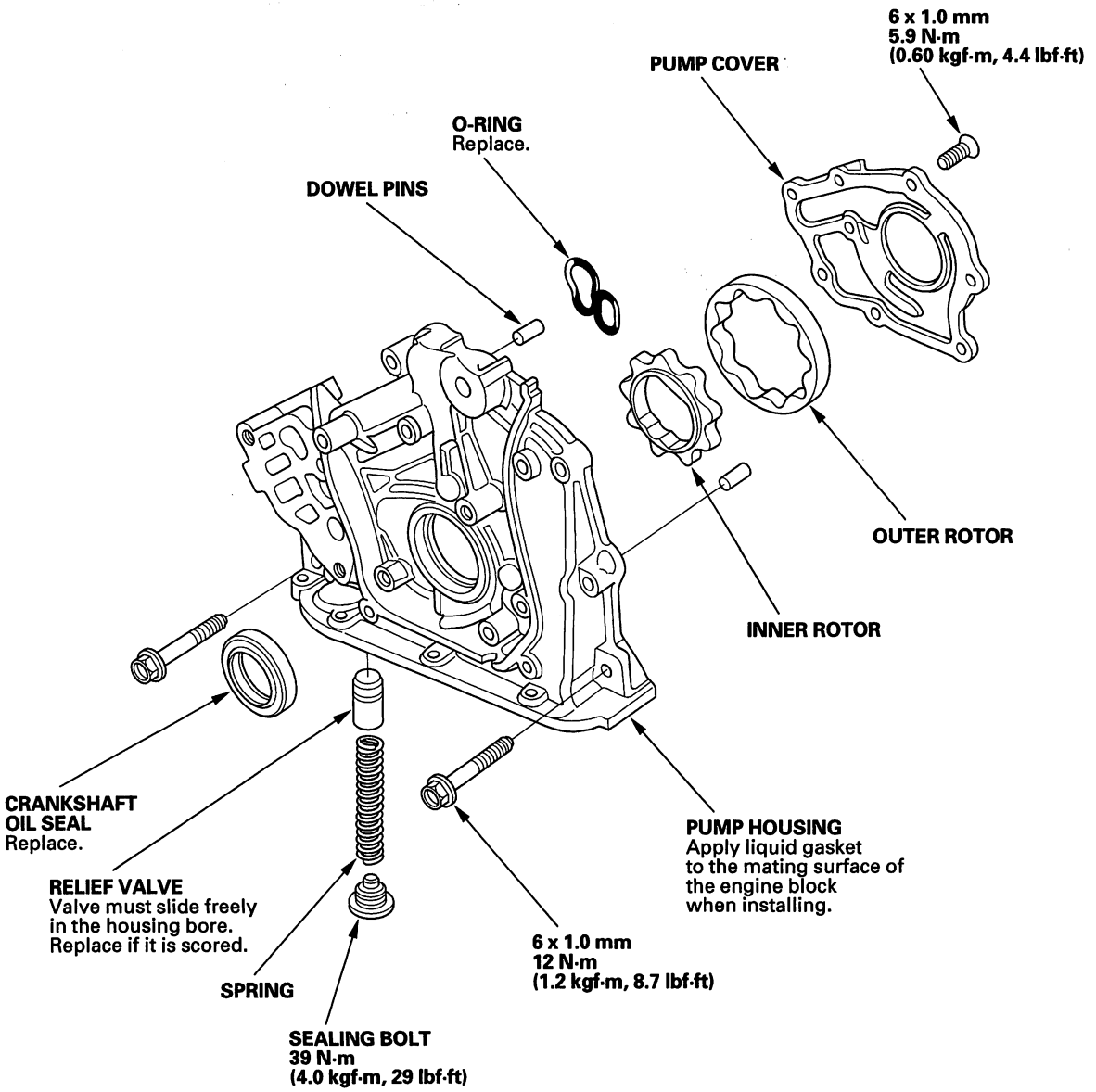
Oil Pump Overhaul

Exploded View



BACK

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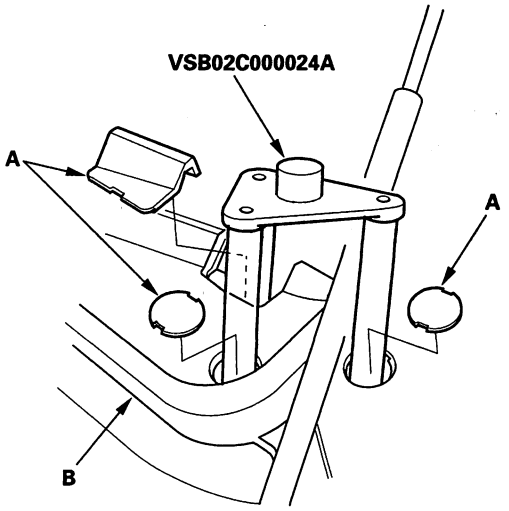
Special Tools Required
- Oil seal driver, 64 mm 070AD-RCAA100
- Engine support hanger A and Reds AAR-T-12566
- Engine hanger adapter set VSB02C000024A

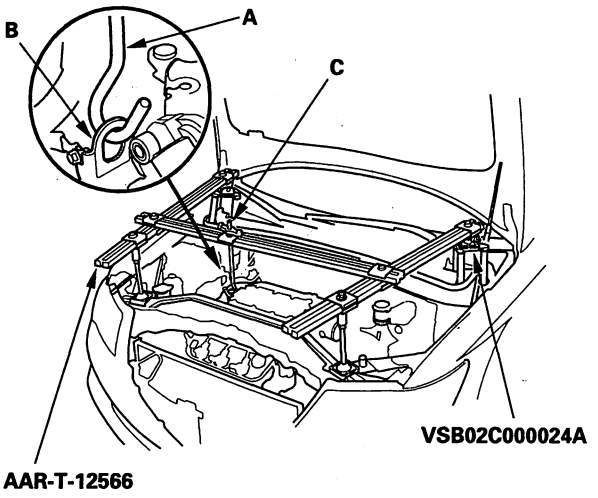
These special tools are available through the American HondaTool and Equipment program, 1-888-424-6857.

Removal

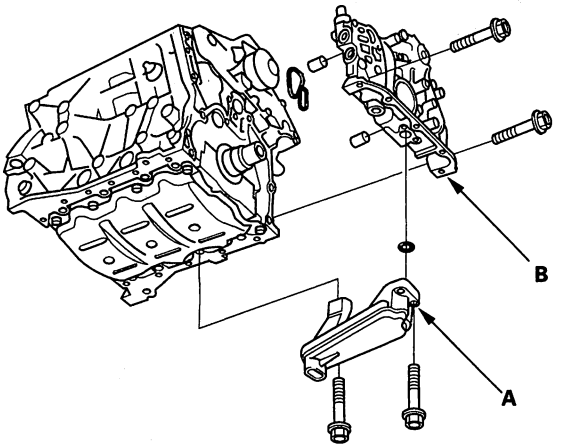
1. Remove the bulkhead cover (see page 20-203).
2. Remove the drive belt (see page 4-33).
3. Remove the power steering (P/S) pump and P/S line bracket (see step 6 on page 6-29).
4. Remove the service caps (A) for the front damper flange nuts from the cowl cover (B). Position the engine hanger adapters (VSB02C000024A) with the "FRONT" mark facing forward over the damper flange nuts.



5. Install the engine support hanger (AAR-T-12566) to the vehicle, and attach the hook (A) to the engine hanger (B). Tighten the wing nut (C) by hand, and support the engine.



6. Remove the timing belt (see page 6-13).
7. Remove the crankshaft position (CKP) sensor (see page 11-242).
8. Remove the rocker arm oil control solenoid/oil filter assembly (see step 9 on page 7-12).
9. Remove the oil pan (see page 7-11).
10. Remove the oil screen (A), then remove the oil pump (B).



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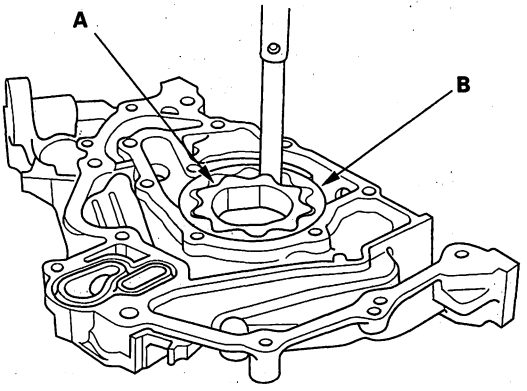
Oil Pump Overhaul (cont'd)

Inspection

1. Remove the screws from the pump housing, then separate the housing and cover.

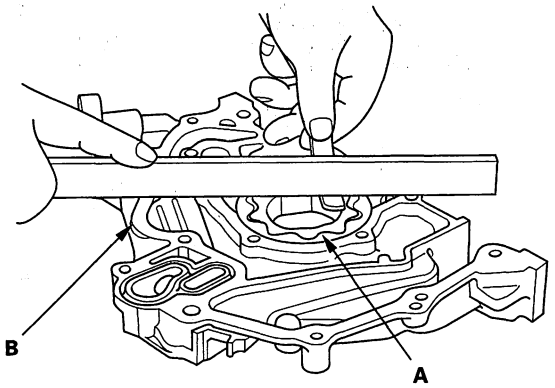
2. Check the inner-to-outer rotor radial clearance between the inner rotor (A) and outer rotor (B). If the inner-to-outer rotor clearance exceeds the service limit, replace the oil pump assembly.

Inner Rotor-to-Outer Rotor Radial Clearance
Standard (New): 0.04—0.16 mm (0.002—0.006 in.)
Service Limit: 0.20 mm (0.008 in.)



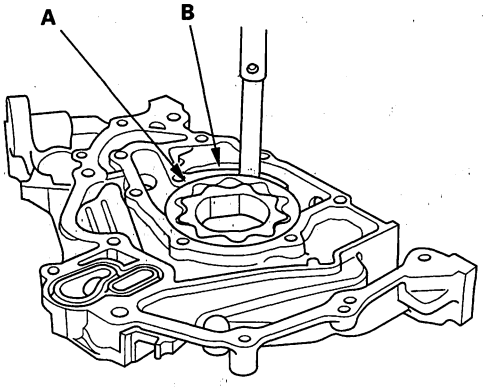
3. Check the housing-to-rotor axial clearance between the rotors (A) and pump housing (B). If the housing-to-rotor axial clearance exceeds the service limit, replace the oil pump assembly.

Housing-to-Rotor Axial Clearance
Standard (New): 0.02—0.07 mm (0.001—0.003 in.)
Service Limit: 0.12 mm (0.005 in.)



4. Check the housing-to-outer rotor radial clearance between the outer rotor (A) and pump housing (B). If the housing-to-outer rotor radial clearance exceeds the service limit, replace the oil pump assembly.

Housing-to-Outer Rotor Radial Clearance
Standard (New): 0.10—0.19 mm (0.004—0.007 in.)
Service Limit: 0.20 mm (0.008 in.)



5. Inspect both rotors and pump housing for scoring or other damage. Replace the parts, if necessary.

6. Apply liquid thread lock to the pump housing screws, then install the oil pump cover.

7. Check that the oil pump turns freely.

BACK

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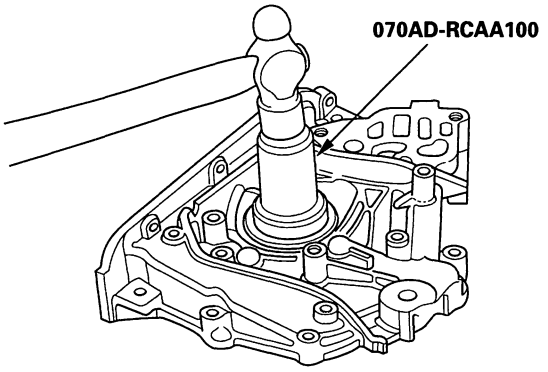
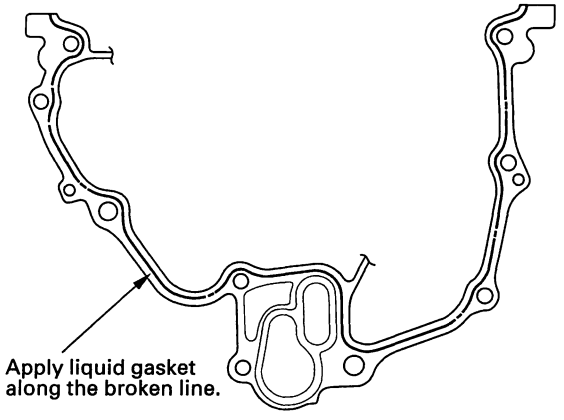
Installation

1. Remove the old oil seal from the oil pump.
2. Gently tap in the new oil seal until the oil seal driver bottoms on the pump.

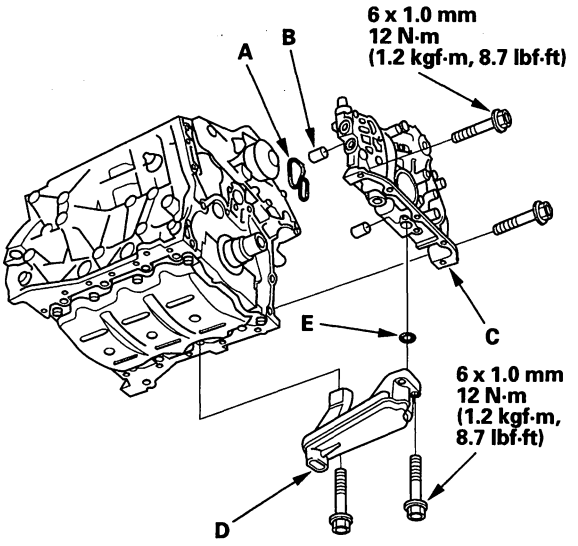


3. Remove all of the old liquid gasket from the oil pump mating surfaces, bolts, and bolt holes.
4. Clean and dry the oil pump mating surfaces.
5. Apply liquid gasket, P/N 08717-0004, 08718-0001, 08718-0003, or 08718-0009, evenly to the engine block mating surface of the oil pump. Install the component within 5 minutes of applying the liquid gasket.

   NOTE:
   - If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
   - If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.



6. Grease the lip of the oil seal, and apply oil to the new O-ring (A).



7. Install the dowel pins (B), then align the inner rotor with the crankshaft, and install the oil pump (C).
8. Clean the excess grease off the crankshaft, and check the seal for distortion.
9. Install the oil screen (D) with new O-ring (E).
10. Install the rocker arm oil control solenoid/oil filter assembly, with a new rocker arm oil control solenoid filter (see step 38 on page 7-27).
11. Install the oil pan (see page 7-28).
12. Install the crankshaft position (CKP) sensor (see page 11-242).
13. Install the timing belt (see page 6-16).
14. Remove the engine support hanger, and engine hanger adapters.
15. Install the service caps on the cowl cover.

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Oil Pump Overhaul (cont'd)

16. Install the power steering (P/S) pump and P/S line bracket (see step 27 on page 6-53).

17. Install the drive belt (see page 4-33).

18. Install the bulkhead cover (see page 20-203).

BACK

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Engine Mechanical

Intake Manifold and Exhaust System

Intake Manifold Removal and Installation 9-2
Injector Base Removal and Installation 9-7
Exhaust Pipe and Muffler Replacement 9-9

BACK

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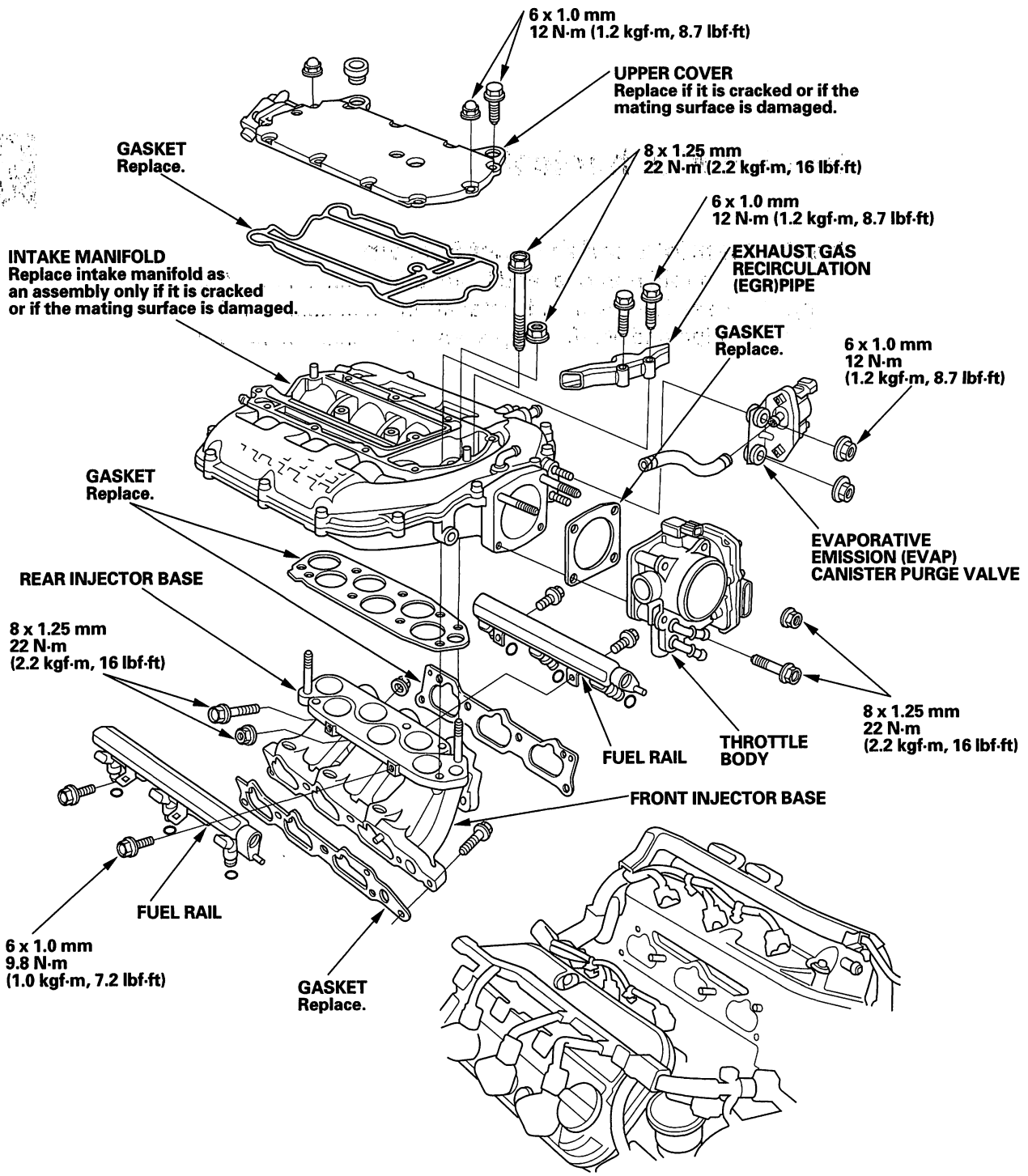
Intake Manifold and Exhaust System

Intake Manifold Removal and Installation

Exploded View



BACK

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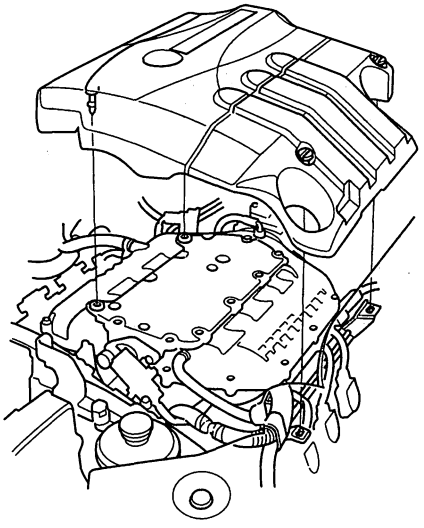
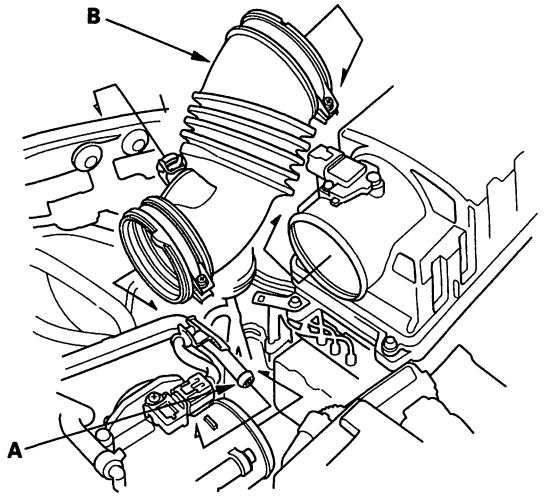
Removal

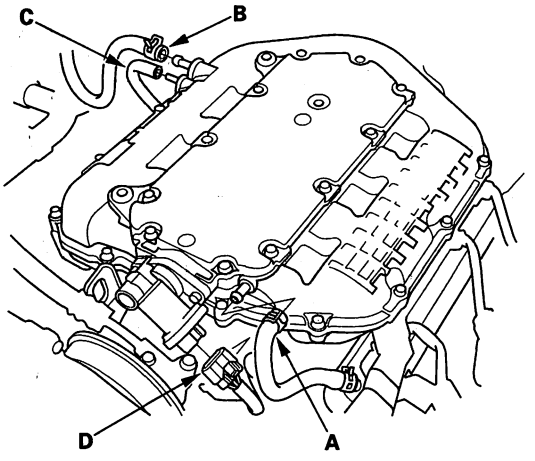
1. Remove the engine cover.



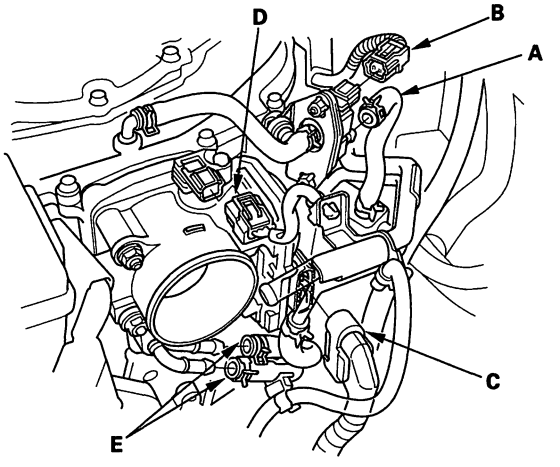
2. Remove the breather pipe (A), then remove the intake air duct (B).



3. Remove the positive crankcase ventilation (PCV) hose (A), brake booster vacuum hose (B), vacuum hose (C), and disconnect the intake manifold tuning (IMT) actuator connector (D).



4. Remove the evaporative emission (EVAP) canister hose (A), and disconnect the EVAP canister purge valve connector (B), throttle actuator connector (C), and manifold absolute pressure (MAP) sensor connector (D).



5. Remove and plug the water bypass hoses (E).

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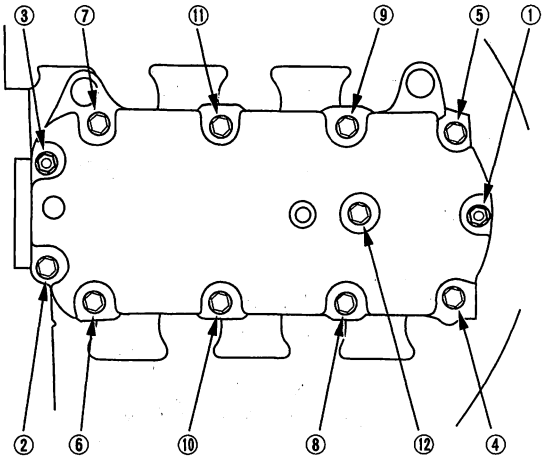
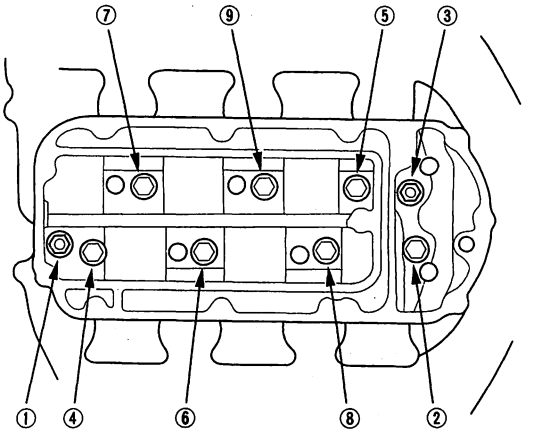
Intake Manifold Removal and Installation (cont'd)

6. Remove the upper cover mounting bolts and nuts sequentially in two or three steps, then remove the upper cover.



7. Remove the intake manifold mounting bolts and nuts sequentially in two or three steps, then remove the intake manifold.



BACK

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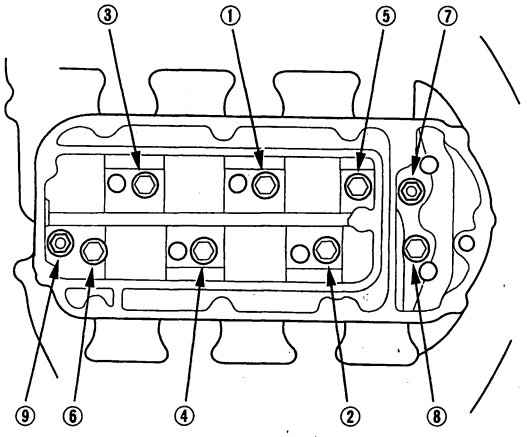
Installation

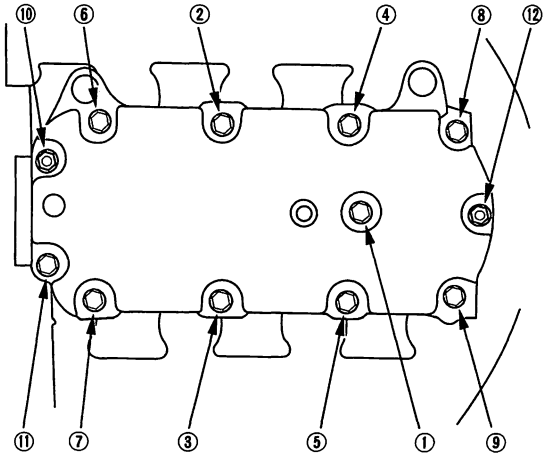
1. Install the gasket on the injector base.
2. Install the intake manifold. Tighten the bolts and nuts sequentially in two or three steps. Always use a new intake manifold gasket.

Specified Torque
8 x 1.25 mm: 22 N·m (2.2 kgf·m, 16 lbf·ft)

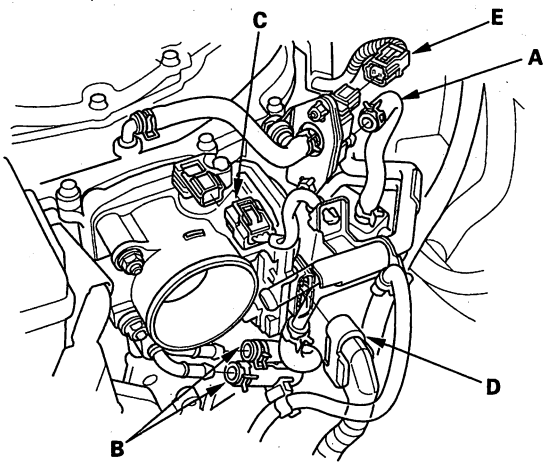


3. Install the upper cover. Tighten the bolts and nuts sequentially in two or three steps. Always use a new gasket.

Specified Torque
6 x 1.0 mm: 12 N·m (1.2 kgf·m, 8.7 lbf·ft)



4. Install the evaporative emission (EVAP) canister hose (A) and water bypass hoses (B).



5. Connect the manifold absolute pressure (MAP) sensor connector (C), throttle actuator connector (D) and EVAP canister purge valve connector (E).

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BACK

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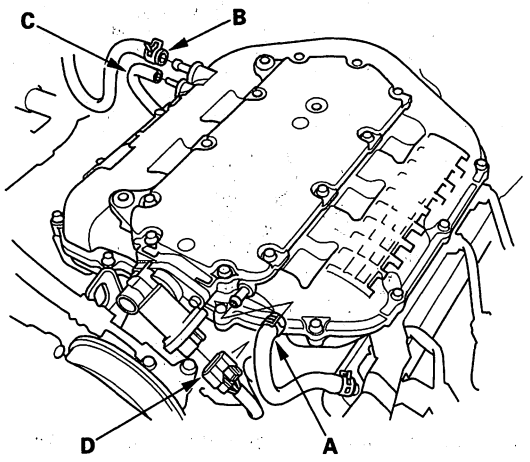
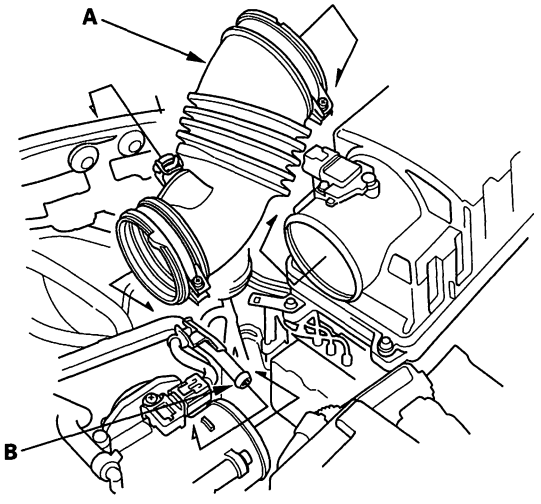
Intake Manifold Removal and Installation (cont'd)

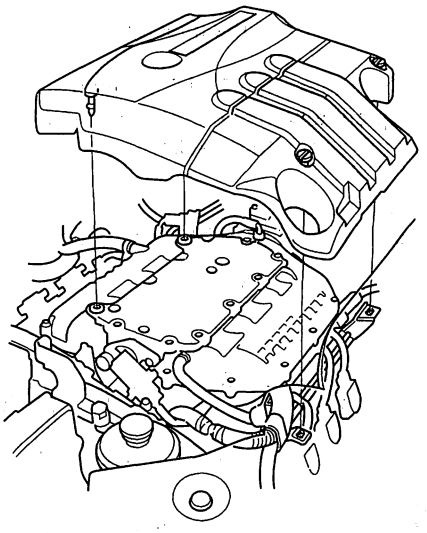
6. Install the positive crankcase ventilation (PCV) hose (A), brake booster vacuum hose (B), vacuum hose (C) and connect the intake manifold tuning (IMT) actuator connector (D).



7. Install the intake air duct (A), then install the breather pipe (B).



8. Install the engine cover.



9. Clean up any spilled engine coolant.

10. After installation, check that all tubes, hoses, and connectors are installed correctly.

11. Refill the radiator with engine coolant, and bleed air from the cooling system with heater valve open (see step 10 on page 10-7).

BACK

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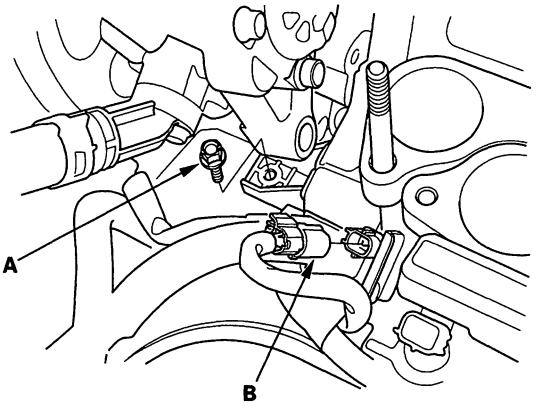
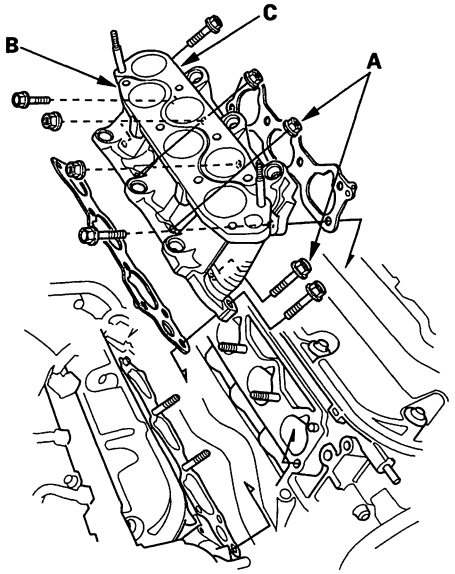
Injector Base Removal and Installation

Removal

1. Relieve the fuel pressure (see page 11-330).
2. Remove the power steering (P/S) pump and power steering line bracket (see step 6 on page 6-29).
3. Remove the intake manifold (see page 9-3).
4. Remove the injectors (see page 11-236).
5. Remove the harness bracket mount bolt (A) and the knock sensor connector (B).



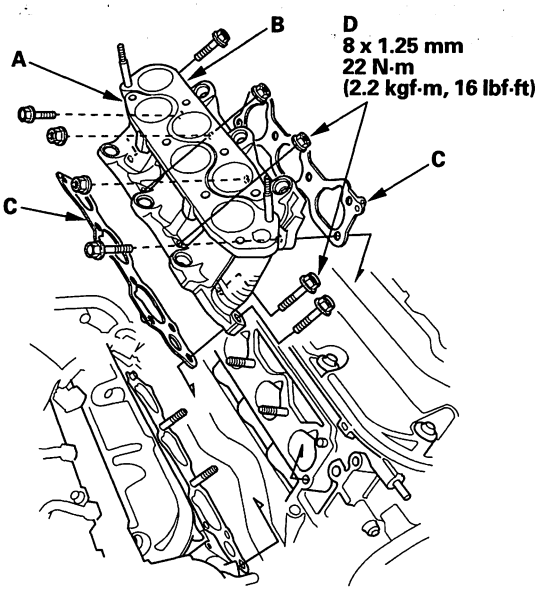
6. Remove the injector base mount bolts/nuts (A), then remove the front injector base (B) and rear injector base (C).



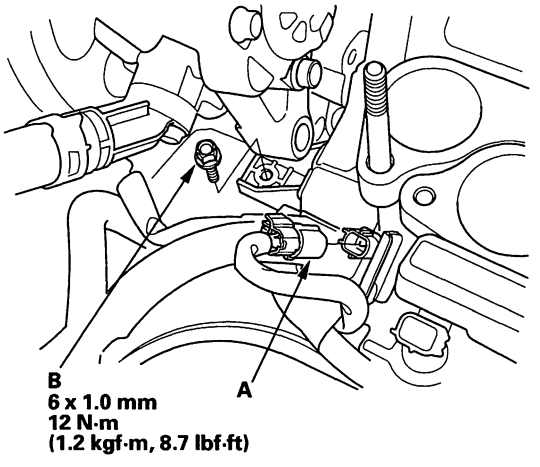
Installation

1. Install the front injector base (A) and rear injector base (B) with new gaskets (C), and tighten the bolts/nuts (D) in a crisscross pattern in two or three steps, beginning with the inner nuts.

   NOTE: Front injector base gasket is different from rear one. Do not mix injector base gasket types.



2. Install the knock sensor connector (A) and harness bracket mount bolt (B).



(cont'd)

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Injector Base Removal and Installation (cont'd)

3. Install the injectors (see page 11-236).
4. Install the intake manifold (see page 9-5).
5. Install P/S pump and P/S line bracket (see step 27 on page 6-53).
6. Turn the ignition switch ON (II), but do not operate the starter. After the fuel pump runs about 2 seconds, the fuel pressure in the fuel line rises. Repeat this two or three times, then check for fuel leaks.

BACK

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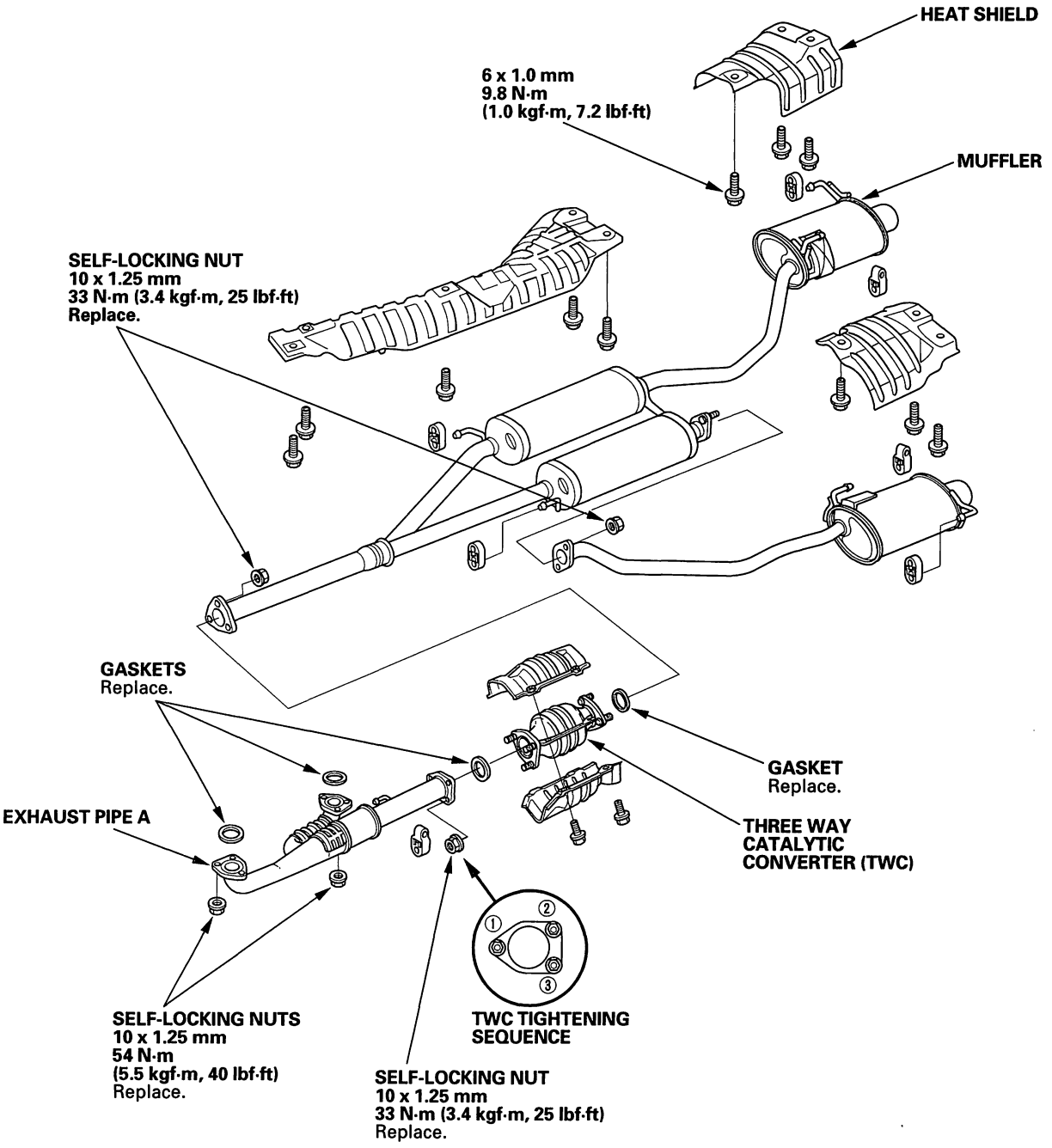
Exhaust Pipe and Muffler Replacement

NOTE: Use new gaskets and self-locking nuts when reassembling.



BACK

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Engine Cooling

Cooling System

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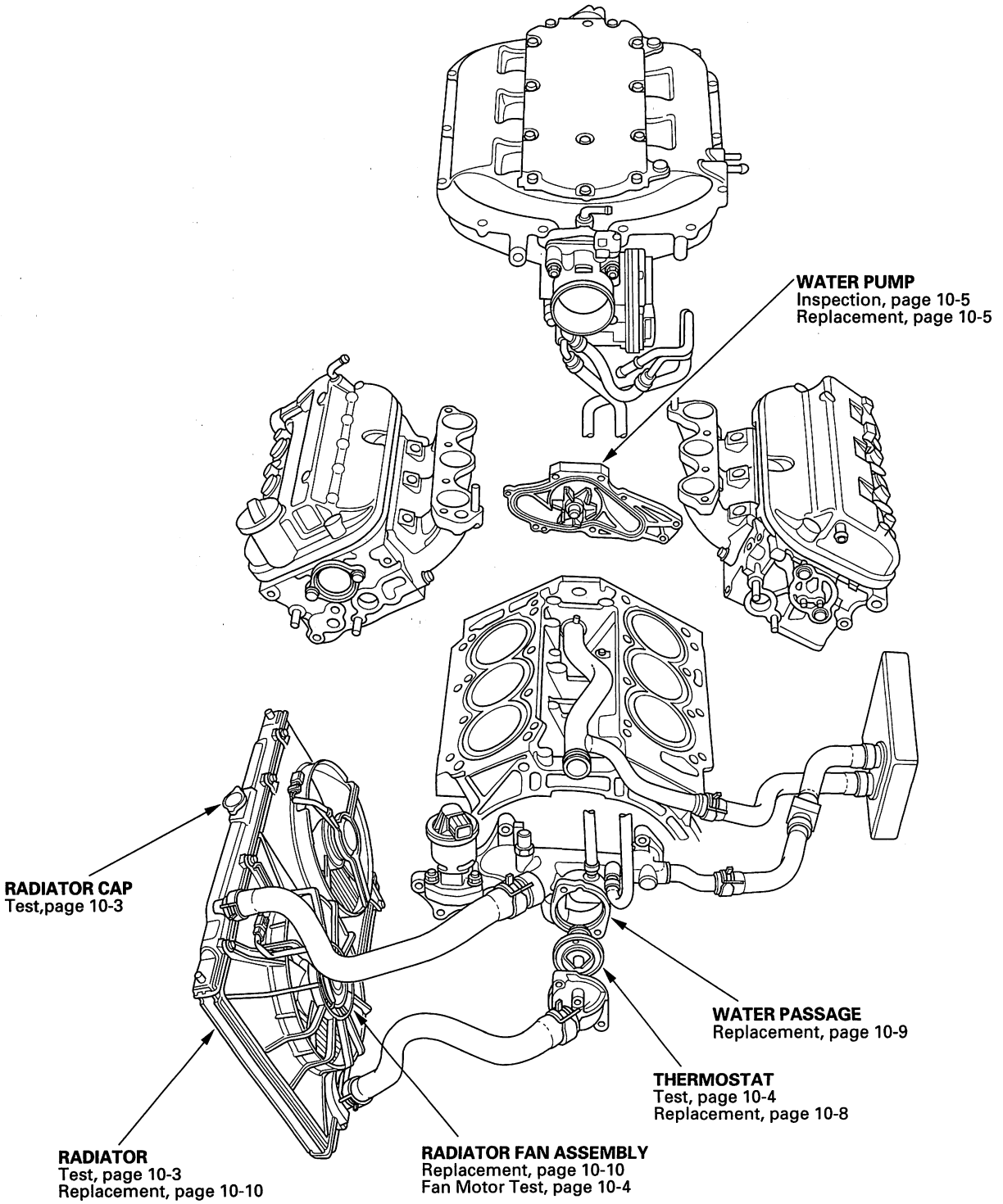
Cooling System

Component Location Index



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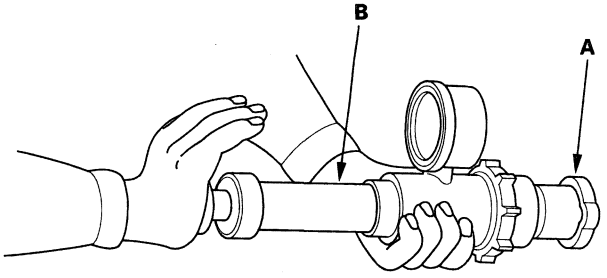
Radiator Cap Test

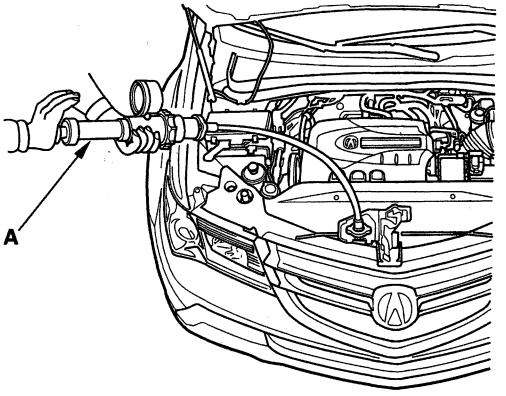
1. Remove the radiator cap (A). Wet its seal with engine coolant, then install it on a commercially available pressure tester (B).



2. Apply a pressure of 93—123 kPa (0.95—1.25 kgf/cm^2, 14—18 psi).
3. Check for a drop in pressure.
4. If the pressure drops, replace the cap.

Radiator Test

1. Wait until the engine is cool, then carefully remove the radiator cap, and fill the radiator with engine coolant to the top of the filler neck.
2. Attach a commercially available pressure tester (A) to the radiator, and apply a pressure of 93—123 kPa (0.95—1.25 kgf/cm^2, 14—18 psi).



3. Inspect for engine coolant leaks and a drop in pressure.
4. Remove the tester, then reinstall the radiator cap.

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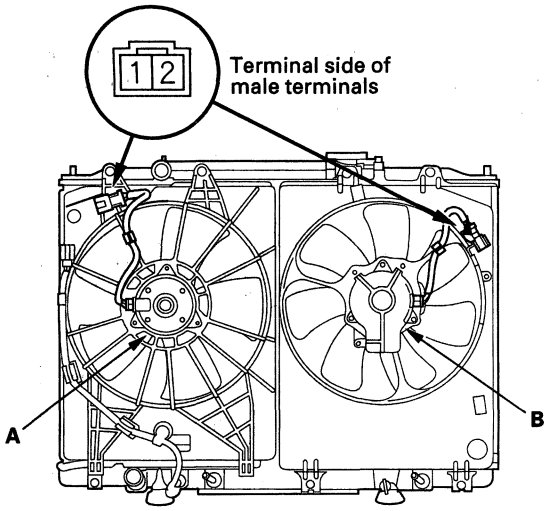
Fan Motor Test

1. Disconnect the 2P connectors from the radiator fan motor (A) and condenser fan motor (B).



2. Test each motor by connecting battery power to No. 2 terminal and ground to No. 1 terminal.

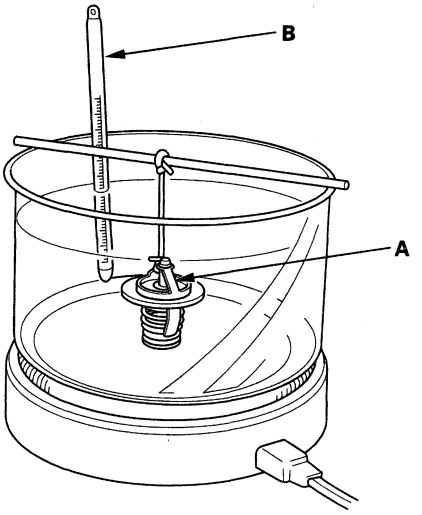
3. If either motor fails to run or does not run smoothly, replace it (see page 10-10).

Thermostat Test

Replace the thermostat if it is in the stuck open position at room temperature.

To test a closed thermostat:

1. Suspend the thermostat (A) in a container of water. Do not let the thermometer (B) touch the bottom of the hot container.



2. Heat the water and check the temperature with a thermometer. Note the temperature at which the thermostat first opens, and at which it is fully open.

3. Measure the lift height of the thermostat when it is fully open.

Standard Thermostat

Lift Height:	**Above 10.0 mm (0.39 in.)**
Starts Opening:	**169—176 °F (76—80 °C)**
Fully Open:	**194 °F (90 °C)**

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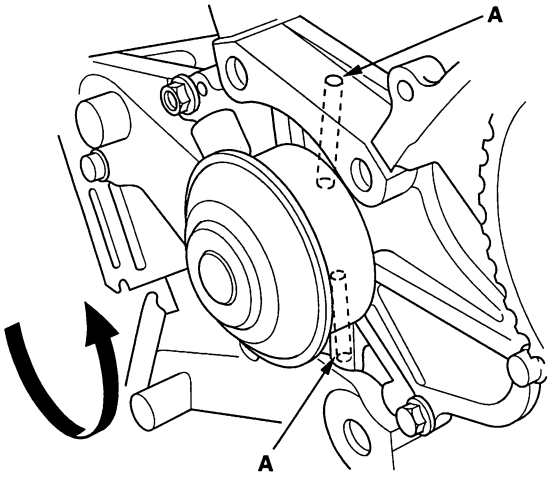
Water Pump Inspection

1. Remove the timing belt (see page 6-13).
2. Turn the water pump pulley counterclockwise. Check that it turns freely. If it doesn't turn smoothly, replace the water pump (see page 10-5).

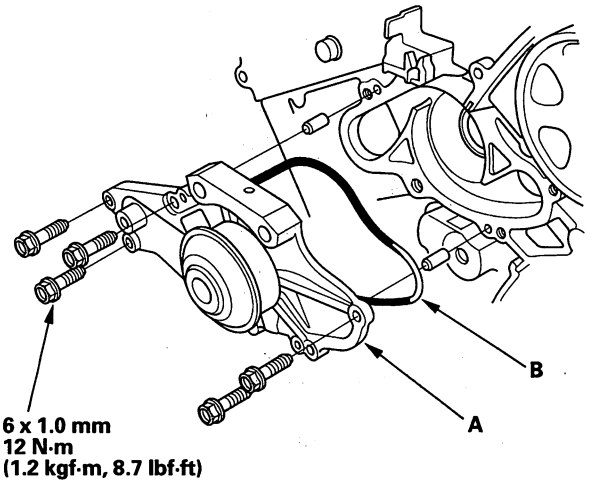
   NOTE: When you check the water pump, you may see a small amount of "weeping" from the bleed holes (A). This is normal.



3. Install the timing belt (see page 6-16).

Water Pump Replacement

1. Drain the engine coolant (see page 10-6).
2. Remove the timing belt (see page 6-13).
3. Remove the timing belt adjuster (see page 6-24).
4. Remove the water pump (A) by removing the five bolts.



5. Inspect and clean the O-ring groove and the mating surface of the engine block.
6. Install the water pump with a new O-ring (B) in the reverse order of removal.
7. Clean up any spilled engine coolant.
8. Install the timing belt adjuster (see page 6-24).
9. Install the timing belt (see page 6-16).
10. Refill the radiator with engine coolant, then bleed the air from the cooling system (see step 10 on page 10-7).

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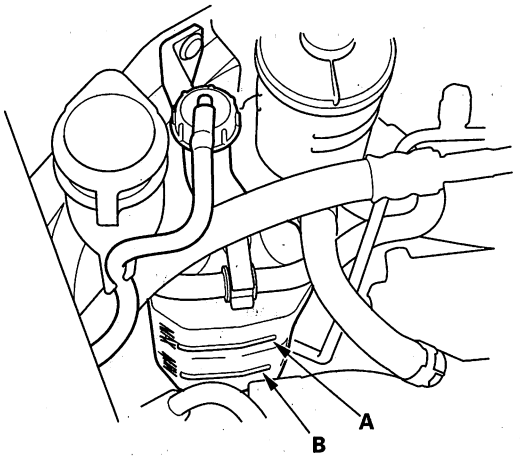
Coolant Check

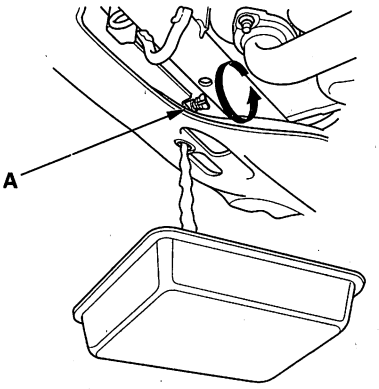
1. Look at the coolant level in the coolant reservoir. Make sure it is between the MAX mark (A) and MIN mark (B).



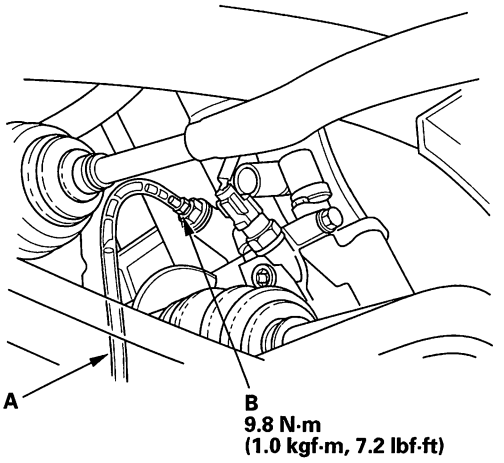
2. If the coolant level in the coolant reservoir is at or below the MIN mark, add coolant to bring it between the MIN and MAX marks, then inspect the cooling system for leaks.

Coolant Replacement

1. Start the engine. Set the heater temperature control dial to maximum heat, then turn off the ignition switch. Make sure the engine and radiator are cool to the touch.
2. Remove the radiator cap.
3. Remove the splash shield (see step 31 on page 5-5).
4. Loosen the drain plug (A), and drain the coolant.



5. Install a rubber hose (A) on the drain bolt (B) located at the rear of the engine block, then loosen the drain bolt.



6. When the coolant stops draining, tighten the drain bolt. Remove the rubber hose.
7. Tighten the radiator drain plug securely.
8. Install the splash shield (see step 33 on page 5-17).

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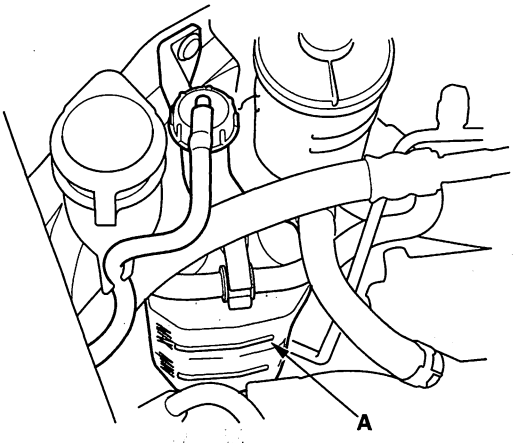
9. Remove, drain, and reinstall the coolant reservoir.

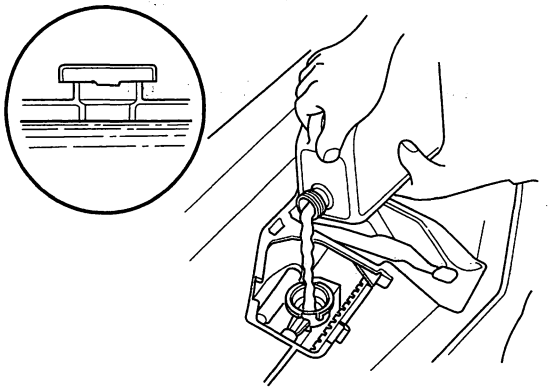
10. Fill the coolant reservoir to the MAX mark (A) with Acura Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001).



11. Pour Acura Long Life Antifreeze/Coolant Type 2 into the radiator up to the base of the filler neck.

NOTE:
- Always use Acura Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001). Using a non-Acura coolant can result in corrosion, causing the cooling system to malfunction or fail.
- Acura Long Life Antifreeze/Coolant Type 2 is a mixture of 50 % antifreeze and 50 % water. Do not add water.

Engine Coolant Capacities (Including the coolant reservoir capacity of 0.7 L (0.19 US gal)):
At Coolant Change: 7.3 L (1.93 US gal)
After Engine Overhaul: 9.2 L (2.43 US gal)



12. Loosely install the radiator cap.

13. Start the engine, and let it run until it warms up (the radiator fan comes on at least twice).

14. If the maintenance minder required to replace the engine coolant, reset the maintenance minder (see page 3-6), and this procedure is complete. If the maintenance minder did not require to replace the engine coolant, go to step 13.

15. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).

16. Turn the ignition switch ON (II).

17. Make sure the HDS communicates with the vehicle and the powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit (see page 11-223).

18. Select BODY ELECTRICAL with the HDS.

19. Select ADJUSTMENT in the GAUGES MENU with the HDS.

20. Select RESET in the MAINTENANCE MINDER with the HDS.

21. Select MAINTENANCE SUB ITEM 5 RESET with the HDS.

22. Turn off the engine. Check the level in the radiator, and add Acura Long Life Antifreeze/Coolant Type 2, if needed.

23. Put the radiator cap on tightly, then run the engine again, and check for leaks.

24. Clean up any spilled engine coolant.

25. Reset the multi-information display (see page 3-6).

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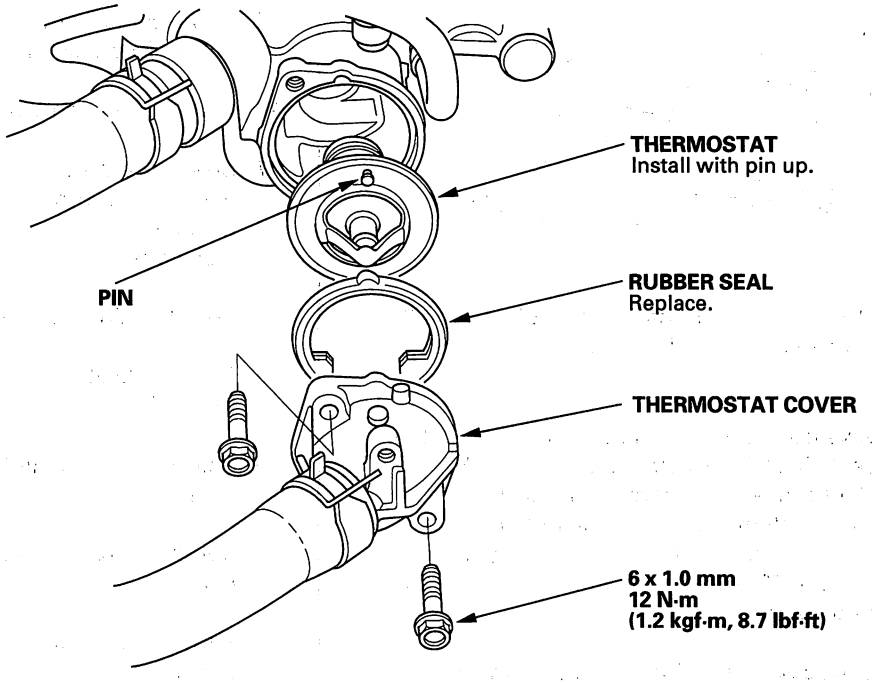
Thermostat Replacement

1. Make sure you have the anti-theft codes for the audio system and navigation system (if equipped). Make sure the ignition switch is OFF.
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.
3. Remove the air intake duct (see step 9 on page 5-2).
4. Drain the engine coolant (see page 10-6).
5. Remove the thermostat cover, then remove the thermostat.



6. Install the new thermostat with a new rubber seal in the reverse order of removal.
7. Install the battery. Clean the battery posts and cable terminals with sandpaper, then assemble them and apply grease to prevent corrosion.
8. Refill the radiator with engine coolant, then bleed air from the cooling system (see step 10 on page 10-7).
9. Clean up any spilled engine coolant.
10. Do the steering column position memorization (see page 17-28).
11. Enter the anti-theft codes for the audio system and the navigation system (if equipped).
12. Set the clock.

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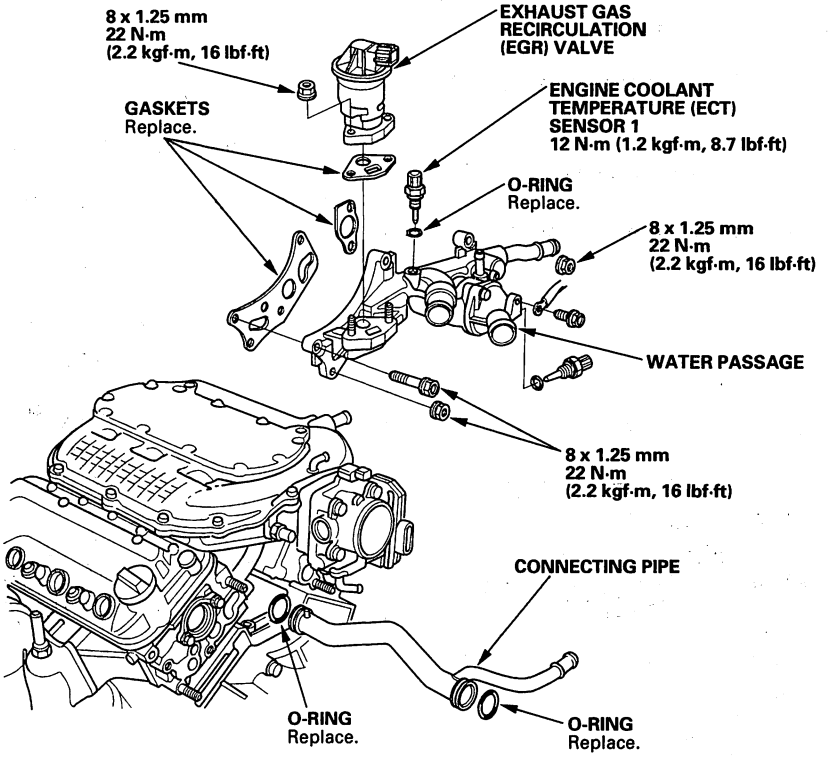
Water Passage Replacement

1. Make sure you have the anti-theft codes for the audio system and navigation system (if equipped). Make sure the ignition switch is OFF.
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.
3. Remove the air intake duct (see step 9 on page 5-2).
4. Drain the engine coolant (see page 10-6).
5. Remove the upper radiator hose, lower radiator hose, heater hoses, and water bypass hoses from the water passage. Disconnect engine coolant temperature (ECT) sensor 1 connector and the exhaust gas recirculation (EGR) valve connector.
6. Remove the water passage.



7. Install the water passage in the reverse order of removal.
8. Install the battery. Clean the battery posts and cable terminals with sandpaper, then assemble them and apply grease to prevent corrosion.
9. Refill the radiator with engine coolant, then bleed air from the cooling system (see step 10 on page 10-7).
10. Clean up any spilled engine coolant.
11. Do the steering column position memorization (see page 17-28).
12. Enter the anti-theft codes for the audio system and navigation system (if equipped).
13. Set the clock.

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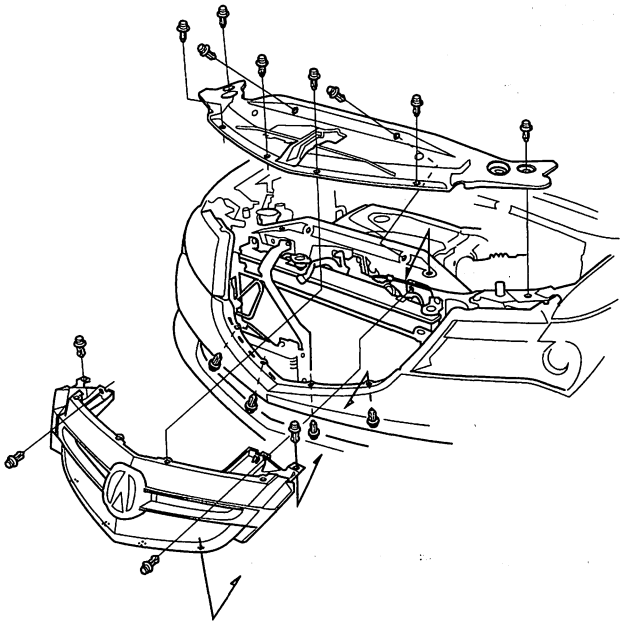
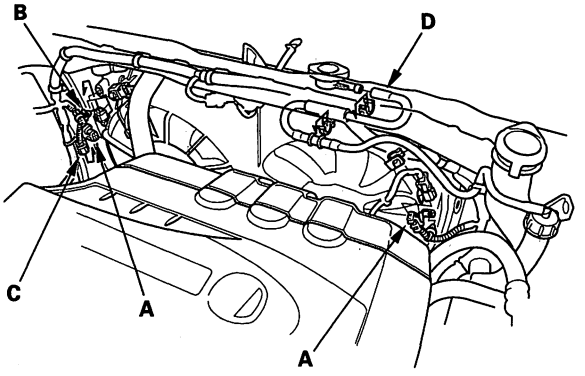
Radiator and Fan Replacement

NOTE:
- Use fender covers to avoid damaging painted surfaces.
- To avoid damaging the wire and terminals, unplug the wiring connectors carefully while holding the connector portion.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact any other wiring or hoses, or interfere with any other parts.

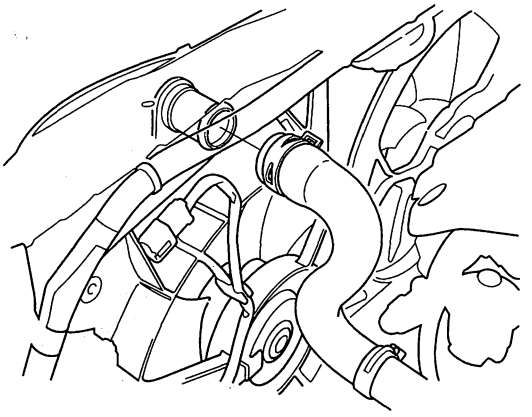
1. Make sure you have the anti-theft codes for the audio system and navigation system (if equipped). Make sure the ignition switch is OFF.
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.
3. Remove the battery and battery base (see step 12 on page 5-3).
4. Remove the air cleaner assembly (see page 11-363).
5. Remove the front grille cover, then remove the front grille.



6. Disconnect the fan motor connectors (A), harness clamp (B), engine coolant temperature (ECT) sensor 2 subharness connector (C) and coolant reservoir hose (D).



7. Drain the engine coolant (see page 10-6).
8. Remove the upper radiator hose.



BACK

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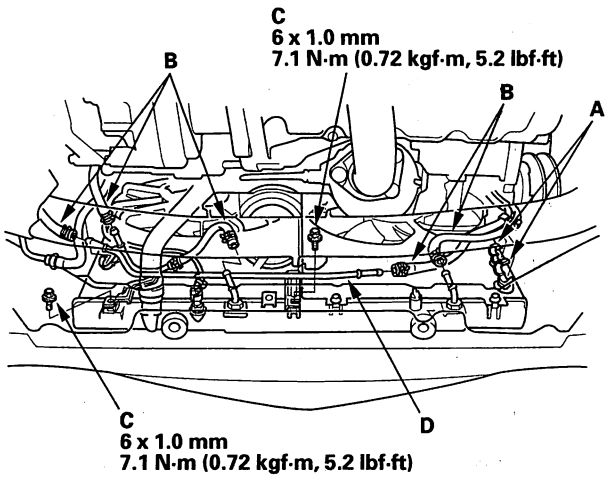
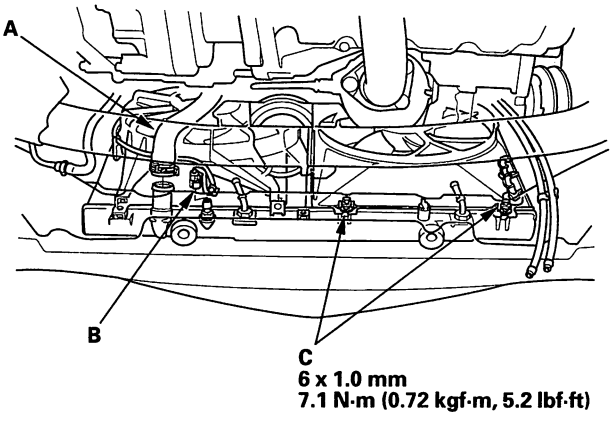
9. Disconnect the hose clamps (A) and remove the ATF cooler hoses (B), then plug the line and hoses.

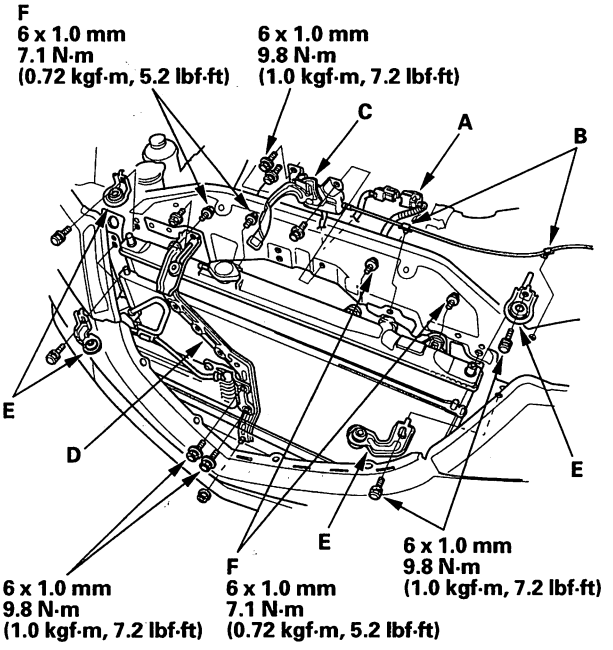


10. Remove the ATF cooler pipe mount bolts (C), then remove the ATF cooler pipe (D).

11. Remove the lower radiator hose (A) and disconnect the ECT sensor 2 connector (B) and loosen the two bolts (C).



12. Disconnect the hood latch switch connector (A), clamps (B), then remove the hood latch (C).



13. Remove the bulkhead bracket (D), and radiator and A/C condenser mount upper bracket/cushion (E), then remove the fan shroud mount bolts (F).

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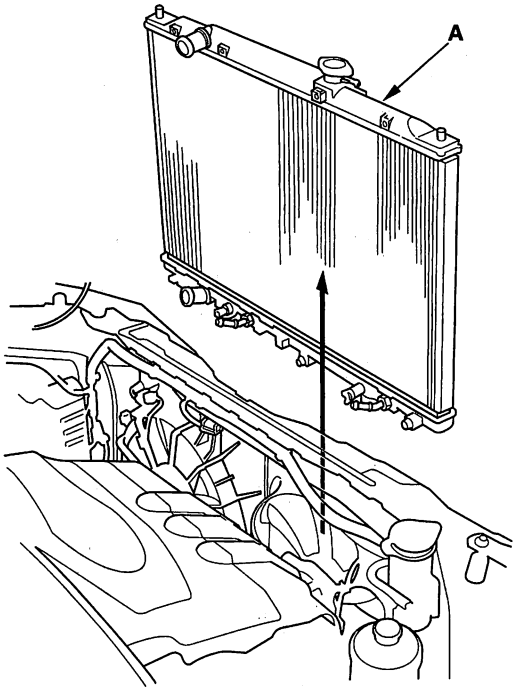
Radiator and Fan Replacement (cont'd)

14. Displace the fan shrouds to the engine side, then pull up the radiator assembly (A).



15. Remove the fan shroud assembly.
16. Install the radiator and fans in the reverse order of removal.
17. Install the bulkhead bracket in the reverse order of removal. Apply body paint to the bulkhead bracket mounting bolts.
18. Set the upper and lower cushions securely.
19. Fill the radiator with engine coolant and bleed the air from the system (see step 10 on page 10-7).
20. Fill the transmission with ATF (see page 14-266).
21. Adjust the engine hood latch (see page 20-194).
22. Install the battery. Clean the battery posts and cable terminals with sandpaper, then assemble them and apply grease to prevent corrosion.
23. Do the steering column position memorization (see page 17-28).
24. Enter the anti-theft codes for the audio system and navigation system (if equipped).
25. Set the clock.

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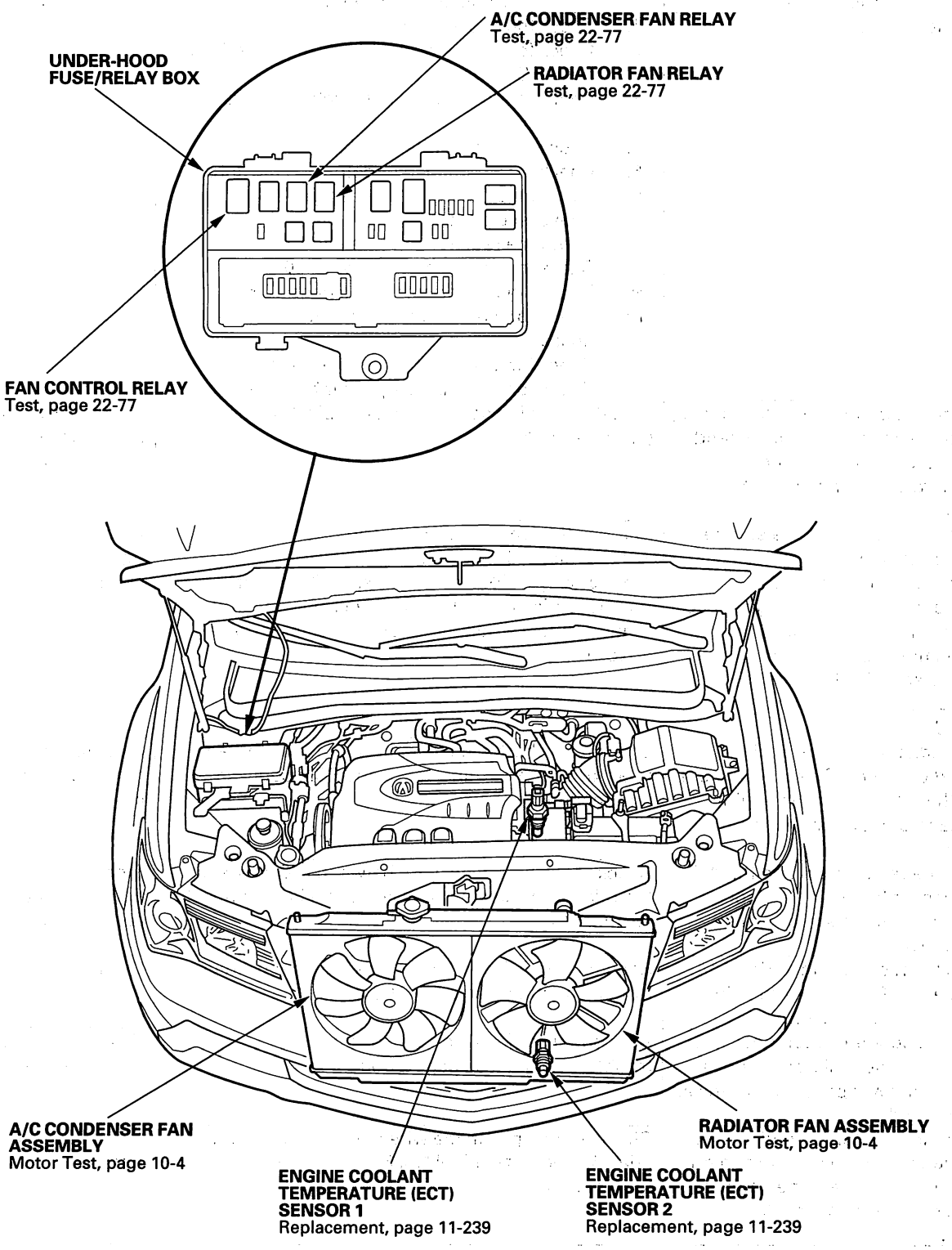
Fan Controls

Component Location Index



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Symptom Troubleshooting Index

Symptom	Diagnostic Procedure	Also check for
Engine overheats	1. Check the coolant level. 2. Check for engine coolant leaks (from gaskets, hoses, O-rings, etc.). 3. Check for dirt, leaves, or insects on the radiator and condenser. 4. Check for deteriorated coolant. 5. Check for a damaged or deformed fan shroud. 6. Inspect the fan motors (see page 10-4) or fan relays (see page 22-77). 7. Check the radiator cap (see page 10-3). 8. Check the thermostat (see page 10-4). 9. Inspect the water pump (see page 10-5). 10. Check for clogged or deteriorated radiator hoses. 11. Check for a clogged heater core or hoses. 12. Check for a damaged cylinder head gasket.	
The radiator fan runs at low speed, but it does not run at high speed when the engine coolant temperature is above 206 °F (97 °C)	Radiator fan high speed circuit troubleshooting (see page 10-16).	Cleanliness and tightness of all connectors
With the A/C off and the engine coolant temperature at 206 °F (97 °C) or below, the A/C condenser fan runs at high speed and the radiator fan does not run. When the engine coolant temperature is above 206 °F (97 °C), both fans run at high speed	Remove the fan control relay, and test. • If the relay is faulty, replace it. • If the relay is OK, check for a short in the wire between fan control relay 5P socket terminal No. 1 and condenser fan motor 2P connector terminal No. 1.	Cleanliness and tightness of all connectors
The radiator fan runs at high speed with the ignition switch ON (II), the A/C off, and the engine coolant temperature below 204 °F (95 °C)	Check for a short in the wire between radiator fan relay 4P socket terminal No. 3 and PCM connector terminal A5.	Cleanliness and tightness of all connectors
Both the radiator fan and the A/C condenser fan run at low speed with the ignition switch ON (II) and the A/C off	Check for a short in the wire between A/C condenser fan relay 4P socket terminal No. 3 and PCM connector terminal A4.	Cleanliness and tightness of all connectors
Both the radiator fan and the A/C condenser fan do not run at low speed with the A/C on	Radiator and A/C condenser fans low speed circuit troubleshooting (see page 21-94).	Cleanliness and tightness of all connectors
The A/C condenser fan does not run at all. The radiator fan does not run at low speed, but it runs at high speed	A/C condenser fans high speed circuit troubleshooting (see page 21-98).	Cleanliness and tightness of all connectors
Both the radiator fan and the A/C condenser fan do not run at high speed when the engine coolant temperature is above 206 °F (97 °C)	Check for an open in the wire between radiator fan relay 4P socket terminal No. 3 and PCM connector terminal A5.	Cleanliness and tightness of all connectors

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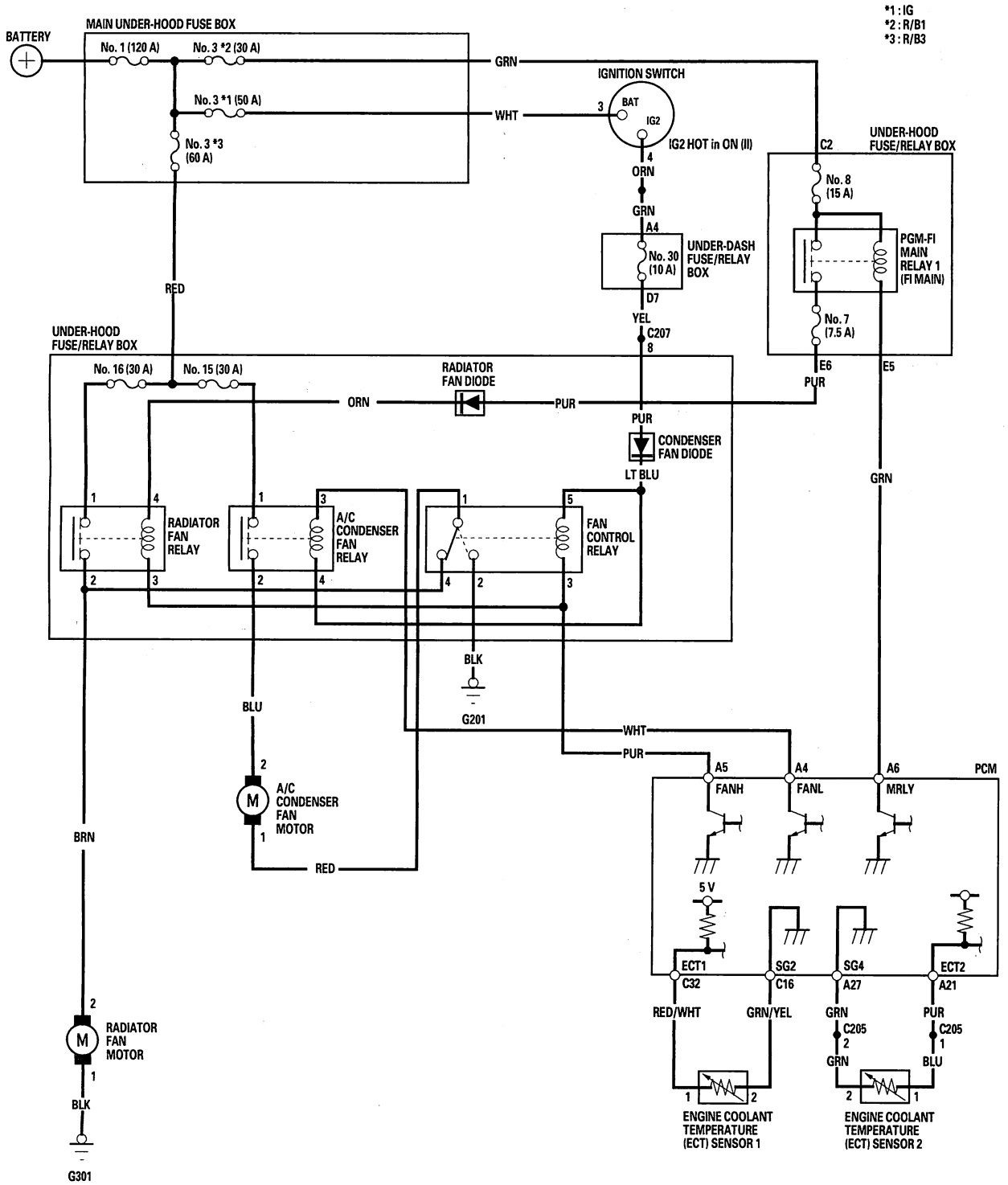
Circuit Diagram



BACK

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Radiator Fan High Speed Circuit Troubleshooting

1. Check the No. 7 (7.5 A), No. 8 (15 A) and No. 16 (30 A) fuse in the under-hood fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

   NO—Replace the fuse(s) and recheck.■

2. Remove the radiator fan relay from the under-hood fuse/relay box and test it (see page 22-77).

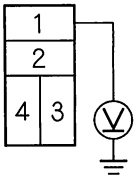
   Is the relay OK?

   YES—Go to step 3.

   NO—Replace the radiator fan relay.■

3. Measure the voltage between radiator fan relay 4P socket terminal No. 1 and body ground.

   RADIATOR FAN RELAY 4P SOCKET



   Terminal side of female terminals

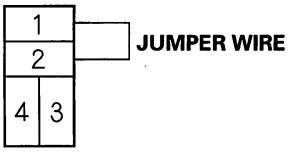
   Is there battery voltage?

   YES—Go to step 4.

   NO—Repair open in the RED wire between radiator fan relay 4P socket terminal No. 1 and the No. 3 fuse in the main under-hood fuse box.■

4. Connect radiator fan relay 4P socket terminals No. 1 and No. 2 with a jumper wire.

   RADIATOR FAN RELAY 4P SOCKET



   Terminal side of female terminals

   Does the radiator fan run at high speed?

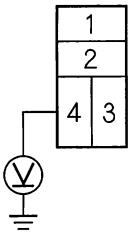
   YES—Go to step 5.

   NO—Repair open in the BRN wire between radiator fan relay 4P socket terminal No. 2 and radiator fan motor 2P connector terminal No. 2.■

5. Turn the ignition switch ON (II).

6. Measure the voltage between radiator fan relay 4P socket terminal No. 4 and body ground.

   RADIATOR FAN RELAY 4P SOCKET



   Terminal side of female terminals

   Is there battery voltage?

   YES—Repair open in the PUR wire between radiator fan relay 4P socket terminal No. 3 and the powertrain control module (PCM) (A5).■

   NO—Repair open in the PUR wire between radiator fan relay 4P socket terminal No. 4 and the under-hood fuse/relay box.■

BACK

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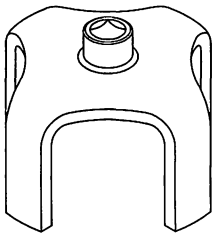
Special Tools

Ref. No.	Tool Number	Description	Qty
①	07AAA-S0XA100	Fuel Sender Wrench	1
②	07AAJ-S6MA150	Fuel Pressure Gauge Attachment Set	1
③	07JAZ-001000B	Vacuum/Pressure Gauge, 0—4 in.Hg	1
④	07NAJ-P07010A	Pressure Gauge Adapter	1
⑤	07ZAJ-S5AA200	Oil Pressure Hose	1
⑥-1	07406-0020201	A/T Pressure Hose	1
⑥-2	07406-0070301	A/T Low Pressure Gauge W/Panel	1
⑥-3	07MAJ-PY4011A	A/T Pressure Hose, 2,210 mm	1
⑥-4	07MAJ-PY40120	A/T Pressure Hose, Adapter	1
⑦	07406-004000B	Fuel Pressure Gauge	1



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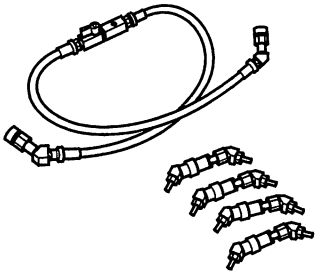

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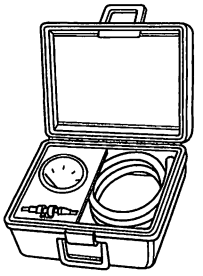

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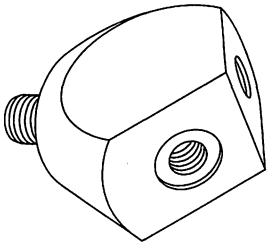

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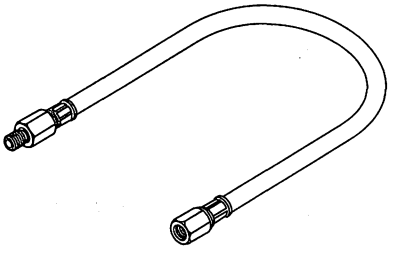

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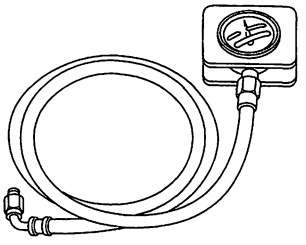

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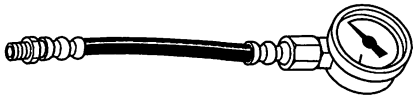


⑦

BACK

Protected by AR

General Troubleshooting Information

Intermittent Failures

The term "intermittent failure" means a system may have had a failure, but it checks OK now. If the malfunction indicator lamp (MIL) on the dash does not come on, check for poor connections or loose pins at all connectors related to the circuit that you are troubleshooting. If the MIL was on but then went out, the original problem may have been intermittent.

Service Information

Some DTCs or symptoms can be caused by a combination of PCM software and specific driving habits. Periodically, new PCM software or new service procedures may become available. Always check online for the latest software or service information related to the DTCs or symptoms you are troubleshooting.

Opens and Shorts

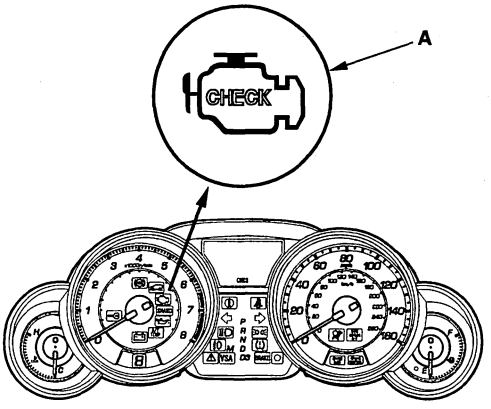
"Open" and "short" are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple electronics, this usually means something won't work at all. With complex electronics (such as PCMs) this can sometimes mean something works, but not the way it's supposed to.

How to Use the HDS (Honda Diagnostic System)

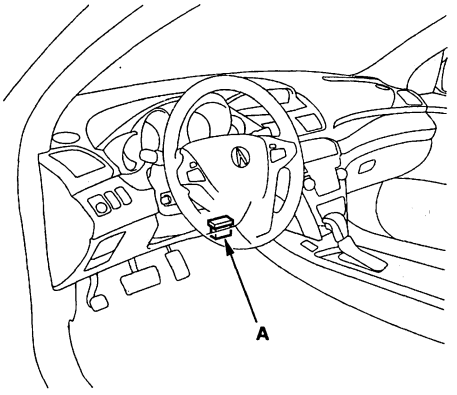
If the MIL (malfunction indicator lamp) has come on

1. Start the engine, and check the MIL (A).

   NOTE: If the ignition switch is turned ON (II), and the engine is not started, the MIL stays on for 15—20 seconds (see page 11-66).



2. If the MIL stays on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Turn the ignition switch ON (II).

4. Make sure the HDS communicates with the PCM and other vehicle systems. If it does not, go to DLC Circuit Troubleshooting (see page 11-223).

5. Check the diagnostic trouble code (DTC) and note it. Also check the freeze data and/or on-board snapshot data, and download any data found. Then refer to the indicated DTC's troubleshooting, and begin the appropriate troubleshooting procedure.

   NOTE:
   - Freeze data indicates the engine conditions when the first malfunction, misfire, or fuel trim malfunction was detected.
   - The HDS can read the DTCs, freeze data, on-board snapshot, current data, and other powertrain control module (PCM) data.
   - For specific operations, refer to the user's manual that came with the HDS.

6. If no DTCs are found, go to MIL circuit troubleshooting (see page 11-222).

If the MIL did not stay on
If the MIL did not stay on but there is a driveability problem, do the symptom troubleshooting.

If you can't duplicate the DTC
Some of the troubleshooting requires you to reset the PCM and try to duplicate the DTC. If the problem is intermittent and you can't duplicate the code, do not continue through the procedure. To do so will only result in confusion and possibly, a needlessly replaced PCM.

(cont'd)

Protected by AR

General Troubleshooting Information (cont'd)

HDS Clear Command

The PCM stores various specific data to correct the system even if there is no electrical power such as when the battery negative terminal or No. 8 IGP (15 A) fuse are disconnected. Stored data based on failed parts should be cleared by using the "CLEAR COMMAND" of the HDS, if parts are replaced.

The HDS has three kinds of clear commands to meet this purpose. They are DTC clear, PCM reset, and CKP pattern clear. DTC clear command erases all stored DTC codes, freeze data, on-board snapshot, and readiness codes. This must be done with the HDS after reproducing the DTC during troubleshooting.
The PCM reset command erases all stored DTC codes, freeze data, on-board snapshot, readiness codes, and all specific data to correct the system except CKP pattern. If the CKP pattern data in the PCM was cleared, you must do the CKP pattern learn procedure. The CKP pattern clear command erases only CKP pattern data. This command is for repair of a misfire or the CKP sensor.

Scan Tool Clear Command

If you are using a generic scan tool to clear commands, be aware that there is only one setting for clearing the PCM, and it clears all commands at the same time (CKP pattern learn, idle learn, readiness codes, freeze data, on-board snapshot, and DTCs). After you clear all commands, you then need to do these procedures, in this order: PCM idle learn procedure (see page 11-311); CKP pattern learn procedure;
Test-drive to set readiness codes to complete (see page 11-66).

DTC Clear

1. Clear the DTC with the HDS while the engine is stopped.
2. Turn the ignition switch OFF.
3. Turn the ignition switch ON (II), and wait for 30 seconds.
4. Turn the ignition switch OFF, and disconnect the HDS from the DLC.

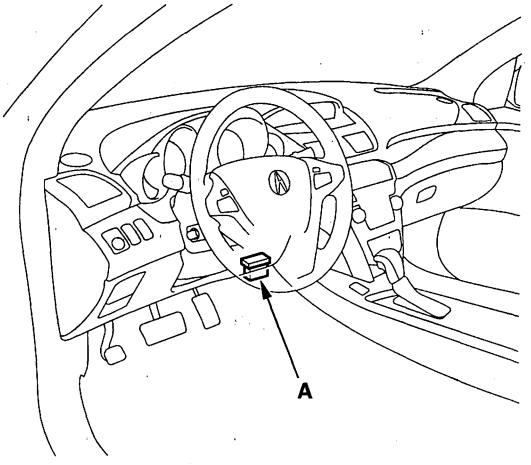
PCM Reset

1. Reset the PCM with the HDS while the engine is stopped.
2. Turn the ignition switch OFF.
3. Turn the ignition switch ON (II), and wait for 30 seconds.
4. Turn the ignition switch OFF, and disconnect the HDS from the DLC.
5. Do the PCM idle learn procedure (see page 11-311).

Crank (CKP) Pattern Clear/Crank (CKP) Pattern Learn

Clear/Learn Procedure (with the HDS)

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the PCM and other vehicle systems. If it does not, go to the DLC circuit troubleshooting (see page 11-223).
4. Select CRANK PATTERN in the ADJUSTMENT MENU with the HDS.
5. Select CRANK PATTERN LEARNING with the HDS, and follow the screen prompts.

BACK

Protected by AR

Learn Procedure (without the HDS)

1. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on.
2. Test-drive the vehicle on a level road: Decelerate (with the throttle fully closed) from an engine speed of 2,500 rpm down to 1,000 rpm with the transmission in D position.
3. Test-drive the vehicle on a level road: Decelerate (with the throttle fully closed) from an engine speed of 5,000 rpm down to 3,000 rpm with the transmission in D position.
4. Repeat step 2 and 3 several times.
5. Turn the ignition switch OFF.
6. Turn the ignition switch ON (II), and wait for 30 seconds.

How to End a Troubleshooting Session (required after any troubleshooting)

1. Reset the PCM with the HDS.
2. Do the PCM idle learn procedure (see page 11-311).
3. Turn the ignition switch OFF.
4. Disconnect the HDS from the DLC.

   NOTE: The PCM is part of the immobilizer system. If you replace the PCM, it will have a different immobilizer code. In order for the engine to start, you must rewrite the immobilizer code with the HDS.

(cont'd)

Protected by AR

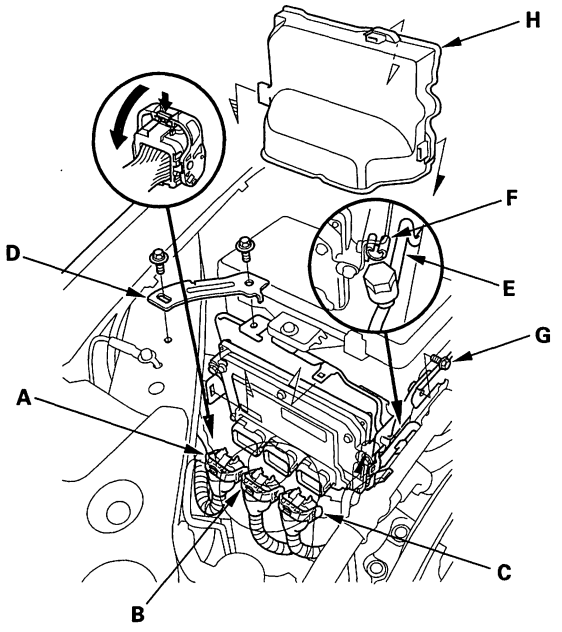
General Troubleshooting Information (cont'd)

How to Troubleshoot Circuits at the PCM Connectors

NOTE:
- The PCM overwrites data and monitors the EVAP system for up to 15 minutes after the ignition switch is turned OFF. Jumping the SCS line after turning the ignition switch OFF cancels this function. Disconnecting the PCM during this function, without jumping the SCS line first, can damage the PCM.
- PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embosed on them for identification.

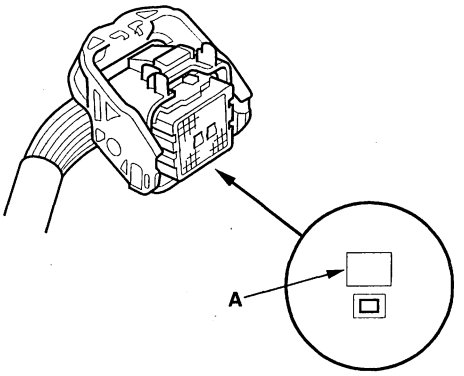
1. Jump the SCS line with the HDS.

2. Remove the bracket (D), then free the A/C discharge line (E) from the clip (F) and remove the A/C suction line mounting bracket bolt (G).

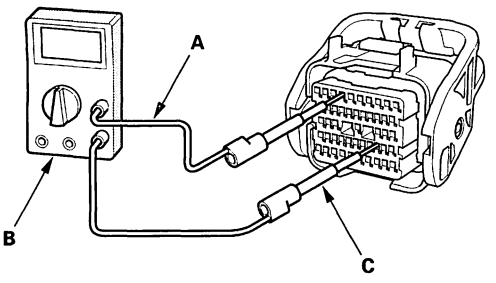


3. Remove the cover (H), then disconnect the PCM connector A, B, and C.

4. When diagnosis/troubleshooting is made at the PCM connector, use the measurement hole (A) above the terminal you need to check.



5. Connect one side of the patch cord (A) terminals to a commercially available digital multimeter (B), and connect the other side of the patch cord terminals to a commercially available banana jack (Pomona Electronics Tool No. 3563 or equivalent) (C).



6. Gently contact the pin probe (male) at the terminal test port from the terminal side. Do not force the tips into the terminals.

NOTICE
- For accurate results, always use the pin probe (male).
- To prevent damage to the connector terminals, do not insert test equipment probes, paper clips, or other substitutes as they can damage the terminals. Damaged terminals cause a poor connection and an incorrect measurement.
- Do not puncture the insulation on a wire. Punctures can cause poor or intermittent electrical connections.

BACK

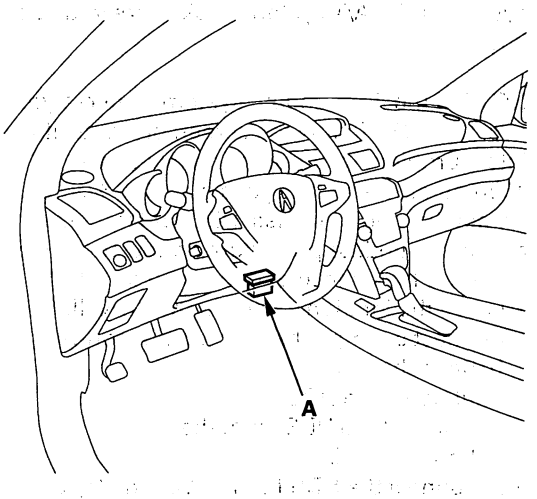
Protected by AR

Updating the PCM

Special Tools Required
- Honda diagnostic system (HDS)
- Honda interface module (HIM)
- HDS pocket tester

NOTE:
- Use this procedure when you need to update the PCM during troubleshooting procedures.
- Make sure the HDS/HIM has the latest software version.
- Before you update the PCM, make sure the battery in the vehicle is fully charged.
- Never turn the ignition switch OFF during the update. If there is a problem with the update, leave the ignition switch ON.
- To prevent PCM damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, door locks, etc.) during the update.
- To ensure the latest program is installed, do an PCM update whenever the PCM is substituted or replaced.
- You cannot update a PCM with a program it already has. It will only accept a new program.
- High temperature in the engine compartment might cause the PCM to become too hot to run the update. If the engine has been running before this procedure, open the hood and cool the engine compartment.
- If you need to diagnose the Honda interface module (HIM) because the HIM's red (#3) lamp came on or was flashed during the update, leave the ignition switch in the ON (II) position when you disconnect the HIM from the data link connector (DLC). This will prevent PCM damage.

1. Turn the ignition switch ON (II), but do not start the engine.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Make sure the HDS communicates with the PCM and other vehicle systems. If it does not, go to the DLC circuit troubleshooting (see page 11-223). If you are returning from the DLC circuit troubleshooting, skip steps 4 and 5 and clean the throttle body after updating the PCM.
4. USA, Canada models: Select the INSPECTION MENU with the HDS.
5. USA, Canada models: Select the ETCS TEST, then select the TP POSITION CHECK, and follow the screen prompts with the HDS.

   NOTE: USA, Canada models: If the TP POSITION CHECK indicates FAILED, continue this procedure.
6. Exit the HDS diagnostic system (USA, Canada models), then select the update mode, and follow the screen prompts to update the PCM.

(cont'd)

Protected by AR

General Troubleshooting Information (cont'd)

7. If the software in the PCM is the latest, disconnect the HDS/HIM from the DLC, and go back to the procedure that you were doing. If the software in the PCM is not the latest, follow the instructions on the screen. If prompted to choose the PGM-FI system or the A/T system, make sure you update both.

   NOTE: If the PCM update system requires you to cool the PCM, follow the screen prompts. If you run into a problem (programming takes over 15 minutes, status bar goes over 100 %, D or immobilizer light flashes, HDS tablet freezes, etc.) during the update procedure, follow these steps to minimize the chance of damaging the PCM:
   - Leave the ignition switch in the "ON (II)" position.
   - Connect a jumper battery (do not connect a battery charger).
   - Shut down the HDS.
   - Disconnect the HDS from the DLC.
   - Reboot the HDS.
   - Reconnect the HDS to the DLC, and try the update procedure again.

8. USA, Canada models: If the TP POSITION CHECK failed in step 6, clean the throttle body (see page 11-363).

9. Do the PCM idle learn procedure (see page 11-311).

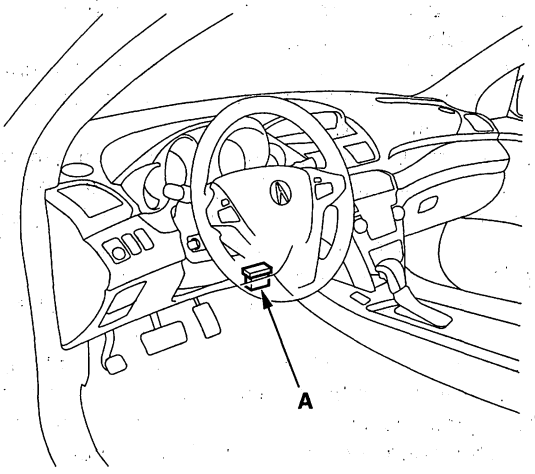
10. Do the CKP learn procedure.

Substituting the PCM

Special Tools Required
- Honda diagnostic system (HDS)
- Honda interface module (HIM)
- HDS pocket tester

NOTE: Use this procedure when you need to substitute a known-good PCM during troubleshooting procedures.

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch ON (II).

3. Make sure the HDS communicates with the PCM and other vehicle systems. If it does not, go to the DLC circuit troubleshooting (see page 11-223). If you are returning from DLC circuit troubleshooting, skip step 4 to 9, then clean the throttle body after substituting the PCM (see page 11-363).

4. USA, Canada models: Select the INSPECTION MENU with the HDS.

5. USA, Canada models: Select the ETCS TEST, then select the TP POSITION CHECK, and follow the screen prompts.

   NOTE: USA, Canada models: If the TP POSITION CHECK indicates FAILED, continue this procedure.

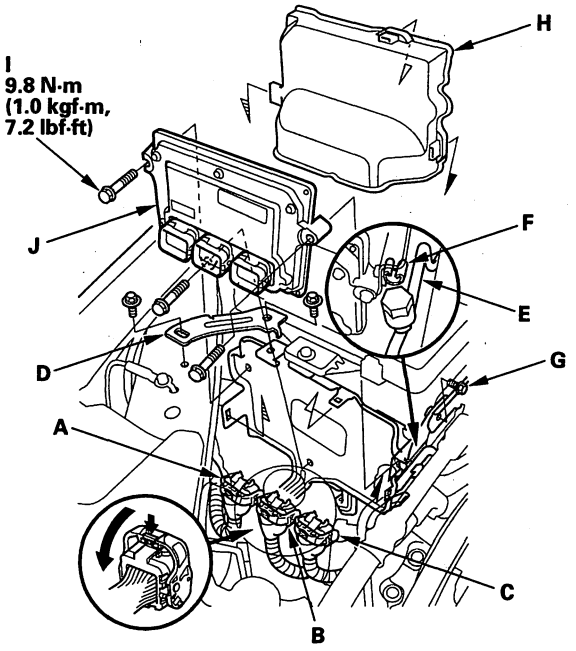
6. Turn the ignition switch OFF.

7. Jump the SCS line with the HDS.

BACK

Protected by AR

8. Remove the bracket (D), then free the A/C discharge line (E) from the clip (F) and remove the A/C suction line mounting bracket bolt (G).



9. Remove the cover (H), then disconnect the PCM connectors A, B, and C.

   NOTE: PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embosed on them for identification.

10. Remove the bolts (I), then remove the PCM (J).

11. Install the parts in the reverse order of removal.

12. Open the SCS with the HDS.

13. Turn the ignition switch ON (II).

    NOTE: USA, Canada models: DTC P0630 "VIN Not Programmed or Mismatch" may be stored because the VIN has not been programmed into the PCM; ignore it, and continue this procedure.

14. USA, Canada models: Manually input the VIN to the PCM with the HDS.

15. Update the PCM if it does not have the latest software.

16. Select the IMMOBI SYSTEM with the HDS.

17. Enter the immobilizer code with the PCM replacement procedure in the HDS; it allows you to start the engine.

18. Reset the PCM with the HDS.

19. USA, Canada models: If the TP POSITION CHECK failed in step 6, clean the throttle body (see page 11-363).

20. Do the PCM idle learn procedure (see page 11-311).

21. Do the CKP pattern learn procedure.

OBD Status

The OBD status shows the current system status of each DTC and all of the parameters. This function is used to see if the repair was successfully completed. The results of diagnostic tests for the DTC are displayed as:

- PASSED: The on board diagnosis is successfully finished.
- FAILED: The on board diagnosis has finished but failed.
- EXECUTING: The vehicle is in enable criteria conditions for the DTC and the on board diagnosis is running.
- NOT COMPLETED: The on board diagnosis was running but is out of the enable conditions of the DTC.
- OUT OF CONDITION: The vehicle has stayed out of the enable conditions for the DTC.

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DTC Troubleshooting Index

DTC (MIL indication*1)	Two Drive Cycle Detection	Detection Item	MIL	Note
P0101 (50)	○	Mass Air Flow (MAF) Sensor Circuit Range/Performance Problem	ON	(see page 11-71)
P0102 (50)	—	Mass Air Flow (MAF) Sensor Circuit Low Voltage	ON	(see page 11-73)
P0103 (50)	—	Mass Air Flow (MAF) Sensor Circuit High Voltage	ON	(see page 11-76)
P0107 (3)	—	Manifold Absolute Pressure (MAP) Sensor Circuit Low Voltage	ON	(see page 11-78)
P0108 (3)	—	Manifold Absolute Pressure (MAP) Sensor Circuit High Voltage	ON	(see page 11-80)
P0111 (10)	○	Intake Air Temperature (IAT) Sensor Circuit Range/Performance Problem	ON	(see page 11-83)
P0112 (10)	—	Intake Air Temperature (IAT) Sensor Circuit Low Voltage	ON	(see page 11-84)
P0113 (10)	—	Intake Air Temperature (IAT) Sensor Circuit High Voltage	ON	(see page 11-86)
P0116 (86)	○	Engine Coolant Temperature (ECT) Sensor 1 Circuit Range/Performance Problem	ON	(see page 11-89)
P0117 (6)	—	Engine Coolant Temperature (ECT) Sensor 1 Circuit Low Voltage	ON	(see page 11-90)
P0118 (6)	—	Engine Coolant Temperature (ECT) Sensor 1 Circuit High Voltage	ON	(see page 11-92)
P0122 (7)	—	Throttle Position (TP) Sensor A Circuit Low Voltage	ON	(see page 11-247)
P0123 (7)	—	Throttle Position (TP) Sensor A Circuit High Voltage	ON	(see page 11-249)
P0125 (86)	○	Engine Coolant Temperature (ECT) Sensor 1 Malfunction/Slow Response	ON	(see page 11-95)
P0128 (87)	○	Cooling System Malfunction	ON	(see page 11-96)
P0133 (157)	○	Rear Air Fuel Ratio (A/F) Sensor (Bank 1, Sensor 1) Circuit Slow Response	ON	(see page 11-98)
P0134 (151)	○	Rear Air Fuel Ratio (A/F) Sensor (Bank 1, Sensor 1) Heater System Malfunction	ON	(see page 11-99)
P0135 (151)	—	Rear Air Fuel Ratio (A/F) Sensor (Bank 1, Sensor 1) Heater Circuit Malfunction	ON	(see page 11-102)
P0137 (161)	○	Rear Secondary Heated Oxygen Sensor (Secondary HO2S (Bank 1, Sensor 2)) Circuit Low Voltage	ON	(see page 11-106)
P0138 (161)	○	Rear Secondary Heated Oxygen Sensor (Secondary HO2S (Bank 1, Sensor 2)) Circuit High Voltage	ON	(see page 11-108)
P0139 (161)	○	Rear Secondary Heated Oxygen Sensor (Secondary HO2S (Bank 1, Sensor 2)) Circuit Slow Response	ON	(see page 11-111)
P0141 (163)	—	Rear Secondary Heated Oxygen Sensor (Secondary HO2S (Bank 1, Sensor 2)) Heater Circuit Malfunction	ON	(see page 11-112)
P0153 (158)	○	Front Air Fuel Ratio (A/F) Sensor (Bank 2, Sensor 1) Circuit Slow Response	ON	(see page 11-98)
P0154 (152)	○	Front Air Fuel Ratio (A/F) Sensor (Bank 2, Sensor 1) Heater System Malfunction	ON	(see page 11-99)
P0155 (152)	—	Front Air Fuel Ratio (A/F) Sensor (Bank 2, Sensor 1) Heater Circuit Malfunction	ON	(see page 11-102)
P0157 (162)	○	Front Secondary Heated Oxygen Sensor (Secondary HO2S (Bank 2, Sensor 2)) Circuit Low Voltage	ON	(see page 11-106)
P0158 (162)	○	Front Secondary Heated Oxygen Sensor (Secondary HO2S (Bank 2, Sensor 2)) Circuit High Voltage	ON	(see page 11-108)
P0159 (162)	○	Front Secondary Heated Oxygen Sensor (Secondary HO2S (Bank 2, Sensor 2)) Circuit Slow Response	ON	(see page 11-111)
P0161 (164)	—	Front Secondary Heated Oxygen Sensor (Secondary HO2S (Bank 2, Sensor 2)) Heater Circuit Malfunction	ON	(see page 11-112)
P0171 (153)	○	Rear Bank (Bank 1) Fuel System Too Lean	ON	(see page 11-116)
P0172 (153)	○	Rear Bank (Bank 1) Fuel System Too Rich	ON	(see page 11-116)
P0174 (154)	○	Front Bank (Bank 2) Fuel System Too Lean	ON	(see page 11-116)
P0175 (154)	○	Front Bank (Bank 2) Fuel System Too Rich	ON	(see page 11-116)
P0222 (7)	—	Throttle Position (TP) Sensor B Circuit Low Voltage	ON	(see page 11-252)
P0223 (7)	—	Throttle Position (TP) Sensor B Circuit High Voltage	ON	(see page 11-254)
P0300 (77) and any combination of P0301 (71) P0302 (72) P0303 (73) P0304 (74) P0305 (75) P0306 (76)	○	Random Misfire Detected	ON	(see page 11-118)

NOTE: The above DTCs are indicated when the PGM-FI system is selected in the HDS.
Some automatic transmission DTCs cause the MIL to come on. If the MIL is on and no DTCs are indicated in the PGM-FI system, select the A/T system, and check for automatic transmission DTCs.

* 1: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS.

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DTC (MIL indication*1)	Two Drive Cycle Detection	Detection Item	MIL	Note
P0301 (71)	○	No. 1 Cylinder Misfire Detected	ON	(see page 11-121)
P0302 (72)	○	No. 2 Cylinder Misfire Detected	ON	(see page 11-121)
P0303 (73)	○	No. 3 Cylinder Misfire Detected	ON	(see page 11-121)
P0304 (74)	○	No. 4 Cylinder Misfire Detected	ON	(see page 11-121)
P0305 (75)	○	No. 5 Cylinder Misfire Detected	ON	(see page 11-121)
P0306 (76)	○	No. 6 Cylinder Misfire Detected	ON	(see page 11-121)
P0325 (23)	—	Knock Sensor Circuit Malfunction	ON	(see page 11-130)
P0335 (4)	—	Crankshaft Position (CKP) Sensor A No Signal	ON	(see page 11-133)
P0339 (4)	—	Crankshaft Position (CKP) Sensor A Circuit Intermittent Interruption	ON	(see page 11-136)
P0340 (9)	—	Camshaft Position (CMP) Sensor No Signal	ON	(see page 11-137)
P0344 (9)	—	Camshaft Position (CMP) Sensor Circuit Intermittent Interruption	ON	(see page 11-140)
P0385 (54)	—	Crankshaft Position (CKP) Sensor B No Signal	ON	(see page 11-133)
P0389 (54)	—	Crankshaft Position (CKP) Sensor B Circuit Intermittent Interruption	ON	(see page 11-136)
P0401 (80)	○	Exhaust Gas Recirculation (EGR) Insufficient Flow	ON	(see page 11-374)
P0404 (12)	○	Exhaust Gas Recirculation (EGR) Control Circuit Range/Performance Problem	ON	(see page 11-376)
P0406 (12)	—	Exhaust Gas Recirculation (EGR) Valve Position Sensor Circuit High Voltage	ON	(see page 11-379)
P0420 (165)	○	Rear Bank Catalyst System Efficiency Below Threshold (Bank 1)	ON	(see page 11-368)
P0430 (166)	○	Front Bank Catalyst System Efficiency Below Threshold (Bank 2)	ON	(see page 11-368)
P0443 (92)	—	Evaporative Emission (EVAP) Canister Purge Valve Circuit Malfunction	ON	(see page 11-393)
P0451 (91)	○	Fuel Tank Pressure (FTP) Sensor Circuit Range/Performance Problem	ON	(see page 11-397)
P0452 (91)	○	Fuel Tank Pressure (FTP) Sensor Circuit Low Voltage	ON	(see page 11-398)
P0453 (91)	○	Fuel Tank Pressure (FTP) Sensor Circuit High Voltage	ON	(see page 11-401)
P0455 (90)	○	Evaporative Emission (EVAP) System Very Large Leak Detected	ON	(see page 11-404)
P0456 (90)	○	Evaporative Emission (EVAP) System Very Small Leak Detected	ON	(see page 11-404)
P0457 (90)	—	Evaporative Emission (EVAP) System Leak Detected/Fuel Fill Cap Loose or Missing	OFF	(see page 11-407)
P0461 (121)	—	Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Range/Performance Problem	OFF	(see page 11-314)
P0462 (121)	—	Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Low Voltage	OFF	(see page 11-315)
P0463 (121)	—	Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit High Voltage	OFF	(see page 11-317)
P0496 (92)	○	Evaporative Emission (EVAP) System High Purge Flow	ON	(see page 11-409)
P0497 (90)	○	Evaporative Emission (EVAP) System Low Purge Flow	ON	(see page 11-410)
P0498 (117)	—	Evaporative Emission (EVAP) Canister Vent Shut Valve Control Circuit Low Voltage	ON	(see page 11-414)
P0499 (117)	—	Evaporative Emission (EVAP) Canister Vent Shut Valve Control Circuit High Voltage	ON	(see page 11-417)
P0506 (14)	○	Idle Control System RPM Lower than Expected	ON	(see page 11-301)
P0507 (14)	○	Idle Control System RPM Higher than Expected	ON	(see page 11-303)
P050A (167)	○	Cold Start Idle Air Control System Performance Problem	ON	(see page 11-141)
P050B (167)	○	Cold Start Ignition Timing Performance Problem	ON	(see page 11-143)
P0562 (34)	—	Charging System Low Voltage	OFF	(see page 11-146)
P0563 (34)	—	Powertrain Control Module (PCM) Power Source Circuit Unexpected Voltage	OFF	(see page 11-147)
P0602 (196)	—	Powertrain Control Module (PCM) Programming Error	ON	(see page 11-150)
P060A (131)	—	Powertrain Control Module (PCM) (A/T System) Internal Control Module Malfunction	ON	(see page 11-150)
P0615 (198)	—	Starter Cut Relay STRLD Circuit Malfunction	OFF	(see page 11-151)
P0627 (165)	—	Fuel Pump Control Module System Malfunction	ON	(see page 11-320)
P062F (131)	—	Powertrain Control Module (PCM) Internal Control Module Keep Alive Memory (KAM) Error	ON	(see page 11-153)
P0630 (139)	—	VIN Not Programmed or Mismatch	ON	(see page 11-153)
P0685 (135)	○	Powertrain Control Module (PCM) Power Control Circuit/Internal Circuit Malfunction	ON	(see page 11-155)

NOTE: The above DTCs are indicated when the PGM-FI system is selected in the HDS.
Some automatic transmission DTCs cause the MIL to come on. If the MIL is on and no DTCs are indicated in the PGM-FI system, select the A/T system, and check for automatic transmission DTCs.

* 1: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS.
* 2: The D indicator and the MIL may come on at the same time.

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DTC Troubleshooting Index (cont'd)

DTC (MIL indication*1)	Two Drive Cycle Detection	Detection Item	MIL	Note
P1077 (106)	○	Intake Manifold Tuning (IMT) Valve Stuck in High RPM Position	ON	(see page 11-353)
P1078 (106)	○	Intake Manifold Tuning (IMT) Valve Stuck in Low RPM Position	ON	(see page 11-358)
P1109 (13)	—	Barometric Pressure (BARO) Sensor Circuit Out of Range High	ON	(see page 11-155)
P1116 (86)	○	Engine Coolant Temperature (ECT) Sensor 1 Circuit Range/Performance Problem	ON	(see page 11-156)
P1128 (5)	○	Manifold Absolute Pressure (MAP) Sensor Signal Lower Than Expected	ON	(see page 11-158)
P1129 (5)	○	Manifold Absolute Pressure (MAP) Sensor Signal Higher Than Expected	ON	(see page 11-159)
P1172 (157)	○	Rear Air Fuel Ratio (A/F) Sensor (Bank 1, Sensor 1) Circuit Out of Range High	ON	(see page 11-161)
P1174 (158)	○	Front Air Fuel Ratio (A/F) Sensor (Bank 2, Sensor 1) Circuit Out of Range High	ON	(see page 11-161)
P1297 (20)	—	Electrical Load Detector (ELD) Circuit Low Voltage	OFF	(see page 11-162)
P1298 (20)	—	Electrical Load Detector (ELD) Circuit High Voltage	OFF	(see page 11-164)
P1454 (91)	○	Fuel Tank Pressure (FTP) Sensor Circuit Range/Performance Problem	ON	(see page 11-418)
P145C (90)	○	EVAP System Purge Flow Malfunction	ON	(see page 11-420)
P1549 (34)	—	Charging System High Voltage	OFF	(see page 11-166)
P1658 (40)	—	Electronic Throttle Control System (ETCS) Control Relay ON Malfunction	ON	(see page 11-257)
P1659 (40)	—	Electronic Throttle Control System (ETCS) Control Relay OFF Malfunction	ON	(see page 11-259)
P1683 (40)	—	Throttle Valve Default Position Spring Performance Problem	ON	(see page 11-263)
P1684 (40)	—	Throttle Valve Return Spring Performance Problem	ON	(see page 11-264)
P16BB (116)	—	Alternator B Terminal Circuit Low Voltage	OFF	(see page 11-167)
P16BC (116)	—	Alternator FR Terminal Circuit/IGP Circuit Low Voltage	OFF	(see page 11-168)
P16BD (198)	—	Starter Cut Relay 2 Malfunction	OFF	(see page 11-171)
P16BE (198)	—	Starter Cut Relay 1 Malfunction	OFF	(see page 11-171)
P16BF (198)	—	Starter Cut Relay STRLY Circuit Malfunction	OFF	(see page 11-172)
P2101 (40)	—	Electronic Throttle Control System (ETCS) Malfunction	ON	(see page 11-265)
P2118 (40)	—	Throttle Actuator Current Range/Performance Problem	ON	(see page 11-267)
P2122 (37)	—	Accelerator Pedal Position (APP) Sensor A (Throttle Position (TP) Sensor D) Circuit Low Voltage	ON	(see page 11-269)
P2123 (37)	—	Accelerator Pedal Position (APP) Sensor A (Throttle Position (TP) Sensor D) Circuit High Voltage	ON	(see page 11-272)
P2127 (37)	—	Accelerator Pedal Position (APP) Sensor B (Throttle Position (TP) Sensor E) Circuit Low Voltage	ON	(see page 11-274)
P2128 (37)	—	Accelerator Pedal Position (APP) Sensor B (Throttle Position (TP) Sensor E) Circuit High Voltage	ON	(see page 11-277)
P2135 (7)	—	Throttle Position (TP) Sensor A/B Voltage Incorrect Correlation	ON	(see page 11-279)
P2138 (37)	—	Accelerator Pedal Position (APP) Sensor A/B (Throttle Position (TP) Sensor D/E) Incorrect Voltage Correlation	ON	(see page 11-281)
P2176 (40)	—	Throttle Actuator Control System Idle Position Not Learned	ON	(see page 11-283)
P2183 (192)	○	Engine Coolant Temperature (ECT) Sensor 2 Circuit Range/Performance Problem	ON	(see page 11-173)
P2184 (192)	—	Engine Coolant Temperature (ECT) Sensor 2 Circuit Low Voltage	ON	(see page 11-175)
P2185 (192)	—	Engine Coolant Temperature (ECT) Sensor 2 Circuit High Voltage	ON	(see page 11-177)
P2195 (155)	○	Rear Air Fuel Ratio (A/F) Sensor (Bank 1, Sensor 1) Signal Stuck Lean	ON	(see page 11-180)
P2197 (156)	○	Front Air Fuel Ratio (A/F) Sensor (Bank 2, Sensor 1) Signal Stuck Lean	ON	(see page 11-180)
P2227 (13)	○	Barometric Pressure (BARO) Sensor Circuit Range/Performance Problem	ON	(see page 11-181)
P2228 (13)	—	Barometric Pressure (BARO) Sensor Circuit Low Voltage	ON	(see page 11-183)
P2229 (13)	—	Barometric Pressure (BARO) Sensor Circuit High Voltage	ON	(see page 11-183)
P2237 (155)	—	Rear Air Fuel Ratio (A/F) Sensor (Bank 1, Sensor 1) IP Circuit High Voltage	ON	(see page 11-184)
P2238 (155)	—	Rear Air Fuel Ratio (A/F) Sensor (Bank 1, Sensor 1) IP Circuit Low Voltage	ON	(see page 11-186)
P2240 (156)	—	Front Air Fuel Ratio (A/F) Sensor (Bank 2, Sensor 1) IP Circuit High Voltage	ON	(see page 11-184)
P2241 (156)	—	Front Air Fuel Ratio (A/F) Sensor (Bank 2, Sensor 1) IP Circuit Low Voltage	ON	(see page 11-186)
P2243 (155)	—	Rear Air Fuel Ratio (A/F) Sensor (Bank 1, Sensor 1) VCENT Circuit High Voltage	ON	(see page 11-188)
P2245 (155)	—	Rear Air Fuel Ratio (A/F) Sensor (Bank 1, Sensor 1) VCENT Circuit Low Voltage	ON	(see page 11-190)
P2247 (156)	—	Front Air Fuel Ratio (A/F) Sensor (Bank 2, Sensor 1) VCENT Circuit High Voltage	ON	(see page 11-188)
P2249 (156)	—	Front Air Fuel Ratio (A/F) Sensor (Bank 2, Sensor 1) VCENT Circuit Low Voltage	ON	(see page 11-190)

NOTE: The above DTCs are indicated when the PGM-FI system is selected in the HDS.
Some automatic transmission DTCs cause the MIL to come on. If the MIL is on and no DTCs are indicated in the PGM-FI system, select the A/T system, and check for automatic transmission DTCs.

* 1: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS.

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DTC (MIL indication *1)	Two Drive Cycle Detection	Detection Item	MIL	Note
P2251 (155)	—	Rear Air Fuel Ratio (A/F) Sensor (Bank 1, Sensor 1) VS Circuit High Voltage	ON	(see page 11-192)
P2252 (155)	—	Rear Air Fuel Ratio (A/F) Sensor (Bank 1, Sensor 1) VS Circuit Low Voltage	ON	(see page 11-194)
P2254 (156)	—	Front Air Fuel Ratio (A/F) Sensor (Bank 2, Sensor 1) VS Circuit High Voltage	ON	(see page 11-192)
P2255 (156)	—	Front Air Fuel Ratio (A/F) Sensor (Bank 2, Sensor 1) VS Circuit Low Voltage	ON	(see page 11-194)
P2270 (161)	○	Rear Secondary Heated Oxygen Sensor (Secondary HO2S) (Bank 1, Sensor 2) Circuit Signal Stuck Lean	ON	(see page 11-196)
P2271 (161)	○	Rear Secondary Heated Oxygen Sensor (Secondary HO2S) (Bank 1, Sensor 2) Circuit Signal Stuck Rich	ON	(see page 11-196)
P2272 (162)	○	Front Secondary Heated Oxygen Sensor (Secondary HO2S) (Bank 2, Sensor 2) Circuit Signal Stuck Lean	ON	(see page 11-196)
P2273 (162)	○	Front Secondary Heated Oxygen Sensor (Secondary HO2S) (Bank 2, Sensor 2) Circuit Signal Stuck Rich	ON	(see page 11-196)
P2279 (109)	○	Intake Air System Leak	ON	(see page 11-390)
P2413 (12)	○	Exhaust Gas Recirculation (EGR) System Malfunction	ON	(see page 11-381)
P2422 (117)	○	Evaporative Emission (EVAP) Canister Vent Shut Valve Close Malfunction	ON	(see page 11-418)
P2610 (132)	—	Powertrain Control Module (PCM) Internal Power Off Timer Malfunction	ON	(see page 11-197)
P2646 (22)	—	Rocker Arm Oil Pressure Switch Circuit Low Voltage	ON	(see page 11-288)
P2647 (22)	—	Rocker Arm Oil Pressure Switch Circuit High Voltage	ON	(see page 11-291)
P2648 (21)	—	Rocker Arm Oil Control Solenoid Circuit Low Voltage	ON	(see page 11-294)
P2649 (21)	—	Rocker Arm Oil Control Solenoid Circuit High Voltage	ON	(see page 11-296)
P2A00 (157)	○	Rear Air Fuel Ratio (A/F) Sensor (Bank 1, Sensor 1) Circuit Range/ Performance Problem	ON	(see page 11-198)
P2A03 (158)	○	Front Air Fuel Ratio (A/F) Sensor (Bank 2, Sensor 1) Circuit Range/ Performance Problem	ON	(see page 11-198)
U0028 (126)	—	F-CAN Malfunction (BUS-OFF)	ON	(see page 11-199)
U0114 (126)	—	F-CAN Malfunction (Powertrain Control Module (PCM)-SH-AWD Control Unit)	OFF	(see page 11-200)
U0122 (126)	—	F-CAN Malfunction (Powertrain Control Module (PCM)-VSA Modulator-Control Unit)	OFF	(see page 11-203)
U0155 (126)	—	F-CAN Malfunction (Powertrain Control Module (PCM)-Gauge Control Module)	ON	(see page 11-205)
U0300 (131)	—	PGM-FI System and A/T System Program Version Mismatch	ON	(see page 11-207)

NOTE: The above following DTCs are indicated when the PGM-FI system is selected in the HDS.
Some automatic transmission DTCs cause the MIL to come on. If the MIL is on and no DTCs are indicated in the PGM-FI system, select the A/T system, and check for automatic transmission DTCs.

* 1: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS.

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Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check for a diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure	Also check for
Engine will not start (MIL works OK, no DTCs set)	1. Test the battery (see page 22-76). 2. Test the starter (see page 4-9). 3. Check the fuel pressure (see page 11-333).	• Low compression • No ignition spark • Intake air leaks • Locked up engine • Broken timing belt • Contaminated fuel
Engine will not start (MIL comes on and stays on, or never comes on at all, no DTCs set)	Troubleshoot the MIL circuit (see page 11-222).	
MIL comes on and stays on, or never comes on at all, no DTCs set	Troubleshoot the MIL circuit (see page 11-222).	
Engine will not start (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system.	
Engine starts but stalls immediately (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system.	• Jumped timing belt • Intake air leaks • Contaminated fuel • Weak spark
Engine is hard to start (MIL works OK, no DTCs set)	1. Test the battery (see page 22-76). 2. Check the fuel pressure (see page 11-333). 3. Clean the throttle body (see page 11-363).	• Low compression • Intake air leaks • Contaminated fuel • Weak spark • Restricted exhaust
Cold fast idle too low (MIL works OK, no DTCs set)	1. Do the PCM idle learn procedure (see page 11-311). 2. Check the idle speed (see page 11-310). 3. Clean the throttle body (see page 11-363).	• Correct valve adjustment • Fuel contamination
Cold fast idle too high (MIL works OK, no DTCs set)	1. Do the PCM idle learn procedure (see page 11-311). 2. Check the idle speed (see page 11-310). 3. Do the throttle position learning check (see page 11-362).	Intake vacuum leaks
Idle speed fluctuates (MIL works OK, no DTCs set)	1. Do the PCM idle learn procedure (see page 11-311). 2. Check the idle speed (see page 11-310). 3. Do the carbon accumulation check (see page 11-362).	Intake vacuum leaks
After warming up, idle speed is below specification without load (MIL works OK, no DTCs set)	1. Troubleshoot the alternator FR signal circuit (see page 11-305). 2. Troubleshoot the A/C signal circuit (see page 11-304). 3. Do the carbon accumulation check (see page 11-362).	Correct valve adjustment
After warming up, idle speed is above specification without load (MIL works OK, no DTCs set)	1. Troubleshoot the alternator FR signal circuit (see page 11-305). 2. Inspect the APP sensor (see page 11-285). 3. Troubleshoot the alternator A/C signal circuit (see page 11-304). 4. Troubleshoot the power steering switch signal circuit (see page 11-306).	Intake vacuum leaks

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Symptom	Diagnostic procedure	Also check for
After warming up, idle speed drops when steering wheel is turning (MIL works OK, no DTCs set)	1. Do the PCM idle learn procedure (see page 11-311). 2. Troubleshoot the PSP switch signal circuit (see page 11-306). 3. Do the carbon accumulation check (see page 11-362).	Power steering system
Low power (MIL works OK, no DTCs set)	Check the fuel pressure (see page 11-333).	• Low compression • Incorrect camshaft timing • Incorrect engine oil level • Restricted exhaust • Fuel contamination
Engine stalls (MIL works OK, no DTCs set)	1. Do the PCM idle learn procedure (see page 11-311). 2. Check the fuel pressure (see page 11-333). 3. Check the idle speed (see page 11-310). 4. Troubleshoot the brake pedal position switch signal circuit (see page 11-308).	• Intake air leaks • Faulty harness and sensor connections • Fuel contamination
Difficult to refuel (MIL works OK, no DTCs set)	1. Check the fuel vent tube between the EVAP canister and the fuel tank. 2. Check the fuel tank vapor recirculation tube between the fuel pipe and the fuel tank. 3. Inspect the fuel filler neck for restrictions. 4. Replace the fuel tank (see page 11-347).	• Malfunctioning gas station filling nozzle. • Filler neck restriction • Fuel tank vapor control valve
Fuel overflows during refueling (No DTCs set)	1. Inspect the fuel filler neck for restrictions. 2. Replace the fuel tank (see page 11-347).	Malfunctioning gas station filling nozzle.
HDS does not communicate with the PCM or the vehicle	Troubleshoot the DLC circuit (see page 11-223).	
Fuel cap warning message comes on and stays on (MIL works OK, no DTCs set)	Troubleshoot the fuel cap warning message system (see page 11-421).	

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System Description

Electronic Control System

The functions of the fuel and emission control systems are managed by the powertrain control module (PCM).

Self-diagnosis
The PCM detects a signal failure from a sensor or from another control unit and stores a Temporary DTC or a DTC in erasable memory (RAM). Depending on the failure, a DTC is stored in either the first or the second drive cycle (for DTC P0457, the DTC is set in the beginning of the third drive cycle). When a DTC is stored, the PCM turns on the malfunction indicator lamp (MIL) by sending a command to the gauge control module.

- **One Drive Cycle Detection Method**
  When an abnormality occurs in the signal from a sensor or from another control unit, the PCM stores a DTC for the failure and turns on the MIL immediately.

- **Two Drive Cycle Detection Method**
  When an abnormality occurs in the signal from a sensor or from another control unit in the first drive cycle, the PCM stores a Temporary DTC for the failure. The MIL does not come on at this time. If the failure continues in the second drive cycle, the PCM stores a DTC in erasable memory and turns on the MIL.

Fail-safe Function
When an abnormality occurs in the signal from a sensor or from another control unit, the PCM ignores that signal and substitutes a pre-programmed value that allows the engine to continue running. This causes a DTC to be stored and the MIL to come on.

MIL Bulb Check and Readiness Code Condition
When the ignition switch is turned ON (II), the PCM turn on the MIL by sending a command to the gauge control module to check the bulb condition. If any readiness codes are not set to complete, the MIL flashes five times. If all readiness codes are set to complete, the MIL goes off.

Self Shut Down (SSD) Mode
After the ignition switch is turned OFF, the PCM stays on (up to 15 minutes). If the PCM connector is disconnected during this time, the PCM may be damaged. To cancel this mode, disconnect the negative cable from the battery or jump the SCS line with the HDS after the ignition switch is turned OFF.

BACK

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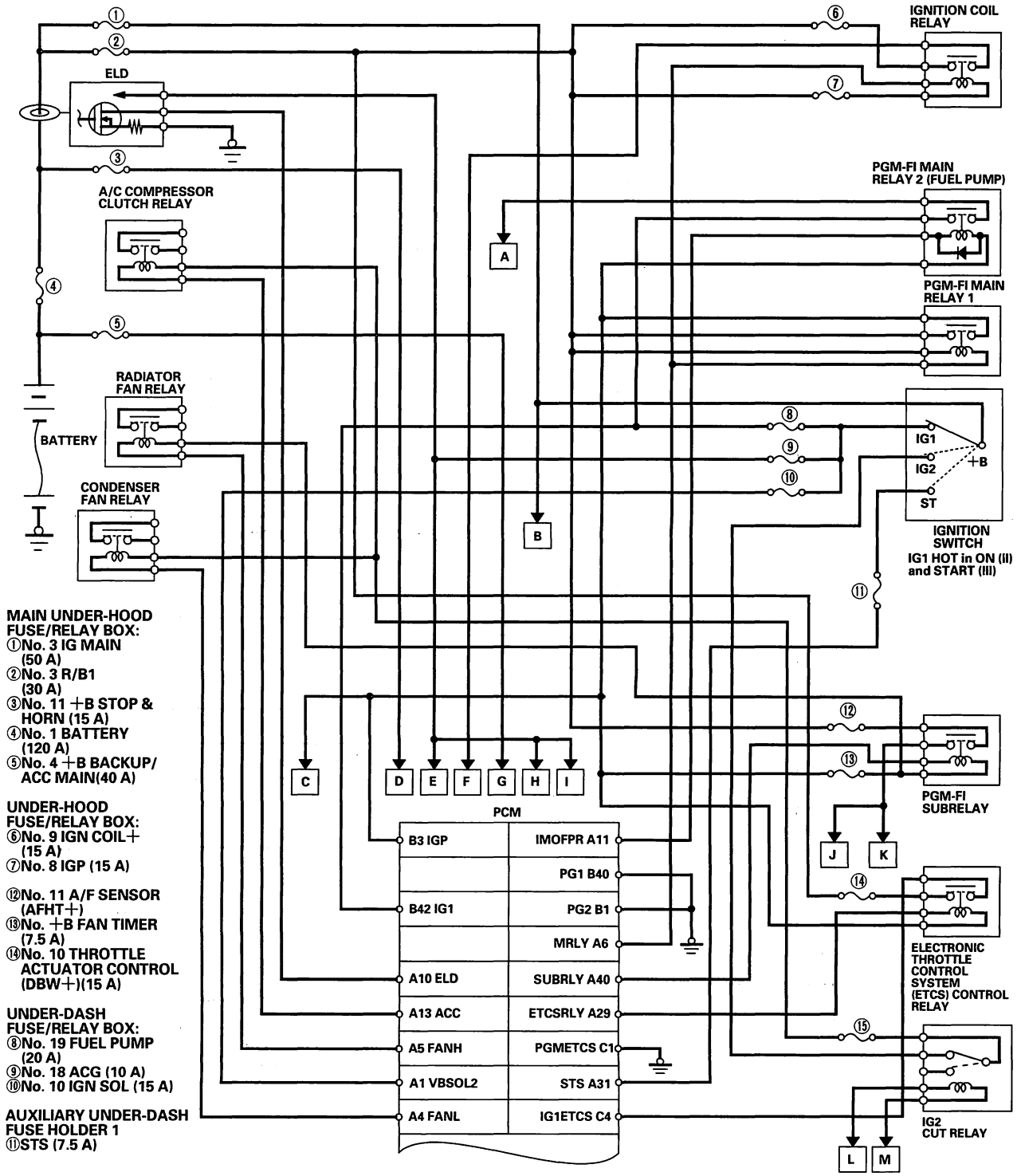
PCM Electrical Connections



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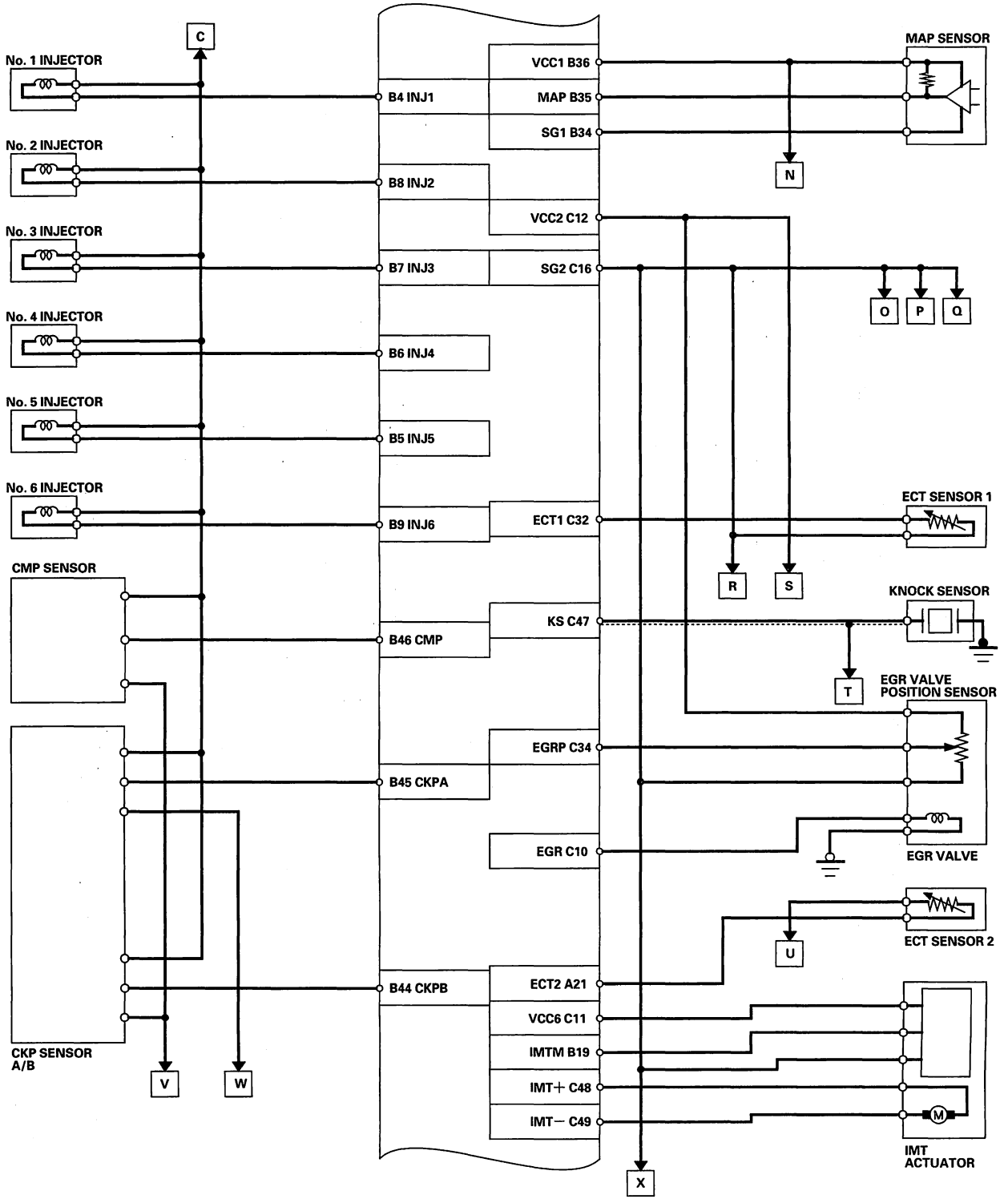
BACK

Protected by AR

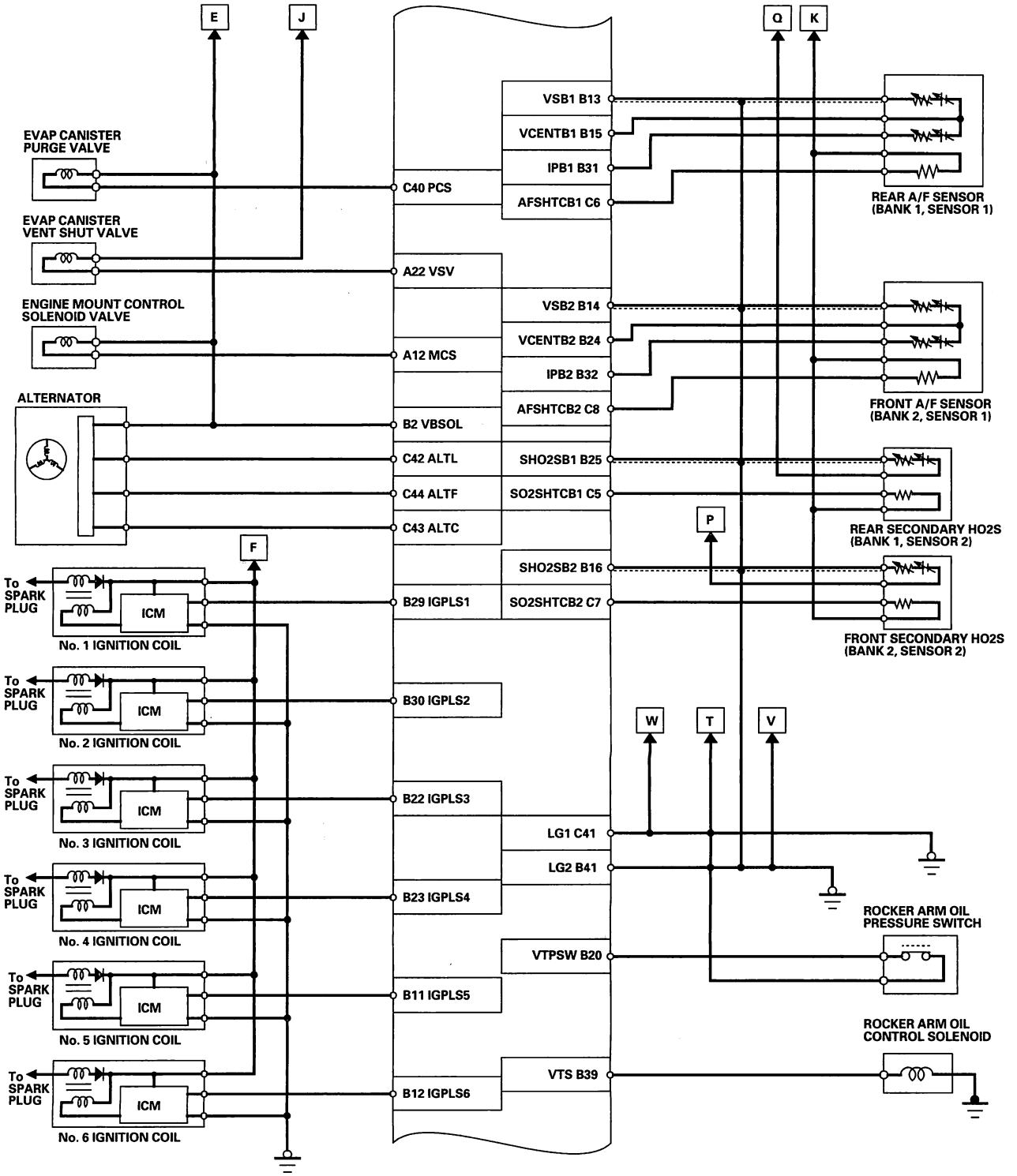
System Description (cont'd)

PCM Electrical Connections (cont'd)



BACK

Protected by AR



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BACK

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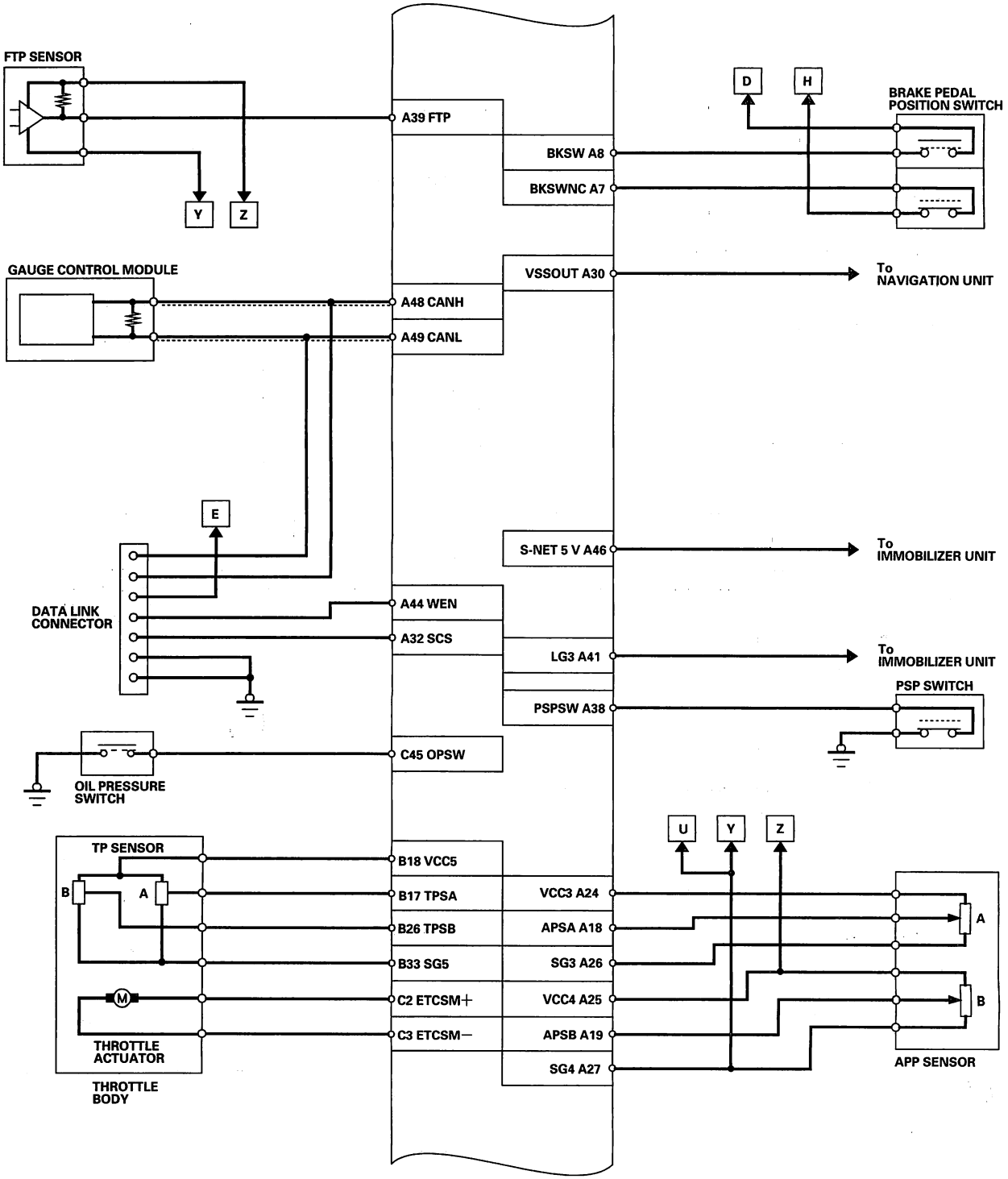
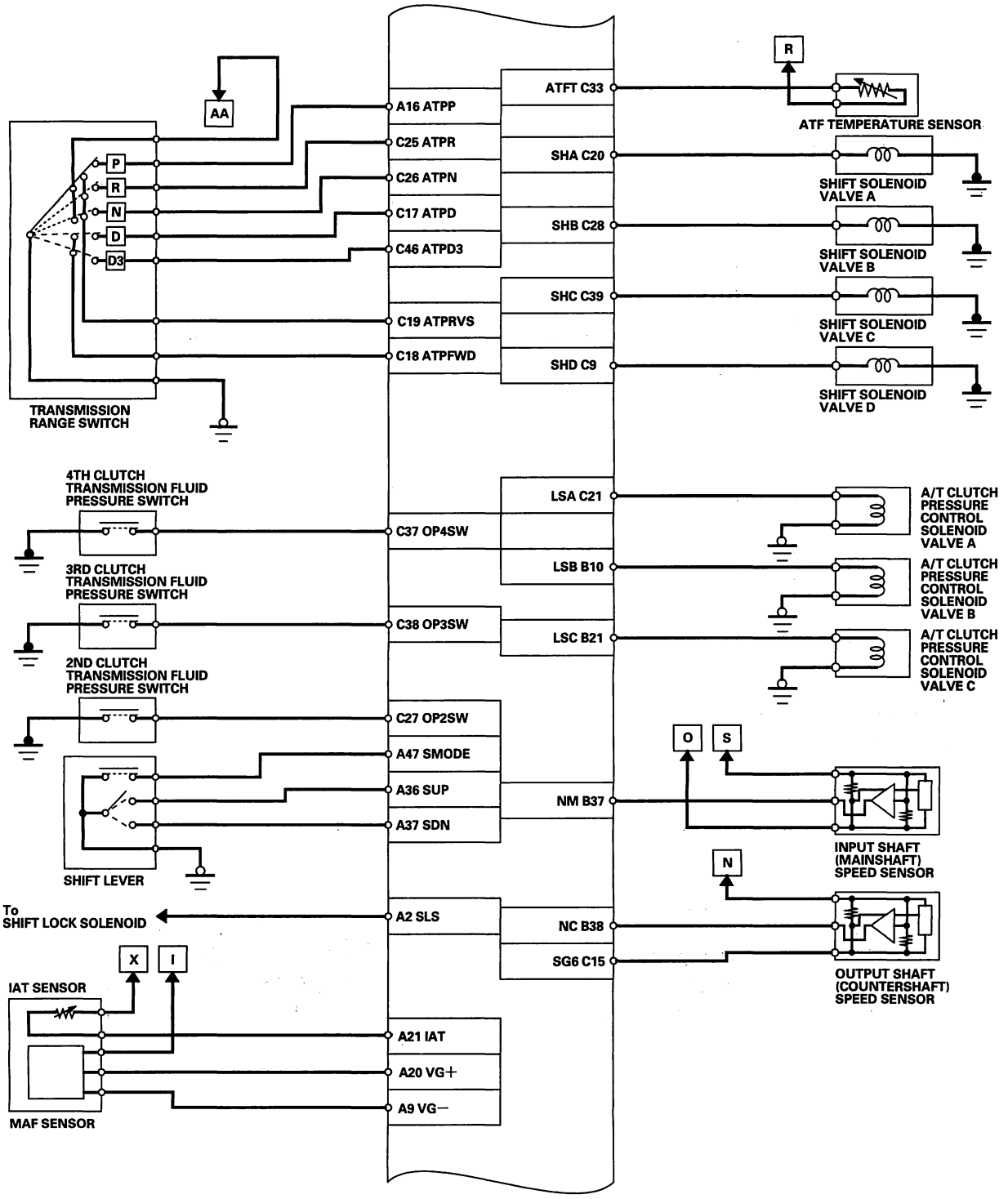
System Description (cont'd)

PCM Electrical Connections (cont'd)



BACK

Protected by AR



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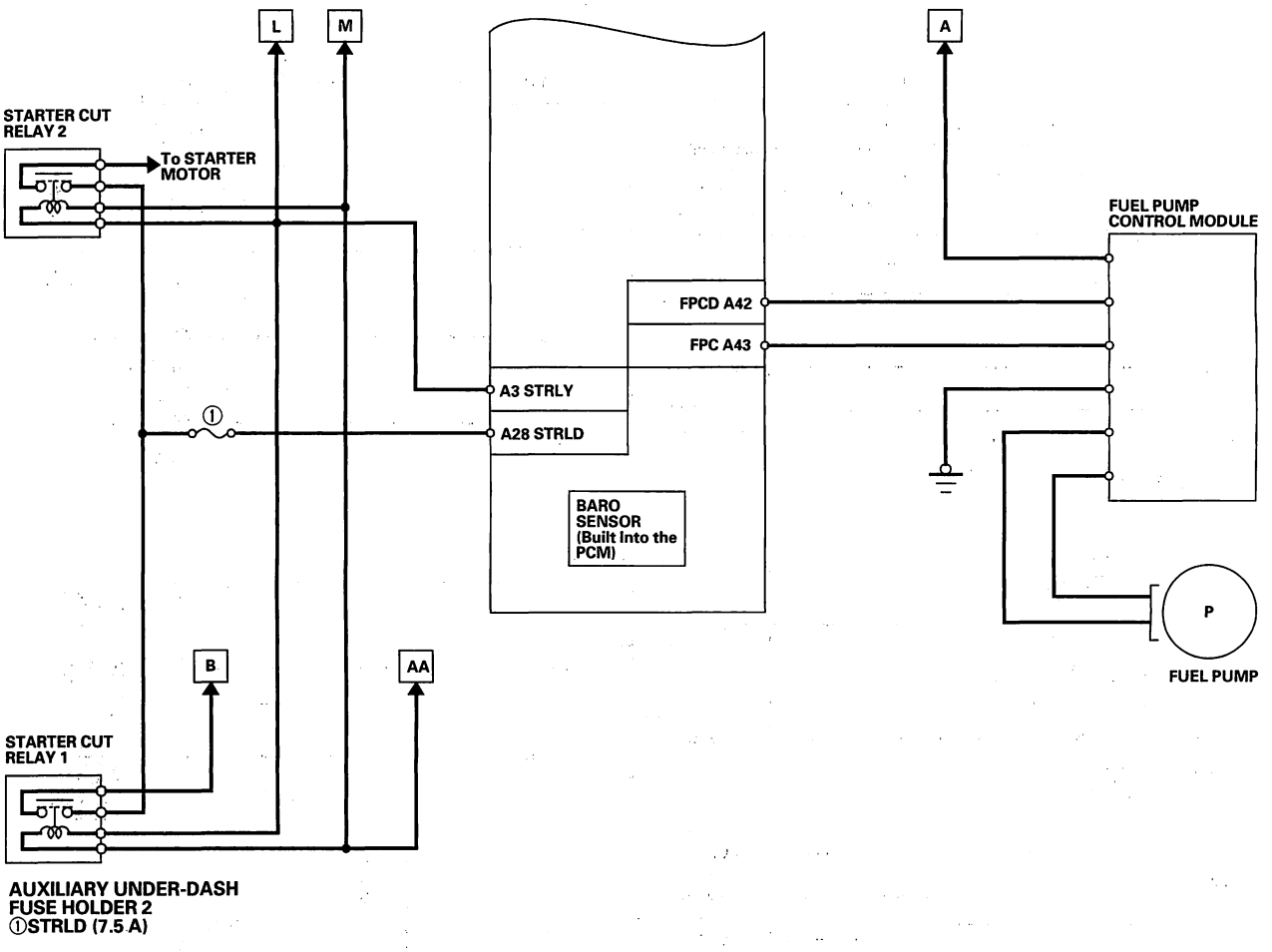
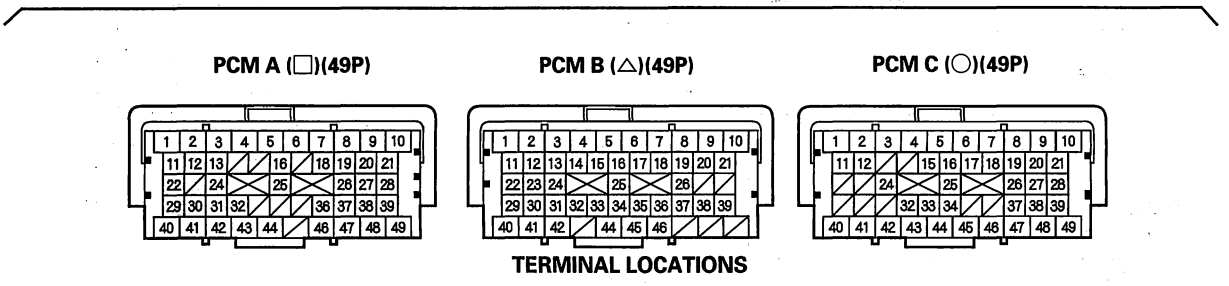
BACK

Protected by AR

System Description (cont'd)

PCM Electrical Connections (cont'd)

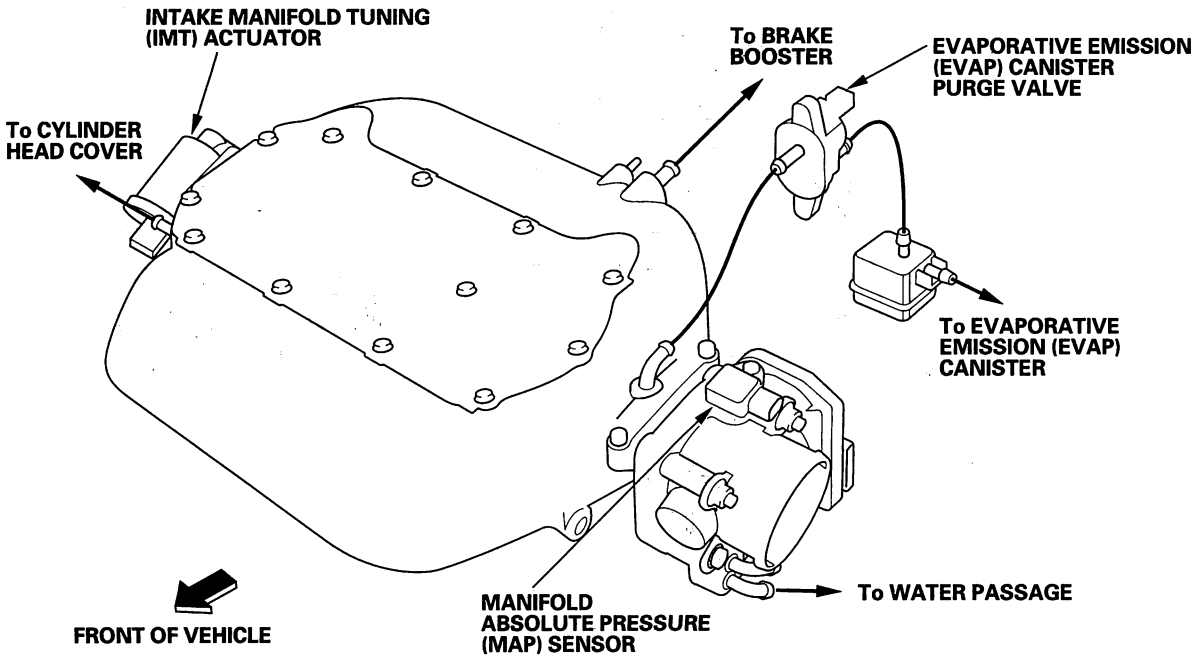




BACK

Protected by AR

Vacuum Hose Routing



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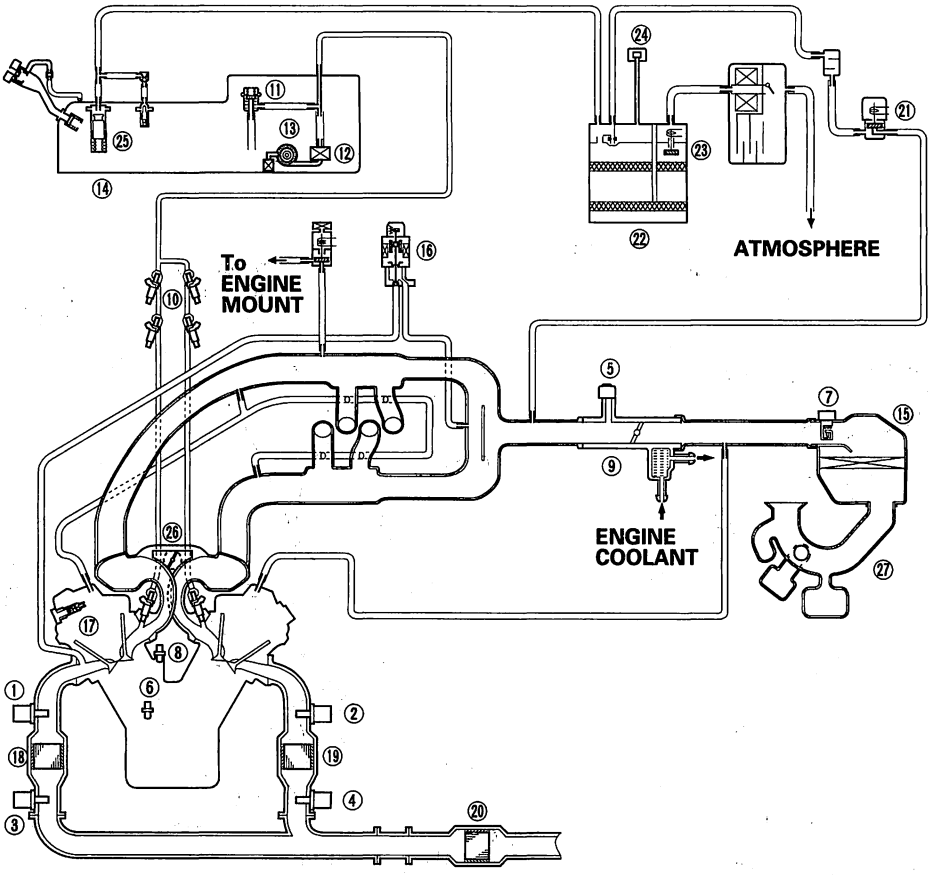
Protected by AR

System Description (cont'd)

Vacuum Distribution



① FRONT AIR FUEL RATIO (A/F) SENSOR 2 (BANK 2, SENSOR 1)
② REAR AIR FUEL RATIO (A/F) SENSOR 1 (BANK 1, SENSOR 1)
③ FRONT SECONDARY HEATED OXYGEN SENSOR 2 (SECONDARY HO2S) (BANK 2, SENSOR 2)
④ REAR SECONDARY HEATED OXYGEN SENSOR 2 (SECONDARY HO2S) (BANK 1, SENSOR 2)
⑤ MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
⑥ ENGINE COOLANT TEMPERATURE (ECT) SENSOR 1
⑦ MASS AIR FLOW (MAF) SENSOR/ INTAKE AIR TEMPERATURE (IAT) SENSOR
⑧ KNOCK SENSOR
⑨ THROTTLE BODY
⑩ INJECTOR
⑪ FUEL PRESSURE REGULATOR
⑫ FUEL FILTER
⑬ FUEL PUMP
⑭ FUEL TANK
⑮ AIR CLEANER
⑯ EXHAUST GAS RECIRCULATION (EGR) VALVE and POSITION SENSOR
⑰ POSITIVE CRANKCASE VENTILATION (PCV) VALVE
⑱ FRONT WARM UP THREE WAY CATALYTIC CONVERTER (WU-TWC) (BANK 2)
⑲ REAR WARM UP THREE WAY CATALYTIC CONVERTER (WU-TWC) (BANK 1)
⑳ UNDER-FLOOR THREE WAY CATALYTIC CONVERTER (TWC)
㉑ EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
㉒ EVAPORATIVE EMISSION (EVAP) CANISTER
㉓ EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE
㉔ FUEL TANK PRESSURE (FTP) SENSOR
㉕ FUEL TANK VAPOR CONTROL VALVE
㉖ INTAKE MANIFOLD TUNING (IMT) VALVE
㉗ RESONATOR

BACK

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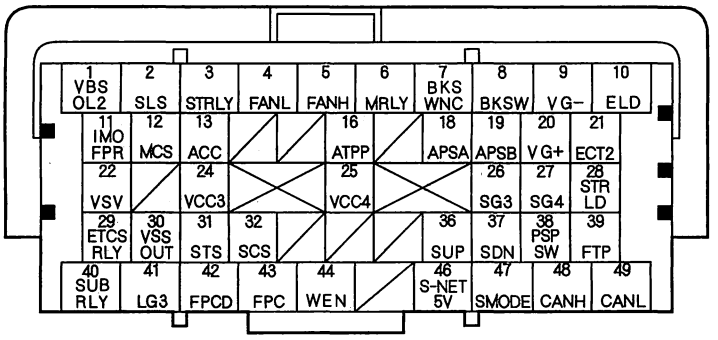
PCM Inputs and Outputs at Connector A (□) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	WHT	VBSOL2 (POWER SOURCE FOR SOLENOID VALVES)	Power source for solenoid valve	With ignition switch ON (II): battery voltage
2	PNK	SLS (SHIFT LOCK SOLENOID)	Drives shift lock solenoid	With ignition switch ON (II), in the P position, brake pedal pressed, and accelerator released: about 0 V
3	LT GRN	STRLY (STARTER RELAY)	Drives starter cut relay 2	With ignition switch ON (II): about 0 V
4	WHT	FANL (RADIATOR FAN CONTROL)	Drives condenser fan relay	With condenser fan running: about 0 V With condenser fan stopped: battery voltage
5	PUR	FANH (RADIATOR FAN CONTROL)	Drives radiator fan relay	With radiator fan running: about 0 V With radiator fan stopped: battery voltage
6	GRN	MRLY (PGM-FI MAIN RELAY 1)	Drives PGM-FI main relay 1 power source for the DTC memory)	With ignition switch ON (II): about 0 V With ignition switch OFF: battery voltage
7	BRN	BKSWNC (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With ignition switch ON (II) and brake pedal released: battery voltage With ignition switch ON (II) and brake pedal pressed: about 0 V
8	LT GRN	BKSW (BREAK PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With brake pedal released: about 0 V With brake pedal pressed: battery voltage

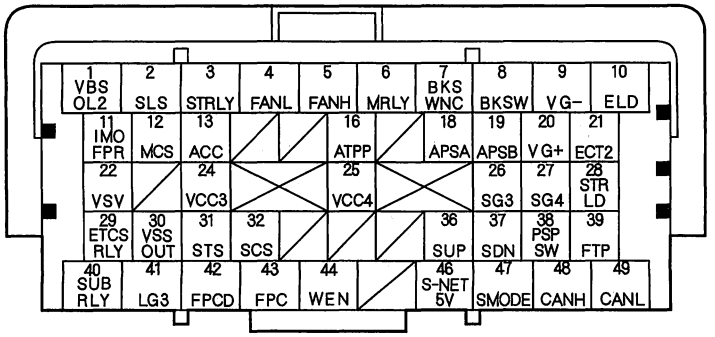
(cont'd)

BACK

Protected by AR

System Description (cont'd)

PCM Inputs and Outputs at Connector A (□) (49P)



Terminal side of female terminals

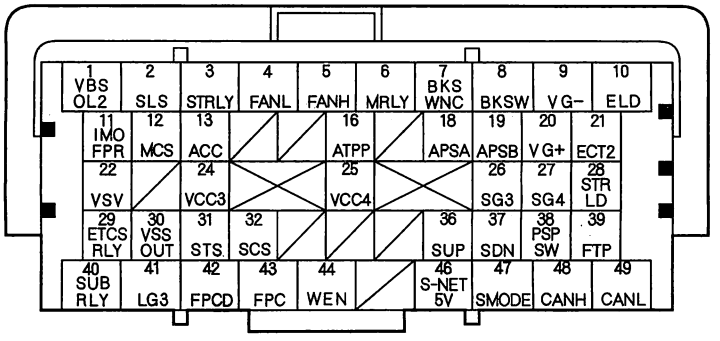
NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
9	BLK	VG— (MASS AIR FLOW (MAF) SENSOR —SIDE)	Ground for MAF sensor signal	
10	ORN	ELD (ELECTRICAL LOAD DETECTOR (ELD))	Detects ELD signal	With ignition switch ON (II): about 0.1—4.8 V (depending on electrical load)
11	BRN	IMOFPR (IMMOBILIZER FUEL PUMP RELAY)	Drives PGM-FI main relay 2	0 V for 2 seconds after turning ignition switch ON (II), then battery voltage
12	BLU	MCS (ENGINE MOUNT CONTROL SOLENOID VALVE)	Drives engine mount control solenoid valve	At idle: about 0 V About idle: battery voltage
13	RED	ACC (A/C CLUTCH RELAY)	Drives A/C clutch relay	With compressor ON: about 0 V With compressor OFF: battery voltage
16	GRN	ATPP (TRANSMISSION RANGE SWITCH P POSITION)	Detects transmission range switch P position signal	In P position: about 0 V In any position other than P position: battery voltage
18	PUR	APSA (ACCELERATOR PEDAL POSITION (APP) SENSOR A)	Detects APP sensor A signal	With ignition switch ON (II) and accelerator pedal pressed: about 4.7 V With ignition switch ON (II) and accelerator pedal released: about 1.0 V

BACK

Protected by AR

PCM Inputs and Outputs at Connector A (□) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
19	LT GRN	APSB (ACCELERATOR PEDAL POSITION (APP) SENSOR B)	Detects APP sensor B signal	With ignition switch ON (II) and accelerator pedal pressed: about 2.3 V With ignition switch ON (II) and accelerator pedal released: about 0.5 V
20	RED	VG+ (MASS AIR FLOW (MAF) SENSOR +SIDE)	Detects MAF sensor signal	At idle: about 1.1—1.6 V (between VG+ terminal and VG— terminal)
21	PUR	ECT2 (ENGINE COOLANT TEMPERATURE SENSOR (ECT) SENSOR 2)	Detects ECT sensor 2 signal	With ignition switch ON (II): about 0.1—4.8 V (depending on engine coolant temperature)
22	LT GRN	VSV (EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE)	Drives EVAP canister vent shut valve	With ignition switch ON (II): battery voltage
24	RED	VCC3 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
25	ORN	VCC4 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
26	WHT	SG3 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
27	GRN	SG4 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times

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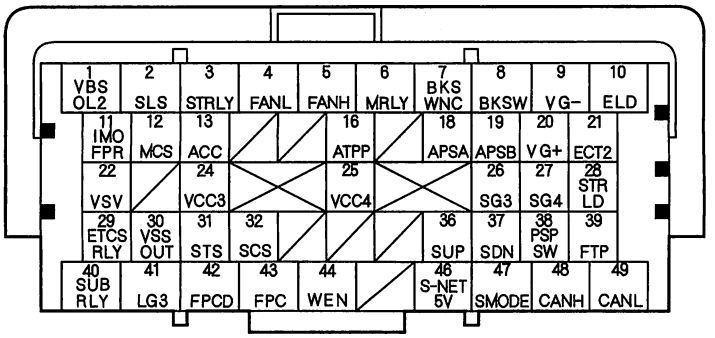
BACK

Protected by AR

System Description (cont'd)

PCM Inputs and Outputs at Connector A (□) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
28	PNK	STRLD	Detects starter cut relay 2	With starter ON: battery voltage
29	BLU	ETCSRLY (ELECTRONIC THROTTLE CONTROL SYSTEM (ETCS) CONTROL RELAY)	Drives electronic throttle control system (ETCS) control relay	With ignition switch ON (II): about 0 V
30	BLU	VSSOUT (VEHICLE SPEED SIGNAL OUTPUT)	Sends output shaft (countershaft) speed sensor signal	Depending on vehicle speed: pulses
31	LT BLU	STS (STARTER SWITCH SIGNAL)	Detects starter switch signal	With starter switch ON (II): battery voltage With starter switch OFF: about 0 V
32	BRN	SCS (SERVICE CHECK SIGNAL)	Detects service check signal	With the service check signal shorted with the HDS: about 0 V With the service check signal opened: about 5.0 V
36	BLU	SUP (UPSHIFT SWITCH)	Detects upshift switch signal	In M position and shift lever pushed toward upshift position: about 0 V In M position and shift lever in N position: battery voltage
37	GRN	SDN (DOWNSHIFT SWITH)	Detects downshift switch signal	In M position and shift lever pushed toward downshift position: about 0 V In M position and shift lever in N position: battery voltage

BACK

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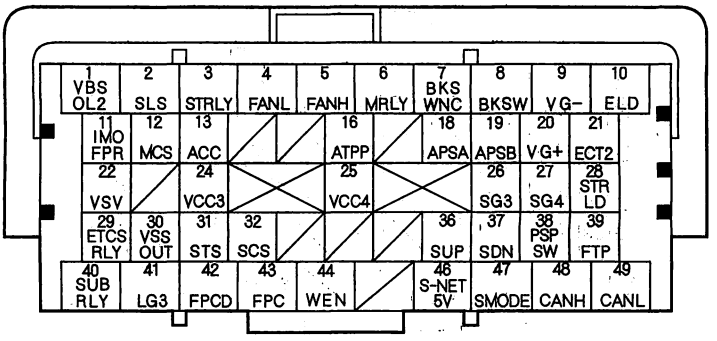
PCM Inputs and Outputs at Connector A (□) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
38	PNK	PSPSW (POWER STEERING PRESSURE SWITCH SIGNAL)	Detects PSP switch signal	At idle with steering wheel in straight ahead position: about 0 V At idle with steering wheel at full lock: battery voltage
39	LT GRN	FTP (FUEL TANK PRESSURE (FTP) SENSOR	Detects FTP sensor signal	With ignition switch ON (II) and fuel fill cap removed: about 2.5 V
40	RED	SUBRLY (PGM-FI SUBRELAY)	Drives PGM-FI subrelay	With ignition switch ON (II): about 0 V
41	BRN	LG3 (LOGIC GROUND)	Ground circuit for the PCM	Less than 1.0 V at all time
42	LT BLU	FPCD (FUEL PUMP CONTROL MODULE DIAGNOSIS)	Detects fuel pump control diagnosis	With ignition switch ON (II): about 5.0 V At idle: about 10.0 V
43	PNK	FPC (FUEL PUMP CONTROL)	Detects fuel pump control signal	With ignition switch ON: pulses With ignition switch OFF: about 0 V
44	GRY	WEN (WRITE ENABLE SIGNAL)	Detects write enable signal	With ignition switch ON (II): about 0 V
46	LT GRN	S-NET5V (SERIAL COMMUNICATION FOR IMMOBILIZER)	Sends serial communication signal	With ignition switch ON (II): pulses With ignition switch OFF: about 5.0 V

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BACK

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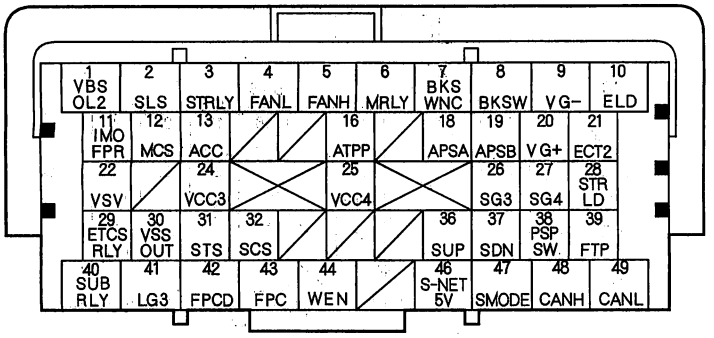
System Description (cont'd)

PCM Inputs and Outputs at Connector A (□) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
47	PUR	SMODE (SEQUENTIAL SPORT SHIFT MODE)	Detects sequential sportshift mode switch signal	In M position: about 0 V In any position other than M position: battery voltage
48	WHT	CANH (CAN COMMUNICATION SIGNAL HIGH)	Sends communication signal	With ignition switch ON (II): pulses
49	RED	CANL (CAN COMMUNICATION SIGNAL LOW)	Sends communication signal	With ignition switch ON (II): pulses

BACK

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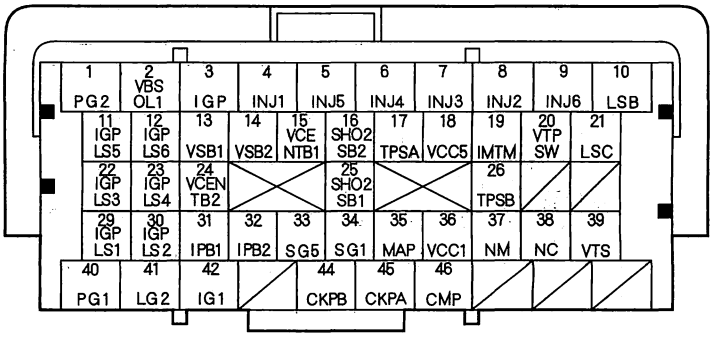
PCM Inputs and Outputs at Connector B (△) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	BLK	PG2 (POWER GROUND)	Ground circuit for PCM circuit	Less than 1.0 V at all times
2	BLK/YEL	VBSOL (POWER SOURCE FOR SOLENOID VALVES)	Power source for solenoid valve	With ignition switch ON (II): battery voltage
3	YEL/BLK	IGP (POWER SOURCE)	Power source for PCM circuit	With ignition switch ON (II): battery voltage
4	BRN	INJ1 (No. 1 INJECTOR)	Drives No. 1 injector	At idle: duty controlled With ignition switch ON (II): battery voltage
5	BLK/RED	INJ5 (No. 5 INJECTOR)	Drives No. 5 injector	
6	YEL	INJ4 (No. 4 INJECTOR)	Drives No. 4 injector	
7	BLU	INJ3 (No. 3 INJECTOR)	Drives No. 3 injector	
8	RED	INJ2 (No. 2 INJECTOR)	Drives No. 2 injector	
9	WHT/BLU	INJ6 (No. 6 INJECTOR)	Drives No. 6 injector	
10	BRN/WHT	LSB (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B)	Drives A/T clutch pressure control solenoid valve B	With ignition switch ON (II): current controlled

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BACK

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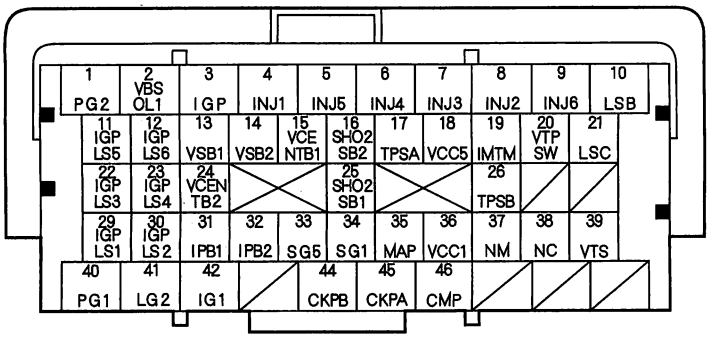
System Description (cont'd)

PCM Inputs and Outputs at Connector B (△) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
11	BLK/RED	IGPLS5 (No. 5 IGNITION COIL PULSE)	Drives No. 5 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
12	BRN/WHT	IGPLS6 (No. 6 IGNITION COIL PULSE)	Drives No. 6 ignition coil	
13	BLU	VSB1 (VS CELL+ BANK 1)	Detects the rear A/F sensor (BANK 1, sensor 1) VS SELL signal	With engine running: about 3.4—4.8 V
14	RED/BLU	VSB2 (VS CELL+ BANK 2)	Detects front A/F sensor (BANK 1, sensor 1) VS SELL signal	With fully warmed up engine running: about 3.4—4.8 V
15	RED	VCENTB1 (VIRTUAL GROUND BANK 1)	Reference voltage supply for rear A/F sensor (BANK 1, sensor 1)	With fully warmed up engine running: about 3.4—3.8 V
16	WHT	SHO2SB2 (FRONT SECONDARY HEATED OXYGEN SENSOR (FRONT SECONDARY HO2S) BANK 2, SENSOR 2)	Detects front secondary HO2S (Bank 2, sensor 2) signal	With throttle fully opened from idle with fully warmed up engine: about 0.6 V With throttle quickly closed: below 0.4 V
17	RDE/BLK	TPSA (THROTTLE POSITION (TP) SENSOR A)	Detects TP sensor A signal	With throttle fully open: about 3.9 V With throttle fully closed: about 0.9 V

BACK

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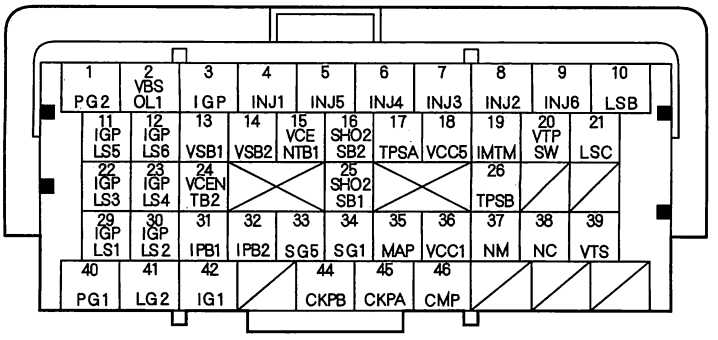
PCM Inputs and Outputs at Connector B (△) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
18	BLU	VCC5 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
19	WHT/BLK	IMTM (INTAKE MANIFOLD TUNING (IMT) VALVE MONITOR)	Detects IMT valve position	With ignition switch ON (II): about 0 V With engine speed above 3,800 rpm: about 5.0 V
20	BLU/WHT	VTPSW (ROCKER ARM OIL PRESSURE SWITCH)	Detects rocker arm oil pressure switch	With engine at low speed: about 0 V With engine at high speed: battery voltage
21	GRN/RED	LSC (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C)	Drives A/T clutch pressure control solenoid valve C	With ignition switch ON (II): current controlled
22	WHT/BLU	IGPLS3 (No. 3 IGNITION COIL PULSE)	Drives No. 3 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
23	BRN	IGPLS4 (No. 4 IGNITION COIL PULSE)	Drives No. 4 ignition coil	
24	RED/WHT	VCENTB2 (VIRTUAL GROUND BANK 2)	Reference voltage supply for front A/F sensor (Bank 2, sensor 1)	With fully warmed up engine at idle: about 3.4—4.8 V

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BACK

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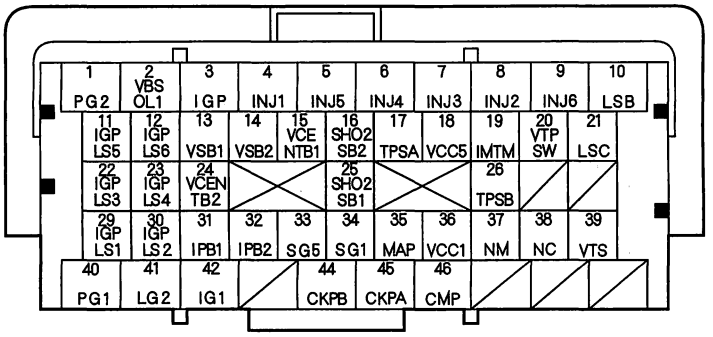
System Description (cont'd)

PCM Inputs and Outputs at Connector B (△) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
25	GRN	SHO2SB1 (REAR SECONDARY HEATED OXYGEN SENSOR (REAR SECONDARY HO2S) BANK 1, SENSOR 2)	Detects rear secondary HO2S (Bank 1, sensor 2) signal	With throttle fully opened from idle with fully warmed up engine: about 0.6 V With throttle quickly closed: below 0.4 V
26	RED/BLU	TPSB (THROTTLE POSITION (TP) SENSOR B)	Detects TP sensor B signal	With throttle fully open: about 4.1 V With throttle fully closed: about 1.7 V
29	YEL/GRN	IGPLS1 (No. 1 IGNITION COIL PULSE)	Drives No. 1 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
30	BLU/RED	IGPLS2 (No. 2 IGNITION COIL PULSE)	Drives No. 2 ignition coil	
31	GRN	IPB1 (IP CELL+ BANK 1)	Detects rear A/F sensor (Bank 1, sensor 1) pump cell	With engine running: about 2.0—5.6 V
32	GRN/RED	IPB2 (IP CELL+ BANK 2)	Detects front A/F sensor (Bank 2, sensor 1) pump cell	With engine running: about 2.0—5.6 V
33	GRN	SG5 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
34	GRN/WHT	SG1 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
35	GRN/RED	MAP (MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): about 3.0 V At idle: about 1.0 V (depending on engine speed)

BACK

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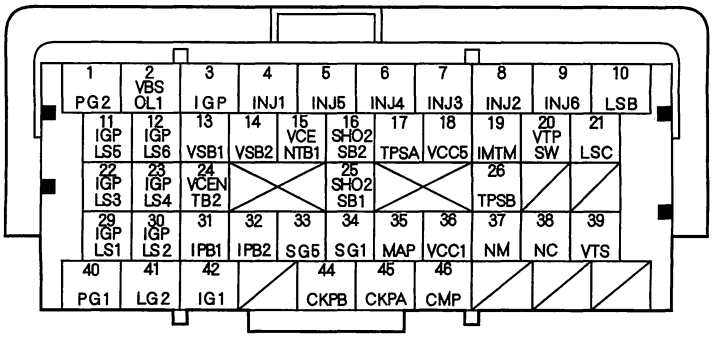
PCM Inputs and Outputs at Connector B (△) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
36	YEL/RED	VCC1 (SENSOR VOLTAGE)	Provides sensor reference voltage	Ignition switch ON: about 5.0 V
37	RED	NM (INPUT SHAFT (MAINSHAFT) SPEED SENSOR)	Detects input shaft (mainshaft) speed sensor signals	With ignition switch ON (II): about 0 V or about 5.0 V With engine at idling in N position: about 2.5 V
38	BLU	NC (OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR)	Detects output shaft (countershaft) speed sensor signal	With ignition switch ON (II) and front wheels rotated by hand: pulses
39	GRN/YEL	VTS (ROCKER ARM OIL CONTROL SOLENOID)	Drives rocker arm oil control solenoid	At idle: about 0 V
40	BLK	PG1 (POWER GROUND)	Ground circuit for PCM circuit	Less than 1.0 V at all times
41	BRN/YEL	LG2 (LOGIC GROUND)	Ground circuit for PCM circuit	Less than 1.0 V at all times
42	BLK/YEL	IG1 (IGNITION SIGNAL)	Detects ignition signal	With ignition switch ON (II): battery voltage
44	BLU/RED	CKPB (CRANKSHAFT POSITION (CKP) SENSOR B)	Detects CKP sensor B signal	With engine running: pulses
45	BLU	CKPA (CRANKSHAFT POSITION (CKP) SENSOR A)	Detects CKP sensor A signal	With engine running: pulses
46	YEL	CMP (CAMSHAFT POSITION (CMP) SENSOR)	Detect CMP sensor signal	With engine running: pulses

(cont'd)

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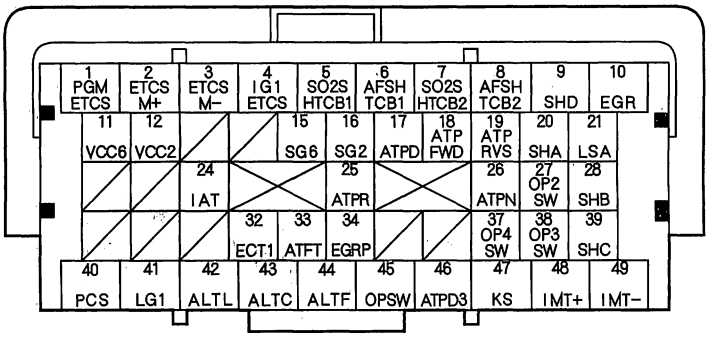
System Description (cont'd)

PCM Inputs and Outputs at Connector C (○) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	BLK	PGMETCS (POWER GROUND ETCS)	Ground circuit for PCM circuit	Less than 1.0 V at all times
2	BLU	ETCSM+ (THROTTLE ACTUATOR +SIDE)	Drives throttle actuator	With ignition switch ON (II): about 0 V
3	GRN	ETCSM− (THROTTLE ACTUATOR −SIDE)	Ground for throttle actuator	With ignition switch ON (II): about 0 V
4	YEL/GRN	IG1ETCS (IGNITION SIGNAL ETCS)	Detects ignition signal	With ignition switch ON (II): battery voltage
5	BLK/WHT	SO2SHTCB1 (REAR SECONDARY HEATED OXYGEN SENSOR (REAR SECONDARY HO2S) HEATER)	Drives rear secondary HO2S heater (Bank 1, sensor 2)	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
6	BLK/WHT	AFSHTCB1 (REAR AIR FUEL RAITO (REAR A/F) SENSOR HEATER CONTROL BANK 1, SENSOR 1)	Drives rear A/F sensor heater (Bank 1, sensor 1)	With ignition switch ON (II): battery voltage With fully warmed up engine running: about 0 V or pulses

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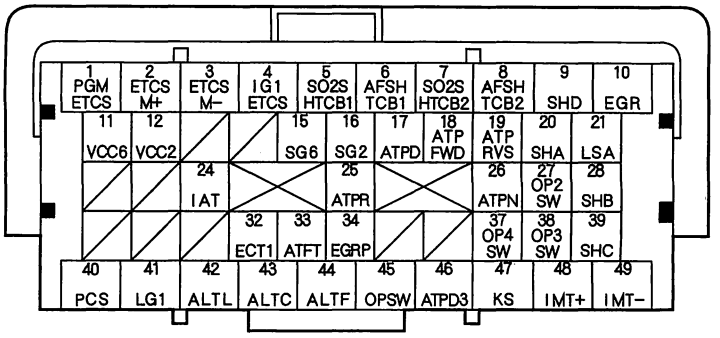
PCM Inputs and Outputs at Connector C (○) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
7	GRN/RED	SO2SHTCB2 (FRONT SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) HEATER)	Drives front secondary HO2S heater (Bank 2, sensor 2)	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
8	GRN/WHT	AFSHTCB2 (FRONT AIR FUEL RATIO (FRONT A/F) SENSOR HEATER CONTROL BANK 2, SENSOR 1)	Drives front A/F sensor heater (Bank 2, sensor 1)	With ignition switch ON (II): battery voltage With fully warmed up engine running: about 0 V or pulses
9	GRN/RED	SHD (SHIFT SOLENOID VALVE D)	Drives shift solenoid valve D	With engine running in N position, and in D position during no lock-up condition: about 0 V With engine running in P and R positions, and in D position during no lock-up condition: battery voltage
10	BLU/RED	EGR (EXHAUST GAS RECIRCULATION (EGR) VALVE)	Drives EGR valve	With EGR operating: duty controlled With EGR not operating: about 0 V
11	YEL/BLU	VCC6 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
12	YEL/BLU	VCC2 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
15	GRN/YEL	SG6 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times

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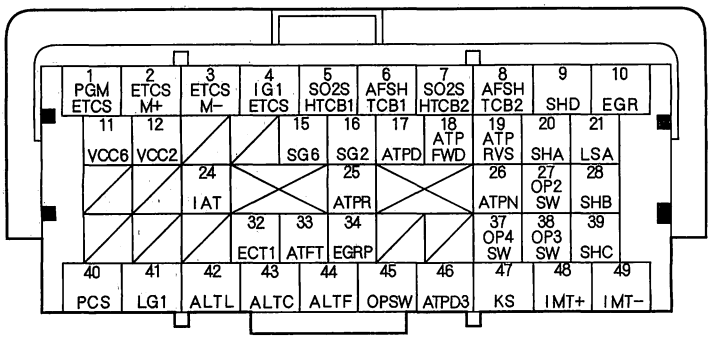
System Description (cont'd)

PCM Inputs and Outputs at Connector C (◯) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
16	GRN/YEL	SG2 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
17	YEL/GRN	ATPD (TRANSMISSION RANGE SWITCH D)	Detects transmission range switch D position signal input	In D position: about 0 V In any position other than D position: battery voltage
18	BLU/YEL	ATPFWD (TRANSMISSION RANGE SWITCH D/D3 POSITION)	Detects transmission range switch D, D3 position signal	In D and D3 positions: about 0 V In any position other than D and D3 positions: battery voltage
19	RED/WHT	ATPRVS (TRANSMISSION RANGE SWITCH R POSITION)	Detects transmission range switch P, R, N position signal input	In P, R, N positions: about 0 V In any position other than P, R, N positions: battery voltage
20	BLU/YEL	SHA (SHIFT SOLENOID VALVE A)	Drives shift solenoid valve A	With engine running in D3 position, and D position (in 1st, 2nd, or 5th gears): battery voltage With engine running in P, R, N positions, and D position (in 3rd and 4th gears): about 0 V
21	RED	LSA (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A)	Drives A/T clutch pressure control solenoid valve A	With ignition switch ON (II): current controlled
24	RED/YEL	IAT (INTAKE AIR TEMPERATURE (IAT) SENSOR)	Detects IAT sensor signal	With ignition switch ON (II): about 0.1—4.8 V (depending on intake air temperature)
25	WHT	ATPR (TRANSMISSION RANGE SWITCH R)	Detects transmission range switch R position signal input	In R position: about 0 V In any position other than R position: battery voltage

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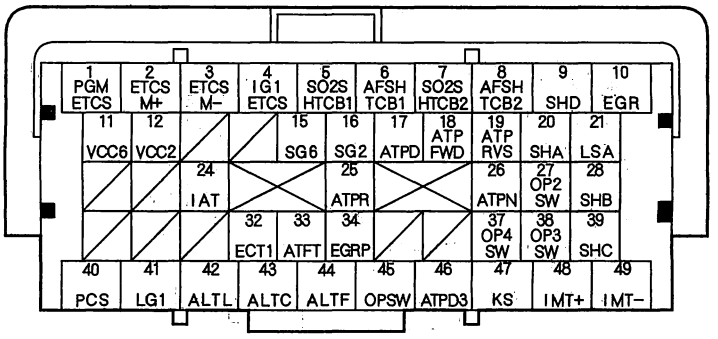
PCM Inputs and Outputs at Connector C (○) (44P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
26	RED/BLK	ATPN (TRANSMISSION RANGE SWITCH N)	Detects transmission range switch N position signal input	In N position: about 0 V In any position other than N position: battery voltage
27	BLU/BLK	OP2SW (2ND CLUTCH TRANSMISSION FLUID PRESSURE SWITCH)	Detects 2nd clutch transmission fluid pressure switch input	With ignition switch ON (II): • Without 2nd clutch pressure: about 5.0 V • With 2nd clutch pressure: about 0 V
28	GRN/WHT	SHB (SHIFT SOLENOID VALVE B)	Drives shift solenoid valve B	With engine running in P, R, N, D3 positions, and D position (in 1st, 2nd, or 3rd gears): battery voltage With engine running in D position (in 4th and 5th gears): about 0 V
32	RED/WHT	ECT1 (ENGINE COOLANT TEMPERATURE SENSOR (ECT) SENSOR 1)	Detects ECT sensor 1 signal	With ignition switch ON (II): about 0.1—4.8 V (depending on engine coolant temperature)
33	BLU/YEL	ATFT (ATF TEMPERATURE SENSOR)	Detects AFT temperature signal	With ignition switch ON (II): about 0.2—4.0 V (about 1.8 V at operating temperature) (depending on ATF temperature)
34	WHT/BLK	EGRP (EXHAUST GAS RECIRCULATION (EGR) VALVE POSITION SENSOR)	Drives EGR valve position sensor signal	With engine running: about 1.2—3.0 V (depending on EGR valve lift)
37	BLU/YEL	OP4SW (4TH CLUTCH TRANSMISSION FLUID PRESSURE SWITCH)	Detects 4th clutch transmission fluid pressure switch input	With ignition switch ON (II): • Without 4th clutch pressure: about 5.0 V • With 4th clutch pressure: about 0 V

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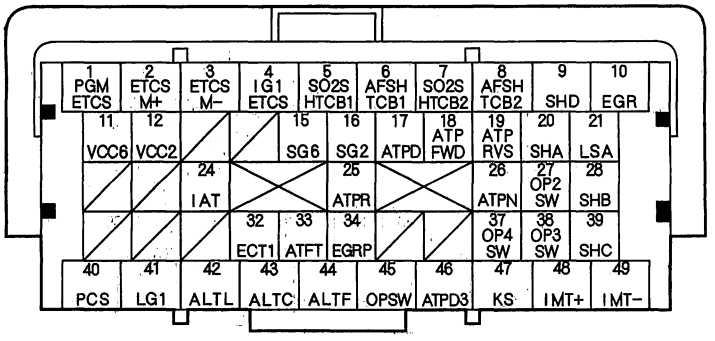
System Description (cont'd)

PCM Inputs and Outputs at Connector C (○) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
38	BLU/WHT	OP3SW (3RD CLUTCH TRANSMISSION FLUID PRESSURE SWITCH)	Detects 3rd clutch transmission fluid pressure switch input	With ignition switch ON (II): • Without 3rd clutch pressure: about 5.0 V • With 3rd clutch pressure: about 0 V
39	GRN	SHC (SHIFT SOLENOID VALVE C)	Drives shift solenoid valve C	With engine running in D position (in 1st, 3rd, and 5th gears): battery voltage With engine running in P, R, N, D3 positions, and D position (in 2nd and 4th gears): about 0 V
40	RED/YEL	PCS (EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE)	Drives EVAP canister purge valve	With engine running, engine coolant below 140 °F (60 °C): battery voltage With engine running, engine coolant above 140 °F (60 °C): duty controlled
41	BRN/YEL	LG1 (LOGIC GROUND)	Ground circuit for PCM circuit	Less than 1.0 V at all times
42	WHT/BLU	ALTL (ALTERNATOR L SIGNAL)	Detects alternator L signal	With ignition switch ON (II): about 0 V With engine running: battery voltage
43	WHT/GRN	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal	With fully warmed up engine running battery voltage (depending on electrical load)
44	WHT/RED	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal	With engine running: about 0—5.0 V (depending on electrical load)
45	BUL/YEL	OPSW (OIL PRESSURE SWITCH)	Detects engine oil pressure signal	With ignition switch ON (II): about 0 V With engine running: battery voltage

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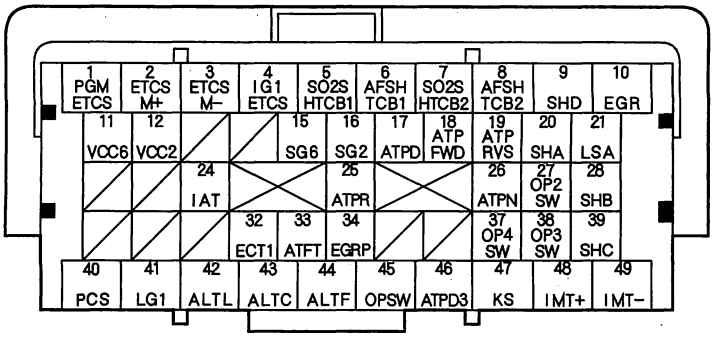
PCM Inputs and Outputs at Connector C (○) (49P)



Terminal side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
46	RED	ATPD3 (TRANSMISSION RANGE SWITCH D3)	Detects transmission switch D3 signal input	In D3 position: about 0 V In any position other than D3 position: battery voltage
47	RED/BLU	KS (KNOCK SENSOR)	Detects knock sensor signal	With engine knocking: pulses
48	WHT/BLU	IMT+ (INTAKE MANIFOLD TUNING (IMT) ACTUATOR +SIDE)	Drives IMT actuator	With ignition switch ON (II): battery voltage
49	WHT/RED	IMT− (INTAKE MANIFOLD TUNING (IMT) ACTUATOR −SIDE)	Drives IMT actuator	With ignition switch ON (II): battery voltage

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System Description (cont'd)

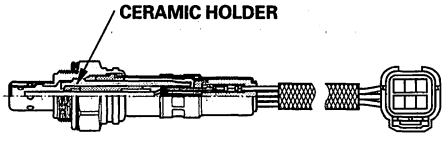
PGM-FI System

The programmed fuel injection (PGM-FI) system is a sequential multiport fuel injection system.

Alternator Control
The alternator signals the PCM during charging.

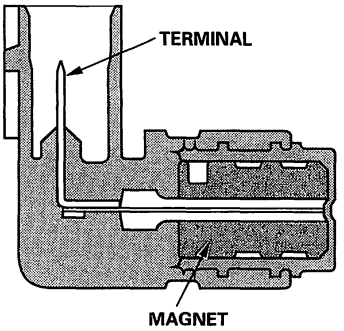
Air Conditioning (A/C) Compressor Clutch Relay
When the PCM receives a demand for cooling from the A/C system, it delays the compressor from being energized, and enriches the mixture to assure smooth transition to the A/C mode.

Air Fuel Ratio (A/F) Sensor
The A/F sensor operates over a wide air/fuel range. The A/F sensor is installed upstream of the TWC, and sends signals to the PCM which varies the duration of fuel injection accordingly.

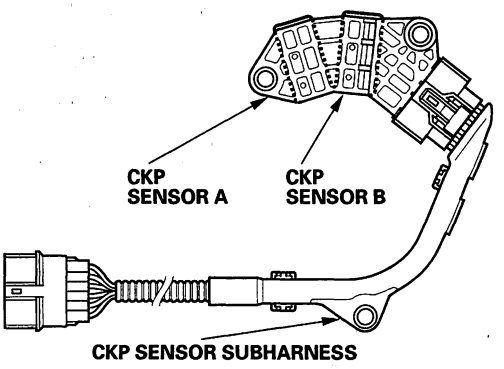


Barometric Pressure (BARO) Sensor
The BARO sensor is inside the PCM. It converts atmospheric pressure into a voltage signal that is used by the PCM to modify the basic duration of the fuel injection discharge.

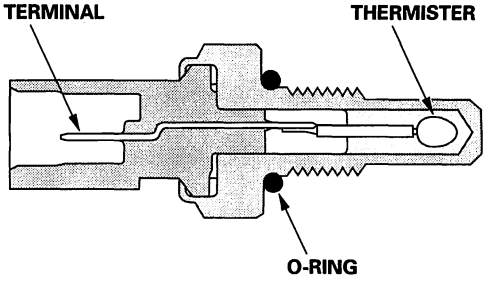
Camshaft Position (CMP) Sensor
The CMP sensor input is used by the PCM to determine ignition timing at start up (cranking) and when crank angle is abnormal.



Crankshaft Position (CKP) Sensor
The CKP sensor detects crankshaft speed and is used by the PCM to determine ignition timing and timing for fuel injection of each cylinder, as well as detecting engine misfire.



Engine Coolant Temperature (ECT) Sensor 1/Engine Coolant Temperature (ECT) Sensor 2
ECT sensors 1 and 2 are temperature dependent resistors (thermistors). The resistance decreases as the engine coolant temperature increases.



Ignition Timing Control
The PCM contains the memory for basic ignition timing at various engine speeds and manifold absolute pressures. It also adjusts the timing according to engine coolant temperature.

Injector Timing and Duration
The PCM contains the memory for basic discharge duration at various engine speeds and manifold pressures. The basic discharge duration, after being read out from the memory, is further modified by signals sent from various sensors to obtain the final discharge duration.
By monitoring long term fuel trim, the PCM detects long term malfunctions in the fuel system and sets a diagnostic trouble code (DTC).

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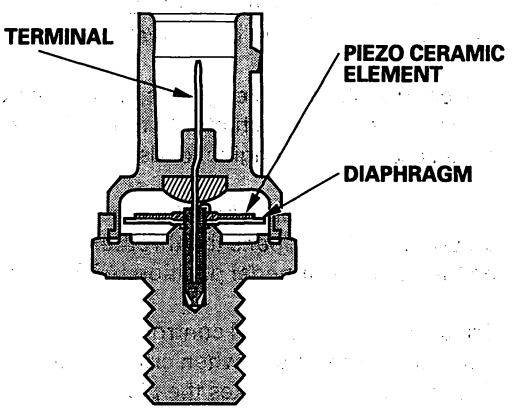
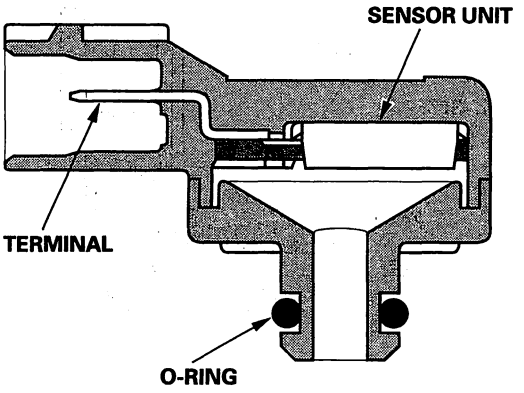
Knock Sensor
The knock control system adjusts the ignition timing to minimize knock.



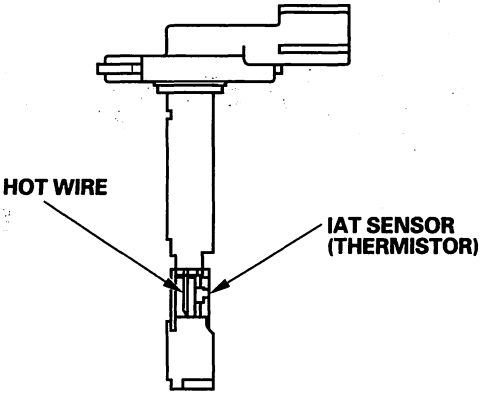
Malfunction Indicator Lamp (MIL) Indication (In relation to Readiness Codes)
The vehicle has certain "readiness codes" that are part of the on-board diagnostics for the emissions systems. If the vehicle's battery has been disconnected or gone dead, if the DTCs have been cleared, or if the PCM has been reset, these codes are reset. In some states, part of the emissions testing is to make sure these codes are set to complete. If all of them are not set to complete, the vehicle may fail the test, or the test cannot be finished.

To check if the readiness codes are set to complete, turn the ignition switch ON (II), but do not start the engine. The MIL will come on for 15—20 seconds. If it then goes off, the readiness codes are complete. If it flashes five times, one or more readiness codes are not set to complete. To set each code, drive the vehicle or run the engine as described in the procedures (see page 11-66).

Manifold Absolute Pressure (MAP) Sensor
The MAP sensor converts manifold absolute pressure into electrical signals to the PCM.



Mass Air Flow (MAF) Sensor/Intake Air Temperature (IAT) Sensor
The mass air flow (MAF) sensor/intake air temperature (IAT) sensor contains a hot wire and a thermistor. It is located in the intake air passage. The resistance of the hot wire and thermistor change due to intake air temperature and air flow. The control circuit in the MAF sensor controls the current to keep the hot wire at a set temperature. The current is converted to voltage in the control circuit, then output to the PCM.



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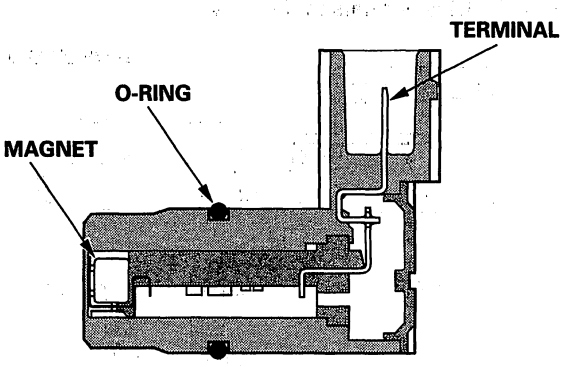
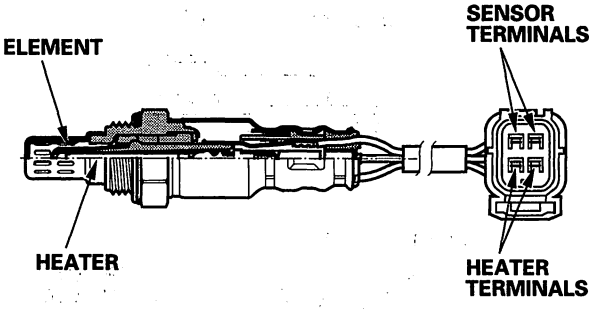
System Description (cont'd)

Output Shaft (Countershaft) Speed Sensor
This sensor detects countershaft speed.



Secondary Heated Oxygen Sensor (Secondary HO2S)
The secondary HO2S detects the oxygen content in the exhaust gas downstream of the warm up three way catalytic converter (WU-TWC), and sends signals to the PCM. To stabilize its output, the sensor has an internal heater. The PCM compares the HO2S output with the A/F sensor output to determine catalyst efficiency. The secondary HO2S is on the WU-TWC.



Electronic Throttle Control System

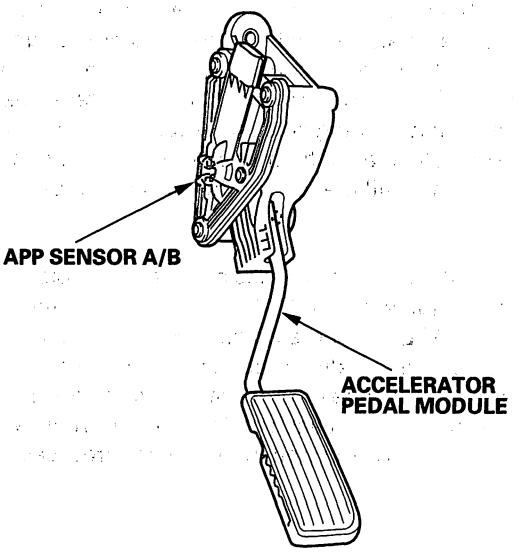
The throttle is electronically controlled by the electronic throttle control system. Refer to the system diagram to see a functional layout of the system.

Idle control: When the engine is idling, the PCM controls the throttle actuator to maintain the proper idle speed according to engine loads.

Acceleration control: When the accelerator pedal is pressed, the PCM opens the throttle valve depending on the accelerator pedal position (APP) sensor signal.

Cruise control: The PCM controls the throttle actuator to maintain the set speed when cruise control is operating. The throttle actuator takes the place of the cruise control actuator.

Accelerator Pedal Position (APP) Sensor
As the accelerator pedal position changes, the sensor varies the signal voltage to the PCM.



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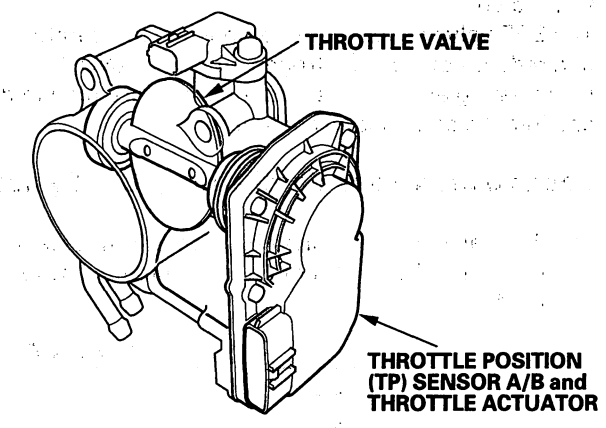
Throttle Body
The throttle body is a single-barrel side draft type. The lower portion of the throttle valve is heated by engine coolant from the cylinder head to prevent icing of the throttle plate.



Idle Control System

When the engine is cold, the A/C compressor is on, the transmission is in gear, the brake pedal is pressed, the power steering load is high, or the alternator is charging, the PCM controls current to the throttle actuator to maintain the correct idle speed.

Brake Pedal Position Switch
The brake pedal position switch signals the PCM when the brake pedal is pressed.

Power Steering Pressure (PSP) Switch
The PSP switch signals the PCM when the power steering load is high.

Fuel Supply System

Fuel Cutoff Control
During deceleration with the throttle valve closed, current to the injectors is cut off to improve fuel economy at engine speeds over 850 rpm. Fuel cutoff control also occurs when the engine speed exceeds 6,600 rpm, regardless of the position of the throttle valve, to protect the engine from over-revving. When the vehicle is stopped, the PCM cuts the fuel at engine speeds over 5,000 rpm. Engine speed of fuel cut is lower on a cold engine.

Fuel Pump Control
When the ignition switch is turned on, the PCM grounds PGM-FI main relay 2 which feeds current to the fuel pump control module. The PCM sends a signal to the fuel pump control module to operate the fuel pump for 2 seconds to pressurize the fuel system. With the engine running, the fuel pump speed is controlled in four levels by the fuel pump control module. The PCM decides the fuel pump speed by the calculation of the injector activation time and engine speed and sends a operation command signal to the fuel pump control module. This operation made possible to decrease fuel pump noise at low engine speed.

PGM-FI Main Relay 1 and 2
PGM-FI main relay 1 is energized whenever the ignition switch is ON (II) to supply battery voltage to the PCM, power to the injectors, and power for PGM-FI main relay 2. PGM-FI main relay 2 is energized to supply power to the fuel pump for 2 seconds when the ignition switch is turned ON (II), and when the engine is cranking or running.

(cont'd)

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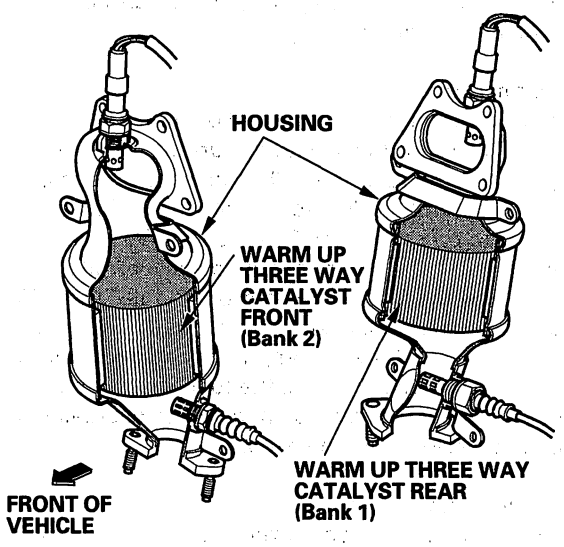
System Description (cont'd)

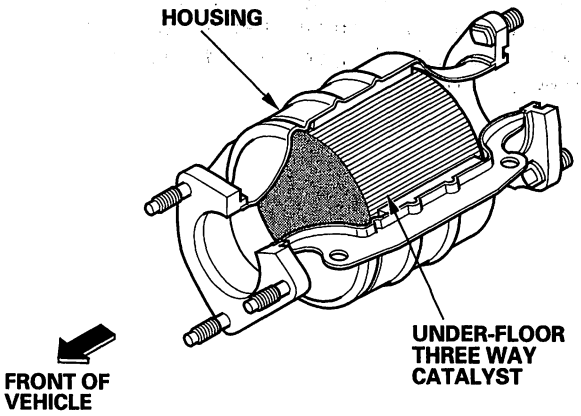
Catalytic Converter System

Warm Up/Three Way Catalytic Converter (WU-TWC) and Under-Floor Three Way Catalytic Converter (TWC)
The WU-TWC/TWC converts hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) in the exhaust gas to carbon dioxide (CO_2), nitrogen (N_2), and water vapor.

WU-TWC



TWC



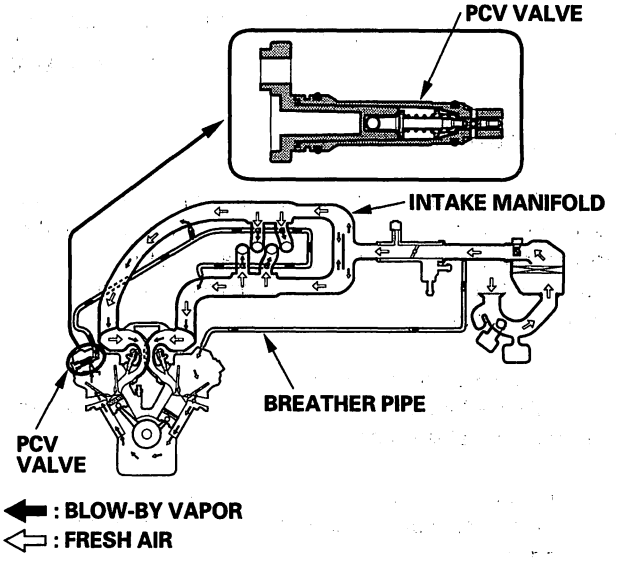
Exhaust Gas Recirculation (EGR) System

Refer to the system diagram to see a functional layout of the system.

EGR Valve
The EGR valve lowers peak combustion temperatures and reduces oxides of nitrogen emissions (NOx) by recirculating exhaust gas through the intake manifold and into the combustion chambers.

Positive Crankcase Ventilation (PCV) System

The PCV valve prevents blow-by gasses from escaping into the atmosphere by venting them into the intake manifold.



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Evaporative Emission (EVAP) Control System

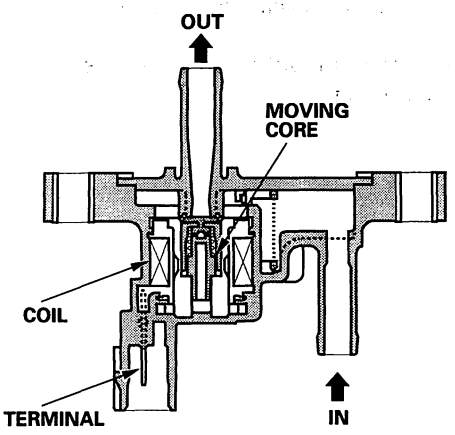
Refer to the system diagram to see a functional layout of the system.

EVAP Canister

The EVAP canister temporarily stores fuel vapor from the fuel tank until it can be purged from the EVAP canister into the engine and burned.

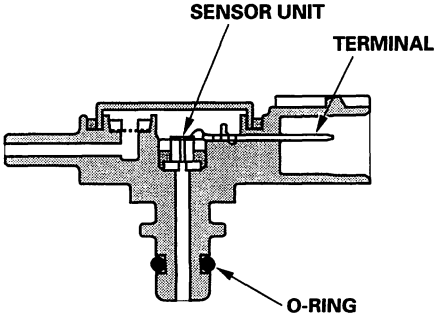
EVAP Canister Purge Valve

When the engine coolant temperature is below 140 °F (60 °C), the PCM turns off the EVAP canister purge valve which cuts vacuum to the EVAP canister.



Fuel Tank Pressure (FTP) Sensor

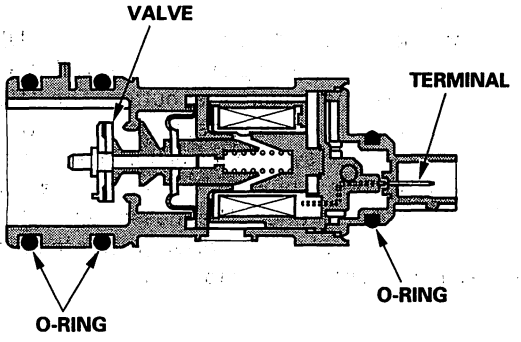
The FTP sensor converts fuel tank absolute pressure into an electrical input to the PCM during the EVAP leak check.



EVAP Canister Vent Shut Valve

The EVAP canister vent shut valve is on the EVAP canister.

The EVAP canister vent shut valve controls the venting of the EVAP canister.



(cont'd)

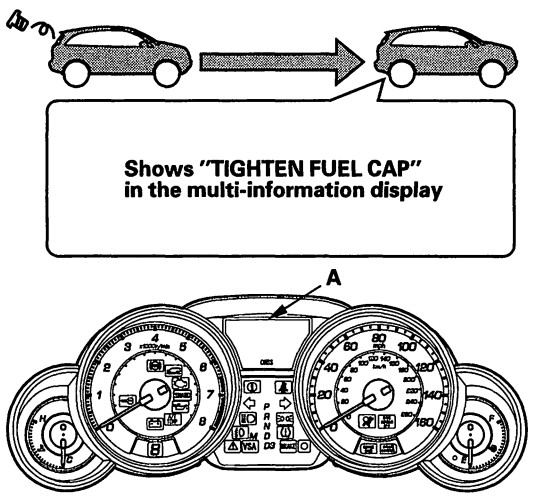
Protected by AR

System Description (cont'd)

Fuel Cap Warning Message

The PCM will detect a loose or missing fuel fill cap as an evaporative system leak and alerts the driver by showing a warning message in the gauge display.

First drive cycle
The first time a leak is detected a "TIGHTEN FUEL CAP" message in the gauge display (A). To scroll to another message, press the select/reset button. The "TIGHTEN FUEL CAP" message will appear each time you restart the engine until the system turns the message off. Turn the engine off then replace or tighten the fuel fill cap until it clicks at least once. The message should go off after several days of normal driving after the fuel fill cap has been tightened or replaced.



To make the message go off (with the HDS)

Procedure
1. Tighten the fuel fill cap until it clicks.
2. Clear the Temporary DTC with the HDS.
3. Verify there is no leak by doing the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

To make the message go off (without the HDS)

Procedure
1. Tighten the fuel fill cap until it clicks.
2. The message should go off after several days normal driving.

BACK

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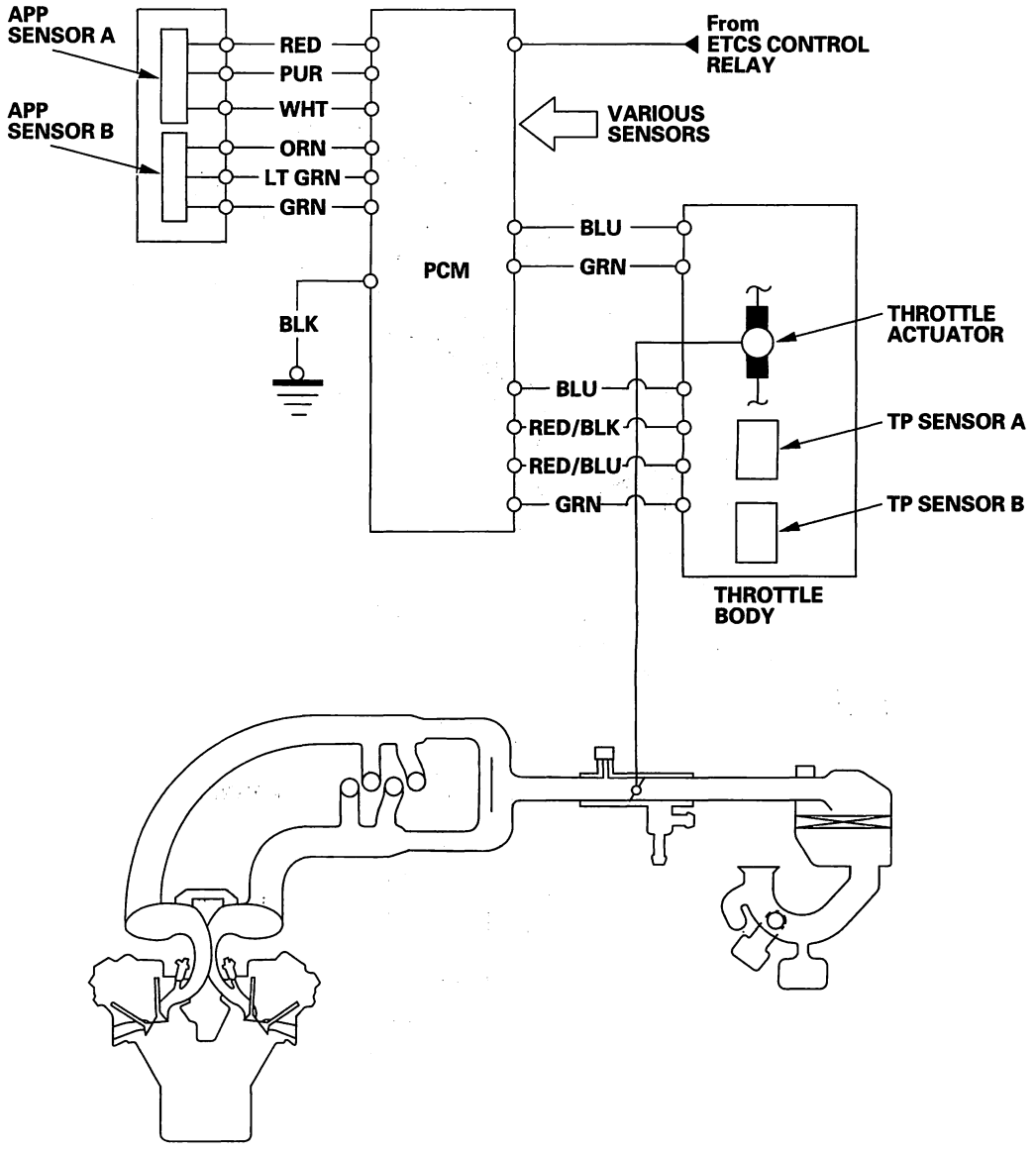
Electronic Throttle Control System Diagram

The electronic throttle control system consists of the throttle actuator, throttle position (TP) sensor A/B, accelerator pedal position (APP) sensor A/B, electronic throttle control system (ETCS) control relay, and the PCM.



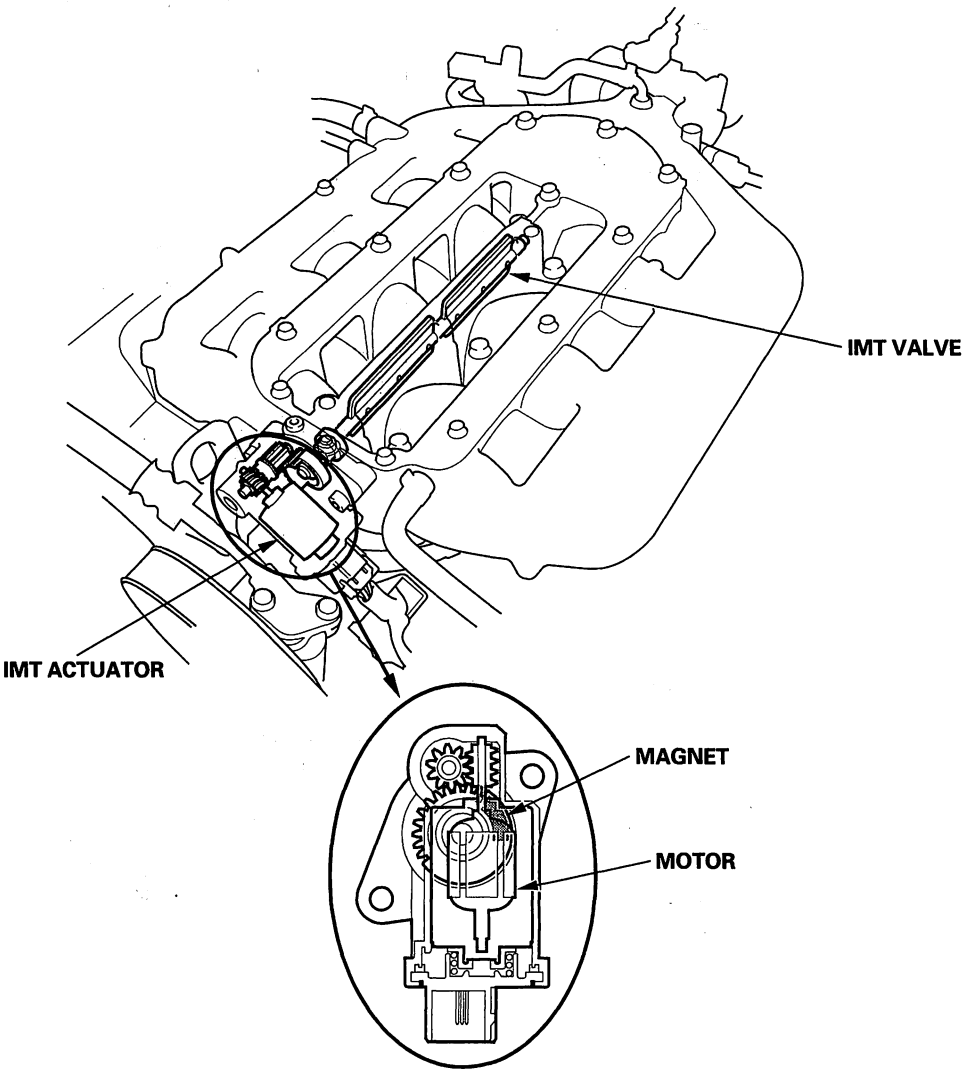
(cont'd)

Protected by AR

System Description (cont'd)

Intake Manifold Tuning (IMT) Valve System

Engine power is adjusted by opening and closing the intake manifold tuning (IMT) actuator. When the valve is closed, there is high torque at low engine speed. When the valve is open, there is high torque at high engine speed.
The intake manifold tuning (IMT) valve actuator contains a sensor that detects the IMT valve position and sends it to the PCM.



BACK

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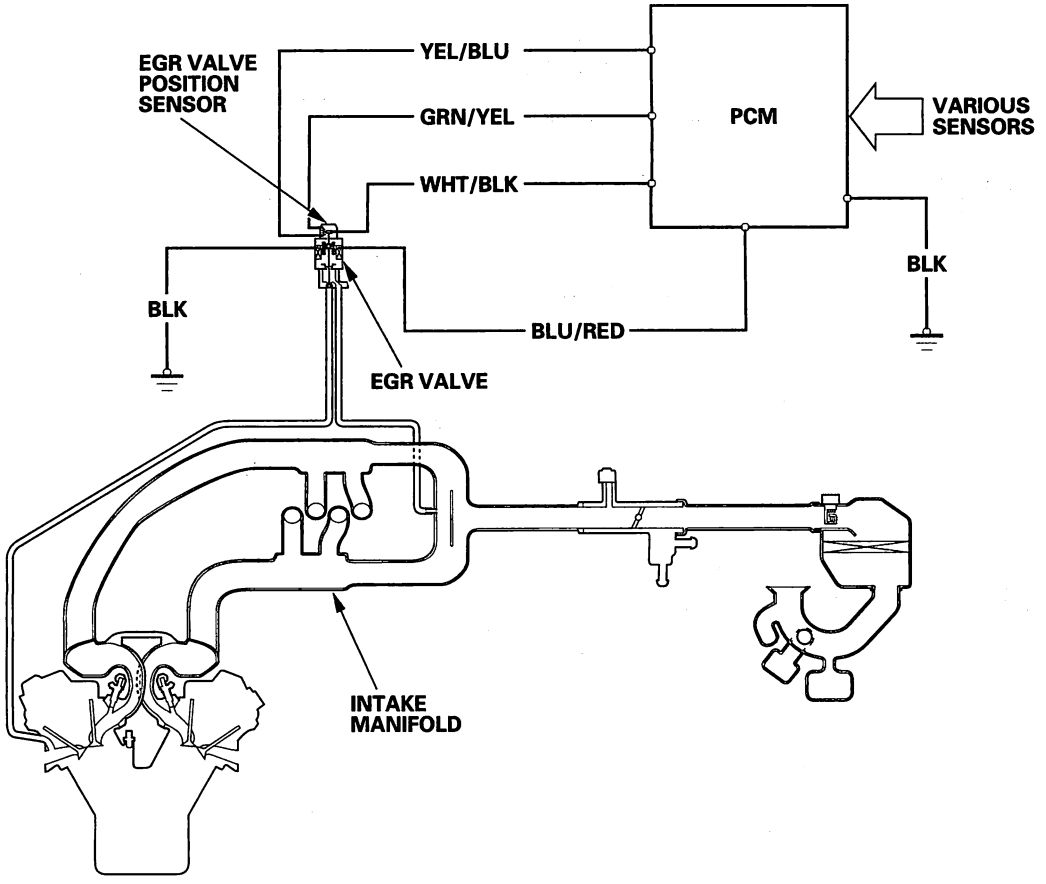
Exhaust Gas Recirculation (EGR) System Diagram

The EGR system reduces oxides of nitrogen (NOx) emissions by recirculating exhaust gas through the EGR valve and the intake manifold into the combustion chambers. The PCM memory contains the ideal EGR valve position for various operating conditions.

The EGR valve position sensor detects the amount of EGR valve lift, and sends it to the PCM. The PCM then compares it with the ideal lift in its memory (based on signals sent from other sensors). If there is any difference between the two, the PCM cuts current to the EGR valve.



(cont'd)

BACK

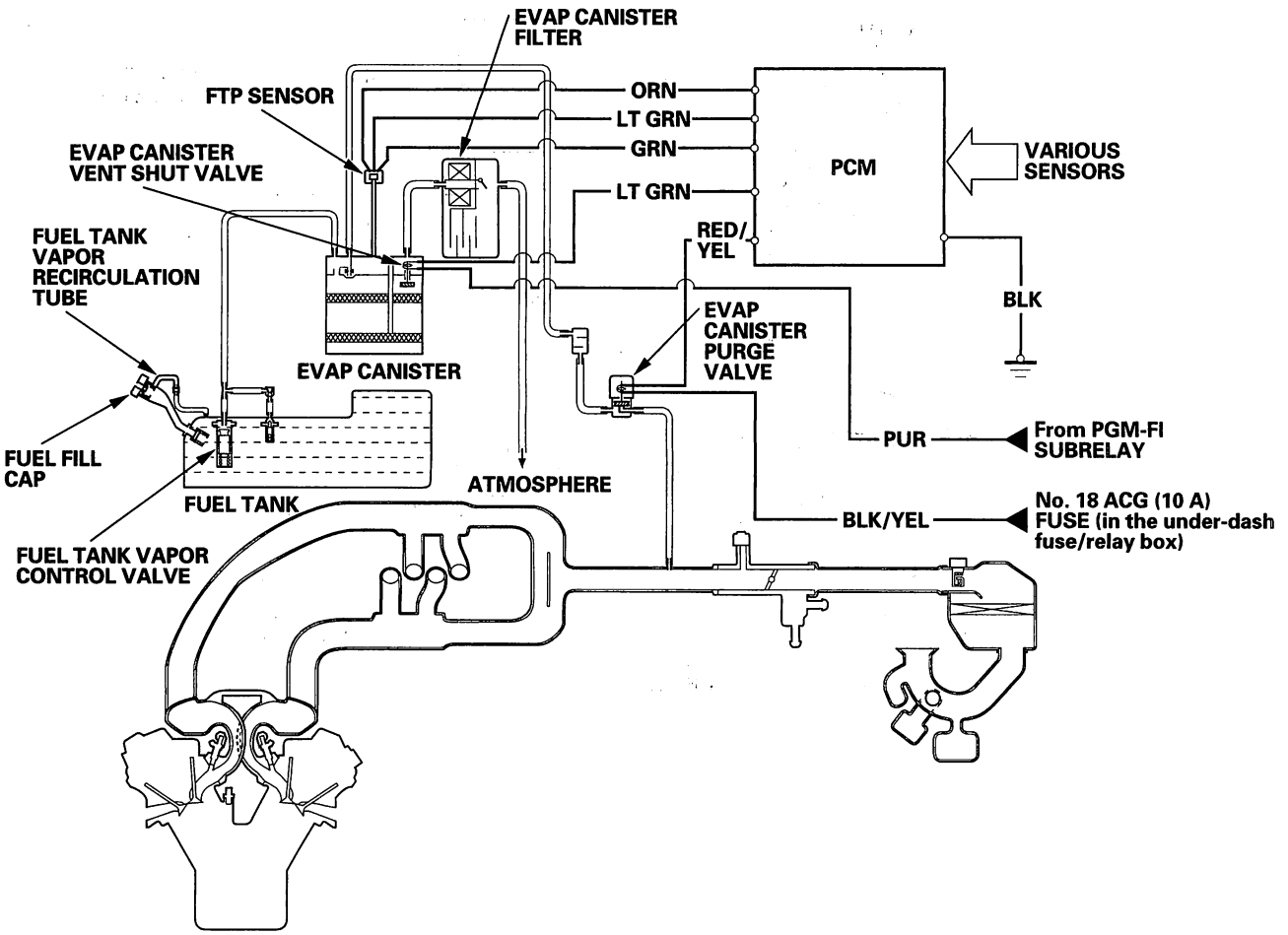
Protected by AR

System Description (cont'd)

Evaporative Emission (EVAP) Control Diagram

The EVAP controls minimize the amount of fuel vapor escaping to the atmosphere. Vapor from the fuel tank is temporarily stored in the EVAP canister until it can be purged from the canister into the engine and burned.

- The EVAP canister is purged by drawing fresh air through it and into a port on the intake manifold. The purging vacuum is controlled by the EVAP canister purge valve, which operates whenever engine coolant temperature is above 140 °F (60 °C).
- During refueling, the fuel tank vapor control valve opens with the pressure in the fuel tank, and feeds the fuel vapor to the EVAP canister.



BACK

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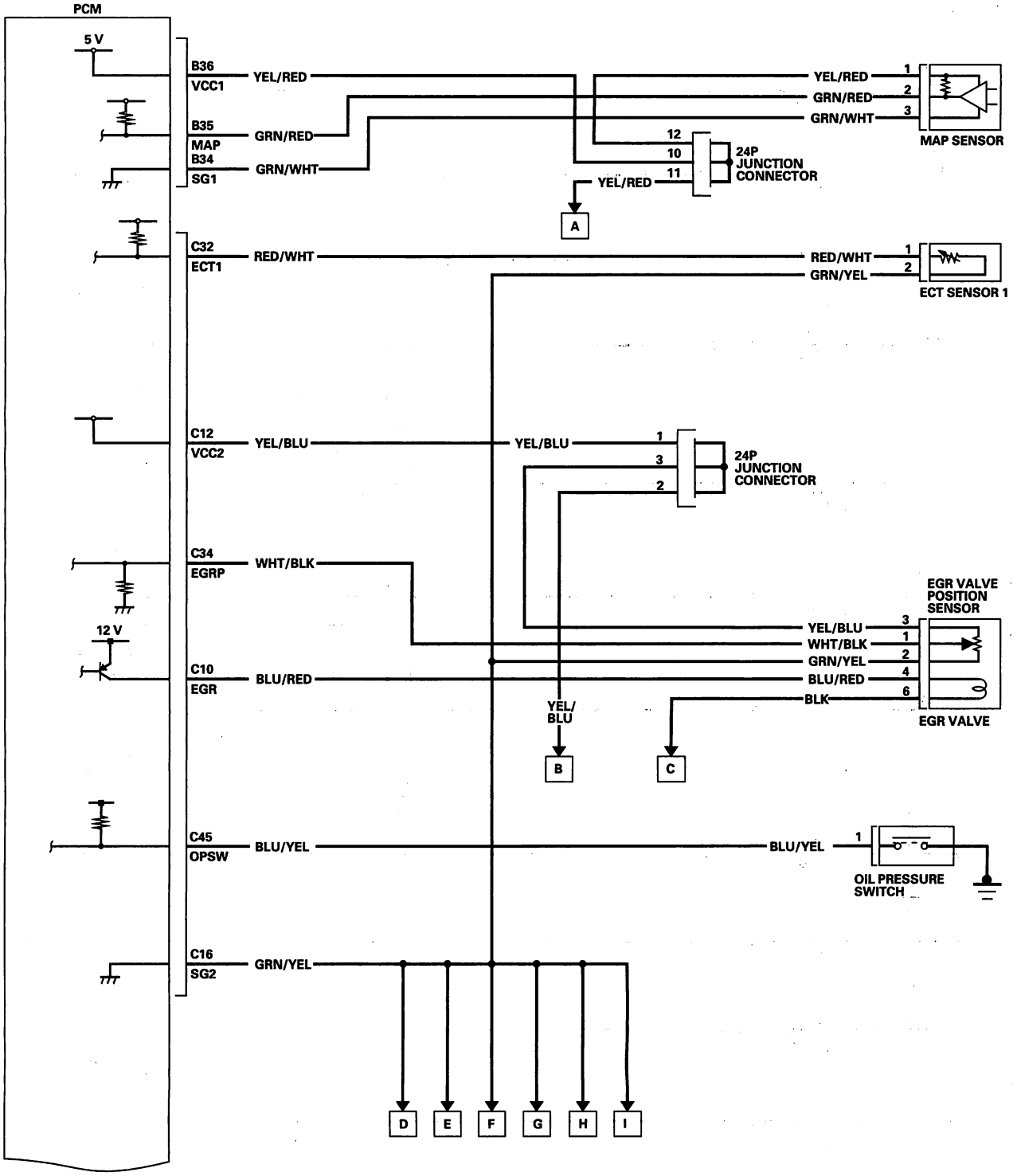
PCM Circuit Diagram



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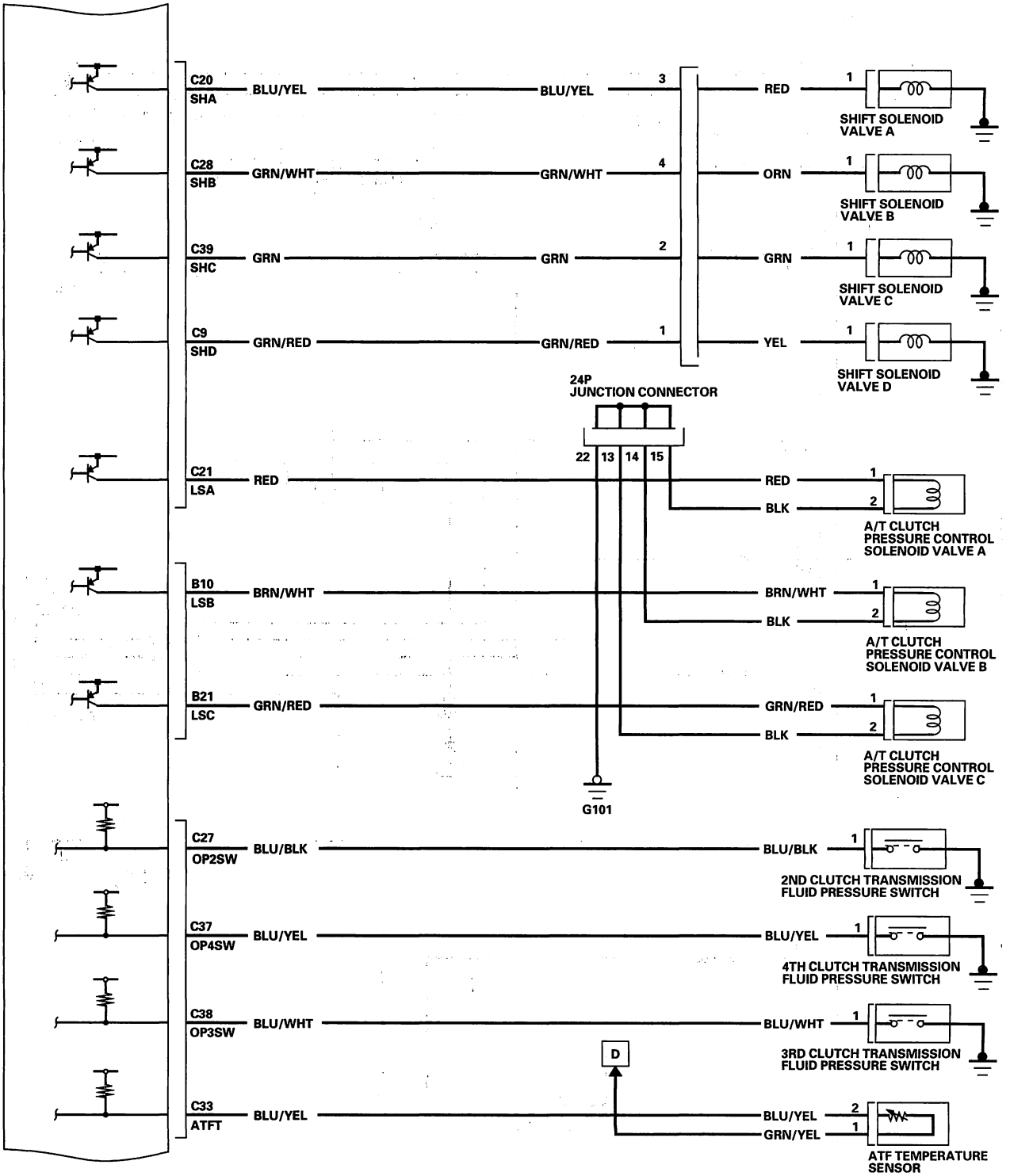
BACK

Protected by AR

System Description (cont'd)

PCM Circuit Diagram (cont'd)



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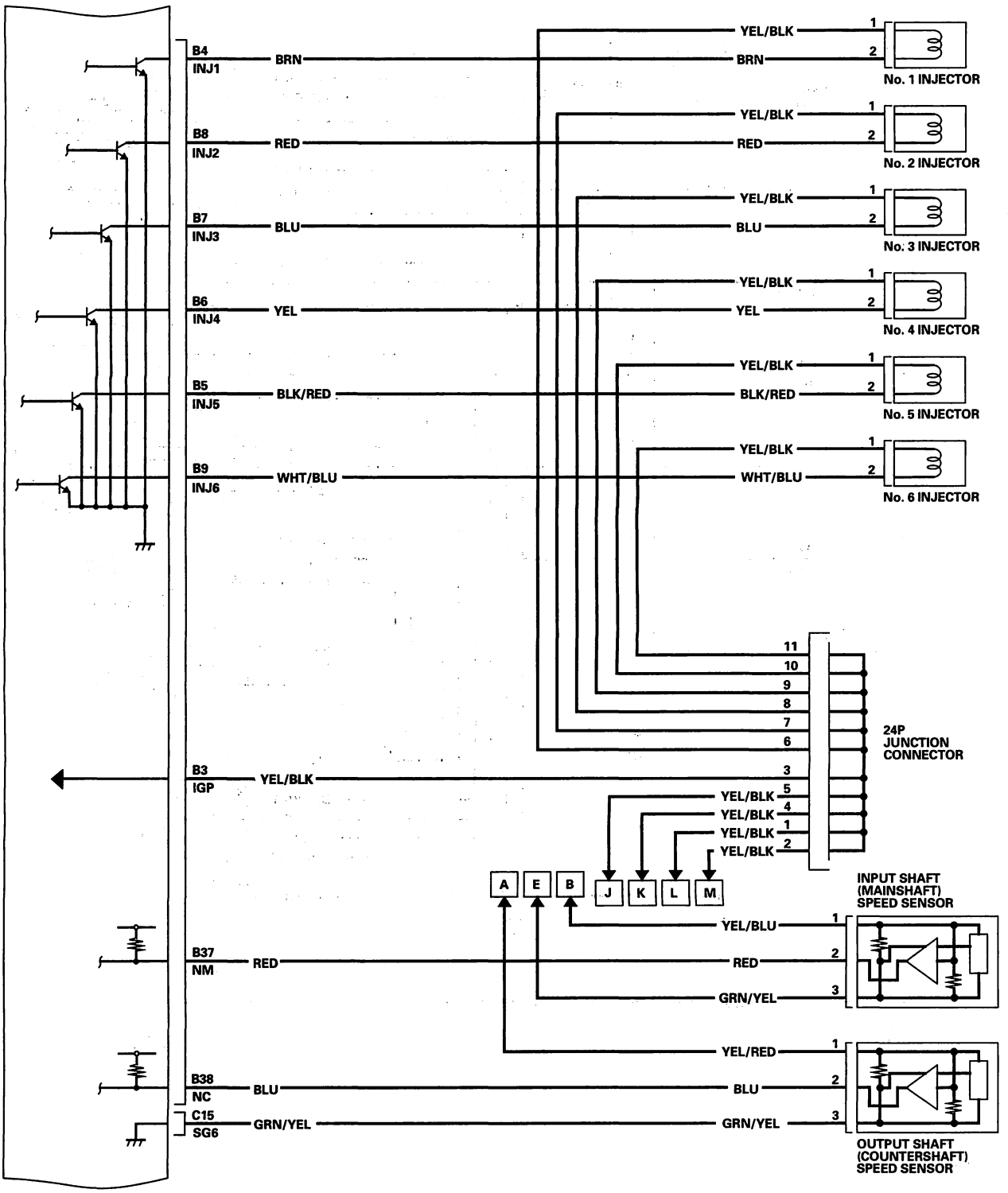
Protected by AR



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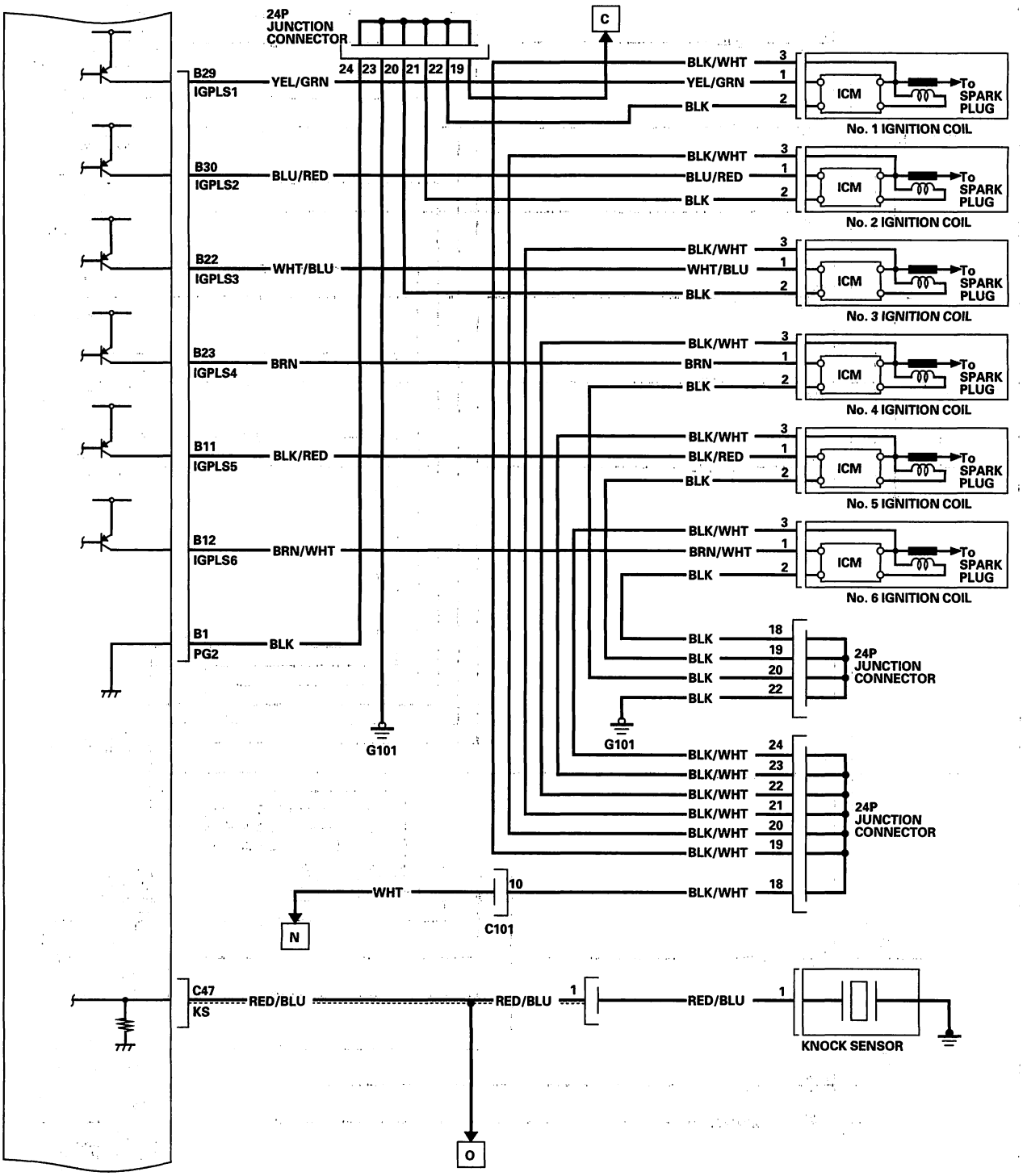
BACK

Protected by AR

System Description (cont'd)

PCM Circuit Diagram (cont'd)



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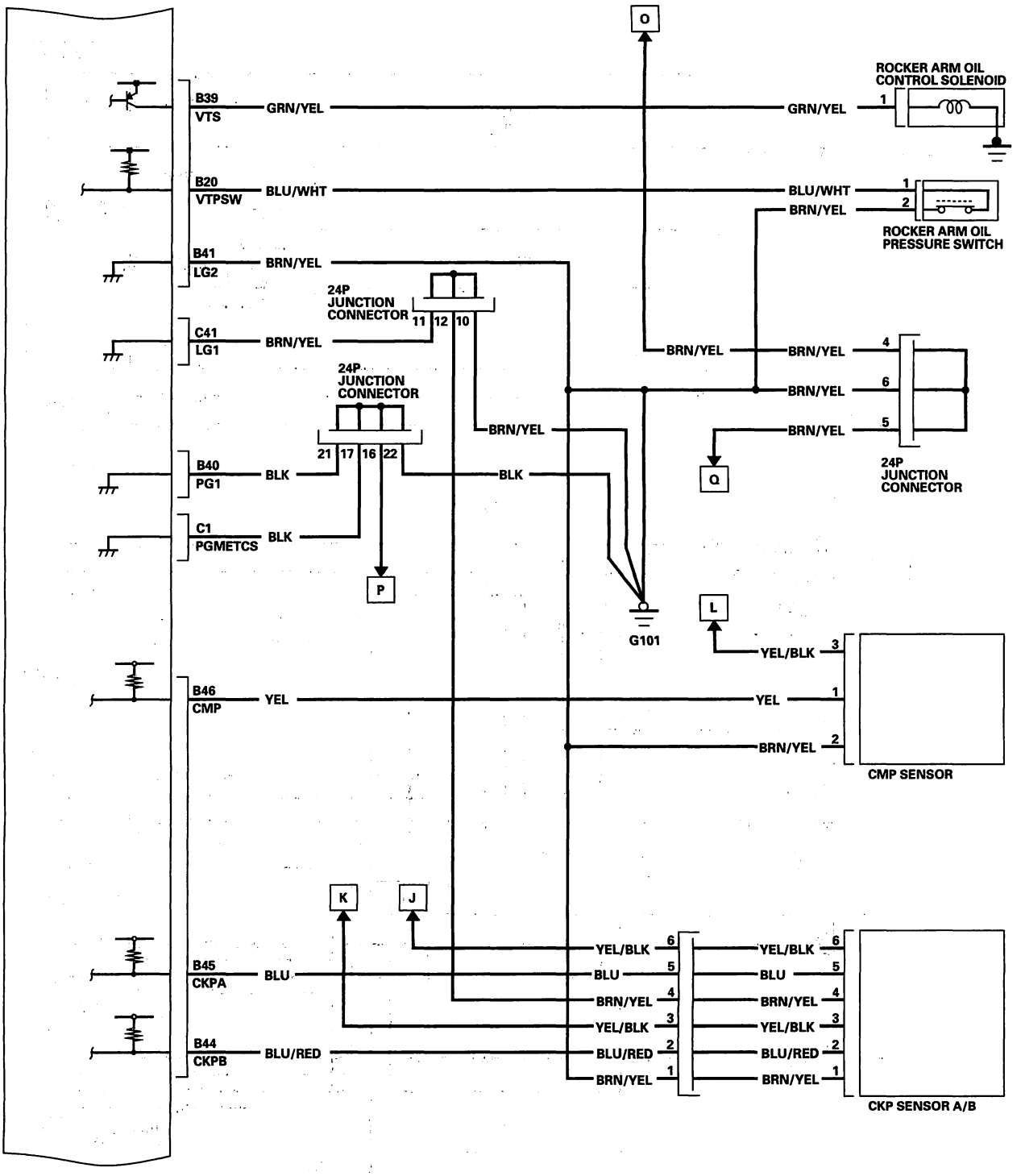
Protected by AR



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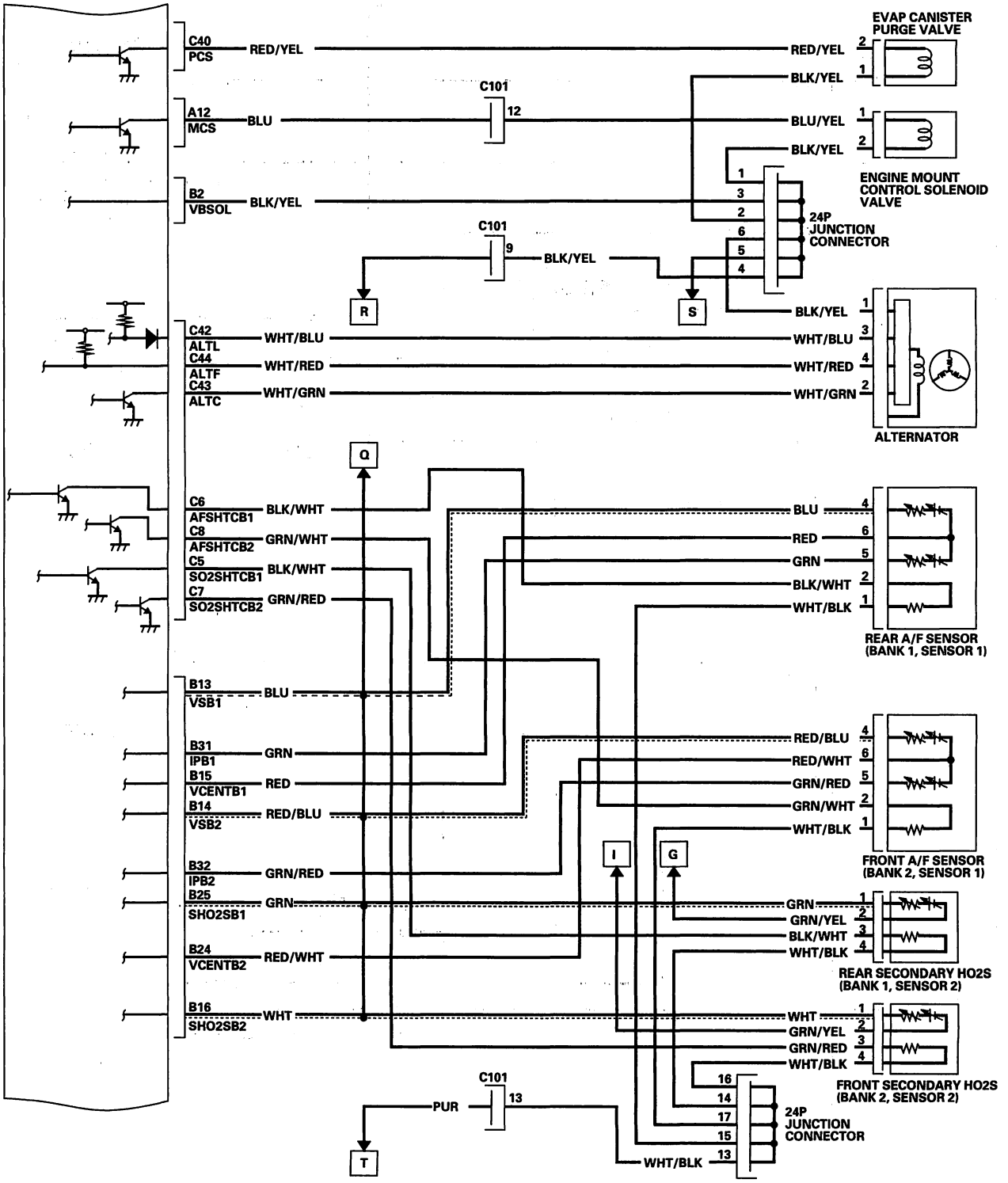
BACK

Protected by AR

System Description (cont'd)

PCM Circuit Diagram (cont'd)



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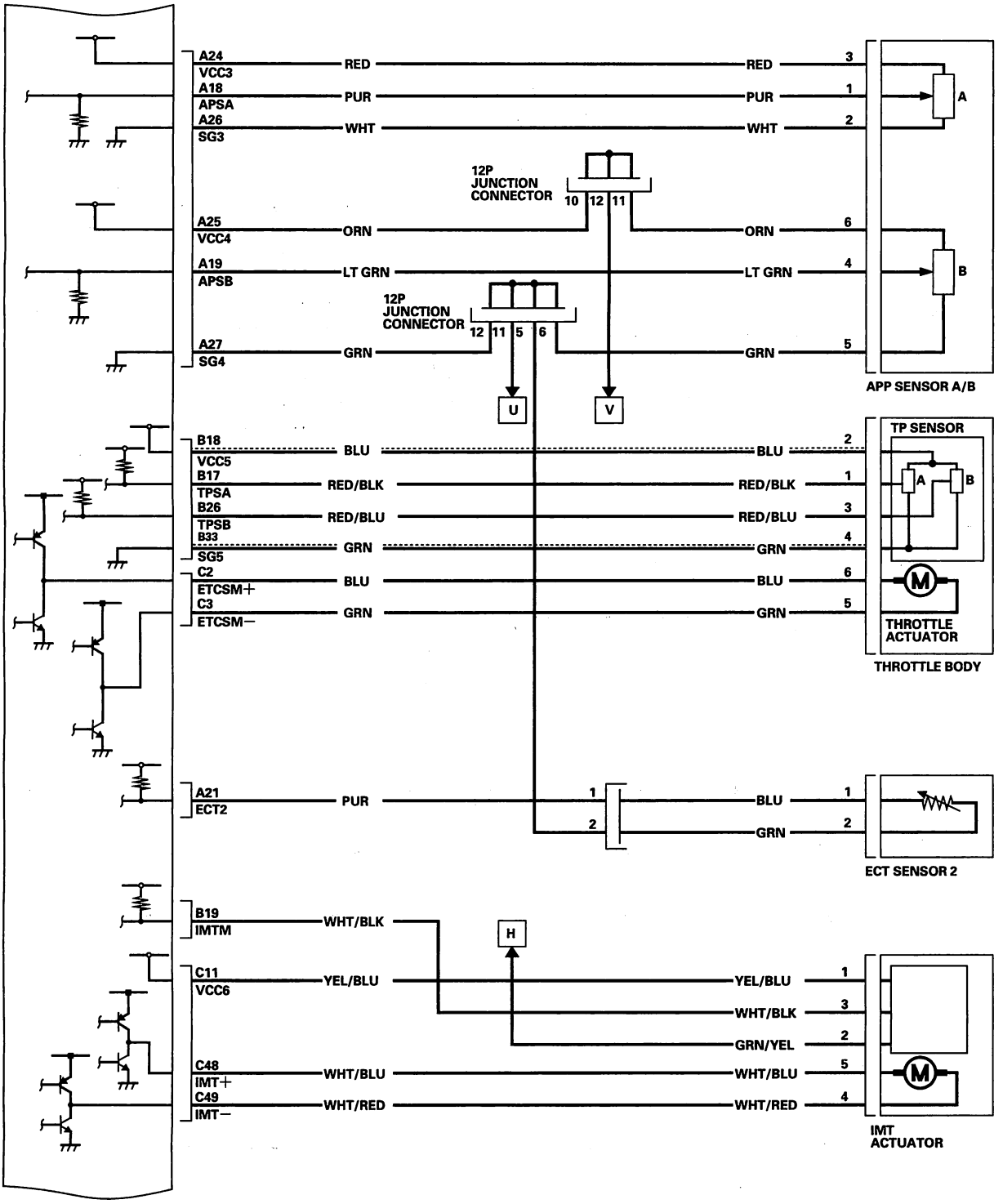
Protected by AR



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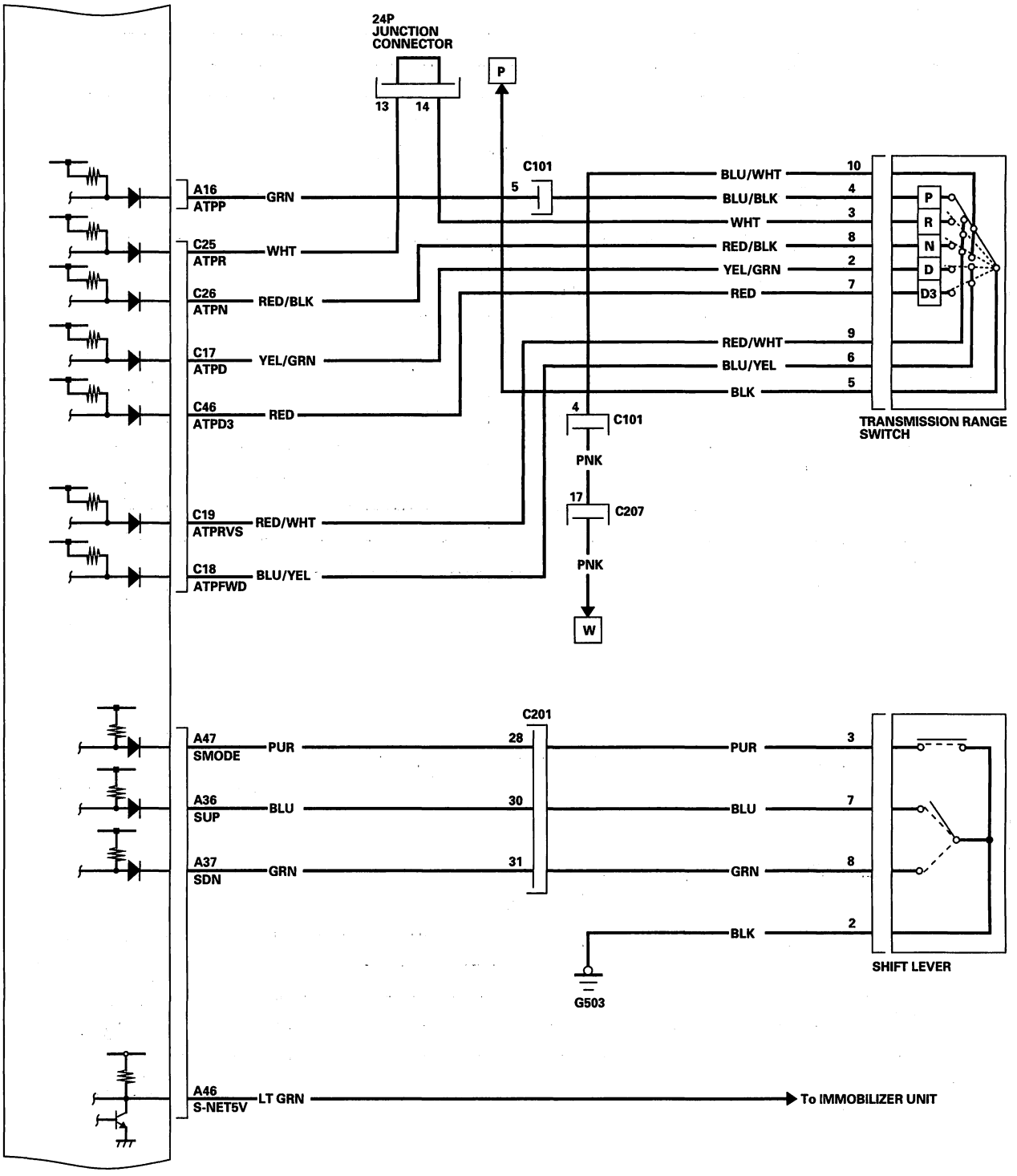
BACK

Protected by AR

System Description (cont'd)

PCM Circuit Diagram (cont'd)



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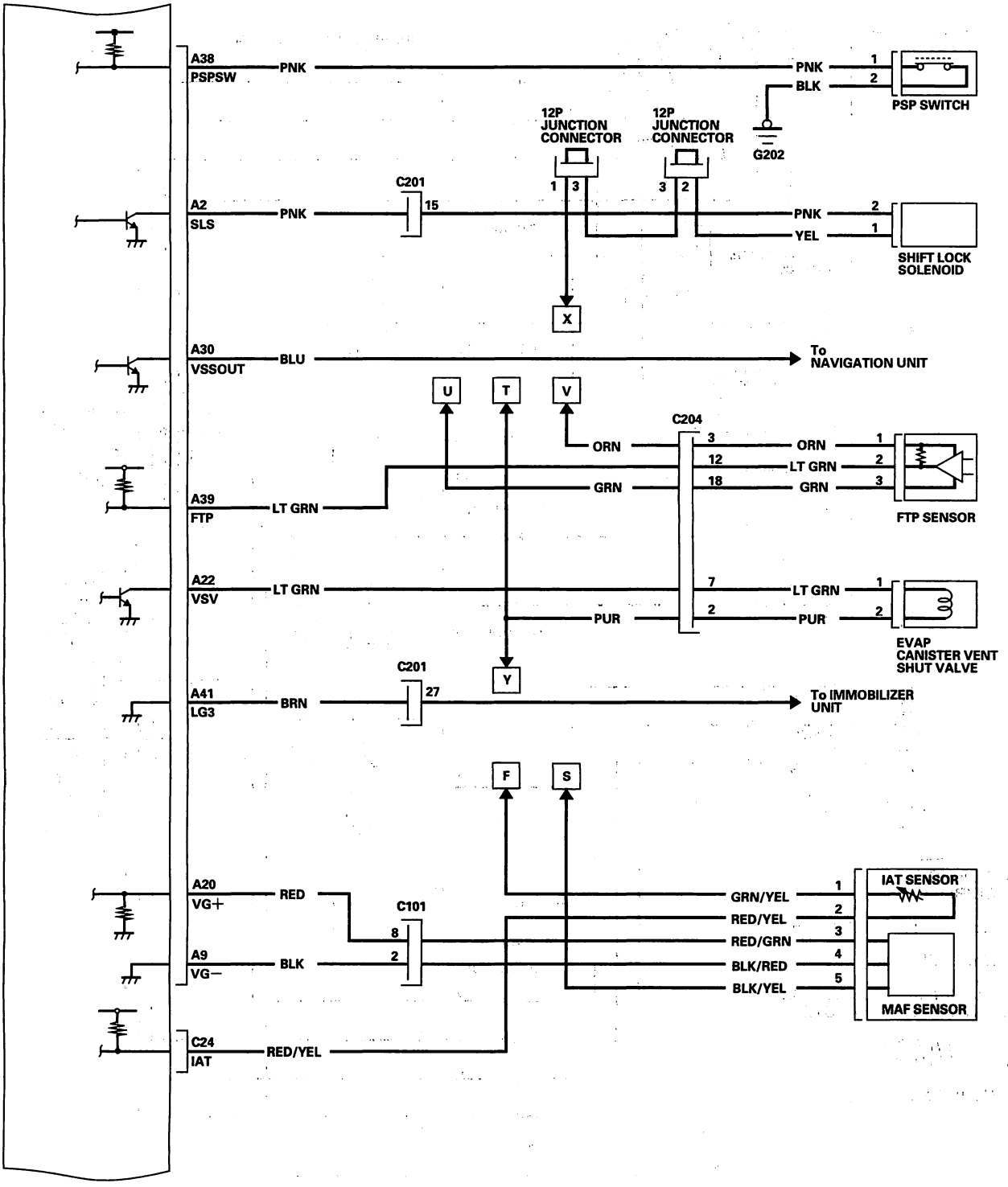

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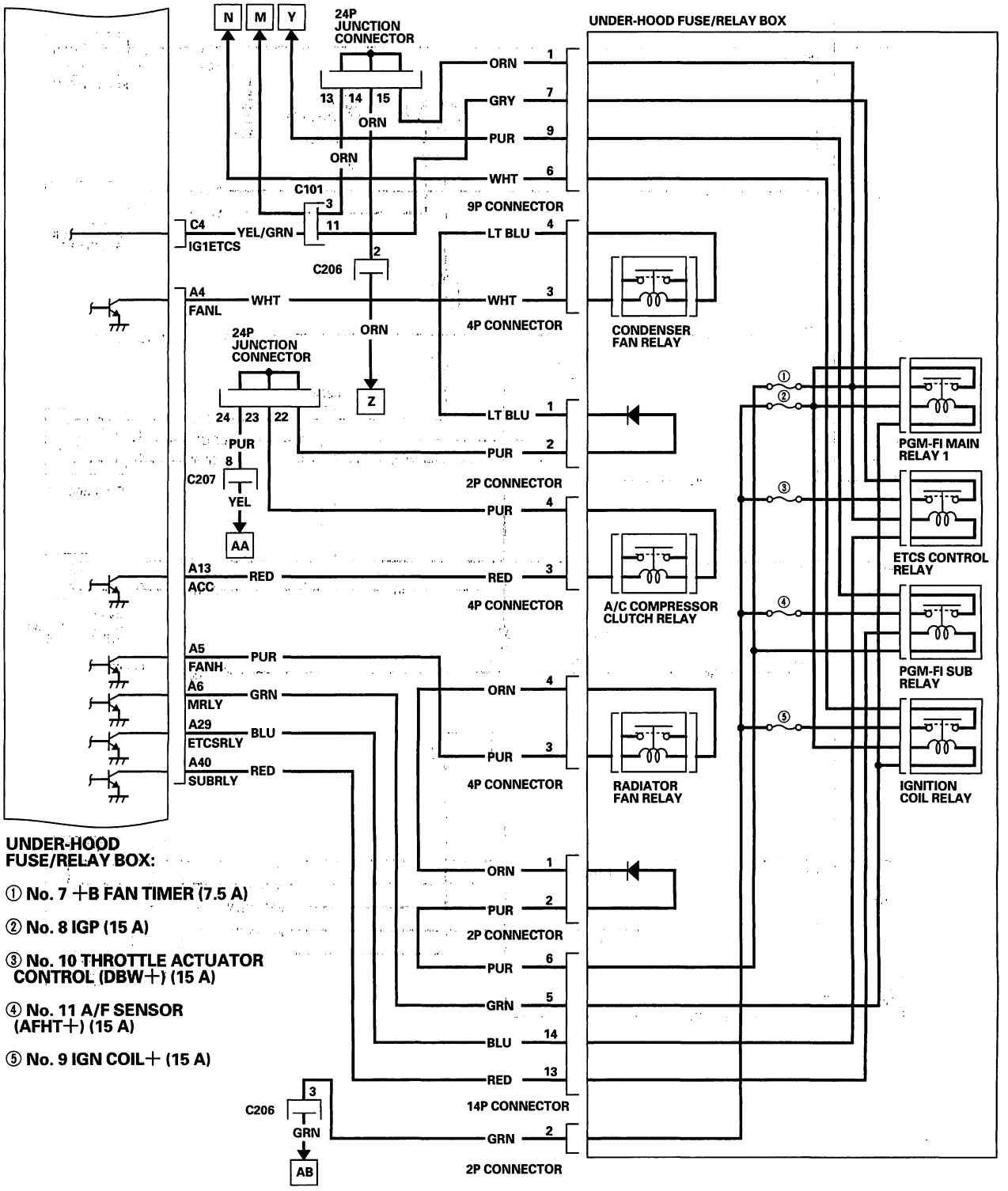
BACK

Protected by AR

System Description (cont'd)

PCM Circuit Diagram (cont'd)



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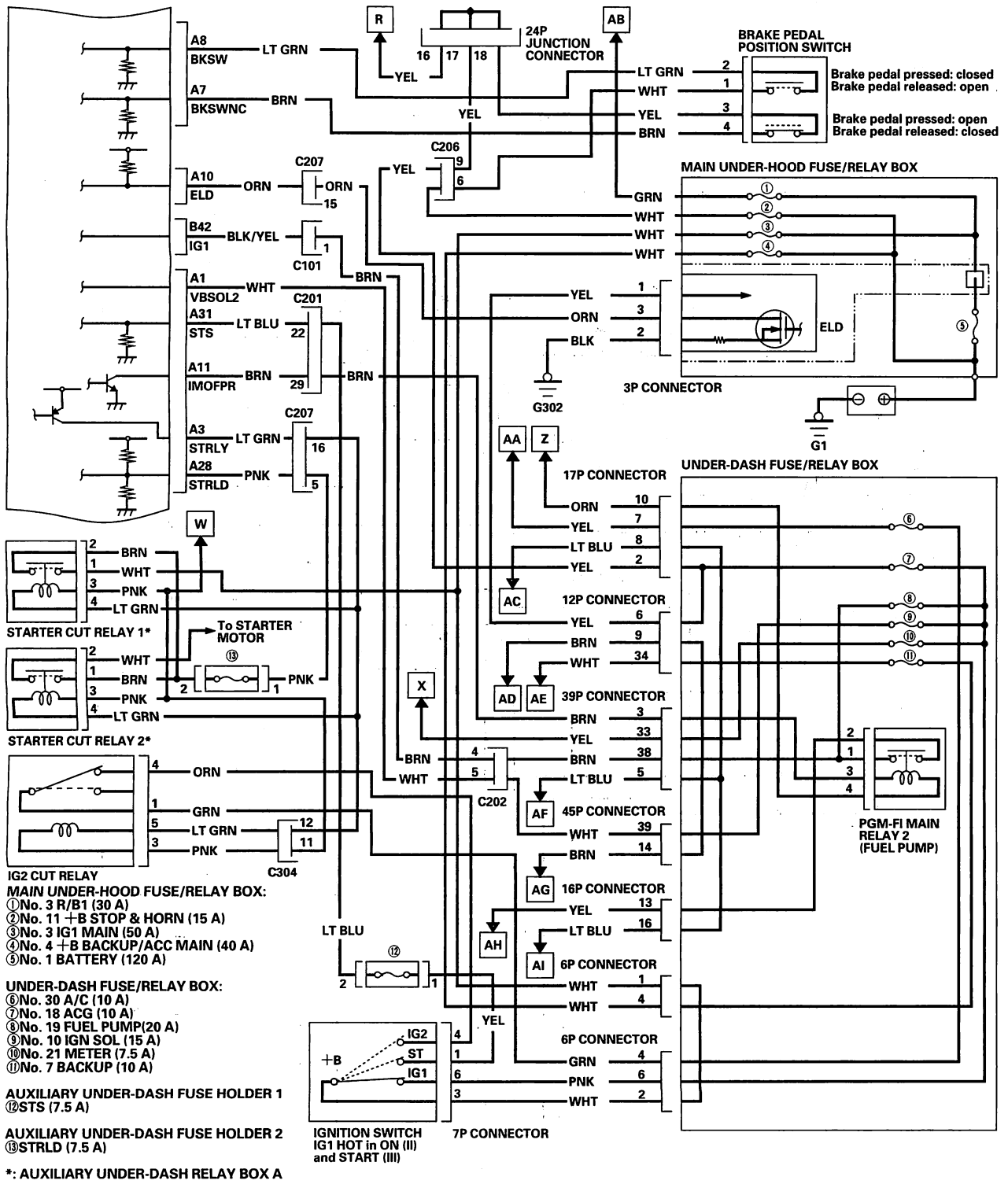
Protected by AR



MAIN UNDER-HOOD FUSE/RELAY BOX:
①No. 3 R/B1 (30 A)
②No. 11 +B STOP & HORN (15 A)
③No. 3 IG1 MAIN (50 A)
④No. 4 +B BACKUP/ACC MAIN (40 A)
⑤No. 1 BATTERY (120 A)

UNDER-DASH FUSE/RELAY BOX:
⑥No. 30 A/C (10 A)
⑦No. 18 ACG (10 A)
⑧No. 19 FUEL PUMP(20 A)
⑨No. 10 IGN SOL (15 A)
⑩No. 21 METER (7.5 A)
⑪No. 7 BACKUP (10 A)

AUXILIARY UNDER-DASH FUSE HOLDER 1
⑫STS (7.5 A)

AUXILIARY UNDER-DASH FUSE HOLDER 2
⑬STRLD (7.5 A)

*: AUXILIARY UNDER-DASH RELAY BOX A

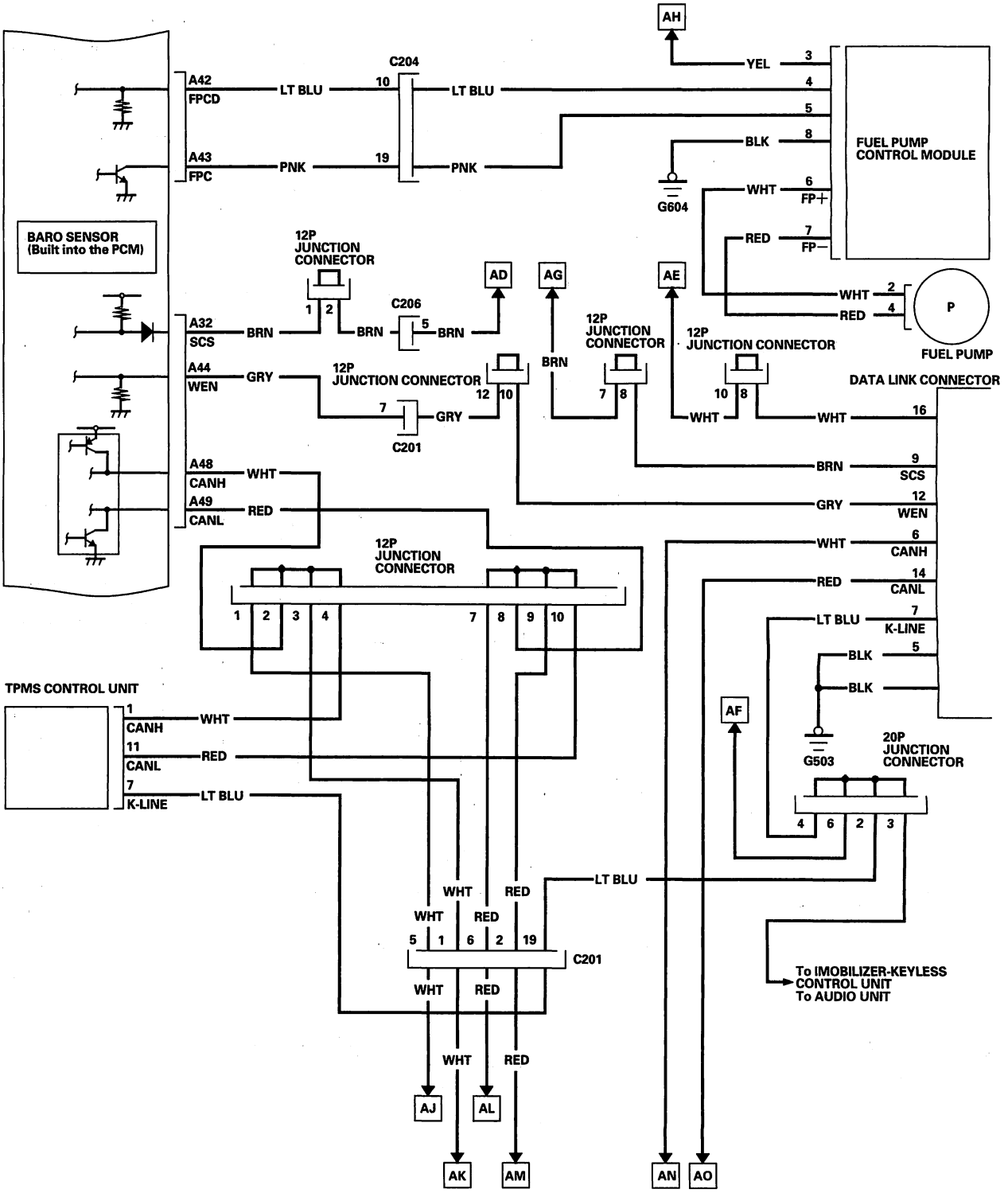
(cont'd)

BACK

Protected by AR

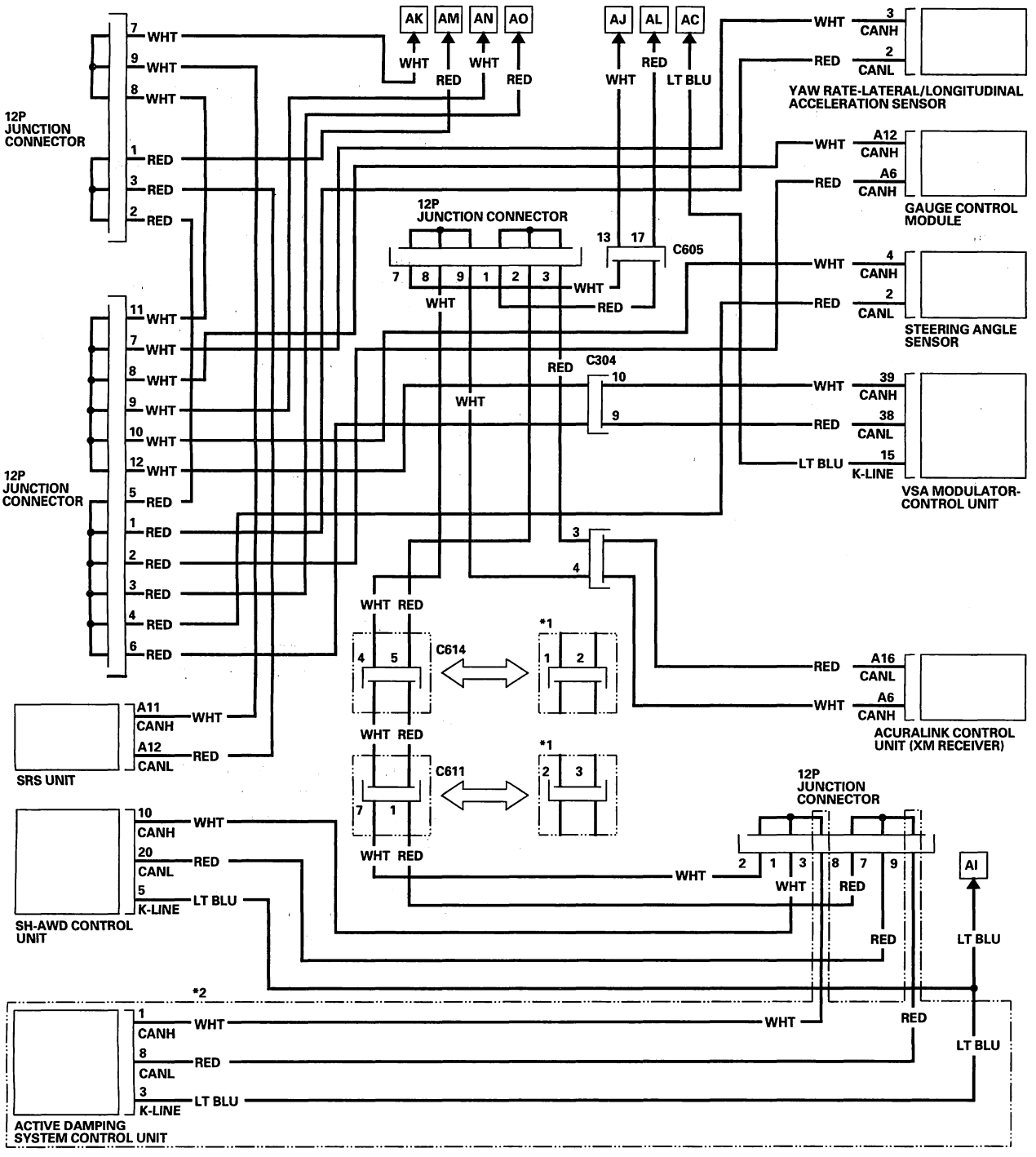
System Description (cont'd)

PCM Circuit Diagram (cont'd)



BACK

Protected by AR



*1: With Navigation system
*2: With Active damping system

BACK

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How to Set Readiness Codes

Malfunction Indicator Lamp (MIL) Indication (In relation to Readiness Codes)

The vehicle has certain "readiness codes" that are part of the on-board diagnostics for the emissions systems. If the vehicle's battery has been disconnected or gone dead, if the DTCs have been cleared, or if the PCM has been reset, these readiness codes are reset to incomplete. In some states, part of the emissions testing is to make sure these codes are set to complete. If all of them are not set to complete, the vehicle may fail the emission test, or the test cannot be finished.

To check if the readiness codes are set to complete, turn the ignition switch ON (II), but do not start the engine. The MIL will come on for 15—20 seconds. If it then goes off, the readiness codes are set to complete. If it flashes five times, one or more readiness codes are not set to complete. To set readiness codes from incomplete to complete, do the procedure for the appropriate code.

To check the status of a specific DTC system, check the OBD status in the DTC MENU with the HDS (see page 11-9). This screen displays the code, the current data list of the enable criteria, and the status of the readiness testing.

Catalytic Converter Monitor and Readiness Code

NOTE:
- Do not turn the ignition switch off during the procedure.
- All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the PCM is reset with the HDS.
- Low ambient temperatures or excessive stop-and-go traffic may increase the drive time needed to switch the readiness code from incomplete to complete.
- The readiness code will not switch to complete until all the enable criteria are met.
- If a fault in the secondary HO2S system caused the MIL to come on, the readiness code cannot be set to complete until you correct the fault.

Enable Criteria

- ECT SENSOR 1 at 158 °F (70 °C) or more.
- IAT SENSOR at 20 °F (—7 °C) or more.
- Vehicle speed sensor (VSS) above 25 mph (40 km/h).

Procedure

1. Connect the HDS to the vehicle's data link connector (DLC), and bring up the READINESS CODEs screen for Catalyst in the DTCs MENU.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. After about 5 miles (8 km), the readiness code should switch to complete.
4. If the readiness code is still not set to complete, check for a Temporary DTC with the HDS. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

BACK

Protected by AR

Evaporative Emission (EVAP) Control System Monitor and Readiness Code

NOTE: All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the PCM is reset with the HDS.

Enable Criteria

- Battery voltage is more than 10.5 V.
- Engine at idle.
- ECT SENSOR 1 and 2 between 176 °F (80 °C) and 212 °F (100 °C).
- MAP sensor less than 46.6 kPa (14 in.Hg, 350 mmHg).
- VSS 0 mph (0 km/h).
- IAT SENSOR between 32 °F (0 °C) and 212 °F (100 °C).

Procedure

1. Connect the HDS to the DLC.
2. Start the engine.
3. Select EVAP TEST in the INSPECTION MENU with the HDS, then select the FUNCTION TEST in the EVAP TEST MENU.
   - If the result is normal, readiness is complete.
   - If the result is not normal, go to the next step.
4. Check for a Temporary DTC. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

Air Fuel Ratio (A/F) Sensor Monitor and Readiness Code

NOTE:
- Do not turn the ignition switch off during the procedure.
- All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the PCM is reset with the HDS.

Enable Criteria

ECT SENSOR 1 at 140 °F (60 °C) or more.

Procedure

1. Start the engine.
2. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. During the drive, decelerate (with the throttle fully closed) for 5 seconds. After about 3.5 miles (5.6 km), the readiness code should switch from incomplete to complete.
3. Check the readiness codes screen for the AIR FUEL RATIO (A/F) SENSOR in the DTCs MENU with the HDS.
   - If the screen shows complete, readiness is complete.
   - If the screen shows not complete, go to the next step.
4. Check for a Temporary DTC. If there is no DTC, the enable criteria was probably not met. Select the DATA LIST Menu. Check the ECT in the ALL DATA LIST with the HDS. If the ECT is less than 140 °F (60 °C), run the engine until it is more than 140 °F (60 °C), then repeat the procedure.

(cont'd)

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How to Set Readiness Codes (cont'd)

Air Fuel Ratio (A/F) Sensor Heater Monitor Readiness Code

NOTE: All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the PCM is reset with the HDS.

Procedure

1. Start the engine, and let it idle for 1 minute. The readiness code should switch from incomplete to complete.
2. If the readiness code is still not set to complete, check for a Temporary DTC. If there is no DTC, repeat the procedure.

Misfire Monitor and Readiness Code

- This readiness code is always set to available because misfiring is continuously monitored.
- Monitoring pauses, and the misfire counter resets, if the vehicle is driven over a rough road.
- Monitoring also pauses, and the misfire counter holds at its current value, if the throttle position changes more than a predetermined value, or if driving conditions fall outside the range of any related enable criteria.

Fuel System Monitor and Readiness Code

- This readiness code is always set to available because the fuel system is continuously monitored during closed loop operation.
- Monitoring pauses when the catalytic converter, EVAP control system, and A/F sensor monitors are active.
- Monitoring also pauses when any related enable criteria are not being met. Monitoring resumes when the enable criteria is again being met.

Comprehensive Component Monitor and Readiness Code

This readiness code is always set to available because the comprehensive component monitor is continuously running whenever the engine is cranking or running.

EGR Monitor and Readiness Code

NOTE:
- Do not turn the ignition switch off during the procedure.
- All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the PCM is reset with the HDS.

Enable Criteria

ECT SENSOR 1 at 176 °F (80 °C) or more.

Procedure

1. Connect the HDS to the DLC.
2. Start the engine.
3. Drive at a steady speed with the transmission in D position, at 50—62 mph (80—100 km/h) or above for more than 10 seconds.
4. With the transmission in D position, decelerate from 62 mph (100 km/h) or above by completely releasing the throttle for at least 5 seconds. If the engine is stopped during this procedure, go to step 3 and do the procedure again.
5. Check the OBD status screen for DTC P0401 in the DTC's MENU with the HDS.
   - If it is passed, readiness is complete.
   - If it is not passed, go to step 3 and retest.

BACK

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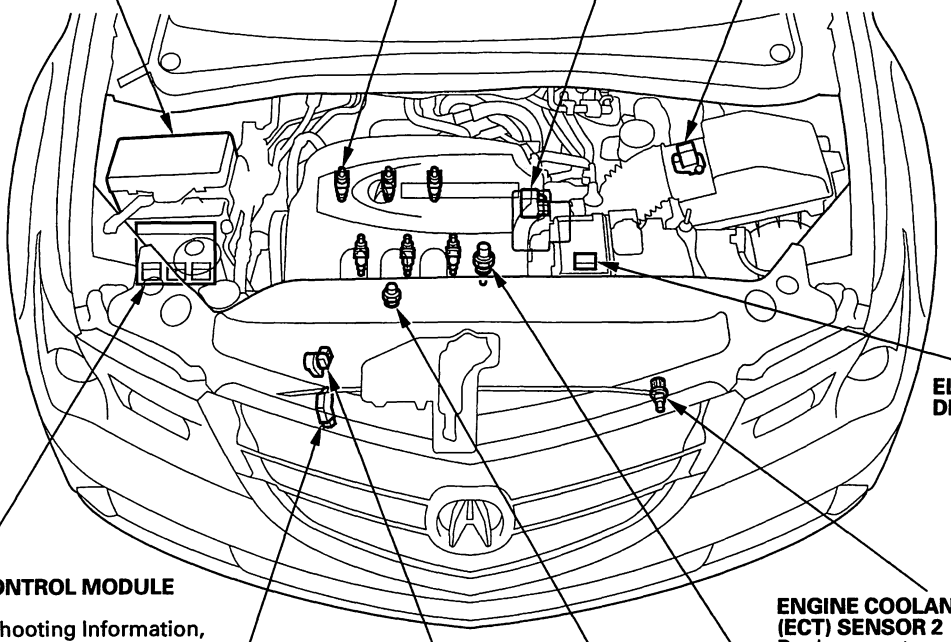
Component Location Index



INJECTORS
Replacement, page 11-236

UNDER-HOOD FUSE/RELAY BOX
Includes:
- **PGM-FI MAIN RELAY 1**
- **PGM-FI SUBRELAY**

MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
Replacement, page 11-238

MASS AIR FLOW (MAF) SENSOR/ INTAKE AIR TEMPERATURE (IAT) SENSOR
Replacement, page 11-238

ELECTRICAL LOAD DETECTOR (ELD)

POWERTRAIN CONTROL MODULE (PCM)
General Troubleshooting Information, page 11-3
Update, page 11-7
Substitution, page 11-8
Replacement, page 11-244

ENGINE COOLANT TEMPERATURE (ECT) SENSOR 2
Replacement, page 11-239

ENGINE COOLANT TEMPERATURE (ECT) SENSOR 1
Replacement, page 11-239

CAMSHAFT POSITION (CMP) SENSOR
Replacement, page 11-242

KNOCK SENSOR
Replacement, page 11-243

CRANKSHAFT POSITION (CKP) SENSOR
Replacement, page 11-242

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BACK

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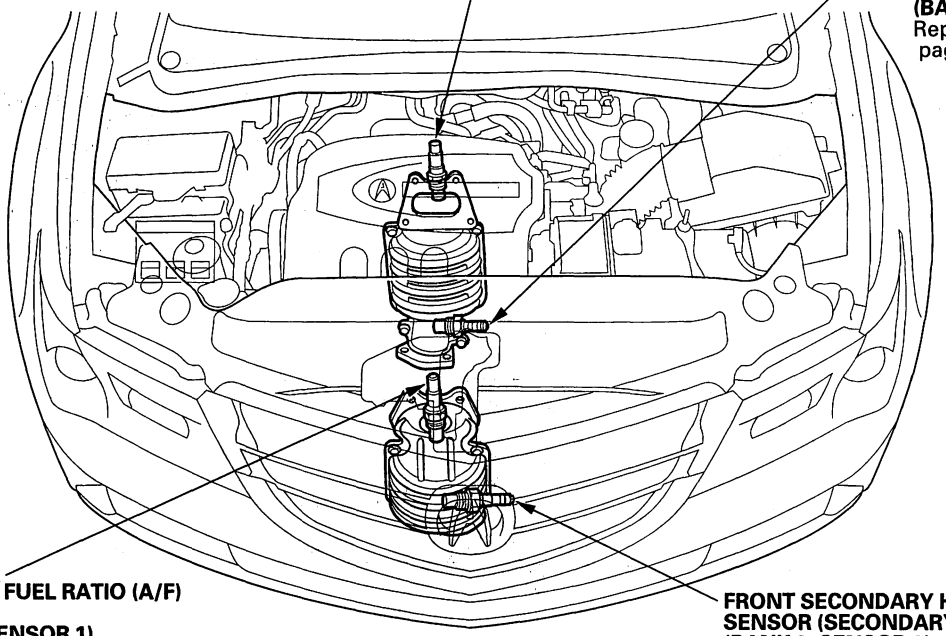
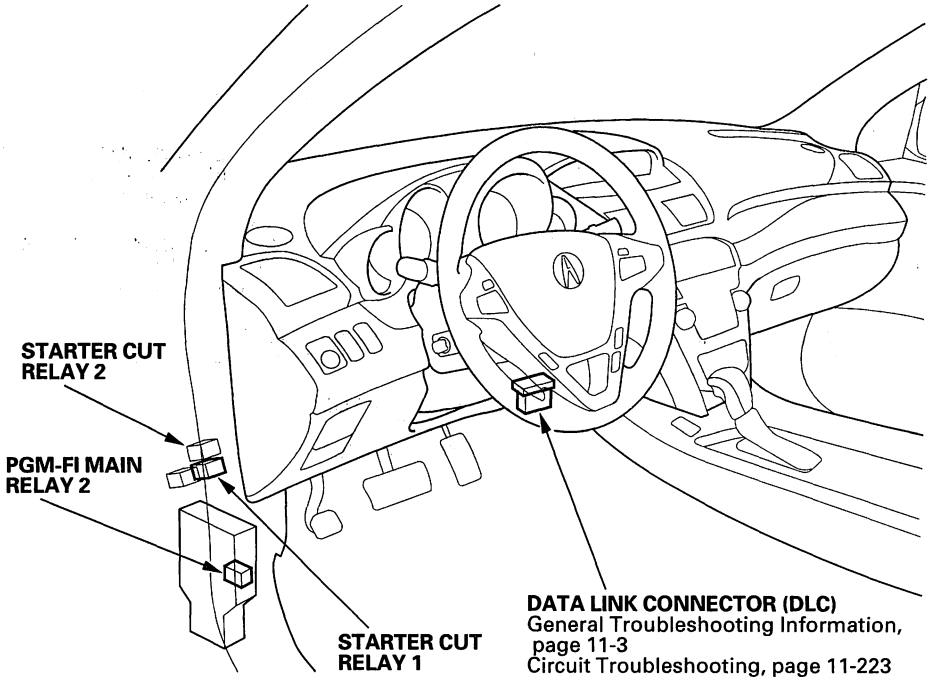
Component Location Index (cont'd)





BACK

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DTC Troubleshooting

DTC P0101: MAF Sensor Circuit Range/ Performance Problem

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P1128, P1129, P2228, and/or P2229 are stored at the same time as DTC P0101, troubleshoot those DTCs first, then recheck for DTC P0101.

1. Check for poor connections or damage to these parts:

   - PCV hose
   - Intake air duct
   - Air cleaner
   - Purge (PCS) line
   - Brake booster hose

   Are the parts OK?

   YES—Go to step 2.

   NO—Repair or replace the damaged parts, then go to step 16.

2. Check for damage or looseness at the air duct in the air cleaner.

   Is it OK?

   YES—Go to step 3.

   NO—Reconnect or replace the air duct in the air cleaner, then go to step 14.

3. Check for a dirty air cleaner element.

   Is it dirty?

   YES—Replace the air cleaner element (see page 11-364), then go to step 14.

   NO—Go to step 4.

4. Turn the ignition switch ON (II).

5. Check the MAF SENSOR in the DATA LIST with the HDS.

   Is there about 0.2 gm/s or 0.5 V?

   YES—Go to step 6.

   NO—Go to step 12.

6. Start the engine.

7. Vary the engine speed between 2,000 rpm and 3,000 rpm.

8. Check the MAF SENSOR in the DATA LIST with the HDS.

   Does the reading change?

   YES—Go to step 9.

   NO—Go to step 12.

9. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

10. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - MAP SENSOR
    - MAF SENSOR

11. Monitor the OBD STATUS for DTC P0101 in the DTCs MENU with the HDS.

    Does the screen indicate FAILED?

    YES—Go to step 12.

    NO—If the screen indicates PASSED, intermittent failure, system is OK at this time. Check for poor connections or loose terminals at the MAF sensor and the PCM. If the screen indicates NOT COMPLETED, go to step 10 and recheck.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

12. Turn the ignition switch OFF.
13. Replace the MAF sensor/IAT sensor (see page 11-238).
14. Turn the ignition switch ON (II).
15. Reset the PCM with the HDS.
16. Do the PCM idle learn procedure (see page 11-311).
17. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
    - MAP SENSOR
    - MAF SENSOR
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0101 indicated?

    YES—Check for poor connections or loose terminals at the MAF sensor and the PCM, then go to step 1.

    NO—Go to step 19.
19. Monitor the OBD STATUS for DTC P0101 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 18, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the MAF sensor and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 17.

BACK

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DTC P0102: MAF Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II), and wait 2 seconds.
2. Check the MAF SENSOR in the DATA LIST with the HDS.

   Is about 0 gm/s, or 0.1 V or less indicated?

   YES—Go to step 3.

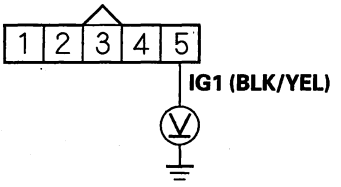
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor and the PCM. ■
3. Check the No. 18 ACG (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 4.

   NO—Repair short in the wire between the MAF sensor and the No. 18 ACG (10 A) fuse. Also replace the No. 18 ACG (10 A) fuse, then go to step 20.
4. Turn the ignition switch OFF.
5. Disconnect the MAF sensor/IAT sensor 5P connector.
6. Turn the ignition switch ON (II).
7. Measure voltage between MAF sensor/IAT sensor 5P connector terminal No. 5 and body ground.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

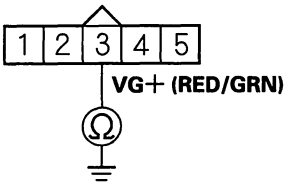
Is there battery voltage?

YES—Go to step 8.

NO—Repair open in the wire between the No. 18 ACG (10 A) fuse and the MAF sensor, then go to step 20.

8. Turn the ignition switch OFF.
9. Measure resistance between MAF sensor/IAT sensor 5P connector terminal No. 3 and body ground.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

Is there 190—210 kΩ ?

YES—Go to step 14.

NO—Go to step 10.

(cont'd)

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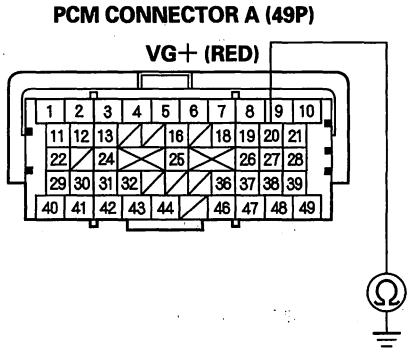
DTC Troubleshooting (cont'd)

10. Jump the SCS line with the HDS.
11. Disconnect PCM connector A (49P).
12. Check for continuity between PCM connector terminal A20 and body ground.



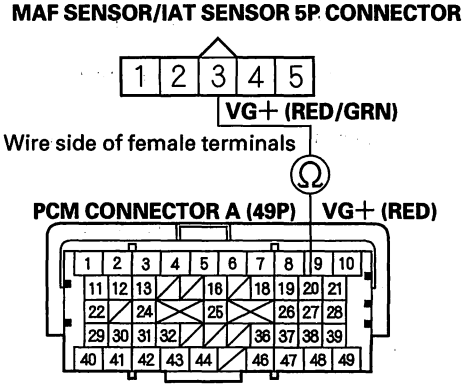
Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (A20) and the MAF sensor, then go to step 21.

NO—Go to step 13.

13. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 3 and PCM connector terminal A20.



Terminal side of female terminals

Is there continuity?

YES—Go to step 26.

NO—Repair open in the wire between the PCM (A20) and the MAF sensor, then go to step 21.

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14. Substitute a known-good MAF sensor/IAT sensor (see page 11-238).
15. Reconnect all connectors.
16. Turn the ignition switch ON (II).
17. Clear the DTC with the HDS.
18. Start the engine. Hold the engine speed at 2,000 rpm without load (in Park or neutral).
19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0102 indicated?

    YES—Go to step 26.

    NO—Replace the original MAF sensor/IAT sensor (see page 11-238), then go to step 20.
20. Turn the ignition switch OFF.
21. Reconnect all connectors.
22. Turn the ignition switch ON (II).
23. Reset the PCM with the HDS.
24. Do the PCM idle learn procedure (see page 11-311).
25. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0102 indicated?

    YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
26. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
27. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0102 indicated?

    YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC Troubleshooting (cont'd)

DTC P0103: MAF Sensor Circuit High Voltage

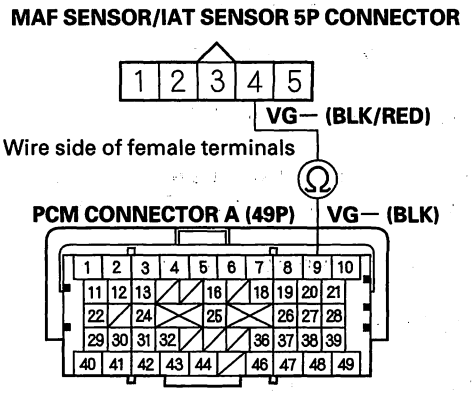
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II), and wait 2 seconds.
2. Check the MAF SENSOR in the DATA LIST with the HDS.

   Is about 202 gm/s, or 4.89 V or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Jump the SCS line with the HDS.
5. Disconnect the MAF sensor/IAT sensor 5P connector.
6. Disconnect PCM connector A (49P).
7. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 4 and PCM connector terminal A9.



Is there continuity?

YES—Go to step 8.

NO—Repair open in the wire between the PCM (A9) and the MAF sensor, then go to step 15.

BACK

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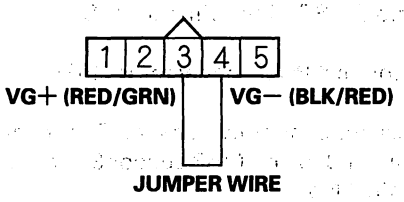
8. Reconnect PCM connector A (49P).
9. Connect MAF sensor/IAT sensor 5P connector terminals No. 3 and No. 4 with a jumper wire.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

10. Turn the ignition switch ON (II).
11. Clear the DTC with the HDS.
12. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0103 indicated?

    YES—Go to step 20.

    NO—Go to step 13.
13. Turn the ignition switch OFF.
14. Replace the MAF sensor/IAT sensor (see page 11-238).
15. Reconnect all connectors.
16. Turn the ignition switch ON (II).
17. Reset the PCM with the HDS.
18. Do the PCM idle learn procedure (see page 11-311).
19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0103 indicated?

    YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
20. Turn the ignition switch OFF.
21. Reconnect all connectors.
22. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
23. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0103 indicated?

    YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P0107: MAP Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 3 kPa (1.0 in.Hg, 26 mmHg), or 0.23 V or less indicated?

   YES—Go to step 3.

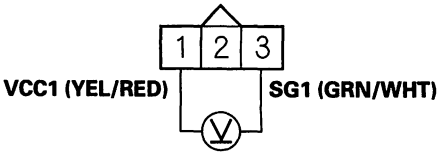
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM.■
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Turn the ignition switch ON (II).
6. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 3 kPa (1.0 in.Hg, 26 mmHg), or 0.23 V or less indicated?

   YES—Go to step 12.

   NO—Go to step 7.
7. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

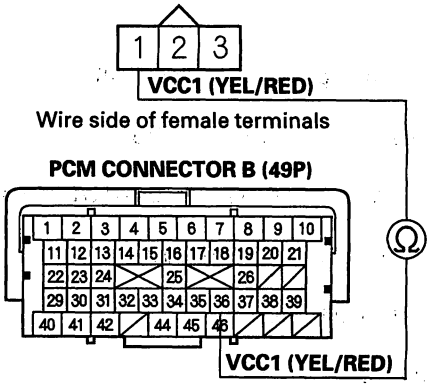
Is there about 5 V?

YES—Go to step 16.

NO—Go to step 8.

8. Turn the ignition switch OFF.
9. Jump the SCS line with the HDS.
10. Disconnect PCM connector B (49P).
11. Check for continuity between PCM connector terminal B36 and MAP sensor 3P connector terminal No. 1.

MAP SENSOR 3P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 23.

NO—Repair open in the wire between the PCM (B36) and the MAP sensor, then go to step 18.

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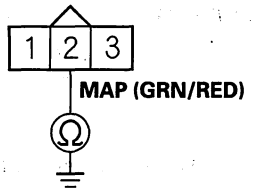
12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector B (49P).
15. Check for continuity between MAP sensor 3P connector terminal No. 2 and body ground.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (B35) and the MAP sensor, then go to step 18.

NO—Go to step 23.

16. Turn the ignition switch OFF.
17. Replace the MAP sensor (see page 11-238).
18. Reconnect all connectors.
19. Turn the ignition switch ON (II).
20. Reset the PCM with the HDS.
21. Do the PCM idle learn procedure (see page 11-311).
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0107 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

23. Reconnect all connectors.
24. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0107 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC Troubleshooting (cont'd)

DTC P0108: MAP Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

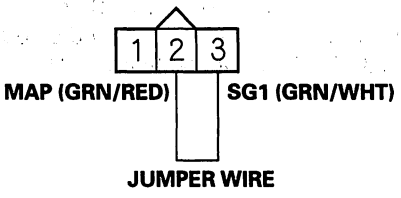
1. Turn the ignition switch ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 160 kPa (47.1 in.Hg, 1,197 mmHg), or 4.49 V or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Connect MAP sensor 3P connector terminals No. 2 and No. 3 with a jumper wire.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

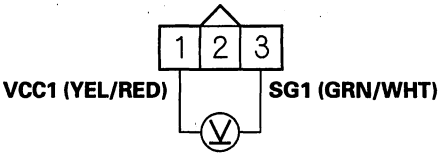
6. Turn the ignition switch ON (II).
7. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 160 kPa (47.1 in.Hg, 1,197 mmHg), or 4.49 V or more indicated?

   YES—Go to step 8.

   NO—Go to step 18.
8. Remove the jumper wire from the MAP sensor 3P connector.
9. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 14.

NO—Go to step 10.

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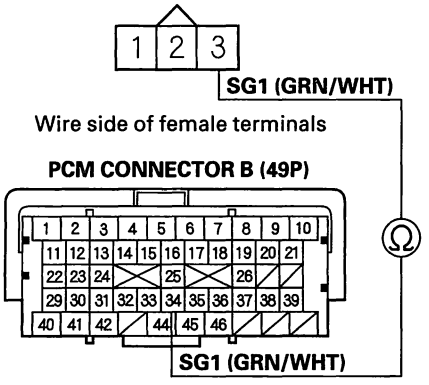
10. Turn the ignition switch OFF.
11. Jump the SCS line with the HDS.
12. Disconnect PCM connector B (49P).
13. Check for continuity between PCM connector terminal B34 and MAP sensor 3P connector terminal No. 3.

MAP SENSOR 3P CONNECTOR



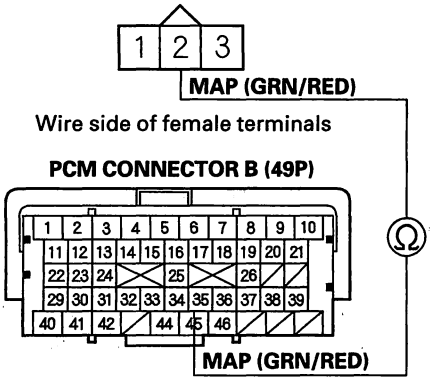
Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the PCM (B34) and the MAP sensor, then go to step 20.

14. Turn the ignition switch OFF.
15. Jump the SCS line with the HDS.
16. Disconnect PCM connector B (49P).
17. Check for continuity between PCM connector terminal B35 and MAP sensor 3P connector terminal No. 2.

MAP SENSOR 3P CONNECTOR



Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the PCM (B35) and the MAP sensor, then go to step 20.

(cont'd)

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DTC Troubleshooting (cont'd)

18. Turn the ignition switch OFF.
19. Replace the MAP sensor (see page 11-238).
20. Reconnect all connectors.
21. Turn the ignition switch ON (II).
22. Reset the PCM with the HDS.
23. Do the PCM idle learn procedure (see page 11-311).
24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0108 indicated?

    YES—Check for poor connections or loose terminals at the MAP sensor and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
25. Reconnect all connectors.
26. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
27. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0108 indicated?

    YES—Check for poor connections or loose terminals at the MAP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC P0111: IAT Sensor Circuit Range/ Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Check for poor connections or loose terminals at ECT sensor 1/2 and the MAF sensor/IAT sensor.

   Are the connections and terminals OK?

   YES—Go to step 2.

   NO—Repair the connections or terminals, then go to step 15.

2. Remove the MAF sensor/IAT sensor (see page 11-238).

3. Allow the IAT sensor to cool to ambient temperature.

4. Note the ambient temperature.

5. Connect the MAF sensor/IAT sensor to its 5P connector, but do not install the sensor onto the air cleaner.

6. Turn the ignition switch ON (II).

7. Note the value of the IAT SENSOR quickly in the DATA LIST with the HDS.

8. Compare the value of the IAT SENSOR to the ambient temperature.

   Does the value of the IAT SENSOR differ 5.4 °F (3 °C) or more?

   YES—Go to step 13.

   NO—Go to step 9.

9. Disconnect the MAF sensor/IAT sensor from the 5P connector.

10. Using a heat gun, blow hot air on the MAF sensor/ IAT sensor for a few seconds. Do not apply the heat longer than a few seconds or you will damage the sensor.

11. Connect the MAF sensor/IAT sensor to its 5P connector, but do not install the sensor onto the air cleaner.

12. Check the IAT SENSOR in the DATA LIST with the HDS.

    Does the IAT SENSOR change 58 °F (32 °C) or more?

    YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the PCM. ■

    NO—Go to step 13.

13. Turn the ignition switch OFF.

14. Replace the MAF sensor/IAT sensor (see page 11-238).

15. Turn the ignition switch ON (II).

16. Reset the PCM with the HDS.

17. Do the PCM idle learn procedure (see page 11-311).

18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0111 indicated?

    YES—Check for poor connections or loose terminals at the IAT sensor and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P0112: IAT Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

   YES—Go to step 3.

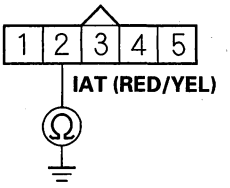
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the MAF sensor/IAT sensor 5P connector.
5. Turn the ignition switch ON (II).
6. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

   YES—Go to step 7.

   NO—Go to step 11.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector C (49P).
10. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 2 and body ground.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the IAT sensor and the PCM (C24), then go to step 13.

NO—Go to step 18.

11. Turn the ignition switch OFF.
12. Replace the MAF sensor/IAT sensor (see page 11-238).
13. Reconnect all connectors.
14. Turn the ignition switch ON (II).
15. Reset the PCM with the HDS.
16. Do the PCM idle learn procedure (see page 11-311).
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0112 indicated?

    YES—Check for poor connections or loose terminals at the IAT sensor and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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18. Reconnect all connectors.

19. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0112 indicated?

    YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC Troubleshooting (cont'd)

DTC P0113: IAT Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

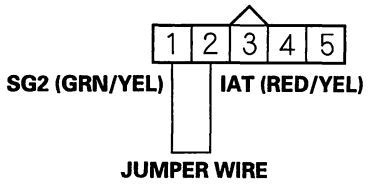
1. Turn the ignition switch ON (II).
2. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about −40 °F (−40 °C) or less, or 4.92 V or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the MAF sensor/IAT sensor 5P connector.
5. Connect MAF sensor/IAT sensor 5P connector terminals No. 1 and No. 2 with a jumper wire.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

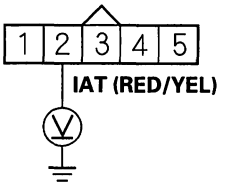
6. Turn the ignition switch ON (II).
7. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about −40 °F (−40 °C) or less, or 4.92 V or more indicated?

   YES—Go to step 8.

   NO—Go to step 20.
8. Turn the ignition switch OFF.
9. Remove the jumper wire from the MAF sensor/IAT sensor 5P connector.
10. Turn the ignition switch ON (II).
11. Measure voltage between MAF sensor/IAT sensor 5P connector terminal No. 1 and body ground.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 12.

NO—Go to step 16.

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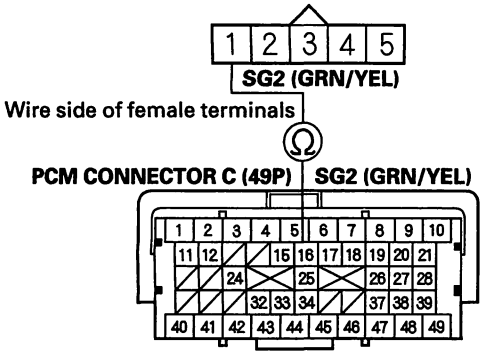
12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector C (49P).
15. Check for continuity between PCM connector terminal C16 and MAF sensor/IAT sensor 5P connector terminal No. 1.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Terminal side of female terminals

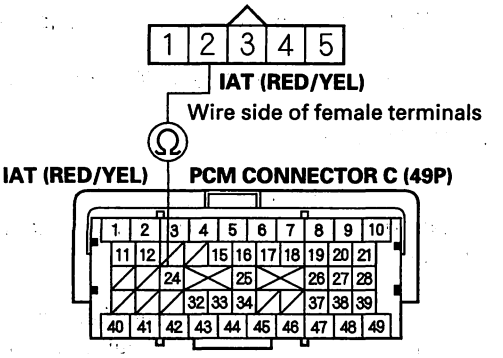
Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the PCM (C16) and the MAF sensor/IAT sensor, then go to step 22.

16. Turn the ignition switch OFF.
17. Jump the SCS line with the HDS.
18. Disconnect PCM connector C (49P).
19. Check for continuity between PCM connector terminal C24 and MAF sensor/IAT sensor 5P connector terminal No. 1.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the PCM (C24) and the MAF sensor/IAT sensor, then go to step 22.

(cont'd)

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DTC Troubleshooting (cont'd)

20. Turn the ignition switch OFF.
21. Replace the MAF sensor/IAT sensor (see page 11-238).
22. Reconnect all connectors.
23. Turn the ignition switch ON (II).
24. Reset the PCM with the HDS.
25. Do the PCM idle learn procedure (see page 11-311).
26. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0113 indicated?

    YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
27. Reconnect all connectors.
28. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
29. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0113 indicated?

    YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P0116: ECT Sensor 1 Circuit Range/ Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 176 °F (80 °C) or more, or 0.78 V or less indicated?

   YES—Go to step 6.

   NO—Go to step 3.
3. Note the value of ECT SENSOR 1 in the DATA LIST with the HDS.
4. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
5. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Does ECT SENSOR 1 change 18 °F (10 °C) or more?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the PCM. ■

   NO—Go to step 11.
6. Note the value of ECT SENSOR 1 in the DATA LIST with the HDS.
7. Turn the ignition switch OFF.
8. Open the hood, and let the engine cool for 3 hours.
9. Turn the ignition switch ON (II).
10. Check ECT SENSOR 1 in the DATA LIST with the HDS.

    Does ECT SENSOR 1 change 18 °F (10 °C) or more?

    YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the PCM. ■

    NO—Go to step 11.
11. Turn the ignition switch OFF.
12. Replace ECT sensor 1 (see page 11-239).
13. Turn the ignition switch ON (II).
14. Reset the PCM with the HDS.
15. Do the PCM idle learn procedure (see page 11-311).
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0116 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1 and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P0117: ECT Sensor 1 Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

   YES—Go to step 3.

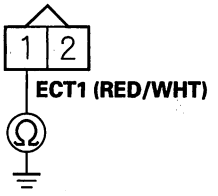
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ECT sensor 1 2P connector.
5. Turn the ignition switch ON (II).
6. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

   YES—Go to step 7.

   NO—Go to step 11.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector C (49P).
10. Check for continuity between ECT sensor 1 2P connector terminal No. 1 and body ground.

ECT SENSOR 1 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between ECT sensor 1 and the PCM (C32), then go to step 13.

NO—Go to step 18.

11. Turn the ignition switch OFF.
12. Replace ECT sensor 1 (see page 11-239).
13. Reconnect all connectors.
14. Turn the ignition switch ON (II).
15. Reset the PCM with the HDS.
16. Do the PCM idle learn procedure (see page 11-311).
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0117 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1 and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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18. Reconnect all connectors.

19. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0117 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1 and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P0118: ECT Sensor 1 Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

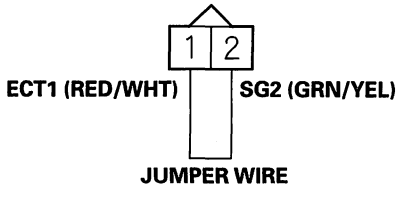
1. Turn the ignition switch ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about −40 °F (−40 °C) or less, or 4.92 V or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ECT sensor 1 2P connector.
5. Connect ECT sensor 1 2P connector terminals No. 1 and No. 2 with a jumper wire.

ECT SENSOR 1 2P CONNECTOR



Wire side of female terminals

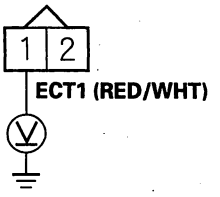
6. Turn the ignition switch ON (II).
7. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about −40 °F (−40 °C) or less, or 4.92 V or more indicated?

   YES—Go to step 8.

   NO—Go to step 20.
8. Turn the ignition switch OFF.
9. Remove the jumper wire.
10. Turn the ignition switch ON (II).
11. Measure voltage between ECT sensor 1 2P connector terminal No. 1 and body ground.

ECT SENSOR 1 2P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 12.

NO—Go to step 16.

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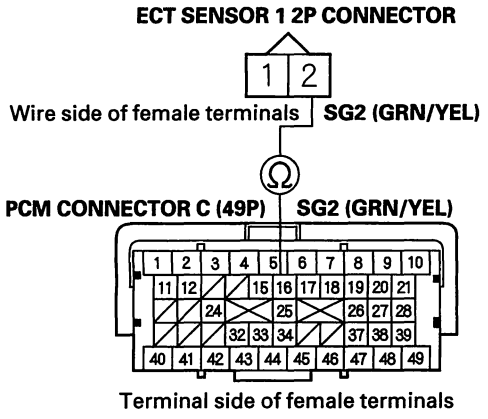
12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector C (49P).
15. Check for continuity between PCM connector terminal C16 and ECT sensor 1 2P connector terminal No. 2.

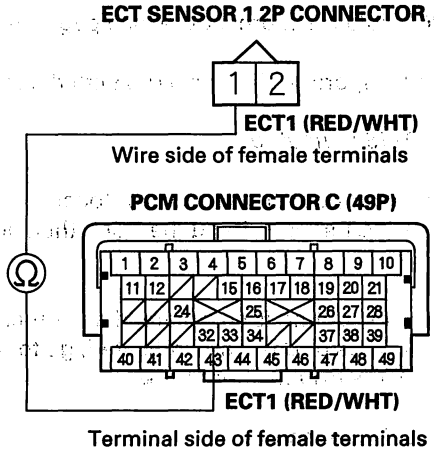


Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the PCM (C16) and ECT sensor 1, then go to step 22.

16. Turn the ignition switch OFF.
17. Jump the SCS line with the HDS.
18. Disconnect PCM connector C (49P).
19. Check for continuity between PCM connector terminal C32 and ECT sensor 1 2P connector terminal No. 1.



Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the PCM (C32) and ECT sensor 1, then go to step 22.

(cont'd)

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DTC Troubleshooting (cont'd)

20. Turn the ignition switch OFF.
21. Replace ECT sensor 1 (see page 11-239).
22. Reconnect all connectors.
23. Turn the ignition switch ON (II).
24. Reset the PCM with the HDS.
25. Do the PCM idle learn procedure (see page 11-311).
26. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0118 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1 and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
27. Reconnect all connectors.
28. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
29. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0118 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1 and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC P0125: ECT Sensor 1 Malfunction/Slow Response

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Start the engine, and let it idle for 5 minutes or more.
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 10 °F (−12 °C) or less, or 4.45 V or more indicated?

   YES—Go to step 9.

   NO—Go to step 3.
3. Allow the engine to cool to 104 °F (40 °C) or less.
4. Note the value of ECT SENSOR 1 and ECT SENSOR 2 in the DATA LIST with the HDS.
5. Start the engine, and let it idle.
6. Let the engine idle until ECT SENSOR 1 goes up 49 °F (27 °C) or more from the recorded temperature.
7. Note the value of ECT SENSOR 2 in the DATA LIST with the HDS.
8. Compare ECT SENSOR 2 and the recorded temperature.

   Did ECT SENSOR 2 change 17 °F (9.5 °C) or more?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. ■

   NO—Test the thermostat (see page 10-4). If the thermostat is OK, go to step 9. If you replaced the thermostat, go to step 11.
9. Turn the ignition switch OFF.
10. Replace ECT sensor 1 (see page 11-239).
11. Turn the ignition switch ON (II).
12. Reset the PCM with the HDS.
13. Do the PCM idle learn procedure (see page 11-311).
14. Allow the engine to cool to the ambient temperature.
15. Start the engine, and let it idle 20 minutes.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0125 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM, then go to step 1.

    NO—Go to step 17.
17. Monitor the OBD STATUS for DTC P0125 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 16, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 15.

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DTC Troubleshooting (cont'd)

DTC P0128: Cooling System Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the blower switch OFF.
4. Turn the A/C switch OFF.
5. Check the FAN CTRL in the DATA LIST with the HDS.

   Is it OFF?

   YES—Go to step 6.

   NO—Wait until the FAN CTRL is off, then go to step 6.
6. Check the radiator fan operation.

   Does the radiator fan keep running?

   YES—Check for symptoms in the cooling system. If the cooling system is OK, go to step 20.

   NO—Go to step 7.
7. Let the engine cool until the coolant temperature is 104 °F (40 °C) or less.
8. Note the value of ECT SENSOR 1 and ECT SENSOR 2 in the DATA LIST with the HDS.
9. Start the engine, and let it idle.
10. Let the engine idle until ECT SENSOR 1 goes up 49 °F (27 °C) or more from the recorded temperature.
11. Check ECT SENSOR 2 in the DATA LIST with the HDS.
12. Compare the recorded value of ECT SENSOR 2 and the present value of ECT SENSOR 2.

    Did temperature rise 17 °F (9.5 °C) or more?

    YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. ■

    NO—Test the thermostat (see page 10-4), then go to step 13.
13. Turn the ignition switch ON (II).
14. Reset the PCM with the HDS.
15. Let the engine cool until the coolant temperature is between 21 °F (—6 °C) and 104 °F (40 °C).
16. Do the PCM idle learn procedure (see page 11-311).
17. Test-drive at a steady speed between 15—75 mph (24—120 km/h) for 10 minutes.
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0128 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. then go to step 1.

    NO—Go to step 19.
19. Monitor the OBD STATUS for DTC P0128 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 18, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 17.

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20. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

21. Let the engine cool until the coolant temperature is between 21 °F (−6 °C) and 104 °F (40 °C).

22. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

23. Test-drive at a steady speed between 15—75 mph (24—120 km/h) for 10 minutes.

24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0128 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 21. If the PCM was substituted, go to step 1.

    NO—Go to step 25.

25. Monitor the OBD STATUS for DTC P0128 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 24, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 21. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 21.

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DTC Troubleshooting (cont'd)

DTC P0133: Rear A/F Sensor (Bank 1, Sensor 1) Circuit Slow Response

DTC P0153: Front A/F Sensor (Bank 2, Sensor 1) Circuit Slow Response

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P0139 and/or P0159 * is stored at the same time as DTC P0133 and/or P0153*, troubleshoot DTC P0139 and/or P0159* first, then recheck for DTC P0133 and/or P0153*.
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Transmission in D position
   - Drive the vehicle at 25 mph (40 km/h) or less for 5 minutes, then drive at a steady speed between 26—81 mph (41—130 km/h)
5. Monitor the OBD STATUS for DTC P0133 and/or P0153* in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 6.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Replace the A/F sensor (Sensor 1) (see page 11-240).
8. Turn the ignition switch ON (II).
9. Reset the PCM with the HDS.
10. Do the PCM idle learn procedure (see page 11-311).
11. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
12. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in D position
    - Drive the vehicle at 25 mph (40 km/h) or less for 5 minutes, then drive at a steady speed between 26—81 mph (41—130 km/h)
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0133 and/or P0153 indicated?*

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

    NO—Go to step 14.
14. Monitor the OBD STATUS for DTC P0133 and/or P0153* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 12.

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DTC P0134: Rear A/F Sensor (Bank 1, Sensor 1) Heater System Malfunction

DTC P0154: Front A/F Sensor (Bank 2, Sensor 1) Heater System Malfunction

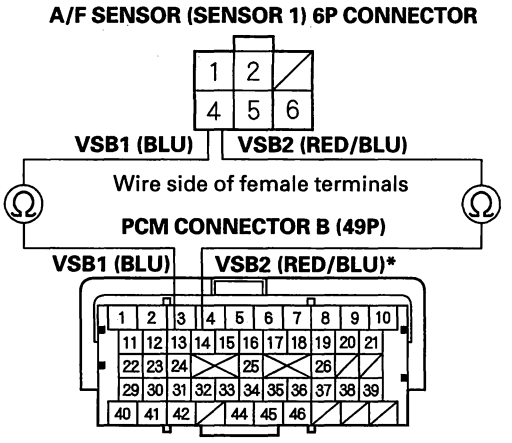
NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P2251 and/or P2254* is stored at the same time as DTC P0134 and/or P0154*, troubleshoot DTC P2251 and/or P2254* first, then recheck for P0134 and/or P0154*.
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, then let it idle 1 minute.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0134 and/or P0154 indicated?*

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the under-hood fuse/relay box (PGM-FI subrelay) and the PCM. ■
5. Turn the ignition switch OFF.
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (49P).
9. Check for continuity between A/F sensor (Sensor 1) 6P connector terminal No. 4 and PCM connector terminal B13 (B14)*.



Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the PCM (B13 (B14)*) and the A/F sensor (Sensor 1), then go to step 14.

(cont'd)

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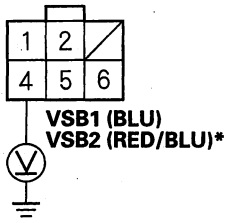
DTC Troubleshooting (cont'd)

10. Reconnect PCM connector B (49P).
11. Turn the ignition switch ON (II).
12. Measure voltage between A/F sensor (Sensor 1) 6P connector terminal No. 4 and body ground.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

Is there about 0.2 V or less?

YES—Go to step 20.

NO—Go to step 13.

13. Replace the A/F sensor (Sensor 1) (see page 11-240).
14. Reconnect all connectors.
15. Turn the ignition switch ON (II).
16. Reset the PCM with the HDS.
17. Do the PCM idle learn procedure (see page 11-311).
18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0134 and/or P0154 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the under-hood fuse/relay box (PGM-FI subrelay), and the PCM, then go to step 1.

NO—Go to step 19.

19. Monitor the OBD STATUS for DTC P0134 and/or P0154* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 18, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the under-hood fuse/relay box (PGM-FI subrelay), and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

20. Turn the ignition switch OFF.
21. Reconnect all connectors.
22. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
23. Start the engine, then let it idle 1 minute.
24. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0134 and/or P0154 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the under-hood fuse/relay box (PGM-FI subrelay), and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 23. If the PCM was substituted, go to step 1.

NO—Go to step 25.

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25. Monitor the OBD STATUS for DTC P0134 and/or P0154* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 24, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the under-hood fuse/relay box (PGM-FI subrelay), and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 23. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 23.

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DTC Troubleshooting (cont'd)

DTC P0135: Rear A/F Sensor (Bank 1, Sensor 1) Heater Circuit Malfunction

DTC P0155: Front A/F Sensor (Bank 2, Sensor 1) Heater Circuit Malfunction

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0135 and/or P0155 indicated?*

   YES—Go to step 5.

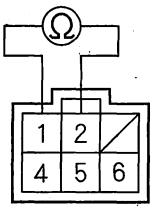
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the under-hood fuse/relay box (PGM-FI subrelay), and the PCM. ■
5. Turn the ignition switch OFF.
6. Check these fuses:
   - No. 11 A/F sensor (AFHT+) (15 A) fuse in the under-hood fuse/relay box
   - No. 3 R/B 1 (30 A) fuse in the main under-hood fuse box.
   - No. 7 +B FAN TIMER (7.5 A) fuse in the under-hood fuse/relay box

   Are any of the above fuses blown?

   YES—Repair short in the wire between the A/F sensors, the under-hood fuse/relay box (PGM-FI subrelay), then replace the blown fuse(s), and go to step 23.

   NO—Go to step 7.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. At the sensor side, measure resistance between A/F sensor (Sensor 1) 6P connector terminals No. 1 and No. 2.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Terminal side of male terminals

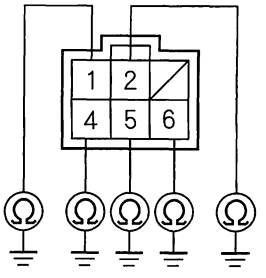
Is there 2.5—3.2 Ω at room temperature?

YES—Go to step 9.

NO—Go to step 21.

9. At the sensor side, check for continuity between each terminal at the A/F sensor (Sensor 1) 6P connector and body ground.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Go to step 21.

NO—Go to step 10.

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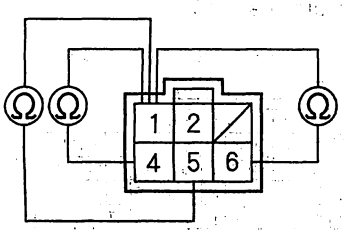
10. At the sensor side, check for continuity between A/F sensor (Sensor 1) 6P connector terminals No. 1 and No. 4, No. 1 and No. 5, No. 1 and No. 6 individually.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Terminal side of male terminals

Is there continuity?

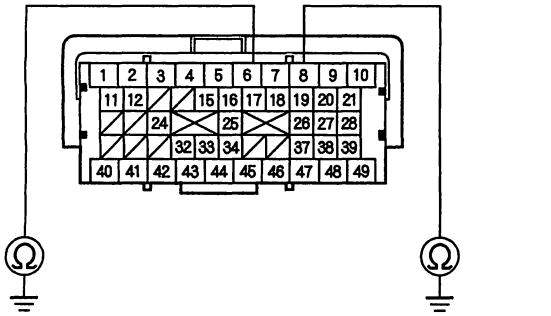
YES—Go to step 21.

NO—Go to step 11.

11. Jump the SCS line with the HDS.
12. Disconnect PCM connector C (49P).
13. Check for continuity between PCM connector terminal C6 (C8)* and body ground.

PCM CONNECTOR C (49P)

AFSHTCB1 (BLK/WHT) AFSHTCB2 (GRN/WHT)*



Terminal side of female terminals

Is there continuity?

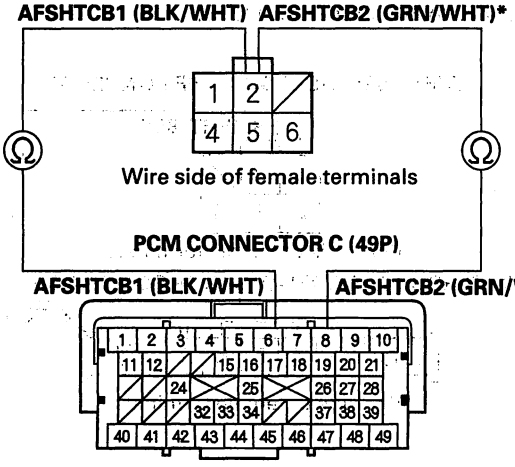
YES—Repair short in the wire between the PCM (C6 (C8)*) and the A/F sensor (Sensor 1), then go to step 22.

NO—Go to step 14.

14. Check for continuity between A/F sensor (Sensor 1) 6P connector terminal No. 2 and PCM connector terminal C6 (C8)*.

A/F SENSOR (SENSOR 1) 6P CONNECTOR

AFSHTCB1 (BLK/WHT) AFSHTCB2 (GRN/WHT)*



Terminal side of female terminals

Is there continuity?

YES—Go to step 15.

NO—Repair open in the wire between the PCM (C6 (C8)*) and the A/F sensor (Sensor 1), then go to step 22.

(cont'd)

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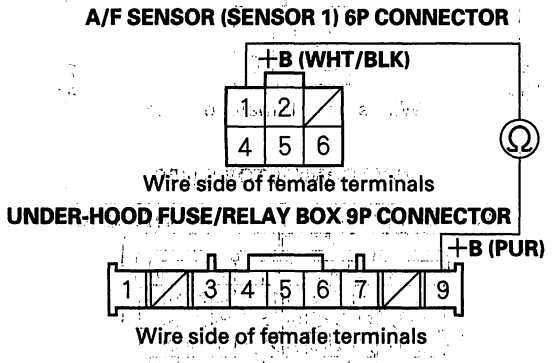
DTC Troubleshooting (cont'd)

15. Disconnect the under-hood fuse/relay box 9P connector.

16. Check for continuity between A/F sensor (Sensor 1) 6P connector terminal No. 1 and under-hood fuse/relay box 9P connector No. 9.



Is there continuity?

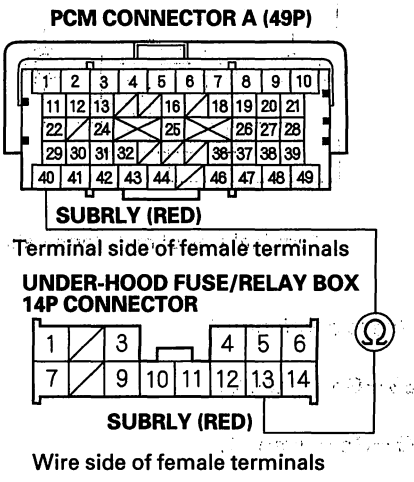
YES—Go to step 17.

NO—Repair open in the wire between the A/F sensor (Sensor 1) and the under-hood fuse/relay box, then go to step 22.

17. Disconnect PCM connector A (49P).

18. Disconnect the under-hood fuse/relay box 14P connector.

19. Check for continuity between under-hood fuse/relay box 14P connector terminal No. 13 and PCM connector terminal A40.



Is there continuity?

YES—Go to step 20.

NO—Repair open in the wire between the PCM (A40) and the under-hood fuse/relay box, then go to step 22.

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20. Test the PGM-FI subrelay in the under-hood fuse/relay box (see page 22-77).

    Is the PGM-FI subrelay OK?

    YES—Go to step 28.

    NO—Replace the relay control module (under-hood fuse/relay box) (see page 22-71), then go to step 22.

21. Replace the A/F sensor (Sensor 1) (see page 11-240).

22. Reconnect all connectors.

23. Turn the ignition switch ON (II).

24. Reset the PCM with the HDS.

25. Do the PCM idle learn procedure (see page 11-311).

26. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0135 and/or P0155 indicated?*

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the under-hood fuse/relay box (PGM-FI subrelay) and the PCM, then go to step 1.

    NO—Go to step 27.

27. Monitor the OBD STATUS for DTC P0135 and/or P0155* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 26, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the under-hood fuse/relay box (PGM-FI subrelay) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

28. Reconnect all connectors.

29. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

30. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0135 and/or P0155 indicated?*

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the under-hood fuse/relay box (PGM-FI subrelay) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 31.

31. Monitor the OBD STATUS for DTC P0135 and/or P0155* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 30, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the under-hood fuse/relay box (PGM-FI subrelay) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P0137: Rear Secondary HO2S (Bank 1, Sensor 2) Circuit Low Voltage

DTC P0157: Front Secondary HO2S (Bank 2, Sensor 2) Circuit Low Voltage

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, then let it idle without load (in Park or neutral) until the radiator fan comes on.
4. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 0.05 V or less?

   YES—Go to step 5.

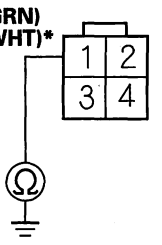
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM. ■
5. Turn the ignition switch OFF.
6. Disconnect the secondary HO2S (Sensor 2) 4P connector.
7. Turn the ignition switch ON (II).
8. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 0.05 V or less?

   YES—Go to step 9.

   NO—Go to step 13.
9. Turn the ignition switch OFF.
10. Jump the SCS line with the HDS.
11. Disconnect PCM connector B (49P).
12. Check for continuity between secondary HO2S (Sensor 2) 4P connector terminal No. 1 and body ground.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (B25 (B16)*) and the secondary HO2S (Sensor 2), then go to step 15.

NO—Go to step 23.

13. Turn the ignition switch OFF.
14. Replace the secondary HO2S (Sensor 2) (see page 11-241).
15. Reconnect all connectors.
16. Turn the ignition switch ON (II).
17. Reset the PCM with the HDS.
18. Do the PCM idle learn procedure (see page 11-311).
19. Start the engine, then let it idle without load (in Park or neutral) until the radiator fan comes on.

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20. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in D position
    - Engine speed at 1,500—3,000 rpm
    - Drive 1 minute or more

21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0137 and/or P0157 indicated?*

    YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM, then go to step 1.

    NO—Go to step 22.

22. Monitor the OBD STATUS for DTC P0137 and/or P0157* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 21, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 20.

23. Reconnect all connectors.

24. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

25. Start the engine, then let it idle without load (in Park or neutral) until the radiator fan comes on.

26. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in D position
    - Engine speed at 1,500—3,000 rpm
    - Drive 1 minute or more

27. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0137 and/or P0157 indicated?*

    YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 25. If the PCM was substituted, go to step 1.

    NO—Go to step 28.

28. Monitor the OBD STATUS for DTC P0137 and/or P0157* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 27, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 25. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 25.

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DTC Troubleshooting (cont'd)

DTC P0138: Rear Secondary HO2S (Bank 1, Sensor 2) Circuit High Voltage

DTC P0158: Front Secondary HO2S (Bank 2, Sensor 2) Circuit High Voltage

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

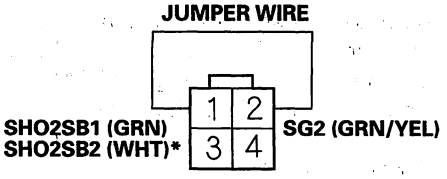
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, then let it idle without load (in Park or neutral) until the radiator fan comes on.
4. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 1.27 V or more?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM. ■
5. Turn the ignition switch OFF.
6. Disconnect the secondary HO2S (Sensor 2) 4P connector.
7. Connect secondary HO2S (Sensor 2) 4P connector terminals No. 1 and No. 2 with a jumper wire.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Wire side of female terminals

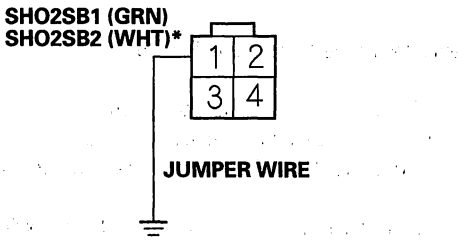
8. Turn the ignition switch ON (II).
9. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 1.27 V or more?

   YES—Go to step 10.

   NO—Go to step 19.
10. Turn the ignition switch OFF.
11. Remove the jumper wire from the secondary HO2S (Sensor 2) 4P connector.
12. Connect secondary HO2S (Sensor 2) 4P connector terminal No. 1 to body ground with a jumper wire.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Wire side of female terminals

13. Turn the ignition switch ON (II).
14. Check the HO2S S2 in the DATA LIST with the HDS.

    Does the voltage stay at 1.27 V or more?

    YES—Go to step 15.

    NO—Repair open in the wire between the PCM (C16) and the secondary HO2S (Sensor 2), then go to step 21.

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15. Turn the ignition switch OFF.

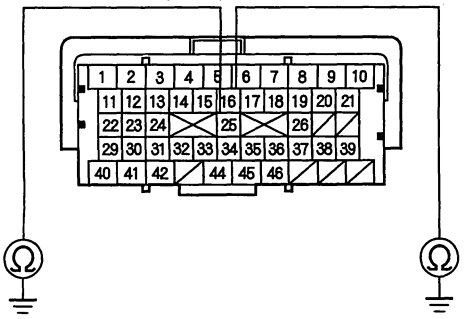
16. Jump the SCS line with the HDS.

17. Disconnect PCM connector B (49P).

18. Check for continuity between PCM connector terminal B25 (B16)* and body ground.

PCM CONNECTOR B (49P)

SHO2SB1 (GRN) SHO2SB2 (WHT)*



Terminal side of female terminals

Is there continuity?

YES—Go to step 29.

NO—Repair open in the wire between the PCM (B25 (B16)*) and the secondary HO2S (Sensor 2), then go to step 21.

19. Turn the ignition switch OFF.

20. Replace the secondary HO2S (Sensor 2) (see page 11-241).

21. Reconnect all connectors.

22. Turn the ignition switch ON (II).

23. Reset the PCM with the HDS.

24. Do the PCM idle learn procedure (see page 11-311).

25. Start the engine, then let it idle without load (in Park or neutral) until the radiator fan comes on.

26. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- Transmission in D position
- Engine speed at 1,500—3,000 rpm
- Drive 1 minute or more

27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0138 and/or P0158 indicated?*

YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM, then go to step 1.

NO—Go to step 28.

28. Monitor the OBD STATUS for DTC P0138 and/or P0158* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 27, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 25.

(cont'd)

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DTC Troubleshooting (cont'd)

29. Reconnect all connectors.

30. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

31. Start the engine, then let it idle without load (in Park or neutral) until the radiator fan comes on.

32. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in D position
    - Engine speed at 1,500—3,000 rpm
    - Drive 1 minute or more

33. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0138 and/or P0158 indicated?*

    YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 32. If the PCM was substituted, go to step 1.

    NO—Go to step 34.

34. Monitor the OBD STATUS for DTC P0138 and/or P0158* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 33, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 32. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 32.

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DTC P0139: Rear Secondary HO2S (Bank 1, Sensor 2) Circuit Slow Response

DTC P0159: Front Secondary HO2S (Bank 2, Sensor 2) Circuit Slow Response

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, then let it idle without load (in Park or neutral) until the radiator fan comes on.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Transmission in D position
   - Vehicle speed between 35—55 mph (56—88 km/h)
   - Drive 5 minutes or more
5. Monitor the OBD STATUS for DTC P0139 and/or P0159* in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 6.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Replace the secondary HO2S (Sensor 2) (see page 11-241).
8. Turn the ignition switch ON (II).
9. Reset the PCM with the HDS.
10. Do the PCM idle learn procedure (see page 11-311).
11. Start the engine, then let it idle without load (in Park or neutral) until the radiator fan comes on.
12. Test-drive under these conditions:
    - Engine coolant temperature above 176 °F (80 °C)
    - Transmission in D position
    - Vehicle speed between 35—55 mph (56—88 km/h)
    - Drive 5 minutes or more
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0139 and/or P0159 indicated?*

    YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM, then go to step 1.

    NO—Go to step 14.
14. Monitor the OBD STATUS for DTC P0139 and/or P0159* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 12.

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DTC Troubleshooting (cont'd)

DTC P0141: Rear Secondary HO2S (Bank 1, Sensor 2) Heater Circuit Malfunction

DTC P0161: Front Secondary HO2S (Bank 2, Sensor 2) Heater Circuit Malfunction

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0141 and/or P0161 indicated?*

   YES—Go to step 5.

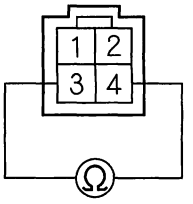
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2), the under-hood fuse/relay box (PGM-FI subrelay) and the PCM. ■
5. Turn the ignition switch OFF.
6. Check these fuses:
   - No. 11 A/F sensor (AFHT+) (15 A) fuse in the under-hood fuse/relay box
   - No. 3 R/B 1 (30 A) fuse in the main under-hood fuse box.
   - No. 7 +B FAN TIMER (7.5 A) fuse in the under-hood fuse/relay box

   Are any of the fuses blown?

   YES—Repair short in the wire between the A/F sensors, the under-hood fuse/relay box (PGM-FI subrelay) and the fuse, then go to step 21.

   NO—Go to step 7.
7. Disconnect the secondary HO2S (Sensor 2) 4P connector.
8. At the secondary HO2S (Sensor 2) side, measure resistance between secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4.

   SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



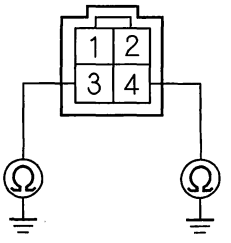
   Terminal side of male terminals

   Is there 5.4—6.6 Ω at room temperature?

   YES—Go to step 9.

   NO—Go to step 20.
9. At the secondary HO2S (sensor 2) side, check for continuity between body ground and secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4 individually.

   SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



   Terminal side of male terminals

   Is there continuity?

   YES—Go to step 20.

   NO—Go to step 10.

BACK

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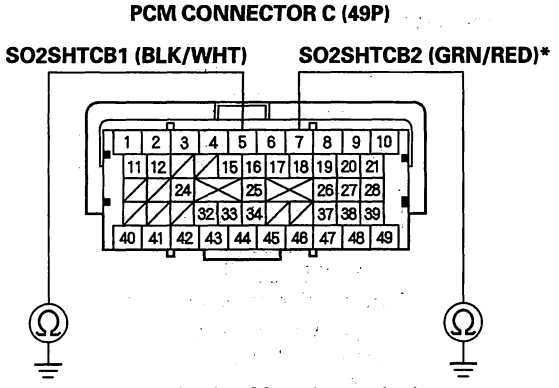
10. Jump the SCS line with the HDS.

11. Disconnect PCM connector C (49P).

12. Check for continuity between PCM connector terminal C5 (C7)* and body ground.

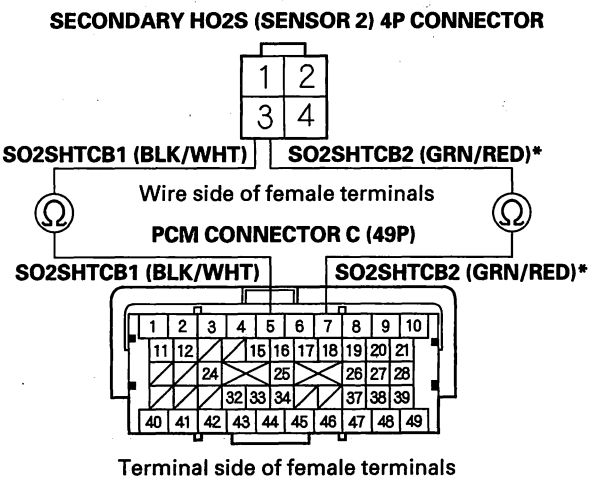


Is there continuity?

YES—Repair short in the wire between the PCM (C5 (C7)*) and the secondary HO2S (Sensor 2), then go to step 21.

NO—Go to step 13.

13. Check for continuity between secondary HO2S (Sensor 2) 4P connector terminal No. 3 and PCM connector terminal C5 (C7)*.



Is there continuity?

YES—Go to step 14.

NO—Repair open in the wire between the PCM (C5 (C7)*) and the secondary HO2S (Sensor 2), then go to step 21.

(cont'd)

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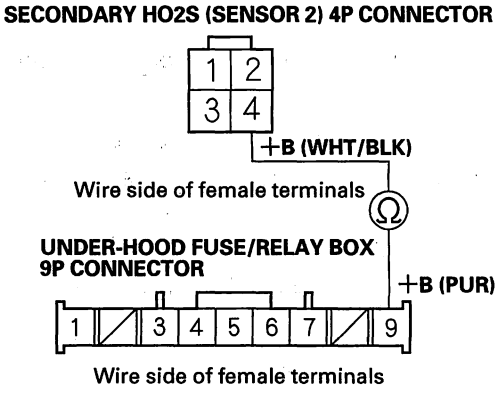
DTC Troubleshooting (cont'd)

14. Disconnect the under-hood fuse/relay box 9P connector.

15. Check for continuity between secondary HO2S (Sensor 2) 4P connector terminal No. 4 and under-hood fuse/relay box 9P connector No. 9.



Is there continuity?

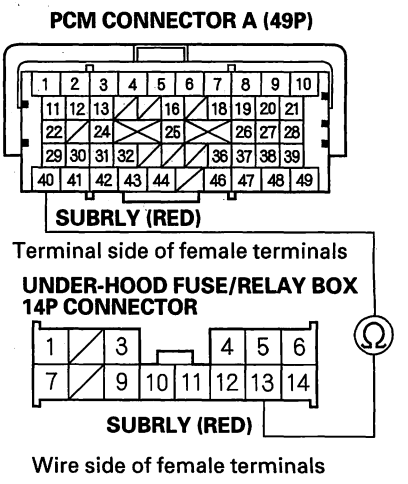
YES—Go to step 16.

NO—Repair open in the wire between the secondary HO2S (Sensor 2) and the under-hood fuse/relay box, then go to step 21.

16. Disconnect PCM connector A (49P).

17. Disconnect the under-hood fuse/relay box 14P connector.

18. Check for continuity between under-hood fuse/relay box 14P connector terminal No. 13 and PCM connector terminal A40.



Is there continuity?

YES—Go to step 19.

NO—Repair open in the wire between the PCM (A40) and the under-hood fuse/relay box, then go to step 21.

BACK

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19. Test the PGM-FI subrelay in the under-hood fuse/relay box (see page 22-77).

    Is the PGM-FI subrelay OK?

    YES—Go to step 27.

    NO—Replace the relay control module (under-hood fuse/relay box) (see page 22-71). then go to step 21.

20. Replace the secondary HO2S (Sensor 2) (see page 11-241).

21. Reconnect all connectors.

22. Turn the ignition switch ON (II).

23. Reset the PCM with the HDS.

24. Do the PCM idle learn procedure (see page 11-311).

25. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0141 and/or P0161 indicated?*

    YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2), the under-hood fuse/relay box (PGM-FI subrelay), and the PCM, then go to step 1.

    NO—Go to step 26.

26. Monitor the OBD STATUS for DTC P0141 and/or P0161* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 25, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2), the under-hood fuse/relay box (PGM-FI subrelay), and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

27. Reconnect all connectors.

28. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

29. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0141 and/or P0161 indicated?*

    YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2), the under-hood fuse/relay box (PGM-FI subrelay), and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 30.

30. Monitor the OBD STATUS for DTC P0141 and/or P0161* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 29, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2), the under-hood fuse/relay box (PGM-FI subrelay), and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P0171: Rear Bank (Bank 1) Fuel System Too Lean

DTC P0172: Rear Bank (Bank 1) Fuel System Too Rich

DTC P0174: Front Bank (Bank 2) Fuel System Too Lean

DTC P0175: Front Bank (Bank 2) Fuel System Too Rich

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If some of the DTCs listed below are stored at the same time as DTC P0171, P0172, P0174, and/or P0175, troubleshoot those DTCs first, then recheck for P0171, P0172, P0174, and/or P0175.

P0101, P0102, P0103: Mass air flow (MAF) sensor
P0107, P0108, P1128, P1129: Manifold absolute pressure (MAP) sensor
P0133, P0153, P1172, P1174, P2195, P2197, P2237, P2238, P2240, P2241, P2243, P2245, P2247, P2249, P2251, P2252, P2254, P2255, P2A00, P2A03: Air fuel ratio (A/F) sensor (Sensor 1)
P0134, P0135, P0154, P0155: Air fuel ratio (A/F) sensor (Sensor 1) heater
P0137, P0138, P0139, P0157, P0158, P0159, P2270, P2271, P2272, P2273: Secondary HO2S (Sensor 2)
P0141, P0161: Secondary HO2S (Sensor 2) heater
P2646, P2647, P2648, P2649: VTEC system
P0401, P0404, P0406, P2413: Exhaust gas recirculation (EGR) system
P2279: Intake air leakage

1. Check the fuel pressure (see page 11-333).

   Is the fuel pressure OK?

   YES—If you are troubleshooting DTC P0171 or P0174, go to step 2. If you are troubleshooting DTC P0172 or P0175, check the valve clearances, and adjust if necessary. If the valve clearances are OK, replace the injectors (see page 11-236), then go to step 2.

   NO—Check these items:

   - If the pressure is too high, replace the fuel pressure regulator (see page 11-345), then go to step 2.
   - If the pressure is too low, check the fuel pump, the fuel pressure regulator, the fuel filter, and the fuel lines for restrictions, then go to step 2.

2. Turn the ignition switch ON (II).

3. Reset the PCM with the HDS.

4. Do the PCM idle learn procedure (see page 11-311).

5. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

6. Test-drive under these conditions:

   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Transmission in D position
   - Drive at a steady speed between 15—75 mph (24—120 km/h) for 15 minutes.

   NOTE: DTC P0171, P0172, P0174, and/or P0175 may take up to 80 minutes of test driving to set. Using the HDS, monitor the long term fuel trim (LT FUEL TRIM) or the air fuel feed back average (AF FB AVE). If the long term fuel trim/air fuel feed back average stays within 0.84—1.18, there is no problem at this time.

BACK

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7. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0171, P0172, P0174, or P0175 indicated?

   YES—Go to step 8.

   NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

8. Check for poor connections or loose terminals at the PCM.

   Are the connections and terminals OK?

   YES—Go to step 9.

   NO—Repair the connections or terminals, then step 2.

9. Check the fuel quality.

   Is the fuel quality OK?

   YES—Replace the injectors (see page 11-236), then go to step 2.

   NO—Drain the fuel tank (see page 11-333), replace the fuel, then go to step 2.

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DTC Troubleshooting (cont'd)

DTC P0300: Random Misfire and Any Combination of the Following:

DTC P0301: No. 1 Cylinder Misfire Detected

DTC P0302: No. 2 Cylinder Misfire Detected

DTC P0303: No. 3 Cylinder Misfire Detected

DTC P0304: No. 4 Cylinder Misfire Detected

DTC P0305: No. 5 Cylinder Misfire Detected

DTC P0306: No. 6 Cylinder Misfire Detected

Special Tools Required
- Pressure gauge adapter 07NAJ-P07010A
- A/T low pressure gauge w/panel 07406-0070301
- A/T pressure hose 07406-0020201
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure adapter 07MAJ-PY40120
- Oil pressure hose 07ZAJ-S5AA200

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If the misfire is frequent enough to trigger detection of increased emissions during two consecutive driving cycles, the MIL will come on, and DTC P0300 (and some combination of P0301 through P0306) will be stored.
- If the misfire is frequent enough to damage the catalyst, the MIL will blink whenever the misfire occurs, and DTC P0300 (and some combination of P0301 through P0306) will be stored. When the misfire stops, the MIL will remain on.
- Troubleshoot the following DTCs first, if any of them were stored along with the random misfire DTC(s) (Because parts can sometimes fail without setting DTC's you should also do a physical inspection of the below systems.):

  P0101, P0102, P0103: Mass air flow (MAF)
  P0107, P0108, P1128, P1129: Manifold absolute pressure (MAP) sensor
  P0171, P0172, P0174, P0175: Fuel system
  P0335, P0339, P0385, P0389: Crankshaft position (CKP) sensor A/B
  P0506, P0507: Idle control system
  P0340, P0344: Camshaft position (CMP) sensor
  P2646, P2647, P2648, P2649: VTEC system
  P0401, P0404, P0406, P2413: Exhaust gas recirculation (EGR) system

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (in Park or neutral).
4. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 9.

   NO—If the screen indicates PASSED, go to step 5. If the screen indicates EXECUTING, let it idle until a result comes on. If the screen indicates OUT OF CONDITION, wait for several minutes, then recheck.
5. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

   YES—Go to step 9.

   NO—Go to step 6.
6. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

   - ENGINE SPEED
   - VSS
   - REL TP SENSOR
   - CLV (calculated load value)
   - ECT SENSOR 1
   - APP SENSOR

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7. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 9.

   NO—If the screen indicates PASSED, go to step 8. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 6 and recheck.

8. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

   YES—Go to step 9.

   NO—Intermittent failure, the system is OK at this time.■

9. Turn the ignition switch OFF.

10. Check the fuel quality.

    Is the quality good?

    YES—Go to step 11.

    NO—Drain the tank, and fill it with a known-good fuel, then go to step 20.

11. Inspect the spark plugs (see page 4-24). If the spark plugs are fouled or worn, replace them.

12. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)
    - ECT SENSOR 1
    - APP SENSOR

13. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

    Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

    YES—Go to step 14.

    NO—Go to step 20.

14. Check the fuel pressure (see page 11-333).

    Is the fuel pressure OK?

    YES—Go to step 15.

    NO—
    - If the pressure is too high, replace the fuel pressure regulator (see page 11-345), then go to step 20.
    - If the pressure is too low, check the fuel pump, the fuel feed lines, and the fuel filter. If they are OK, replace the fuel pressure regulator (see page 11-345), then go to step 20.

15. Turn the ignition switch OFF.

(cont'd)

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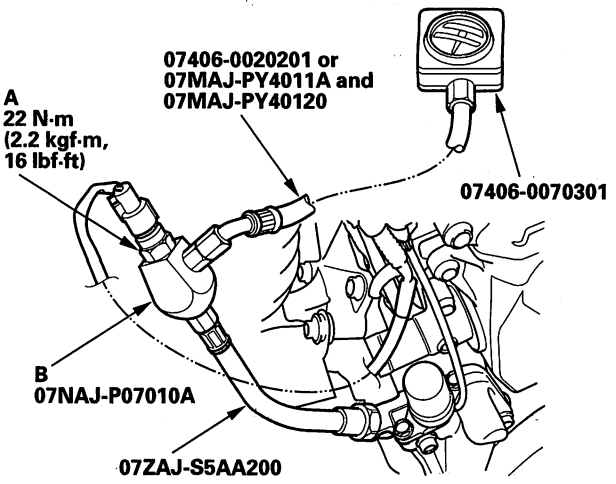
DTC Troubleshooting (cont'd)

16. Remove the rocker arm oil pressure switch (A), and install the special tools as shown, then install the rocker arm oil pressure switch in the pressure gauge adapter (B).

    NOTE: Install the parts in the reverse order of removal with a new O-ring.



17. Reconnect the rocker arm oil pressure switch 2P connector.

18. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on.

19. Check the oil pressure at engine speeds of 1,000 and 2,000 rpm. Keep the measuring time as short as possible (less than 1 minute) because the engine is running without load.

    Is the oil pressure below 49 kPa (0.5 kgf/cm², 7 psi)?

    YES—Remove the oil pressure gauge, and reinstall the rocker arm oil pressure switch, then go to step 20.

    NO—Inspect the VTEC system (see page 6-7), then go to step 20.

20. Turn the ignition switch ON (II).

21. Reset the PCM with the HDS.

22. Clear the CKP pattern with the HDS.

23. Do the PCM idle learn procedure (see page 11-311).

24. Do the CKP pattern learn procedure (see page 11-4).

25. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)
    - ECT SENSOR 1
    - APP SENSOR

26. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0300 and any combination of DTC P0301, P0302, P0303, P0304, P0305, or P0306 indicated?

    YES—Check for poor connections or loose terminals at the ignition coil, the injector, and the PCM, then go to DTC P0301, P0302, P0303, P0304, P0305, or P0306 (see page 11-121) troubleshooting.

    NO—Go to step 27.

27. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 26, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connection or loose terminals at the ignitions coil, the injector, and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 25.

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DTC P0301: No. 1 Cylinder Misfire Detected

DTC P0302: No. 2 Cylinder Misfire Detected

DTC P0303: No. 3 Cylinder Misfire Detected

DTC P0304: No. 4 Cylinder Misfire Detected

DTC P0305: No. 5 Cylinder Misfire Detected

DTC P0306: No. 6 Cylinder Misfire Detected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load for 2 minutes (in Park or neutral).
4. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 9.

   NO—If the screen indicates PASSED, go to step 5. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION, wait for several minutes, and recheck.
5. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

   YES—Go to step 9.

   NO—Go to step 6.
6. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

   - ENGINE SPEED
   - VSS
   - REL TP SENSOR
   - CLV (calculated load value)
   - GEAR POSITION
   - ECT SENSOR 1
7. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 9.

   NO—If the screen indicates PASSED, go to step 8. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 6.
8. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

   YES—Go to step 9.

   NO—Intermittent failure, the system is OK at this time. Check the fuel and ignition system circuit connectors for loose wires or poor connections. ■
9. Turn the ignition switch OFF.
10. Exchange the ignition coil from the problem cylinder with one from another cylinder.
11. Reconnect all connectors.

(cont'd)

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DTC Troubleshooting (cont'd)

12. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)
    - GEAR POSITION
    - ECT SENSOR 1

13. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

    Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

    YES—Go to step 14.

    NO—Intermittent failure due to poor contact at the ignition coil contactor (no misfire at this time). Make sure that the ignition coil connectors are secure.■

14. Determine which cylinder had the misfire.

    Does the misfire occur in the cylinder where the ignition coil was moved?

    YES—Replace the faulty ignition coil (see page 4-21), then go to step 53.

    NO—Go to step 15.

15. Turn the ignition switch OFF.

16. Exchange the spark plug from the problem cylinder with the one from another cylinder.

17. Reconnect all connectors.

18. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)
    - GEAR POSITION
    - ECT SENSOR 1

19. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

    Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

    YES—Go to step 20.

    NO—Intermittent failure due to spark plug fouling (no misfire at this time).■

20. Determine which cylinder had the misfire.

    Does the misfire occur in the cylinder where the spark plug was moved?

    YES—Replace the faulty spark plug, then go to step 53.

    NO—Go to step 21.

21. Turn the ignition switch OFF.

22. Disconnect the ignition coil 3P connector from the problem cylinder.

23. Turn the ignition switch ON (II).

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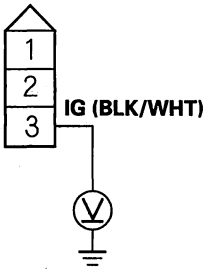
24. Measure voltage between ignition coil 3P connector terminal No. 3 and body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

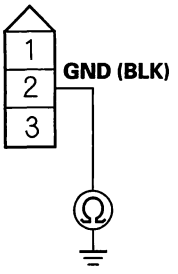
YES—Go to step 25.

NO—Repair open in the wire between the ignition coil and the under-hood fuse/relay box, then go to step 53.

25. Turn the ignition switch OFF.

26. Check for continuity between ignition coil 3P *connector* terminal No. 2 and body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the ignition coil, G101, then go to step 53.

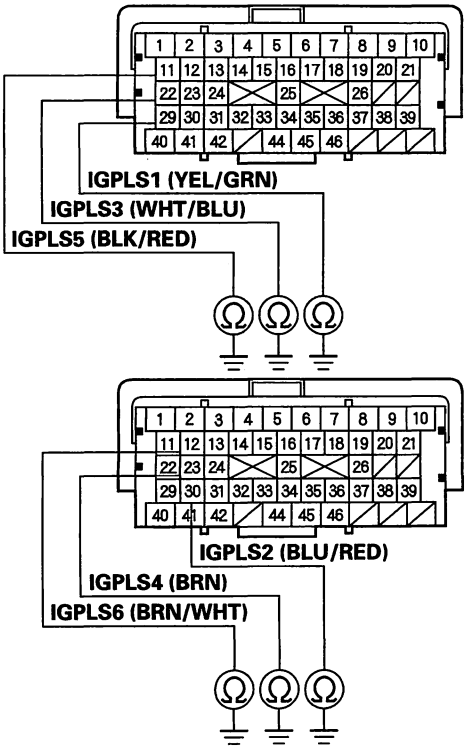
27. Jump the SCS line with the HDS.

28. Disconnect PCM connector B (49P).

29. Check for continuity between body ground and the appropriate PCM connector terminal (see table).

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	B29	YEL/GRN
No. 2	P0302	B30	BLU/RED
No. 3	P0303	B22	WHT/BLU
No. 4	P0304	B23	BRN
No. 5	P0305	B11	BLK/RED
No. 6	P0306	B12	BRN/WHT

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM and the ignition coil, then go to step 53.

NO—Go to step 30.

(cont'd)

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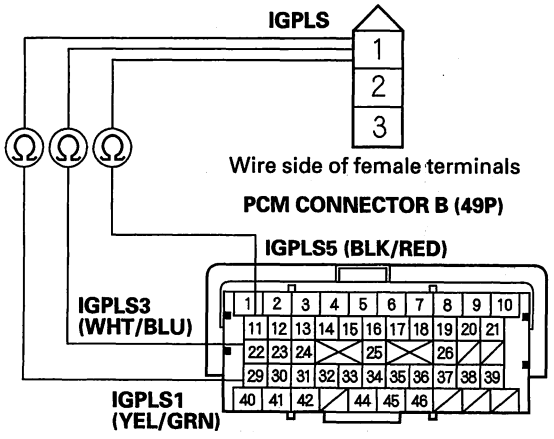
DTC Troubleshooting (cont'd)

30. Check for continuity between appropriate ignition coil 3P connector terminal No. 1 and the appropriate PCM connector terminal of the problem cylinder (see table).

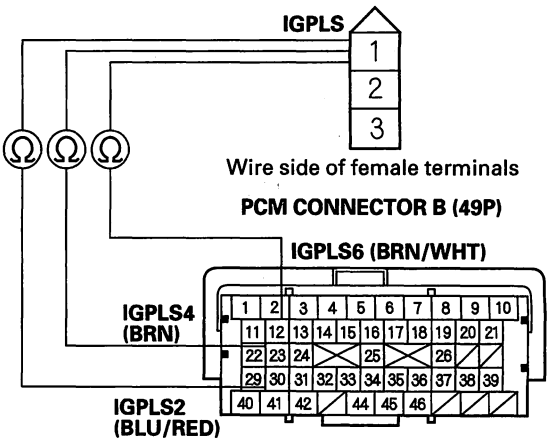
PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	B29	YEL/GRN
No. 2	P0302	B30	BLU/RED
No. 3	P0303	B22	WHT/BLU
No. 4	P0304	B23	BRN
No. 5	P0305	B11	BLK/RED
No. 6	P0306	B12	BRN/WHT

IGNITION COIL 3P CONNECTOR



Terminal side of female terminals

IGNITION COIL 3P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 31.

NO—Repair open in the wire between the PCM and the ignition coil, then go to step 53.

BACK

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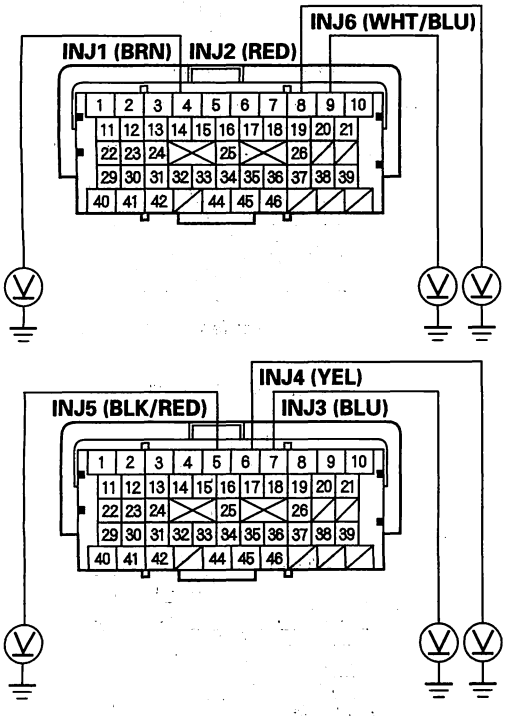
31. Remove the intake manifold (see page 9-3).

32. Turn the ignition switch ON (II).

33. Measure voltage between body ground and the appropriate PCM connector terminal (see table).

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	B4	BRN
No. 2	P0302	B8	RED
No. 3	P0303	B7	BLU
No. 4	P0304	B6	YEL
No. 5	P0305	B5	BLK/RED
No. 6	P0306	B9	WHT/BLU

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 41.

NO—Go to step 34.

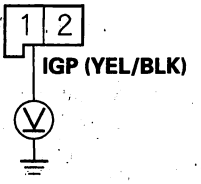
34. Turn the ignition switch OFF.

35. Disconnect the injector 2P connector from the problem cylinder.

36. Turn the ignition switch ON (II).

37. Measure voltage between injector 2P connector terminal No. 1 and body ground.

INJECTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 38.

NO—Repair open in the wire between the injector and under-hood fuse/relay box (PGM-FI main relay 1), then go to step 51.

38. Turn the ignition switch OFF.

(cont'd)

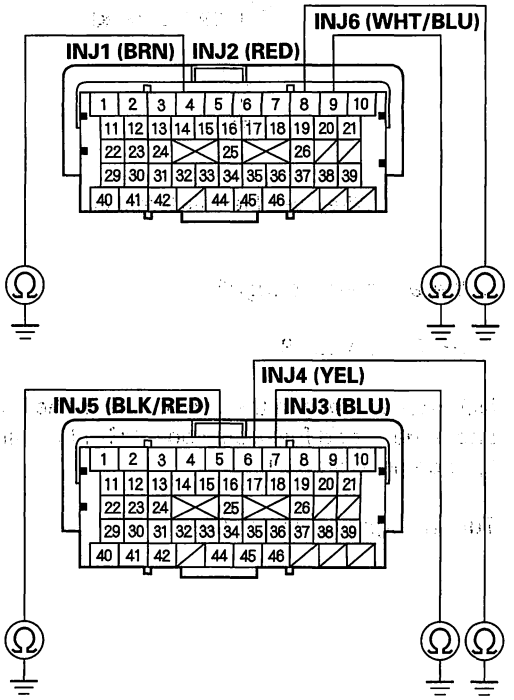
Protected by AR

DTC Troubleshooting (cont'd)

39. Check for continuity between body ground and the appropriate PCM connector terminal (see table).

PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	B4	BRN
No. 2	P0302	B8	RED
No. 3	P0303	B7	BLU
No. 4	P0304	B6	YEL
No. 5	P0305	B5	BLK/RED
No. 6	P0306	B9	WHT/BLU

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

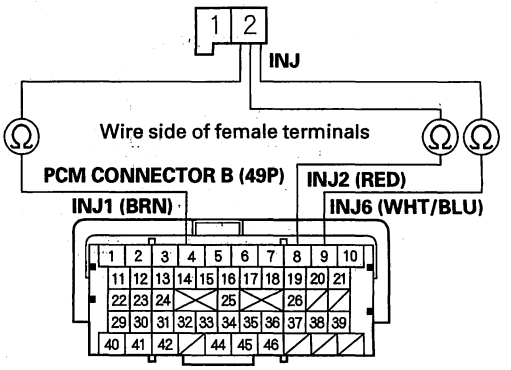
YES—Repair short in the wire between the PCM and the injector, then go to step 53.

NO—Go to step 40.

40. Check for continuity between appropriate injector 2P connector terminal No. 2 and the appropriate PCM connector terminal of the problem cylinder (see table).

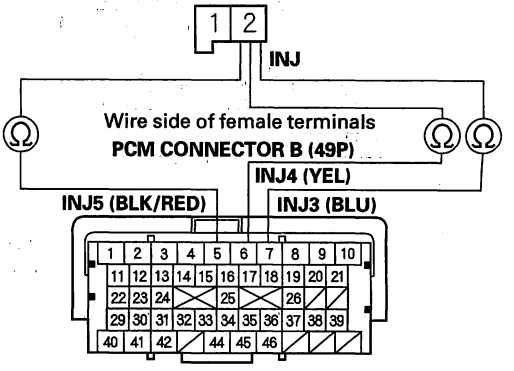
PROBLEM CYLINDER	DTC	PCM TERMINAL	WIRE COLOR
No. 1	P0301	B4	BRN
No. 2	P0302	B8	RED
No. 3	P0303	B7	BLU
No. 4	P0304	B6	YEL
No. 5	P0305	B5	BLK/RED
No. 6	P0306	B9	WHT/BLU

INJECTOR 2P CONNECTOR



Terminal side of female terminals

INJECTOR 2P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Check for poor connections or loose terminals at the injector and under-hood fuse/relay box (PGM-FI main relay 1), then go to step 41.

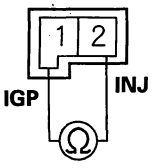
NO—Repair open in the wire between the PCM and the injector, then go to step 53.

BACK

Protected by AR

41. Measure resistance between injector 2P connector terminals No. 1 and No. 2.

INJECTOR 2P CONNECTOR



Terminal side of male terminals

Is there 10— 13 Ω ?

YES—Go to step 42.

NO—Replace the injector (see page 11-236), then go to step 53.

42. Exchange the injector from the problem cylinder with the one from another cylinder. Also check the injector fuel inlet screen for debris, and clean if needed.

43. Reconnect all connectors, and install the intake manifold (see page 9-2).

44. Turn the ignition switch ON (II).

45. Clear the DTCs with the HDS.

46. Start the engine, and let it idle without load (in Park or neutral) for 2 minutes.

47. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS
- REL TP SENSOR
- CLV (calculated load value)
- GEAR POSITION
- ECT SENSOR 1

48. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, CYL4 MISFIRE, CYL5 MISFIRE, and/or CYL6 MISFIRE show misfire counts?

YES—Go to step 49.

NO—Intermittent failure due to poor contact in the injector connector (no misfire at this time). Check for poor connections or loose terminals at the injector. ■

49. Determine which cylinder had the misfire.

Does the misfire occur in the cylinder where the injector was moved?

YES—Replace the faulty injector (see page 11-236), then go to step 53.

NO—Go to step 50.

50. Turn the ignition switch OFF.

51. Do an engine compression and a cylinder leakdown test (see page 6-6).

Did the engine pass both tests?

YES—Go to step 52.

NO—Repair the engine, then go to step 53.

(cont'd)

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DTC Troubleshooting (cont'd)

52. Do the VTEC rocker arm test (see page 6-7).

    Did the engine pass the test?

    YES—Go to step 61.

    NO—Repair the VTEC rocker arm, then go to step 53.

53. Reconnect all connectors.

54. Reset the PCM with the HDS.

55. Clear the CKP pattern with the HDS.

56. Do the PCM idle learn procedure (see page 11-311).

57. Do the CKP pattern learn procedure (see page 11-4).

58. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)
    - GEAR POSITION
    - ECT SENSOR 1

59. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0301, P0302, P0303, P0304, P0305, or P0306 indicated?

    YES—Check for poor connections or loose terminals at the ignition coil, the injector, and the PCM, then go to step 1.

    NO—Go to step 60.

60. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 59, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the ignition coil, the injector, and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 58.

61. Reconnect all connectors.

62. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

63. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)
    - GEAR POSITION
    - ECT SENSOR 1

64. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0301, P0302, P0303, P0304, P0305, or P0306 indicated?

    YES—Check for poor connections or loose terminals at the ignition coil, the injector, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 63. If the PCM was substituted, go to step 1.

    NO—Go to step 65.

BACK

Protected by AR

65. Monitor the OBD STATUS for DTC P0301, P0302, P0303, P0304, P0305, or P0306 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 64, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the ignition coil, the injector, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 63. If the PCM was substituted, go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 63.

BACK

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DTC Troubleshooting (cont'd)

DTC P0325: Knock Sensor Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

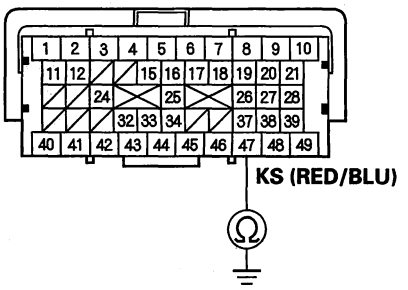
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Hold the engine speed at 3,000—4,000 rpm for at least 10 seconds.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0325 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the knock sensor and the PCM.■
6. Turn the ignition switch OFF.
7. Jump the SCS line with the HDS.
8. Disconnect the knock sensor subharness 1P connector.
9. Disconnect PCM connector C (49P).
10. Check for continuity between PCM connector terminal C47 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

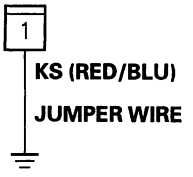
Is there continuity?

YES—Repair short in the wire between the PCM (C47) and the knock sensor subharness, then go to step 19.

NO—Go to step 11.

11. Connect the knock sensor subharness 1P connector terminal to body ground with a jumper wire.

KNOCK SENSOR SUBHARNESS 1P CONNECTOR



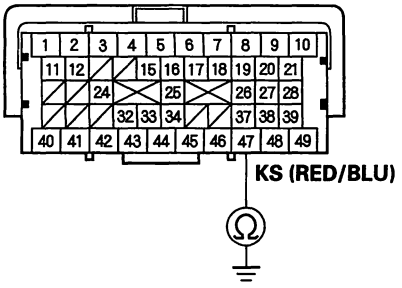
Wire side of female terminals

BACK

Protected by AR

12. Check for continuity between PCM connector terminal C47 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 13.

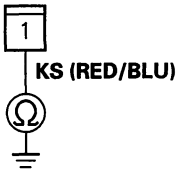
NO—Repair open in the wire between the PCM (C47) and the knock sensor subharness, then go to step 19.

13. Remove the intake manifold (see page 9-3), and the injector base (see page 9-7).

14. Disconnect the knock sensor 1P connector.

15. Check for continuity between the knock sensor subharness 1P connector terminal and body ground.

KNOCK SENSOR SUBHARNESS 1P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the knock sensor subharness, then go to step 18.

NO—Go to step 16.

16. Check for an open in the knock sensor subharness.

Is the harness OK?

YES—Go to step 17.

NO—Repair open in the knock sensor subharness, then go to step 19.

17. Replace the knock sensor (see page 11-243).

18. Install the injector base (see page 9-7), and the intake manifold (see page 9-2).

19. Reconnect all connectors.

20. Turn the ignition switch ON (II).

21. Reset the PCM with the HDS.

22. Do the PCM idle learn procedure (see page 11-311).

23. Hold the engine speed at 3,000—4,000 rpm for at least 10 seconds.

24. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0325 indicated?

YES—Check for poor connections or loose terminals at the knock sensor and the PCM, then go to step 26.

NO—Go to step 25.

25. Monitor the OBD STATUS for DTC P0325 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 24, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the knock sensor and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 23.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

26. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

27. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

28. Hold the engine speed at 3,000—4,000 rpm for at least 10 seconds.

29. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0325 indicated?

    YES—Check for poor connections or loose terminals at the ignition coil, the injector, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 28. If the PCM was substituted, go to step 1.

    NO—Go to step 30.

30. Monitor the OBD STATUS for DTC P0325 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 29, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the ignition coil, the injector, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 28. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 28.

BACK

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DTC P0335: CKP Sensor A No Signal

DTC P0385: CKP Sensor B No Signal

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to CKP sensor B.

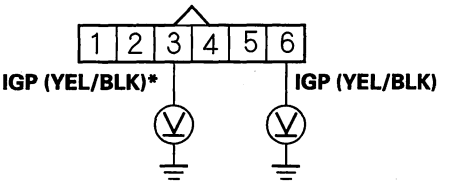
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0335 and/or P0385 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at CKP sensor A/B and the PCM.■
5. Turn the ignition switch OFF.
6. Disconnect CKP sensor A/B 6P connector (see page 11-242).
7. Turn the ignition switch ON (II).
8. Measure voltage between CKP sensor A/B 6P connector terminal No. 6 (No. 3)* and body ground.

CKP SENSOR A/B 6P CONNECTOR



Wire side of female terminals

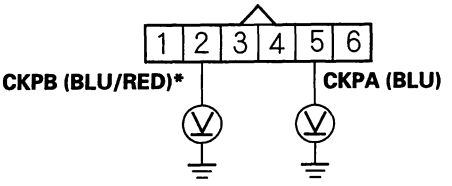
Is there battery voltage?

YES—Go to step 9.

NO—Repair open in the wire between CKP sensor A/B and the under-hood fuse/relay box (PGM-FI main relay 1), then go to step 18.

9. Measure voltage between CKP sensor A/B 6P connector terminal No. 5 (No. 2)* and body ground.

CKP SENSOR A/B 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 10.

NO—Go to step 11.

(cont'd)

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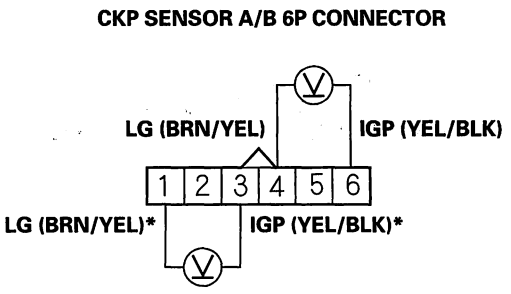
DTC Troubleshooting (cont'd)

10. Measure voltage between CKP sensor A/B 6P connector terminals No. 4 (No. 1)* and No. 6 (No. 3)*.

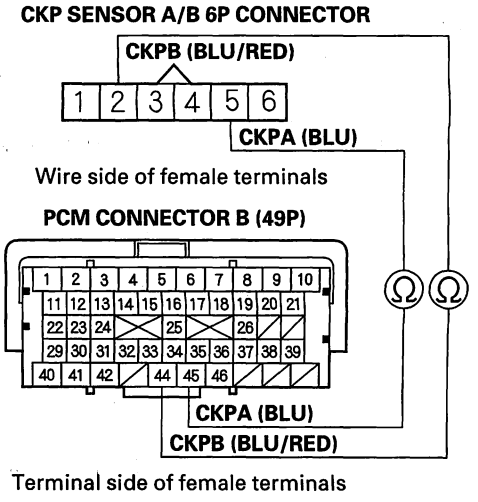


Is there battery voltage?

YES—Go to step 16.

NO—Repair open in the wire between CKP sensor A/B and G101, then go to step 18.

11. Turn the ignition switch OFF.
12. Jump the SCS line with the HDS.
13. Disconnect PCM connector B (49P).
14. Check for continuity between PCM connector terminal B45 (B44)* and CKP sensor A/B 6P connector No. 5 (No. 2)*.



Is there continuity?

YES—Go to step 15.

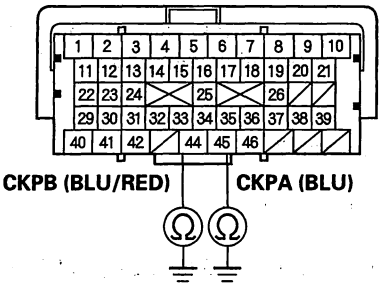
NO—Repair open in the wire between the PCM (B45 (B44)*) and CKP sensor A/B, then go to step 18.

BACK

Protected by AR

15. Check for continuity between PCM connector terminal B45 (B44)* and body ground.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (B45 (B44)*) and CKP sensor A/B, then go to step 18.

NO—Go to step 25.

16. Turn the ignition switch OFF.
17. Replace the CKP sensor (see page 11-242).
18. Reconnect all connectors.
19. Turn the ignition switch ON (II).
20. Reset the PCM with the HDS.
21. Clear the CKP pattern with the HDS.
22. Do the PCM idle learn procedure (see page 11-311).
23. Do the CKP pattern learn procedure (see page 11-4).
24. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0335 and/or P0385 indicated?*

YES—Check for poor connections or loose terminals at CKP sensor A/B and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

25. Reconnect all connectors.
26. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0335 and/or P0385 indicated?*

YES—Check for poor connections or loose terminals at CKP sensor A/B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P0339: CKP Sensor A Circuit Intermittent Interruption

DTC P0389: CKP Sensor B Circuit Intermittent Interruption

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to CKP sensor B.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle for 10 minutes in the range of these recorded freeze data parameters:
   - ENGINE SPEED
   - VSS
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0339 and/or P0389 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at CKP sensor A/B and the PCM. ■
5. Check for poor or loose connections at these connectors and terminals:
   - CKP sensor A/B
   - PCM
   - Engine ground
   - Body ground

   Are the connections OK?

   YES—Go to step 6.

   NO—Reconnect the connectors or terminals, then go to step 9.
6. Check for damage to the CKP sensor A/B pulse plate on the timing belt drive pulley (see page 6-25).

   Is there damage?

   YES—Replace the CKP sensor A/B pulse plate/ timing belt drive pulley (see page 6-25), then go to step 9.

   NO—Go to step 7.
7. Turn the ignition switch OFF.
8. Replace CKP sensor A/B (see page 11-242).
9. Turn the ignition switch ON (II).
10. Reset the PCM with the HDS.
11. Clear the CKP pattern with the HDS.
12. Do the PCM idle learn procedure (see page 11-311).
13. Do the CKP pattern learn procedure (see page 11-4).
14. Test-drive the vehicle for 10 minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0339 and/or P0389 indicated?*

    YES—Check for poor connections or loose terminals at CKP sensor A/B and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P0340: CMP Sensor No Signal

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

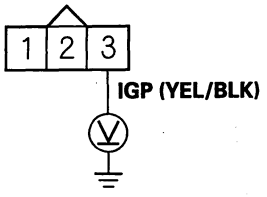
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0340 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CMP sensor and the PCM. ■
5. Turn the ignition switch OFF.
6. Disconnect the CMP sensor 3P connector.
7. Turn the ignition switch ON (II).
8. Measure voltage between CMP sensor 3P connector terminal No. 3 and body ground.

CMP SENSOR 3P CONNECTOR



Wire side of female terminals

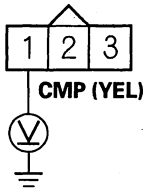
Is there battery voltage?

YES—Go to step 9.

NO—Repair open in the wire between the CMP sensor and under-hood fuse/relay box (PGM-FI main relay 1), then go to step 18.

9. Measure voltage between CMP sensor 3P connector terminal No. 1 and body ground.

CMP SENSOR 3P CONNECTOR



Wire side of female terminals

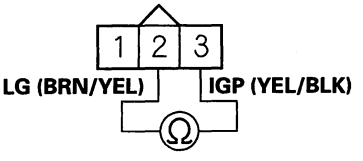
Is there about 5 V?

YES—Go to step 10.

NO—Go to step 11.

10. Measure voltage between CMP sensor 3P connector terminals No. 2 and No. 3.

CMP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 16.

NO—Repair open in the wire between the CMP sensor and G101, then go to step 18.

(cont'd)

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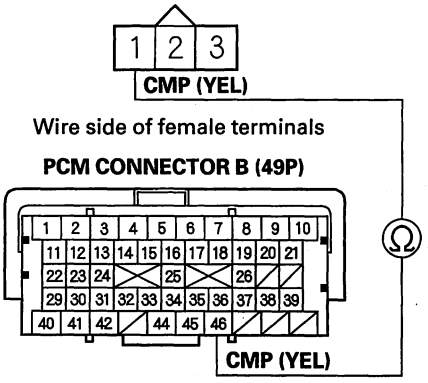
DTC Troubleshooting (cont'd)

11. Turn the ignition switch OFF.
12. Jump the SCS line with the HDS.
13. Disconnect PCM connector B (49P).
14. Check for continuity between PCM connector terminal B46 and CMP sensor 3P connector terminal No. 1.

CMP SENSOR 3P CONNECTOR



Terminal side of female terminals

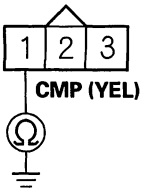
Is there continuity?

YES—Go to step 15.

NO—Repair open in the wire between the PCM (B46) and the CMP sensor, then go to step 18.

15. Check for continuity between CMP sensor 3P connector terminal No. 1 and body ground.

CMP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (B46) and the CMP sensor, then go to step 18.

NO—Go to step 26.

16. Turn the ignition switch OFF.
17. Replace the CMP sensor (see page 11-242).
18. Reconnect all connectors.
19. Turn the ignition switch ON (II).
20. Reset the PCM with the HDS.
21. Clear the CKP pattern with the HDS.
22. Do the PCM idle learn procedure (see page 11-311).
23. Do the CKP pattern learn procedure (see page 11-4).
24. Start the engine.

BACK

Protected by AR

25. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0340 indicated?

    YES—Check for poor connections or loose terminals at the CMP sensor and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

26. Reconnect all connectors.

27. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

28. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0340 indicated?

    YES—Check for poor connections or loose terminals at the CMP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P0344: CMP Sensor Circuit Intermittent Interruption

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle for 10 minutes in the range of these recorded freeze data parameters:
   - ENGINE SPEED
   - VSS
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0344 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CMP sensor and the PCM. ■
5. Check for poor or loose connections at these connectors and terminals:
   - CMP sensor
   - PCM
   - Engine ground
   - Body ground

   Are the connections OK?

   YES—Go to step 6.

   NO—Reconnect or repair the connectors or terminals, then go to step 9.
6. Check for damage to the CMP sensor pulse projection on the front camshaft pulley (see page 11-242).

   Is there damage?

   YES—Replace the front camshaft pulley (see page 6-11), then go to step 9.

   NO—Go to step 7.
7. Turn the ignition switch OFF.
8. Replace the CMP sensor (see page 11-242).
9. Turn the ignition switch ON (II).
10. Reset the PCM with the HDS.
11. Clear the CKP pattern with the HDS.
12. Do the PCM idle learn procedure (see page 11-311).
13. Do the CKP pattern learn procedure (see page 11-4).
14. Test-drive the vehicle for 10 minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0344 indicated?

    YES—Check for poor connections or loose terminals at the CMP sensor and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P050A: Cold Start Idle Air Control System Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check for Temporary DTCs or DTCs with the HDS.

   Are any Temporary DTCs or DTCs other than P050A indicated?

   YES—Go to the indicated DTC's troubleshooting. ■

   NO—Go to step 3.
3. Check for poor connections or blockage at the intake air duct.

   Is it OK?

   YES—Go to step 4.

   NO—Reconnect or repair the intake air duct, then go to step 20.
4. Check for damage at the air cleaner housing.

   Is it OK?

   YES—Go to step 5.

   NO—Replace the air cleaner housing (see page 11-363), then go to step 20.
5. Check for dirt or debris in the air cleaner element.

   Is it dirty?

   YES—Replace the air cleaner element or remove the debris (see page 11-364), then go to step 20.

   NO—Go to step 6.
6. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.
7. Clear the DTC with the HDS.
8. Start the engine, and let it idle 10 seconds or more.
9. Monitor the OBD STATUS for DTC P050A in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 10.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates EXECUTING, let the engine idle until a result comes on. If the screen indicates OUT OF CONDITION, go to step 6 and recheck.
10. Do the ETCS TEST in the INSPECTION MENU with the HDS.

    Is the THROTTLE ACTUATOR CONTROL VALVE normal?

    YES—Go to step 11.

    NO—Replace the throttle body (see page 11-366), then go to step 20.
11. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

12. Monitor the ENGINE SPEED in the DATA LIST with the HDS, and hold the engine speed at 2,500 rpm for at least 30 seconds.
13. While holding the engine speed at 2,500 rpm, check the MAF SENSOR in the DATA LIST with the HDS.

    Is there about 9.8–12 gm/s or about 1.70 V?

    YES—Go to step 14.

    NO—Replace the MAF sensor/IAT sensor (see page 11-238), then go to step 20.
14. Turn the ignition switch OFF.
15. Allow the engine to cool to ambient temperature.
16. Note the ambient temperature.
17. Turn the ignition switch ON (II).
18. Note the value of IAT SENSOR quickly in the DATA LIST with the HDS.
19. Compare the value of the IAT SENSOR and the ambient temperature.

    Does the value of the IAT SENSOR differ 5.4 °F (3 °C) or more?

    YES—Replace the MAF sensor/IAT sensor (see page 11-238), then go to step 20.

    NO—Check for dirt, carbon, or damage in the throttle bore. If there is dirt or carbon, clean the throttle body (see page 11-363), then go to step 20. If there is damage in the throttle bore, replace the throttle body (see page 11-366), then go to step 20.
20. Turn the ignition switch ON (II).
21. Reset the PCM with the HDS.
22. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.
23. Do the PCM idle learn procedure (see page 11-311).
24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P050A indicated?

    YES—Check for poor connections or loose terminals at the throttle body, the MAF sensor/IAT sensor, and the PCM, then go to step 1.

    NO—Go to step 25.
25. Monitor the OBD STATUS for DTC P050A in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 24, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the throttle body, the MAF sensor/IAT sensor, and the PCM, then go to step 1. If the screen indicates EXECUTING, let the engine idle until a result comes on. If the screen indicates OUT OF CONDITION, go to step 20.

BACK

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DTC P050B: Cold Start Ignition Timing Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check for Temporary DTCs or DTCs with the HDS.

   Are any Temporary DTCs or DTCs other than P050B indicated?

   YES—Go to the indicated DTC's troubleshooting. ■

   NO—Go to step 3.
3. Check for poor connections or blockage at the intake air duct.

   Is it OK?

   YES—Go to step 4.

   NO—Reconnect or repair the intake air duct, then go to step 25.
4. Check for damage at the air cleaner housing.

   Is it OK?

   YES—Go to step 5.

   NO—Replace the air cleaner housing (see page 11-363), then go to step 25.
5. Check for dirt or debris in the air cleaner element.

   Is it dirty?

   YES—Replace the air cleaner element or remove the debris (see page 11-364), then go to step 25.

   NO—Go to step 6.
6. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.
7. Clear the DTC with the HDS.
8. Start the engine, and let it idle 10 seconds or more.
9. Monitor the OBD STATUS for DTC P050B in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 10.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates EXECUTING, let the engine idle until a result comes on. If the screen indicates OUT OF CONDITION, go to step 6 and recheck.
10. Inspect the ignition timing (see page 4-20).

    Is the ignition timing OK?

    YES—Go to step 12.

    NO—Go to step 11.
11. Check for damage at the CKP sensor (see page 11-242) and the timing belt drive pulley (see page 6-25).

    Is the CKP sensor and/or the CKP sensor pulser plate damaged?

    YES—Replace the CKP sensor (see page 11-242) and/or the timing belt drive pulley (see page 6-25), then go to step 6.

    NO—Go to step 31.

(cont'd)

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DTC Troubleshooting (cont'd)

12. Do the ETCS TEST in the INSPECTION MENU with the HDS.

    Is the THROTTLE ACTUATOR CONTROL VALVE normal?

    YES—Go to step 13.

    NO—Replace the throttle body (see page 11-366), then go to step 25.

13. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

14. Monitor the ENGINE SPEED in the DATA LIST with the HDS, and hold the engine speed at 2,500 rpm for at least 30 seconds.

15. While holding the engine speed at 2,500 rpm, check the MAF SENSOR in the DATA LIST with the HDS.

    Is there about 9.8—12 gm/s or about 170 V?

    YES—Go to step 16.

    NO—Replace the MAF sensor/IAT sensor (see page 11-238), then go to step 25.

16. Turn the ignition switch OFF.

17. Drain the coolant (see page 10-6).

18. Remove ECT sensor 1 (see page 11-239), and ECT sensor 2 (see page 11-239).

19. Allow the sensors to cool to ambient temperature.

20. Note the ambient temperature.

21. Connect ECT sensor 1 to its 2P connector, and ECT sensor 2 to its 2P connector, but do not install them on the engine.

22. Turn the ignition switch ON (II).

23. Note the value of ECT SENSOR 1 and ECT SENSOR 2 quickly in the DATA LIST with the HDS.

24. Compare the value of ECT SENSOR 1 and the ambient temperature, and the value of ECT SENSOR 2 and the ambient temperature individually.

    Does either sensor differ more than 5.4 °F (3 °C) from the ambient temperature?

    YES—Replace the sensor that differed more than 5.4 °F (3 °C) from the ambient temperature, then go to step 25.

    NO—Check and repair any problems with the following items, then go to step 25.

    - Engine compression and cylinder leakdown
    - VTEC system
    - Engine oil
    - A/C system
    - Power steering

25. Turn the ignition switch ON (II).

26. Reset the PCM with the HDS.

27. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.

28. Do the PCM idle learn procedure (see page 11-311).

29. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P050B indicated?

    YES—Check for poor connections or loose terminals at the CKP sensor, the throttle body, the MAF sensor/IAT sensor, ECT sensor 1, ECT sensor 2, and the PCM, then go to step 1.

    NO—Go to step 30.

BACK

Protected by AR

30. Monitor the OBD STATUS for DTC P050B in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 29, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the CKP sensor, the throttle body, the MAF sensor/IAT sensor, ECT sensor 1, ECT sensor 2, and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 27.

31. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

32. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.

33. Do the PCM idle learn procedure (see page 11-311).

34. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P050B indicated?

    YES—Check for poor connections or loose terminals at the CKP sensor, the throttle body, the MAF sensor/IAT sensor, ECT sensor 1, ECT sensor 2, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 32. If the PCM was substituted, go to step 1.

    NO—Go to step 35.

35. Monitor the OBD STATUS for DTC P050B in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 34, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the CKP sensor, the throttle body, the MAF sensor/IAT sensor, ECT sensor 1, ECT sensor 2, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 32. If the PCM was substituted, go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 32.

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DTC Troubleshooting (cont'd)

DTC P0562: Charging System Low Voltage

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If any high current load accessories are installed, this DTC can be set.
- If DTC P16BB and/or P16BC is stored at the same time as DTC P0562, troubleshoot DTC P16BB and/or P16BC first, then recheck for DTC P0562.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check under these conditions:
   - A/C on
   - Temperature control at maximum cool
   - Blower fan at maximum speed
   - Headlights on high beam
5. Hold the engine speed at 2,000 rpm (in Park or neutral) for 1 minute.
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0562 indicated?

   YES—Replace the alternator (see page 4-36), then go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator and the main under-hood fuse box, and check the battery performance (see page 22-76). ■
7. Turn the ignition switch ON (II).
8. Reset the PCM with the HDS.
9. Do the PCM idle learn procedure (see page 11-311).
10. Start the engine.
11. Check under these conditions:
    - A/C on
    - Temperature control at maximum cool
    - Blower fan at maximum speed
    - Headlights on high beam
12. Hold the engine speed at 2,000 rpm (in Park or neutral) for 1 minute.
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0562 indicated?

    YES—Check for poor connections or loose terminals at the alternator and the main under-hood fuse box, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P0563: PCM Power Source Circuit Unexpected Voltage

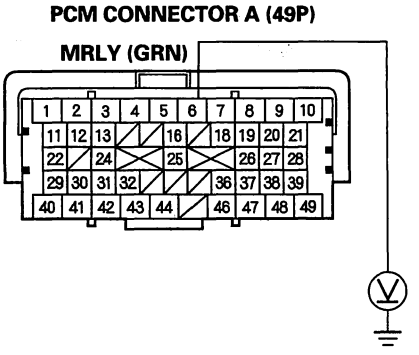
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Wait 10 seconds.
5. Turn the ignition switch ON (II).
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0563 indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals under-hood fuse/relay box (PGM-FI main relay 1) and the No. 8 IGP (15 A) fuse in the under-hood fuse/relay box and the PCM. ■
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector A (49P).
10. Measure voltage between PCM connector terminal A6 and body ground.



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 13.

NO—Go to step 11.

11. Disconnect the under-hood fuse/relay box 14P connector.

(cont'd)

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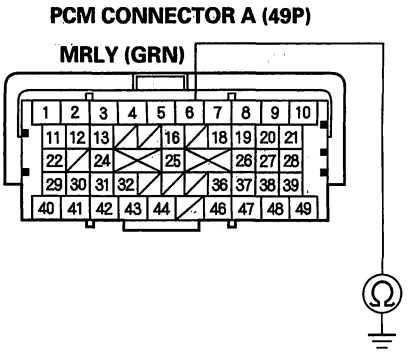
DTC Troubleshooting (cont'd)

12. Check for continuity between PCM connector terminal A6 and body ground.



Terminal side of female terminals

Is there continuity?

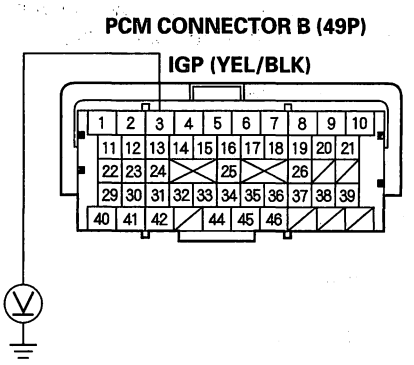
YES—Repair short in the wire between the PCM (A6) and under-hood fuse/relay box (PGM-FI main relay 1), then go to step 19.

NO—Go to step 18.

13. Reconnect PCM connector A (49P).

14. Disconnect PCM connector B (49P).

15. Measure voltage between PCM connector terminal B3 and body ground.



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 16.

NO—Go to step 18.

16. Disconnect the under-hood fuse/relay box 9P connector.

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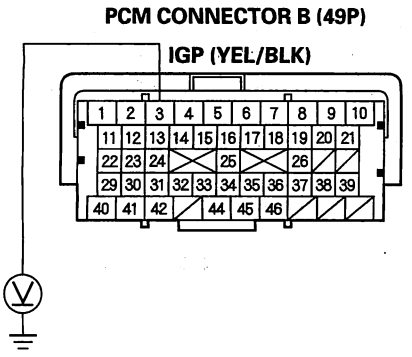
17. Measure voltage between PCM connector terminal B3 and body ground.



Terminal side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the PCM (B3) and under-hood fuse/relay box (PGM-FI main relay 1), then go to step 19.

NO—Go to step 18.

18. Test PGM-FI main relay 1 in the under-hood fuse/relay box (see page 22-77)

Is PGM-FI main relay 1 OK?

YES—Go to step 26.

NO—Replace relay control module (under-hood fuse/relay box) (see page 22-71), then go to step 19.

19. Reconnect all connectors.

20. Turn the ignition switch ON (II).

21. Reset the PCM with the HDS.

22. Turn the ignition switch OFF.

23. Wait 10 seconds.

24. Do the PCM idle learn procedure (see page 11-311).

25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0563 indicated?

YES—Check for poor connections or loose terminals at under-hood fuse/relay box (PGM-FI main relay 1) and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

26. Reconnect all connectors.

27. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0563 indicated?

YES—Check for poor connections or loose terminals at under-hood fuse/relay box (PGM-FI main relay 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC Troubleshooting (cont'd)

DTC P0602: PCM Programming Error

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- This DTC is indicated when a PCM update is not completed.
- Do not turn the ignition switch OFF while updating the PCM. If you turn the ignition switch OFF before completion, the PCM can be damaged.

1. Do the PCM update procedure (see page 11-7).
2. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0602 indicated?

   YES—Replace the original PCM (see page 11-244). ■

   NO—The update is complete. ■

DTC P060A: PCM (A/T system) Internal Control Module Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P060A indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. ■
4. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P060A indicated?

   YES—If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

   NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P0615: Starter Cut Relay STRLD Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0615 indicated?

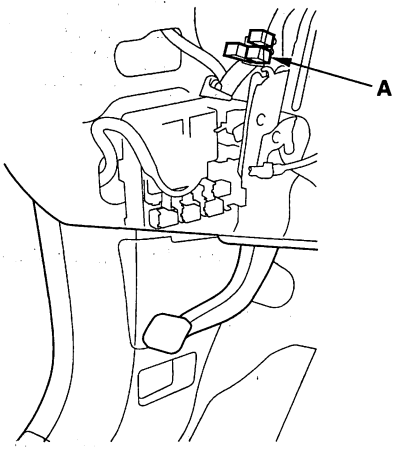
   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at starter cut relay 1, starter cut relay 2, and the PCM.■
5. Turn the ignition switch OFF.
6. Check the STRLD (7.5 A) fuse in the auxiliary under-dash fuse holder 2.

   Is the fuse OK?

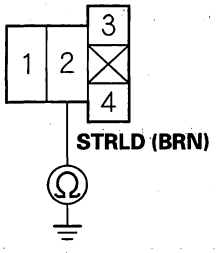
   YES—Go to step 7.

   NO—Replace the STRLD (7.5 A) fuse in the auxiliary under-dash fuse holder 2, then go to step 12.
7. Jump the SCS line with the HDS.
8. Disconnect PCM connector A (49P).
9. Remove starter cut relay 1 (A) from auxiliary under-dash relay box A.



10. Connect starter cut relay 1 4P connector terminal No. 2 to body ground with a jumper wire.

STARTER CUT RELAY 1 4P CONNECTOR



Terminal side of female terminals

(cont'd)

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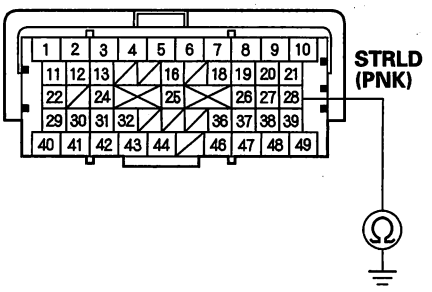
DTC Troubleshooting (cont'd)

11. Check for continuity between PCM connector terminal A28 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 17.

NO—Repair open in the wire between the PCM (A28) and starter cut relay 1, then go to step 12.

12. Reconnect all connectors.
13. Turn the ignition switch ON (II).
14. Reset the PCM with the HDS.
15. Do the PCM idle learn procedure (see page 11-311).
16. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0615 indicated?

YES—Check for poor connections or loose terminals at starter cut relay 1 and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

17. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0615 indicated?

YES—Check for poor connections or loose terminals at starter cut relay 1 and the PCM, then go to step 1. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P062F: PCM Internal Control Module Keep Alive Memory (KAM) Error

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Are any Temporary DTCs or DTCs indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time.■
4. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P062F indicated?

   YES—If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

   NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P0630: VIN Not Programmed or Mismatch

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- This DTC is stored only when the PCM does not have the VIN information of the vehicle. Use the HDS to input the missing VIN information.

1. Turn the ignition switch ON (II).
2. Check the VIN with the HDS.

   Does the HDS show the vehicle's VIN?

   YES—Go to step 5.

   NO—Go to step 3.
3. Input the VIN to the PCM with the HDS.

   Does the screen show COMPLETE?

   YES—Go to step 5.

   NO—Go to step 4.
4. Check for DTCs with the HDS.

   Is DTC P062F indicated?

   YES—Do the troubleshooting for P062F (see page 11-153).■

   NO—Go to step 9.
5. Clear the DTC with the HDS.
6. Turn the ignition switch OFF.
7. Turn the ignition switch ON (II), and wait 5 seconds.

(cont'd)

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DTC Troubleshooting (cont'd)

8. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0603 indicated?

   YES—Go to step 9.

   NO—Intermittent failure, the system is OK at this time. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

9. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

10. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0630 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC P0685: PCM Power Control Circuit/ Internal Circuit Malfunction

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If the problem does not return after clearing the DTC, or if this DTC is stored intermittently, check for loose terminals at the IGP line connectors before you replace the PCM.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0685 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
4. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0685 indicated?

   YES—If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

   NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P1109: BARO Sensor Circuit Out of Range High

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Reset the PCM with the HDS.
2. Start the engine.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1109 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
4. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1109 indicated?

   YES—If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

   NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC Troubleshooting (cont'd)

DTC P1116: ECT Sensor 1 Circuit Range/ Performance Problem

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P0111 is stored at the same time as DTC P1116, troubleshoot DTC P0111 first, then recheck for DTC P1116.

1. Check for poor connections or loose terminals at ECT sensor 1 and ECT sensor 2.

   Are the connections and terminals OK?

   YES—Go to step 2.

   NO—Repair the connectors or terminals, then go to step 27.

2. Turn the ignition switch ON (II).

3. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P1116 and P2183 indicated at the same time?

   YES—Go to step 15.

   NO—Go to step 4.

4. Start the engine, and let it idle 10 minutes.

5. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 129 °F (54 °C) or less, or 1.54 V or more indicated?

   YES—Replace ECT sensor 1 (see page 11-239), then go to step 27.

   NO—Go to step 6.

6. Turn the ignition switch OFF.

7. Drain the coolant (see page 10-6).

8. Remove ECT sensor 1 (see page 11-239).

9. Allow ECT sensor 1 to cool to ambient temperature.

10. Note the ambient temperature.

11. Connect ECT sensor 1 to its 2P connector, but do not install it on the engine.

12. Turn the ignition switch ON (II).

13. Note the value of ECT SENSOR 1 quickly in the DATA LIST with the HDS.

14. Compare the value of ECT SENSOR 1 and the ambient temperature.

    Does the value of ECT SENSOR 1 differ 5.4 °F (3 °C) or more?

    YES—Replace ECT sensor 1 (see page 11-239), then go to step 27.

    NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM. ■

15. Start the engine, and let it idle 10 minutes.

BACK

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16. Check ECT SENSOR 1 in the DATA LIST with the HDS.

    Is about 118 °F (48 °C) or less, or 1.75 V or more indicated?

    YES—Replace ECT sensor 1 (see page 11-239), then go to step 27.

    NO—Go to step 17.

17. Let the engine idle 10 minutes.

18. Check ECT SENSOR 2 in the DATA LIST with the HDS.

    Is about 131 °F (55 °C) or less, or 1.50 V or more indicated?

    YES—Replace ECT sensor 2 (see page 11-239), then go to step 27.

    NO—Go to step 19.

19. Turn the ignition switch OFF.

20. Drain the coolant (see page 10-6).

21. Remove ECT sensor 1 (see page 11-239), and ECT sensor 2 (see page 11-239).

22. Allow the sensors to cool to ambient temperature.

23. Note the ambient temperature.

24. Connect ECT sensor 1 to its 2P connector, and ECT sensor 2 to its 2P connector, but do not install them on the engine.

25. Note the value of ECT SENSOR 1 and ECT SENSOR 2 quickly in the DATA LIST with the HDS.

26. Compare the value of ECT SENSOR 1 and the ambient temperature, and the value of ECT SENSOR 2 and the ambient temperature individually.

    Does one of the sensors differ more than 5.4 °F (3 °C) from the ambient temperature?

    YES—Replace the sensor that differed more than 5.4 °F (3 °C) from the ambient temperature, then go to step 27.

    NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM, then reconnect all connectors, and refill the cooling system (see page 10-6). ■

27. Turn the ignition switch ON (II).

28. Reset the PCM with the HDS.

29. Do the PCM idle learn procedure (see page 11-311).

30. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0116 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P1128: MAP Sensor Signal Lower Than Expected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Inspect the air cleaner element (see page 11-364).

   Is it OK?

   YES—Go to step 2.

   NO—Clean or replace the air cleaner element (see page 11-364).

2. Turn the ignition switch ON (II).
3. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is there less than 54.1 kPa (16.0 in.Hg, 406 mmHg) or 1.61 V held for more than 5 seconds?

   YES—Go to step 8.

   NO—Go to step 4.

4. Clear the DTC with the HDS.
5. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
6. Test-drive under these conditions:

   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Engine speed between 1,200 and 5,500 rpm
   - Transmission in D position
   - Vehicle speed accelerated from 16—31 mph (25—50 km/h) under half throttle

7. Monitor the OBD STATUS for DTC P1128 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 8.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM. If the screen indicates NOT COMPLETED, go to step 5 and recheck.

8. Turn the ignition switch OFF.
9. Replace the MAP sensor (see page 11-238).
10. Turn the ignition switch ON (II).
11. Reset the PCM with the HDS.
12. Do the PCM idle learn procedure (see page 11-311).
13. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
14. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Engine speed between 1,200 and 5,500 rpm
    - Transmission in D position
    - Vehicle speed accelerated from 16—31 mph (25—50 km/h) under half throttle

15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1128 indicated?

    YES—Check for poor connections or loose terminals at the MAP sensor and the PCM, then go to step 1.

    NO—Go to step 16.

16. Monitor the OBD STATUS for DTC P1128 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 15, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the MAP sensor and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 14.

BACK

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DTC P1129: MAP Sensor Signal Higher than Expected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Check for vacuum leaks at these parts:

   - PCV valve
   - PCV hose
   - EVAP canister purge valve
   - Throttle body
   - Intake manifold
   - Brake booster hose

   Are there any vacuum leaks?

   YES—Repair or replace the part(s) with vacuum leaks, then go to step 9.

   NO—Go to step 2.

2. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

3. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is there more than 36.9 kPa (11.0 in.Hg, 277 mmHg) or 1.14 V held for more than 5 seconds?

   YES—Go to step 7.

   NO—Go to step 4.

4. Clear the DTC with the HDS.

5. Test-drive under these conditions:

   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Engine speed between 1,400 and 6,500 rpm
   - Transmission in D position
   - Drive at a steady speed between 55—75 mph (88—120 km/h) for 10 seconds.
   - During the drive, decelerate (with the throttle fully closed) for 2 seconds.

6. Monitor the OBD STATUS for DTC P1129 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 7.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the PCM. If the screen indicates NOT COMPLETED, go to step 5 and recheck.

7. Turn the ignition switch OFF.

8. Replace the MAP sensor (see page 11-238).

9. Turn the ignition switch ON (II).

10. Reset the PCM with the HDS.

11. Do the PCM idle learn procedure (see page 11-311).

12. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

(cont'd)

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DTC Troubleshooting (cont'd)

13. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Engine speed between 1,400 and 6,500 rpm
    - Transmission in D position
    - Drive at a steady speed between 55—75 mph (88—120 km/h) for 10 seconds.
    - During the drive, decelerate (with the throttle fully closed) for 2 seconds.

14. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1129 indicated?

    YES—Check for poor connections or loose terminals at the MAP sensor and the PCM, then go to step 1.

    NO—Go to step 15.

15. Monitor the OBD STATUS for DTC P1129 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 14, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the MAP sensor and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 13.

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DTC P1172: Rear A/F Sensor (Bank 1, Sensor 1) Circuit Out of Range High

DTC P1174: Front A/F Sensor (Bank 2, Sensor 1) Circuit Out of Range High

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Monitor the OBD STATUS for P1172 and/or P1174* in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 5.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 3 and recheck.
5. Turn the ignition switch OFF.
6. Replace the A/F sensor (Sensor 1) (see page 11-240).
7. Turn the ignition switch ON (II).
8. Reset the PCM with the HDS.
9. Do the PCM idle learn procedure (see page 11-311).
10. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
11. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1172 and/or P1174 indicated?*

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

    NO—Go to step 12.
12. Monitor the OBD STATUS for DTC P1172 and/or P1174* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 11, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates EXECUTING or OUT OF CONDITION, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P1297: ELD Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check the ELD in the DATA LIST with the HDS.

   Is 72 A or more indicated?

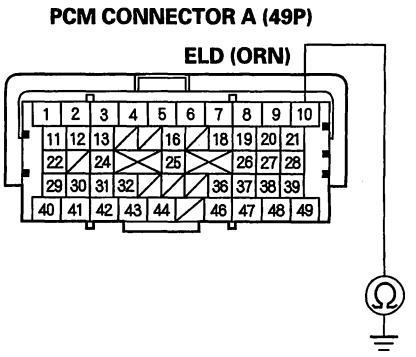
   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ELD 3P connector.
5. Turn the ignition switch ON (II).
6. Check the ELD in the DATA LIST with the HDS.

   Is 72 A or more indicated?

   YES—Go to step 7.

   NO—Go to step 11.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector A (49P).
10. Check for continuity between PCM connector terminal A10 and body ground.



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (A10) and the ELD, then go to step 13.

NO—Go to step 20.

11. Turn the ignition switch OFF.
12. Replace the left side engine compartment wire harness (see page 22-24).
13. Reconnect all connectors.
14. Turn the ignition switch ON (II).
15. Reset the PCM with the HDS.
16. Do the PCM idle learn procedure (see page 11-311).
17. Start the engine.
18. Turn on the headlights.

BACK

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19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1297 indicated?

    YES—Check for poor connections or loose terminals at the ELD unit and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

20. Reconnect all connectors.

21. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

22. Start the engine.

23. Turn on the headlights.

24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1297 indicated?

    YES—Check for poor connections or loose terminals at the ELD unit and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 22. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC Troubleshooting (cont'd)

DTC P1298: ELD Circuit High Voltage

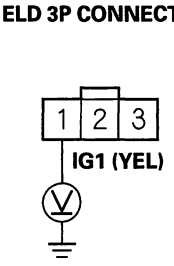
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Start the engine, and let it idle.
2. Check the ELD in the DATA LIST with the HDS.

   Is 0.2 A or less indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ELD 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between ELD 3P connector terminal No. 1 and body ground.



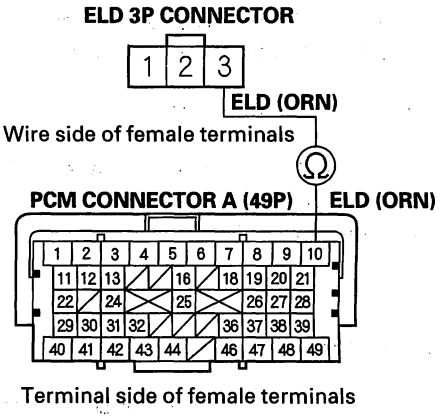
Wire side of female terminals

Is there battery voltage?

YES—Go to step 7.

NO—Repair open in the wire between the No. 18 IG ACG (10 A) fuse in the under-dash fuse/relay box and the ELD, then go to step 13.

7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector A (49P).
10. Check for continuity between PCM connector terminal A10 and ELD 3P connector terminal No. 3.



Terminal side of female terminals

Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the PCM (A10) and the ELD, then go to step 13.

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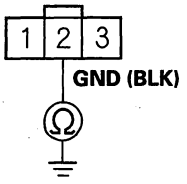
11. Check for continuity between ELD 3P connector terminal No. 2 and body ground.

ELD 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between the ELD and G302, then go to step 13.

12. Replace the left side engine compartment wire harness (see page 22-24).

13. Reconnect all connectors.

14. Turn the ignition switch ON (II).

15. Reset the PCM with the HDS.

16. Do the PCM idle learn procedure (see page 11-311).

17. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1298 indicated?

YES—Go to step 18.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

18. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

19. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1298 indicated?

YES—Check for poor connections or loose terminals at the ELD unit and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC Troubleshooting (cont'd)

DTC P1549: Charging System High Voltage

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If a high voltage battery (24 V, etc.) is connected to the vehicle, this DTC can be stored.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check under these conditions:
   - A/C switch off
   - Headlights off
5. Hold the engine speed at 2,000 rpm (in Park or neutral) 1 minute.
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1549 indicated?

   YES—Replace the alternator (see page 4-36), then go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator and the main under-hood fuse box.■
7. Turn the ignition switch ON (II).
8. Reset the PCM with the HDS.
9. Do the PCM idle learn procedure (see page 11-311).
10. Start the engine.
11. Check under these conditions:
    - A/C switch off
    - Headlights off
12. Hold the engine speed at 2,000 rpm (in Park or neutral) 1 minute.
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1549 indicated?

    YES—Check for poor connections or loose terminals at the alternator and the main under-hood fuse box, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC P16BB: Alternator B Terminal Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check under these conditions:
   - A/C switch on
   - Temperature control at maximum cool
   - Blower fan at maximum speed
   - Headlights on high beam
5. Hold the engine speed at 2,000 rpm (in Park or neutral) 1 minute.
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P16BB indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator and the main under-hood fuse box, and check the battery performance (see page 22-76).■
7. Check for poor connections or loose terminals at the alternator and the main under-hood fuse box (+B line).

   Are the connections and terminals OK?

   YES—Go to step 8.

   NO—Repair the connectors or terminals, then go to step 9.
8. Check for an open in the wire between the alternator and main under-hood fuse box at the starter subharness.

   Is the harness OK?

   YES—Replace the alternator (see page 4-36), then go to step 9.

   NO—Repair open in the wire between the alternator and the main under-hood fuse box, then go to step 9.
9. Turn the ignition switch ON (II).
10. Reset the PCM with the HDS.
11. Do the PCM idle learn procedure (see page 11-311).
12. Start the engine.
13. Check under these conditions:
    - A/C switch on
    - Temperature control at maximum cool
    - Blower fan at maximum speed
    - Headlights on high beam
14. Hold the engine speed at 2,000 rpm (in Park or neutral) 1 minute.
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P16BB indicated?

    YES—Check for poor connections or loose terminals at the alternator and the main under-hood fuse box, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC Troubleshooting (cont'd)

DTC P16BC: Alternator FR Terminal Circuit/ IGP Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Check for poor connections at the alternator 4P connector.

   Are the connections OK?

   YES—Go to step 2.

   NO—Repair the connections, then go to step 18.

2. Turn the ignition switch ON (II).
3. Clear the DTC with the HDS.
4. Start the engine.
5. Check under these conditions:

   - A/C switch on
   - Temperature control at maximum cool
   - Blower fan at maximum speed
   - Headlights on high beam

6. Hold the engine speed at 2,000 rpm (in Park or neutral) 1 minute.
7. Check for Temporary DTCs or DTCs with the HDS.

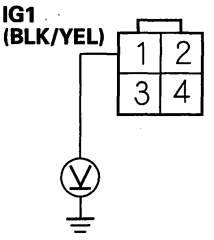
   Is DTC P16BC indicated?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator. ■

8. Turn the ignition switch OFF.
9. Disconnect the alternator 4P connector.
10. Turn the ignition switch ON (II).
11. Measure voltage between alternator 4P connector terminal No. 1 and body ground.

ALTERNATOR 4P CONNECTOR



Wire side of female terminals

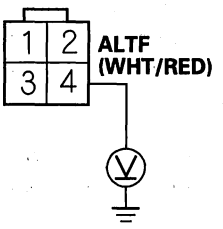
Is there battery voltage?

YES—Go to step 12.

NO—Repair open in the wire between the alternator (IG1 line) and the No. 18 ACG (10 A) fuse in under-dash fuse/relay box, then go to step 17.

12. Measure voltage between alternator 4P connector terminal No. 4 and body ground.

ALTERNATOR 4P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Replace the alternator (see page 4-36), then go to step 17.

NO—Go to step 13.

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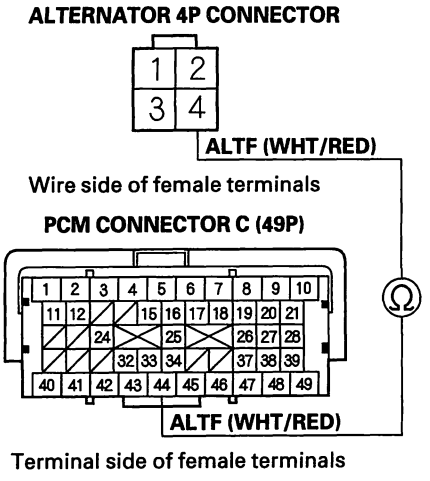
13. Turn the ignition switch OFF.
14. Jump the SCS line with the HDS.
15. Disconnect PCM connector C (49P).
16. Check for continuity between alternator 4P connector terminal No. 4 and PCM connector terminal C44.



Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the PCM (C44) and the alternator, then go to step 17.

17. Reconnect all connectors.
18. Turn the ignition switch ON (II).
19. Reset the PCM with the HDS.
20. Do the PCM idle learn procedure (see page 11-311).
21. Start the engine.
22. Check under these conditions:
    - A/C switch on
    - Temperature control at maximum cool
    - Blower fan at maximum speed
    - Headlights on high beam
23. Hold the engine speed at 2,000 rpm (in Park or neutral) 1 minute.
24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P16BC indicated?

    YES—Check for poor connections or loose terminals at the alternator and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

(cont'd)

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DTC Troubleshooting (cont'd)

25. Reconnect all connectors.

26. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

27. Start the engine.

28. Check under these conditions:

    - A/C switch on
    - Temperature control at maximum cool
    - Blower fan at maximum speed
    - Headlights on high beam

29. Hold the engine speed at 2,000 rpm (in Park or neutral) 1 minute.

30. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P16BC indicated?

    YES—Check for poor connections or loose terminals at the alternator and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 27. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P16BD: Starter Cut Relay 2 Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS and wait 5 seconds.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P16BD indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at starter cut relay 2 and the PCM. ■
4. Replace starter cut relay 2.
5. Reset the PCM with the HDS.
6. Do the PCM idle learn procedure (see page 11-311).
7. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P16BD indicated?

   YES—Check for poor connections or loose terminals at starter cut relay 2 and the PCM, then go to step 1.

   NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P16BE: Starter Cut Relay 1 Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS and wait 5 seconds.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P16BE indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at starter cut relay 1 and the PCM. ■
4. Replace starter cut relay 1.
5. Reset the PCM with the HDS.
6. Do the PCM idle learn procedure (see page 11-311).
7. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P16BE indicated?

   YES—Check for poor connections or loose terminals at starter cut relay 1 and the PCM, then go to step 1.

   NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P16BF: Starter Cut Relay STRLY Circuit Malfunction

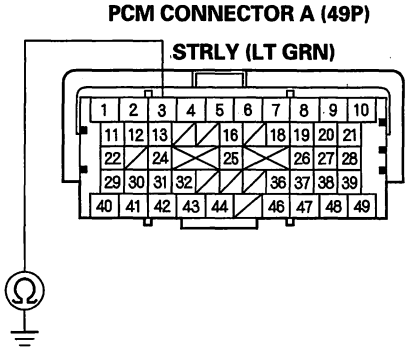
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS and wait 5 seconds.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P16BF indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at starter cut relay 1, starter cut relay 2, and the PCM. ■
4. Turn the ignition switch OFF.
5. Jump the SCS line with the HDS.
6. Remove starter cut relay 1 and starter cut relay 2.
7. Disconnect PCM connector A (49P).
8. Check for continuity between PCM connector terminal A3 and body ground.



Terminal side of female terminals

   Is there continuity?

   YES—Repair short in the wire between the PCM (A3) and starter cut relay 1 or starter cut relay 2, then go to step 9.

   NO—Go to step 14.
9. Reconnect all connectors.
10. Turn the ignition switch ON (II).
11. Reset the PCM with the HDS.
12. Do the PCM idle learn procedure (see page 11-311).
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P16BF indicated?

    YES—Check for poor connections or loose terminals at starter cut relay 1, starter cut relay 2, and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
14. Reconnect all connectors.
15. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P16BF indicated?

    YES—Check for poor connections or loose terminals at starter cut relay 1, starter cut relay 2, and the PCM, then go to step 1. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P2183: ECT Sensor 2 Circuit Range/ Performance Problem

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P0111 is stored at the same time as DTC P2183, troubleshoot DTC P0111 first, then recheck for DTC P2183.

1. Check for poor connections or loose terminals at ECT sensor 1 and ECT sensor 2.

   Are the connections and terminals OK?

   YES—Go to step 2.

   NO—Repair the connectors or terminals, then go to step 27.

2. Turn the ignition switch ON (II).

3. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P1116 and P2183 indicated at the same time?

   YES—Go to step 15.

   NO—Go to step 4.

4. Start the engine, and let it idle 10 minutes.

5. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about 131 °F (55 °C) or less, or 1.50 V or more indicated?

   YES—Replace ECT sensor 2 (see page 11-239), then go to step 27.

   NO—Go to step 6.

6. Turn the ignition switch OFF.

7. Drain the coolant (see page 10-6).

8. Remove ECT sensor 2 (see page 11-239).

9. Allow ECT sensor 2 to cool to ambient temperature.

10. Note the ambient temperature.

11. Connect ECT sensor 2 to its 2P connector, but do not install it on the engine.

12. Turn the ignition switch ON (II).

13. Note the value of ECT SENSOR 2 quickly in the DATA LIST with the HDS.

14. Compare the value of ECT SENSOR 2 and the ambient temperature.

    Does ECT SENSOR 2 differ 5.4 °F (3 °C) or more?

    YES—Replace ECT sensor 2 (see page 11-239), then go to step 27.

    NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM.■

15. Start the engine, and let it idle 10 minutes.

16. Check ECT SENSOR 1 in the DATA LIST with the HDS.

    Is about 118 °F (48 °C) or less, or 1.75 V or more indicated?

    YES—Replace ECT sensor 1 (see page 11-239), then go to step 27.

    NO—Go to step 17.

17. Let the engine idle 10 minutes.

18. Check ECT SENSOR 2 in the DATA LIST with the HDS.

    Is about 131 °F (55 °C) or less, or 1.50 V or more indicated?

    YES—Replace ECT sensor 2 (see page 11-239), then go to step 27.

    NO—Go to step 19.

(cont'd)

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DTC Troubleshooting (cont'd)

19. Turn the ignition switch OFF.
20. Drain the coolant (see page 10-6).
21. Remove ECT sensor 1 (see page 11-239), and ECT sensor 2 (see page 11-239).
22. Allow the sensors to cool to ambient temperature.
23. Note the ambient temperature.
24. Connect ECT sensor 1 to its 2P connector, and ECT sensor 2 to its 2P connector, but do not install them on the engine.
25. Note the value of ECT SENSOR 1 and ECT SENSOR 2 quickly in the DATA LIST with the HDS.
26. Compare the value of ECT SENSOR 1 and the ambient temperature, and the value of ECT SENSOR 2 and the ambient temperature individually.

    Does one of the sensor differ more than 5.4 °F (3 °C) from the ambient temperature?

    YES—Replace the sensor that differed more than 5.4 °F (3 °C) from the ambient temperature, then go to step 27.

    NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM, then reconnect all connectors, and refill the cooling system (see page 10-6). ■

27. Turn the ignition switch ON (II).
28. Reset the PCM with the HDS.
29. Do the PCM idle learn procedure (see page 11-311).
30. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2183 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P2184: ECT Sensor 2 Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

   YES—Go to step 3.

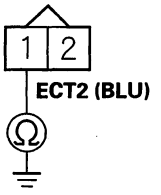
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 2 and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ECT sensor 2 2P connector.
5. Turn the ignition switch ON (II).
6. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

   YES—Go to step 7.

   NO—Go to step 11.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector A (49P).
10. Check for continuity between ECT sensor 2 2P connector terminal No. 1 and body ground.

ECT SENSOR 2 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between ECT sensor 2 and the PCM (A21), then go to step 13.

NO—Go to step 18.

11. Turn the ignition switch OFF.
12. Replace ECT sensor 2 (see page 11-239).
13. Reconnect all connectors.
14. Turn the ignition switch ON (II).
15. Reset the PCM with the HDS.
16. Do the PCM idle learn procedure (see page 11-311).
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2184 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 2 and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

18. Reconnect all connectors.

19. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2184 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 2 and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC P2185: ECT Sensor 2 Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

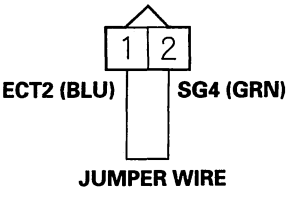
1. Turn the ignition switch ON (II).
2. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about −40 °F (−40 °C) or less, or 4.92 V or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 2 and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ECT sensor 2 2P connector.
5. Connect ECT sensor 2 2P connector terminals No. 1 and No. 2 with a jumper wire.

ECT SENSOR 2 2P CONNECTOR



Wire side of female terminals

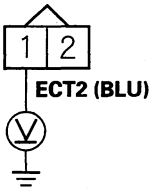
6. Turn the ignition switch ON (II).
7. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about −40 °F (−40 °C) or less, or 4.92 V or more indicated?

   YES—Go to step 8.

   NO—Go to step 20.
8. Turn the ignition switch OFF.
9. Remove the jumper wire from the ECT sensor 2 2P connector.
10. Turn the ignition switch ON (II).
11. Measure voltage between ECT sensor 2 2P connector terminal No. 1 and body ground.

ECT SENSOR 2 2P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 12.

NO—Go to step 16.

12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector A (49P).

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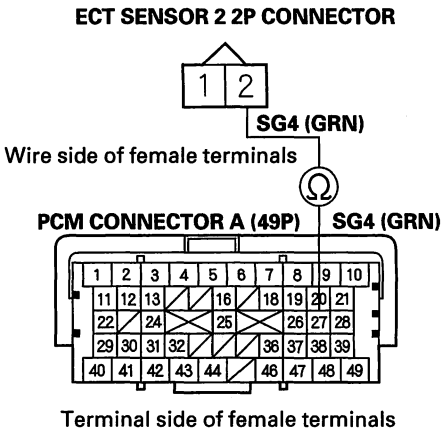
DTC Troubleshooting (cont'd)

15. Check for continuity between PCM connector terminal A27 and ECT sensor 2 2P connector terminal No. 2.

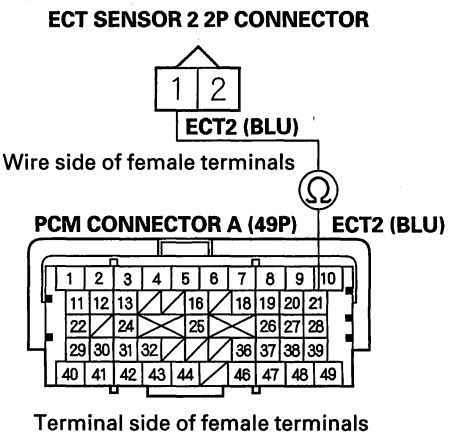


Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the PCM (A27) and ECT sensor 2, then go to step 22.

16. Turn the ignition switch OFF.
17. Jump the SCS line with the HDS.
18. Disconnect PCM connector A (49P).
19. Check for continuity between PCM connector terminal A21 and ECT sensor 2 2P connector terminal No. 1.



Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the PCM (A21) and ECT sensor 2, then go to step 22.

20. Turn the ignition switch OFF.
21. Replace ECT sensor 2 (see page 11-239).
22. Reconnect all connectors.
23. Turn the ignition switch ON (II).
24. Reset the PCM with the HDS.
25. Do the PCM idle learn procedure (see page 11-311).

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26. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2185 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 2 and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

27. Reconnect all connectors.

28. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

29. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2185 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 2 and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P2195: Rear A/F Sensor (Bank 1, Sensor 1) Signal Stuck Lean

DTC P2197: Front A/F Sensor (Bank 2, Sensor 1) Signal Stuck Lean

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).
- If the vehicle was out of fuel and the engine stalled before this DTC was stored, refuel, and clear the DTC with the HDS.
- If DTC P2101, P2118, P2135, P2138, P2176 or a combination of P2122 and P2127, P2122 and P2138 or P2127 and P2138 is stored at the same time as DTC P2195 (P2197)*, troubleshoot those DTCs first, then recheck for DTC P2195 (P2197)*.

1. Check the installation of the A/F sensor (Sensor 1).

   Is the A/F sensor loose or disconnected from the exhaust pipe?

   YES—Go to step 6.

   NO—Go to step 2.

2. Turn the ignition switch ON (II).
3. Clear the DTC with the HDS.
4. Start the engine, then let it idle.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2195 and/or P2197 indicated?*

   YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 13.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

6. Turn the ignition switch OFF.
7. Reinstall the A/F sensor (Sensor 1) (see page 11-240).
8. Turn the ignition switch ON (II).
9. Reset the PCM with the HDS.
10. Do the PCM idle learn procedure (see page 11-311).
11. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2195 and/or P2197 indicated?*

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

    NO—Go to step 12.

12. Monitor the OBD STATUS for DTC P2195 and/or P2197* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 11, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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13. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

14. Start the engine, then let it idle for 2 minutes.

15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2195 and/or P2197 indicated?*

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 14. If the PCM was substituted, go to step 1.

    NO—Go to step 16.

16. Monitor the OBD STATUS for DTC P2195 and/or P2197* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 15, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P2227: BARO Sensor Circuit Range/ Performance Problem

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P0107, P0108, P1128, and/or P1129 are stored at the same time as DTC P2227, troubleshoot those DTCs first, then recheck for DTC P2227.

1. Turn the ignition switch ON (II), and wait 2 seconds.

2. Check the BARO SENSOR in the DATA LIST with the HDS.

   Is about 101 kPa (29.9 in.Hg, 760 mmHg), or about 2.9 V at sea level indicated?

   YES—Go to step 3.

   NO—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244).■

3. Clear the DTC with the HDS.

4. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

5. Test-drive under these conditions:

   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Transmission in D position
   - Throttle position between 17 degrees and 33 degrees for 3 seconds

6. Monitor the OBD STATUS for DTC P2227 in the DTCs MENU with the HDS.

   Does the screen indicate PASSED?

   YES—Intermittent failure, the system is OK at this time.■

   NO—If the screen indicates FAILED, go to step 7. If the screen indicates NOT COMPLETED, go to step 5.

(cont'd)

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DTC Troubleshooting (cont'd)

7. Check the condition of the air cleaner element.

   Is the air cleaner element OK?

   YES—Go to step 8.

   NO—Replace the air cleaner element (see page 11-364).

8. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

9. Reset the PCM with the HDS.

10. Do the PCM idle learn procedure (see page 11-311).

11. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

12. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in D position
    - Throttle position between 17 degrees and 33 degrees for 3 seconds

13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2227 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 11. If the PCM was substituted, go to step 1.

    NO—Go to step 14.

14. Monitor the OBD STATUS for DTC P2227 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 11. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 11.

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DTC P2228: BARO Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check the BARO SENSOR in the DATA LIST with the HDS.

   Is about 53 kPa (15.6 in.Hg, 397 mmHg), or 1.58 V or less indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time.■
3. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2228 indicated?

   YES—Check for poor connections or loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted in step 3, go to step 1.

   NO—If the PCM was updated, troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P2229: BARO Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check the BARO SENSOR in the DATA LIST with the HDS.

   Is about 160 kPa (47.2 in.Hg, 1,200 mmHg), or 4.49 V, or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time.■
3. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2229 indicated?

   YES—Check for poor connections or loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted in step 3, go to step 1.

   NO—If the PCM was updated, troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC Troubleshooting (cont'd)

DTC P2237: Rear A/F Sensor (Bank 1, Sensor 1) IP Circuit High Voltage

DTC P2240: Front A/F Sensor (Bank 2, Sensor 1) IP Circuit High Voltage

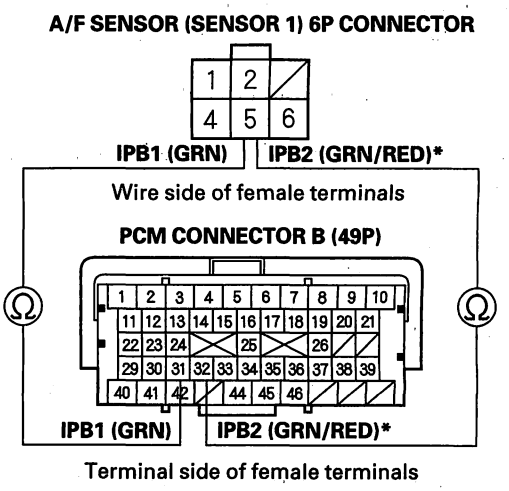
NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 2 minutes.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2237 and/or P2240 indicated?*

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. ■
5. Turn the ignition switch OFF.
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (49P).
9. Check for continuity between A/F sensor (Sensor 1) 6P connector terminal No. 5 to and PCM connector terminal B31 (B32)*.



Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the PCM (B31 (B32)*) and the A/F sensor (Sensor 1), then go to step 14.

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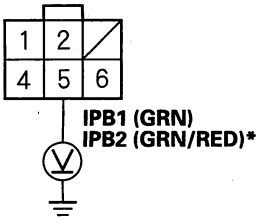
10. Reconnect PCM connector B (49P).

11. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 2 minutes.

12. Measure voltage between A/F sensor (Sensor 1) 6P connector terminal No. 5 and body ground.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

Is there about 0.2 V or less?

YES—Go to step 20.

NO—Go to step 13.

13. Replace the A/F sensor (Sensor 1) (see page 11-240).

14. Reconnect all connectors.

15. Turn the ignition switch ON (II).

16. Reset the PCM with the HDS.

17. Do the PCM idle learn procedure (see page 11-311).

18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2237 and/or P2240 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 19.

19. Monitor the OBD STATUS for DTC P2237 and/or P2240* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 18, go to the indicated DTC's troubleshooting.■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

20. Turn the ignition switch OFF.

21. Reconnect all connectors.

22. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2237 and/or P2240 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P2237 and/or P2240* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 23, go to the indicated DTC's troubleshooting.■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P2238: Rear A/F Sensor (Bank 1, Sensor 1) IP Circuit Low Voltage

DTC P2241: Front A/F Sensor (Bank 2, Sensor 1) IP Circuit Low Voltage

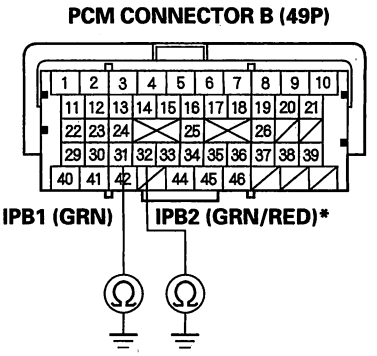
NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 2 minutes.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2238 and/or P2241 indicated?*

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. ■
5. Turn the ignition switch OFF.
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (49P).
9. Check for continuity between PCM connector terminal B31 (B32)* and body ground.



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (B31 (B32)*) and the A/F sensor (Sensor 1), then go to step 14.

NO—Go to step 10.

10. Reconnect PCM connector B (49P).
11. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 2 minutes.

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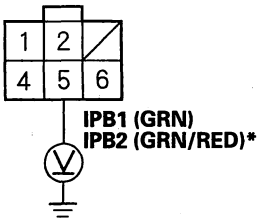
12. Measure voltage between A/F sensor (Sensor 1) 6P connector terminal No. 5 and body ground.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

Is there about 0.2 V or less?

YES—Go to step 20.

NO—Go to step 13.

13. Replace the A/F sensor (Sensor 1) (see page 11-240).

14. Reconnect all connectors.

15. Turn the ignition switch ON (II).

16. Reset the PCM with the HDS.

17. Do the PCM idle learn procedure (see page 11-311).

18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2238 and/or P2241 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 19.

19. Monitor the OBD STATUS for DTC P2238 and/or P2241* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 18, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

20. Turn the ignition switch OFF.

21. Reconnect all connectors.

22. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2238 and/or P2241 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P2238 and/or P2241* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 23, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P2243: Rear A/F Sensor (Bank 1, Sensor 1) VCENT Circuit High Voltage

DTC P2247: Front A/F Sensor (Bank 2, Sensor 1) VCENT Circuit High Voltage

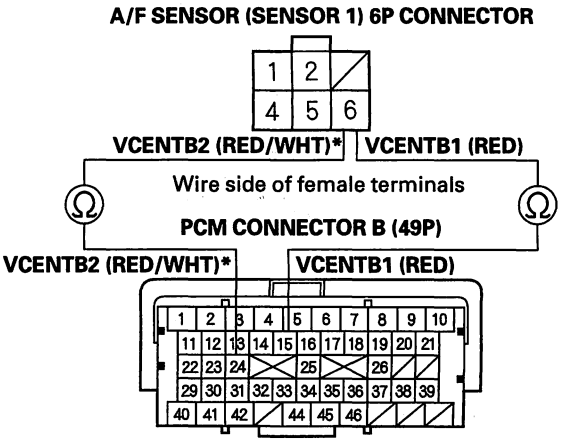
NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 2 minutes.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2243 and/or P2247 indicated?*

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. ■
5. Turn the ignition switch OFF.
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (49P).
9. Check for continuity between A/F sensor (Sensor 1) 8P connector terminal No. 6 and PCM connector terminal B15 (B24)*.



Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the PCM (B15 (B24)*) and the A/F sensor (Sensor 1), then go to step 14.

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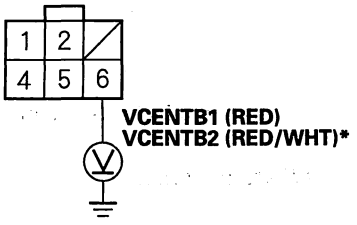
10. Reconnect PCM connector B (49P).

11. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 2 minutes.

12. Measure voltage between A/F sensor (Sensor 1) 6P connector terminal No. 6 and body ground.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

Is there about 0.2 V or less?

YES—Go to step 20.

NO—Go to step 13.

13. Replace the A/F sensor (Sensor 1) (see page 11-240).

14. Reconnect all connectors.

15. Turn the ignition switch ON (II).

16. Reset the PCM with the HDS.

17. Do the PCM idle learn procedure (see page 11-311).

18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2243 and/or P2247 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 19.

19. Monitor the OBD STATUS for DTC P2243 and/or P2247* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 18, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

20. Turn the ignition switch OFF.

21. Reconnect all connectors.

22. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2243 and/or P2247 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P2243 and/or P2247* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 23, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P2245: Rear A/F Sensor (Bank 1, Sensor 1) VCENT Circuit Low Voltage

DTC P2249: Front A/F Sensor (Bank 2, Sensor 1) VCENT Circuit Low Voltage

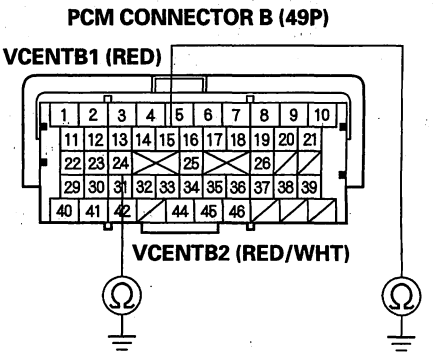
NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 2 minutes.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2245 and/or P2249 indicated?*

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. ■
5. Turn the ignition switch OFF.
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (49P).
9. Check for continuity between PCM connector terminal B15 (B24)* and body ground.



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (B15 (B24)*) and the A/F sensor (Sensor 1), then go to step 14.

NO—Go to step 10.

10. Reconnect PCM connector B (49P).
11. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 2 minutes.

BACK

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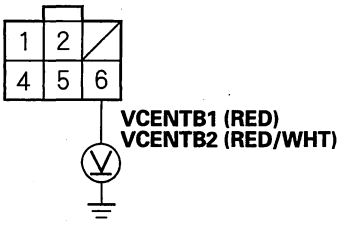
12. Measure voltage between A/F sensor (Sensor 1) 6P connector terminal No. 6 and body ground.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

Is there about 0.2 V or less?

YES—Go to step 20.

NO—Go to step 13.

13. Replace the A/F sensor (Sensor 1) (see page 11-240).
14. Reconnect all connectors.
15. Turn the ignition switch ON (II).
16. Reset the PCM with the HDS.
17. Do the PCM idle learn procedure (see page 11-311).
18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2245 and/or P2249 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 19.

19. Monitor the OBD STATUS for DTC P2245 and/or P2249* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 18, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

20. Turn the ignition switch OFF.
21. Reconnect all connectors.
22. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2245 and/or P2249 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P2245 and/or P2249* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 23, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P2251: Rear A/F Sensor (Bank 1, Sensor 1) VS Circuit High Voltage

DTC P2254: Front A/F Sensor (Bank 2, Sensor 1) VS Circuit High Voltage

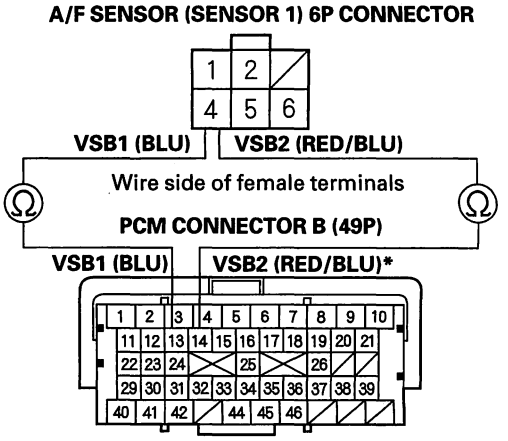
NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P2251 and/or P2254* is stored at the same time as DTC P0134 and/or P0154*, troubleshoot DTC P2251 and/or P2254* first, then recheck for P0134 and/or P0154*.
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 2 minutes.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2251 and/or P2254 indicated?*

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM.■
5. Turn the ignition switch OFF.
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (49P).
9. Check for continuity between A/F sensor (Sensor 1) 6P connector terminal No. 4 and PCM connector terminal B13 (B14)*.



   Is there continuity?

   YES—Go to step 10.

   NO—Repair open in the wire between the PCM (B13 (B14)*) and the A/F sensor (Sensor 1), then go to step 14.
10. Reconnect PCM connector B (49P).

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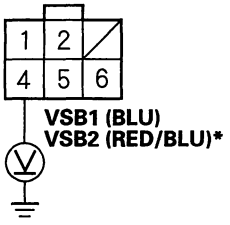
11. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 2 minutes.

12. Measure voltage between A/F sensor (Sensor 1) 6P connector terminal No. 4 and body ground.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

Is there about 0.2 V or less?

YES—Go to step 20.

NO—Go to step 13.

13. Replace the A/F sensor (Sensor1) (see page 11-240).

14. Reconnect all connectors.

15. Turn the ignition switch ON (II).

16. Reset the PCM with the HDS.

17. Do the PCM idle learn procedure (see page 11-311).

18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2251 and/or P2254 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 19.

19. Monitor the OBD STATUS for DTC P2251 and/or P2254* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 18, go to the indicated DTC's troubleshooting.■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

20. Turn the ignition switch OFF.

21. Reconnect all connectors.

22. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

23. Check for Temporary DTCs or DTCs with the HDS.

If DTC P2251 and/or P2254 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P2251 and/or P2254* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 23, go to the indicated DTC's troubleshooting.■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P2252: Rear A/F Sensor (Bank 1, Sensor 1) VS Circuit Low Voltage

DTC P2255: Front A/F Sensor (Bank 2, Sensor 1) VS Circuit Low Voltage

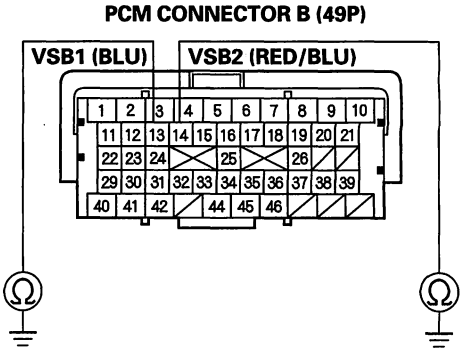
NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 2 minutes.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2252 and/or P2255 indicated?*

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. ■
5. Turn the ignition switch OFF.
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 6P connector.
8. Disconnect PCM connector B (49P).
9. Check for continuity between PCM connector terminal B13 (B14)* and body ground.



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (B13 (B14)*) and the A/F sensor (Sensor 1), then go to step 14.

NO—Go to step 10.

10. Reconnect PCM connector B (49P).
11. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 2 minutes.

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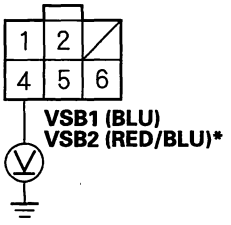
12. Measure voltage between A/F sensor (Sensor 1) 6P connector terminal No. 4 and body ground.

A/F SENSOR (SENSOR 1) 6P CONNECTOR



Wire side of female terminals

Is there about 0.2 V or less?

YES—Go to step 20.

NO—Go to step 13.

13. Replace the A/F sensor (Sensor 1) (see page 11-240).
14. Reconnect all connectors.
15. Turn the ignition switch ON (II).
16. Reset the PCM with the HDS.
17. Do the PCM idle learn procedure (see page 11-311).
18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2252 and/or P2255 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

NO—Go to step 19.

19. Monitor the OBD STATUS for DTC P2252 and/or P2255* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 18, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

20. Turn the ignition switch OFF.
21. Reconnect all connectors.
22. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2252 and/or P2255 indicated?*

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P2252 and/or P2255* in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 23, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P2270: Rear Secondary HO2S (Bank 1, Sensor 2) Circuit Signal Stuck Lean

DTC P2271: Rear Secondary HO2S (Bank 1, Sensor 2) Circuit Signal Stuck Rich

DTC P2272: Front Secondary HO2S (Bank 2, Sensor 2) Circuit Signal Stuck Lean

DTC P2273: Front Secondary HO2S (Bank 2, Sensor 2) Circuit Signal Stuck Rich

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, then let it idle without load (in Park or neutral) until the radiator fan comes on.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Vehicle speed between 35—55 mph (56—88 km/h)
   - Drive 1 minute or more
5. Monitor the OBD STATUS for DTC P2270, P2271, P2272*, and/or P2273* in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 6.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Replace the secondary HO2S (Sensor 2) (see page 11-241).
8. Turn the ignition switch ON (II).
9. Reset the PCM with the HDS.
10. Do the PCM idle learn procedure (see page 11-311).
11. Start the engine, then let it idle without load (in Park or neutral) until the radiator fan comes on.
12. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Vehicle speed between 35—55 mph (56—88 km/h)
    - Drive 1 minute or more
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2270, P2271, P2272, and/or P2273* indicated?*

    YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM, then go to step 1.

    NO—Go to step 14.
14. Monitor the OBD STATUS for DTC P2270, P2271, P2272*, and/or P2273* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 12.

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DTC P2610: PCM Internal Power Off Timer Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2610 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
4. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2610 indicated?

   YES—If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

   NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC Troubleshooting (cont'd)

DTC P2A00: Rear A/F Sensor (Bank 1, Sensor 1) Circuit Range/Performance Problem

DTC P2A03: Front A/F Sensor (Bank 2, Sensor 1) Circuit Range/Performance Problem

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Transmission in D position
   - Vehicle speed between 25—55 mph (40—88 km/h) for 5 minutes.
   - Drive at a steady speed between 55—75 mph (88—120 km/h) for 10 seconds, then decelerate (with the throttle fully closed) for 4 seconds.
5. Monitor the OBD STATUS for DTC P2A00 and/or P2A03* in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 6.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM. If it is EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Replace the A/F sensor (Sensor 1) (see page 11-240).
8. Turn the ignition switch ON (II).
9. Reset the PCM with the HDS.
10. Do the PCM idle learn procedure (see page 11-311).
11. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in D position
    - Vehicle speed between 25—55 mph (40—88 km/h) for 5 minutes.
    - Drive at a steady speed between 55—75 mph (88—120 km/h) for 10 seconds, then decelerate (with the throttle fully closed) for 4 seconds.
12. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2A00 and/or P2A03 indicated?*

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1.

    NO—Go to step 13.
13. Monitor the OBD STATUS for DTC P2A00 and/or P2A03* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 12, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 11.

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DTC U0028: F-CAN Malfunction (BUS-OFF)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0028 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time.■
4. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0028 indicated?

   YES—If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

   NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC Troubleshooting (cont'd)

DTC U0114: F-CAN Malfunction (PCM-SH-AWD Control Unit)

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC U0028 is stored at the same time as DTC U0114, troubleshoot DTC U0028 first, then recheck for DTC U0114.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

   Is DTC U0114 indicated?

   YES—Go to step 4.

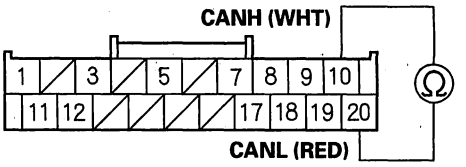
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module, the SH-AWD control unit, and the PCM. ■
4. Check for DTCs in the DTCs MENU with the HDS.

   Is SH-AWD system DTC 41 indicated?

   YES—Go to step 5.

   NO—Go to step 8.
5. Turn the ignition switch OFF.
6. Disconnect the SH-AWD control unit 20P connector.
7. Check for continuity between SH-AWD control unit 20P connector terminals No. 10 and No. 20*.

SH-AWD CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good SH-AWD control unit (see page 15-71), then go to step 15 and recheck. If DTC U0114 is not indicated, replace the original SH-AWD control unit (see page 15-71), then go to step 15.

NO—Repair open in the wire between the SH-AWD control unit (No. 10 (No. 20)*) and the PCM (A48 (A49)*), then go to step 15.

*: CANL line

8. Check for a poor connections at the SH-AWD control unit 20P connector and 8P connector.

   Are the connections OK?

   YES—Go to step 9.

   NO—Repair the connections, then go to step 15.

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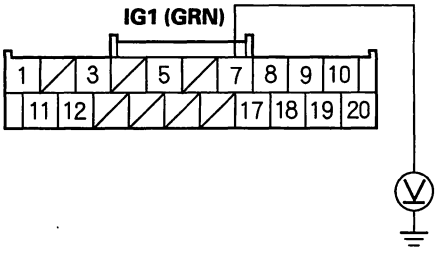
9. Turn the ignition switch OFF.
10. Disconnect the SH-AWD control unit 20P connector.
11. Turn the ignition switch ON (II).
12. Measure voltage between SH-AWD control unit 20P connector terminal No. 7 and body ground.

SH-AWD CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

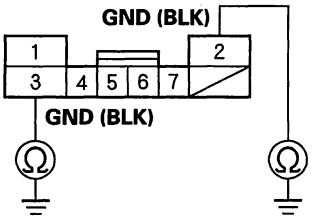
Is there battery voltage?

YES—Go to step 13.

NO—Check the No. 20 SVTM-4, ARC, ODS (7.5 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the No. 20 STVM-4, ARC, ODS (7.5 A) fuse and the SH-AWD control unit, then go to step 15.

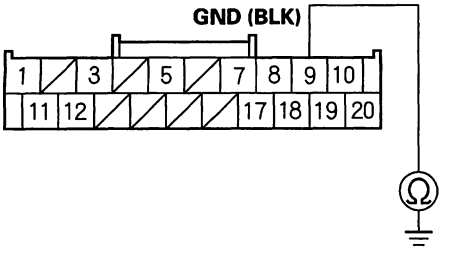
13. Turn the ignition switch OFF.
14. Check for continuity between SH-AWD control unit 20P connector terminals No. 9 and body ground, and between SH-AWD control unit 8P connector terminal No. 2 and No. 3 and body ground individually.

SH-AWD CONTROL UNIT 8P CONNECTOR



Wire side of female terminals

SH-AWD CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good SH-AWD control unit (see page 15-71), then go to step 15 and recheck. If DTC U0114 is not indicated, replace the original SH-AWD control unit (see page 15-71), then go to step 15.

NO—Repair open in the wire between the SH-AWD control unit and body ground (G603), then go to step 15.

(cont'd)

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DTC Troubleshooting (cont'd)

15. Reconnect all connectors.
16. Turn the ignition switch ON (II).
17. Reset the PCM with the HDS.
18. Do the PCM idle learn procedure (see page 11-311).
19. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

    Is DTC U0114 indicated?

    YES—Check for poor connections or loose terminals at the gauge control module, the SH-AWD control unit, and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC U0122: F-CAN Malfunction (PCM-VSA Modulator-Control Unit)

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC U0028 is stored at the same time as DTC U0122, troubleshoot DTC U0028 first, then recheck for DTC U0122.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0122 indicated?

   YES—Go to step 4.

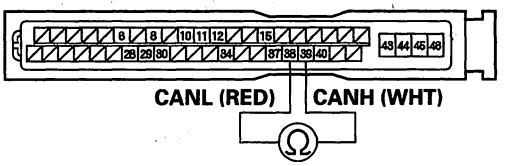
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module, the VSA modulator-control unit, and the PCM. ■
4. Check for DTCs in the DTCs MENU with the HDS.

   Is VSA DTC 86 indicated?

   YES—Go to step 5.

   NO—Go to step 8.
5. Turn the ignition switch OFF.
6. Disconnect the VSA modulator-control unit 46P connector.
7. Check for continuity between VSA modulator-control unit 46P connector terminals No. 38* and No. 39.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good VSA modulator-control unit (see page 19-102), then go to step 15 and recheck. If DTC U0122 is not indicated, replace the original VSA modulator-control unit (see page 19-102), then go to step 15.

NO—Repair open in the wire between the VSA modulator-control unit (No. 39 (No. 38)*) and the PCM (A48 (A49)*), then go to step 15.

*: CANL line

8. Check for a poor connection at the VSA modulator-control unit 46P connector.

   Are the connections OK?

   YES—Go to step 9.

   NO—Repair the connection(s), then go to step 15.

(cont'd)

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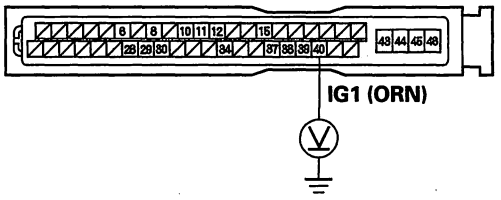
DTC Troubleshooting (cont'd)

9. Turn the ignition switch OFF.
10. Disconnect the VSA modulator-control unit 46P connector.
11. Turn the ignition switch ON (II).
12. Measure voltage between VSA modulator-control unit 46P connector terminal No. 40 and body ground.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

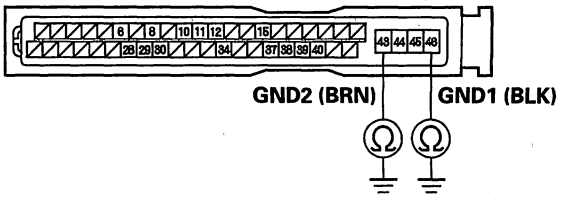
Is there battery voltage?

YES—Go to step 13.

NO—Check the No. 29 VSA (10 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the No. 29 VSA (10 A) fuse and the VSA modulator-control unit, then go to step 15.

13. Turn the ignition switch OFF.
14. Check for continuity between VSA modulator-control unit 46P connector terminals No. 43 and No. 46 and body ground.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good VSA modulator-control unit (see page 19-102), then go to step 15 and recheck. If DTC U0122 is not indicated, replace the original VSA modulator-control unit (see page 19-102), then go to step 15.

NO—Repair open in the wire between the VSA modulator-control unit and body ground (G303), then go to step 15.

15. Reconnect the VSA modulator-control unit 46P connector.
16. Turn the ignition switch ON (II).
17. Reset the PCM with the HDS.
18. Do the PCM idle learn procedure (see page 11-311).
19. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

Is DTC U0122 indicated?

YES—Check for poor connections or loose terminals at the gauge control module, the VSA modulator-control unit, and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

Protected by AR

DTC U0155: F-CAN Malfunction (PCM-Gauge Control Module)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0155 indicated?

   YES—Go to step 4.

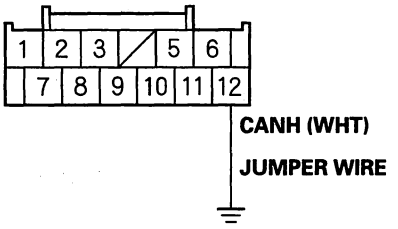
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module and the PCM.■
4. Check for body electrical DTCs in the DTCs MENU with the HDS.

   Is DTC B1168, B1169, and/or B1178 indicated?

   YES—Go to step 5.

   NO—Do the gauge control module input test (see page 22-334).■
5. Turn the ignition switch OFF.
6. Jump the SCS line with the HDS.
7. Remove the gauge control module (see page 22-337).
8. Disconnect gauge control module connector A (12P).
9. Disconnect PCM connector A (49P).
10. Connect gauge control module connector terminal A12 to body ground with a jumper wire.

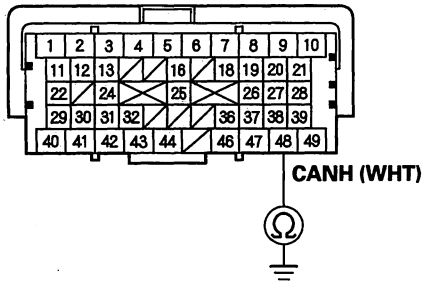
GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

11. Check for continuity between PCM connector terminal A48 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between the PCM (A48) and the gauge control module, then go to step 14.

(cont'd)

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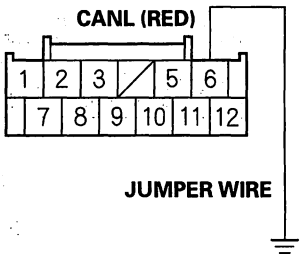
DTC Troubleshooting (cont'd)

12. Connect gauge control module connector terminal A6 to body ground with a jumper wire.

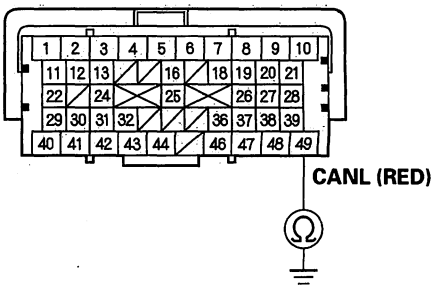
GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

13. Check for continuity between PCM connector terminal A49 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Substitute a known-good gauge control module (see page 22-337), then go to step 14 and recheck. If DTC U0155 is not indicated, replace the original gauge control module (see page 22-337), then go to step 14.

NO—Repair open in the wire between the PCM (A49) and the gauge control module, then go to step 14.

14. Reconnect all connectors.

15. Turn the ignition switch ON (II).

16. Reset the PCM with the HDS.

17. Do the PCM idle learn procedure (see page 11-311).

18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC U0155 indicated?

YES—Check for poor connections or loose terminals at the gauge control module and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC U0300: PGM-FI System and A/T System Program Version Mismatch

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Do not turn the ignition switch OFF while updating the PCM. If you turn the ignition switch OFF before completion, the PCM will be damaged.

1. Do the PCM update procedure (PGM-FI system) (see page 11-7).

2. Do the PCM update procedure (A/T system) (see page 14-8).

3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0300 indicated?

   YES—Replace the original PCM (see page 11-244). ■

   NO—The update is complete. ■

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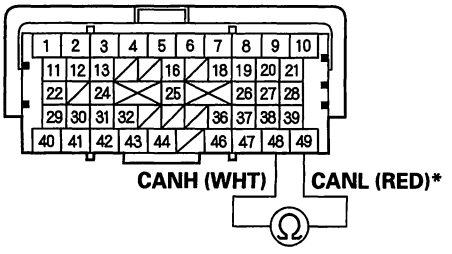
F-CAN Circuit Troubleshooting (Part 1)

NOTE: Information marked with an asterisk (*) applies to the CANL line.

1. Turn the ignition switch OFF.
2. Jump the SCS line with the HDS.
3. Disconnect PCM connector A (49P), then disconnect the HDS.
4. Measure resistance between PCM connector terminals A48 and A49.

PCM CONNECTOR A (49P)



Terminal side of female terminals

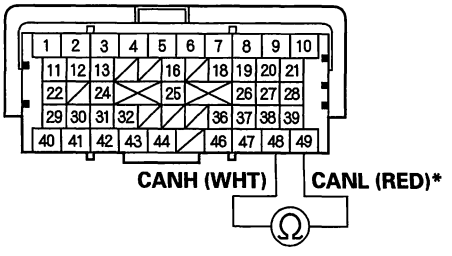
Is there about 333–408 Ω ?

YES—Go to F-CAN circuit troubleshooting (Part 2)

NO—Go to step 5.

5. Disconnect gauge control module connector A (12P) (see page 22-337).
6. Disconnect the VSA modulator-control unit 46P connector (see page 19-102).
7. Disconnect SRS unit connector A (28P) (see page 24-152).
8. Disconnect the TPMS unit 20P connector (see page 18-162).
9. Disconnect the yaw rate-lateral/longitudinal acceleration sensor 4P connector (see page 19-100).
10. Disconnect the steering angle sensor 5P connector (see page 19-99).
11. Disconnect the SH-AWD control unit 20P connector (see page 15-71).
12. With active damper system: Disconnect the active damper control unit 14P connector (see page 18-118).
13. With AcuraLink: Disconnect the AcuraLink control unit (XM receiver) connector A (20P) (see page 23-96).
14. Check for continuity between PCM connector terminals A48 and A49*.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wires between PCM connector terminals A48 and A49*.■

NO—Go to step 15.

BACK

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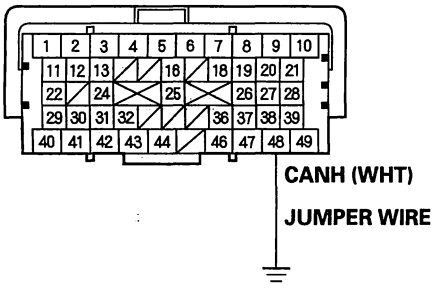
15. Connect PCM connector terminal A48 to body ground with a jumper wire.

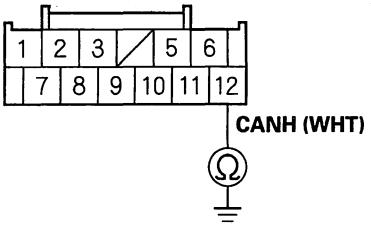
PCM CONNECTOR A (49P)



Terminal side of female terminals

16. Check for continuity between gauge control module connector terminal A12 and body ground.

GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

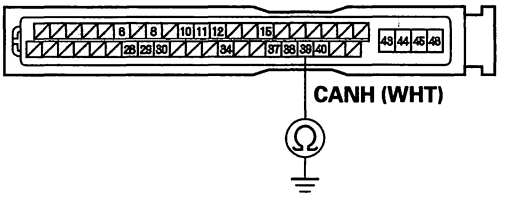
Is there continuity?

YES—Go to step 17.

NO—Repair open in the wire between the PCM (A48) and the gauge control module. ■

17. Check for continuity between VSA modulator-control unit 46P connector terminal No. 39 and body ground.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

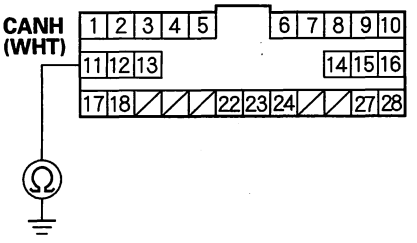
Is there continuity?

YES—Go to step 18.

NO—Repair open in the wire between the PCM (A48) and the VSA modulator-control unit. ■

18. Check for continuity between SRS unit connector terminal A11 and body ground.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is there continuity?

YES—Go to step 19.

NO—Repair open in the wire between the PCM (A48) and the SRS unit. ■

(cont'd)

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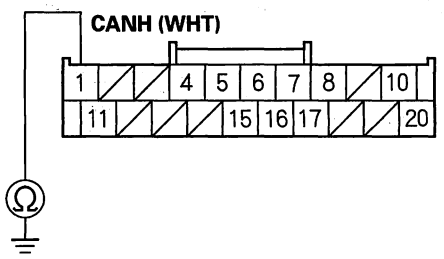
F-CAN Circuit Troubleshooting (Part 1) (cont'd)

19. Check for continuity between TPMS control unit 20P connector terminal No. 1 and body ground.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

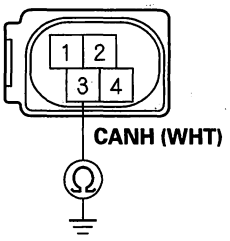
Is there continuity?

YES—Go to step 20.

NO—Repair open in the wire between the PCM (A48) and the TPMS control unit.■

20. Check for continuity between yaw rate-lateral/longitudinal acceleration sensor 4P connector terminal No. 3 and body ground.

YAW RATE-LATERAL/LONGITUDINAL ACCELERATION SENSOR 4P CONNECTOR



Wire side of female terminals

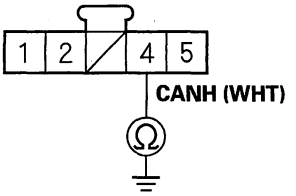
Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire between the PCM (A48) and the yaw rate-lateral/longitudinal acceleration sensor.■

21. Check for continuity between steering angle sensor 5P connector terminal No. 4 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 22.

NO—Repair open in the wire between the PCM (A48) and the steering angle sensor.■

BACK

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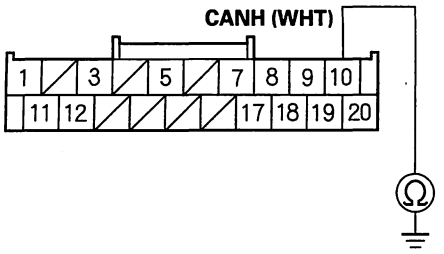
22. Check for continuity between SH-AWD control unit 20P connector terminal No. 10 and body ground.

SH-AWD CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

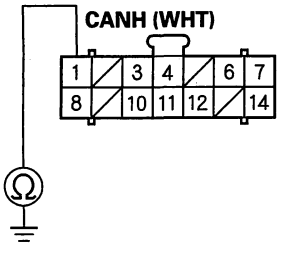
Is there continuity?

YES—
- With active damper system: Go to step 23.
- Without active damper system: Go to step 24.

NO—Repair open in the wire between the PCM (A48) and the SH-AWD control unit. ■

23. Check for continuity between active damper control unit 14P connector terminal No. 1 and body ground.

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

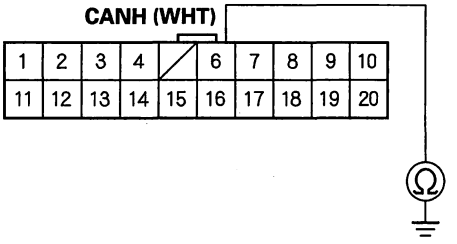
Is there continuity?

YES—
- With AcuraLink: Go to step 24.
- Without AcuraLink: Go to step 25.

NO—Repair open in the wire between the PCM (A48) and active damper control unit. ■

24. Check for continuity between AcuraLink control unit (XM receiver) connector terminal A6 and body ground.

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the PCM (A48) and the AcuraLink control unit (XM receiver). ■

(cont'd)

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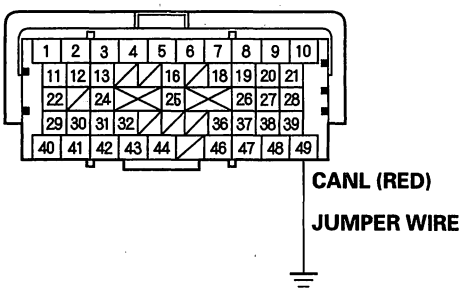
F-CAN Circuit Troubleshooting (Part 1) (cont'd)

25. Remove the jumper wire from PCM connector A (49P).

26. Connect PCM connector terminal A49 to body ground with a jumper wire.

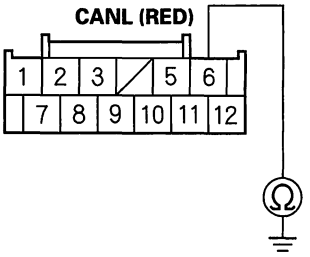
PCM CONNECTOR A (49P)



Terminal side of female terminals

27. Check for continuity between gauge control module connector terminal A6 and body ground.

GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

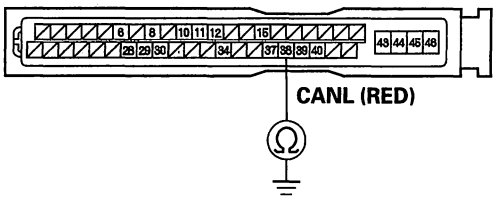
Is there continuity?

YES—Go to step 28.

NO—Repair open in the wire between the PCM (49P) and the gauge control module. ■

28. Check for continuity between VSA modulator-control unit 46P connector terminal No. 38 and body ground.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

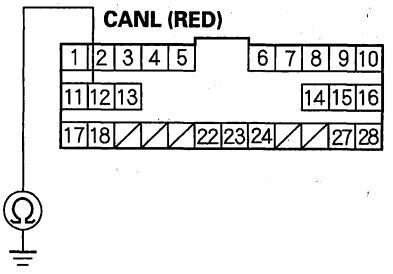
Is there continuity?

YES—Go to step 29.

NO—Repair open in the wire between the PCM (46P) and the VSA modulator-control unit. ■

29. Check for continuity between SRS unit connector terminal A12 and body ground.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is there continuity?

YES—Go to step 30.

NO—Repair open in the wire between the PCM (49P) and the SRS unit. ■

BACK

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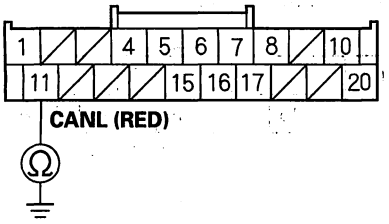
30. Check for continuity between TPMS control unit 20P connector terminal No. 11 and body ground.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

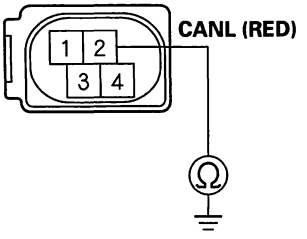
Is there continuity?

YES—Go to step 31.

NO—Repair open in the wire between the PCM (A49) and the TPMS control unit. ■

31. Check for continuity between yaw rate-lateral/longitudinal acceleration sensor 4P connector terminal No. 2 and body ground.

YAW RATE-LATERAL/LONGITUDINAL ACCELERATION SENSOR 4P CONNECTOR



Wire side of female terminals

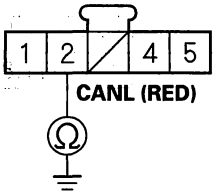
Is there continuity?

YES—Go to step 32.

NO—Repair open in the wire between the PCM (A49) and the yaw rate-lateral/longitudinal acceleration sensor. ■

32. Check for continuity between steering angle sensor 5P connector terminal No. 2 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 33.

NO—Repair open in the wire between the PCM (A49) and the steering angle sensor. ■

(cont'd)

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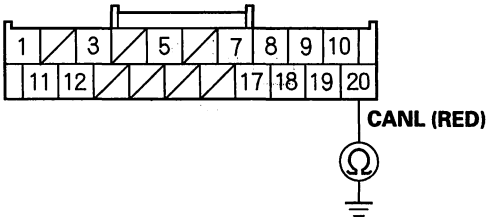
F-CAN Circuit Troubleshooting (Part 1) (cont'd)

33. Check for continuity between SH-AWD control unit 20P connector terminal No. 20 and body ground.

SH-AWD CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

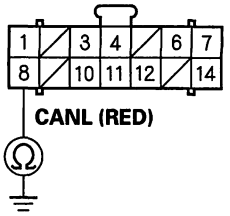
Is there continuity?

YES—
- With active damper system: Go to step 34.
- Without active damper system: Go to step 35.

NO—Repair open in the wire between the PCM (A49) and the SH-AWD control unit.■

34. Check for continuity between active damper control unit 14P connector terminal No. 8 and body ground.

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

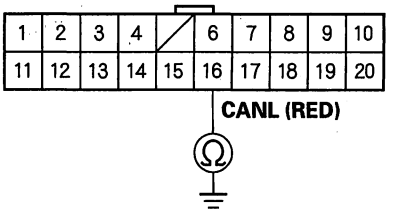
Is there continuity?

YES—
- With AcuraLink: Go to step 35.
- Without AcuraLink: Go to step 36.

NO—Repair open in the wire between the PCM (A49) and active damper control unit.■

35. Check for continuity between AcuraLink control unit (XM receiver) connector terminal A16 and body ground.

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Go to step 36.

NO—Repair open in the wire between the PCM (A49) and the AcuraLink control unit (XM receiver).■

BACK

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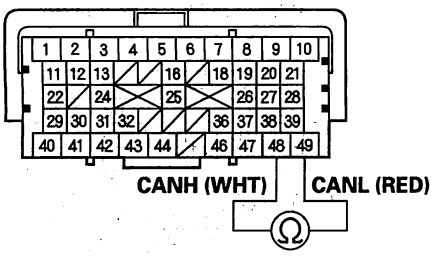
36. Reconnect the gauge control module 12P connector.

37. Measure resistance between PCM connector terminals A48 and A49.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there about 2.34—2.86 kΩ ?

YES—Go to step 38.

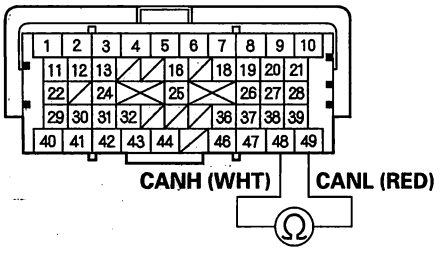
NO—Substitute a known-good gauge control module (see page 22-337). If the HDS identifies the vehicle, replace the original gauge control module (see page 22-337). ■

38. Disconnect gauge control module connector A (12P).

39. Reconnect the VSA modulator-control unit 46P connector.

40. Measure resistance between PCM connector terminals A48 and A49.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there about 2.34—2.86 kΩ ?

YES—Go to step 41.

NO—Substitute a known-good VSA modulator-control unit (see page 19-102). If the HDS identifies the vehicle, replace the original VSA modulator-control unit (see page 19-102). ■

41. Disconnect the VSA modulator-control unit 46P connector.

42. Reconnect SRS unit connector A (28P).

(cont'd)

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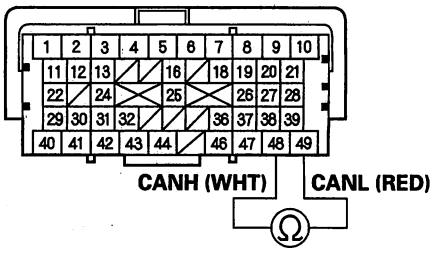
F-CAN Circuit Troubleshooting (Part 1) (cont'd)

43. Measure resistance between PCM connector terminals A48 and A49.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there about 2.34—2.86 kΩ ?

YES—Go to step 44.

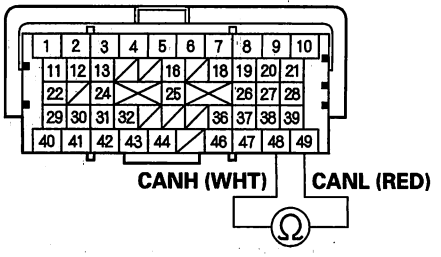
NO—Substitute a known-good SRS unit (see page 24-152). If the HDS identifies the vehicle, replace the original SRS unit (see page 24-152).■

44. Disconnect SRS unit connector A (28P).

45. Reconnect the TPMS control unit 20P connector.

46. Measure resistance between PCM connector terminals A48 and A49.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there about 2.34—2.86 kΩ ?

YES—Go to step 47.

NO—Substitute a known-good TPMS control unit (see page 18-162). If the HDS identifies the vehicle, replace the original TPMS control unit (see page 18-162).■

BACK

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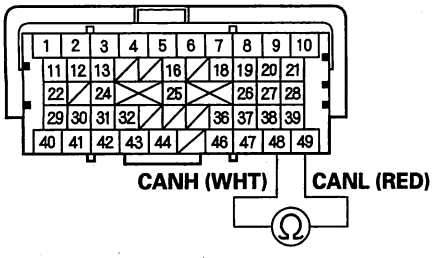
47. Disconnect the TPMS control unit 20P connector.

48. Reconnect SH-AWD control unit 20P connector.

49. Measure resistance between PCM connector terminals A48 and A49.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there about 2.34—2.86 kΩ ?

YES—Go to step 50.

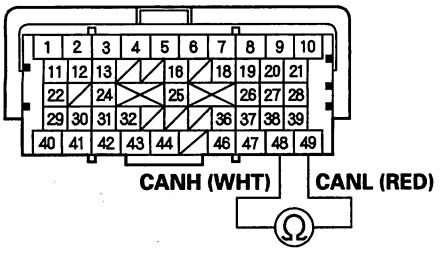
NO—Substitute a known-good SH-AWD control unit (see page 15-71). If the HDS identifies the vehicle, replace the original SH-AWD control unit (see page 15-71).■

50. Disconnect the SH-AWD control unit 20P connector.

51. Reconnect the active damper control unit 14P connector.

52. Measure resistance between PCM connector terminals A48 and A49.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there about 2.34—2.86 kΩ ?

YES—Go to step 53.

NO—Substitute a known-good active damper control unit (see page 18-118). If the HDS identifies the vehicle, replace the original active damper control unit (see page 18-118).■

(cont'd)

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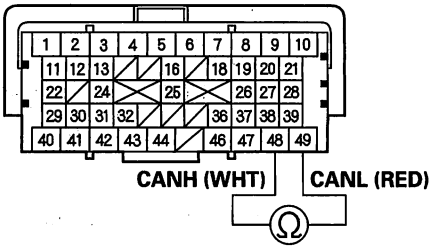
F-CAN Circuit Troubleshooting (Part 1) (cont'd)

53. Disconnect the active damper control unit 14P connector.

54. Reconnect AcuraLink control unit (XM receiver) connector A (20P).

55. Measure resistance between PCM connector terminals A48 and A49.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there about 2.34—2.86 kΩ ?

YES—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244).■

NO—Substitute a known-good AcuraLink control unit (XM receiver) (see page 23-96). If the HDS identifies the vehicle, replace the original AcuraLink control unit (XM receiver) (see page 23-96).■

F-CAN Circuit Troubleshooting (Part 2)

1. Disconnect the gauge control module connector A (12P) (see page 22-337).

2. Disconnect the VSA modulator-control unit 25P connector (see page 19-102).

3. Disconnect SRS unit connector A (28P) (see page 24-152).

4. Disconnect TPMS control unit connector A (20P) (see page 18-162).

5. Disconnect the yaw rate-lateral/longitudinal acceleration sensor 4P connector (see page 19-100).

6. Disconnect the steering angle sensor 5P connector (see page 19-99).

7. Disconnect the SH-AWD control unit connector A (20P) (see page 15-71).

8. With active damper system: Disconnect the active damper control unit 14P connector (see page 18-118).

9. With AcuraLink: Disconnect the AcuraLink control unit (XM receiver) connector A (20P) (see page 23-96).

BACK

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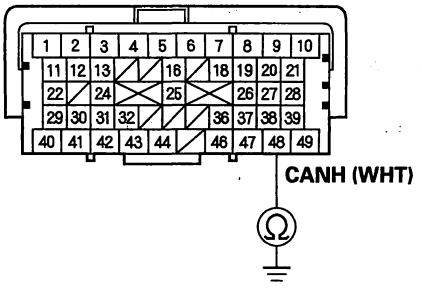
10. Check for continuity between PCM connector terminal A48 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

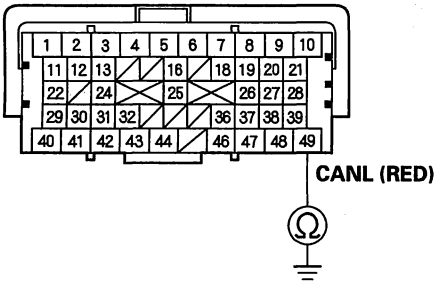
Is there continuity?

YES—Repair short in the wire between PCM connector terminal A48 and the gauge control module, the VSA modulator-control unit, the SRS unit, the TPMS control unit, the yaw rate-lateral/longitudinal acceleration sensor, the steering angle sensor, the SH-AWD control unit, the active damper control unit (with active damper system), the AcuraLink control unit (XM receiver (with AcuraLink)) or the DLC.■

NO—Go to step 11.

11. Check for continuity between PCM connector terminal A49 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal A49 and the gauge control module, the VSA modulator-control unit, the SRS unit, the TPMS control unit, the yaw rate-lateral/longitudinal acceleration sensor, the steering angle sensor, the SH-AWD control unit, the active damper control unit (with active damper system), the AcuraLink control unit (XM receiver (with AcuraLink)) or the DLC.■

NO—Go to step 12.

(cont'd)

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F-CAN Circuit Troubleshooting (Part 2) (cont'd)

12. Reconnect all connectors.
13. Connect the HDS to the DLC (see page 11-3).
14. Disconnect gauge control module connector A (12P).
15. Turn the ignition switch ON (II), and read the HDS.

    Does the HDS identify the vehicle?

    YES—Replace the gauge control module (see page 22-337).■

    NO—Go to step 16.
16. Turn the ignition switch OFF.
17. Reconnect gauge control module connector A (12P).
18. Disconnect the VSA modulator-control unit 46P connector.
19. Turn the ignition switch ON (II), and read the HDS.

    Does the HDS identify the vehicle?

    YES—Replace the VSA modulator-control unit (see page 19-102).■

    NO—Go to step 20.
20. Turn the ignition switch OFF.
21. Reconnect the VSA modulator-control unit 46P connector.
22. Disconnect SRS unit connector A (28P).
23. Turn the ignition switch ON (II), and read the HDS.

    Does the HDS identify the vehicle?

    YES—Replace the SRS unit (see page 24-152).■

    NO—Go to step 24.
24. Turn the ignition switch OFF.
25. Reconnect the SRS unit connector A (28P).
26. Disconnect the TPMS control unit connector A (20P).
27. Turn the ignition switch ON (II), and read the HDS.

    Does the HDS identify the vehicle?

    YES—Replace TPMS control unit (see page 18-162).■

    NO—Go to step 28.
28. Turn the ignition switch OFF.
29. Reconnect the TPMS control unit connector A (28P).
30. Disconnect the yaw rate-lateral/longitudinal acceleration sensor 4P connector.

BACK

Protected by AR

31. Turn the ignition switch ON (II), and read the HDS.

    Does the HDS identify the vehicle?

    YES—Replace the yaw rate-lateral/longitudinal acceleration sensor (see page 19-100).■

    NO—Go to step 32.

32. Turn the ignition switch OFF.

33. Reconnect the yaw rate-lateral/longitudinal acceleration sensor 4P connector.

34. Disconnect the steering angle sensor 5P connector.

35. Turn the ignition switch ON (II), and read the HDS.

    Does the HDS identify the vehicle?

    YES—Replace the steering angle sensor (see page 19-99).

    NO—Go to step 36.

36. Turn the ignition switch OFF.

37. Reconnect the steering angle sensor 5P connector.

38. Disconnect the SH-AWD control unit connector A (20P)

39. Turn the ignition switch ON (II), and read the HDS.

    Does the HDS identify the vehicle?

    YES—Replace the SH-AWD control unit (see page 15-71).■

    NO—Go to step 40.

40. Turn the ignition switch OFF.

41. Reconnect the SH-AWD control unit 20P connector.

42. Disconnect the active damper control unit 14P connector.

43. Turn the ignition switch ON (II), and read the HDS.

    Does the HDS identify the vehicle?

    YES—Replace the active damper control unit (see page 18-118).■

    NO—Go to step 44.

44. Turn the ignition switch OFF.

45. Reconnect the active damper control unit.

46. Disconnect AcuraLink control unit (XM receiver) connector A (20P).

47. Turn the ignition switch ON (II), and read the HDS.

    Does the HDS identify the vehicle?

    YES—Replace the AcuraLink control unit (XM receiver).■

    NO—*Update* the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244).■

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MIL Circuit Troubleshooting

1. Turn the ignition switch ON (II).
2. Do the gauge self-diagnostic function (see page 22-315).

   Does the MIL indicator flash?

   YES—Go to step 3.

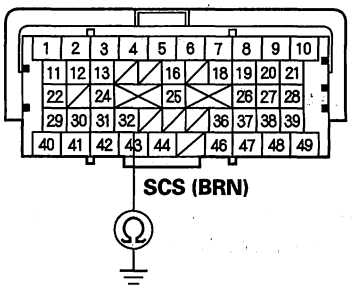
   NO—Substitute a known-good gauge control module, and recheck. If the MIL circuit is OK, replace the original gauge control module (see page 22-337).■
3. Connect the HDS to the DLC (see page 11-3).
4. Check the SCS in the DATA LIST with the HDS.

   Is a short indicated?

   YES—Go to step 5.

   NO—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244).■
5. Turn the ignition switch OFF.
6. Disconnect PCM connector A (49P), then disconnect the HDS.
7. Check for continuity between PCM connector terminal A32 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (A32) and the SRS unit, the DLC.■

NO—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244).■

BACK

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DLC Circuit Troubleshooting

NOTE: Make sure the HDS and the DLC cable of the HDS is normal.

1. Turn the ignition switch OFF.
2. Connect the HDS to the DLC (see page 11-3).

   NOTE: Make sure the HDS is properly connected to the DLC.
3. Turn the ignition switch ON (II), and read the HDS.

   Does the HDS identify the vehicle?

   YES—Go to step 4.

   NO—Go to step 21.
4. Check for Temporary DTCs or DTCs in the PGM-FI system with the HDS.

   Are any Temporary DTCs or DTCs indicated?

   YES—Go to the indicated DTC's troubleshooting. ■

   NO—Go to step 5.
5. Turn the ignition switch OFF.
6. Turn the ignition switch ON (II), and watch the SRS indicator.

   Does the SRS indicator stay on?

   YES—Go to the SRS system's general troubleshooting information (see page 24-30). ■

   NO—Go to step 7.
7. Turn the ignition switch OFF.
8. Turn the ignition switch ON (II), and watch the VSA indicator.

   Does the VSA indicator stay on?

   YES—Go to the VSA system's general troubleshooting information (see page 19-43). ■

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Turn the ignition switch ON (II), and watch the immobilizer indicator.

    Does the immobilizer indicator stay on or flash?

    YES—Go to the immobilizer system's troubleshooting (see page 22-402). ■

    NO—Go to step 11.
11. Turn the ignition switch OFF.
12. Turn the ignition switch ON (II), and watch the SH-AWD indicator.

    Does the SH-AWD indicator stay on?

    YES—Go to the SH-AWD system's general troubleshooting information (see page 15-4). ■

    NO—Go to step 13.

(cont'd)

Protected by AR

DLC Circuit Troubleshooting (cont'd)

13. Do the gauge self-diagnostic function (see page 22-315) to make sure the gauge is known-good. If the function test is OK, go to step 14.

14. Check for B-CAN system DTCs without the HDS (see page 22-81).

    Are any B-CAN DTCs indicated?

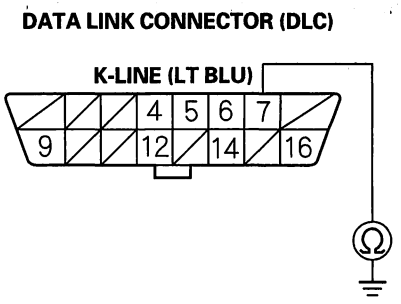
    YES—Go to the indicated DTC's troubleshooting. ■

    NO—Go to step 15.

15. Turn the ignition switch OFF.

16. Disconnect the HDS from the DLC.

17. Check for continuity between DLC terminal No. 7 and body ground.



Terminal side of female terminals

Is there 5 Ω or less?

YES—Go to step 18.

NO—Go to step 19.

18. Continue to check for continuity between DLC terminal No. 7 and body ground, while disconnecting these parts, one at a time:

    - SRS unit connector A (28P)
    - VSA modulator-control unit 46P connector
    - Immobilizer-keyless control unit 7P connector
    - Audio unit 17P connector
    - SH-AWD control unit 20P connector
    - Active damper control unit 14P connector
    - TPMS control unit 20P connector
    - MICU connector P (30P)

    Does continuity go away when one of the above components is disconnected?

    YES—Replace the part that caused an open when it was disconnected. ■

    NO—Repair short in the wire between the DLC (K-line) and the VSA modulator-control unit, the immobilizer-keyless control unit, the audio unit, the SH-AWD control unit, the active damper control unit, or the TPMS control unit. ■

BACK

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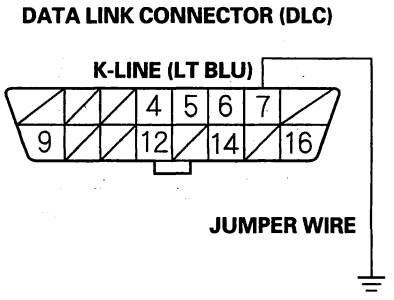
19. Connect DLC terminal No. 7 to body ground with a jumper wire.



Terminal side of female terminals

20. Check for continuity between body ground and these connector terminals:

Connector	Terminal
SRS unit A (28P)	No. 24 (LT BLU)
VSA modulator-control unit 46P	No. 15 (LT BLU)
Immobilizer-keyless control unit 7P	No. 5 (LT BLU)
Audio unit 17P	No. 6 (LT BLU)
SH-AWD control unit 20P	No. 5 (LT BLU)
Active damper control unit 14P	No. 3 (LT BLU)
TPMS control unit 20P	No. 7 (LT BLU)
MICU 30P	No. 6 (LT BLU)

Is there continuity between the DLC terminal and each of the terminals in the chart?

YES—Replace the unit that does not communicate with the HDS. ■

NO—Repair open in the wire between the DLC (K-line) and the appropriate connector. ■

21. Do the gauge self-diagnostic function (see page 22-315) to make sure the gauge is known-good. If the function test is OK, go to step 22.

22. Check for B-CAN system DTCs without the HDS (see page 22-81).

Is DTC B1168, B1169, and/or B1178 indicated?

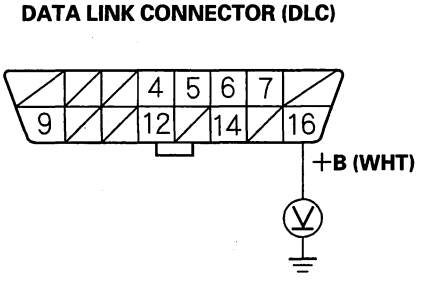
YES—Go to step 35.

NO—Go to step 23.

23. Turn the ignition switch OFF.

24. Disconnect the HDS from the DLC.

25. Measure voltage between DLC terminal No. 16 and body ground.



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 26.

NO—Repair open in the wire between DLC terminal No. 16 and the No. 7 BACK UP (10 A) fuse in the under-dash fuse/relay box. ■

(cont'd)

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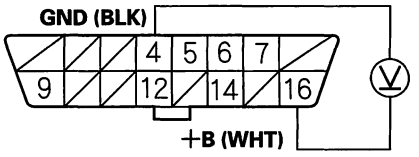
DLC Circuit Troubleshooting (cont'd)

26. Measure voltage between DLC terminals No. 4 and No. 16.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

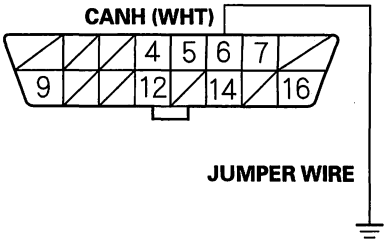
Is there battery voltage?

YES—Go to step 27.

NO—Repair open in the wire between DLC terminal No. 4 and G503.■

27. Connect the HDS to the DLC (see page 11-3).
28. Jump the SCS line with the HDS.
29. Disconnect PCM connector A (49P).
30. Disconnect the HDS from the DLC.
31. Connect DLC terminal No. 6 to body ground with a jumper wire.

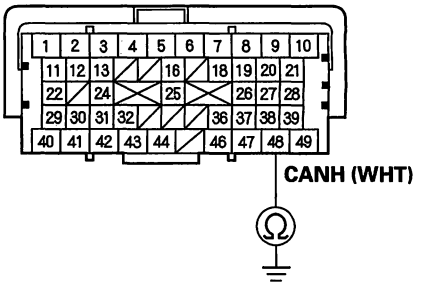
DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

32. Check for continuity between PCM connector terminal A48 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

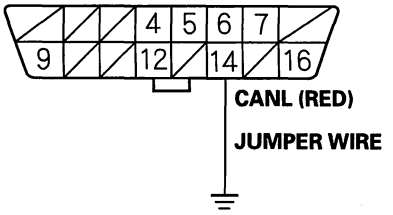
Is there continuity?

YES—Go to step 33.

NO—Repair open in the wire between the PCM (A48) and DLC terminal No. 6.■

33. Connect DLC terminal No. 14 to body ground with a jumper wire.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

BACK

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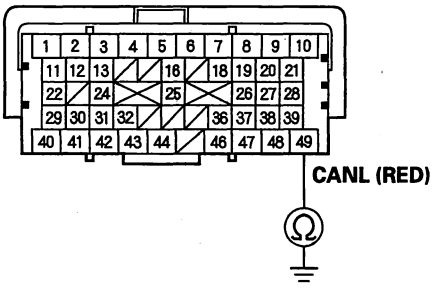
34. Check for continuity between PCM connector terminal A49 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244).■

NO—Repair open in the wire between the PCM (A49) and DLC terminal No. 14.■

35. Try to start the engine.

Does the engine start and idle smoothly?

YES—Go to F-CAN circuit troubleshooting (see page 11-208).■

NO—Go to step 36.

36. Turn the ignition switch OFF.

37. Check the No. 3 IG1 MAIN (50 A) fuse in the main under-hood fuse box.

Is the fuse OK?

YES—Repair open in the wire between the No. 3 IG1 MAIN (50 A) fuse and the ignition switch. If the wire is OK, go to step 38.

NO—Repair short in the wire between the No. 3 IG1 MAIN (50 A) fuse and the main under-hood fuse box. Also replace the No. 3 IG1 MAIN (50 A) fuse.■

(cont'd)

Protected by AR

DLC Circuit Troubleshooting (cont'd)

38. Inspect the No. 8 IGP (15 A) fuse in the under-hood fuse/relay box.

    Is the fuse OK?

    YES—Go to step 44.

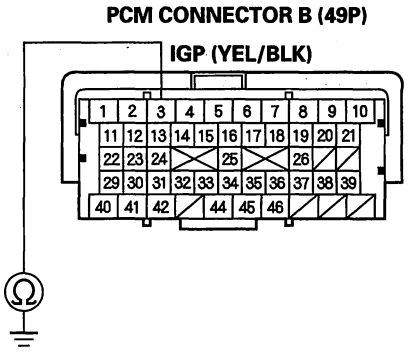
    NO—Go to step 39.

39. Remove the blown No. 8 IGP (15 A) fuse from the under-hood fuse/relay box.

40. Jump the SCS line with the HDS.

41. Disconnect PCM connector B (49P).

42. Check for continuity between PCM connector terminal B3 and body ground.



Terminal side of female terminals

Is there continuity?

YES—Go to step 43.

NO—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244). Also replace the No. 8 IGP (15 A) fuse in the under-hood fuse/relay box. ■

43. Disconnect each of the components or connectors below, one at a time, and check for continuity between PCM connector terminal B3 and body ground.

    - PGM-FI main relay 2
    - Each injector 2P connector
    - Camshaft position (CMP) sensor 3P connector
    - Crankshaft position (CKP) sensor 6P connector
    - Under-hood fuse/relay box 9P connector

    Does continuity go away when one of the above components is disconnected?

    YES—Replace the component that made the short to body ground go away when disconnected. If the item is the PCM, update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244). Also replace the No. 8 IGP (15 A) fuse. ■

    NO—Repair short in the wire between the PCM (B3) and the PGM-FI mainrelay 2, the injector, the CKP sensor, or the under-hood huse/relay box. Also replace the No, 8 IGP (15 A) fuse in the under-hood fuse/relay box. ■

BACK

Protected by AR

44. Inspect the No. 19 FUEL PUMP (20 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES—Go to step 51.

NO—Go to step 45.

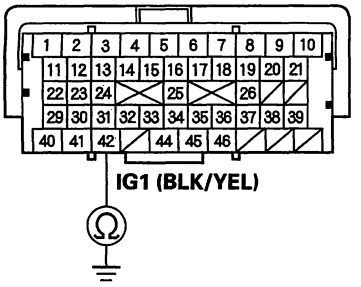
45. Remove the blown No. 19 FUEL PUMP (20 A) fuse in the under-dash fuse/relay box.

46. Jump the SCS line with the HDS.

47. Disconnect PCM connector B (49P).

48. Check for continuity between PCM connector terminal B42 and body ground.

PCM CONNECTOR B (49P)



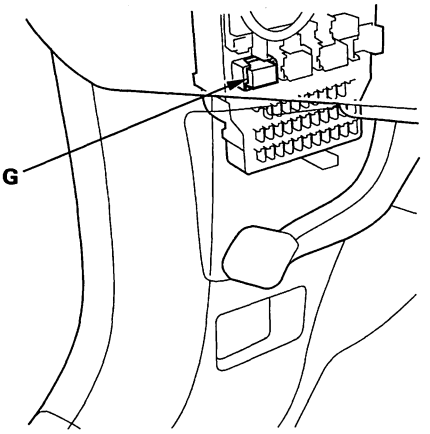
Terminal side of female terminals

Is there continuity?

YES—Go to step 49.

NO—Replace the No. 19 FUEL PUMP (20 A) fuse in the under-hood fuse/relay box, and update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244).■

49. Remove PGM-FI main relay 2 (G) from the under-dash fuse/relay box.



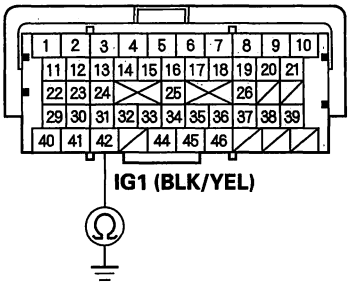
(cont'd)

Protected by AR

DLC Circuit Troubleshooting (cont'd)

50. Check for continuity between PCM connector terminal B42 and body ground.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the No. 19 FUEL PUMP (20 A) fuse and the PCM (B42), between the No. 19 FUEL PUMP (20 A) fuse and PGM-FI main relay 2, or between the No. 19 FUEL PUMP (20 A) fuse and the immobilizer control unit. Also replace the No. 19 FUEL PUMP (20 A) fuse in the under-dash fuse/relay box. ■

NO—Go to step 51.

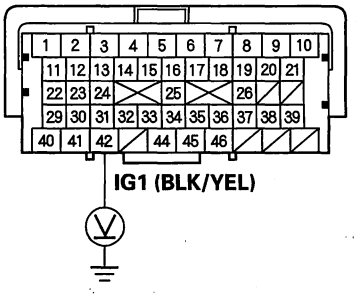
51. Jump the SCS line with the HDS.

52. Disconnect PCM connectors A (49P) and B (49P).

53. Turn the ignition switch ON (II).

54. Measure voltage between PCM connector terminal B42 and body ground.

PCM CONNECTOR B (49P)



Terminal side of female terminals

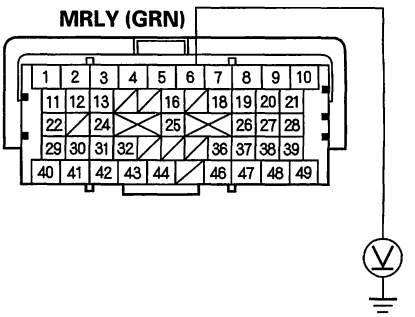
Is there battery voltage?

YES—Go to step 55.

NO—Repair open in the wire between the No. 19 FUEL PUMP (20 A) fuse and the PCM (B42). ■

55. Measure voltage between PCM connector terminal A6 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 59.

NO—Go to step 56.

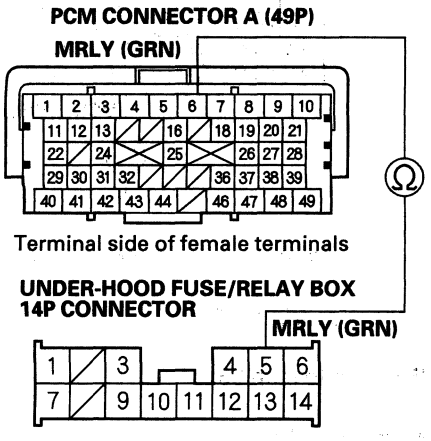
56. Turn the ignition switch OFF.

BACK

Protected by AR

57. Disconnect the under-hood fuse/relay box 14P connector.

58. Check for continuity between PCM connector terminal A6 and under-hood fuse/relay box 14P connector terminal No. 5.



Is there continuity?

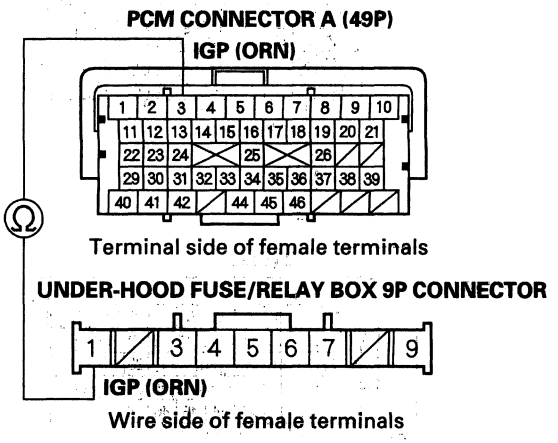
YES—
- Replace the under-hood fuse/relay box.
- Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244).

NO—Repair open in the wire between the PCM (A6) and the under-hood fuse/relay box.■

59. Turn the ignition switch OFF.

60. Disconnect the under-hood fuse/relay box 9P connector.

61. Check for continuity between PCM connector terminal B3 and under-hood fuse/relay box 9P connector terminal No. 1.



Is there continuity?

YES—Go to step 62.

NO—Repair open in the wire between the PCM (B3) and the under-hood fuse/relay box.■

62. Test PGM-FI main relay 1 in the under-hood fuse/relay box (see page 22-77).

Is PGM-FI main relay 1 OK?

YES—Go to step 63.

NO—Replace the relay control module (under-hood fuse/relay box) (see page 22-71).■

(cont'd)

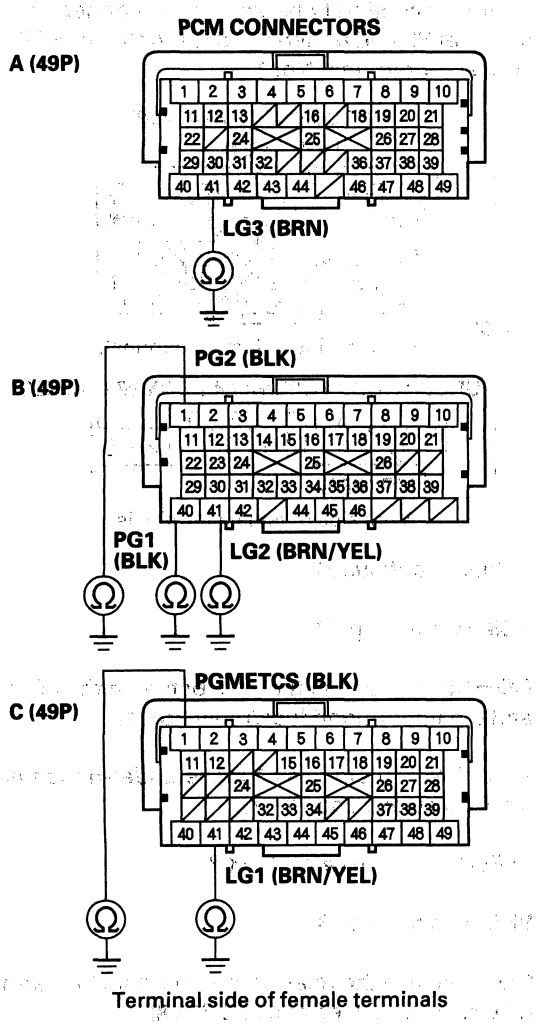
BACK

Protected by AR

DLC Circuit Troubleshooting (cont'd)

63. Disconnect PCM connector C (49P).

64. Check for continuity between body ground and PCM connector terminals A41, B1, B40, B41, C1, and C41 individually.



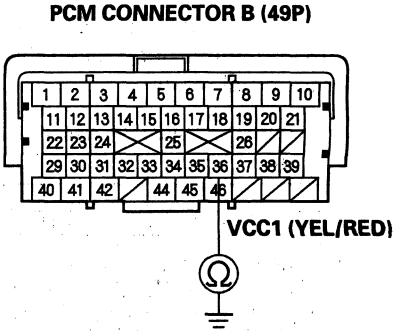
Terminal side of female terminals

Is there continuity?

YES—Go to step 65.

NO—Repair open in the wire between the PCM (A41, B1, B40, B41, C1, C41) and G101.■

65. Check for continuity between PCM connector terminal B36 and body ground.



Terminal side of female terminals

Is there continuity?

YES—Go to step 66.

NO—Go to step 67.

66. Continue to check for continuity between PCM connector terminal B36 and body ground, while disconnecting these parts, one at a time:

- MAP sensor 3P connector
- Output shaft (countershaft) speed sensor 3P connector

Does continuity go away when one of the above components is disconnected?

YES—Replace the part that caused an open when it was disconnected.■

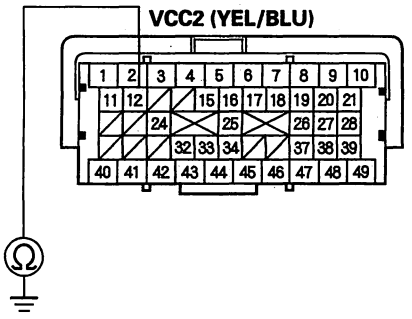
NO—Repair short in the wire between the PCM (B36) and the MAP sensor, the output shaft (countershaft) speed sensor.■

BACK

Protected by AR

67. Check for continuity between PCM connector terminal C12 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 68.

NO—Go to step 69.

68. Continue to check for continuity between PCM connector terminal C12 and body ground, while disconnecting these parts, one at a time:

- EGR valve 6P connector
- Input shaft (mainshaft) speed sensor 3P connector

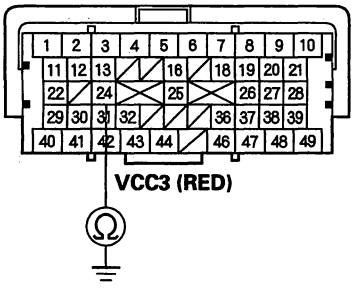
Does continuity go away when one of the above components is disconnected?

YES—Replace the part that caused an open when it was disconnected. ■

NO—Repair short in the wire between the PCM (C12) and the EGR valve or the input shaft (mainshaft) speed sensor. ■

69. Check for continuity between PCM connector terminal A24 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 70.

NO—Go to step 71.

70. Continue to check for continuity between PCM connector terminal A24 and body ground, while disconnecting the APP sensor 6P connector.

Is there continuity?

YES—Repair short in the wire between the PCM (A24) and APP sensor A. ■

NO—Replace the accelerator pedal module (see page 11-286). ■

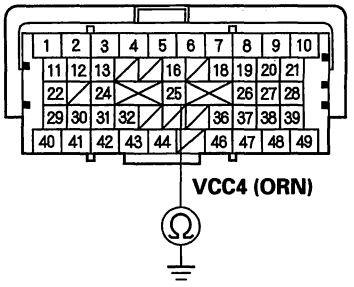
(cont'd)

Protected by AR

DLC Circuit Troubleshooting (cont'd)

71. Check for continuity between PCM connector terminal A25 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 72.

NO—Go to step 73.

72. Continue to check for continuity between PCM connector terminal A25 and body ground, while disconnecting these connectors one at a time.

- APP sensor 6P connector
- FTP sensor 3P connector

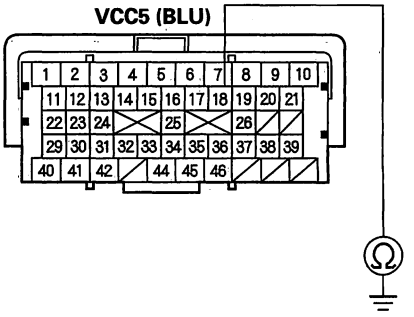
Does continuity go away when one of the above components is disconnected?

YES—Replace the part that caused an open when it was disconnected. ■

NO—Repair short in the wire between the PCM (A25) and the APP sensor B or the FTP sensor. ■

73. Check for continuity between PCM connector terminal B18 and body ground.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 74.

NO—Go to step 75.

74. Continue to check for continuity between PCM connector terminal B18 and body ground, while disconnecting the throttle body 6P connector.

Is there continuity?

YES—Repair short in the wire between the PCM (B18) and the throttle body. ■

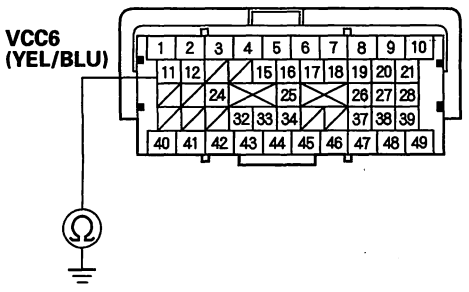
NO—Replace the throttle body (see page 11-366). ■

BACK

Protected by AR

75. Check for continuity between PCM connector terminal C11 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 76.

NO—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244). ■

76. Continue to check for continuity between PCM connector terminal C11 and body ground, while disconnecting the IMT actuator.

Is there continuity?

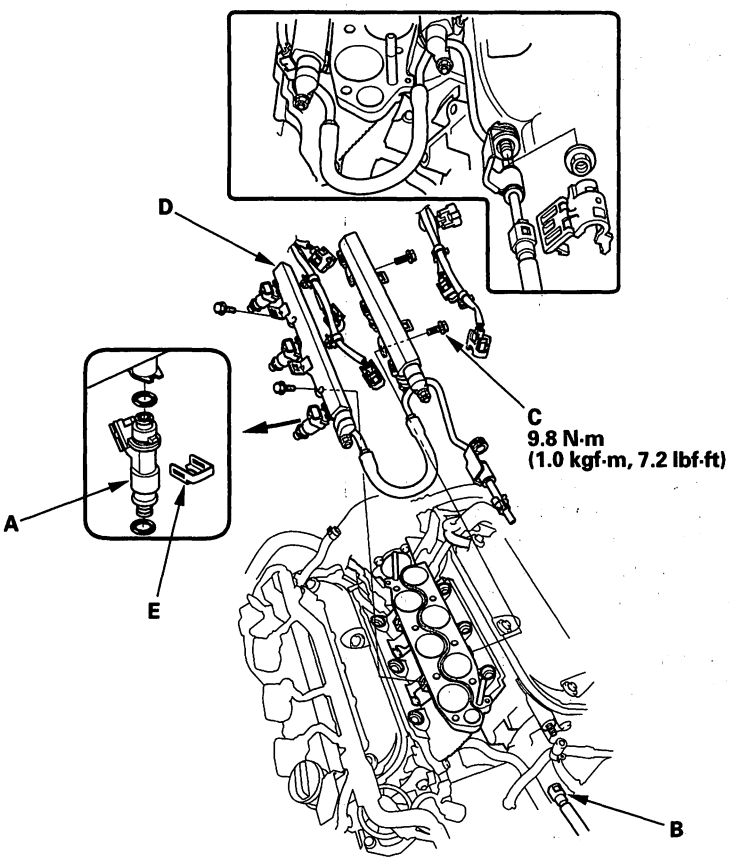
YES—Repair short in the wire between the PCM (C11) and the IMT actuator. ■

NO—Replace the IMT actuator (see page 11-365). ■

Protected by AR

Injector Replacement

1. Relieve fuel pressure (see page 11-333).
2. Remove the intake manifold (see page 9-3).
3. Disconnect the connectors from the injectors (A).

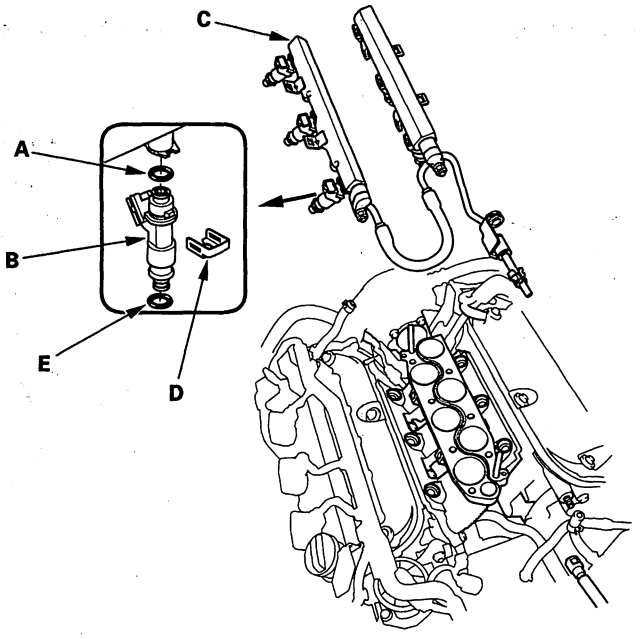


4. Disconnect the quick-connect fitting (B).
5. Remove the fuel rail mounting bolts (C) from the fuel rail (D).
6. Remove the injector clip (E) from the fuel rail.
7. Remove the injectors from the rails.

BACK

Protected by AR

8. Coat the new O-ring (A) with clean engine oil, and insert the injectors (B) into the fuel rail (C).

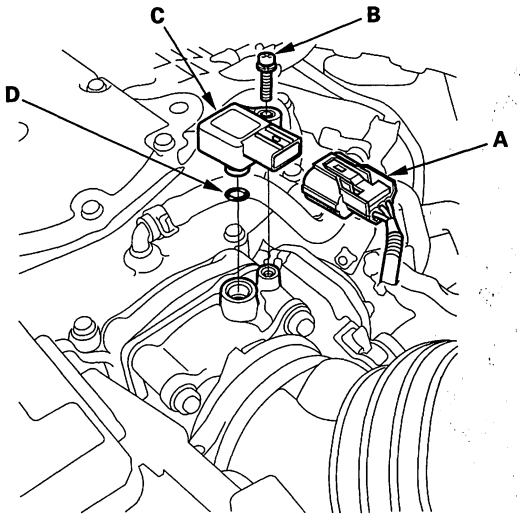


9. Install the injector clip (D).
10. Coat the new injector O-ring (E) with clean engine oil.
11. Install the injectors in the injector base.
12. Install the fuel rail mounting bolts.
13. Install the connectors on the injectors.
14. Connect the quick-connect fitting (see page 11-340).
15. Turn the ignition switch ON (II), but do not operate the starter. After the fuel pump runs for about 2 seconds, the fuel pressure in the fuel line rises. Repeat this two or three times, then check for fuel leakage.
16. Install the intake manifold.

Protected by AR

MAP Sensor Replacement

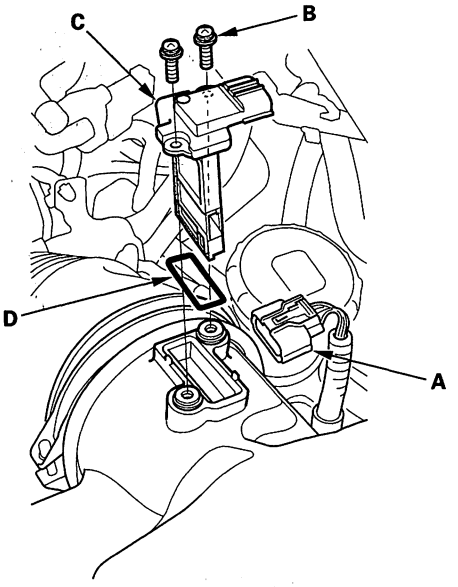
1. Remove the engine cover (see step 1 on page 9-3).
2. Disconnect the MAP sensor connector (A).



3. Remove the screw (B).
4. Remove the MAP sensor (C).
5. Install the parts in the reverse order of removal with a new O-ring (D).

MAF Sensor/IAT Sensor Replacement

1. Disconnect the MAF sensor/IAT senor 5P connector (A).



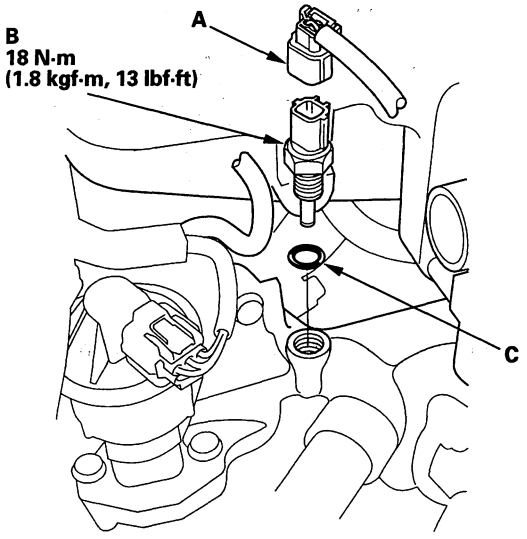
2. Remove the screw (B).
3. Remove the MAF sensor/IAT senor (C).
4. Install the parts in the reverse order of removal with a new O-ring (D).

BACK

Protected by AR

ECT Sensor 1 Replacement

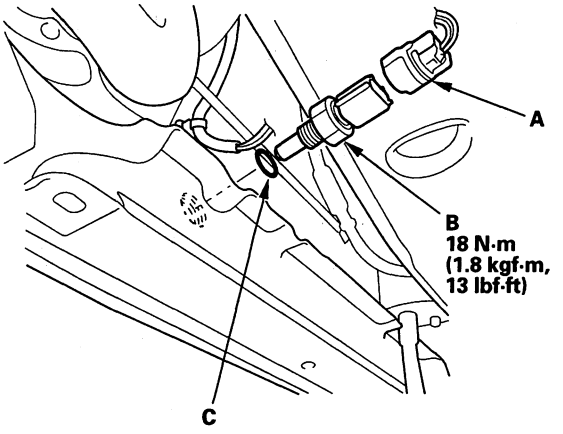
1. Drain the engine coolant (see page 10-6).
2. Remove the engine cover (see step 1 on page 9-3).
3. Remove the main under-hood fuse/relay box.
4. Disconnect the ECT sensor 1 2P connector (A).



5. Remove ECT sensor 1 (B).
6. Install the parts in the reverse order of removal with a new O-ring (C), then refill the radiator with engine coolant (see page 10-6).

ECT Sensor 2 Replacement

1. Drain the engine coolant (see page 10-6).
2. Remove the splash shield.
3. Disconnect the ECT sensor 2 2P connector (A).



4. Remove ECT sensor 2 (B).
5. Install the parts in the reverse order of removal with a new O-ring (C), then refill the radiator with engine coolant (see page 10-6).

BACK

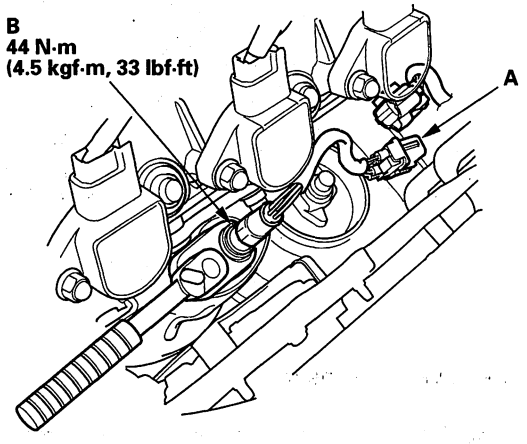
Protected by AR

A/F Sensor Replacement

Special Tools Required
O2 sensor socket wrench, Snap-on YA8875, SP Tools 93750, or equivalent, commercially available

Front Bank (Bank 2)

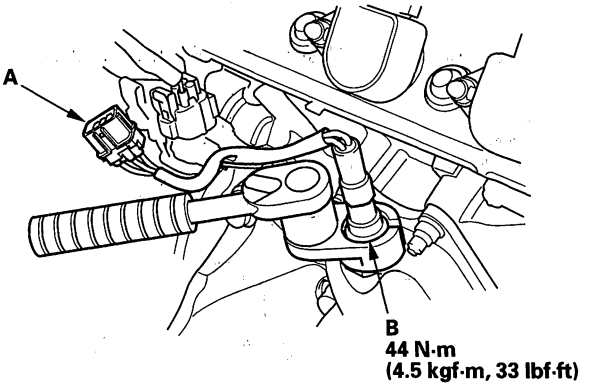
1. Disconnect the front A/F sensor 6P connector (A), then remove the A/F sensor (B).



2. Install the parts in the reverse order of removal.

Rear Bank (Bank 1)

1. Disconnect the rear A/F sensor 6P connector (A), then remove the rear A/F sensor (B).



2. Install the parts in the reverse order of removal.

BACK

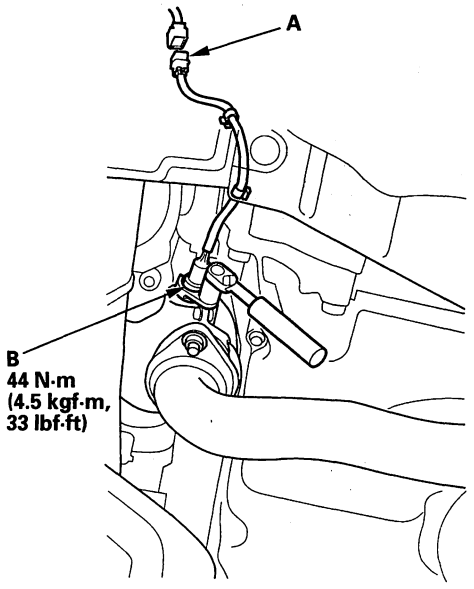
Protected by AR

Secondary HO2S Replacement

Special Tools Required
O2 sensor socket wrench, Snap-on YA8875, SP Tools 93750, or equivalent, commercially available

Front Bank (Bank 2)

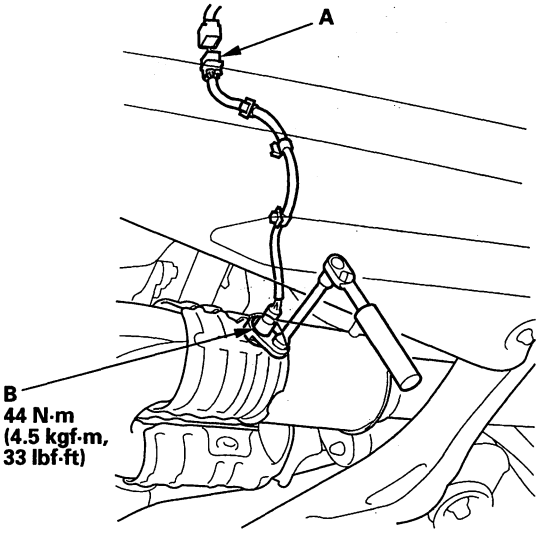
1. Disconnect the front secondary HO2S 4P connector (A), then remove the front secondary HO2S (B).



2. Install the parts in the reverse order of removal.

Rear Bank (Bank 1)

1. Disconnect the rear secondary HO2S 4P connector (A), then remove the rear secondary HO2S (B).

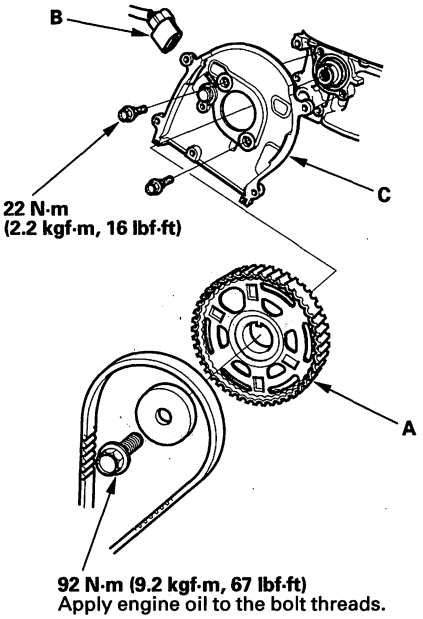


2. Install the parts in the reverse order of removal.

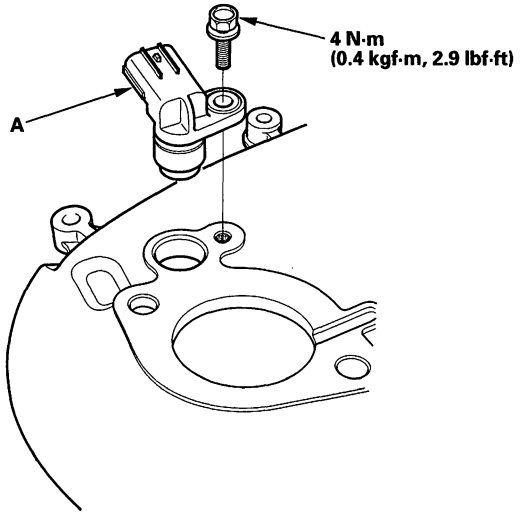
Protected by AR

CMP Sensor Replacement

1. Remove the timing belt (see page 6-13).
2. Remove the front camshaft pulley (CMP sensor pulse plate) (A).



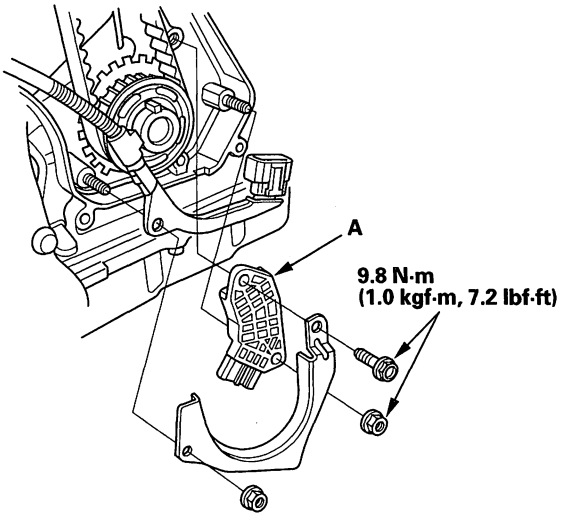
3. Disconnect the CMP sensor connector (B), then remove the back cover (C).
4. Remove the CMP sensor (A) from the back cover.



5. Install the parts in the reverse order of removal. Install the timing belt (see page 6-16).
6. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-4).

CKP Sensor Replacement

1. Move the auto-tensioner to remove tension from the drive belt, then remove the belt (see page 4-33).
2. Remove the crankshaft pulley (see page 6-11).
3. Remove the upper and lower front covers from the engine (see page 6-13).
4. Remove the CKP sensor (A) from the oil pump.



5. Install the parts in the reverse order of removal.
6. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-4).

BACK

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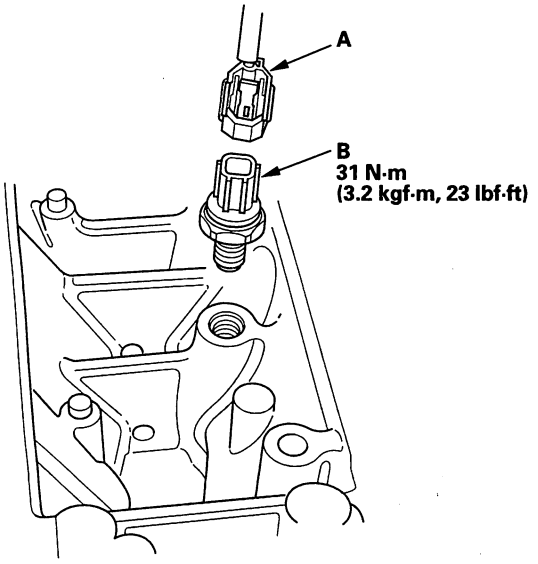
Knock Sensor Replacement

1. Remove the intake manifold (see page 9-3).
2. Remove the injector rails and the injector base (see page 9-7).
3. Disconnect the knock sensor 1P connector (A), then remove the knock sensor (B).



4. Install the parts in the reverse order of removal.

BACK

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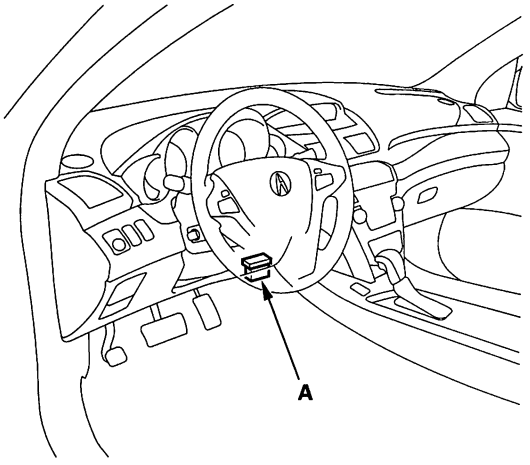
PCM Replacement

NOTE:
- Make sure the HDS is loaded with the latest software version.
- If you are replacing the PCM after substituting a known-good PCM, reinstall the original PCM, then do this procedure.
- USA, Canada models: During the procedure, is any READ DATA, WRITE DATA, or other data checks fail, note the failure, then continue.

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch ON (II).

3. Make sure the HDS communicates with the PCM and other vehicle systems. If it does not, go to the DLC circuit troubleshooting (see page 11-223). If you are returning from DLC circuit troubleshooting, skip steps 4 through 9, 18 through 23, and 26 through 28, and do the following procedures after replacing the PCM;

   - USA, Canada models: Replace the engine oil (see page 8-6) and the engine oil filter (see page 8-7).
   - USA, Canada models: Replace the ATF (see page 14-266).
   - USA, Canada models: Clean the throttle body (see page 11-363).

4. USA, Canada models: Select the PGM-FI system with the HDS.

5. USA, Canada models: Select the INSPECTION MENU with the HDS.

6. USA, Canada models: Select the ETCS TEST, then select the TP POSITION CHECK, and follow the screen prompts.

   NOTE: USA, Canada models: If the TP POSITION CHECK indicates FAILED, continue with this procedure.

7. USA, Canada models: Select the REPLACE PCM MENU, then select READ DATA and follow the screen prompts.

   NOTE:
   - USA, Canada models: Doing this step copies (READS) the engine oil life data from the original PCM so you can later download (WRITES) it into the new PCM.
   - USA, Canada models: If READ DATA indicates FAILED, continue with this procedure.

8. USA, Canada models: Select the A/T system with the HDS.

9. USA, Canada models: Select the REPLACE TCM/PCM MENU, then select READ DATA and follow the screen prompts.

   NOTE:
   - USA, Canada models: Doing this step copies (READS) the ATF life data from the original PCM so you can later download (WRITES) it into the new PCM.
   - USA, Canada models: If READ DATA indicates FAILED, continue with this procedure.

10. Turn the ignition switch OFF.

11. Jump the SCS line with the HDS.

BACK

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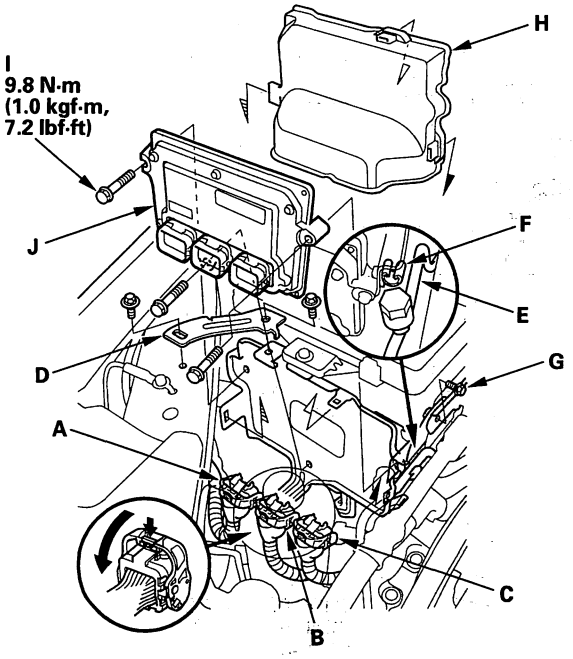
12. Remove the bracket (D), then free the A/C discharge line (E) from the clip (F) and remove the A/C suction line mounting bracket bolt (G).



13. Remove the cover (H), then disconnect the PCM connectors A, B, and C.

    NOTE: PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embossed on them for identification.

14. Remove the bolts (I), then remove the PCM (J).

15. Install the parts in the reverse order of removal.

16. Turn the ignition switch ON (II).

17. USA, Canada models: Manually input the VIN to the PCM with the HDS.

    NOTE: USA, Canada models: DTC P0630 "VIN Not Programmed or Mismatch" may be stored because the VIN has not been programmed into the PCM; ignore it, and continue this procedure.

18. USA, Canada models: If the READ DATA (engine oil life) failed in step 7, go to step 21. Otherwise, go to step 19.

19. USA, Canada models: Select the PGM-FI system with the HDS.

20. USA, Canada models: Select the REPLACE PCM MENU, then select WRITE DATA and follow the screen prompts.

    NOTE: USA, Canada models: If the WRITE DATA indicates FAILED, continue with this procedure.

21. USA, Canada models: If the READ DATA (ATF life) failed in step 9, go to step 24. Otherwise go to step 22.

22. USA, Canada models: Select the A/T SYSTEM with the HDS.

23. USA, Canada models: Select the REPLACE TCM/ PCM MENU, then select WRITE DATA and follow the screen prompts.

    NOTE: USA, Canada models: If the WRITE DATA indicates FAILED, continue with this procedure.

24. Select IMMOBI system with the HDS.

25. Enter the immobilizer code with the PCM replacement procedure in the HDS; it allows you to start the engine.

26. USA, Canada models: If the TP POSITION CHECK failed in step 6 clean the throttle body (see page 11-363), then go to step 27.

27. USA, Canada models: If the READ DATA failed in step 7 or the WRITE DATA failed in step 20, replace the engine oil (see page 8-6) and engine oil filter (see page 8-7), then go to step 28.

28. USA, Canada models: If the READ DATA failed in step 9 or the WRITE DATA failed in step 25, replace the ATF (see page 14-266), then go to step 29.

29. Select PGM-FI system and reset the PCM with the HDS.

30. Update the PCM if it does not have the latest software (see page 11-7).

31. Do the PCM idle learn procedure (see page 11-311).

32. Do the CKP pattern learn procedure (see page 11-4).

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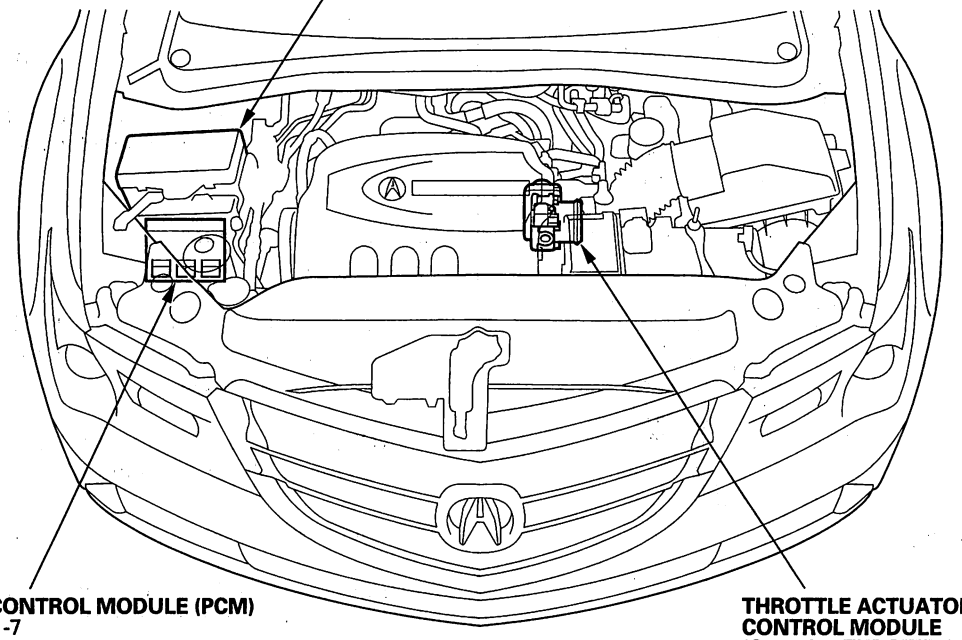
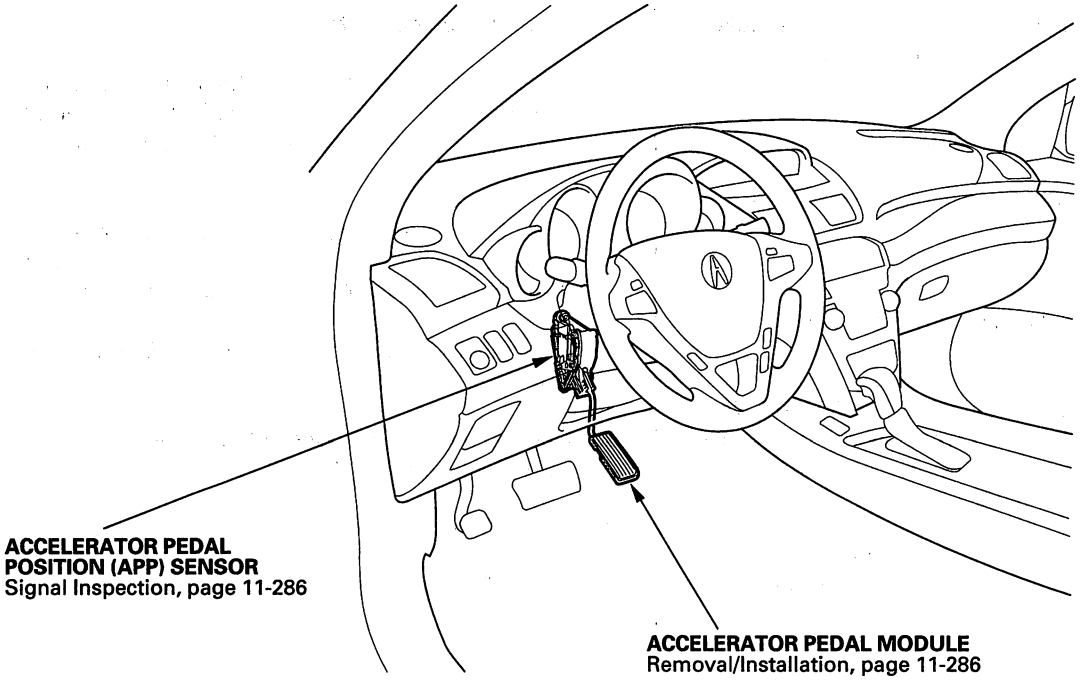
Electronic Throttle Control System

Component Location Index





BACK

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DTC P0122: TP Sensor A Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR A in the DATA LIST with the HDS.

   Is there about 0.3 V or less?

   YES—Go to step 4.

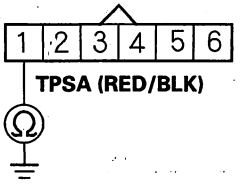
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the PCM. ■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0122 and P0222 indicated at the same time?

   YES—Go to step 10.

   NO—Go to step 5.
5. Turn the ignition switch OFF.
6. Disconnect the throttle body 6P connector.
7. Jump the SCS line with the HDS.
8. Disconnect PCM connector B (49P).
9. Check for continuity between throttle body 6P connector terminal No. 1 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

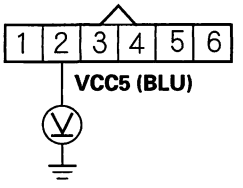
Is there continuity?

YES—Repair short in the wire between the throttle body and the PCM (B17), then go to step 18.

NO—Go to step 23.

10. Disconnect the throttle body 6P connector.
11. Measure voltage between throttle body 6P connector terminal No. 2 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 16.

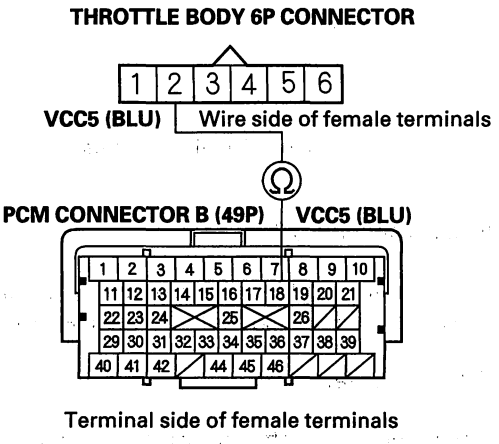
NO—Go to step 12.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector B (49P).
15. Check for continuity between PCM connector terminal B18 and throttle body 6P connector terminal No. 2.



Is there continuity?

YES—Go to step 23.

NO—Repair open in the wire between the throttle body and the PCM (B19), then go to step 18.

16. Turn the ignition switch OFF.
17. Replace the throttle body (see page 11-366).
18. Reconnect all connectors.
19. Turn the ignition switch ON (II).
20. Reset the PCM with the HDS.
21. Do the PCM idle learn procedure (see page 11-311).
22. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0122 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
23. Reconnect all connectors.
24. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
25. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0122 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P0123: TP Sensor A Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR A in the DATA LIST with the HDS.

   Is there about 4.8 V or more?

   YES—Go to step 4.

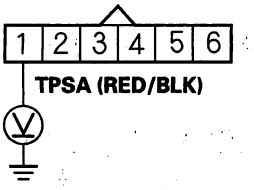
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the PCM. ■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0123 and P0223 indicated at the same time?

   YES—Go to step 13.

   NO—Go to step 5.
5. Turn the ignition switch OFF.
6. Disconnect the throttle body 6P connector.
7. Turn the ignition switch ON (II).
8. Measure voltage between throttle body 6P connector terminal No. 1 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 18.

NO—Go to step 9.

9. Turn the ignition switch OFF.
10. Jump the SCS line with the HDS.
11. Disconnect PCM connector B (49P).

(cont'd)

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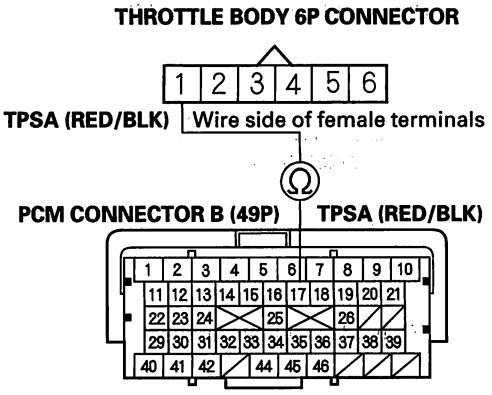
DTC Troubleshooting (cont'd)

12. Check for continuity between PCM connector terminal B17 and throttle body 6P connector terminal No. 1.

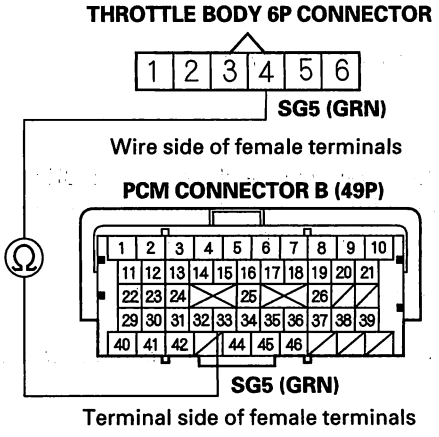


Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the throttle body and the PCM (B17), then go to step 20.

13. Turn the ignition switch OFF.
14. Disconnect the throttle body 6P connector.
15. Jump the SCS line with the HDS.
16. Disconnect PCM connector B (49P).
17. Check for continuity between PCM connector terminal B33 and throttle body 6P connector terminal No. 4.



Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the throttle body and the PCM (B33), then go to step 20.

BACK

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18. Turn the ignition switch OFF.
19. Replace the throttle body (see page 11-366).
20. Reconnect all connectors.
21. Turn the ignition switch ON (II).
22. Reset the PCM with the HDS.
23. Do the PCM idle learn procedure (see page 11-311).
24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0123 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
25. Reconnect all connectors.
26. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
27. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0123 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P0222: TP Sensor B Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR B in the DATA LIST with the HDS.

   Is there about 0.3 V or less?

   YES—Go to step 4.

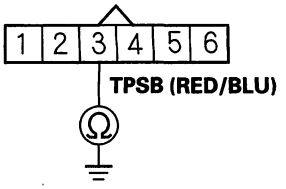
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the PCM.■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0122 and P0222 indicated at the same time?

   YES—Go to step 10.

   NO—Go to step 5.
5. Turn the ignition switch OFF.
6. Disconnect the throttle body 6P connector.
7. Jump the SCS line with the HDS.
8. Disconnect PCM connector B (49P).
9. Check for continuity between throttle body 6P connector terminal No. 3 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

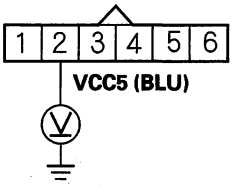
Is there continuity?

YES—Repair short in the wire between the throttle body and the PCM (B26), then go to step 18.

NO—Go to step 23.

10. Measure voltage between throttle body 6P connector terminal No. 2 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 16.

NO—Go to step 11.

BACK

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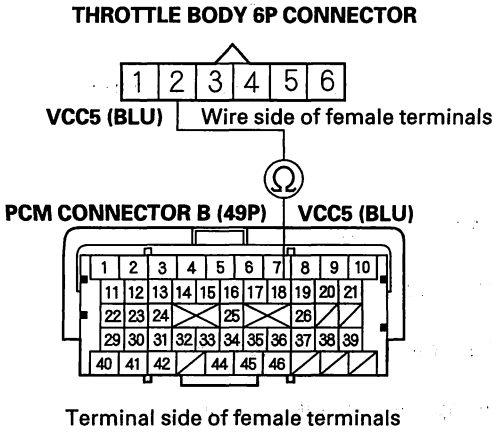
11. Turn the ignition switch OFF.
12. Jump the SCS line with the HDS.
13. Disconnect PCM connector B (49P).
14. Disconnect the throttle body 6P connector.
15. Check for continuity between PCM connector terminal B18 and throttle body 6P connector terminal No. 2.



Terminal side of female terminals

Is there continuity?

YES—Go to step 23.

NO—Repair open in the wire between the throttle body and the PCM (B18), then go to step 18.

16. Turn the ignition switch OFF.
17. Replace the throttle body (see page 11-366).
18. Reconnect all connectors.
19. Turn the ignition switch ON (II).
20. Reset the PCM with the HDS.
21. Do the PCM idle learn procedure (see page 11-311).
22. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0222 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
23. Reconnect all connectors.
24. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
25. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0222 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P0223: TP Sensor B Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR B in the DATA LIST with the HDS.

   Is there about 4.8 V or more?

   YES—Go to step 4.

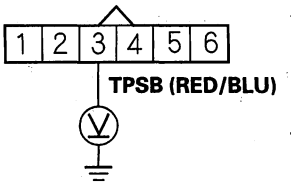
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the PCM. ■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0123 and P0223 indicated at the same time?

   YES—Go to step 13.

   NO—Go to step 5.
5. Turn the ignition switch OFF.
6. Disconnect the throttle body 6P connector.
7. Turn the ignition switch ON (II).
8. Measure voltage between throttle body 6P connector terminal No. 3 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 18.

NO—Go to step 9.

9. Turn the ignition switch OFF.
10. Jump the SCS line with the HDS.
11. Disconnect PCM connector B (49P).

BACK

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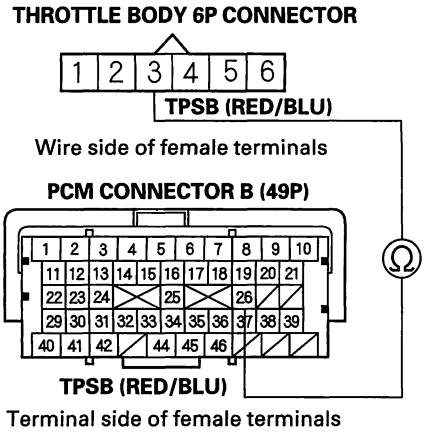
12. Check for continuity between PCM connector terminal B26 and throttle body 6P connector terminal No. 3.



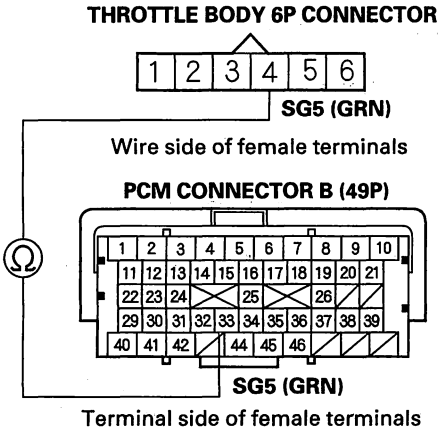
Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the throttle body and the PCM (B26), then go to step 20.

13. Turn the ignition switch OFF.
14. Disconnect the throttle body 6P connector.
15. Jump the SCS line with the HDS.
16. Disconnect PCM connector B (49P).

17. Check for continuity between PCM connector terminal B33 and throttle body 6P connector terminal No. 4.



Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the throttle body and the PCM (B33), then go to step 20.

(cont'd)

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DTC Troubleshooting (cont'd)

18. Turn the ignition switch OFF.
19. Replace the throttle body (see page 11-366).
20. Reconnect all connectors.
21. Turn the ignition switch ON (II).
22. Reset the PCM with the HDS.
23. Do the PCM idle learn procedure (see page 11-311).
24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0223 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
25. Reconnect all connectors.
26. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
27. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0223 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P1658: ETCS Control Relay ON Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Do the ETCS TEST in the INSPECTION MENU with the HDS.

   Is the RELAY circuit OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the under-hood fuse/relay box (ETCS control relay) and the PCM. ■

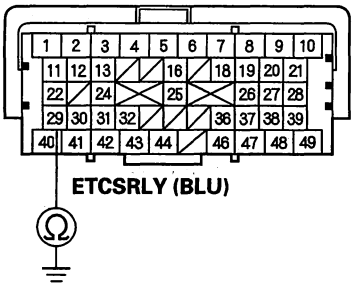
   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Test the ETCS control relay in the under-hood fuse/relay box (see page 22-77).

   ETCS control relay OK?

   YES—Go to step 5.

   NO—Replace the relay control module (under-hood fuse/relay box) (see page 22-71), then go to step 14.
5. Jump the SCS line with the HDS.
6. Disconnect PCM connector A (49P).
7. Disconnect the under-hood fuse/relay box 14P connector.
8. Check for continuity between PCM connector terminal A29 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (A29) and the under-hood fuse/relay box (ETCS control relay), then go to step 14.

NO—Go to step 9.

(cont'd)

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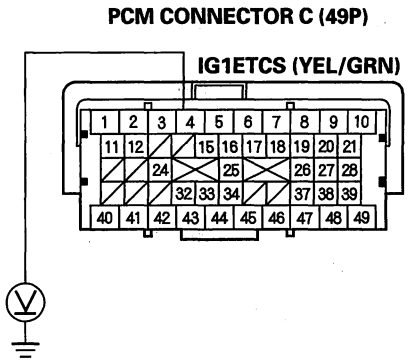
DTC Troubleshooting (cont'd)

9. Disconnect PCM connector C (49P).
10. Disconnect the under-hood fuse/relay box 9P connector.
11. Turn the ignition switch ON (II).
12. Measure voltage between PCM connector terminal C4 and body ground.



Terminal side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the PCM (C4) and the under-hood fuse/relay box (ETCS control relay), then go to step 13.

NO—Go to step 19.

13. Turn the ignition switch OFF.
14. Reconnect all connectors.
15. Turn the ignition switch ON (II).
16. Reset the PCM with the HDS.
17. Do the PCM idle learn procedure (see page 11-311).
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1658 indicated?

    YES—Check for poor connections or loose terminals at the under-hood fuse/relay box (ETCS control relay) and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
19. Turn the ignition switch OFF.
20. Reconnect all connectors.
21. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
22. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1658 indicated?

    YES—Check for poor connections or loose terminals at the under-hood fuse/relay box (ETCS control relay) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P1659: ETCS Control Relay OFF Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1659 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the under-hood fuse/relay box (ETCS control relay) and the PCM. ■
4. Turn the ignition switch OFF.
5. Check the No. 10 THROTTLE ACTUATOR CONTROL (DBW+) (15 A) fuse in the under-hood fuse/relay box.

   Is the fuse OK?

   YES—Go to step 6.

   NO—Go to step 14.
6. Test the ETCS control relay in the under-hood fuse/relay box (see page 22-77).

   Is the ETCS control relay OK?

   YES—Go to step 7.

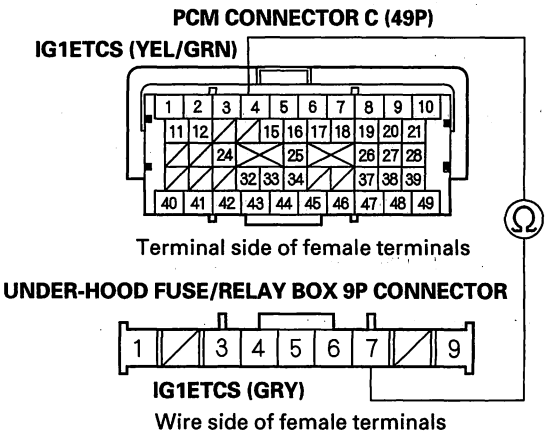
   NO—Replace the relay control module (under-hood fuse/relay box) (see page 22-71), then go to step 21.
7. Jump the SCS line with the HDS.
8. Disconnect PCM connector C (49P).
9. Disconnect the under-hood fuse/relay box 9P connector.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

10. Check for continuity between under-hood fuse/relay box 9P connector terminal No. 7 and PCM connector terminal C4.



Is there continuity?

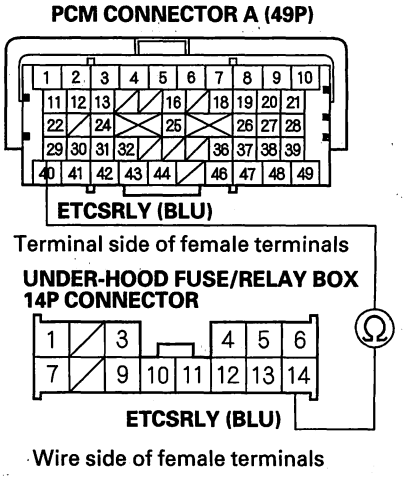
YES—Go to step 11.

NO—Repair open in the wire between the PCM (C4) and the under-hood fuse/relay box, then go to step 21.

11. Disconnect PCM connector A (49P).

12. Disconnect under-hood fuse/relay box 14P connector.

13. Check for continuity between under-hood fuse/relay box 14P connector terminal No. 14 and PCM connector terminal A29.



Is there continuity?

YES—Go to step 27.

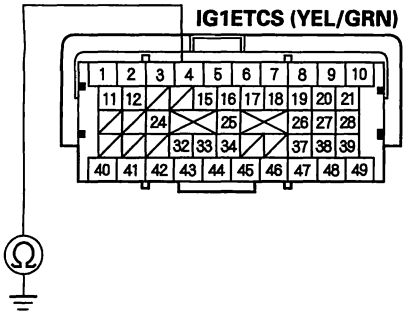
NO—Repair open in the wire between the PCM (A29) and the under-hood fuse/relay box, then go to step 21.

BACK

Protected by AR

14. Jump the SCS line with the HDS.
15. Disconnect PCM connector C (49P).
16. Disconnect the under-hood fuse/relay box 9P connector.
17. Check for continuity between PCM connector terminal C4 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

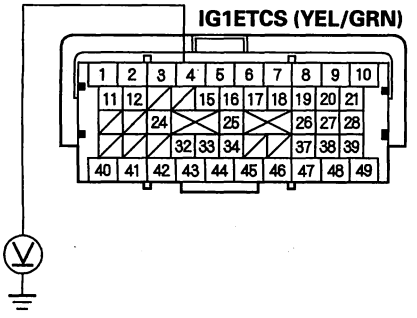
Is there continuity?

YES—Repair short in the wire between the PCM (C4) and the under-hood fuse/relay box, then go to step 21.

NO—Go to step 18.

18. Install the under-hood fuse/relay box 9P connector, and replace the No. 10 THROTTLE ACTUATOR CONTROL (DBW+) fuse in the under-hood fuse/relay box.
19. Measure voltage between PCM connector terminal C4 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 26.

NO—Replace the right side engine compartment wire harness. Also replace the No. 10 THROTTLE ACTUATOR CONTROL (DBW+) fuse in the under-hood fuse/relay box, then go to step 21.

20. Turn the ignition switch OFF.
21. Reconnect all connectors.
22. Turn the ignition switch ON (II).
23. Reset the PCM with the HDS.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

24. Do the PCM idle learn procedure (see page 11-311).

25. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1659 indicated?

    YES—Check for poor connections or loose terminals at the under-hood fuse/relay box and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

26. Reconnect all connectors.

27. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

28. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1659 indicated?

    YES—Check for poor connections or loose terminals at the under-hood fuse/relay box and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P1683: Throttle Valve Default Position Spring Performance Problem

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

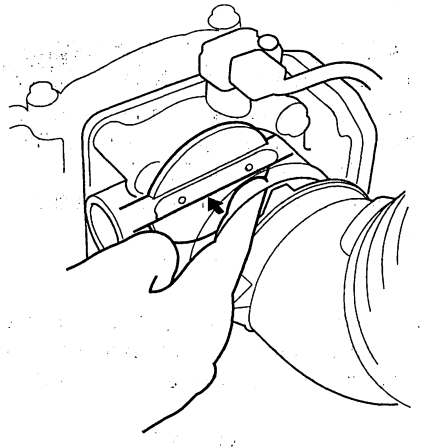
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Turn the ignition switch OFF, and wait 10 seconds.
5. Turn the ignition switch ON (II).
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1683 indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the PCM.■
7. Turn the ignition switch OFF.
8. Disconnect the intake air duct from the throttle body.
9. Push the throttle valve closed as shown.



10. Release the throttle valve.

    Does the throttle valve return?

    YES—Clean the throttle body (see page 11-363), then go to step 12 and recheck. If DTC P1683 is indicated, go to step 11.

    NO—Go to step 11.
11. Replace the throttle body (see page 11-366).
12. Turn the ignition switch ON (II).
13. Reset the PCM with the HDS.
14. Do the PCM idle learn procedure (see page 11-311).
15. Turn the ignition switch OFF, and wait 10 seconds.
16. Turn the ignition switch ON (II).
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1683 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

Protected by AR

DTC Troubleshooting (cont'd)

DTC P1684: Throttle Valve Return Spring Performance Problem

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

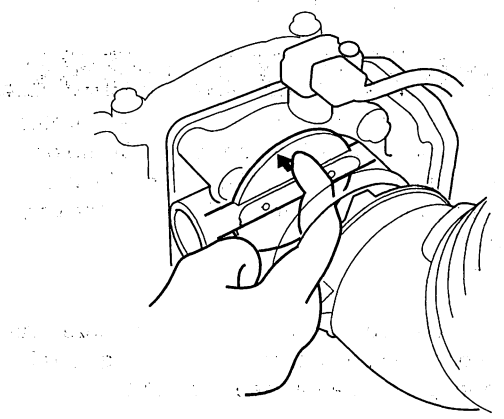
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Turn the ignition switch OFF, and wait 10 seconds.
5. Turn the ignition switch ON (II).
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1684 indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the PCM. ■
7. Turn the ignition switch OFF.
8. Disconnect the intake air duct from the throttle body.
9. Push the throttle valve open as shown.



10. Release the throttle valve.

    Does the throttle valve return?

    YES—Clean the throttle body (see page 11-363), then go to step 12 and recheck. If DTC P1684 is indicated, go to step 11.

    NO—Go to step 11.
11. Replace the throttle body (see page 11-366).
12. Turn the ignition switch ON (II).
13. Reset the PCM with the HDS.
14. Do the PCM idle learn procedure (see page 11-311).
15. Turn the ignition switch OFF, and wait 10 seconds.
16. Turn the ignition switch ON (II).
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1684 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P2101: ETCS Malfunction

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2101 indicated?

   YES—Go to step 7.

   NO—Go to step 5.
5. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

   • ENGINE SPEED
   • VSS
   • APP SENSOR A
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2101 indicated?

   YES—Go to step 7.

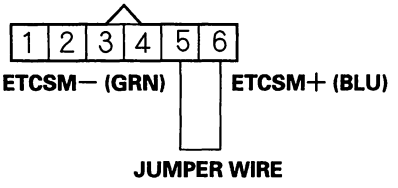
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the PCM, then clean the throttle body (see page 11-363).■
7. Turn the ignition switch OFF.
8. Disconnect the intake air duct from the throttle body.
9. Turn the ignition switch ON (II).
10. Clear the DTC with the HDS.
11. Do the ETCS TEST in the INSPECTION MENU with the HDS.
12. Visually check the throttle valve operation.

    Does the throttle valve operate smoothly?

    YES—Clean the throttle body (see page 11-363), then go to step 21 and recheck. If DTC P2101 is indicated, go to step 19.

    NO—Go to step 13.
13. Turn the ignition switch OFF.
14. Disconnect the throttle body 6P connector.
15. Jump the SCS line with the HDS.
16. Disconnect PCM connector C (49P).
17. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

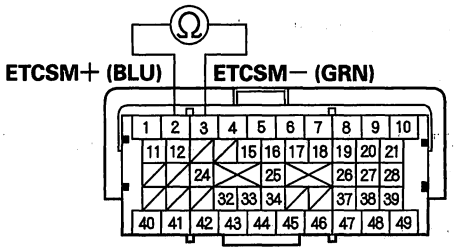
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

18. Check for continuity between PCM connector terminals C2 and C3.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 26.

NO—Repair open in the wires between the throttle body and the PCM (C2, C3), then go to step 20.

19. Turn the ignition switch OFF.

20. Replace the throttle body (see page 11-366).

21. Turn the ignition switch ON (II).

22. Reset the PCM with the HDS.

23. Do the PCM idle learn procedure (see page 11-311).

24. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS
- APP SENSOR A

25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2101 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the PCM, then clean the throttle body (see page 11-363), and go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

26. Reconnect all connectors.

27. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2101 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

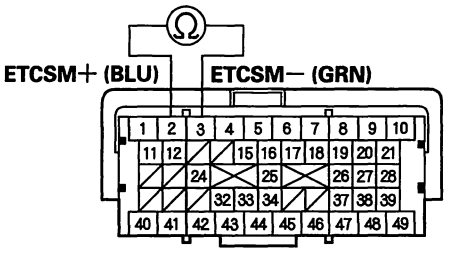
Protected by AR

DTC P2118: Throttle Actuator Current Range/ Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Jump the SCS line with the HDS.
2. Disconnect PCM connector C (49P).
3. Measure resistance between PCM connector terminals C2 and C3.

PCM CONNECTOR C (49P)



Terminal side of female terminals

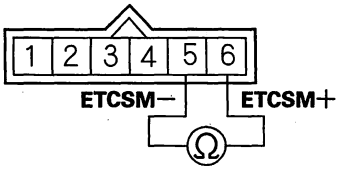
Is there about 1.0 Ω or less?

YES—Go to step 4.

NO—Go to step 15.

4. Disconnect the throttle body 6P connector.
5. At the throttle body side, measure resistance between throttle body 6P connector terminals No. 5 and No. 6 with the throttle fully closed.

THROTTLE BODY 6P CONNECTOR



Terminal side of male terminals

Is there about 1.0 Ω or less?

YES—Go to step 6.

NO—Repair short in the wires between the PCM connector terminals C3 (ETCSM−line) and C4 (ETCSM+line), then go to step 7.

6. Replace the throttle body (see page 11-366).
7. Reconnect all connectors.
8. Turn the ignition switch ON (II).
9. Reset the PCM with the HDS.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

10. Do the PCM idle learn procedure (see page 11-311).
11. Turn the ignition switch OFF.
12. Turn the ignition switch ON (II).
13. Slowly press the accelerator pedal to the floor.
14. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2118 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
15. Reconnect all connectors.
16. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2118 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P2122: APP Sensor A (TP Sensor D) Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

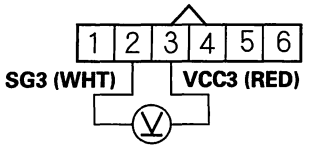
1. Turn the ignition switch ON (II).
2. Check APP SENSOR A in the DATA LIST with the HDS.

   Is there about 0.2 V or less?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor A and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between APP sensor 6P connector terminals No. 2 and No. 3.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

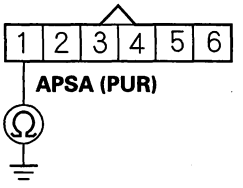
Is there about 5 V?

YES—Go to step 7.

NO—Go to step 17.

7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector A (49P).
10. Check for continuity between APP sensor 6P connector terminal No. 1 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

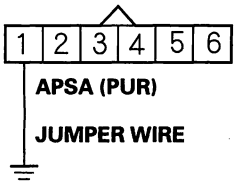
Is there continuity?

YES—Repair short in the wire between the PCM (A18) and APP sensor A, then go to step 24.

NO—Go to step 11.

11. Connect APP sensor 6P connector terminal No. 1 to body ground with a jumper wire.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

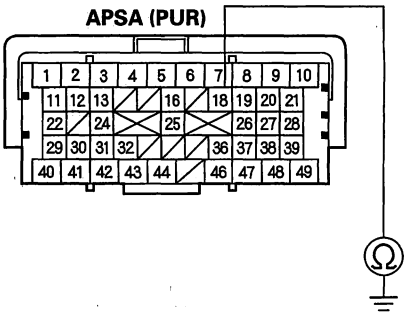
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

12. Check for continuity between PCM connector terminal A18 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

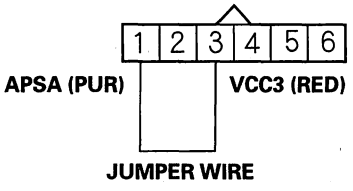
YES—Go to step 13.

NO—Repair open in the wire between the PCM (A18) and APP sensor A, then go to step 24.

13. Reconnect PCM connector A (49P).

14. Connect APP sensor 6P connector terminals No. 1 and No. 3 with a jumper wire.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

15. Turn the ignition switch ON (II).

16. Check APP SENSOR A in the DATA LIST with the HDS.

Is there about 0.2 V or less?

YES—Go to step 29.

NO—Go to step 22.

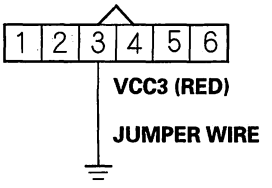
17. Turn the ignition switch OFF.

18. Jump the SCS line with the HDS.

19. Disconnect PCM connector A (49P).

20. Connect APP sensor 6P connector terminal No. 3 to body ground with a jumper wire.

APP SENSOR 6P CONNECTOR



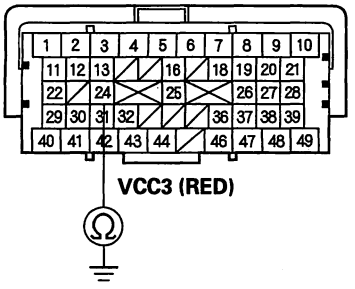
Wire side of female terminals

BACK

Protected by AR

21. Check for continuity between PCM connector terminal A24 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 30.

NO—Repair open in the wire between the PCM (A24) and APP sensor A, then go to step 24.

22. Turn the ignition switch OFF.

23. Replace the accelerator pedal module (see page 11-286).

24. Reconnect all connectors.

25. Turn the ignition switch ON (II).

26. Reset the PCM with the HDS.

27. Do the PCM idle learn procedure (see page 11-311).

28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2122 indicated?

YES—Check for poor connections or loose terminals at APP sensor A and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

29. Turn the ignition switch OFF.

30. Reconnect all connectors.

31. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2122 indicated?

YES—Check for poor connections or loose terminals at APP sensor A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

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DTC Troubleshooting (cont'd)

DTC P2123: APP Sensor A (TP Sensor D) Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

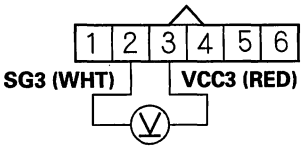
1. Turn the ignition switch ON (II).
2. Check APP SENSOR A in the DATA LIST with the HDS.

   Is there about 4.9 V or more?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor A and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between APP sensor 6P connector terminals No. 2 and No. 3.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

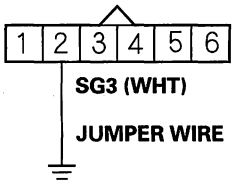
Is there about 5 V?

YES—Go to step 12.

NO—Go to step 7.

7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector A (49P).
10. Connect APP sensor 6P connector terminal No. 2 to body ground with a jumper wire.

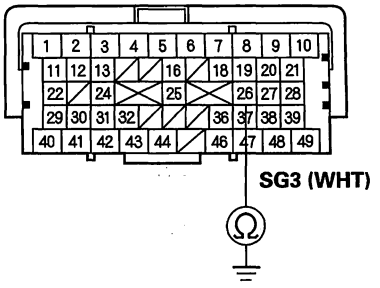
APP SENSOR 6P CONNECTOR



Wire side of female terminals

11. Check for continuity between PCM connector terminal A26 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 19.

NO—Repair open in the wire between the PCM (A26) and APP sensor A, then go to step 14.

BACK

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12. Turn the ignition switch OFF.
13. Replace the accelerator pedal module (see page 11-286).
14. Reconnect all connectors.
15. Turn the ignition switch ON (II).
16. Reset the PCM with the HDS.
17. Do the PCM idle learn procedure (see page 11-311).
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2123 indicated?

    YES—Check for poor connections or loose terminals at APP sensor A and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
19. Reconnect all connectors.
20. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2123 indicated?

    YES—Check for poor connections or loose terminals at APP sensor A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P2127: APP Sensor B (TP Sensor E) Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

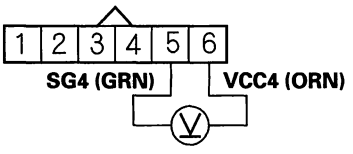
1. Turn the ignition switch ON (II).
2. Check APP SENSOR B in the DATA LIST with the HDS.

   Is there about 0.2 V or less?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor B and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between APP sensor 6P connector terminals No. 5 and No. 6.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

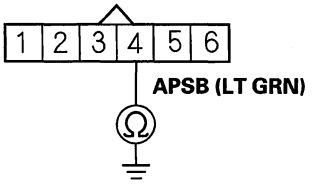
Is there about 5 V?

YES—Go to step 7.

NO—Go to step 17.

7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector A (49P).
10. Check for continuity between APP sensor 6P connector terminal No. 4 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

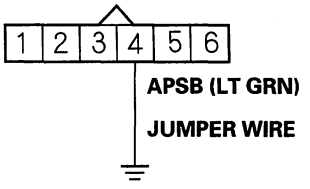
Is there continuity?

YES—Repair short in the wire between the PCM (A19) and APP sensor B, then go to step 24.

NO—Go to step 11.

11. Connect APP sensor 6P connector terminal No. 4 to body ground with a jumper wire.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

BACK

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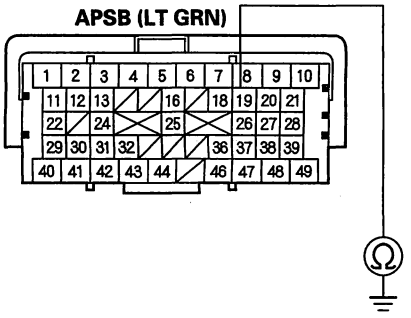
12. Check for continuity between PCM connector terminal A19 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

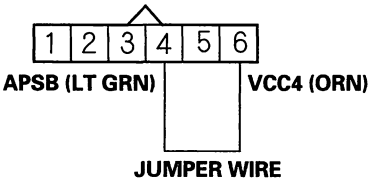
YES—Go to step 13.

NO—Repair open in the wire between the PCM (A19) and APP sensor B, then go to step 24.

13. Reconnect PCM connector A (49P).

14. Connect APP sensor 6P connector terminals No. 4 and No. 6 with a jumper wire.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

15. Turn the ignition switch ON (II).

16. Check APP SENSOR B in the DATA LIST with the HDS.

Is there about 0.2 V or less?

YES—Go to step 29.

NO—Go to step 22.

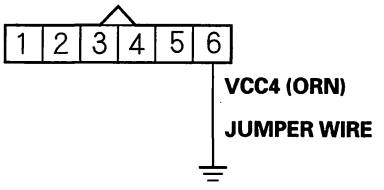
17. Turn the ignition switch OFF.

18. Jump the SCS line with the HDS.

19. Disconnect PCM connector A (49P).

20. Connect APP sensor 6P connector terminal No. 6 to body ground with a jumper wire.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

(cont'd)

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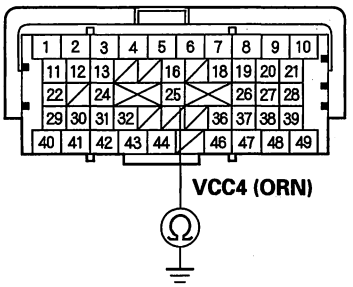
DTC Troubleshooting (cont'd)

21. Check for continuity between PCM connector terminal A25 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 30.

NO—Repair open in the wire between the PCM (A25) and APP sensor B, then go to step 24.

22. Turn the ignition switch OFF.
23. Replace the accelerator pedal module (see page 11-286).
24. Reconnect all connectors.
25. Turn the ignition switch ON (II).
26. Reset the PCM with the HDS.
27. Do the PCM idle learn procedure (see page 11-311).
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2127 indicated?

YES—Check for poor connections or loose terminals at APP sensor B and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

29. Turn the ignition switch OFF.
30. Reconnect all connectors.
31. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2127 indicated?

YES—Check for poor connections or loose terminals at APP sensor B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P2128: APP Sensor B (TP Sensor E) Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

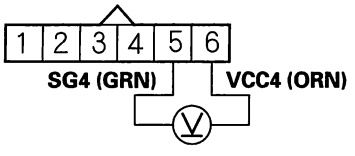
1. Turn the ignition switch ON (II).
2. Check APP SENSOR B in the DATA LIST with the HDS.

   Is there about 4.9 V or more?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals APP sensor B and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between APP sensor 6P connector terminals No. 5 and No. 6.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

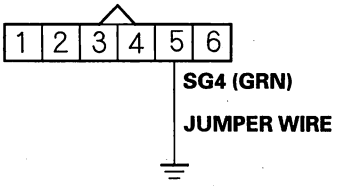
Is there about 5 V?

YES—Go to step 12.

NO—Go to step 7.

7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector A (49P).
10. Connect APP sensor 6P connector terminal No. 5 to body ground with a jumper wire.

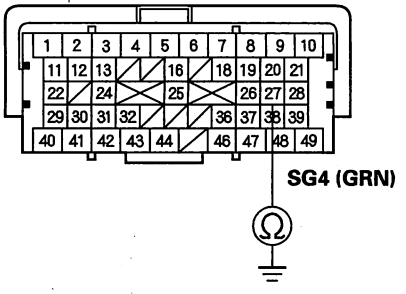
APP SENSOR 6P CONNECTOR



Wire side of female terminals

11. Check for continuity between PCM connector terminal A27 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 19.

NO—Repair open in the wire between the PCM (A27) and APP sensor B, then go to step 14.

(cont'd)

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DTC Troubleshooting (cont'd)

12. Turn the ignition switch OFF.
13. Replace the accelerator pedal module (see page 11-286).
14. Reconnect all connectors.
15. Turn the ignition switch ON (II).
16. Reset the PCM with the HDS.
17. Do the PCM idle learn procedure (see page 11-311).
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2128 indicated?

    YES—Check for poor connections or loose terminals at APP sensor B and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
19. Reconnect all connectors.
20. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2128 indicated?

    YES—Check for poor connections or loose terminals at APP sensor B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P2135: TP Sensor A/B Voltage Incorrect Correlation

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2135 indicated?

   YES—Go to step 5.

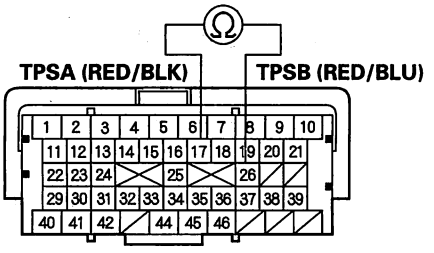
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the PCM. ■
5. Turn the ignition switch OFF.
6. Disconnect the intake air duct from the throttle body.
7. Turn the ignition switch ON (II).
8. Visually check the throttle valve operation while you clear the DTC with the HDS.

   Does the valve temporarily move to the fully closed position?

   YES—Go to step 15.

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Jump the SCS line with the HDS.
11. Disconnect PCM connector B (49P).
12. Check for continuity between PCM connector terminals B17 and B26.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Go to step 22.

(cont'd)

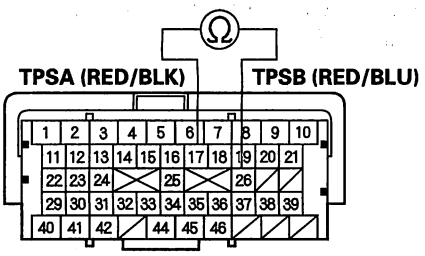
Protected by AR

DTC Troubleshooting (cont'd)

13. Disconnect the throttle body 6P connector.

14. Check for continuity between PCM connector terminals B17 and B26.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM B17 (TPSA line) and the B26 (TPSB line), then go to step 17.

NO—Go to step 15.

15. Turn the ignition switch OFF.

16. Replace the throttle body (see page 11-366).

17. Reconnect all connectors.

18. Turn the ignition switch ON (II).

19. Reset the PCM with the HDS.

20. Do the PCM idle learn procedure (see page 11-311).

21. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2135 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

22. Reconnect all connectors.

23. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

24. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2135 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

BACK

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DTC P2138: APP Sensor A/B (TP Sensor D/E) Incorrect Voltage Correlation

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with HDS.
3. Press the accelerator pedal to the floor.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2138 indicated?

   YES—Go to step 5.

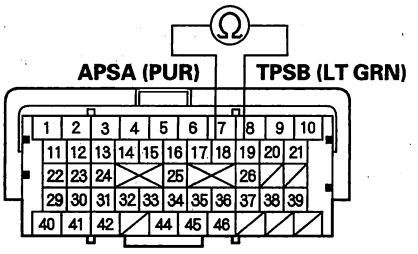
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor and the PCM. ■
5. Check APP SENSOR A and APP SENSOR B in the DATA LIST with the HDS.

   Are they the same voltage?

   YES—Go to step 6.

   NO—Go to step 11.
6. Turn the ignition switch OFF.
7. Jump the SCS line with the HDS.
8. Disconnect the APP sensor 6P connector.
9. Disconnect PCM connector A (49P).
10. Check for continuity between PCM connector terminals A18 and A19.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM terminals (A18, A19), then go to step 13.

NO—Go to step 21.

11. Turn the ignition switch OFF.
12. Replace the accelerator pedal module (see page 11-286).
13. Reconnect all connectors.
14. Turn the ignition switch ON (II).
15. Reset the PCM with the HDS.
16. Do the PCM idle learn procedure (see page 11-311).
17. Turn the ignition switch OFF.
18. Turn the ignition switch ON (II).
19. Press the accelerator pedal to the floor.

(cont'd)

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DTC Troubleshooting (cont'd)

20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2138 indicated?

    YES—Check for poor connections or loose terminals at the APP sensor and the PCM, then clean the throttle body (see page 11-363), and go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

21. Reconnect all connectors.

22. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

23. Turn the ignition switch OFF.

24. Turn the ignition switch ON (II).

25. Press the accelerator pedal to the floor.

26. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2138 indicated?

    YES—Check for poor connections or loose terminals at the APP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

BACK

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DTC P2176: Throttle Actuator Control System Idle Position Not Learned

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P2135 is stored at the same time as DTC P2176, troubleshoot DTC P2135 first, then recheck for DTC P2176.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Turn the ignition switch ON (II), and wait 10 seconds.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2176 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the PCM, then clean the throttle body (see page 11-363).■
6. Turn the ignition switch OFF.
7. Disconnect the intake air duct from the throttle body.
8. Turn the ignition switch ON (II).
9. Clear the DTC with the HDS.
10. Visually check the throttle valve operation while doing the ETCS TEST in the INSPECTION MENU with the HDS.

    Does the throttle valve move to its fully closed position?

    YES—Go to step 11.

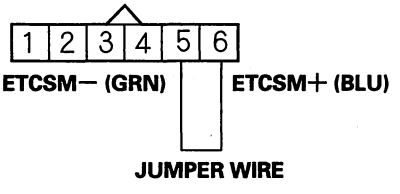
    NO—Go to step 12.
11. Check for sludge or carbon on the throttle valve.

    Is there sludge or carbon on the throttle valve?

    YES—Clean the throttle body (see page 11-363), then go to step 21.

    NO—Go to step 18.
12. Turn the ignition switch OFF.
13. Disconnect the throttle body 6P connector.
14. Jump the SCS line with the HDS.
15. Disconnect PCM connector C (49P).
16. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

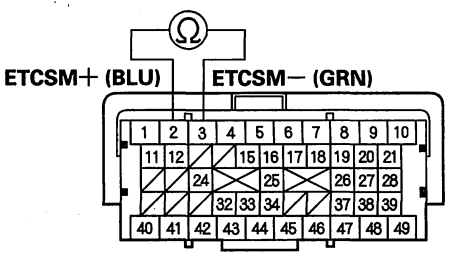
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

17. Check for continuity between PCM connector terminals C2 and C3.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 27.

NO—Repair open in the wires between the throttle body and the PCM (C2, C3), then go to step 20.

18. Turn the ignition switch OFF.
19. Replace the throttle body (see page 11-366).
20. Reconnect all connectors.
21. Turn the ignition switch ON (II).
22. Reset the PCM with the HDS.
23. Do the PCM idle learn procedure (see page 11-311).
24. Turn the ignition switch OFF.
25. Turn the ignition switch ON (II), and wait 10 seconds.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2176 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

27. Reconnect all connectors.
28. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2176 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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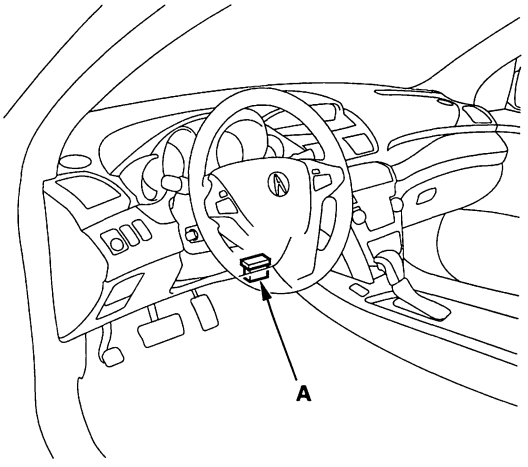
APP Sensor Signal Inspection

NOTE:
- This procedure checks the APP sensor in its fully closed position. In any other position, the APP sensor stores DTCs which are covered in other troubleshooting procedures.
- Check for Temporary DTCs or DTCs with the HDS before doing this procedure. If any DTCs are indicated, troubleshoot them first, then do this procedure.
- Press the accelerator pedal several times to check its operation. If it does not operate smoothly, check the pedal. If you find a problem, replace the accelerator pedal module (see page 11-286).

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch ON (II).

3. Make sure the HDS communicates with the PCM and other vehicle systems. If it does not, go to the DLC circuit troubleshooting (see page 11-223).

4. Make sure the accelerator pedal is not pressed, then check the APP SENSOR in the DATA LIST with the HDS.

   - If it is 0 %, the APP sensor is OK.
   - If it is not 0 %, update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then go to step 5.

5. Make sure the accelerator pedal is not pressed, then check the APP SENSOR in the DATA LIST with the HDS.

   - If it is 0 %, the APP sensor is OK.
   - If it is not 0 %, replace the accelerator pedal module (see page 11-286), then go to step 1.

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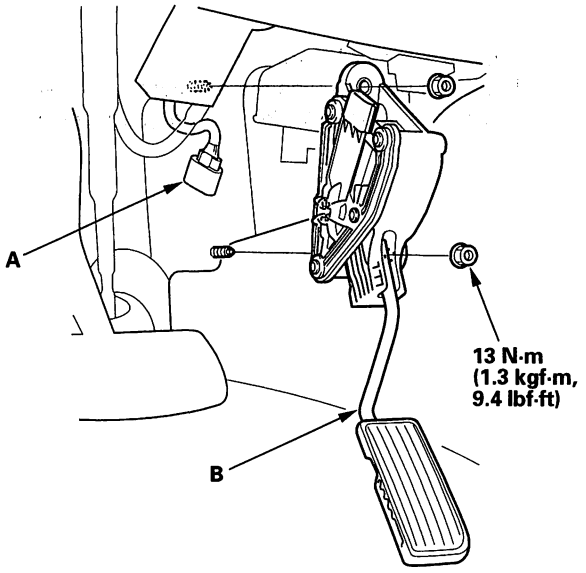
Accelerator Pedal Module Removal/Installation

1. Disconnect the accelerator pedal position (APP) sensor 6P connector (A).



2. Remove the accelerator pedal module (B).

   NOTE: The APP sensor is not available separately. Do not disassemble the accelerator pedal module.

3. Install the parts in the reverse order of removal.

BACK

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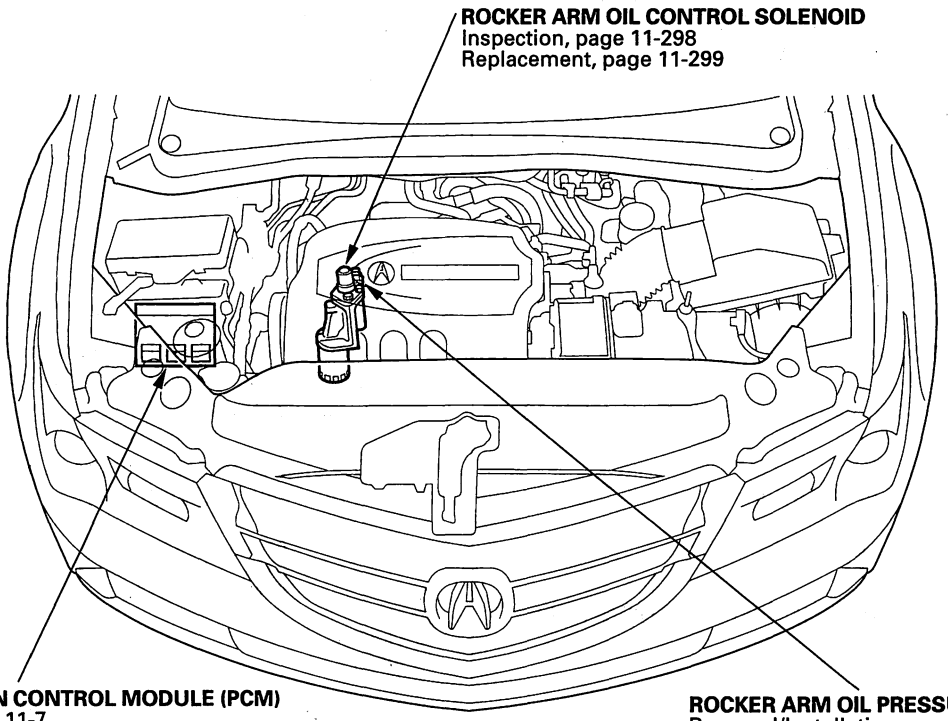
Component Location Index



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DTC Troubleshooting

DTC P2646: Rocker Arm Oil Pressure Switch Circuit Low Voltage

Special Tools Required
- Pressure gauge adapter 07NAJ-P07010A
- A/T low pressure gauge w/panel 07406-0070301
- A/T pressure hose 07406-0020201
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure adapter 07MAJ-PY40120
- Oil pressure hose 07ZAJ-S5AA200

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Check the engine oil level.

   Is the engine oil level OK?

   YES—Go to step 2.

   NO—Adjust the engine oil to the proper level, then go to step 19.

2. Turn the ignition switch ON (II).

3. Clear the DTC with the HDS.

4. Do the VTEC TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil pressure switch, the rocker arm oil control solenoid, and the PCM. ■

   NO—Go to step 5.

5. Turn the ignition switch OFF.

6. Disconnect the rocker arm oil pressure switch 2P connector.

7. Turn the ignition switch ON (II).

8. Check the VTEC PRES SW in the DATA LIST with the HDS.

   Is ON indicated?

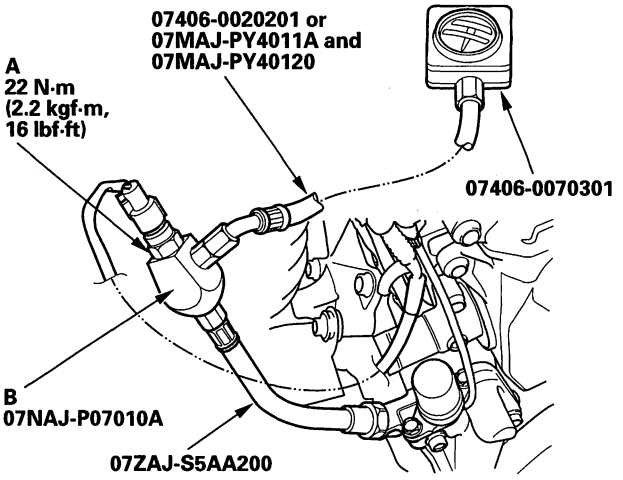
   YES—Go to step 14.

   NO—Go to step 9.

9. Turn the ignition switch OFF.

10. Remove the rocker arm oil pressure switch (A), install the special tools as shown, then install the rocker arm oil pressure switch on the oil pressure gauge adapter (B).

    NOTE: Install the parts in the reverse order of removal with a new O-ring.



11. Start the engine.

12. Do the VTEC TEST in the INSPECTION MENU with the HDS.

BACK

Protected by AR

13. Check the oil pressure.

    Does the oil pressure increase to at least 392 kPa (4.0 kgf/cm², 56.9 psi)?

    YES—Replace the rocker arm oil pressure switch (see page 11-299), then go to step 18.

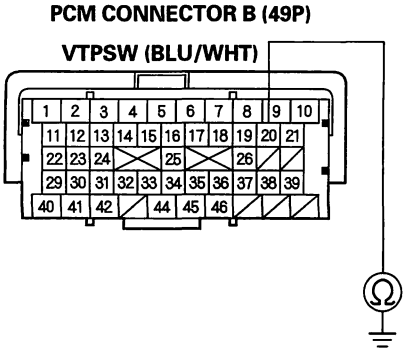
    NO—Inspect the VTEC system. If it is OK. Replace the rocker arm oil control solenoid (see page 11-299), then go to step 18.

14. Turn the ignition switch OFF.

15. Jump the SCS line with the HDS.

16. Disconnect PCM connector B (49P).

17. Check for continuity between PCM connector terminal B20 and body ground.



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (B20) and the rocker arm oil pressure switch, then go to step 18.

NO—Go to step 25.

18. Reconnect all connectors.

19. Turn the ignition switch ON (II).

20. Reset the PCM with the HDS.

21. Do the PCM idle learn procedure (see page 11-311).

22. Do the VTEC TEST in the INSPECTION MENU with the HDS.

23. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2646 indicated?

    YES—Check for poor connections or loose terminals at the rocker arm oil pressure switch and the PCM, then go to step 1.

    NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P2646 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 23, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil pressure switch and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

(cont'd)

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DTC Troubleshooting (cont'd)

25. Reconnect all connectors.

26. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

27. Do the VTEC TEST in the INSPECTION MENU with the HDS.

28. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2646 indicated?

    YES—Check for poor connections or loose terminals at the rocker arm oil pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 29.

29. Monitor the OBD STATUS for DTC P2646 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 28, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC P2647: Rocker Arm Oil Pressure Switch Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Check the engine oil level.

   Is the engine oil level OK?

   YES—Go to step 2.

   NO—Adjust the engine oil to the proper level, then go to step 16.

2. Turn the ignition switch ON (II).

3. Clear the DTC with the HDS.

4. Do the VTEC TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil pressure switch and the PCM.■

   NO—Go to step 5.

5. Check the result of step 4.

   - VTEC Switch Failure
   - VTEC Switch Open
   - VTEC Switch SIG Line Open
   - VTEC Switch GND Line Open

   Is the test result any of the above?

   YES—Go to step 6.

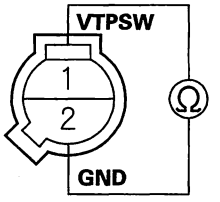
   NO—Check for poor connections or loose terminals at the rocker arm oil pressure switch. If it is OK, replace the rocker arm oil control solenoid (see page 11-299), then go to step 15.

6. Turn the ignition switch OFF.

7. Disconnect the rocker arm oil pressure switch 2P connector.

8. At the rocker arm oil pressure switch side, check for continuity between rocker arm oil pressure switch 2P connector terminals No. 1 and No. 2.

ROCKER ARM OIL PRESSURE SWITCH 2P CONNECTOR



Terminal side of male terminals

Is there continuity?

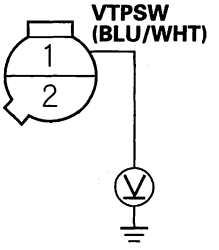
YES—Go to step 9.

NO—Replace the rocker arm oil pressure switch (see page 11-299), then go to step 15.

9. Turn the ignition switch ON (II).

10. Measure voltage between rocker arm oil pressure switch 2P connector terminal No. 1 and body ground.

ROCKER ARM OIL PRESSURE SWITCH 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Repair open in the wire between the rocker arm oil pressure switch and G101, then go to step 15.

NO—Go to step 11.

(cont'd)

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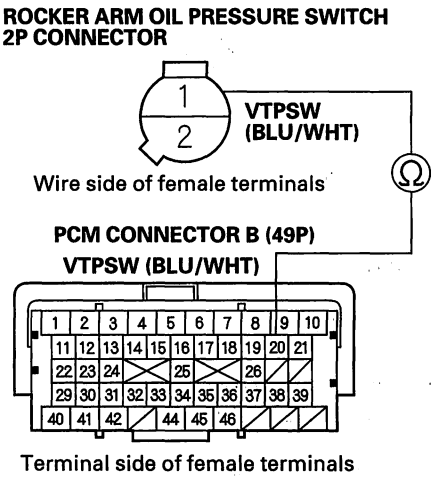
DTC Troubleshooting (cont'd)

11. Turn the ignition switch OFF.
12. Jump the SCS line with the HDS.
13. Disconnect PCM connector B (49P).
14. Check for continuity between PCM connector terminal B20 and rocker arm oil pressure switch 2P connector terminal No. 1.



Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire between the PCM (B20) and the rocker arm oil pressure switch, then go to step 15.

15. Reconnect all connectors.
16. Turn the ignition switch ON (II).
17. Reset the PCM with the HDS.
18. Do the PCM idle learn procedure (see page 11-311).
19. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2647 indicated?

YES—Check for poor connections or loose terminals at the rocker arm oil pressure switch and the PCM, then go to step 1.

NO—Go to step 20.

20. Monitor the OBD STATUS for DTC P2647 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 19, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil pressure switch and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

21. Reconnect all connectors.
22. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
23. Do the VTEC TEST in the INSPECTION MENU with the HDS.
24. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2647 indicated?

YES—Check for poor connections or loose terminals at the rocker arm oil pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 25.

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25. Monitor the OBD STATUS for DTC P2647 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 24, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P2648: Rocker Arm Oil Control Solenoid Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

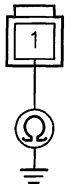
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the VTEC TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil control solenoid and the PCM. ■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Disconnect the rocker arm oil control solenoid 1P connector.
6. At the solenoid side, measure resistance between the rocker arm oil control solenoid 1P connector terminal and the solenoid valve body.

ROCKER ARM OIL CONTROL SOLENOID 1P CONNECTOR



Terminal side of male terminals

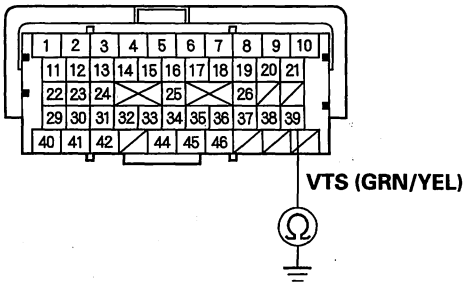
Is there 14—30 Ω at room temperature?

YES—Go to step 7.

NO—Go to step 10.

7. Jump the SCS line with the HDS.
8. Disconnect PCM connector B (49P).
9. Check for continuity between PCM connector terminal B39 and body ground.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (B39) and the rocker arm oil control solenoid, then go to step 11.

NO—Go to step 18.

10. Replace the rocker arm oil control solenoid (see page 11-299).
11. Reconnect all connectors.
12. Turn the ignition switch ON (II).
13. Reset the PCM with the HDS.
14. Do the PCM idle learn procedure (see page 11-311).
15. Do the VTEC TEST in the INSPECTION MENU with the HDS.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2648 indicated?

    YES—Check for poor connections or loose terminals at the rocker arm oil control solenoid and the PCM, then go to step 1.

    NO—Go to step 17.

BACK

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17. Monitor the OBD STATUS for DTC P2648 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 16, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

18. Reconnect all connectors.

19. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

20. Do the VTEC TEST in the INSPECTION MENU with the HDS.

21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2648 indicated?

    YES—Check for poor connections or loose terminals at the rocker arm oil control solenoid and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 22.

22. Monitor the OBD STATUS for DTC P2648 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 21, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P2649: Rocker Arm Oil Control Solenoid Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

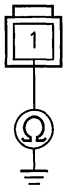
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2649 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil control solenoid and the PCM. ■
5. Turn the ignition switch OFF.
6. Disconnect the rocker arm oil control solenoid 1P connector.
7. At the solenoid side, measure resistance between the rocker arm oil control solenoid 1P connector terminal and the solenoid valve body.

ROCKER ARM OIL CONTROL SOLENOID 1P CONNECTOR



Terminal side of male terminals

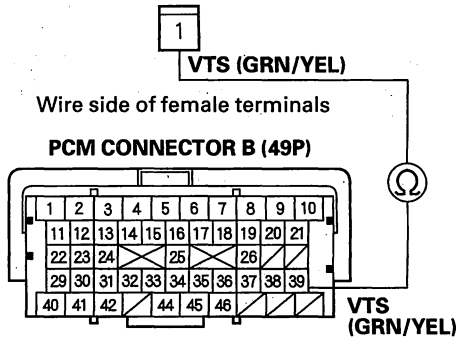
Is there 14—30 Ω at room temperature?

YES—Go to step 8.

NO—Go to step 11.

8. Jump the SCS line with the HDS.
9. Disconnect PCM connector B (49P).
10. Check for continuity between PCM connector terminal B39 and the rocker arm oil control solenoid 1P connector terminal.

ROCKER ARM OIL CONTROL SOLENOID 1P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 19.

NO—Repair open in the wire between the PCM (B39) and the rocker arm oil control solenoid, then go to step 12.

BACK

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11. Replace the rocker arm oil control solenoid (see page 11-299).

12. Reconnect all connectors.

13. Turn the ignition switch ON (II).

14. Reset the PCM with the HDS.

15. Do the PCM idle learn procedure (see page 11-311).

16. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2649 indicated?

    YES—Check for poor connections or loose terminals at the rocker arm oil control solenoid and the PCM, then go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for DTC P2649 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 17, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

19. Reconnect all connectors.

20. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2649 indicated?

    YES—Check for poor connections or loose terminals at the rocker arm oil control solenoid and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 22.

22. Monitor the OBD STATUS for DTC P2649 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 21, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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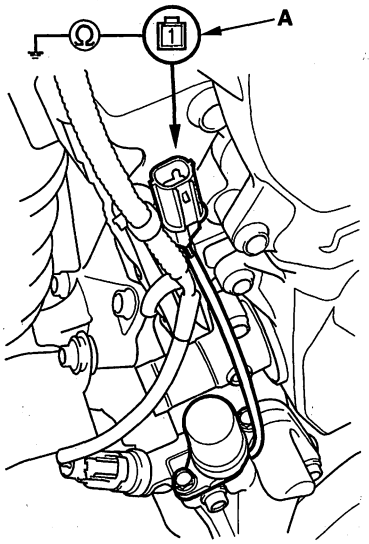
Rocker Arm Oil Control Solenoid Test

1. Disconnect the rocker arm oil control solenoid connector.

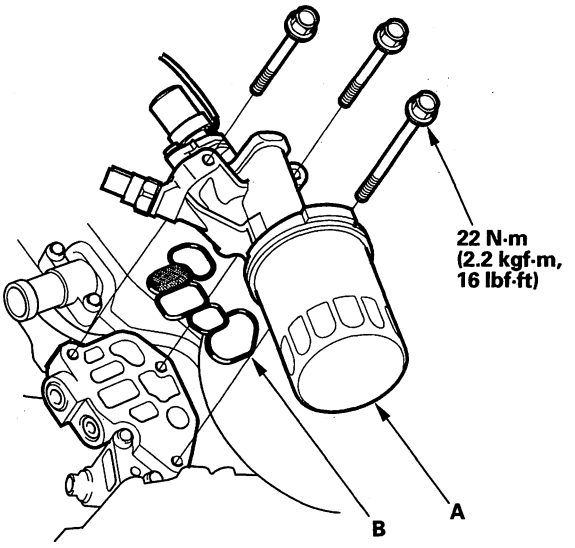
2. Measure resistance between the rocker arm oil control solenoid 1P connector terminal (A) and body ground.

   - If the resistance is as specified, go to step 3.
   - If the resistance is not as specified, replace the rocker arm oil control solenoid.

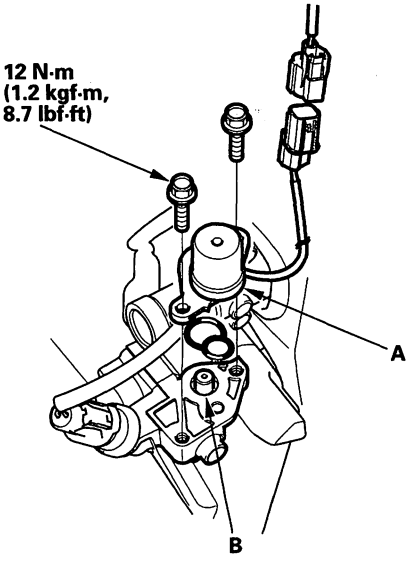
   Resistance: 14—30 Ω



3. Remove the rocker arm oil control solenoid/oil filter assembly (A) from the oil pump, and check the rocker arm oil control solenoid filter (B) for a restriction. If there is a restriction, replace the rocker arm oil control solenoid filter, the engine oil filter, and the engine oil.



4. If the filter is not restricted, remove the rocker arm oil control solenoid (A), and push the valve (B) with your finger to check its movement. If the valve moves freely, it is normal; check the engine oil pressure (see page 8-6). If the valve binds or sticks, replace the rocker arm oil control solenoid assembly.



BACK

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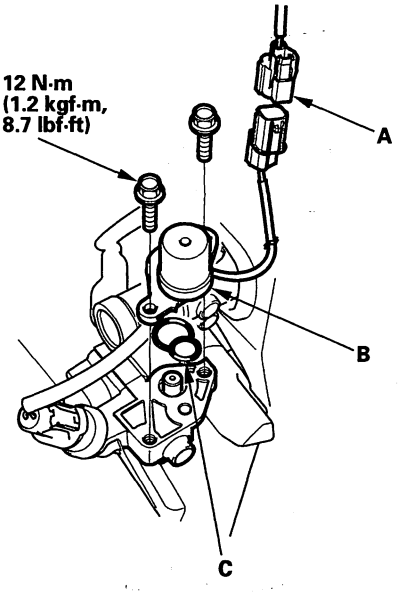
Rocker Arm Oil Control Solenoid Replacement

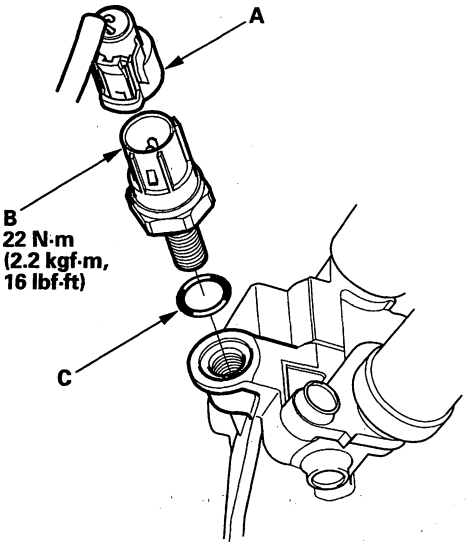
1. Disconnect the rocker arm oil control solenoid connector (A).



2. Remove the rocker arm oil control solenoid (B).
3. Install the parts in the reverse order of removal with a new O-ring (C).

Rocker Arm Oil Pressure Switch Removal/Installation

1. Disconnect the rocker arm oil pressure switch connector (A), then remove the rocker arm oil pressure switch (B).

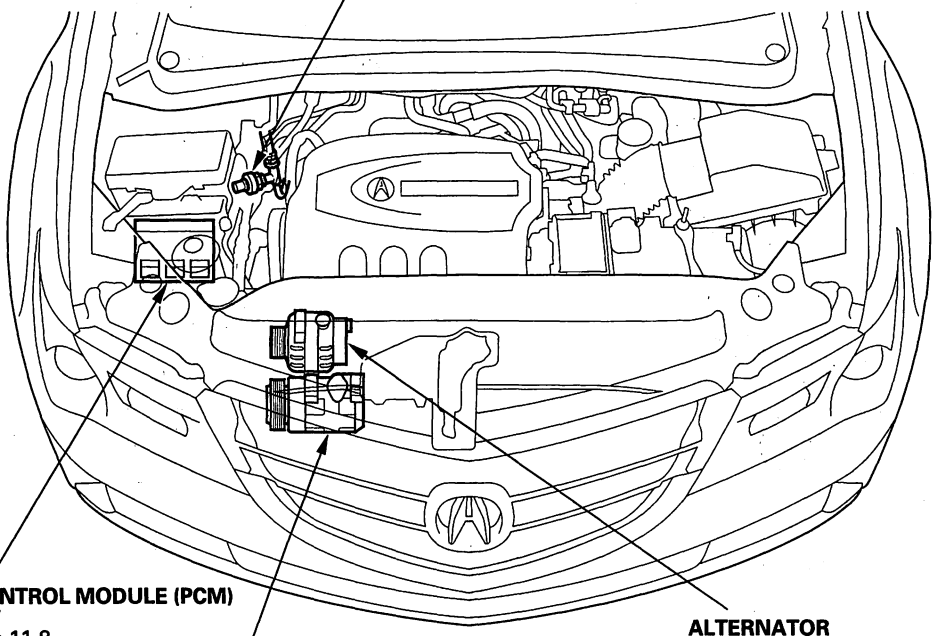


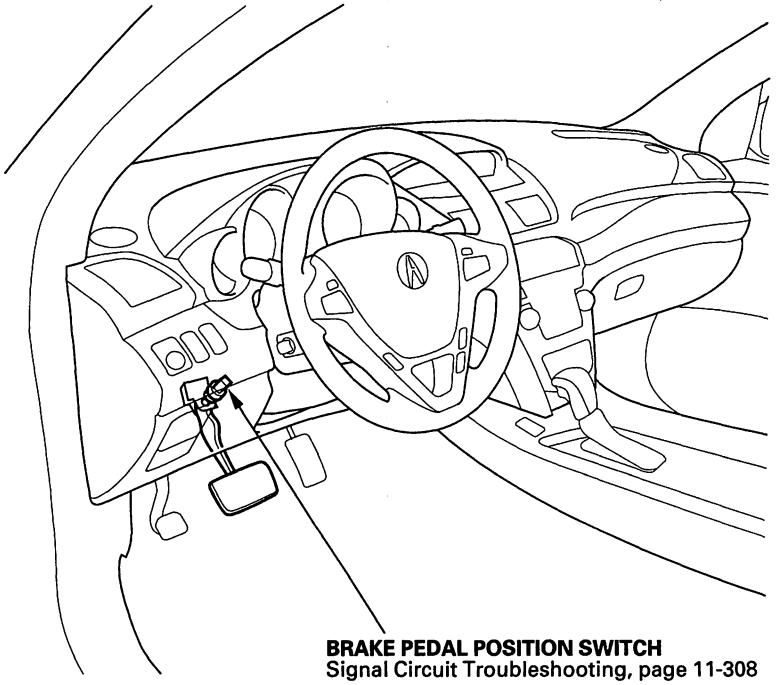
2. Install the parts in the reverse order of removal with a new O-ring (C).

Protected by AR

Idle Control System

Component Location Index





BACK

Protected by AR

DTC Troubleshooting

DTC P0506: Idle Control System RPM Lower Than Expected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 20 seconds.
4. Check for these conditions in the DATA LIST with the HDS:
   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Intake air temperature (IAT SENSOR) above 32 °F (0 °C)
   - Vehicle speed is 0 mph (0 km/h)
   - ST FUEL TRIM between 0.73 and 1.47
   - FSS is CLOSED
5. Monitor the OBD STATUS for DTC P0506 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 6.

   NO—If the screen indicates PASSED, go to step 8. If the screen indicates EXECUTING, let the engine idle until a result comes on. If the screen indicates OUT OF CONDITION, go to step 4 and recheck.
6. Remove the intake air duct from the throttle body.
7. Check for dirt, carbon, or damage in the throttle bore.

   Is there dirt, carbon, or damage in the throttle bore?

   YES—If there is dirt or carbon, clean the throttle body (see page 11-363). Also check for damage to the air cleaner element (see page 11-364), then go to step 13. If there is damage in the throttle bore, go to step 12.

   NO—Check the A/C system or power steering system, then go to step 10.
8. Remove the intake air duct from the throttle body.
9. Check for dirt, carbon, or damage in the throttle bore.

   Is there dirt, carbon, or damage in the throttle bore?

   YES—If there is dirt or carbon, clean the throttle body (see page 11-363). Also check for damage to the air cleaner element (see page 11-364), then go to step 13. If there is damage in the throttle bore, go to step 12.

   NO—Go to step 10.
10. Recheck with different load conditions (turn on the headlights, blower motor, or A/C; change the gear position, etc.).
11. Monitor the OBD STATUS for DTC P0506 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Intermittent failure, the system is OK at this time. ■

    NO—If the screen indicates FAILED, check the A/C system and/or power steering system, then go to step 1 and recheck. If the screen indicates EXECUTING, let the engine idle until a result comes on. If the screen indicates OUT OF CONDITION, go to step 10 and recheck.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

12. Replace the throttle body (see page 11-366).

13. Reset the PCM with the HDS.

14. Do the PCM idle learn procedure (see page 11-311).

15. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 20 seconds.

16. Check for these conditions in the DATA LIST with the HDS:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Intake air temperature (IAT SENSOR) above 32 °F (0 °C)
    - Vehicle speed is 0 mph (0 km/h)
    - ST FUEL TRIM between 0.73 and 1.47
    - FSS is CLOSED

17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0506 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for DTC P0506 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 17, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the throttle body and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates EXECUTING or OUT OF CONDITION, keep idling until a result comes on.

BACK

Protected by AR

DTC P0507: Idle Control System RPM Higher Than Expected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 20 seconds.
4. Monitor the OBD STATUS for DTC P0507 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 5.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates EXECUTING, let the engine idle until a result comes on. If the screen indicates OUT OF CONDITION, recheck with different load conditions (electrical, A/C, gear position, etc.), then go to step 3.

5. Check for vacuum leaks at these parts:

   - PCV valve
   - PCV hose
   - EVAP canister purge valve
   - Throttle body
   - Intake manifold
   - Brake booster hose

   Are there any leaks?

   YES—Repair or replace the leaking part(s), then go to step 6.

   NO—Go to step 6.

6. Turn the ignition switch ON (II).
7. Reset the PCM with the HDS.
8. Do the PCM idle learn procedure (see page 11-311).
9. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 20 seconds.
10. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0507 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 11.

11. Monitor the OBD STATUS for DTC P0507 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 10, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the throttle body and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates EXECUTING or OUT OF CONDITION, keep idling until a result comes on.

Protected by AR

A/C Signal Circuit Troubleshooting

1. Start the engine.
2. Turn the blower switch on.
3. Turn the A/C switch on.
4. Check the A/C CLUTCH in the DATA LIST with the HDS.

   Does it indicate ON?

   YES—Go to step 5.

   NO—Do the A/C pressure switch circuit troubleshooting (see page 21-81).
5. Check the A/C system.

   Does the A/C system operate?

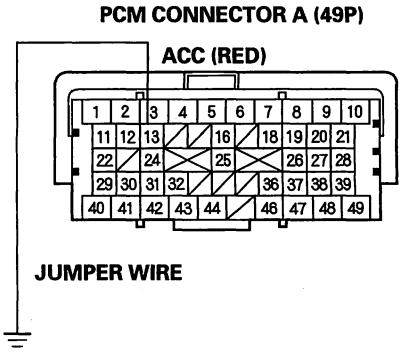
   YES—The air conditioning system circuit is OK. ■

   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Turn the ignition switch ON (II).
8. Activate the A/C CLUTCH in the INSPECTION MENU with the HDS.

   Is there a clicking noise from the A/C compressor clutch?

   YES—Do the A/C system test (see page 21-134).

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Jump the SCS line with the HDS.
11. Disconnect PCM connector A (49P).
12. Turn the ignition switch ON (II).
13. Momentarily connect PCM connector terminal A13 to body ground with a jumper wire several times.



Terminal side of female terminals

Is there a clicking noise from the A/C compressor clutch?

YES—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244). ■

NO—Check for poor connections or loose terminals at the A/C clutch relay and the PCM. If the connections are OK, check the A/C clutch relay (see page 22-77), repair open in the wire between the PCM (A13) and the A/C clutch relay and the other A/C systems.

BACK

Protected by AR

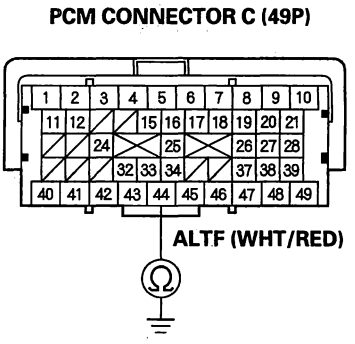
Alternator FR Signal Circuit Troubleshooting

1. Start the engine, and let it idle.
2. Monitor the ALTERNATOR in the DATA LIST with the HDS.
3. Check if the indicated percentage varies when the headlight switch is turned on.

   Does the percentage vary?

   YES—The alternator signal circuit is OK.■

   NO—Go to step 4.
4. Turn the headlight switch and ignition switch OFF.
5. Jump the SCS line with the HDS.
6. Disconnect the alternator 4P connector.
7. Disconnect PCM connector C (49P).
8. Check for continuity between body ground and PCM connector terminal C44.



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (C44) and the alternator.■

NO—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244).■

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PSP Switch Signal Circuit Troubleshooting

1. Start the engine, and let it idle.
2. Align the steering wheel straight ahead.
3. Check the PSP SWITCH in the DATA LIST with the HDS.

   Does it indicate ON?

   YES—Go to step 4.

   NO—Go to step 14.
4. Turn the steering wheel to the full lock position.
5. Check the PSP SWITCH in the DATA LIST with the HDS.

   Does it change to OFF?

   YES—The PSP switch signal circuit is OK. ■

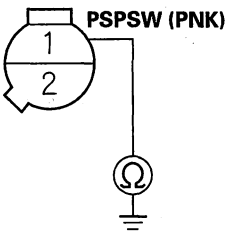
   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Disconnect the PSP switch 2P connector.
8. Start the engine.
9. Check the PSP SWITCH in the DATA LIST with the HDS.

   Does it change to OFF?

   YES—Replace the PSP switch. ■

   NO—Go to step 10.
10. Turn the ignition switch OFF.
11. Jump the SCS line with the HDS.
12. Disconnect PCM connector A (49P).
13. Check for continuity between PSP switch 2P connector terminal No. 1 and body ground.

PSP SWITCH 2P CONNECTOR



Wire side of female terminals

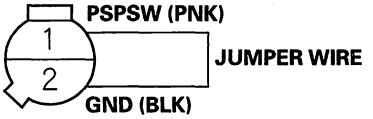
Is there continuity?

YES—Repair short in the wire between the PCM (A38) and the PSP switch. ■

NO—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244). ■

14. Turn the ignition switch OFF.
15. Disconnect the PSP switch 2P connector.
16. Connect PSP switch 2P connector terminals No. 1 and No. 2 with a jumper wire, then start the engine.

PSP SWITCH 2P CONNECTOR



Wire side of female terminals

BACK

Protected by AR

17. Check the PSP SWITCH in the DATA LIST with the HDS.

Does it change to ON?

YES—Replace the PSP switch. ■

NO—Go to step 18.

18. Turn the ignition switch OFF.

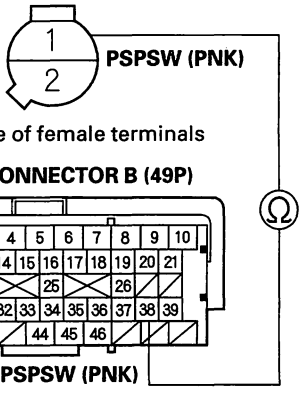
19. Remove the jumper wire from the PSP switch 2P connector.

20. Jump the SCS line with the HDS.

21. Disconnect PCM connector A (49P).

22. Check for continuity between PCM connector terminal A38 and PSP switch 2P connector terminal No. 1.

PSP SWITCH 2P CONNECTOR



Wire side of female terminals

Terminal side of female terminals

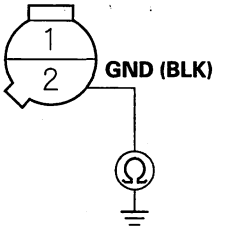
Is there continuity?

YES—Go to step 23.

NO—Repair open in the wire between the PSP switch and the PCM (A38). ■

23. Check for continuity between PSP switch 2P connector terminal No. 2 and body ground.

PSP SWITCH 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244). ■

NO—Repair open in the wire between the PSP switch and G202. ■

BACK

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Brake Pedal Position Switch Signal Circuit Troubleshooting

1. Turn the ignition switch ON (II).
2. Check the BRAKE SWITCH in the DATA LIST with the HDS.

   Does it indicate OFF?

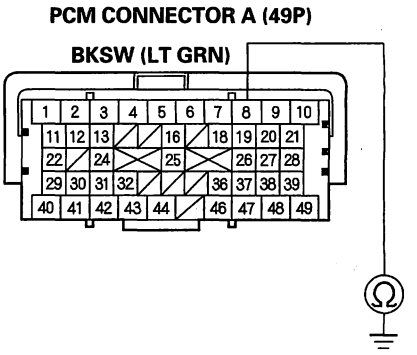
   YES—Go to step 3.

   NO—Inspect the brake pedal position switch (see page 19-6).■
3. Press the brake pedal, and check the BRAKE SWITCH in the DATA LIST with the HDS.

   Does it change to ON?

   YES—The brake pedal position switch signal circuit (BKSW line) is OK.■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Jump the SCS line with the HDS.
6. Disconnect the brake pedal position switch 4P connector.
7. Disconnect PCM connector A (49P).
8. Check for continuity between PCM connector terminal A8 and body ground.



Terminal side of female terminals

Is there continuity?

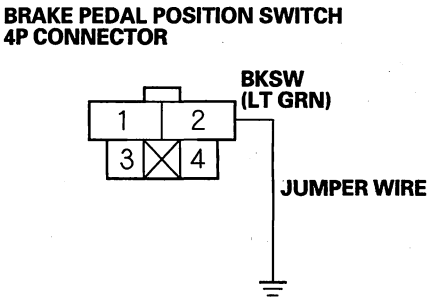
YES—Repair short in the wire between the PCM (A8) and the No. 11 +B STOP & HORN (15 A) fuse. Replace the No. 11 +B STOP & HORN (15 A) fuse.■

NO—Go to step 9.

BACK

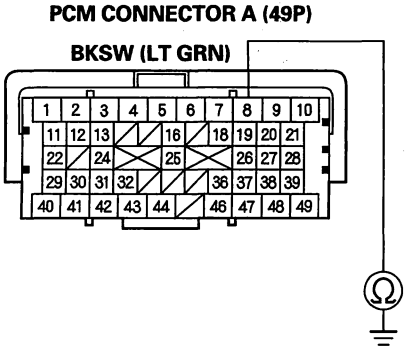
Protected by AR

9. Connect brake pedal position switch 4P connector terminal No. 2 to body ground with a jumper wire.



Wire side of female terminals

10. Check for continuity between PCM connector terminal A8 and body ground.



Terminal side of female terminals

Is there continuity?

YES—Repair open in the wire between the brake pedal position switch and the No. 11 +B STOP & HORN (15 A) fuse. Inspect the brake pedal position switch (see page 19-6). ■

NO—Repair open in the wire between the PCM (A8) and the brake pedal position switch. ■

BACK

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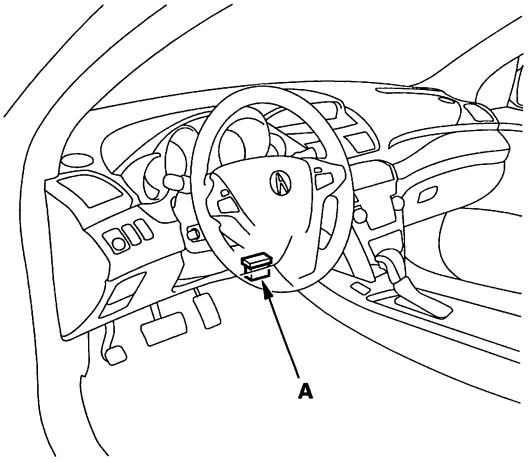
Idle Speed Inspection

NOTE:
- Before checking the idle speed, check these items:
  - The malfunction indicator lamp (MIL) has not been reported on, and there are no DTCs.
  - Ignition timing
  - Spark plugs
  - Air cleaner
  - PCV system
- Apply the parking brake.

1. Disconnect the evaporative emission (EVAP) canister purge valve connector.

2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Turn the ignition switch ON (II).

4. Make sure the HDS communicates with the PCM and other vehicle systems. If it does not, go to the DLC circuit troubleshooting (see page 11-223).

5. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

6. Check the idle speed without load conditions: headlights, blower fan, radiator fan, and air conditioner off.

   Idle speed should be:
   710±50 rpm (in Park or neutral)

7. Let the engine idle for 1 minute with high electric load (A/C switch ON, temperature set to max cool, blower fan on high, and headlights on high beam).

   Idle speed should be:
   710±50 rpm (in Park or neutral)

   NOTE: If the idle speed is not within specification, do the PCM idle learn procedure (see page 11-311). If the idle speed is still not within specification, go to symptom troubleshooting.

8. Reconnect the EVAP canister purge valve connector.

BACK

Protected by AR

PCM Idle Learn Procedure

The idle learn procedure must be done so the PCM can learn the engine idle characteristics.

Do the idle learn procedure whenever you do any of these actions:

- Replace PCM.
- Reset PCM.
- Update PCM.
- Clean or replace the throttle body.

NOTE: Erasing DTCs with the HDS does not require you to do the idle learn procedure.

Procedure

1. Make sure all electrical items (A/C, audio, lights, etc.) are off.
2. Reset the PCM with the HDS.
3. Turn the ignition switch ON (II), and wait 2 seconds.
4. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, or until the engine coolant temperature reaches 194 °F (90 °C).
5. Let the engine idle for about 5 minutes with the throttle fully closed.

   NOTE: If the radiator fan comes on, do not include its running time in the 5 minutes.

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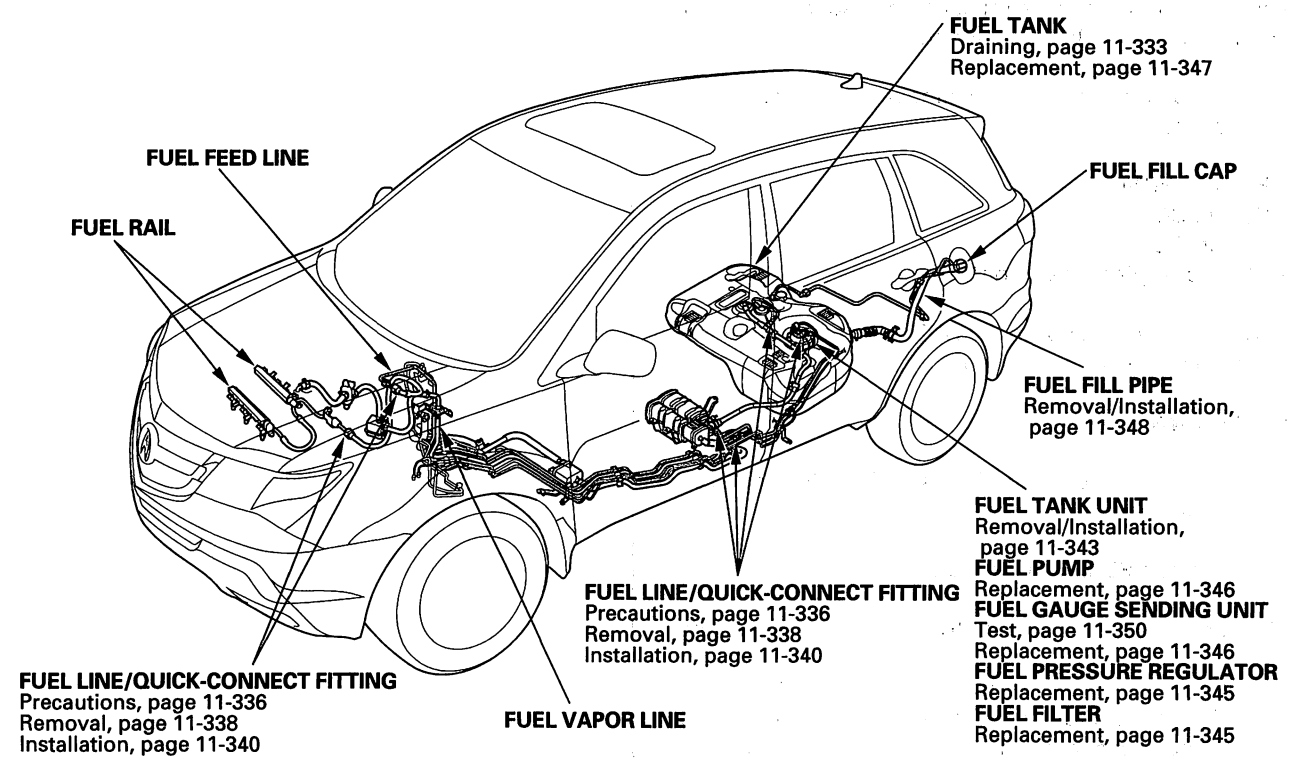
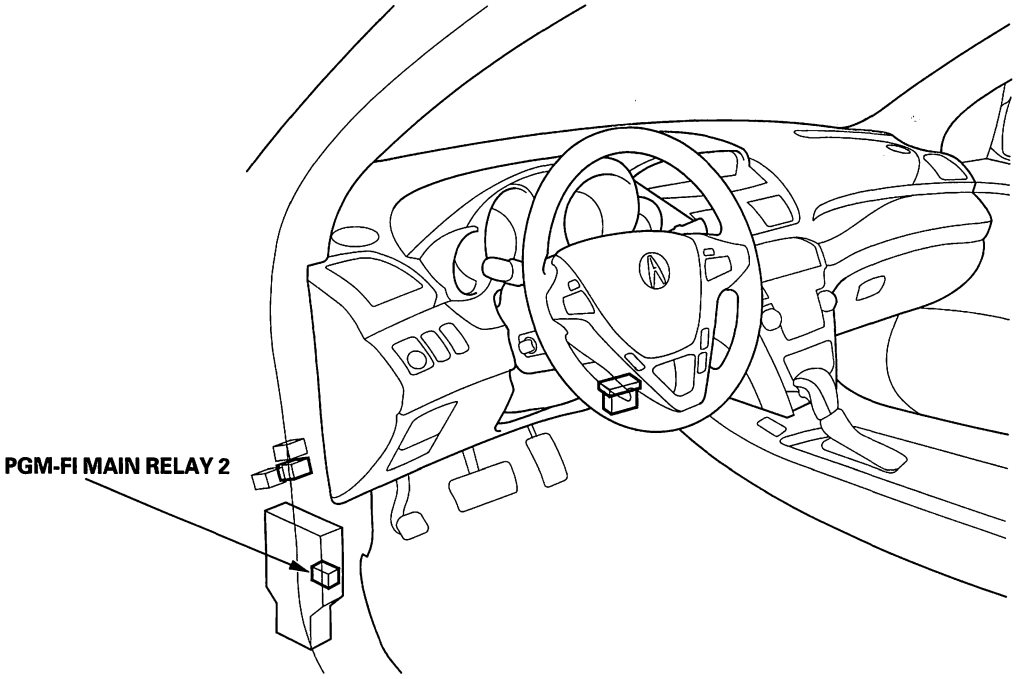
Fuel Supply System

Component Location Index





BACK

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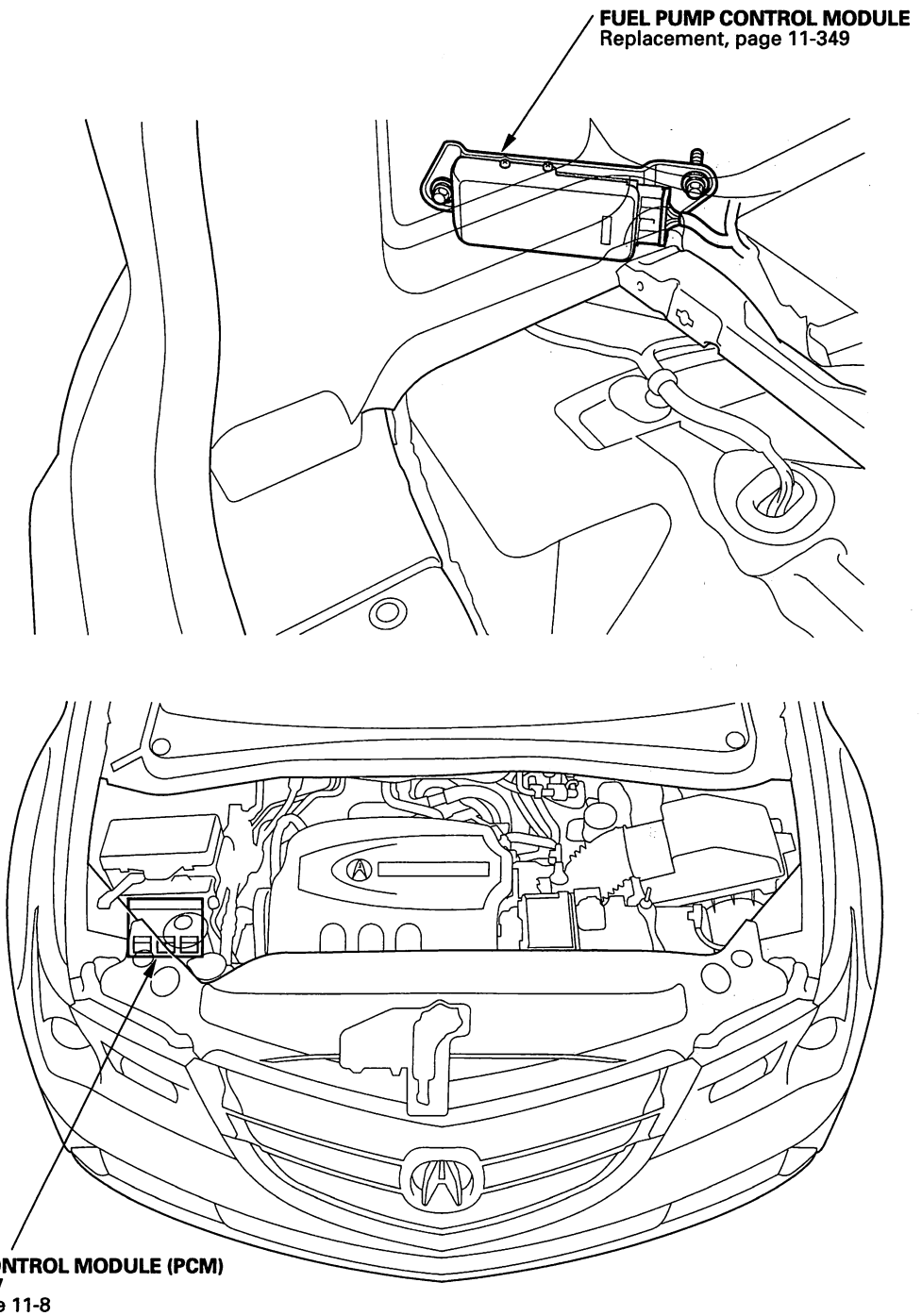


BACK

Protected by AR

DTC Troubleshooting

DTC P0461: Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Range/Performance Problem

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Because it requires 162 miles (260 km) of driving without refueling to complete this diagnosis, this DTC P0461 cannot be duplicated during this troubleshooting.

1. Test the fuel gauge sending unit (see page 11-350).

   Is the fuel gauge sending unit OK?

   YES—Check for poor connections or loose terminals at the fuel gauge sending unit and the gauge control module. ■

   NO—Replace the fuel gauge sending unit (see page 11-346), then go to step 2.

2. Turn the ignition switch ON (II).

3. Reset the PCM with the HDS.

4. Do the PCM idle learn procedure (see page 11-311).

5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0461 indicated?

   YES—Check for poor connections or loose terminals at the fuel gauge sending unit and the gauge control module, then go to step 1.

   NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

Protected by AR

DTC P0462: Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS, and wait 5 seconds.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0462 indicated?

   YES—Go to step 4.

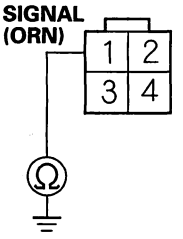
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit. ■
4. Turn the ignition switch OFF.
5. Remove the second row seat (see page 20-156).
6. Remove the access panel from the floor.
7. Disconnect the fuel tank unit 4P connector.
8. Turn the ignition switch ON (II).
9. Clear the DTC with the HDS, and wait 5 seconds.
10. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0463 indicated?

    YES—Replace the fuel gauge sending unit (see page 11-346), then go to step 22.

    NO—Go to step 11.
11. Turn the ignition switch OFF.
12. Remove the gauge control module (see page 22-337).
13. Disconnect the gauge control module 12P connector.
14. Check for continuity between fuel tank unit 4P connector terminal No. 1 and body ground.

FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the gauge control module (signal line) and the fuel gauge sending unit, then go to step 23.

NO—Go to step 15.

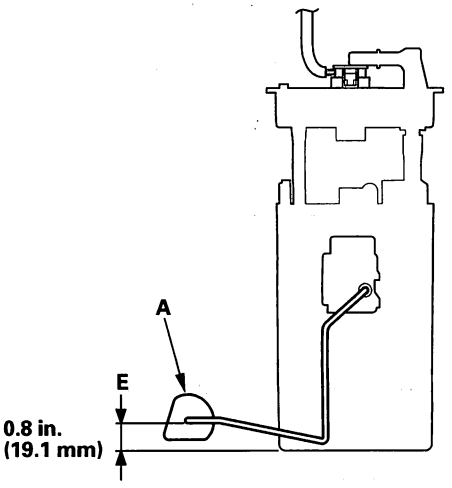
15. Reconnect the gauge control module 12P connector.
16. Remove the fuel tank unit (see page 11-343).
17. Connect the fuel tank unit 4P connector.
18. Turn the ignition switch ON (II).
19. Clear the DTC with the HDS.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

20. Set the float (A) to the E position.



21. Check the fuel gauge.

    Does the fuel gauge move to the empty position?

    YES—Go to step 29.

    NO—Replace the gauge control module (see page 22-337), then go to step 22.

22. Turn the ignition switch OFF.

23. Install the parts in the reverse order of removal.

24. Reconnect all connectors.

25. Turn the ignition switch ON (II).

26. Reset the PCM with the HDS.

27. Do the PCM idle learn procedure (see page 11-311).

28. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0462 indicated?

    YES—Check for poor connections or loose terminals at the fuel gauge sending unit and the gauge control module, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

29. Turn the ignition switch OFF.

30. Install the parts in the reverse order of removal.

31. Reconnect all connectors.

32. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

33. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0462 indicated?

    YES—Check for poor connections or loose terminals at the fuel gauge sending unit and the gauge control module. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P0463: Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

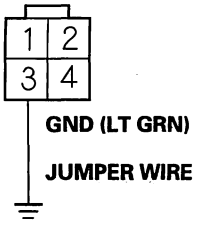
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS, and wait 5 seconds.
3. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

   Is DTC P0463 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit. ■
4. Turn the ignition switch OFF.
5. Remove the second row seat (see page 20-156).
6. Remove the access panel from the floor.
7. Disconnect the fuel tank unit 4P connector.
8. Connect fuel tank unit 4P connector terminal No. 3 to body ground with a jumper wire.

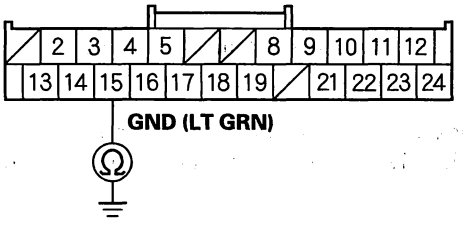
FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

9. Remove the gauge control module (see page 22-337).
10. Disconnect the gauge control module 24P connector.
11. Check for continuity between gauge control module 24P connector terminal No. 15 and body ground.

GAUGE CONTROL MODULE 24P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between the gauge control module (GND line) and the fuel gauge sending unit, then go to step 24.

(cont'd)

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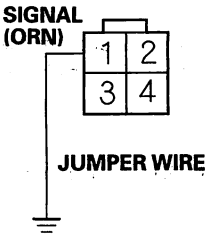
DTC Troubleshooting (cont'd)

12. Connect fuel tank unit 4P connector terminal No. 1 to body ground with a jumper wire.

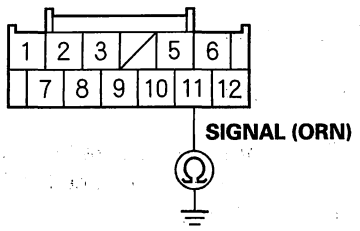
FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

13. Check for continuity between gauge control module 12P connector terminal No. 11 and body ground.

GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

Is there continuity?

YES—Go to step 14.

NO—Repair open in the wire between the gauge control module (signal line) and the fuel gauge sending unit, then go to step 24.

14. Remove the jumper wire from the fuel tank unit 5P connector.

15. Remove the fuel tank unit (see page 11-343).

16. Test the fuel gauge sending unit (see page 11-350).

Is the fuel gauge sending unit OK?

YES—Go to step 17.

NO—Replace the fuel gauge sending unit (see page 11-346), then go to step 24.

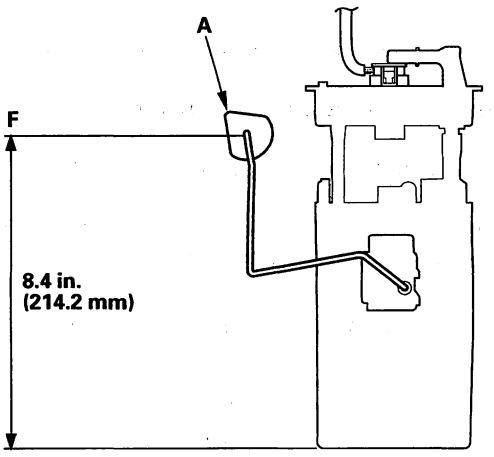
17. Connect the fuel tank unit 4P connector.

18. Reconnect the gauge control module 12P connector.

19. Turn the ignition switch ON (II).

20. Clear the DTC with the HDS.

21. Set the float (A) to the F position.



22. Check the fuel gauge.

Does the gauge move to the full position?

YES—Go to step 30.

NO—Replace the gauge control module (see page 22-337), then go to step 24.

BACK

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23. Turn the ignition switch OFF.
24. Install the parts in the reverse order of removal.
25. Reconnect all connectors.
26. Turn the ignition switch ON (II).
27. Reset the PCM with the HDS.
28. Do the PCM idle learn procedure (see page 11-311).
29. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0463 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
30. Turn the ignition switch OFF.
31. Install the parts in the reverse order of removal.
32. Reconnect all connectors.
33. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
34. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0463 indicated?

    YES—Check for poor connections or loose terminals at the fuel gauge sending unit and the gauge control module. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P0627: Fuel Pump Control Module System Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to the start (III) position.

   NOTE: This vehicle has an auto control mode starting system. It keeps the starter motor running after the ignition switch is released for 15 seconds, or until the engine starts.

4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0627 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the fuel pump control module, PGM-FI main relay 2, the fuel tank unit, and the PCM. ■

5. Turn the ignition switch OFF.
6. Check the No. 19 FUEL PUMP (20 A) fuse in under-dash fuse/relay box.

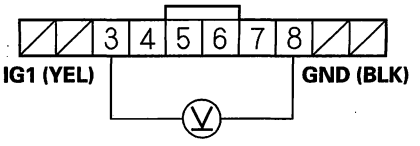
   Is the fuse blown?

   YES—Replace the under-dash fuse/relay box. Also replace the No. 19 FUEL PUMP (20 A) fuse, then go to step 73.

   NO—Go to step 7.

7. Disconnect the fuel pump control module 10P connector (see page 11-349).
8. Turn the ignition switch ON (II), and measure voltage between fuel pump control module 10P connector terminals No. 3 and No. 8 within 2 seconds.

FUEL PUMP CONTROL MODULE 10P CONNECTOR



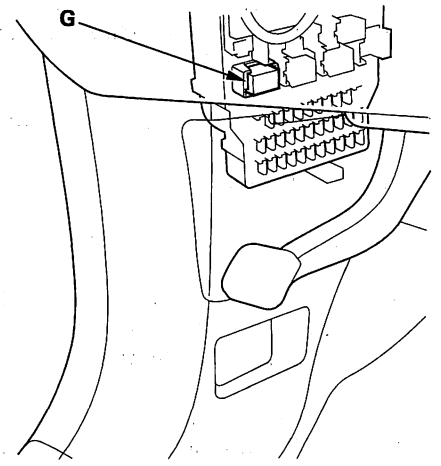
Wire side of female terminals

Is there battery voltage?

YES—Go to step 27.

NO—Go to step 9.

9. Turn the ignition switch OFF.
10. Remove the left kick panel (see page 20-76), then remove PGM-FI main relay 2 (G) from the under-dash fuse/relay box.



BACK

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11. Test PGM-FI main relay 2 (see page 22-77).

Is PGM-FI main relay 2 OK?

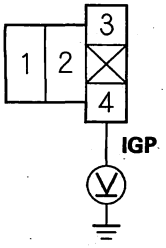
YES—Go to step 12.

NO—Replace PGM-FI main relay 2, then go to step 73.

12. Turn the ignition switch ON (II).

13. Measure voltage between PGM-FI main relay 2 4P connector terminal No. 4 and body ground.

PGM-FI MAIN RELAY 2 4P CONNECTOR



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 18.

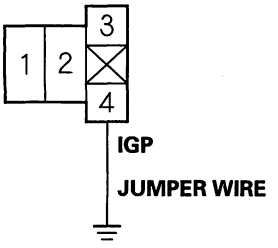
NO—Go to step 14.

14. Turn the ignition switch OFF.

15. Disconnect the under-hood fuse/relay box 9P connector.

16. Connect PGM-FI main relay 2 4P connector terminal No. 4 to body ground with a jumper wire.

PGM-FI MAIN RELAY 2 4P CONNECTOR



Terminal side of female terminals

(cont'd)

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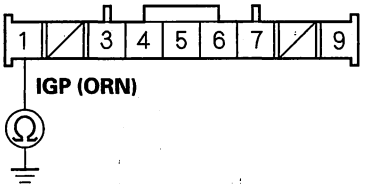
DTC Troubleshooting (cont'd)

17. Check for continuity between under-hood fuse/relay box 9P connector terminal No. 1 and body ground.

UNDER-HOOD FUSE/RELAY BOX 9P CONNECTOR



Wire side of female terminals

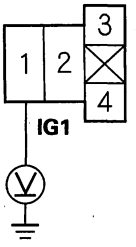
Is there continuity?

YES—Replace the relay control module (under-hood fuse/relay box) (see page 22-71), then go to step 74.

NO—
- Repair open in the wire between the under-hood fuse/relay box and the under-dash fuse/relay box, then go to step 74.
- If needed, replace the under-dash fuse/relay box (see page 22-72), then go to step 74.

18. Measure voltage between PGM-FI main relay 2 4P connector terminal No. 1 and body ground.

PGM-FI MAIN RELAY 2 4P CONNECTOR



Terminal side of female terminals

Is there battery voltage?

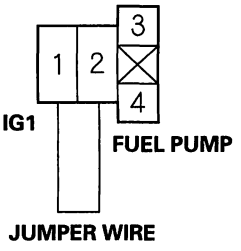
YES—Go to step 19.

NO—Replace the under-dash fuse/relay box (see page 22-72), then go to step 73.

19. Turn the ignition switch OFF.

20. Connect PGM-FI main relay 2 4P connector terminals No. 1 and No. 2 with a jumper wire.

PGM-FI MAIN RELAY 2 4P CONNECTOR



Terminal side of female terminals

BACK

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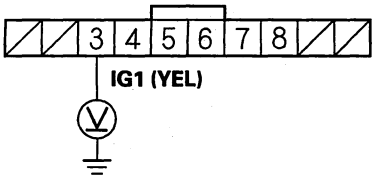
21. Turn the ignition switch ON (II), and measure voltage between fuel pump control module 10P connector terminal No. 3 and body ground within 2 seconds.

FUEL PUMP CONTROL MODULE 10P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 22.

NO—
- Repair open in the wire between the under-dash fuse/relay box and the fuel pump control module, then go to step 73.
- If needed, replace the under-dash fuse/relay box (see page 22-72), then go to step 73.

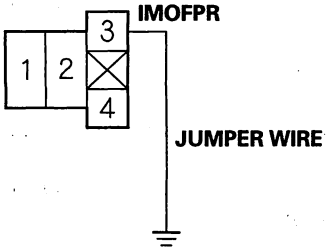
22. Turn the ignition switch OFF.

23. Jump the SCS line with the HDS.

24. Disconnect PCM connector A (49P).

25. Connect PGM-FI main relay 2 4P connector terminal No. 3 to body ground with a jumper wire.

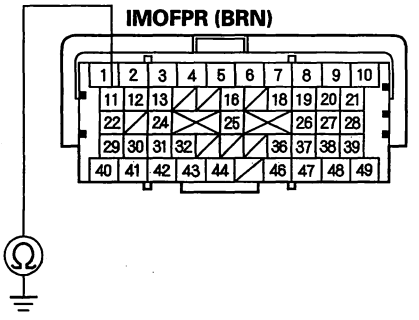
PGM-FI MAIN RELAY 2 4P CONNECTOR



Terminal side of female terminals

26. Check for continuity between PCM connector terminal A11 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 79.

NO—Repair open in the wire between the PCM (A11) and PGM-FI main relay 2, then go to step 73.

(cont'd)

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DTC Troubleshooting (cont'd)

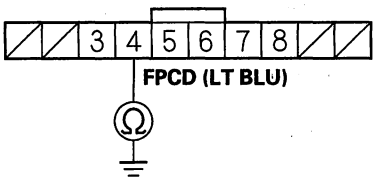
27. Turn the ignition switch OFF.
28. Reconnect the fuel pump control module 10P connector (see page 11-349).
29. Turn the ignition switch ON (II).
30. Clear the DTC with the HDS.
31. Turn the ignition switch OFF.
32. Turn the ignition switch ON (II), and check for sound from the fuel pump within 2 seconds.

    Does the fuel pump operate?

    YES—Go to step 33.

    NO—Go to step 53.
33. Turn the ignition switch OFF.
34. Disconnect the fuel pump control module 10P connector.
35. Check for continuity between fuel pump control module 10P connector terminal No. 4 and body ground.

FUEL PUMP CONTROL MODULE 10P CONNECTOR



Wire side of female terminals

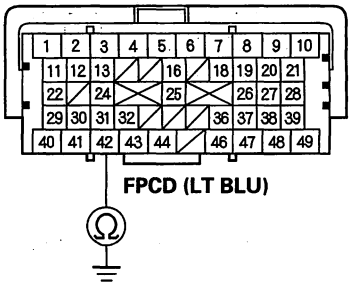
Is there continuity?

YES—Go to step 36.

NO—Go to step 39.

36. Jump the SCS line with the HDS.
37. Disconnect PCM connector A (49P).
38. Check for continuity between PCM connector terminal A42 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

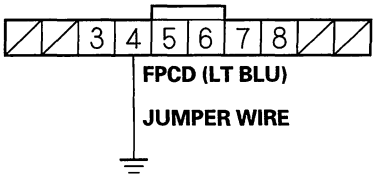
Is there continuity?

YES—Repair short in the wire between the PCM (A42) and the fuel pump control module, then go to step 73.

NO—Go to step 79.

39. Jump the SCS line with the HDS.
40. Disconnect PCM connector A (49P).
41. Connect fuel pump control module 10P connector terminal No. 4 to body ground with a jumper wire.

FUEL PUMP CONTROL MODULE 10P CONNECTOR



Wire side of female terminals

BACK

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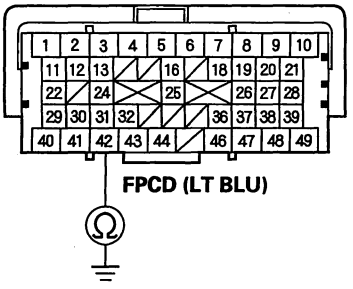
42. Check for continuity between PCM connector terminal A42 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 43.

NO—Repair open in the wire between the PCM (A42) and the fuel pump control module, then go to step 73.

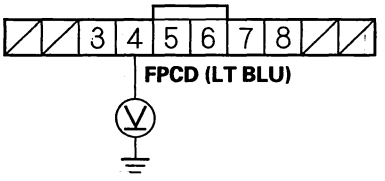
43. Remove the jumper wire from the fuel pump control module 10P connector.

44. Reconnect the fuel pump control module 10P connector and PCM connector A (49P).

45. Turn the ignition switch ON (II).

46. Measure voltage between fuel pump control module 10P connector terminal No. 4 and body ground.

FUEL PUMP CONTROL MODULE 10P CONNECTOR



Wire side of female terminals

Is there about 8 V or more?

YES—Go to step 47.

NO—Replace the fuel pump control module (see page 11-349), then go to step 73.

47. Turn the ignition switch OFF.

48. Remove the second row seat (see page 20-156).

49. Remove the access panel from the floor.

50. Disconnect the fuel tank unit 4P connector.

51. Disconnect the fuel pump control module 10P connector.

(cont'd)

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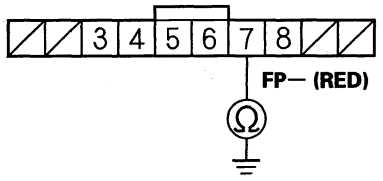
DTC Troubleshooting (cont'd)

52. Check for continuity between fuel pump control module 10P connector terminal No. 7 and body ground.

FUEL PUMP CONTROL MODULE 10P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the fuel pump control module (FP— line) and the fuel tank unit, then go to step 73.

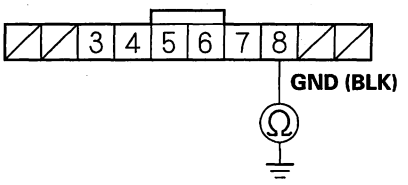
NO—Substitute a known-good fuel pump control module (see page 11-349), then go to step 73 and recheck. If DTC P0627 is not indicated, replace the original fuel pump control module (see page 11-349), then go to step 73. If DTC P0627 is indicated, go to step 80.

53. Turn the ignition switch OFF.

54. Disconnect the fuel pump control module 10P connector (see page 11-349).

55. Check for continuity between fuel pump control module 10P connector terminal No. 8 and body ground.

FUEL PUMP CONTROL MODULE 10P CONNECTOR



Wire side of female terminals

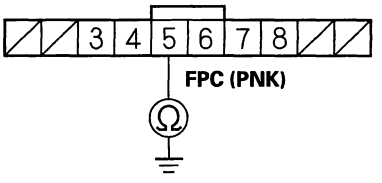
Is there continuity?

YES—Go to step 56.

NO—Repair open in the wire between the fuel pump control module (GND line) and G604, then go to step 73.

56. Check for continuity between fuel pump control module 10P connector terminal No. 5 and body ground.

FUEL PUMP CONTROL MODULE 10P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 57.

NO—Go to step 60.

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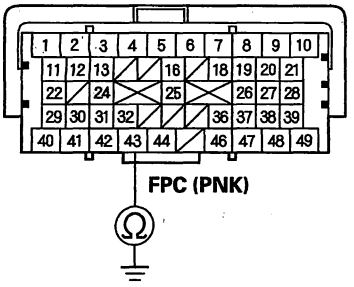
57. Jump the SCS line with the HDS.

58. Disconnect PCM connector A (49P).

59. Check for continuity between PCM connector terminal A43 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

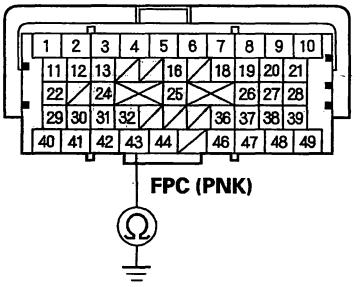
YES—Repair short in the wire between the PCM (A43) and the fuel pump control module, then go to step 73.

NO—Go to step 79.

60. Reconnect the fuel pump control module 10P connector.

61. Turn the ignition switch ON (II), and measure voltage between PCM connector terminal A43 and body ground within 2 seconds.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 62.

NO—Replace the fuel pump control module (see page 11-349), then go to step 73.

62. Turn the ignition switch OFF.

63. Remove the second row seat (see page 20-156).

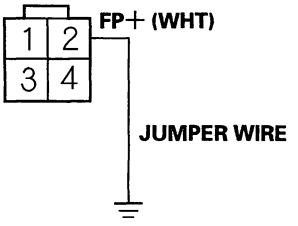
64. Remove the access panel from the floor.

65. Disconnect the fuel tank unit 4P connector.

66. Disconnect the fuel pump control module 10P connector (see page 11-349).

67. Connect between fuel tank unit 4P connector terminal No. 2 to body ground with a jumper wire.

FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

(cont'd)

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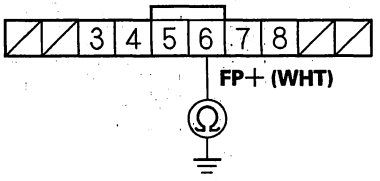
DTC Troubleshooting (cont'd)

68. Check for continuity between fuel pump control module 10P connector terminal No. 6 and body ground.

FUEL PUMP CONTROL MODULE 10P CONNECTOR



Wire side of female terminals

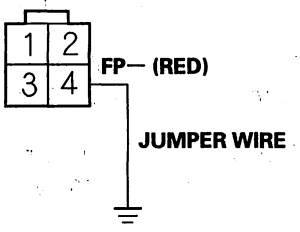
Is there continuity?

YES—Go to step 69.

NO—Repair open in the wire between the fuel pump control module (FP+ line) and the fuel tank unit, then go to step 73.

69. Connect between fuel tank unit 4P connector terminal No. 4 to body ground with a jumper wire.

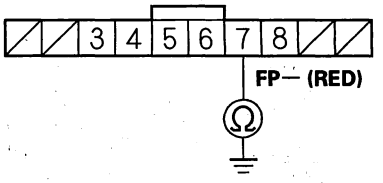
FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

70. Check for continuity between fuel pump control module 10P connector terminal No. 7 and body ground.

FUEL PUMP CONTROL MODULE 10P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 71.

NO—Repair open in the wire between the fuel pump control module (FP— line) and the fuel tank unit, then go to step 73.

71. Reconnect the fuel pump control module 10P connector.

BACK

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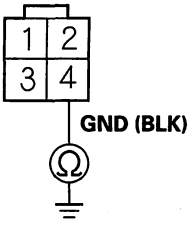
72. Turn the ignition switch ON (II), and measure voltage between fuel tank unit 4P connector terminal No. 2 and body ground within 2 seconds.

FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Replace the fuel tank unit (see page 11-343), then go to step 73.

NO—Substitute a known-good fuel pump control module (see page 11-349), then go to step 73 and recheck. If DTC P0627 is not indicated, replace the original fuel pump control module (see page 11-349), then go to step 73. If DTC P0627 is indicated, go to step 80.

73. Turn the ignition switch OFF.

74. Reconnect all connectors.

75. Turn the ignition switch ON (II).

76. Reset the PCM with the HDS.

77. Do the PCM idle learn procedure (see page 11-311).

78. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0627 indicated?

YES—Check for poor connections or loose terminals at the fuel pump control module, PGM-FI main relay 2, the fuel tank unit, and the PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

79. Reconnect all connectors.

80. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

81. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0627 indicated?

YES—Check for poor connections or loose terminals at the fuel pump control module, PGM-FI main relay 2, the fuel pump, and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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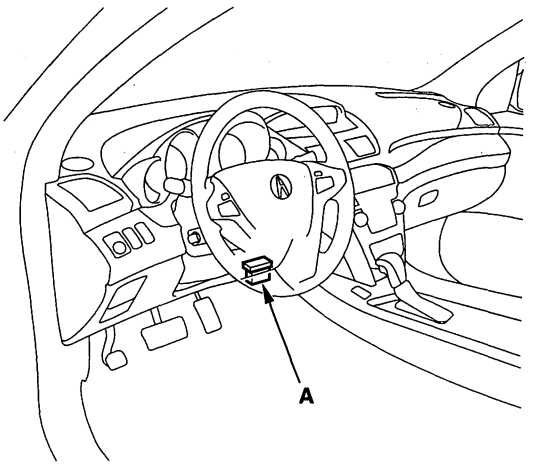
Fuel Pressure Relieving

Before disconnecting fuel lines or hoses, relieve pressure from the system by disabling the fuel pump and then disconnecting the fuel tube/quick connect fitting in the engine compartment.

With the HDS

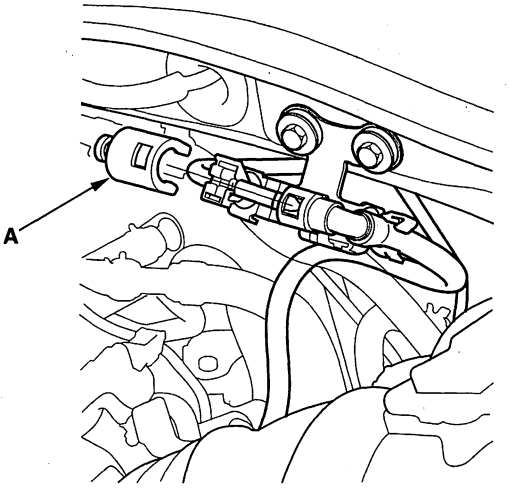
1. Make sure you have the anti-theft code for the audio system and the navigation system (if equipped).
2. Turn the ignition switch OFF.
3. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



4. Turn the ignition switch ON (II).
5. Make sure the HDS communicates with the PCM and other vehicle systems. If it does not, go to the DLC circuit troubleshooting (see page 11-223).
6. Turn the ignition switch OFF.
7. Remove the fuel fill cap to relieve the pressure in the fuel tank.
8. Turn the ignition switch ON (II).
9. From the INSPECTION MENU of the HDS, select Fuel Pump OFF, then start the engine, and let it idle until it stalls.
10. Turn the ignition switch OFF.

    NOTE:
    - Do not allow the engine to idle above 1,000 rpm or the PCM will continue to operate the fuel pump.
    - A DTC or a Temporary DTC may be set during this procedure. Check for DTCs, and clear them as needed (see page 11-4).

11. Turn the ignition switch OFF.
12. Disconnect the negative cable from the battery.
13. Remove the quick-connect fitting cover (A).

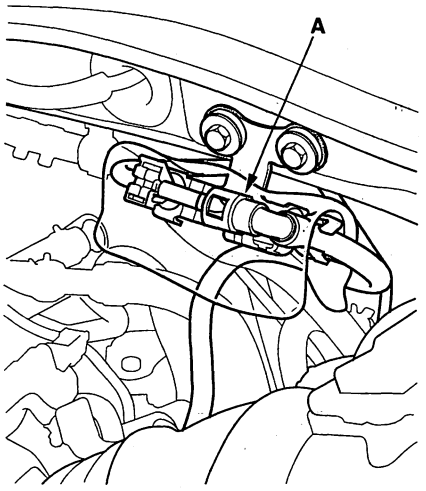


BACK

Protected by AR

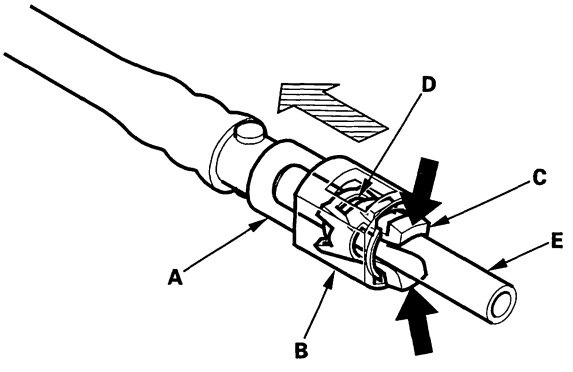
14. Check the fuel quick-connect fitting for dirt, and clean it if needed.

15. Place a rag or shop towel over the quick-connect fitting (A).



16. Disconnect the quick-connect fitting (A): Hold the connector (B) with one hand, and squeeze the retainer tabs (C) with the other hand to release them from the locking tabs (D). Pull the connector off.

    NOTE:
    - Be careful not to damage the line (E) or other parts.
    - Do not use tools.
    - If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
    - Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.



17. After disconnecting the quick-connect fitting, check it for dirt or damage (see step 4 on page 11-339).

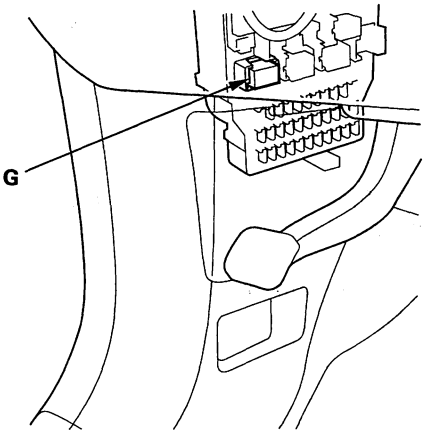
18. Reconnect the negative cable to the battery, then do this:

    - Enter the anti-theft code for the audio system and the navigation system (if equipped).
    - Set the clock.

Without the HDS

1. Make sure you have the anti-theft code for the audio system and the navigation system (if equipped).

2. Remove PGM-FI main relay 2 (G) from the under-dash fuse/relay box.



3. Start the engine, and let it idle until it stalls.

    NOTE: If any DTCs are stored, clear and ignore them.

(cont'd)

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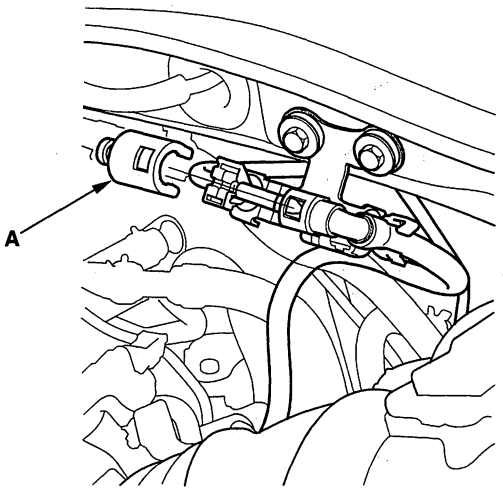
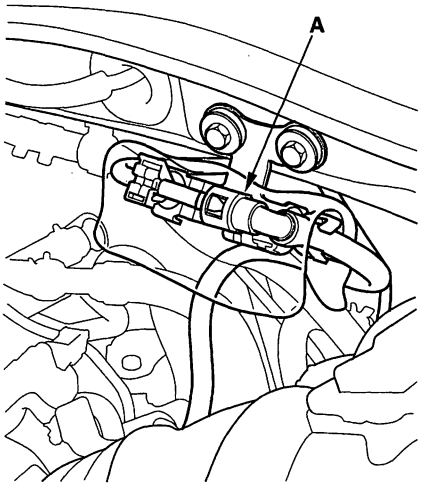
Fuel Pressure Relieving (cont'd)

4. Turn the ignition switch OFF.
5. Remove the fuel fill cap.
6. Disconnect the negative cable from the battery.
7. Remove the quick-connect fitting cover (A).

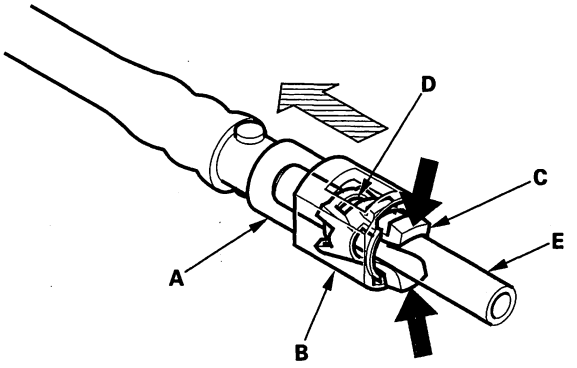


8. Check the fuel quick-connect fitting for dirt, and clean it if needed.
9. Place a rag or shop towel over the quick-connect fitting (A).



10. Disconnect the quick-connect fitting (A): Hold the connector (B) with one hand, and squeeze the retainer tabs (C) with the other hand to release them from the locking tabs (D). Pull the connector off.

    NOTE:
    - Be careful not to damage the line (E) or other parts.
    - Do not use tools.
    - If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
    - Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.



11. After disconnecting the quick-connect fitting, check it for dirt or damage (see step 4 on page 11-339).
12. Reconnect the negative cable to the battery, then do this:
    - Enter the anti-theft code for the audio system and the navigation system (if equipped).
    - Set the clock.

BACK

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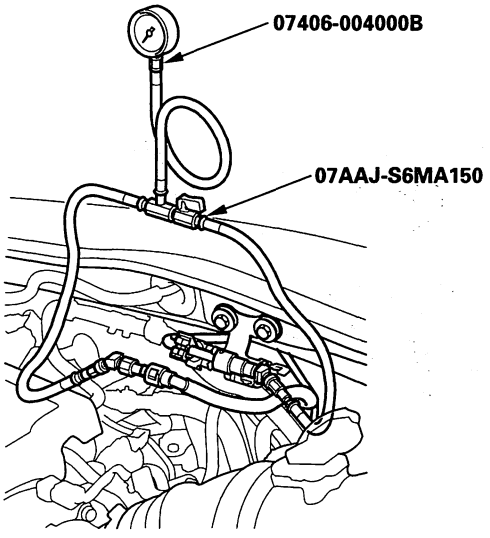
Fuel Pressure Test

Special Tools Required
- Fuel pressure gauge 07406-004000B
- Fuel pressure gauge attachment set 07AAJ-S6MA150

1. Relieve the fuel pressure (see page 11-330).
2. Disconnect the quick-connect fitting. Attach the fuel pressure gauge set and the fuel pressure gauge.



3. Start the engine, and let it idle.
   - If the engine starts, go to step 5.
   - If the engine does not start, go to step 4.
4. Check to see if the fuel pump is running: Listen to the fuel filler port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is first turned on.
   - If the pump runs, go to step 5.
   - If the pump does not run, refer to the DTC troubleshooting (see page 11-320).
5. Read the fuel pressure gauge. The pressure should be 390—440 kPa (4.0—4.5 kgf/cm^2, 57—64 psi).
   - If the pressure is OK, the test is complete.
   - If the pressure is out of specification, replace the fuel pressure regulator (see page 11-345) and the fuel filter (see page 11-345), then recheck the fuel pressure.

Fuel Tank Draining

1. Remove the fuel tank unit (see page 11-343).
2. Using a hand pump, a hose, and a container suitable for fuel, draw the fuel from the fuel tank.
3. Reinstall the fuel tank unit (see page 11-343).

BACK

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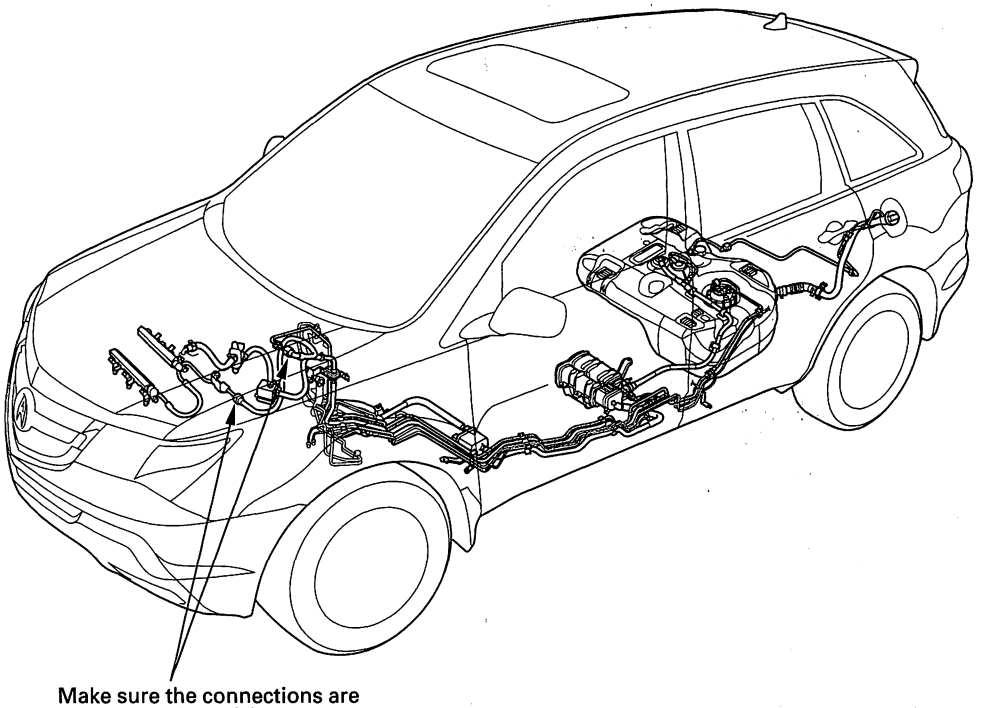
Fuel Line Inspection

Check the fuel system lines and hoses for damage, leaks, and deterioration. Replace any damaged parts.



Make sure the connections are secure and the quick-connect fitting covers are firmly locked in place.

BACK

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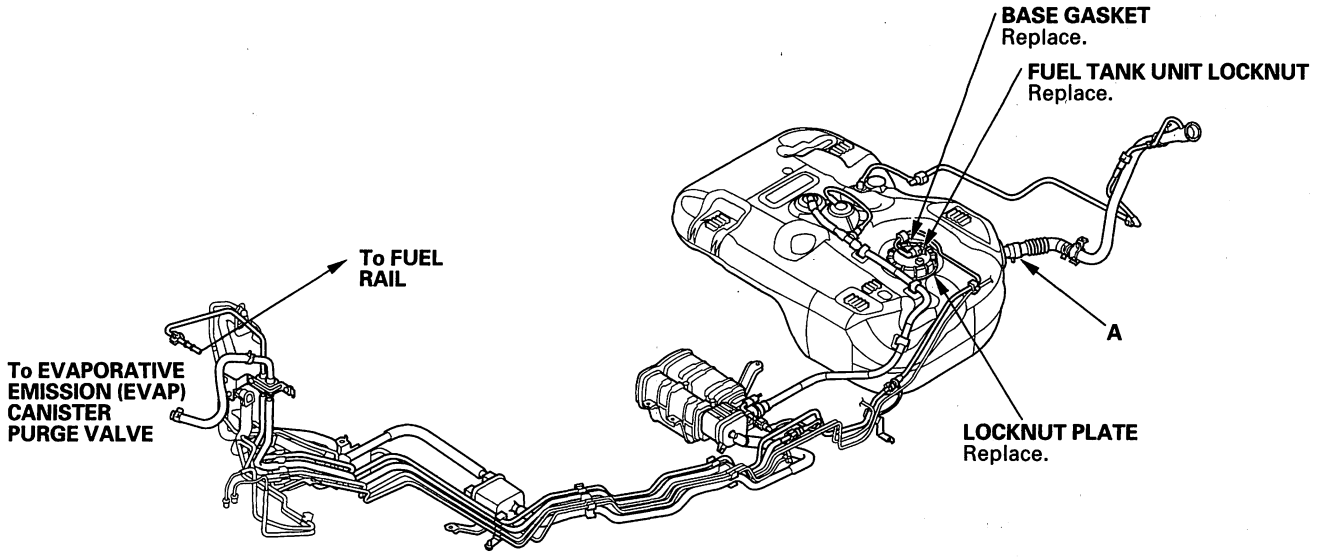
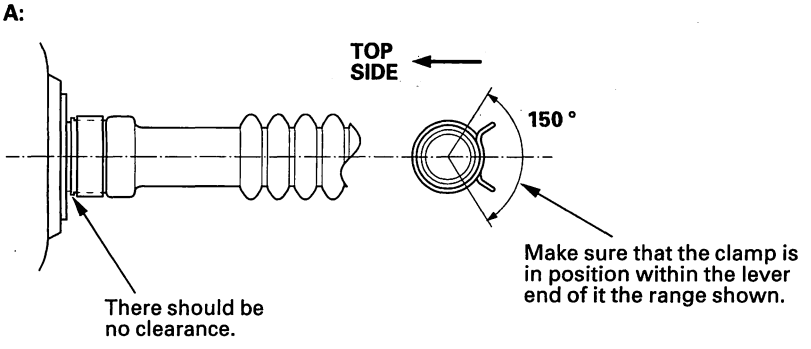
Check all clamps, and retighten if necessary.





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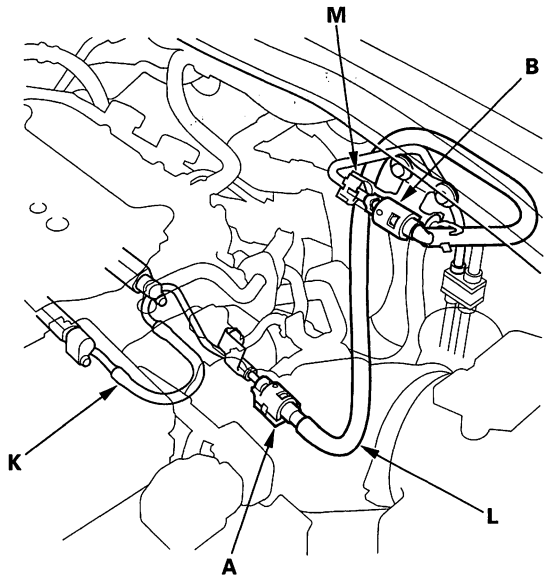
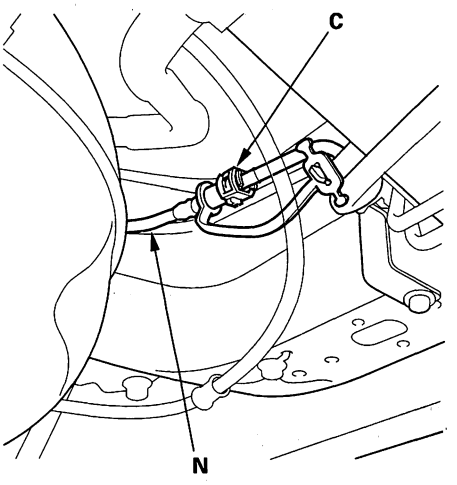
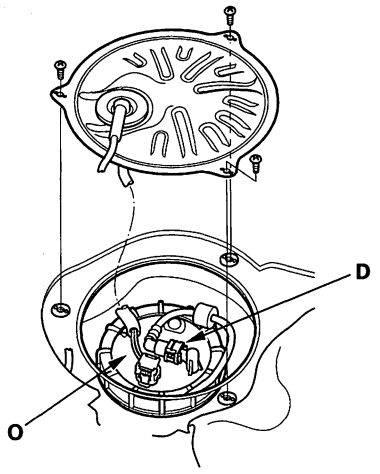
Fuel Line/Quick-Connect Fitting Precautions

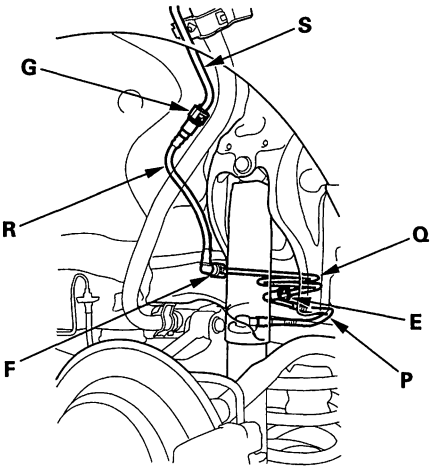
The fuel line/quick-connect fittings (A), (B), (C), (D), (E), (F), (G), (H), (I), (J) connect the fuel feed hose (K) to the fuel feed hose (L), the fuel feed hose to the fuel feed line (M), the fuel feed line to the fuel feed tube (N), the fuel feed tube to the fuel tank unit (O), the breather tube (P) to the breather pipe (Q), the breather pipe to the breather tube (R), the breather tube to the breather pipe (S), the EVAP canister (T) to the fuel vapor tube (U), the fuel vapor tube to the fuel vapor line (V), the fuel vent tube (W) and the vent shut float tube (X). When removing or installing the fuel feed hose, fuel tank unit, fuel tank or breather tube, it is necessary to disconnect or connect the quick-connect fittings.
Pay attention to the following:

- The fuel feed hoses, fuel line, and quick-connect fittings are not heat-resistant; be careful not to damage them during welding or other heat-generating procedures.
- The fuel feed hoses, fuel line, and quick-connect fittings are not acid-proof; do not touch them with a shop towel that was used for wiping battery electrolyte. Replace them if they came into contact with electrolyte or something similar.
- When connecting or disconnecting the fuel feed hoses, fuel line, and quick-connect fittings, be careful not to bend or twist them excessively. Replace them if they are damaged.









BACK

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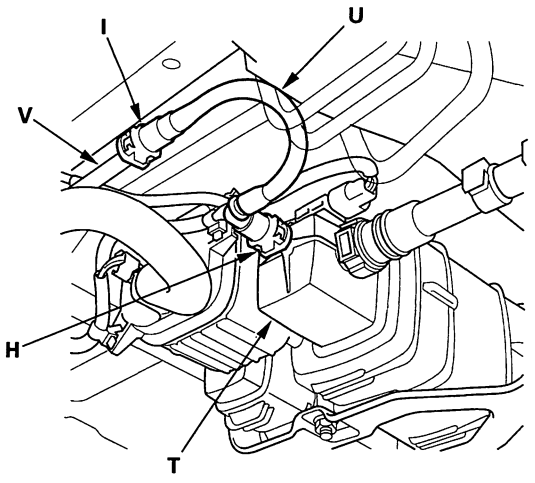

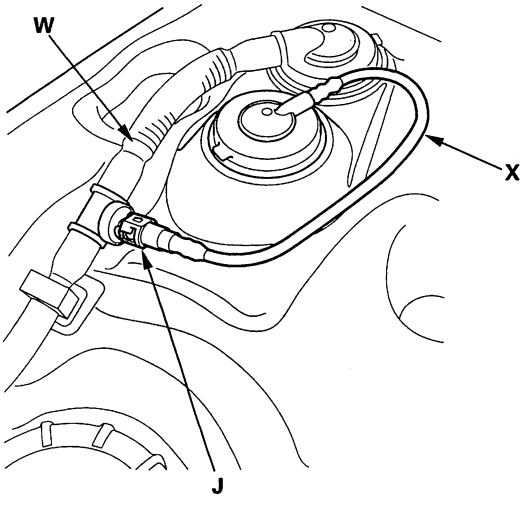

A disconnected quick-connect fitting can be reconnected, but the retainer on the mating line cannot be reused once it has been removed from the line. Replace the retainer when:

- replacing the fuel rail.
- replacing the fuel line.
- replacing the fuel pump.
- replacing the fuel filter.
- replacing the fuel gauge sending unit.
- replacing the EVAP purge pipe.
- replacing the EVAP canister.
- replacing the breather pipe.
- it has been removed from the line.
- it is damaged.

Place	Manufacturer	Retainer color	Line diameter
A	Tokai	Blue green	0.31 in. (8.0 mm)
B	Tokai	Blue green	0.31 in. (8.0 mm)
C	TI Automotive	Gray	0.31 in. (8.0 mm)
D	TI Automotive	Blue	0.37 in. (9.5 mm)
E	Tokai	Orange	0.37 in. (9.5 mm)
F	Tokai	Orange	0.37 in. (9.5 mm)
G	Tokai	Natural	0.47 in. (12 mm)
H	TI Automotive	Blue	0.37 in. (9.5 mm)
I	TI Automotive	Natural	0.47 in. (12 mm)
J	Tokai	White	0.31 in. (8.0 mm)

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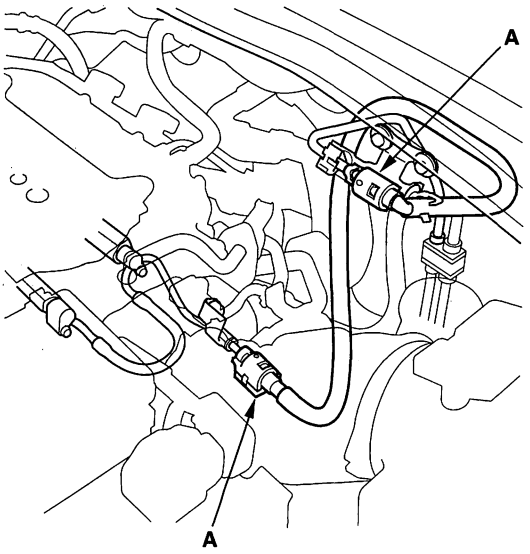
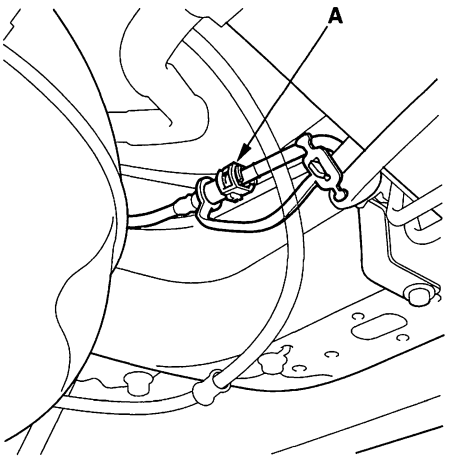
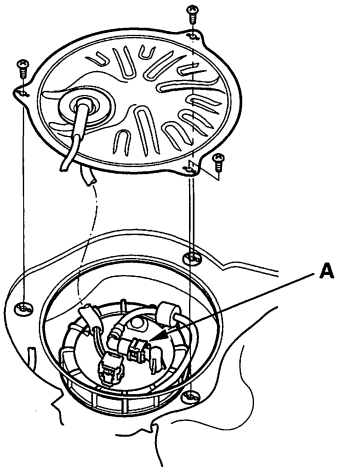
Fuel Line/Quick-Connect Fitting Removal

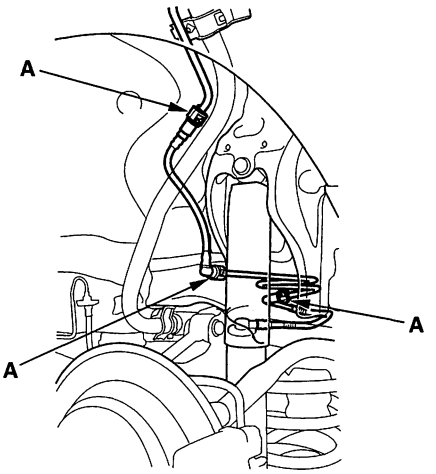
NOTE: Before you work on the fuel lines and fittings, read the "Fuel Line/Quick-Connect Fitting Precautions" (see page 11-336).

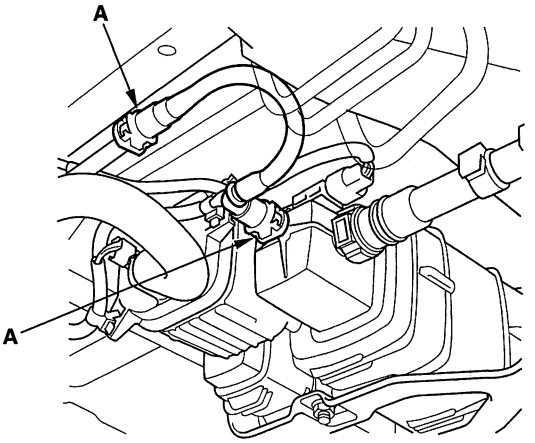
1. Relieve the fuel pressure (see page 11-330).
2. Check the fuel quick-connect fittings (A) for dirt, and clean them if needed.











BACK

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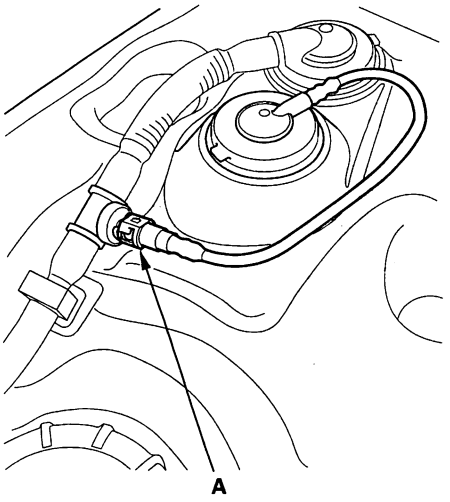
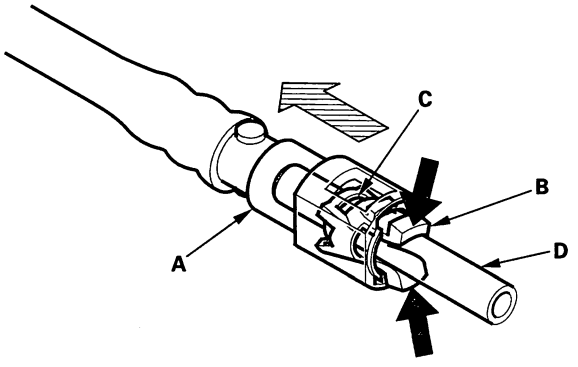
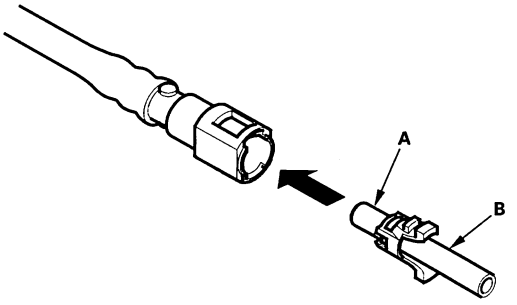


3. Place a rag or shop towel over the quick-connect fitting. Hold the connector (A) with one hand, and squeeze the retainer tabs (B) with the other hand to release them from the locking tabs (C). Pull the connector off.

   NOTE:
   - Be careful not to damage the line (D) or other parts. Do not use tools.
   - If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
   - Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.

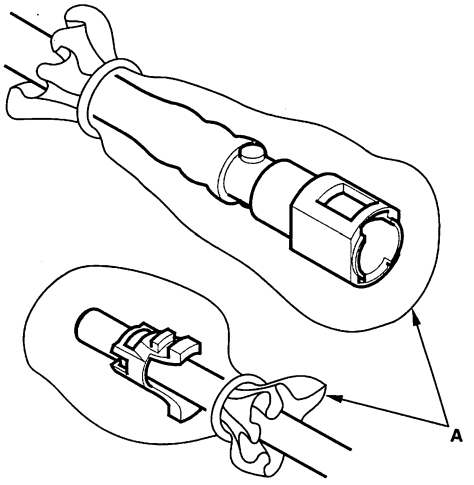


4. Check the contact area (A) of the line (B) for dirt or damage.
   - If it is dirty, clean it.
   - If it is rusty or damaged, replace the fuel pump, fuel filter, or fuel feed line.



5. To prevent damage and keep foreign matter out, cover the disconnected connector and line ends with plastic bags (A).

   NOTE: The retainer cannot be reused once it has been removed from the line.
   Replace the retainer when:
   - replacing the fuel rail.
   - replacing the fuel feed line.
   - replacing the fuel pump.
   - replacing the fuel filter.
   - replacing the fuel gauge sending unit.
   - replacing the EVAP purge pipe.
   - replacing the EVAP canister.
   - it has been removed from the line.
   - it is damaged.



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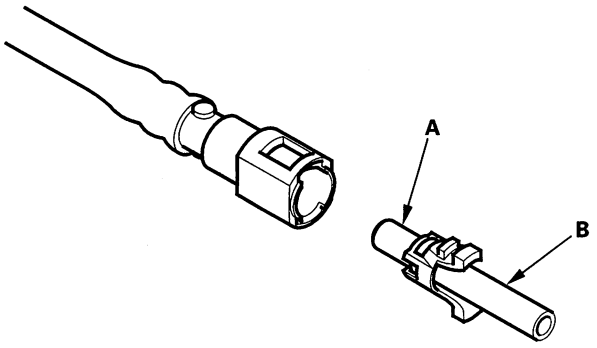
Fuel Line/Quick-Connect Fitting Installation

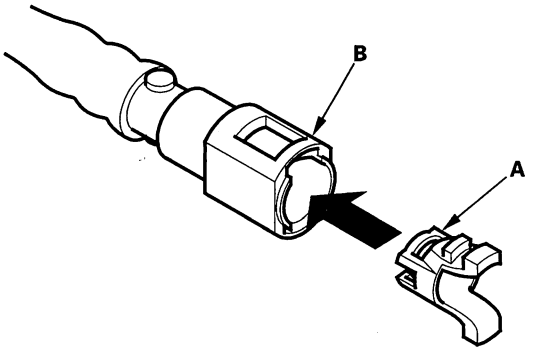
NOTE: Before you work on the fuel lines and fittings, read the "Fuel Line/Quick-Connect Fitting Precautions" (see page 11-336).

1. Check the contact area (A) of the line (B) for dirt or damage, and clean it if needed.

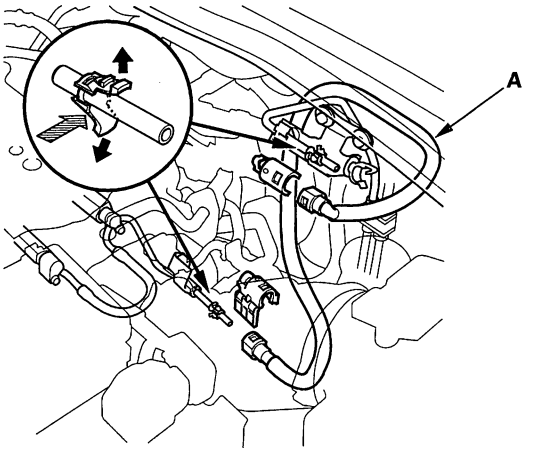


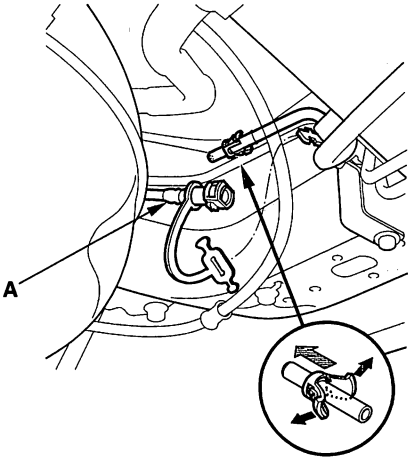
2. Insert a new retainer (A) into the connector (B) if the retainer is damaged, or after:

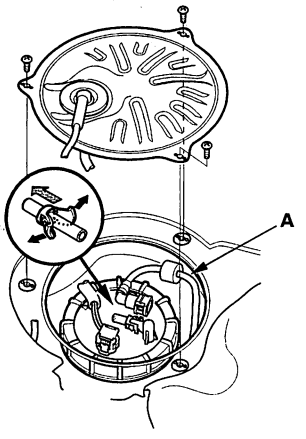
- replacing the fuel rail.
- replacing the fuel feed line.
- replacing the fuel pump.
- replacing the fuel filter.
- replacing the fuel gauge sending unit.
- replacing the EVAP purge pipe.
- replacing the EVAP canister.
- removing the retainer from the line.
- Use the same manufacturer retainer and the same size retainer when the replacing the retainer (see page 11-336).



3. Before connecting a new fuel tube/quick-connect fitting assembly (A), remove the old retainer from the mating line.

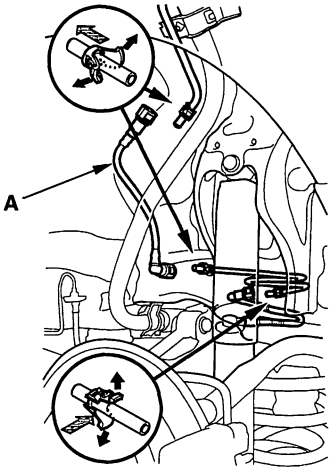


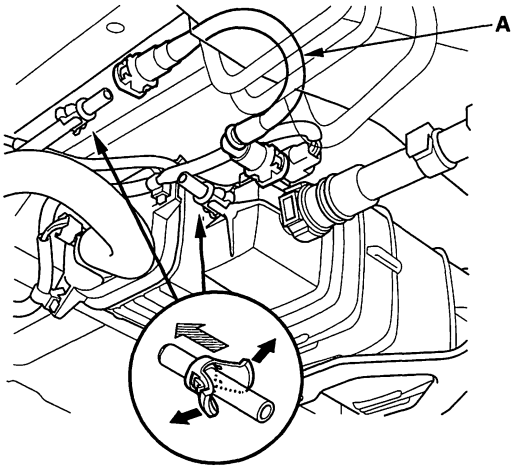


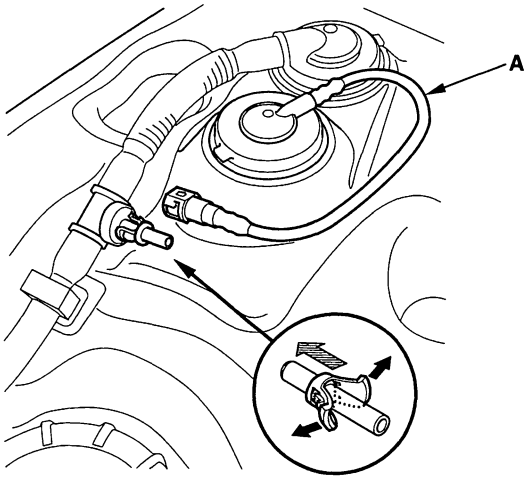


BACK

Protected by AR



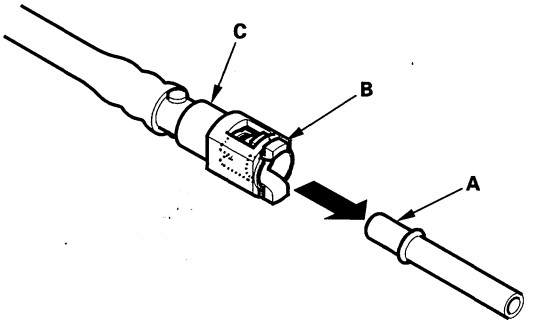




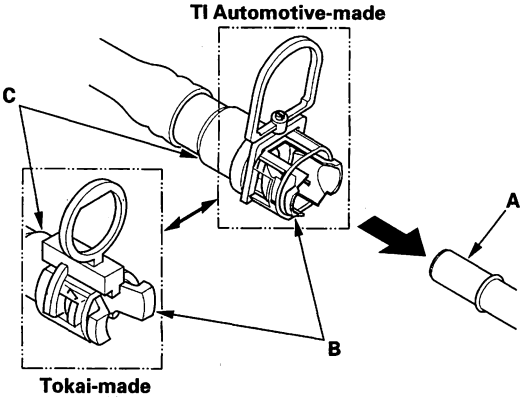
4. Align the quick-connect fittings with the line (A), and align the retainer locking tabs (B) with the connector grooves (C). Then press the quick-connect fittings onto the line until both retainer tabs lock with a clicking sound.

   NOTE: If it is hard to connect, put a small amount of new engine oil on the line end.

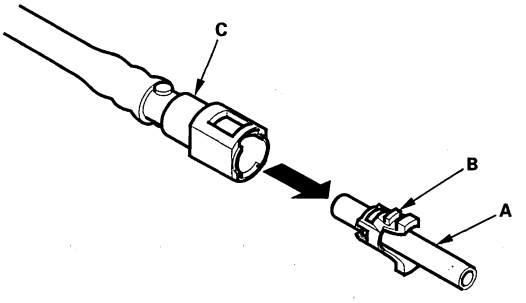
Connection with new retainer



Connection to new fuel line



Reconnection to existing retainer



(cont'd)

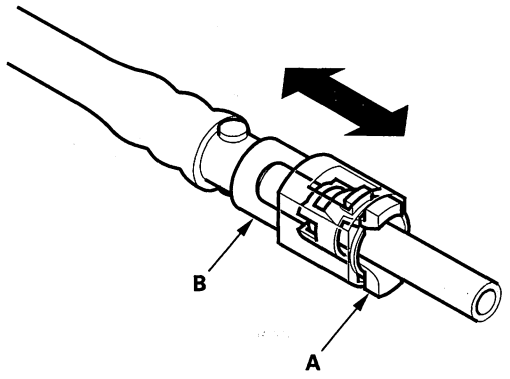
Protected by AR

Fuel Line/Quick-Connect Fitting Installation (cont'd)

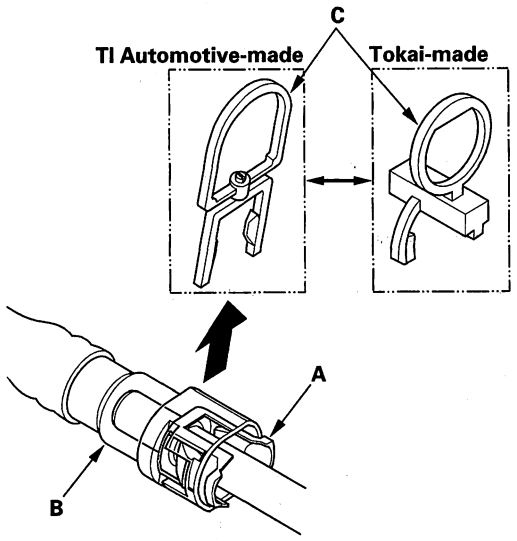
5. When you are reconnecting the connector with the old retainer, make sure the connection is secure and the tabs (A) are firmly locked into place; check visually and also by pulling the connector (B). When you are replacing the fuel line with a new one, make sure you remove the ring pull (C) upwards after you confirm the connection is secure.

   NOTE: Before you remove the ring pull, make sure the fuel line connection is secure. If the connection is not secure, the ring pull could break when you try to remove it.

   Reconnection to existing retainer



   Connection to new fuel line



6. Reconnect the negative cable to the battery, and turn the ignition switch ON (II) (but do not operate the starter motor). The fuel pump will run for about 2 seconds, and fuel pressure will rise. Repeat two or three times, and check that there is no leakage in the fuel supply system.

BACK

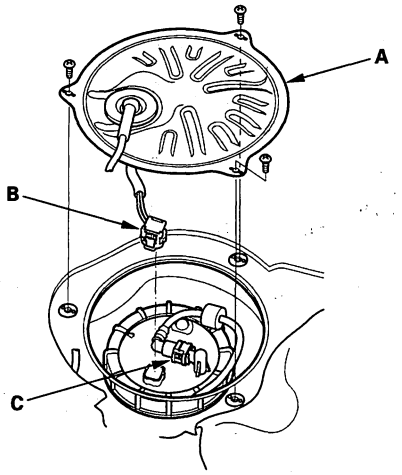
Protected by AR

Fuel Tank Unit Removal/Installation

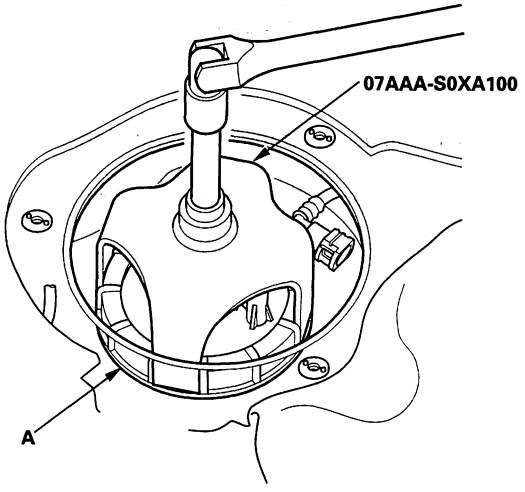
Special Tools Required
Fuel sender wrench 07AAA-S0XA100

Removal

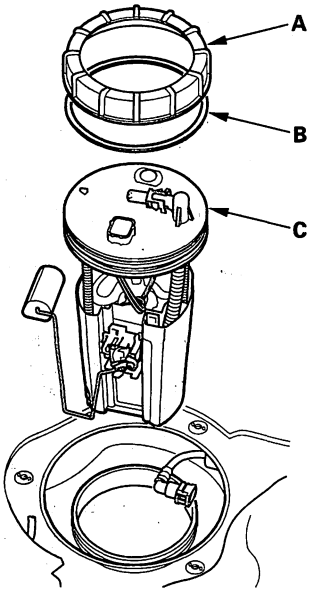
1. Relieve the fuel pressure (see page 11-330).
2. Remove the fuel fill cap.
3. Remove the second row seat (see page 20-156).
4. Remove the access panel (A) from the floor.



5. Disconnect the fuel tank unit 4P connector (B).
6. Disconnect the quick-connect fittings (C) from the fuel tank unit.
7. Using the fuel sender wrench, loosen the locknut (A).



8. Remove the locknut (A), locknut plate (B), and fuel tank unit (C).



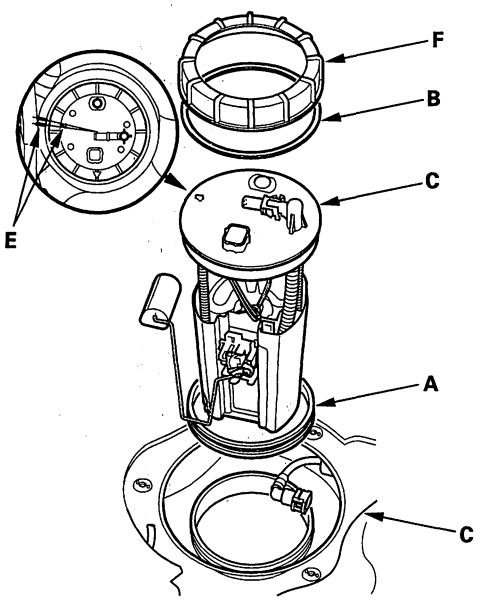
(cont'd)

Protected by AR

Fuel Tank Unit Removal/Installation (cont'd)

Installation

1. Install a new base gasket (A) and locknut plate (B) on the fuel tank (C).

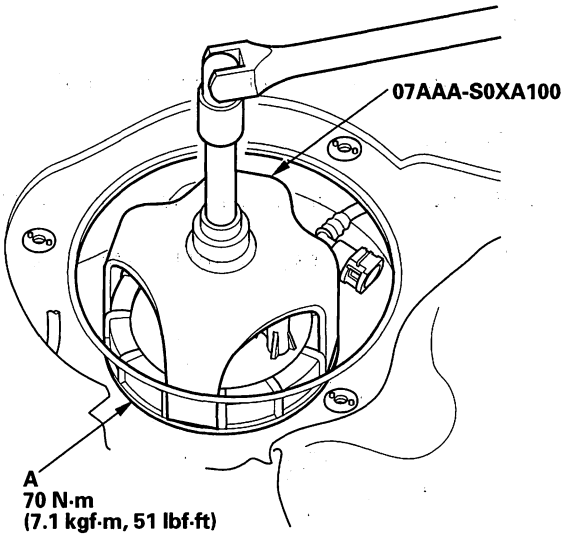


2. Insert the fuel tank unit (D) into the fuel tank. Be careful not to bend the fuel gauge sending unit.

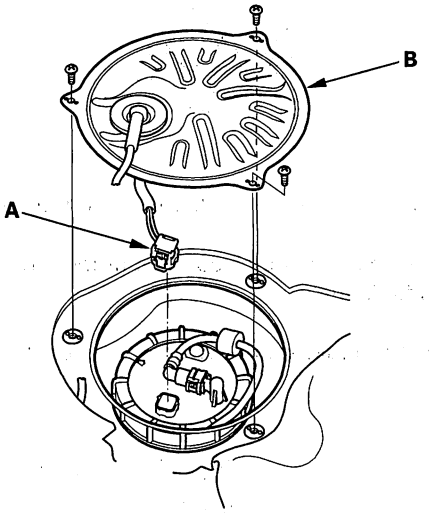
3. Align the marks (E) on the tank and the fuel tank unit, then tighten a new locknut (F) by hand.

   NOTE:
   - After tightening, make sure the marks are aligned. Check the circumference of the base gasket visually or by hand and be sure that it is not pinched.
   - Do not coat the base gasket with the engine oil.
   - After installation, check the base gasket visually or by hand to be sure it is not pinched.

4. Using the fuel sender wrench, tighten the fuel tank unit locknut (A).



5. Connect the fuel tank unit 4P connector (A).



6. Install the access panel (B) to the floor.

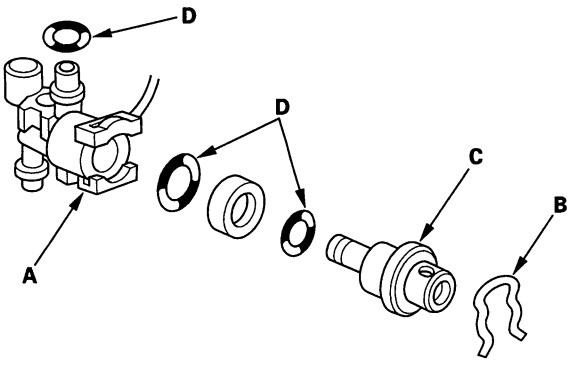
7. Install the second row seat (see page 20-156).

BACK

Protected by AR

Fuel Pressure Regulator Replacement

1. Remove the fuel tank unit (see page 11-343).
2. Remove the bracket (A).



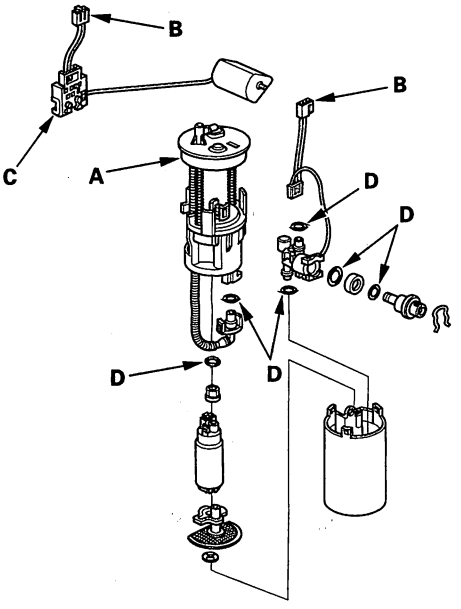
3. Remove the clip (B).
4. Remove the fuel pressure regulator (C).
5. Install the parts in the reverse order of removal with new O-rings (D).

   NOTE: Coat the O-rings with clean engine oil. Do not use any other type of oil or fluid.
   Do not pinch the O-rings during installation.

Fuel Filter Replacement

The fuel filter should be replaced whenever the fuel pressure drops below the specified value (see page 11-333), after making sure that the fuel pump and the fuel pressure regulator are OK.

1. Remove the fuel tank unit (see page 11-343).
2. Remove the fuel filter set (A).



3. Check these items before installing the fuel tank unit:

   - When connecting the wire harness, make sure the connection is secure and the connectors (B) are firmly locked into place.
   - When installing the fuel gauge sending unit (C), make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist it excessively.

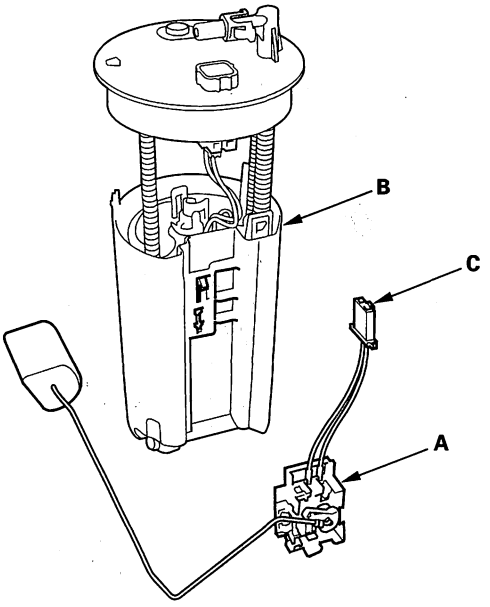
4. Install the fuel filter set in the reverse order of removal with new O-rings (D). When installing the fuel tank unit, align the marks on the unit and the fuel tank (see page 11-344).

   NOTE: Coat the O-rings with clean engine oil.

Protected by AR

Fuel Pump/Fuel Gauge Sending Unit Replacement

1. Remove the fuel tank unit (see page 11-343).
2. Remove the fuel level sensor (fuel sending unit) (A) from the fuel tank unit (B).



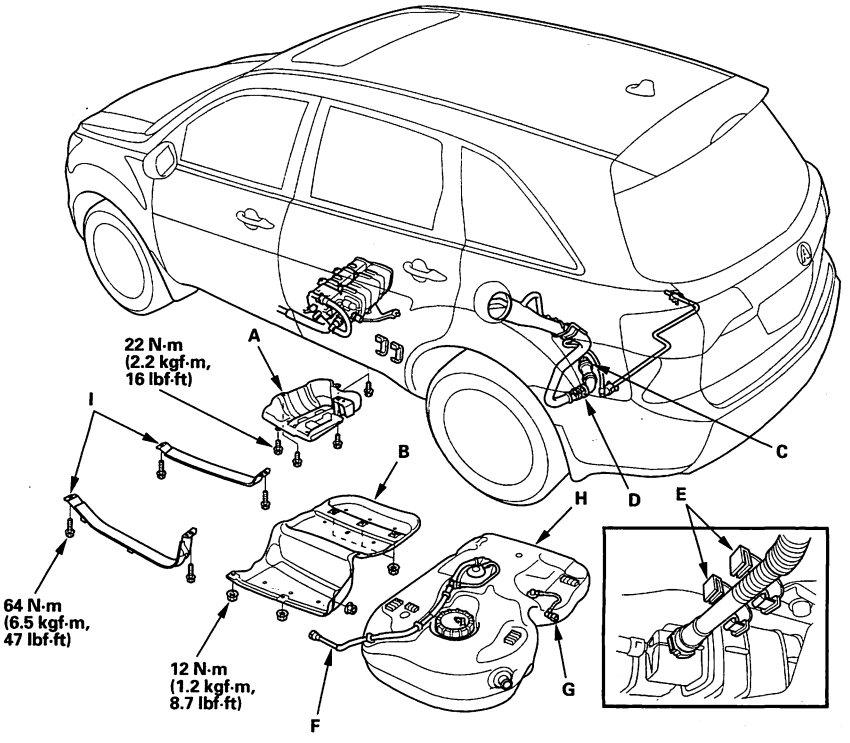
3. Check these items before installing the fuel tank.
   - When connecting the wire harness, make sure the connection is secure and the connectors (C) is firmly locked into place.
   - When installing the fuel gauge sending unit, make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist it excessively.
4. Install the parts in the reverse order of removal. When installing the fuel tank unit, align the marks on the unit and the fuel tank (see page 11-344).

BACK

Protected by AR

Fuel Tank Replacement

1. Drain the fuel tank (see page 11-333).
2. Jack up the vehicle, and support it with jackstands.
3. Remove the exhaust pipe (see page 9-9).
4. Remove the propeller shaft (see page 16-38), and support it with jackstands.
5. Remove the fuel tank guard (A) and fuel tank protector (B).



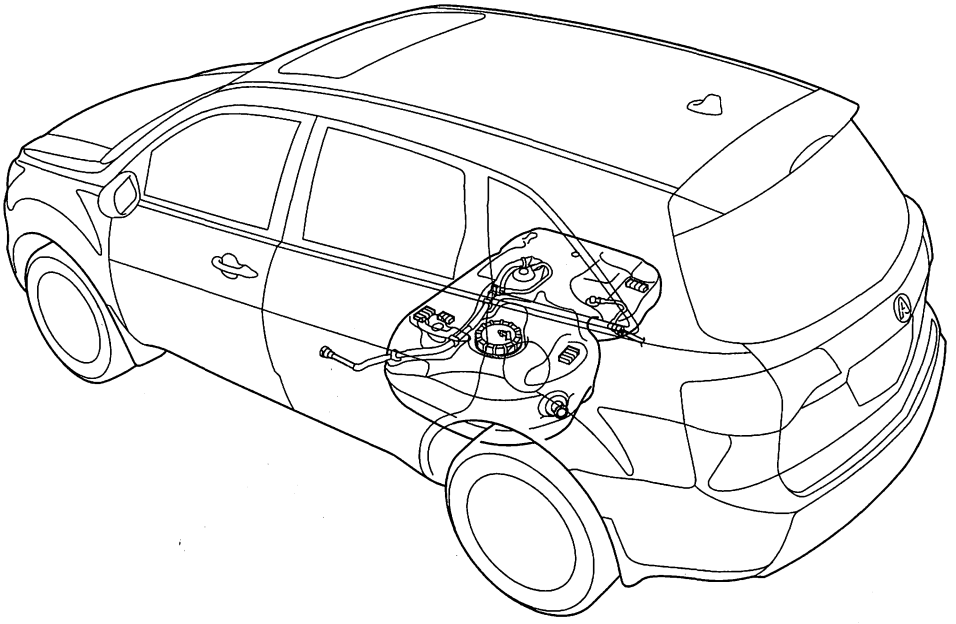
6. Loosen the clamp (C), and disconnect the tube (D).
7. Open the clamp (E).
8. Disconnect the hoses (F). Slide back the clamps, then twist the hoses as you pull to avoid damaging them.
9. Disconnect the hose (G).
10. Place a jack or other support under the tank (H).
11. Remove the strap bolts and the straps (I).
12. Remove the fuel tank.
13. Install the parts in the reverse order of removal.

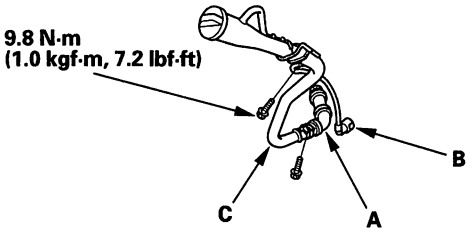
BACK

Protected by AR

Fuel Fill Pipe Removal/Installation

1. Relieve the fuel pressure (see page 11-330).
2. Drain the fuel tank (see page 11-333).
3. Remove the fuel fill cap.
4. Remove the rear fender cover (see page 20-221).
5. Disconnect the fuel fill tube (A) and the quick-connector fittings (B).





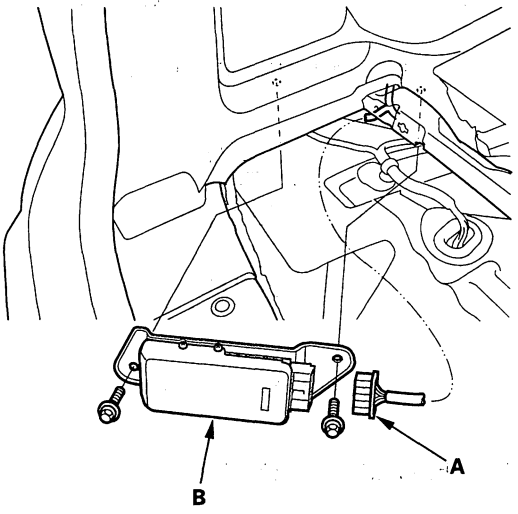
6. Remove the fuel fill pipe (C).
7. Install the parts in the reverse order of removal.

BACK

Protected by AR

Fuel Pump Control Module Replacement

1. Remove the cargo floor lid (see step 1 on page 20-90).
2. On models with active suspension, remove the active damper control unit (see page 18-118).
3. Disconnect the fuel pump control module connector (A).



4. Remove the fuel pump control module (B).
5. Install the parts in the reverse order of removal.

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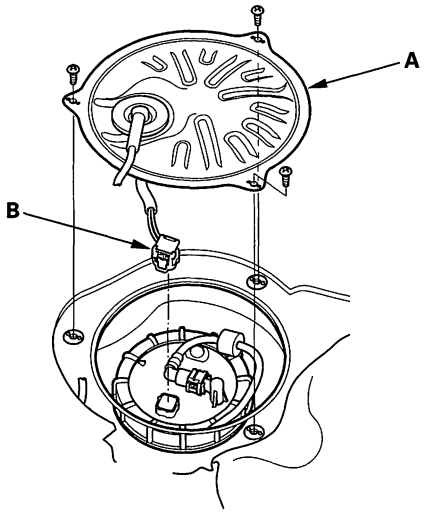
Fuel Gauge Sending Unit Test

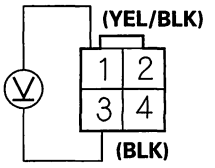
NOTE: For the fuel gauge system circuit diagram, refer to the Gauges Circuit Diagram (see page 22-318).

1. Check the No. 21 METER (7.5 A) fuse in the under-dash fuse/relay box before testing.
2. Check for body electrical system DTCs (see page 22-3).
   - If no problem is found, go to step 3.
   - If DTC B1175 (see page 22-328) or B1176 (see page 22-329) is indicated, go to the indicated DTC's troubleshooting.
3. Turn the ignition switch OFF.
4. Remove the second row seat (see page 20-156).
5. Remove the access panel (A) from the floor.



6. Disconnect the fuel tank unit 4P connector (B).
7. Measure voltage between fuel tank unit 4P connector terminals No. 1 and No. 3 with the ignition switch ON (II). There should be battery voltage.
   - If the voltage is OK, go to step 8.
   - If the voltage is not as specified, check for:
     – a short in the YEL/BLK wire to ground.
     – an open in the YEL/BLK or BLK wire.

FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

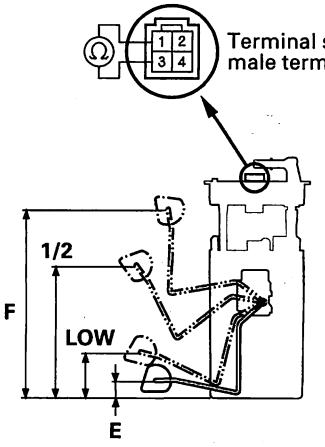
8. Turn the ignition switch OFF.
9. Remove the fuel tank unit from the fuel tank (see page 11-343).

BACK

Protected by AR

10. Measure resistance between fuel tank unit 4P connector terminals No. 1 and No. 3 with the float at E (EMPTY), LOW (LOW FUEL INDICATOR), 1/2 (HALF FULL), and F (FULL) positions.
If you do not get the following readings, replace the fuel gauge sending unit (see page 11-346).

Float Position	F	1/2	LOW	E
	8.4 in. (214.2 mm)	5.9 in. (149.4 mm)	2.0 in. (50.8 mm)	0.8 in. (19.1 mm)
Resistance (Ω)	19 to 21	203.3 to 213.3	516.4 to 629	772 to 788



11. Reconnect the fuel tank unit 4P connector.

12. Remove the No. 7 BACK UP (10 A) fuse from the under-dash fuse/relay box for at least 10 seconds, then reinstall it.

13. Turn the ignition switch ON (II).

14. Check that the pointer of the fuel gauge indicates "F" with the float at F.

- If the pointer of the fuel gauge does not indicate "F", replace the gauge assembly.
- If the gauge is OK, the test is complete.

NOTE:
- The pointer of the fuel gauge returns to the bottom of the gauge dial when the ignition switch is OFF, regardless of the fuel level.
- Remove the No. 7 BACK UP (10 A) fuse from the under-dash fuse/relay box for at least 10 seconds after completing troubleshooting, otherwise it may take up to 20 minutes for the fuel gauge to indicate the correct fuel level.

Low Fuel Indicator Test

1. Do the gauge self-diagnostic test (see page 22-315).

- If the low fuel indicator flashes, go to step 2.
- If the low fuel indicator does not flash, replace the gauge control module (see page 22-337).

2. Check for body electrical system DTCs.

- If any DTCs are indicated, do the indicated DTC's troubleshooting.
- If no DTCs are indicated, go to step 3.

3. Do the fuel gauge sending unit test (see page 11-350).

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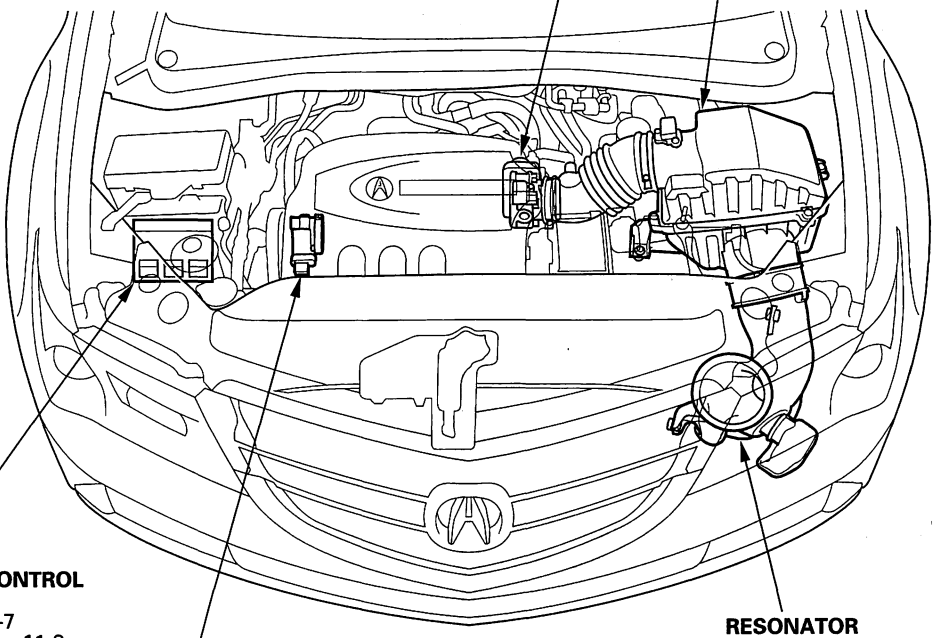
Component Location Index



THROTTLE BODY
Test, page 11-362
Cleaning, page 11-363
Removal/Installation, page 11-366

AIR CLEANER
Removal/Installation, page 11-363
Element Inspection/Replacement, page 11-364

POWERTRAIN CONTROL MODULE (PCM)
Update, page 11-7
Substitution, page 11-8
Replacement, page 11-244

INTAKE MANIFOLD TUNING (IMT) ACTUATOR
Replacement, page 11-365

RESONATOR
Removal/Installation, page 11-365

BACK

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DTC P1077: IMT Valve Stuck in High RPM Position

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and then let it idle without load (in Park or neutral) until the radiator fan comes on.
4. Start the engine, and hold the engine speed above 3,800 rpm.
5. Check the IMT VALVE CMD in the DATA LIST with the HDS.

   Is OPEN indicated?

   YES—Go to step 6.

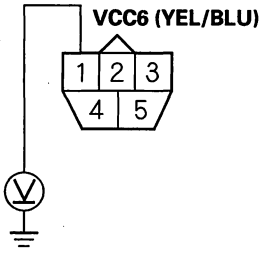
   NO—Go to step 35.
6. Check the IMT VALVE SW in the DATA LIST with the HDS.

   Is CLOSE indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IMT actuator and the PCM. ■
7. Let the engine idle, then turn the ignition switch OFF.
8. Disconnect the IMT actuator 5P connector.
9. Turn the ignition switch ON (II).
10. Measure voltage between IMT actuator 5P connector terminal No. 1 and body ground.

IMT ACTUATOR 5P CONNECTOR



Wire side of female terminals

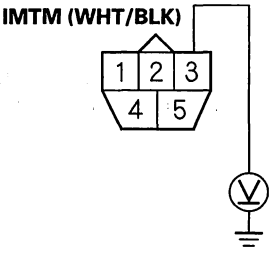
Is there about 5 V?

YES—Go to step 11.

NO—Repair open in the wire between the PCM (C11) and the IMT actuator, then go to step 26.

11. Measure voltage between IMT actuator 5P connector terminal No. 3 and body ground.

IMT ACTUATOR 5P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 12.

NO—Go to step 16.

(cont'd)

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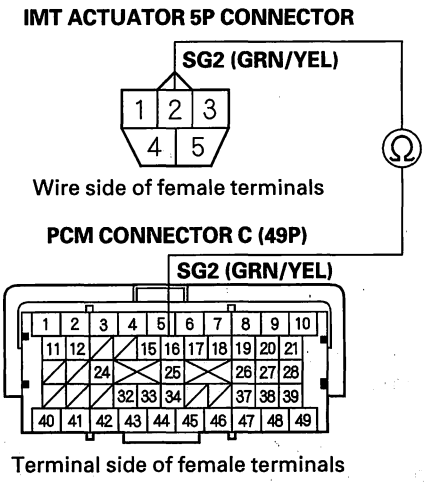
DTC Troubleshooting (cont'd)

12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector C (49P).
15. Check for continuity between PCM connector terminal C16 and IMT actuator 5P connector terminal No. 2.

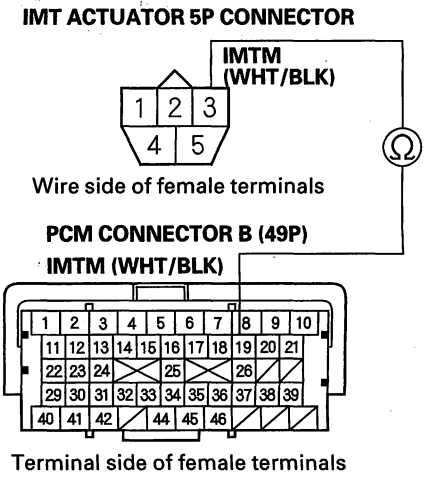


Is there continuity?

YES—Go to step 20.

NO—Repair open in the wire between the PCM (C16) and the IMT actuator, then go to step 26.

16. Turn the ignition switch OFF.
17. Jump the SCS line with the HDS.
18. Disconnect PCM connector B (49P).
19. Check for continuity between PCM connector terminal B19 and IMT actuator 5P connector terminal No. 3.



Is there continuity?

YES—Go to step 34.

NO—Repair open in the wire between the PCM (B19) and the IMT actuator, then go to step 26.

BACK

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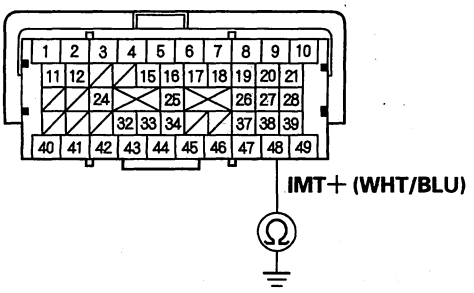
20. Check for continuity between PCM connector terminal C48 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

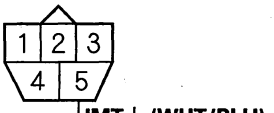
Is there continuity?

YES—Repair short in the wire between the PCM (C48) and the IMT actuator, then go to step 26.

NO—Go to step 21.

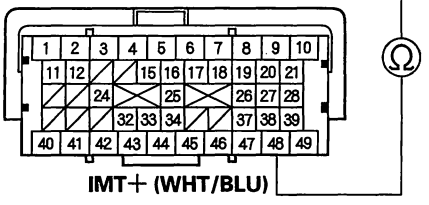
21. Check for continuity between PCM connector terminal C48 and IMT actuator 5P connector terminal No. 5.

IMT ACTUATOR 5P CONNECTOR



Wire side of female terminals

PCM CONNECTOR C (49P)



Terminal side of female terminals

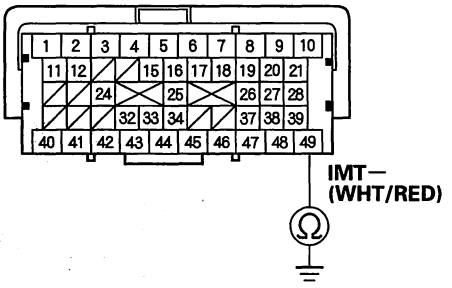
Is there continuity?

YES—Go to step 22.

NO—Repair open in the wire between the PCM (C48) and the IMT actuator, then go to step 26.

22. Check for continuity between PCM connector terminal C49 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (C49) and the IMT actuator, then go to step 26.

NO—Go to step 23.

(cont'd)

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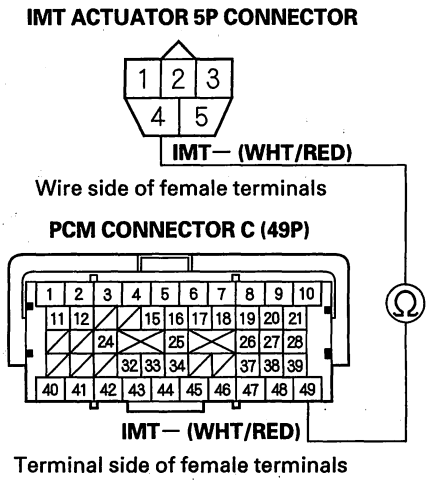
DTC Troubleshooting (cont'd)

23. Check for continuity between PCM connector terminal C49 and IMT actuator 5P connector terminal No. 4.



Is there continuity?

YES—Go to step 24.

NO—Repair open in the wire between the PCM (C49) and the IMT actuator, then go to step 26.

24. Remove the IMT actuator (see page 11-365).

25. Move the IMT valve by hand.

Does it move smoothly?

YES—Substitute a known-good IMT actuator (see page 11-365), then go to step 26 and recheck. If DTC P1078 is not indicated, replace the IMT actuator (see page 11-365), then go to step 26. If DTC P1078 is indicated, go to step 35.

NO—Remove the engine cover (see step 1 on page 9-3), and repair the stuck valve. If necessary, replace the intake manifold (see page 9-2), then go to step 26.

26. Reconnect all connectors.

27. Turn the ignition switch ON (II).

28. Reset the PCM with the HDS.

29. Do the PCM idle learn procedure (see page 11-311).

30. Start the engine, and then let it idle without load (in Park or neutral) until the radiator fan comes on.

31. Start the engine, and hold the engine speed at 3,800 rpm for 10 seconds, then let it idle.

32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1077 indicated?

YES—Check for poor connections or loose terminals at the IMT actuator and the PCM, then go to step 1.

NO—Go to step 33.

BACK

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33. Monitor the OBD STATUS for DTC P1077 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 32, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the IMT actuator and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 31.

34. Reconnect all connectors.

35. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

36. Start the engine, and then let it idle without load (in Park or neutral) until the radiator fan comes on.

37. Start the engine, and hold the engine speed at 3,800 rpm for 10 seconds, then let it idle.

38. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1077 indicated?

    YES—Check for poor connections or loose terminals at the IMT actuator and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 37. If the PCM was substituted, go to step 1.

    NO—Go to step 39.

39. Monitor the OBD STATUS for DTC P1077 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 38, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the IMT actuator and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 37. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 37.

BACK

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DTC Troubleshooting (cont'd)

DTC P1078: IMT Valve Stuck in Low RPM Position

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle.
4. Check the IMT VALVE CMD in the DATA LIST with the HDS.

   Is CLOSE indicated?

   YES—Go to step 5.

   NO—Go to step 29.
5. Check the IMT VALVE SW in the DATA LIST with the HDS.

   Is OPEN indicated?

   YES—Go to step 6.

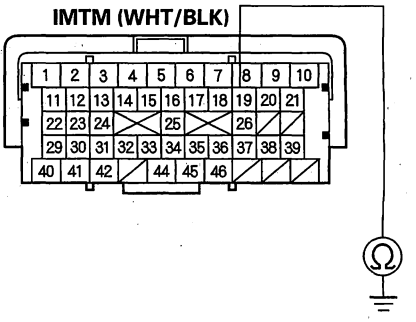
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IMT actuator and the PCM. ■
6. Turn the ignition switch OFF.
7. Disconnect the IMT actuator 5P connector.
8. Turn the ignition switch ON (II).
9. Check the IMT VALVE SW in the DATA LIST with the HDS.

   Is CLOSE indicated?

   YES—Go to step 14.

   NO—Go to step 10.
10. Turn the ignition switch OFF.
11. Jump the SCS line with the HDS.
12. Disconnect PCM connector B (49P).
13. Check for continuity between PCM connector terminal B19 and body ground.

PCM CONNECTOR B (49P)



Terminal side of female terminals

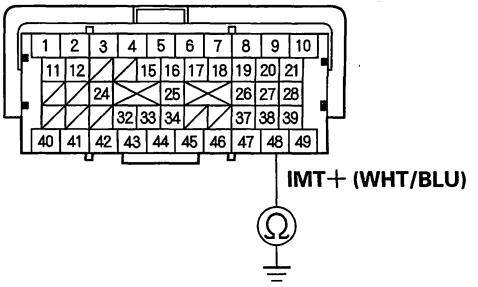
Is there continuity?

YES—Repair short in the wire between the PCM (B19) and the IMT actuator, then go to step 23.

NO—Go to step 30.

14. Turn the ignition switch OFF.
15. Jump the SCS line with the HDS.
16. Disconnect PCM connector C (49P).
17. Check for continuity between PCM connector terminal C48 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

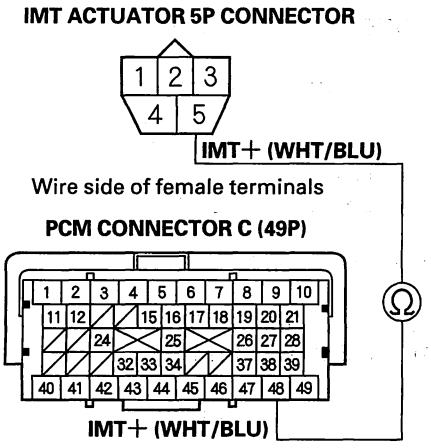
YES—Repair short in the wire between the PCM (C48) and the IMT actuator, then go to step 23.

NO—Go to step 18.

BACK

Protected by AR

18. Check for continuity between PCM connector terminal C48 and IMT actuator 5P connector terminal No. 5.

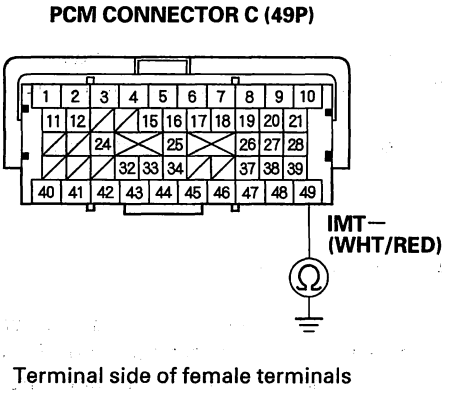


Is there continuity?

YES—Go to step 19.

NO—Repair open in the wire between the PCM (C48) and the IMT actuator, then go to step 23.

19. Check for continuity between PCM connector terminal C49 and body ground.

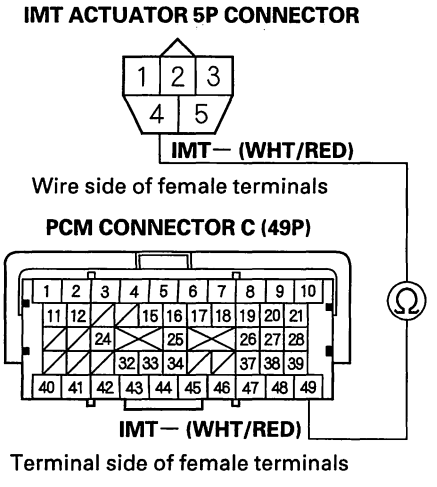


Is there continuity?

YES—Repair short in the wire between the PCM (C49) and the IMT actuator, then go to step 23.

NO—Go to step 20.

20. Check for continuity between PCM connector terminal C49 and IMT actuator 5P connector terminal No. 4.



(cont'd)

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DTC Troubleshooting (cont'd)

Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire between the PCM (C49) and the IMT actuator, then go to step 23.

21. Remove the IMT actuator (see page 11-365).
22. Move the IMT valve by hand.

    Does it move smoothly?

    YES—Substitute a known-good IMT actuator (see page 11-365), then go to step 23 and recheck. If DTC P1077 is not indicated, replace the IMT actuator (see page 11-365), then go to step 23. If DTC P1077 is indicated, go to step 31.

    NO—Remove the intake manifold cover (see step 1 on page 9-3), and repair the stuck valve. If necessary, replace the intake manifold (see page 9-2), then go to step 23.
23. Reconnect all connectors.
24. Turn the ignition switch ON (II).
25. Reset the PCM with the HDS.
26. Do the PCM idle learn procedure (see page 11-311).
27. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1077 indicated?

    YES—Check for poor connections or loose terminals at the IMT actuator and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 28.
28. Monitor the OBD STATUS for DTC P1078 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 27, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the IMT actuator and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.
29. Turn the ignition switch OFF.
30. Reconnect all connectors.
31. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

BACK

Protected by AR

32. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1078 indicated?

    YES—Check for poor connections or loose terminals at the IMT actuator and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 33.

33. Monitor the OBD STATUS for DTC P1078 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 32, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the IMT actuator and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

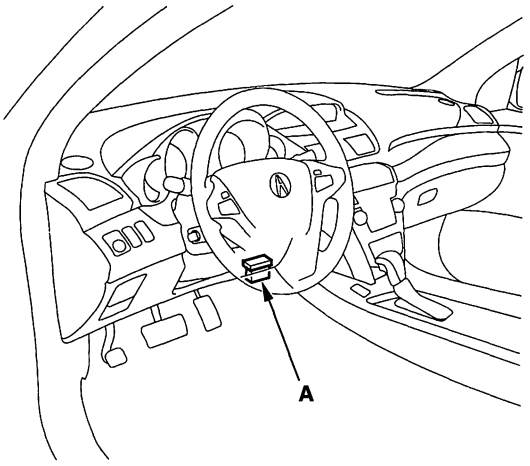
Protected by AR

Throttle Body Test

Carbon Accumulation Check

NOTE: If the malfunction indicator lamp (MIL) has been reported on, check for diagnostic trouble codes (DTCs).

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.

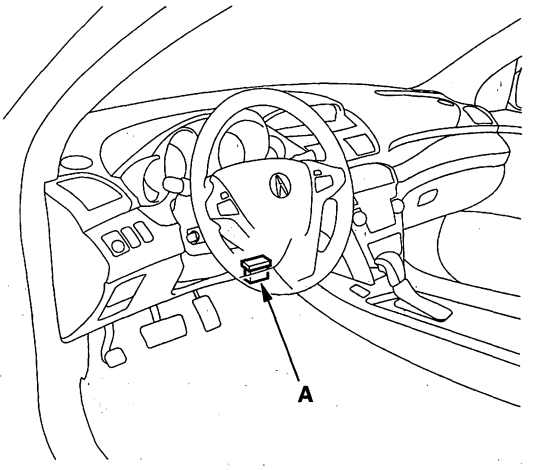


2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the PCM and other vehicle systems. If it does not, go to the DLC circuit troubleshooting (see page 11-223).
4. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
5. Check the REL TP SENSOR in the DATA LIST with the HDS. The reading should be below 4.3 deg. If it is not, clean the throttle body (see page 11-363).

Throttle Position Learning Check

NOTE: If the malfunction indicator lamp (MIL) has been reported on, check for diagnostic trouble codes (DTCs).

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the PCM and other vehicle systems. If it does not, go to the DLC circuit troubleshooting (see page 11-223).
4. Select the INSPECTION MENU with the HDS.
5. Do the TP LEARNING CHECK in the ETCS TEST. If needed, clean the throttle body (see page 11-363).

BACK

Protected by AR

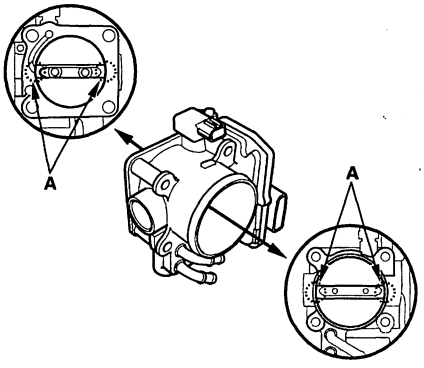
Throttle Body Cleaning

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

1. Check for damage to the air cleaner. If the air cleaner is damaged, replace it (see page 11-363).
2. Remove the throttle body (see page 11-366).
3. Clean off the carbon from the throttle valve and inside the throttle body with a paper towel soaked in throttle plate and induction cleaner.

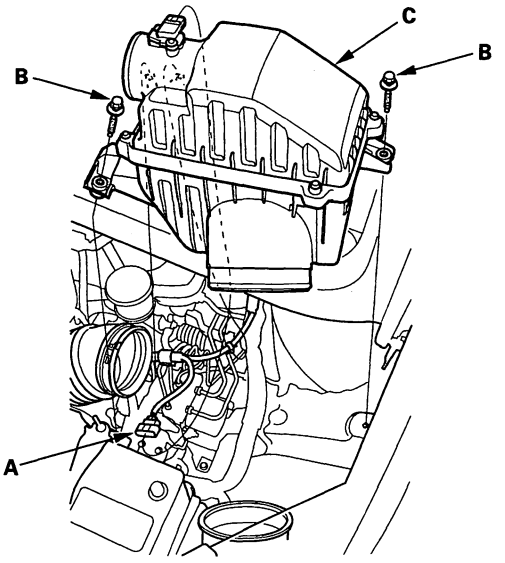
   NOTE:
   - Remove the throttle body to clean it.
   - Be careful not to pinch your fingers.
   - To avoid removing the molybdenum coating, do not clean the bearing area of the throttle shaft (A).
   - Do not spray throttle plate and induction cleaner directly on the throttle body.
   - Use Acura genuine throttle plate and induction cleaner.



4. Install the throttle body (see page 11-366).
5. Reset the PCM with the HDS (see page 11-4).
6. Turn the ignition switch ON (II), and wait for 2 seconds.
7. Do the PCM idle learn procedure (see page 11-311).

Air Cleaner Removal/Installation

1. Disconnect the MAF sensor/IAT sensor 5P connector (A).

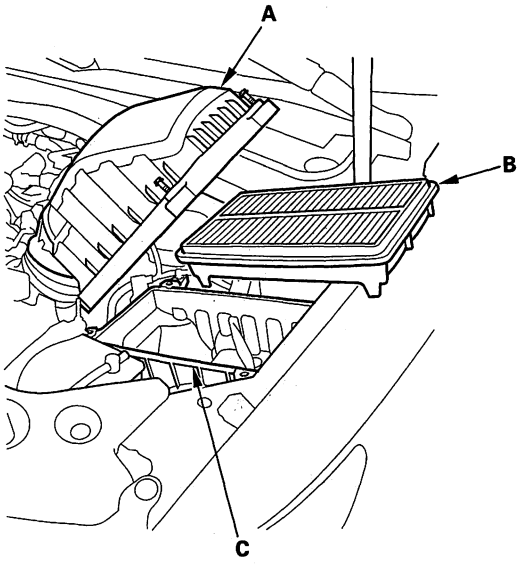


2. Remove the bolts (B).
3. Remove the air cleaner (C).
4. Install the parts in the reverse order of removal.

Protected by AR

Air Cleaner Element Inspection/Replacement

1. Open the air cleaner housing cover (A).



2. Remove the air cleaner element (B) from the air cleaner housing (C).

3. Check the air cleaner element for damage or clogging. If there is damage or clogging, replace the air cleaner element.

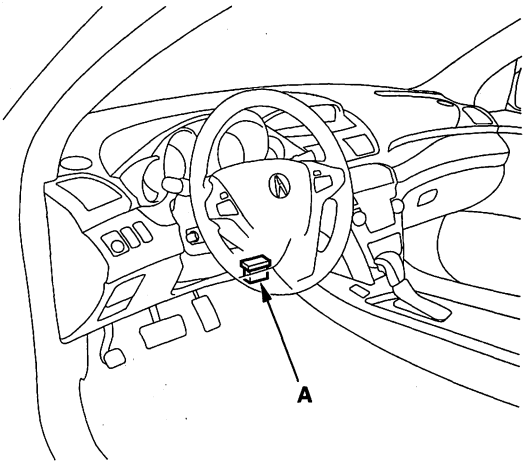
   NOTE: Do not use compressed air to clean the air cleaner element.

4. Clean and remove any debris from inside the air cleaner housing.

5. Install the parts in the reverse order of removal.

6. If the maintenance minder required to the air cleaner element, reset the maintenance minder (see page 3-4) and this procedure is complete. If the maintenance minder did not require to replace the air cleaner element, go to step 8.

7. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



8. Turn the ignition switch ON (II).

9. Make sure the HDS communicates with the PCM and other vehicle systems. If it does not, go to the DLC circuit troubleshooting (see page 11-223).

10. Select BODY ELECTRICAL with the HDS.

11. Select ADJUSTMENT in the GAUGES MENU with the HDS.

12. Select RESET in the MAINTENANCE MINDER with the HDS.

13. Select MAINTENANCE SUB ITEM 2 RESET with the HDS.

BACK

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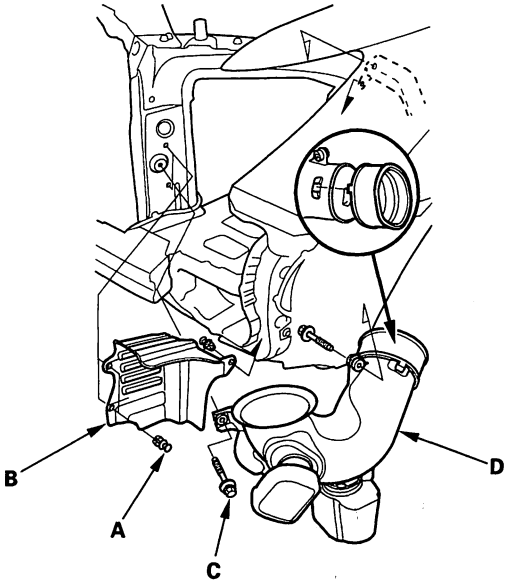
Resonator Removal/Installation

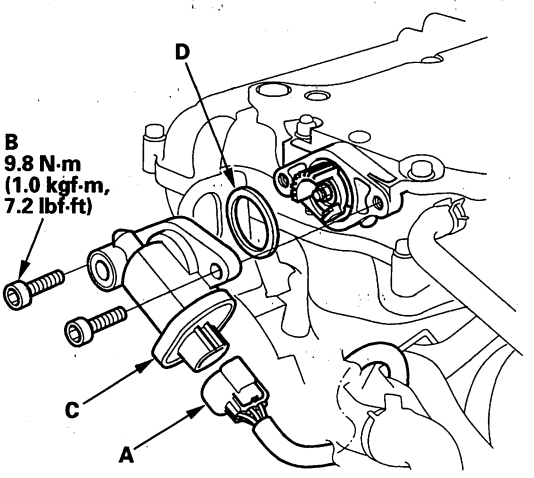
1. Make sure you have anti-theft codes for the audio system and the navigation system (if equipped).
2. Remove the air cleaner (see page 11-363).
3. Remove the battery.
4. Remove the front bumper (see page 20-188).
5. Remove the left side headlight (see page 22-205).
6. Remove the clips (A) and cover (B).



7. Remove the bolts (C), and resonator (D).
8. Install the parts in the reverse order of removal.
9. Reconnect the negative cable to the battery, then do this:
   - Enter the anti-theft codes for the audio system and the navigation system (if equipped).
   - Set the clock.
10. Adjust the headlight to local requirements (see page 22-204).
11. Do the steering column position memorization (see page 17-28).

IMT Actuator Replacement

1. Remove the engine cover (see step 1 on page 9-3).
2. Disconnect the IMT actuator 5P connector (A).



3. Remove the bolts (B) and the IMT actuator (C).
4. Install the parts in the reverse order of removal with a new O-ring (D).

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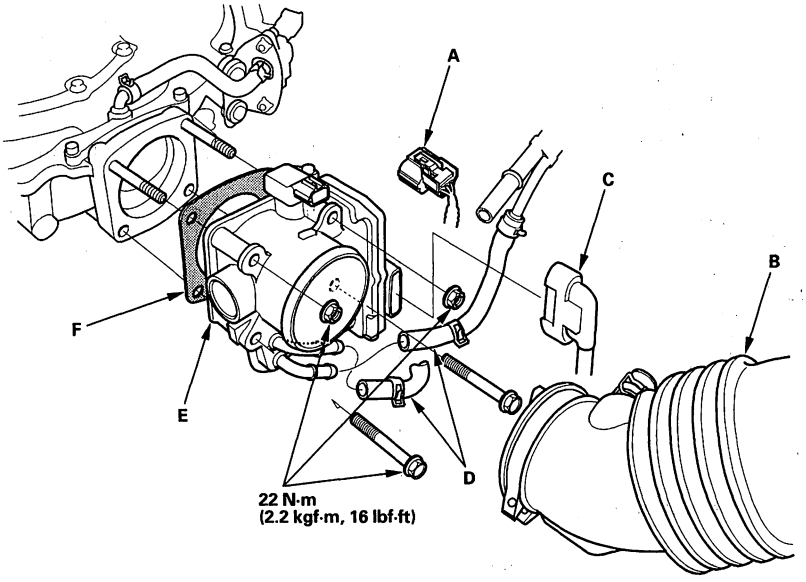
Throttle Body Removal/Installation

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: If you are replacing the throttle body, begin at step 1. If you are removing the throttle body temporarily, begin at step 4.

1. Connect the HDS while the engine is stopped.
2. Select the INSPECTION MENU with the HDS.
3. Do the TP LEARNING CHECK in the ETCS TEST.
4. Disconnect the MAP sensor connector (A).



5. Remove the intake air duct (B).
6. Disconnect the throttle body connector (C).
7. Disconnect and plug the water bypass hoses (D).
8. Remove the throttle body (E).
9. Install the parts in the reverse order of removal with a new gasket (F).

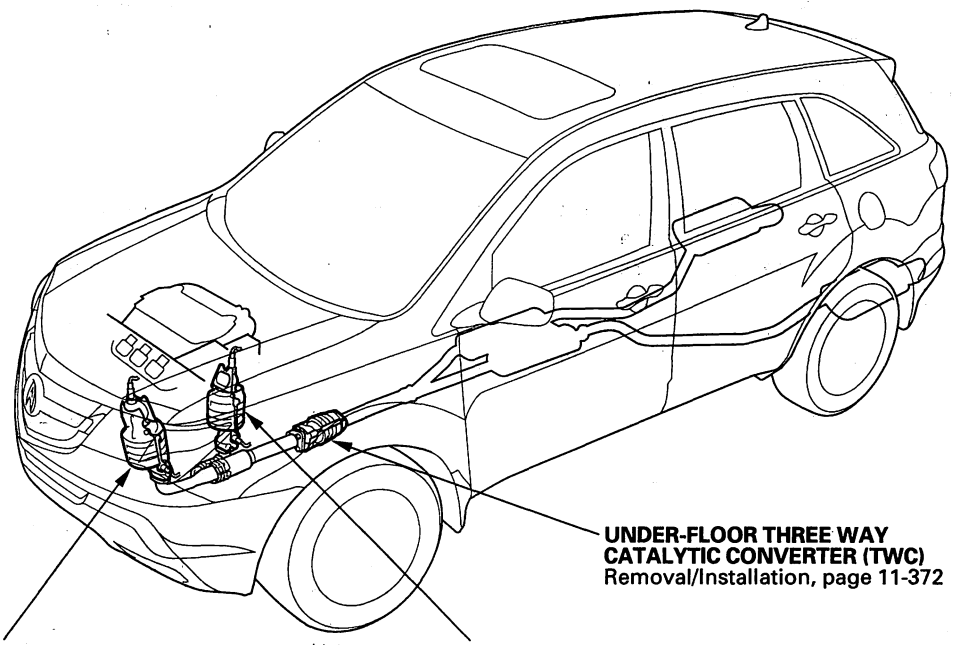
NOTE:
- Do the PCM idle learn procedure after the throttle body has been replaced (see page 11-311).
- Refill the radiator with engine coolant (see page 10-6).

BACK

Protected by AR

Catalytic Converter System

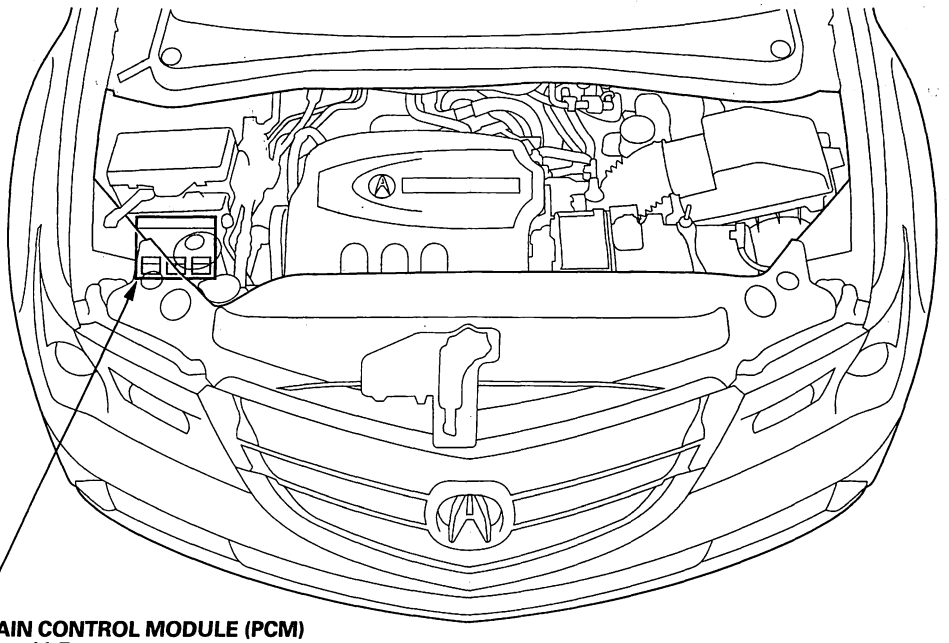
Component Location Index



UNDER-FLOOR THREE WAY CATALYTIC CONVERTER (TWC)
Removal/Installation, page 11-372

FRONT WARM UP THREE WAY CATALYTIC CONVERTER (WU-TWC) (BANK 2)
Removal/Installation, page 11-370

REAR WARM UP THREE WAY CATALYTIC CONVERTER (WU-TWC) (BANK 1)
Removal/Installation, page 11-370



POWERTRAIN CONTROL MODULE (PCM)
Update, page 11-7
Substitution, page 11-8
Replacement, page 11-244

Protected by AR

DTC Troubleshooting

DTC P0420: Rear Bank Catalyst System Efficiency Below Threshold (Bank 1)

DTC P0430: Front Bank Catalyst System Efficiency Below Threshold (Bank 2)

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If some of the DTCs listed below are stored at the same time as DTC P0420 and/or P0430*, troubleshoot those DTCs first, then recheck for DTC P0420 and/or P0430*.
  P0137, P0138, P0157, P0158, P2270, P2271, P2272*, P2273*: Secondary HO2S (Sensor 2)
  P0141, P0161: Secondary HO2S (Sensor 2) heater
- Poor quality fuel can cause these DTCs.
- Information marked with an asterisk (*) applies to the front bank (Bank 2).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Transmission in D position
   - Vehicle speed between 45—75 mph (72—120 km/h) for 5 minutes or more
   - Maintain the vehicle speed at 55 mph (88 km/h) for 1 minute or more with cruise control set
5. Monitor the OBD STATUS for DTC P0420 and/or P0430* in the DTCs MENU with the HDS.

   Does the screen indicate EXECUTING?

   YES—Go to step 6.

   NO—Go to step 4 and recheck.
6. Continue test driving until a result comes on.
7. Monitor the OBD STATUS for DTC P0420 and/or P0430* in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 8.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 4 and recheck.
8. Turn the ignition switch OFF.
9. Replace the WU-TWC:
   - For DTC P0420, replace the rear WU-TWC (Bank 1) (see page 11-371).
   - For DTC P0430, replace the front WU-TWC (Bank 2) (see page 11-370).
10. Turn the ignition switch ON (II).
11. Reset the PCM with the HDS.
12. Do the PCM idle learn procedure (see page 11-311).

BACK

Protected by AR

13. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

14. Test-drive for about 10 minutes, continually changing the vehicle speed.

15. Check the CAT MONITOR CONDITION B1 (B2)* in the DATA LIST with the HDS.

    Is the condition OK?

    YES—Go to step 16.

    NO—Go to step 13 and recheck.

16. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in D position
    - Vehicle speed between 45—75 mph (72—120 km/h) for 5 minutes or more
    - Maintain the vehicle speed at 55 mph (88 km/h) for 1 minute or more with cruise control set.

17. Monitor the OBD STATUS for DTC P0420 and/or P0430* in the DTCs MENU with the HDS.

    Does the screen indicate EXECUTING?

    YES—Go to step 18.

    NO—Go to step 16 and recheck.

18. Continue test driving until a result comes on.

19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0420 and/or P0430 indicated?*

    YES—Check for poor connections or loose terminals at the secondary HO2S (sensor 2) and the PCM, then go to step 1.

    NO—Go to step 20.

20. Monitor the OBD STATUS for DTC P0420 and/or P0430* in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 19, go to the indicated DTC's troubleshooting. ■

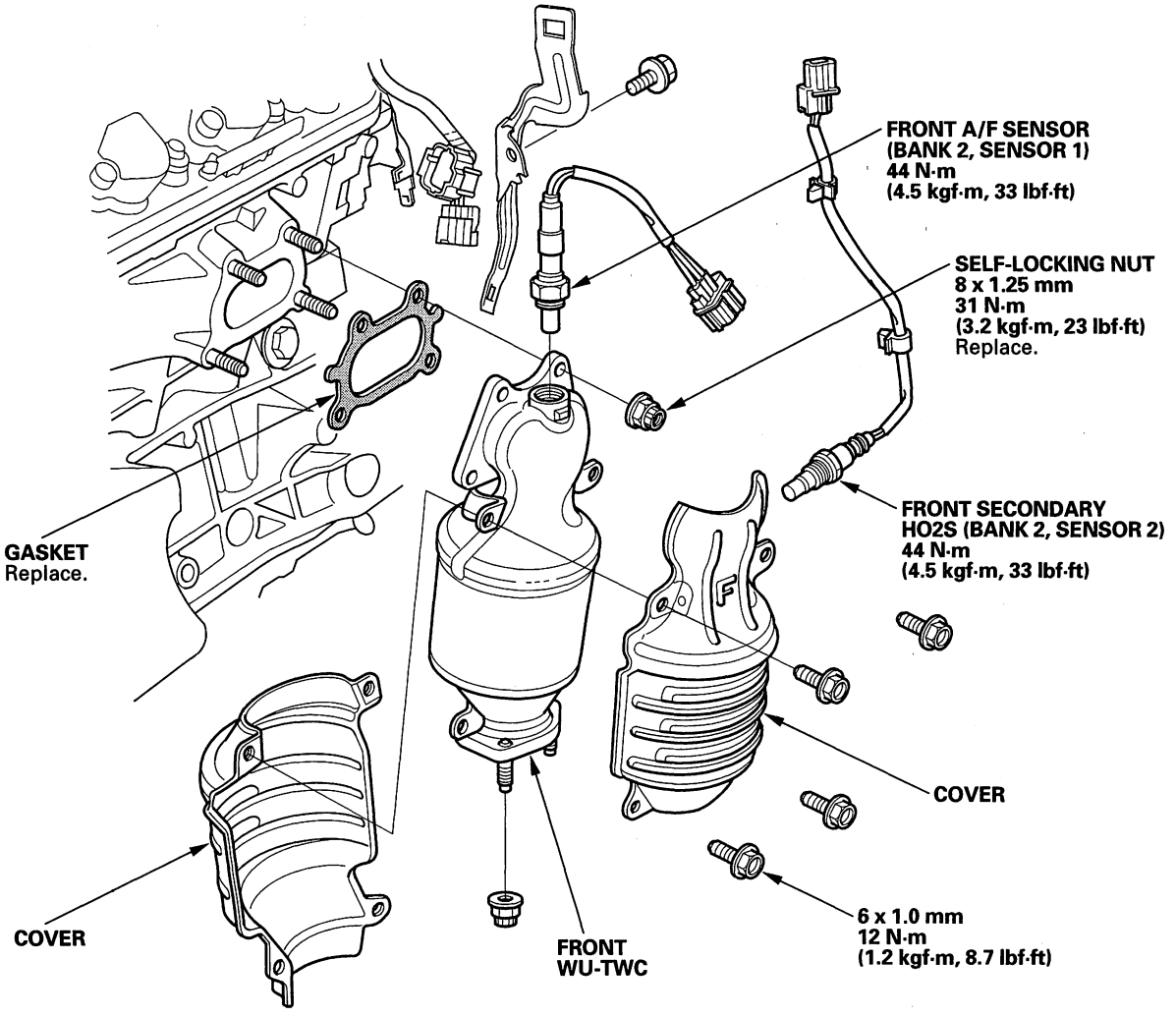
    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 16.

Protected by AR

Warm Up TWC Removal/Installation

FRONT

1. Remove the radiator and A/C condenser fan assemblies (see page 10-10).
2. Disconnect the front air fuel ratio (A/F) sensor connector and front secondary heated oxygen sensor (secondary HO2S) connector.
3. Carefully remove the front WU-TWC.



4. Carefully install the front WU-TWC, and tighten the nuts in a crisscross pattern in two or three steps.
5. Install the parts in the reverse order of removal.

BACK

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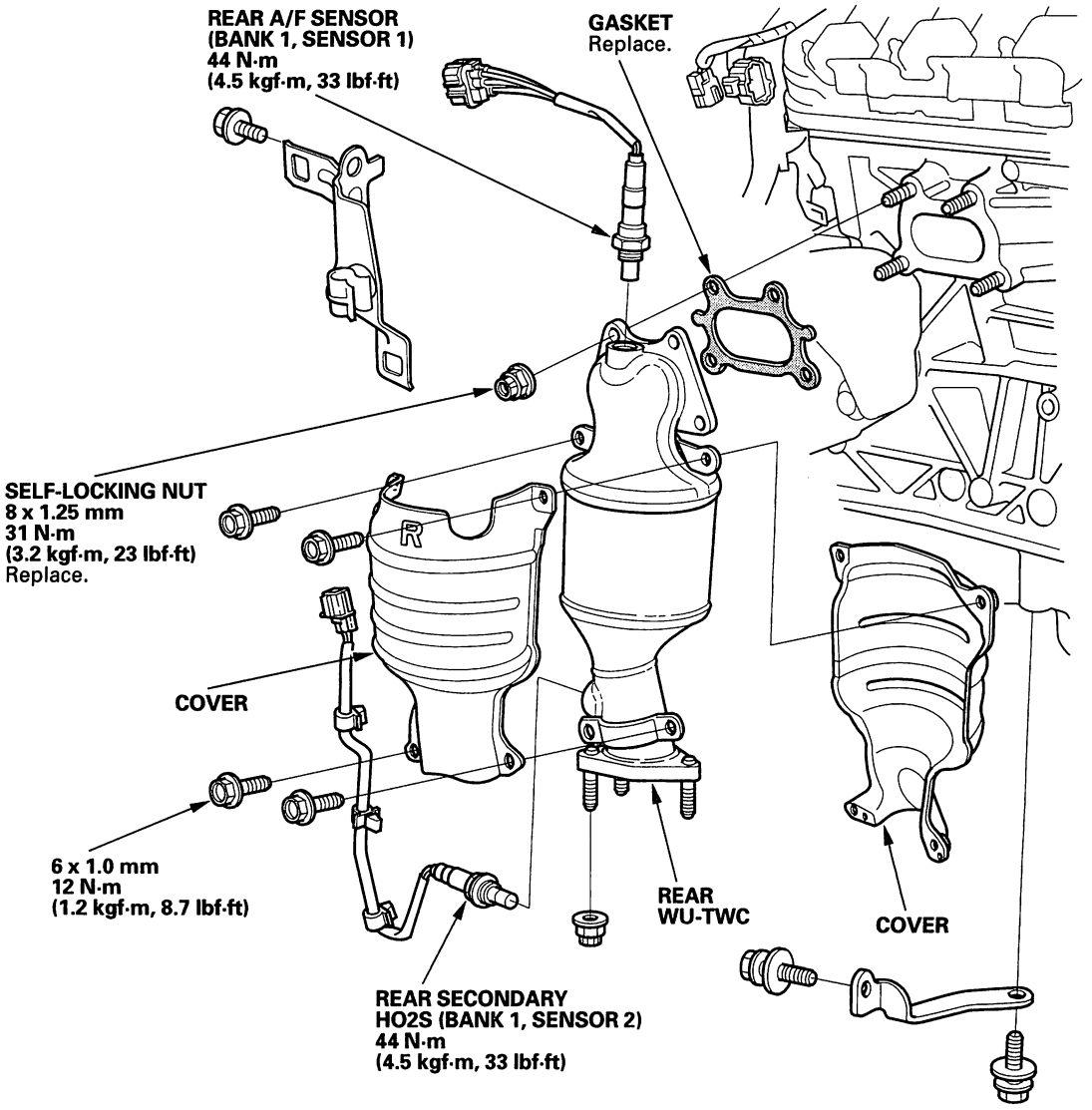
REAR

1. Remove exhaust pipe A (see page 9-9).
2. Remove the intermediate shaft (see page 16-21).
3. Disconnect the rear air fuel ratio (A/F) sensor connector and the rear secondary heated oxygen sensor (secondary HO2S) connector.
4. Remove the rear WU-TWC bracket, then remove the rear WU-TWC.



5. Install the rear WU-TWC, and tighten the nuts in a crisscross pattern in two or three steps.
6. Install the parts in the reverse order of removal.

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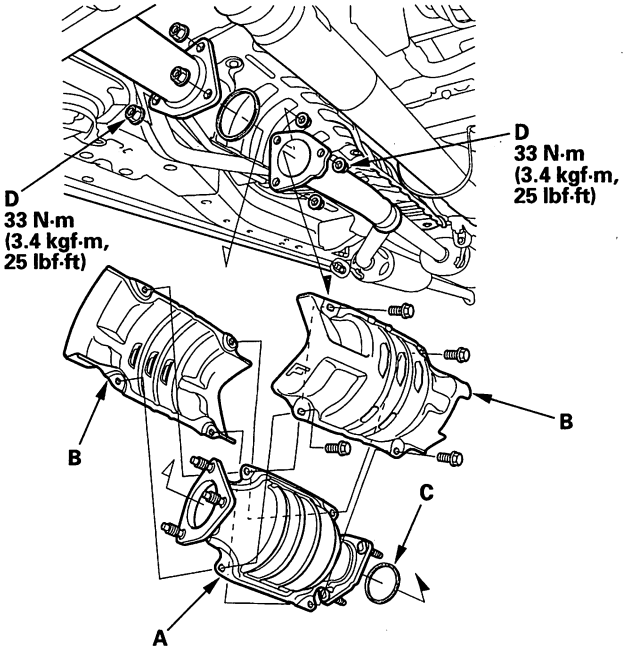
Under-floor TWC Removal/Installation

1. Remove the under-floor TWC (A).



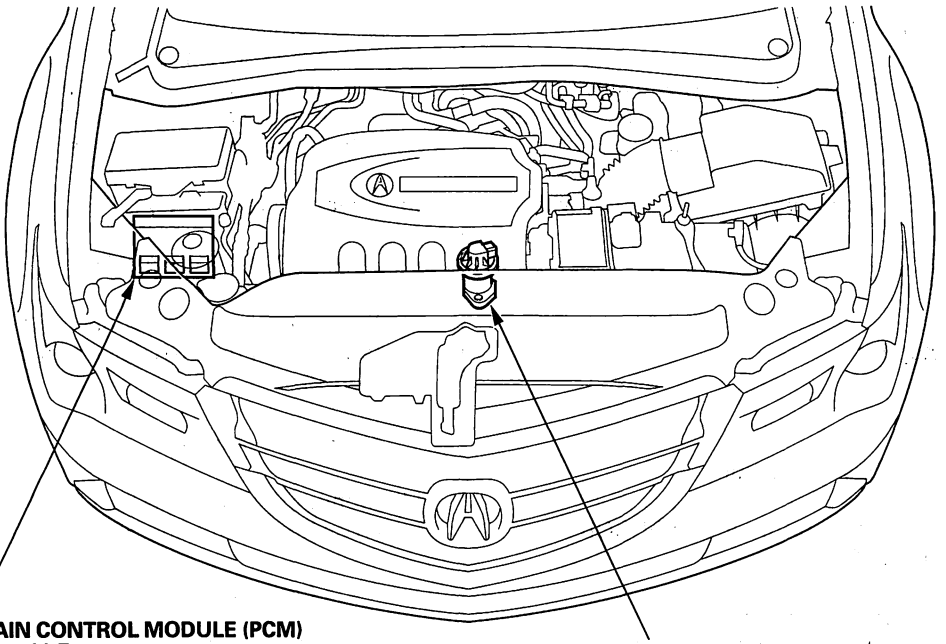
2. Remove the converter cover (B).

3. Install the parts in the reverse order of removal with new gaskets (C) and new self-locking nuts (D).

BACK

Protected by AR

Component Location Index



POWERTRAIN CONTROL MODULE (PCM)
Update, page 11-7
Substitution, page 11-8
Replacement, page 11-244

EXHAUST GAS RECIRCULATION (EGR) VALVE
Replacement, page 11-388

BACK

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DTC Troubleshooting

DTC P0401: EGR Insufficient Flow

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Do the EGR TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Go to step 5.

   NO—Go to step 7.
5. Test-drive under these conditions:

   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Transmission in D position
   - Vehicle speed at 25 mph (40 km/h) or more, and engine speed between 1,100 rpm and 3,000 rpm
   - During the drive, decelerate (with the throttle fully closed) for 5 seconds
6. Monitor the OBD STATUS for DTC P0401 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Remove the engine cover (see step 1 on page 9-3), clean the intake manifold, and EGR ports with throttle plate and induction cleaner, then go to step 9.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 5 and recheck.
7. Turn the ignition switch OFF.
8. Replace the EGR valve (see page 11-388).
9. Turn the ignition switch ON (II).
10. Reset the PCM with the HDS.
11. Do the PCM idle learn procedure (see page 11-311).
12. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in D position
    - Vehicle speed at 25 mph (40 km/h) or more, and engine speed between 1,100 rpm and 3,000 rpm
    - During the drive, decelerate (with the throttle fully closed) for 5 seconds
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0401 indicated?

    YES—Check for poor connections or loose terminals at the EGR valve and the PCM, then go to step 15.

    NO—Go to step 14.
14. Monitor the OBD STATUS for DTC P0401 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EGR valve and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 12.

BACK

Protected by AR

15. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

16. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in D position
    - Vehicle speed at 25 mph (40 km/h) or more, and engine speed between 1,100 rpm and 3,000 rpm
    - During the drive, decelerate (with the throttle fully closed) for 5 seconds

17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0401 indicated?

    YES—Check for poor connections or loose terminals at the EGR valve and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 16. If the PCM was substituted, go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for DTC P0401 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 17, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EGR valve and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 16. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 16.

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DTC Troubleshooting (cont'd)

DTC P0404: EGR Control Circuit Range/ Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

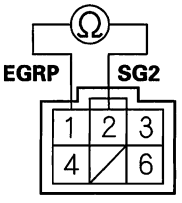
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Do the EGR TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Clean any carbon build-up on the EGR valve with throttle plate and induction cleaner. ■

   NO—Go to step 5.
5. Turn the ignition switch OFF.
6. Disconnect the EGR valve 6P connector.
7. At the sensor side, measure resistance between EGR valve 6P connector terminals No. 1 and No. 2.

EGR VALVE 6P CONNECTOR



Terminal side of male terminals

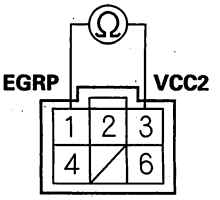
Is there 100 kΩ or more?

YES—Go to step 25.

NO—Go to step 8.

8. Measure resistance between EGR valve 6P connector terminals No. 1 and No. 3.

EGR VALVE 6P CONNECTOR



Terminal side of male terminals

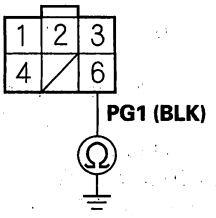
Is there 100 kΩ or more?

YES—Go to step 25.

NO—Go to step 9.

9. Check for continuity between EGR valve 6P connector terminal No. 6 and body ground.

EGR VALVE 6P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the EGR valve and G101, then go to step 26.

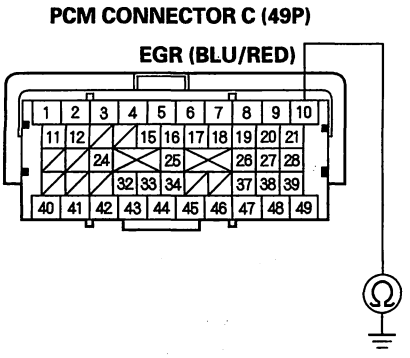
BACK

Protected by AR

10. Jump the SCS line with the HDS.

11. Disconnect PCM connector C (49P).

12. Check for continuity between PCM connector terminal C10 and body ground.



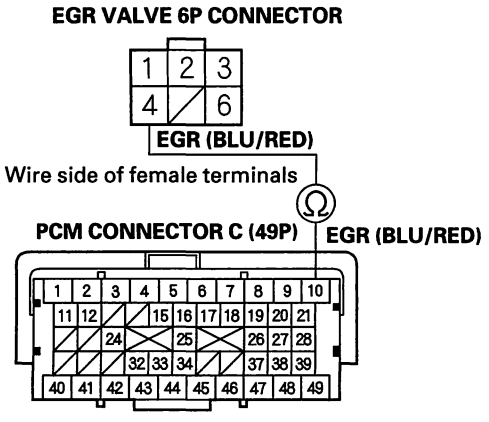
Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (C10) and the EGR valve, then go to step 26.

NO—Go to step 13.

13. Check for continuity between PCM connector terminal C10 and EGR valve 6P connector terminal No. 4.



Terminal side of female terminals

Is there continuity?

YES—Go to step 14.

NO—Repair open in the wire between the PCM (C10) and the EGR valve, then go to step 26.

14. Remove the EGR valve (see page 11-388).

15. Clean the intake manifold EGR port and the passage inside the EGR valve with throttle plate and induction cleaner.

16. Install the EGR valve (see page 11-388).

17. Reconnect the EGR valve 6P connector.

18. Reconnect PCM connector C (49P).

19. Turn the ignition switch ON (II).

20. Reset the PCM with the HDS.

21. Do the PCM idle learn procedure (see page 11-311).

22. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

23. Do the EGR TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Go to step 32.

NO—Go to step 24.

24. Turn the ignition switch OFF.

25. Replace the EGR valve (see page 11-388).

26. Reconnect all connectors.

27. Turn the ignition switch ON (II).

28. Reset the PCM with the HDS.

29. Do the PCM idle learn procedure (see page 11-311).

30. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

31. Do the EGR TEST in the INSPECTION MENU with the HDS.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

32. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0404 indicated?

    YES—Check for poor connections or loose terminals at the EGR valve and the PCM, then go to step 34.

    NO—Go to step 33.

33. Monitor the OBD STATUS for DTC P0404 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 32, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EGR valve and the PCM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 30.

34. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

35. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.

36. Do the EGR TEST in the INSPECTION MENU with the HDS.

37. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0404 indicated?

    YES—Check for poor connections or loose terminals at the EGR valve and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 35. If the PCM was substituted, go to step 1.

    NO—Go to step 38.

38. Monitor the OBD STATUS for DTC P0404 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 37, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EGR valve and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then go to step 35. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 35.

BACK

Protected by AR

DTC P0406: EGR Valve Position Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

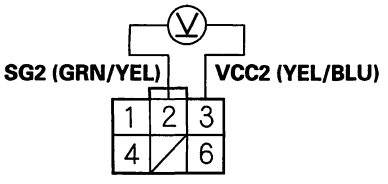
1. Turn the ignition switch ON (II).
2. Check the EGR VLS in the DATA LIST with the HDS.

   Is 4.88 V or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EGR valve and the PCM. ■
3. Turn the ignition switch OFF.
4. Disconnect the EGR valve 6P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between EGR valve 6P connector terminals No. 2 and No. 3.

EGR VALVE 6P CONNECTOR



Wire side of female terminals

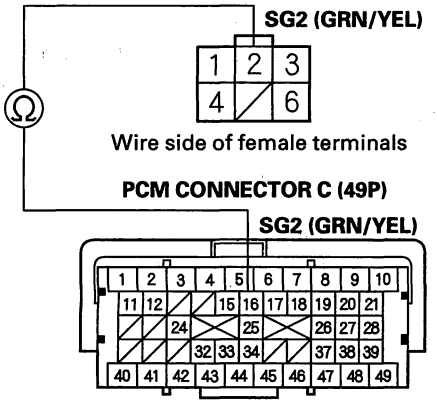
Is there about 5 V?

YES—Go to step 11.

NO—Go to step 7.

7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector C (49P).
10. Check for continuity between PCM connector terminal C16 and EGR valve 6P connector terminal No. 2.

EGR VALVE 6P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 18.

NO—Repair open in the wire between the EGR valve and the PCM (C16), then go to step 13.

11. Turn the ignition switch OFF.
12. Replace the EGR valve (see page 11-388).
13. Reconnect all connectors.
14. Turn the ignition switch ON (II).
15. Reset the PCM with the HDS.
16. Do the PCM idle learn procedure (see page 11-311).

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0406 indicated?

    YES—Check for poor connections or loose terminals at the EGR valve and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

18. Reconnect all connectors.

19. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0406 indicated?

    YES—Check for poor connections or loose terminals at the EGR valve and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

Protected by AR

DTC P2413: EGR System Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Do the EGR TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

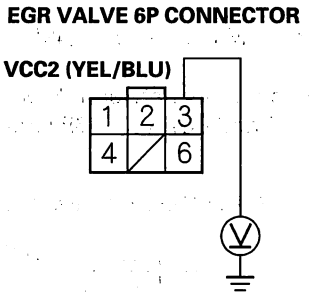
   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EGR valve and the PCM. ■

   NO—Go to step 5.
5. Turn the ignition switch OFF.
6. Turn the ignition switch ON (II).
7. Check the EGR VLS in the DATA LIST with the HDS.

   Is about 0 V indicated?

   YES—Go to step 8.

   NO—Go to step 21.
8. Turn the ignition switch OFF.
9. Disconnect the EGR valve 6P connector.
10. Turn the ignition switch ON (II).
11. Measure voltage between EGR valve 6P connector terminal No. 3 and body ground.



Wire side of female terminals

Is there about 5 V?

YES—Go to step 16.

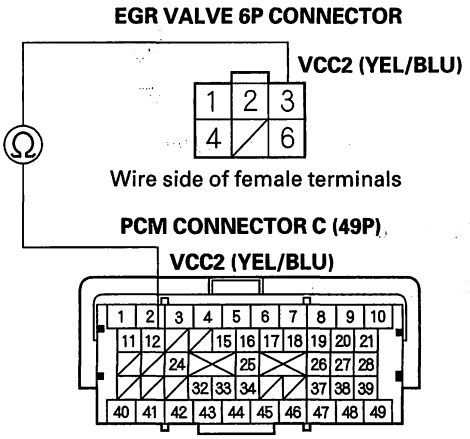
NO—Go to step 12.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector C (49P).
15. Check for continuity between PCM connector terminal C12 and EGR valve 6P connector terminal No. 3.

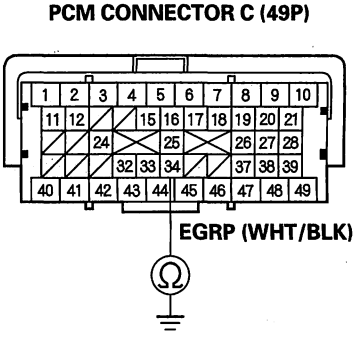


Is there continuity?

YES—Go to step 52.

NO—Repair open in the wire between the EGR valve and the PCM (C12), then go to step 44.

16. Turn the ignition switch OFF.
17. Jump the SCS line with the HDS.
18. Disconnect PCM connector C (49P).
19. Check for continuity between PCM connector terminal C34 and body ground.



Is there continuity?

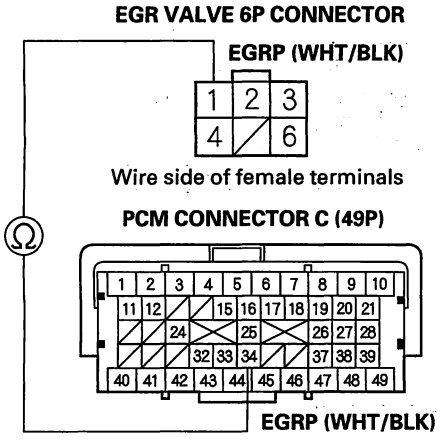
YES—Repair short in the wire between the PCM (C34) and the EGR valve, then go to step 44.

NO—Go to step 20.

BACK

Protected by AR

20. Check for continuity between PCM connector terminal C34 and EGR valve 6P connector terminal No. 1.



Terminal side of female terminals

Is there continuity?

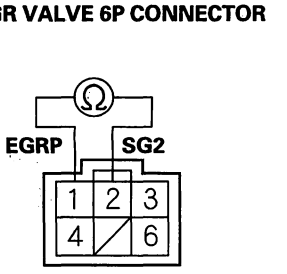
YES—Go to step 21.

NO—Repair open in the wire between the PCM (C34) and the EGR valve, then go to step 44.

21. Turn the ignition switch OFF.

22. Disconnect the EGR valve 6P connector.

23. At the EGR valve side, measure resistance between EGR valve 6P connector terminals No. 1 and No. 2.



Terminal side of male terminals

Is there 100 kΩ or more?

YES—Go to step 43.

NO—Go to step 24.

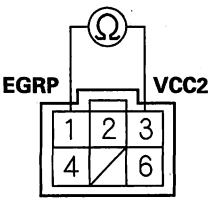
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

24. At the EGR valve side, measure resistance between EGR valve 6P connector terminals No. 1 and No. 3.

EGR VALVE 6P CONNECTOR



Terminal side of male terminals

Is there 100 kΩ or more?

YES—Go to step 43.

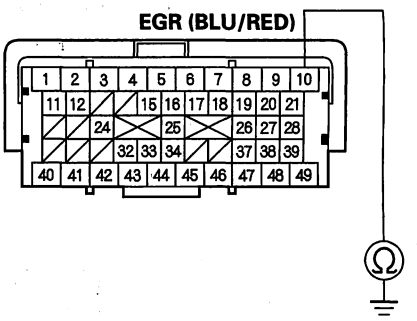
NO—Go to step 25.

25. Jump the SCS line with the HDS.

26. Disconnect PCM connector C (49P).

27. Check for continuity between PCM connector terminal C10 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

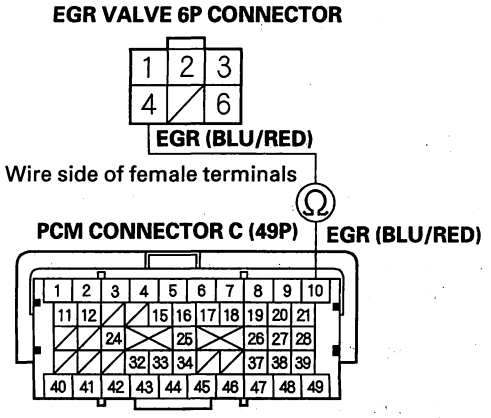
YES—Repair short in the wire between the PCM (C10) and the EGR valve, then go to step 44.

NO—Go to step 28.

BACK

Protected by AR

28. Check for continuity between PCM connector terminal C10 and EGR valve 6P connector terminal No. 4.

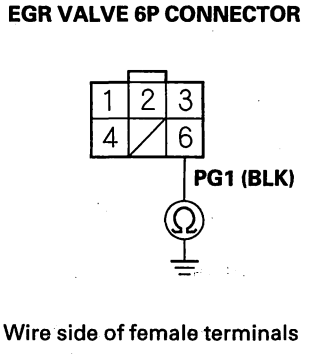


Is there continuity?

YES—Go to step 29.

NO—Repair open in the wire between the PCM (C10) and the EGR valve, then go to step 44.

29. Check for continuity between EGR valve 6P connector terminal No. 6 and body ground.



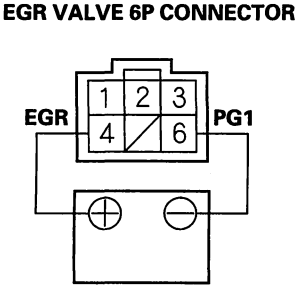
Is there continuity?

YES—Go to step 30.

NO—Repair open in the wire between the EGR valve and G101, then go to step 44.

30. Reconnect PCM connector C (49P).

31. Connect the battery positive terminal to EGR valve 6P connector terminal No. 4 with a jumper wire.



(cont'd)

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DTC Troubleshooting (cont'd)

32. Start the engine and let it idle, then connect the battery negative terminal to EGR valve 6P connector terminal No. 6 with a jumper wire.

    Does the engine stall or run rough?

    YES—Go to step 51.

    NO—Go to step 33.

33. Turn the ignition switch OFF.

34. Remove the EGR valve (see page 11-388).

35. Clean the intake manifold EGR port at the passage inside the EGR valve with throttle plate and induction cleaner.

36. Install the EGR valve (see page 11-388).

37. Reconnect all connectors.

38. Turn the ignition switch ON (II).

39. Reset the PCM with the HDS.

40. Do the PCM idle learn procedure (see page 11-311).

41. Do the EGR TEST in the INSPECTION MENU with the HDS.

    Is the result OK?

    YES—Go to step 49.

    NO—Go to step 42.

42. Turn the ignition switch OFF.

43. Replace the EGR valve (see page 11-388).

44. Reconnect all connectors.

45. Turn the ignition switch ON (II).

46. Reset the PCM with the HDS.

47. Do the PCM idle learn procedure (see page 11-311).

48. Do the EGR TEST in the INSPECTION MENU with the HDS.

49. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2413 indicated?

    YES—Check for poor connections or loose terminals at the EGR valve and the PCM, then go to step 1.

    NO—Go to step 50.

50. Monitor the OBD STATUS for DTC P2413 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 49, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EGR valve and the PCM, then go to step 1. If the screen indicates EXECUTING or OUT OF CONDITION, keep idling until a result comes on.

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Protected by AR

51. Turn the ignition switch OFF.

52. Reconnect all connectors.

53. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

54. Do the EGR TEST in the INSPECTION MENU with the HDS.

55. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2413 indicated?

    YES—Check for poor connections or loose terminals at the EGR valve and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 54.

56. Monitor the OBD STATUS for DTC P2413 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 55, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EGR valve and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates EXECUTING or OUT OF CONDITION, keep idling until a result comes on.

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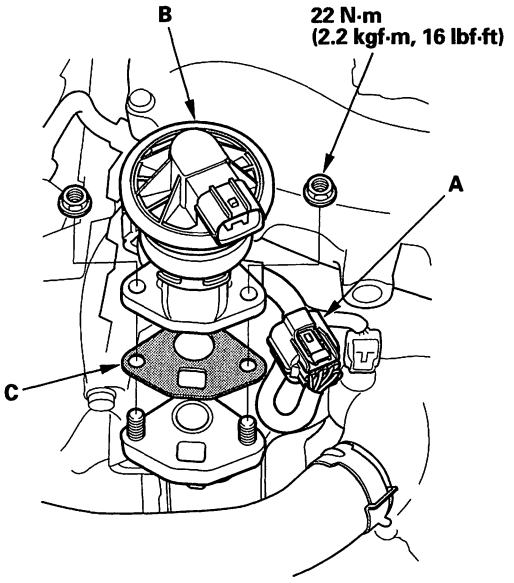
EGR Valve Replacement

1. Remove the engine cover (see step 1 on page 9-3).
2. Remove the main under-hood fuse box.
3. Disconnect the EGR valve 6P connector (A).



4. Remove the EGR valve (B).
5. Install the parts in the reverse order of removal with a new gasket (C).

BACK

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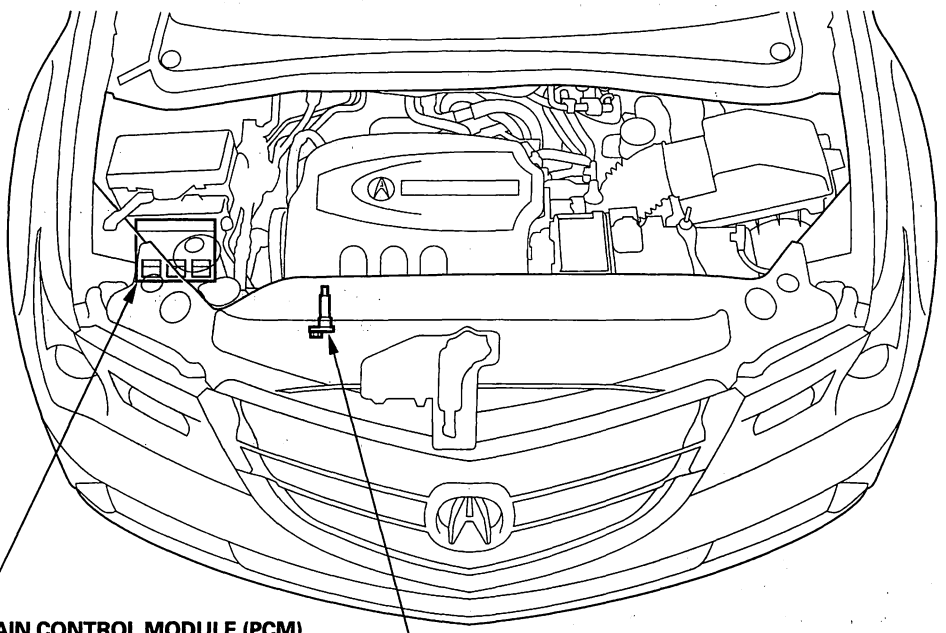
Component Location Index



POWERTRAIN CONTROL MODULE (PCM)
Update, page 11-7
Substitution, page 11-8
Replacement, page 11-244

PCV VALVE
Inspection, page 11-391
Replacement, page 11-391

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DTC Troubleshooting

DTC P2279: Intake Air System Leak

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P0443 is stored at the same time as DTC P2279, troubleshoot DTC P0443 first, then recheck for DTC P2279.

1. Check for vacuum leaks at these parts:

   - PCV valve
   - PCV hose
   - Purge (PCS) line
   - Throttle body
   - Intake manifold
   - Brake booster hose

   Are the parts OK?

   YES—Go to step 2.

   NO—Repair or replace any damaged parts, then go to step 4.

2. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 1 minute.

3. Monitor the OBD STATUS for DTC P2279 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Check the camshaft timing (see page 6-16), then go to step 4.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates NOT COMPLETED, go to step 2 and recheck.

4. Reset the PCM with the HDS.

5. Do the PCM idle learn procedure (see page 11-311).

6. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle 1 minute.

7. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2279 indicated?

   YES—Check for vacuum leaks at the PCV valve, the PCV hose, the purge (PCS) line, the throttle body, the intake manifold, and the brake booster hose, then go to step 1.

   NO—Go to step 8.

8. Monitor the OBD STATUS for DTC P2279 in the DTCs MENU with the HDS.

   Does the screen indicate PASSED?

   YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 7, go to the indicated DTC's troubleshooting. ■

   NO—If the screen indicates FAILED, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

BACK

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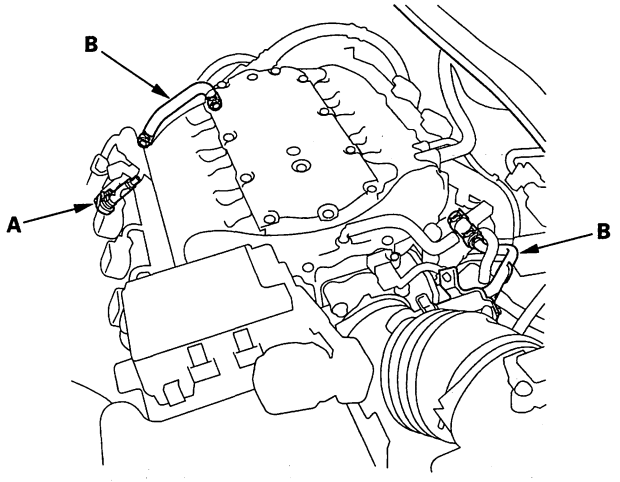
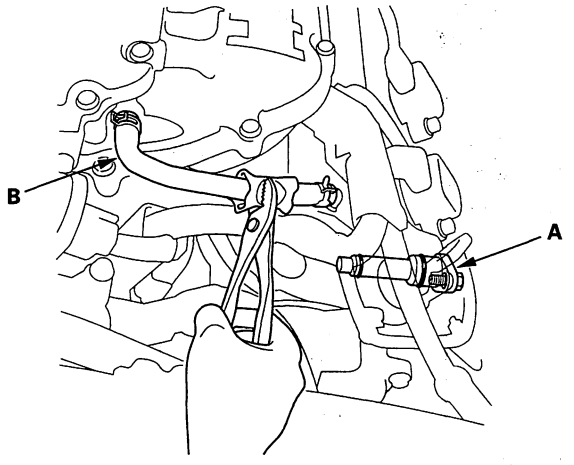
PCV Valve Inspection

1. Remove the engine cover (see step 1 on page 9-3).
2. Check the PCV valve (A), hoses (B), and connections for leaks or restrictions.



3. At idle, listen to the PCV valve (A) with a stethoscope as you lightly pinch the PCV hose (B) with your fingers or pliers several times. Each time the hose is pinched, the valve should click.

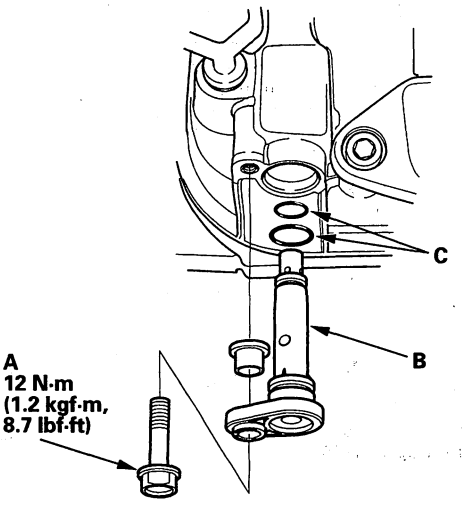
   If there is no clicking sound, check the PCV valve grommet for cracks or damage. If the grommet is OK, replace the PCV valve and recheck.



PCV Valve Replacement

1. Remove the engine cover (see step 1 on page 9-3).
2. Remove the bolt (A).

   NOTE: Take care not to spill oil on the hot exhaust manifold.



3. Remove the PCV valve (B).
4. Install the parts in the reverse order of removal.

   NOTE:
   - When installing a new PCV valve, make sure the O-rings (C) are in place.
   - When installing a used PCV valve, use new O-rings.

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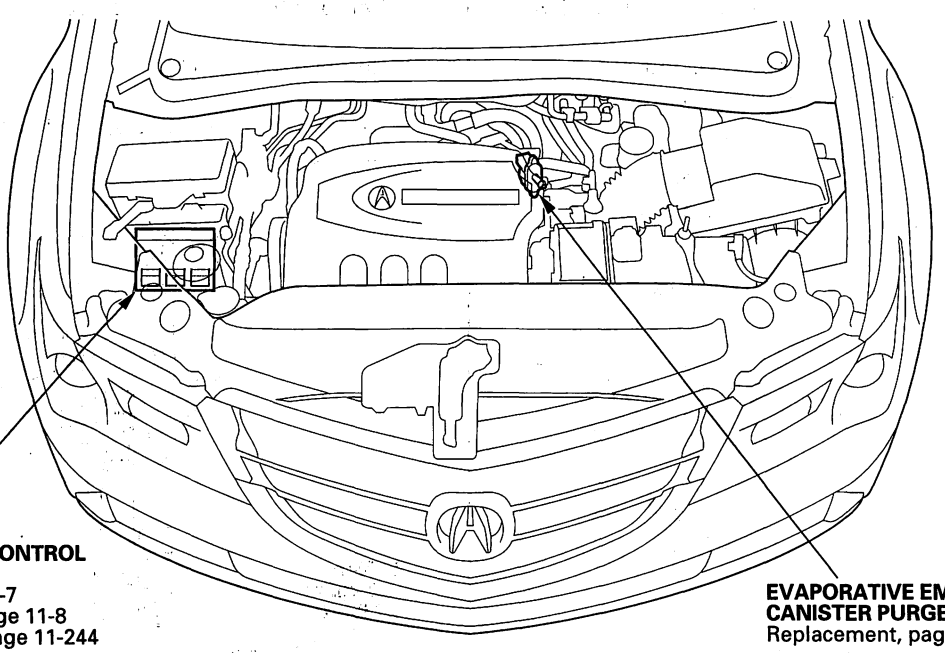
EVAP System

Component Location Index



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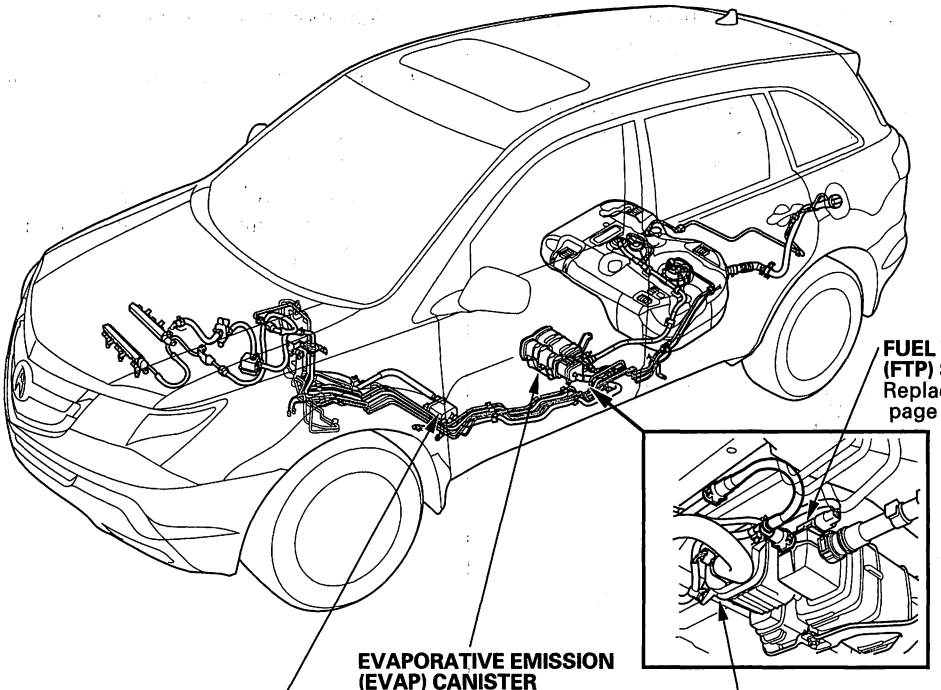
EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
Replacement, page 11-423



FUEL TANK PRESSURE (FTP) SENSOR
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EVAPORATIVE EMISSION (EVAP) CANISTER
Replacement, page 11-425

EVAPORATIVE EMISSION (EVAP) CANISTER FILTER
Replacement, page 11-426

EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE
Replacement, page 11-424

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DTC Troubleshooting

DTC P0443: Evap Canister Purge Valve Circuit Malfunction

Special Tools Required
Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available

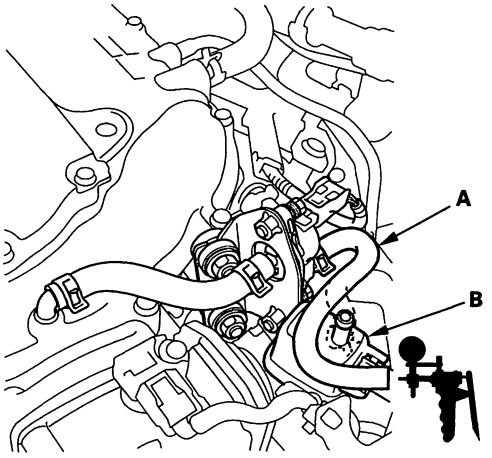
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0443 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EVAP canister purge valve and the PCM. ■
5. Turn the ignition switch OFF, and allow the engine to cool below 140 °F (60 °C).
6. Disconnect the vacuum hose (A) from the purge joint (B) in the engine compartment, and connect a vacuum pump/gauge, 0—30 in.Hg, to the hose.



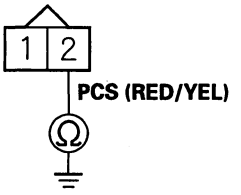
7. Start the engine, and let it idle.

   Is there vacuum?

   YES—Go to step 8.

   NO—Go to step 14.
8. Turn the ignition switch OFF.
9. Disconnect the EVAP canister purge valve 2P connector.
10. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 11.

NO—Go to step 23.

(cont'd)

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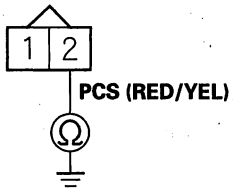
DTC Troubleshooting (cont'd)

11. Jump the SCS line with the HDS.
12. Disconnect PCM connector C (49P).
13. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

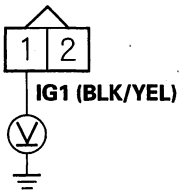
Is there continuity?

YES—Repair short in the wire between the EVAP canister purge valve and the PCM (C40), then go to step 24.

NO—Go to step 30.

14. Turn the ignition switch OFF.
15. Disconnect the EVAP canister purge valve 2P connector.
16. Turn the ignition switch ON (II).
17. Measure voltage between EVAP canister purge valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 18.

NO—Repair open in the wire between the EVAP canister purge valve and the No. 18 ACG (10 A) fuse in the under-dash fuse/relay box, then go to step 24.

18. Turn the ignition switch OFF.
19. Jump the SCS line with the HDS.
20. Disconnect PCM connector C (49P).

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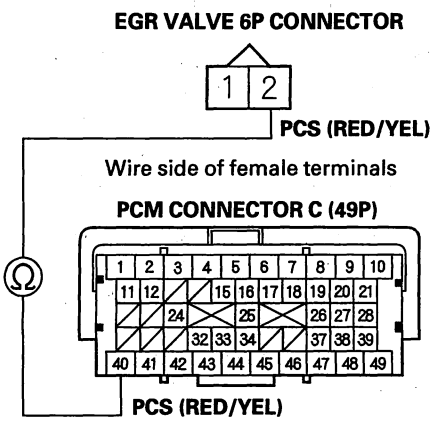
21. Check for continuity between PCM connector terminal C40 and EVAP canister purge valve 2P connector terminal No. 2.



Terminal side of female terminals

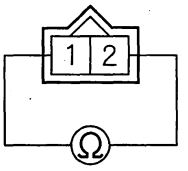
Is there continuity?

YES—Go to step 22.

NO—Repair open in the wire between the EVAP canister purge valve and the PCM (C40), then go to step 24.

22. At the valve side, measure resistance between EVAP canister purge valve 2P connector terminals No. 1 and No. 2.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Terminal side of male terminals

Is there about 33 Ω at room temperature?

YES—Go to step 30.

NO—Go to step 23.

23. Replace the EVAP canister purge valve (see page 11-423).

24. Reconnect all connectors.

25. Turn the ignition switch ON (II).

26. Reset the PCM with the HDS.

27. Do the PCM idle learn procedure (see page 11-311).

28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0443 indicated?

YES—Check for poor connections or loose terminals at the EVAP canister purge valve and the PCM, then go to step 1.

NO—Go to step 29.

(cont'd)

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DTC Troubleshooting (cont'd)

29. Monitor the OBD STATUS for DTC P0443 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 28, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EVAP canister purge valve and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

30. Reconnect all connectors.

31. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

32. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0443 indicated?

    YES—Check for poor connections or loose terminals at the EVAP canister purge valve and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 33.

33. Monitor the OBD STATUS for DTC P0443 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 32, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EVAP canister purge valve and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC P0451: FTP Sensor Circuit Range/ Performance Problem

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P2422 is stored at the same time as DTC P0451, troubleshoot DTC P2422 first, then recheck for DTC P0451.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (in Park or neutral) until the radiator fan comes on.
4. Monitor the OBD STATUS for DTC P0451 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 5.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and the PCM. If the screen indicates NOT COMPLETED, go to step 3 and recheck.
5. Turn the ignition switch OFF.
6. Replace the FTP sensor (see page 11-423).
7. Turn the ignition switch ON (II).
8. Reset the PCM with the HDS.
9. Do the PCM idle learn procedure (see page 11-311).
10. Start the engine, and let it idle without load (in Park or neutral) until the radiator fan comes on.
11. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0451 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor and the PCM, then go to step 1.

    NO—Go to step 12.
12. Monitor the OBD STATUS for DTC P0451 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 11, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 10.

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DTC Troubleshooting (cont'd)

DTC P0452: FTP Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Remove the fuel fill cap.
5. Turn the ignition switch ON (II).
6. Check the FTP SENSOR in the DATA LIST with the HDS.

   Is about −7.3 kPa (−2.16 in.Hg, −55 mmHg), or 0.3 V or less indicated?

   YES—Go to step 10.

   NO—Go to step 7.
7. Install the fuel fill cap.
8. Start the engine.
9. Monitor the OBD STATUS for DTC P0452 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 10.

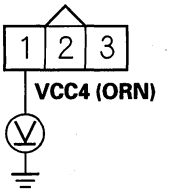
   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and the PCM. If the screen indicates NOT COMPLETED, go to step 5 and recheck.
10. Turn the ignition switch OFF.
11. Disconnect the FTP sensor 3P connector.
12. Turn the ignition switch ON (II).
13. Check the FTP SENSOR in the DATA LIST with the HDS.

    Is about 7.3 kPa (2.15 in.Hg, 54.7 mmHg), or 4.90 V indicated?

    YES—Go to step 24.

    NO—Go to step 14.
14. Measure voltage between FTP sensor 3P connector terminal No. 1 and body ground.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 20.

NO—Go to step 15.

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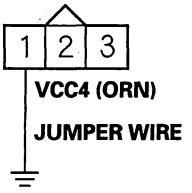
15. Turn the ignition switch OFF.
16. Jump the SCS line with the HDS.
17. Disconnect PCM connector A (49P).
18. Connect FTP sensor 3P connector terminal No. 1 to body ground with a jumper wire.

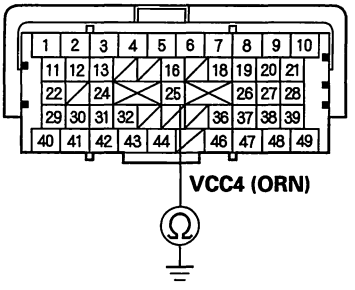
FTP SENSOR 3P CONNECTOR



Wire side of female terminals

19. Check for continuity between PCM connector terminal A25 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

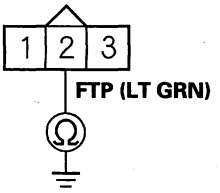
Is there continuity?

YES—Go to step 32.

NO—Repair open in the wire between the PCM (A25) and the FTP sensor, then go to step 26.

20. Turn the ignition switch OFF.
21. Jump the SCS line with the HDS.
22. Disconnect PCM connector A (49P).
23. Check for continuity between FTP sensor 3P connector terminal No. 2 and body ground.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the PCM (A39) and the FTP sensor, then go to step 26.

NO—Go to step 32.

24. Turn the ignition switch OFF.
25. Replace the FTP sensor (see page 11-423).
26. Reconnect all connectors.
27. Turn the ignition switch ON (II).
28. Reset the PCM with the HDS.
29. Do the PCM idle learn procedure (see page 11-311).

(cont'd)

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DTC Troubleshooting (cont'd)

30. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0452 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor and the PCM, then go to step 1.

    NO—Go to step 31.

31. Monitor the OBD STATUS for DTC P0452 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 30, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

32. Reconnect all connectors.

33. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).

34. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0452 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 34.

35. Monitor the OBD STATUS for DTC P0452 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 34, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

BACK

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DTC P0453: FTP Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Remove the fuel fill cap.
5. Turn the ignition switch ON (II).
6. Check the FTP SENSOR in the DATA LIST with the HDS.

   Is about 7.3 kPa (2.16 in.Hg, 55 mmHg), or 4.7 V or more indicated?

   YES—Go to step 10.

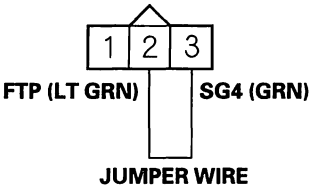
   NO—Go to step 7.
7. Install the fuel fill cap.
8. Start the engine.
9. Monitor the OBD STATUS for DTC P0453 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 10.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and the PCM. If the screen indicates NOT COMPLETED, go to step 6 and recheck.
10. Turn the ignition switch OFF.
11. Disconnect the FTP sensor 3P connector.
12. Connect FTP sensor 3P connector terminals No. 2 and No. 3 with a jumper wire.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

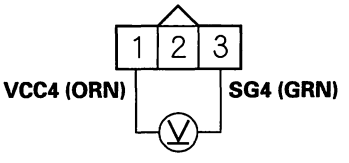
13. Turn the ignition switch ON (II).
14. Check the FTP SENSOR in the DATA LIST with the HDS.

    Is about 7.3 kPa (2.16 in.Hg, 55 mmHg), or 4.7 V or more indicated?

    YES—Go to step 15.

    NO—Go to step 26.
15. Measure voltage between FTP sensor 3P connector terminals No. 1 and No. 3.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 21.

NO—Go to step 16.

(cont'd)

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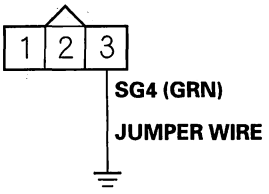
DTC Troubleshooting (cont'd)

16. Turn the ignition switch OFF.
17. Jump the SCS line with the HDS.
18. Disconnect PCM connector A (49P).
19. Connect FTP sensor 3P connector terminal No. 3 to body ground with a jumper wire.

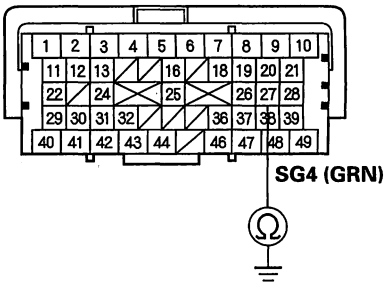
FTP SENSOR 3P CONNECTOR



Wire side of female terminals

20. Check for continuity between PCM connector terminal A27 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

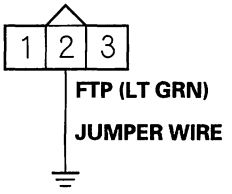
Is there continuity?

YES—Go to step 34.

NO—Repair open in the wire between the PCM (A27) and the FTP sensor, then go to step 28.

21. Turn the ignition switch OFF.
22. Jump the SCS line with the HDS.
23. Disconnect PCM connector A (49P).
24. Connect FTP sensor 3P connector terminal No. 2 to body ground with a jumper wire.

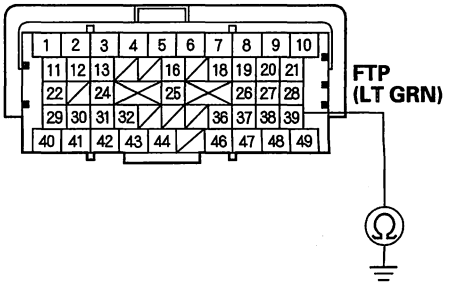
FTP SENSOR 3P CONNECTOR



Wire side of female terminals

25. Check for continuity between PCM connector terminal A39 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 34.

NO—Repair open in the wire between the PCM (A39) and the FTP sensor, then go to step 28.

BACK

Protected by AR

26. Turn the ignition switch OFF.
27. Replace the FTP sensor (see page 11-423).
28. Reconnect all connectors.
29. Turn the ignition switch ON (II).
30. Reset the PCM with the HDS.
31. Do the PCM idle learn procedure (see page 11-311).
32. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0453 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor and the PCM, then go to step 1.

    NO—Go to step 33.

33. Monitor the OBD STATUS for DTC P0453 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 32, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

34. Reconnect all connectors.
35. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
36. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0453 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 37.

37. Monitor the OBD STATUS for DTC P0453 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs were indicated in step 36, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P0455: EVAP System Very Large Leak Detected

DTC P0456: EVAP System Very Small Leak Detected

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests as indicated in these procedures. Excessive pressure/vacuum would damage the EVAP components or cause eventual fuel tank failure.

Special Tools Required

- Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available
- Vacuum/pressure gauge, 0—4 in.Hg, 07JAZ-001000B

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Fresh fuel has a higher volatility that will create greater pressure/vacuum. The optimum condition for testing is less than a full tank of fresh fuel. If possible, to assist in leak detection, add 1 gallon of fresh fuel to the tank (as long as it will not fill the tank), just before starting these procedures.

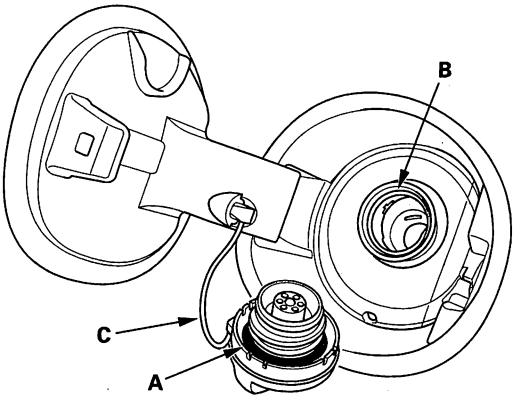
1. Check the fuel fill cap (the cap must say "TIGHTEN TO CLICK"). It should turn 1/4 turn after it's tight, then it clicks.

   Is the correct fuel fill cap installed and properly tightened?

   YES—Go to step 2.

   NO—Replace or tighten the cap, then go to step 22.

2. Check the fuel fill cap seal (A) and the fuel fill pipe mating surface (B). Verify that the fuel fill cap tether cord (C) is not caught under the cap.



   Is the fuel fill cap seal missing or damaged, is the fuel fill pipe damaged, or is the tether cord caught under the cap?

   YES—Replace the fuel fill cap or the fuel fill pipe (see page 11-348), then go to step 22.

   NO—Go to step 3.

3. Turn the ignition switch ON (II).

4. Clear the DTC with the HDS.

5. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, or the EVAP canister vent shut valve, and the PCM. ■

   NO—Go to step 6.

BACK

Protected by AR

6. Turn the ignition switch OFF.

7. Turn the ignition switch ON (II).

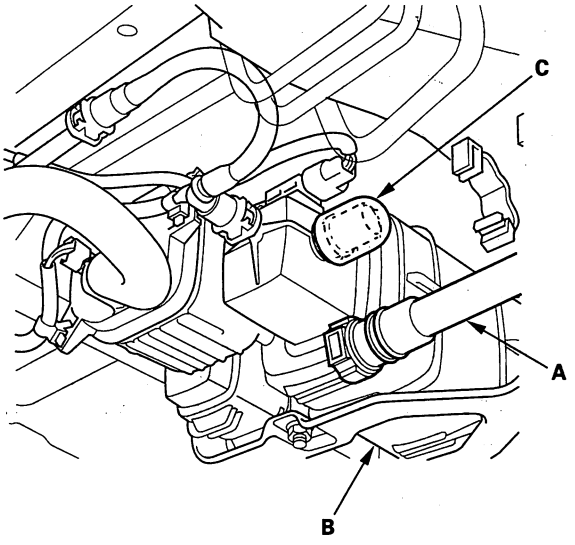
8. Check for a poor connection or damage at the fuel tank vapor recirculation tube.

   Is the tube OK?

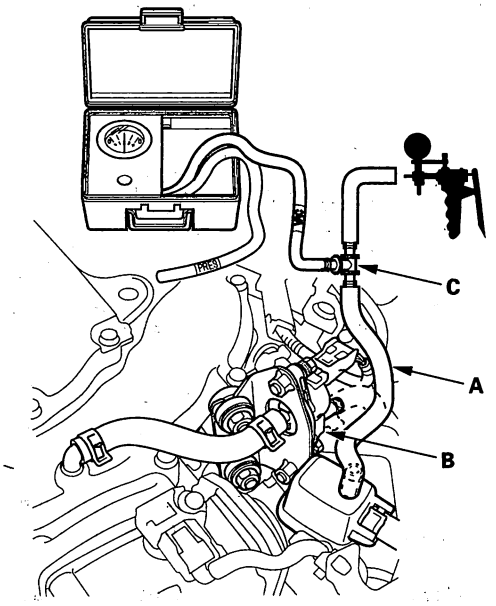
   YES—Go to step 9.

   NO—
   - Replace the fuel tank vapor recirculation tube, then go to step 22.
   - If necessary, replace the fuel tank (see page 11-347), then go to step 22.

9. Disconnect the fuel tank vapor recirculation tube (A) from the EVAP canister (B), and plug the EVAP canister port (C).



10. Disconnect the vacuum hose (purge line) (A) from the EVAP canister purge valve (B) in the engine compartment, and connect a T-fitting (C) from the vacuum gauge and the vacuum pump/gauge, 0—30 in.Hg, to the vacuum hose (A) as shown.



11. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

12. Apply vacuum to the hose until the FTP reads 1.90 V —2.0 kPa (—0.59 in.Hg, —15.1 mmHg).

    NOTE: Be careful not to exceed the vacuum. If you do, the FTP sensor can be damaged.

13. Monitor the FTP SENSOR in the DATA LIST for 1 minute with the HDS.

    Does the voltage increase more than 0.2 V 0.3 kPa (0.1 in.Hg, 2.5 mmHg)?

    YES—Go to step 14.

    NO—Go to step 19.

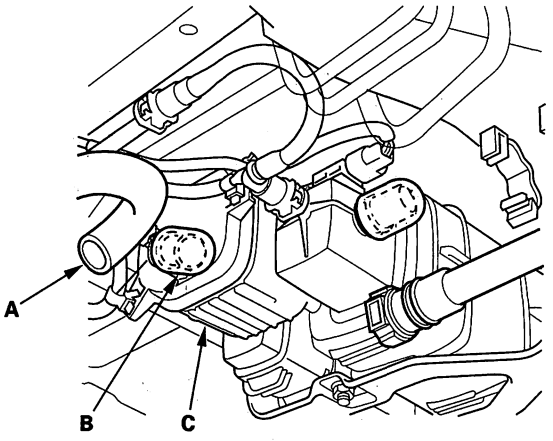
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

14. Select EVAP CVS OFF in the INSPECTION MENU with the HDS.

15. Disconnect the fresh air hose (A) from the EVAP canister vent shut valve (B), and plug the EVAP canister vent shut valve port (C).



16. Apply vacuum to the EVAP system until the FTP reads 1.90 V —2.0 kPa (—0.59 in.Hg, —15.1 mmHg).

    NOTE: Be careful not to exceed the vacuum. If you do, the FTP sensor can be damaged.

17. Monitor the FTP SENSOR in the DATA LIST for 1 minute with the HDS.

    Does the voltage increase more than 0.2 V 0.3 kPa (0.1 in.Hg, 2.5 mmHg)?

    YES—Go to step 18.

    NO—Replace the EVAP canister vent shut valve, then go to step 21.

18. Check for a loose or damaged EVAP canister purge line between the EVAP canister and the EVAP canister purge valve.

    Is the line OK?

    YES—Replace these parts, then go to step 21:

    - FTP sensor O-ring
    - EVAP canister vent shut valve case and O-ring
    - EVAP canister

    NO—Reconnect or repair the EVAP canister purge hose, then go to step 21.

19. Select EVAP CVS OFF in the INSPECTION MENU with the HDS.

20. Check these parts for looseness or damage:

    - Fuel fill pipe
    - Fuel vapor return pipe

    Are the parts OK?

    YES—Check the fuel tank unit base gasket (see page 11-343), and check the fuel tank, then go to step 21.

    NO—Repair or replace the damaged parts, then go to step 21.

21. Reconnect all hoses and connectors.

22. Turn the ignition switch ON (II).

23. Reset the PCM with the HDS.

24. Do the PCM idle learn procedure (see page 11-311).

25. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

    Is the result OK?

    YES—Go to step 26.

    NO—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, the EVAP canister vent shut valve, and the PCM, then go to step 1.

26. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0455 and/or P0456 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, the EVAP canister vent shut valve, and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P0457: EVAP System Leak Detected/Fuel Fill Cap Loose or Missing

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

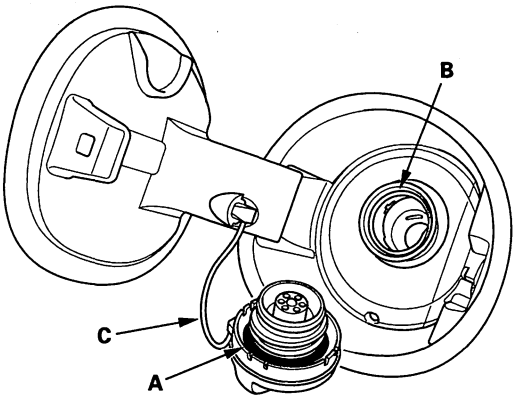
1. Check the fuel fill cap (the cap must say "TIGHTEN TO CLICK"). It should turn 1/4 turn after it's tight, then it clicks.

   Is the correct fuel fill cap installed and properly tightened?

   YES—Go to step 2.

   NO—Replace or tighten the cap, then go to step 19.

2. Check the fuel fill cap seal (A) and the fuel fill pipe mating surface (B). Verify that the fuel fill cap tether cord (C) is not caught under the cap.



   Is the fuel fill cap seal missing or damaged, is the fuel fill pipe damaged, or is the tether cord caught under the cap?

   YES—Replace the fuel fill cap or the fuel fill pipe (see page 11-348), then go to step 19.

   NO—Go to step 3.

3. Turn the ignition switch ON (II).

4. Clear the DTC with the HDS.

5. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor, the EVAP canister vent shut valve, and the PCM. ■

   NO—Go to step 6.

6. Turn the ignition switch OFF.

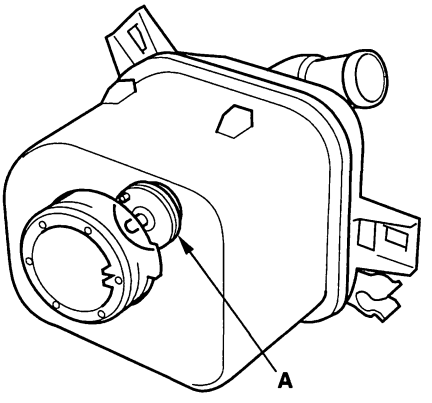
7. Remove the EVAP canister vent shut valve from the EVAP canister (see page 11-424).

8. Connect the 2P connector to the EVAP canister vent shut valve.

9. Turn the ignition switch ON (II).

10. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

11. Check the EVAP canister vent shut valve (A) operation.



    Does the valve operate?

    YES—Check the routing of the EVAP canister vent tube, then go to step 18.

    NO—Go to step 12.

(cont'd)

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DTC Troubleshooting (cont'd)

12. Turn the ignition switch OFF.
13. Replace the EVAP canister vent shut valve (see page 11-424).
14. Turn the ignition switch ON (II).
15. Reset the PCM with the HDS.
16. Do the PCM idle learn procedure (see page 11-311).
17. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

    Is the result OK?

    YES—Go to step 23.

    NO—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister vent shut valve, and the PCM, then go to step 1.
18. Reinstall the EVAP canister vent shut valve.
19. Turn the ignition switch ON (II).
20. Reset the PCM with the HDS.
21. Do the PCM idle learn procedure (see page 11-311).
22. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

    Is the result OK?

    YES—Go to step 23.

    NO—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister vent shut valve, and the PCM, then go to step 1.
23. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0457 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister vent shut valve, and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

BACK

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DTC P0496: EVAP System High Purge Flow

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, the EVAP canister vent shut valve, and the PCM. ■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Replace the EVAP canister purge valve (see page 11-423).
6. Turn the ignition switch ON (II).
7. Reset the PCM with the HDS.
8. Do the PCM idle learn procedure (see page 11-311).
9. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Go to step 10.

   NO—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, the EVAP canister vent shut valve, and the PCM, then go to step 1.
10. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0496 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, the EVAP canister vent shut valve, and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P0497: EVAP System Low Purge Flow

Special Tools Required
- Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available
- Vacuum/pressure gauge, 0—4 in.Hg, 07JAZ-001000B

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Select EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and the PCM. ■

   NO—Go to step 4.

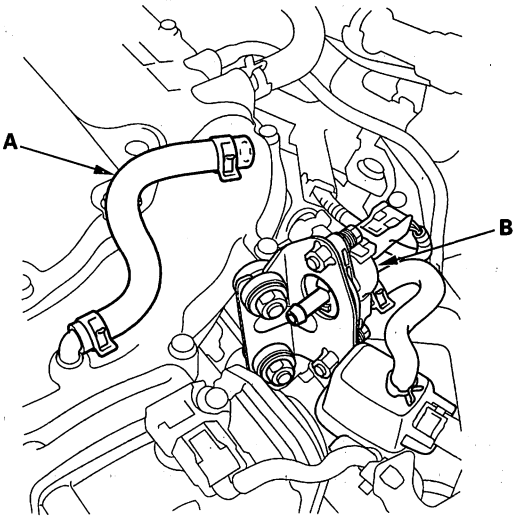
4. Check for poor connection, blockage, or damage at the EVAP canister purge line between the throttle body and the EVAP canister.

   Is the line OK?

   YES—Go to step 5.

   NO—Reconnect or repair the EVAP canister purge line, then go to step 23.

5. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B).



BACK

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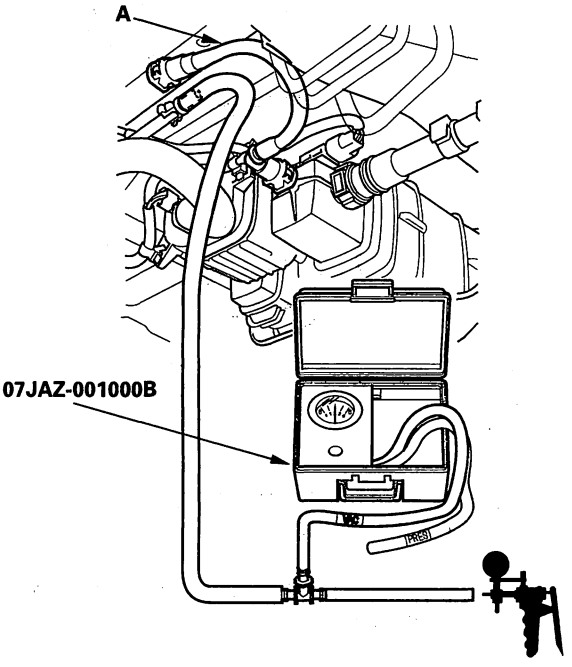
6. Disconnect the vacuum hose (A) from the purge line (at the EVAP canister side), and connect the vacuum pump/gauge, 0—30 in.Hg, to the hose as shown.



7. Apply about 2 kPa (0.6 in.Hg, 15 mmHg) of vacuum to the hose.

8. Select EVAP PCS ON in the INSPECTION MENU with the HDS.

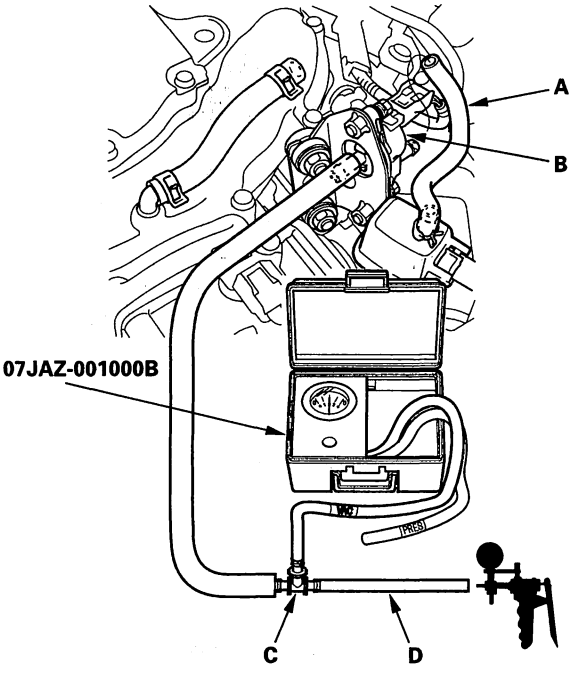
   Does the vacuum release immediately?

   YES—Go to step 14.

   NO—Go to step 9.

9. Select EVAP PCS OFF in the INSPECTION MENU with the HDS.

10. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B). Connect the T-fitting (C) from the vacuum gauge and the vacuum pump/gauge, 0—30 in.Hg, to the hose (D) as shown.



11. Apply about 2 kPa (0.6 in.Hg, 15 mmHg) of vacuum to the hose.

12. Turn the ignition switch ON (II).

13. Select EVAP PCS ON in the INSPECTION MENU with the HDS.

    Does the vacuum release immediately?

    YES—Check for blockage in the vacuum hose between the EVAP canister purge valve and the EVAP canister, then go to step 23.

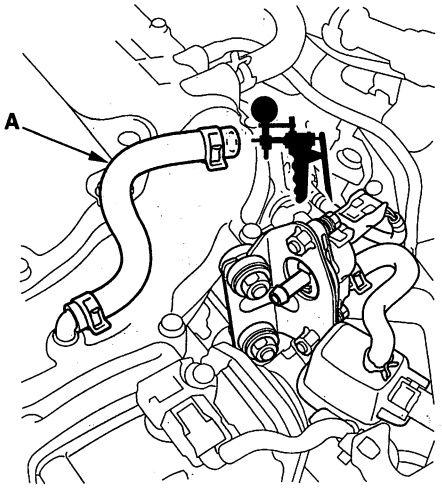
    NO—Replace the EVAP canister purge valve (see page 11-423), then go to step 23.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

14. Connect the vacuum pump/gauge, 0—30 in.Hg, to the vacuum hose (A) as shown.



15. Start the engine, and let it idle.

    Is there vacuum?

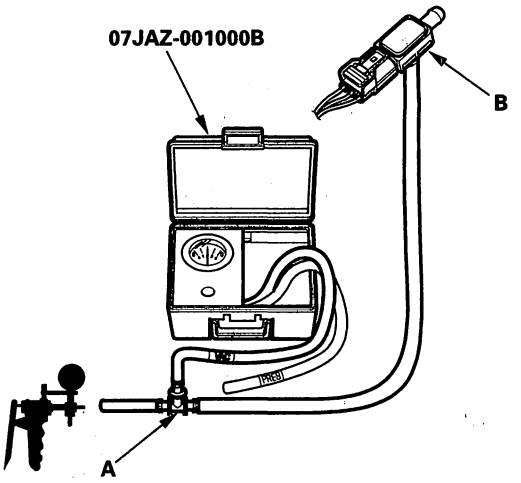
    YES—Go to step 16.

    NO—Check for blockage in the vacuum hose between the EVAP canister purge valve and the throttle body, then go to step 23.

16. Turn the ignition switch OFF.

17. Remove the FTP sensor with its connector connected (see page 11-423).

18. Connect a T-fitting (A) from the vacuum pump/gauge, 0—30 in.Hg, and the vacuum pump to the FTP sensor (B) as shown.



19. Check and record the FTP SENSOR reading in the DATA LIST with the HDS.

20. Slowly apply about 1.3 kPa (0.4 in.Hg, 10 mmHg) of vacuum to the hose.

    NOTE: Be careful not to exceed the vacuum. If you do, the FTP sensor can be damaged.

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21. Check the FTP SENSOR in the DATA LIST with the HDS.

    Does the value change?

    YES—Check for debris or blockage at the EVAP canister port, then go to step 23.

    NO—Go to step 22.

22. Replace the FTP sensor (see page 11-423).

23. Reconnect all hose.

24. Turn the ignition switch ON (II).

25. Reset the PCM with the HDS.

26. Do the PCM idle learn procedure (see page 11-311).

27. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

    Is the result OK?

    YES—Troubleshooting is complete. ■

    NO—Check for poor connections or loose terminals at the FTP sensor and the PCM, then go to step 1.

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DTC Troubleshooting (cont'd)

DTC P0498: EVAP Canister Vent Shut Valve Control Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0498 indicated?

   YES—Go to step 6.

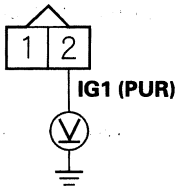
   NO—Go to step 4.
4. Select EVAP CVS ON in the INSPECTION MENU with the HDS.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0498 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EVAP canister vent shut valve and the PCM. ■
6. Turn the ignition switch OFF.
7. Disconnect the EVAP canister vent shut valve 2P connector.
8. Turn the ignition switch ON (II).
9. Measure voltage between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

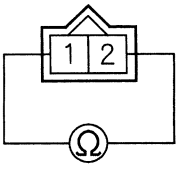
Is there battery voltage?

YES—Go to step 10.

NO—Repair open in the wire between the EVAP canister vent shut valve and the under-hood fuse/relay box (PGM-FI relay), then go to step 18.

10. Turn the ignition switch OFF.
11. At the valve side, measure resistance between EVAP canister vent shut valve 2P connector terminals No. 1 and No. 2.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Terminal side of male terminals

Is there about 25—30 Ω at room temperature?

YES—Go to step 12.

NO—Go to step 17.

BACK

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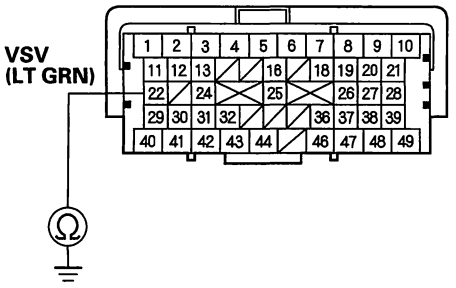
12. Jump the SCS line with the HDS.
13. Disconnect PCM connector A (49P).
14. Check for continuity between PCM connector terminal A22 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

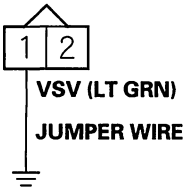
Is there continuity?

YES—Repair short in the wire between the EVAP canister vent shut valve and the PCM (A22), then go to step 18.

NO—Go to step 15.

15. Connect EVAP canister vent shut valve 2P connector terminal No. 1 to body ground with a jumper wire.

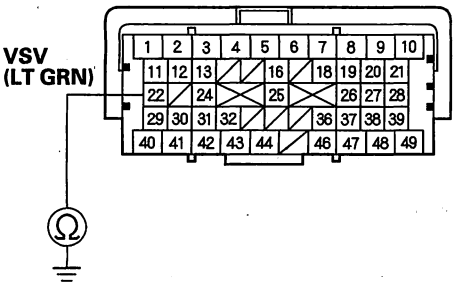
EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

16. Check for continuity between PCM connector terminal A22 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 24.

NO—Repair open in the wire between the EVAP canister vent shut valve and the PCM (A22), then go to step 18.

17. Replace the EVAP canister vent shut valve (see page 11-424).
18. Reconnect all connectors.

(cont'd)

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DTC Troubleshooting (cont'd)

19. Turn the ignition switch ON (II).
20. Reset the PCM with the HDS.
21. Do the PCM idle learn procedure (see page 11-311).
22. Select EVAP CVS ON in the INSPECTION MENU with the HDS.
23. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0498 indicated?

    YES—Check for poor connections or loose terminals at the EVAP canister vent shut valve and the PCM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
24. Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8).
25. Select EVAP CVS ON in the INSPECTION MENU with the HDS.
26. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0498 indicated?

    YES—Check for poor connections or loose terminals at the EVAP canister vent shut valve and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

    NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC P0499: EVAP Canister Vent Shut Valve Control Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Select EVAP CVS ON in the INSPECTION MENU with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0499 indicated?

   YES—Check for poor connections or loose terminals at the EVAP canister vent shut valve and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-8), then recheck. If the PCM was substituted, go to step 1.

   NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

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DTC Troubleshooting (cont'd)

DTC P1454: FTP Sensor Circuit Range/ Performance Problem

DTC P2422: EVAP Canister Vent Shut Valve Close Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Remove the fuel fill cap, and wait 1 minute.
5. Check the FTP SENSOR in the DATA LIST with the HDS.

   Is it between −0.67 and 0.67 kPa (−0.2 and 0.2 in.Hg, −5 and 5 mmHg), or 2.4 and 2.6 V?

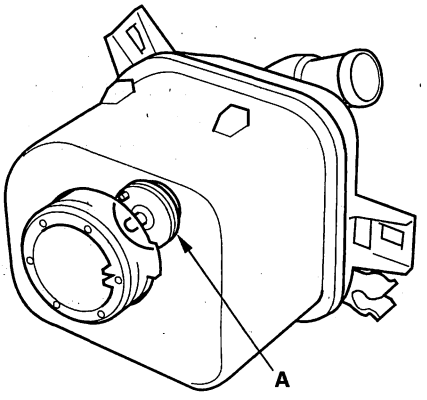
   YES—Go to step 6.

   NO—Go to step 17.
6. Install the fuel fill cap.
7. Clear the DTC with the HDS.
8. Start the engine, and then let it idle without load (in Park on neutral) until the radiator fan comes on.
9. Monitor the OBD STATUS for DTC P1454 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 10.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor, the EVAP canister vent shut valve, and the PCM. If the screen indicates NOT COMPLETED, go to step 8 and recheck.
10. Clear the DTC with the HDS.
11. Turn the ignition switch OFF.
12. Remove the EVAP canister vent shut valve from the EVAP canister (see page 11-424).
13. Connect the 2P connector to the EVAP canister vent shut valve.
14. Turn the ignition switch ON (II).
15. Select EVAP CVS ON in the INSPECTION MENU with the HDS.
16. Check the EVAP canister vent shut valve (A) operation.



Does the valve operate?

YES—Check for a blockage in the EVAP canister, canister filter, vent hoses, and drain joint, then install the EVAP canister vent shut valve, and go to step 23.

NO—Replace the EVAP canister vent shut valve (see page 11-424), then go to step 23.

BACK

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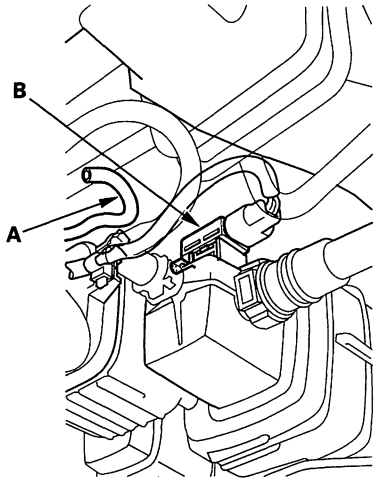
17. Disconnect the air tube (A) from the FTP sensor (B).



18. Check the FTP SENSOR in the DATA LIST with the HDS.

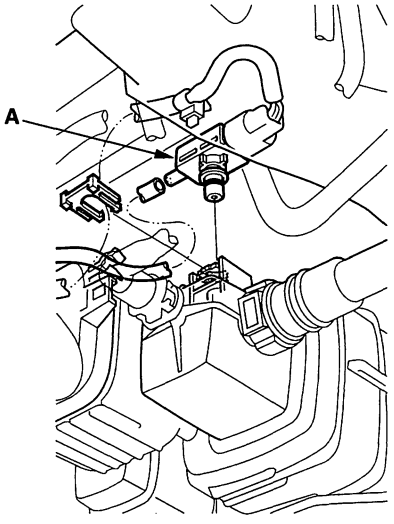
    Is it between −0.67 and 0.67 kPa (−0.2 and 0.2 in.Hg, −5 and 5 mmHg), or 2.4 and 2.6 V?

    YES—Check for a blockage in the FTP sensor air tube or vent, then go to step 23.

    NO—Go to step 19.

19. Turn the ignition switch OFF.

20. Remove the FTP sensor (A) from the EVAP canister with its connector connected (see page 11-423).



21. Turn the ignition switch ON (II).

22. Check the FTP SENSOR in the DATA LIST with the HDS.

    Is it between −0.67 kPa and 0.67 kPa (−0.2 and 0.2 in.Hg, −5 and 5 mmHg), or 2.4 and 2.6 V?

    YES—Check for debris or clogging at the EVAP canister and the FTP sensor port, then go to step 23.

    NO—Replace the FTP sensor (see page 11-423), then go to step 23.

23. Turn the ignition switch ON (II).

24. Reset the PCM with the HDS.

25. Do the PCM idle learn procedure (see page 11-311).

26. Start the engine, and then let it idle without load (in Park or neutral) until the radiator fan comes on.

27. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1454 and/or P2422 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister vent shut valve, and the PCM, then go to step 1.

    NO—Go to step 28.

28. Monitor the OBD STATUS for DTC P1454 and/or P2422 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 27, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the FTP sensor, the EVAP canister vent shut valve, and the PCM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P145C: EVAP System Purge Flow Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P145C is indicated alone, do the troubleshooting for DTC P0496 and P0497 using freeze data from P145C.
- If DTC P0497 and P145C stored at the same time, check for poor connection, blockage, or damage at EVAP canister purge line between the EVAP canister purge valve and the EVAP canister, and EVAP canister purge valve closed stuck.
- If any of the DTCs listed below are indicated at the same time as DTC P145C, troubleshoot those DTCs first, then recheck for P145C.

  P0496, P0497: EVAP system purge flow

BACK

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Fuel Cap Warning Message System Troubleshooting

Special Tools Required
- Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available
- Vacuum/pressure gauge, 0—4 in.Hg 07JAZ-001000B

When the fuel fill cap warning message does not go off after fuel fill cap tightened, or the message turned on frequently, do this troubleshooting procedure.

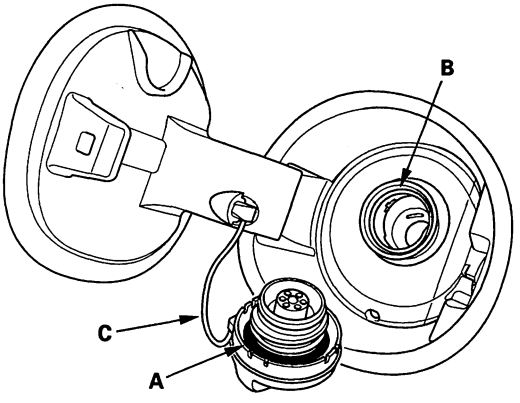
1. Check the fuel fill cap (the cap must say "TIGHTEN TO CLICK"). It should turn 1/4 after it's tight, then it clicks.

   Is the correct fuel fill cap installed and properly tightened?

   YES—Go to step 2.

   NO—Replace or tighten the cap, then go to step 13.

2. Check the fuel fill cap seal (A) and the fuel fill pipe mating surface (B). Verify that the fuel fill cap tether cord (C) is not caught under the cap.



   Is the fuel fill cap seal missing or damaged, is the fuel fill pipe damaged, or is the tether cord caught under the cap?

   YES—Replace the fuel fill cap or the fuel fill pipe (see page 11-348), then go to step 13.

   NO—Go to step 3.

3. Reinstall and tighten the fuel fill cap.

4. Clear the DTC with the HDS.

5. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle for 1 minute.

6. Test-drive at 45 mph (72 km/h) 1 minute or more.

   Does the fuel cap message come on?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time.■

7. Turn the ignition switch OFF.

(cont'd)

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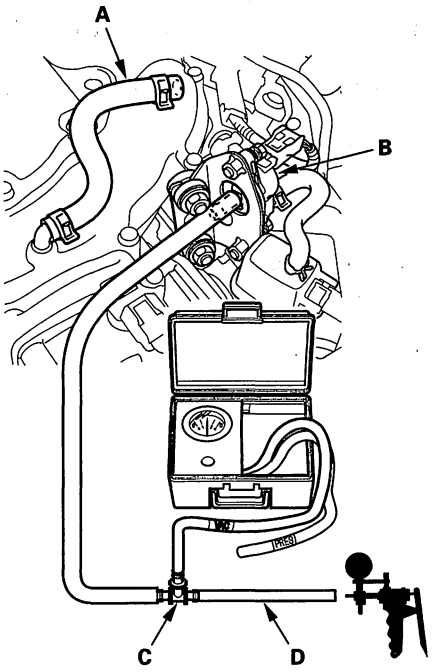
Fuel Cap Warning Message System Troubleshooting (cont'd)

8. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B) in the engine compartment. Connect the T-fitting (C) from the vacuum gauge and the vacuum pump/gauge, 0—30 in.Hg, to the vacuum hose (D) as shown.



9. Apply vacuum to the hose about 2 kPa (0.6 in.Hg, 15 mmHg).

   NOTE: Be careful not to exceed the vacuum. If you do, the FTP sensor can be damaged.

10. Turn the ignition switch ON (II).

11. Select the EVAP PCS ON in the INSPECTION MENU with the HDS.

    Release the vacuum immediately?

    YES—Check for vacuum hose blockage between the EVAP canister purge valve and the EVAP canister, then go to step 12.

    NO—Replace the EVAP canister purge valve (see page 11-423), then go to step 12.

12. Install the parts in the reverse order of removal.

13. Turn the ignition switch ON (II).

14. Reset the PCM with the HDS.

15. Do the PCM idle learn procedure (see page 11-311).

16. Start the engine. Hold the engine speed at 3,000 rpm without load (in Park or neutral) until the radiator fan comes on, then let it idle for 1 minute.

17. Test-drive at 45 mph (72 km/h) for 1 minute or more.

    Does the fuel fill cap message come on?

    YES—Go to step 1 and recheck.

    NO—Troubleshooting is complete. ■

BACK

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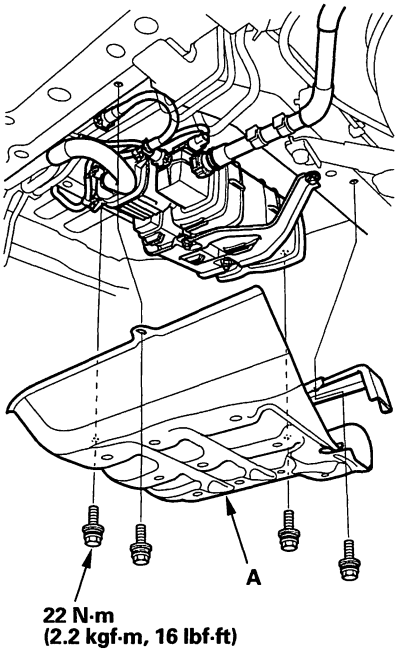
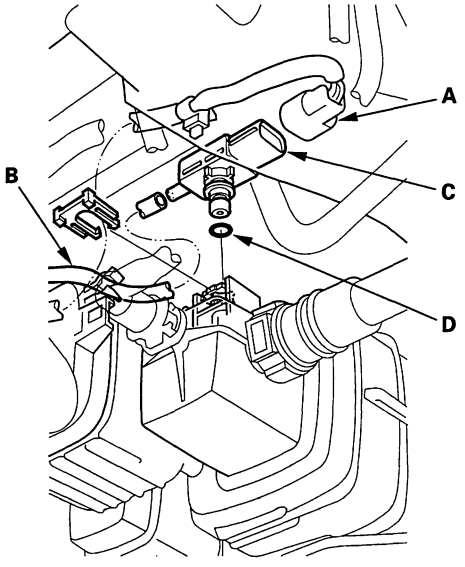
FTP Sensor Replacement

1. Remove the EVAP canister cover (A).



2. Disconnect the FTP sensor 3P connector (A) and tube (B).

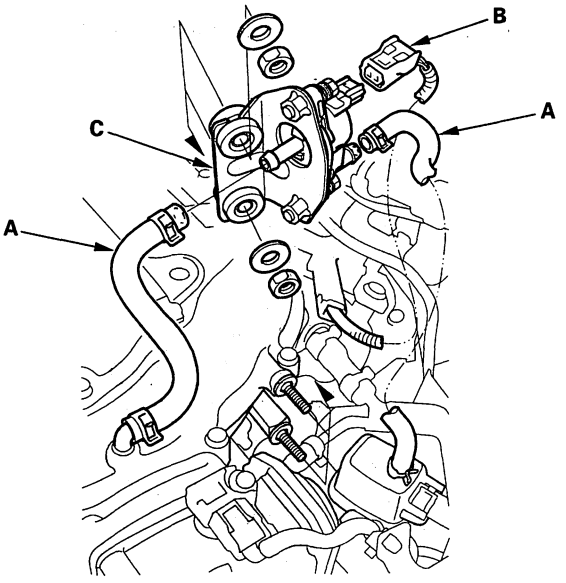


3. Remove the FTP sensor (C).

4. Install the parts in the reverse order of removal with a new O-ring (D).

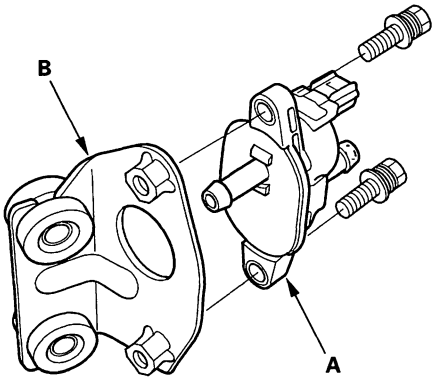
EVAP Canister Purge Valve Replacement

1. Disconnect the hoses (A) and EVAP canister purge valve 2P connector (B).



2. Remove the EVAP canister purge valve and the bracket (C).

3. Remove the EVAP canister purge valve (A) from the bracket (B).



4. Install the parts in the reverse order of removal.

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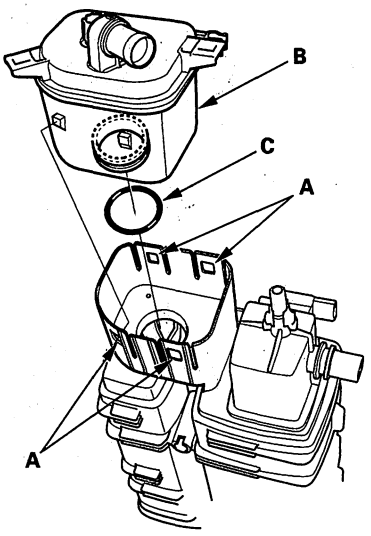
EVAP Canister Vent Shut Valve Replacement

1. Remove the EVAP canister (see page 11-425).
2. Pry the lock tabs outward (A), then remove the EVAP canister vent shut valve (B).

   NOTE: Be careful not to damage the lock tabs.



3. Install the parts in the reverse order of removal with a new O-ring (C).

   NOTE: Do not coat the O-ring with oil.

BACK

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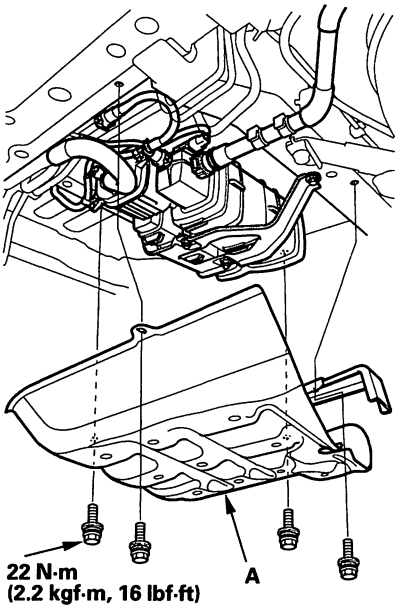
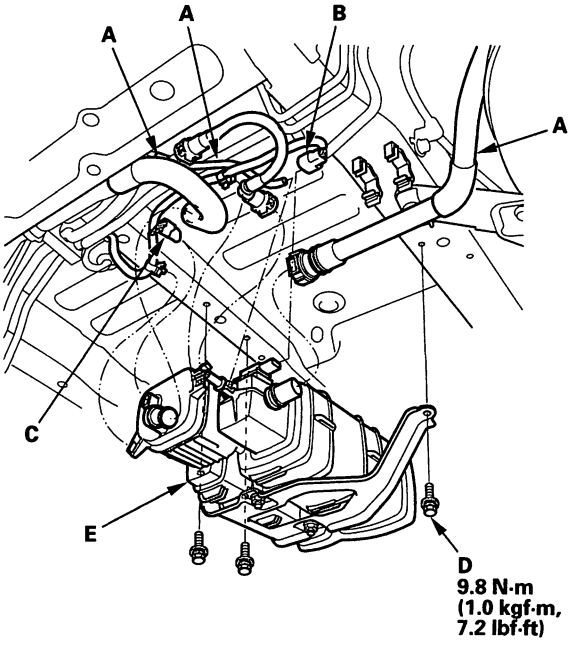
EVAP Canister Replacement

1. Remove the fuel tank guard (A).



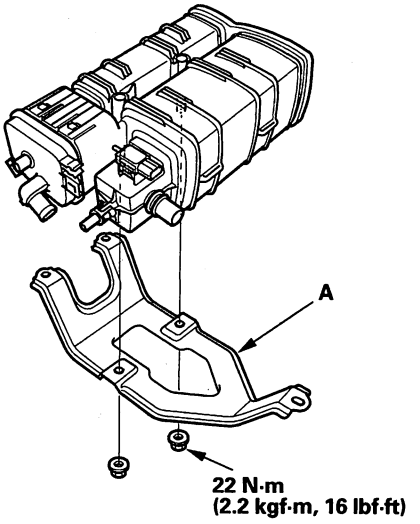
2. Remove the hoses (A), the FTP sensor 3P connector (B), and the EVAP canister vent shut valve 2P connector (C).



3. Remove the bolts (D).

4. Remove the EVAP canister assembly (E).

5. Remove the EVAP canister bracket (A).



6. Install the parts in the reverse order of removal.

BACK

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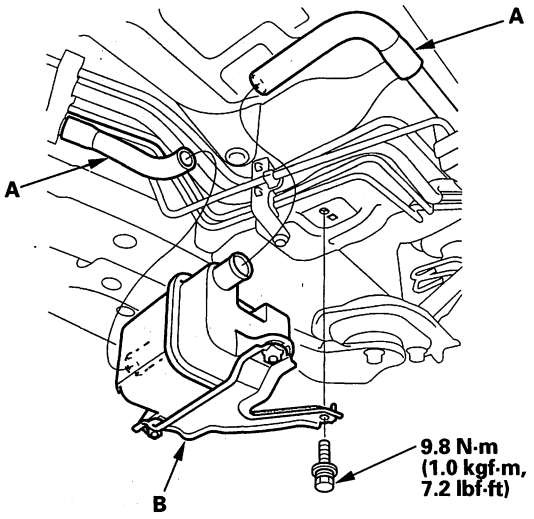
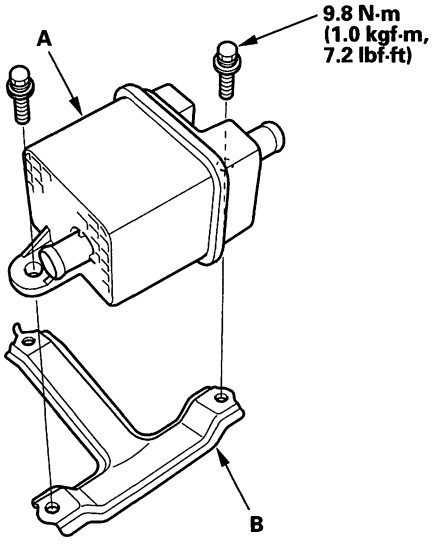
EVAP Canister Filter Replacement

1. Disconnect the hoses (A).



2. Remove the EVAP canister filter and bracket (B).
3. Remove the EVAP canister filter (A) from the bracket (B).



4. Install the parts in the reverse order of removal.

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Transaxle

Automatic Transmission **14-1**

Rear Differential **15-1**

Driveline/Axle **16-1**

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SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If automatic transmission maintenance is required)

The Acura MDX SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done only by an authorized Acura dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Acura dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags and/or side airbags.
- Do not bump or impact the SRS unit, front impact sensors, side impact sensors, or roll rate sensor when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.

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Automatic Transmission

Automatic Transmission

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Special Tools

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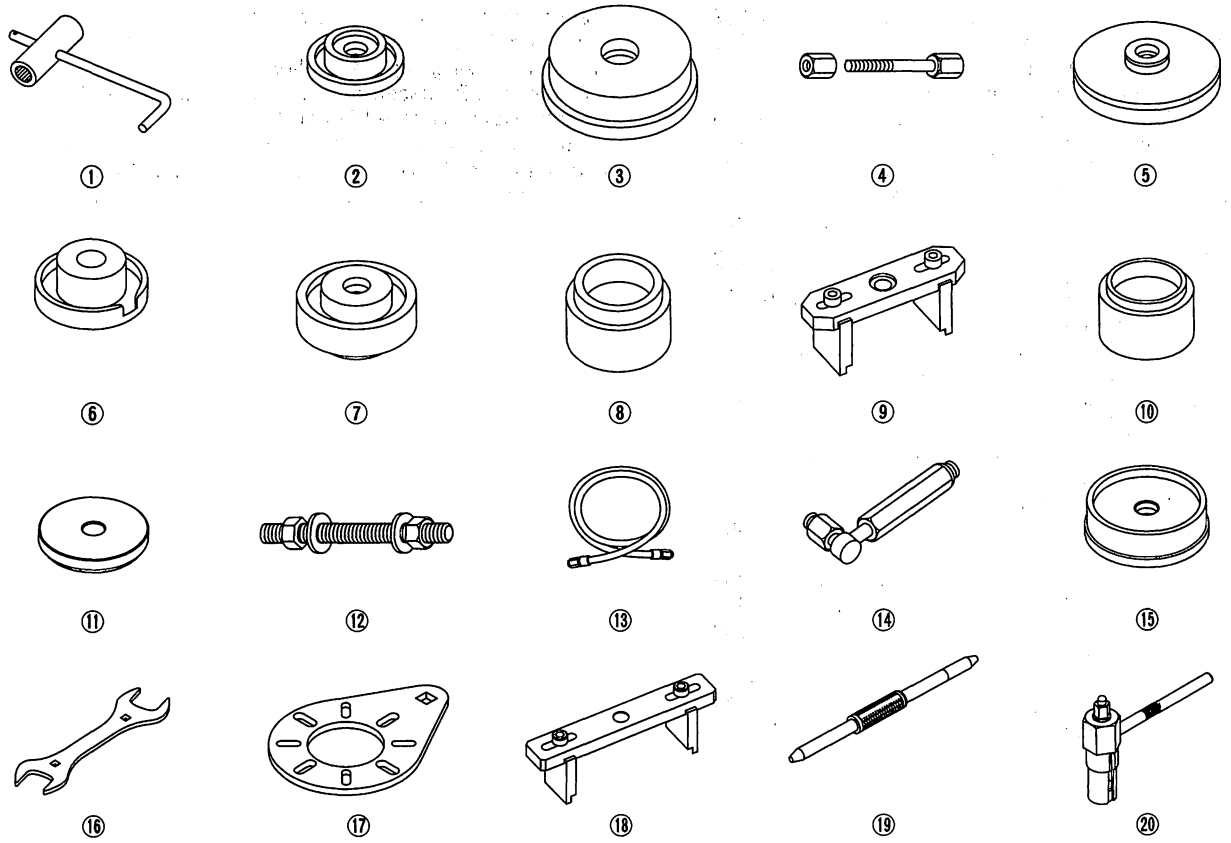
①	07GAB-PF50101	Mainshaft Holder	1
②	07GAD-PG40100	Oil Seal Driver Attachment	1
③	07GAD-SD40101	Attachment, 78 x 90 mm	1
④	07GAE-PG40200 or 07GAE-PG4020A	Clutch Spring Compressor Bolt Assembly	1
⑤	07HAD-SG00100	Attachment, 83 mm	1
⑥	07JAD-PH80101	Oil Seal Driver Attachment	1
⑦	07JAD-SH30100	Attachment, 65 mm	1
⑧	07LAD-PW50601	Attachment, 40 x 50 mm	1
⑨	07LAE-PX40100	Clutch Spring Compressor Attachment	2
⑩	07MAD-PR90100	Attachment, 45 x 55 mm	1
⑪	07MAF-SP0011A	Tapered Bearing Race Installer A	1
⑫	07MAF-SP0013A	Installer Shaft	1
⑬	07MAJ-PY4011A	A/T Pressure Hose, 2,210 mm	3
⑭	07MAJ-PY40120	A/T Pressure Hose Adapter	3
⑮	07NAD-PX40100	Attachment, 78 x 80 mm	1
⑯	07XAA-002010A	Wrench, 40 x 42 mm	1
⑰	07XAB-0010101	Companion Flange Holder	1
⑱	07ZAE-PRP0100	Clutch Compressor Attachment	1
⑲	070AG-SJAA10S	Frame Positioning Guide Pin	1
⑳	070AJ-0020101	Preload Inspection Tool	1

07HAE-PL50101 may also be used to substitute one of 07LAE-PX40100.



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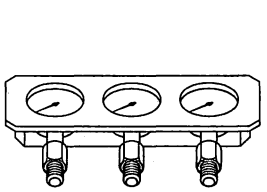
Ref. No.	Tool Number	Description	Qty
㉑	07406-0020400 or 07406-0020401	A/T Clutch Pressure Gauge Set/Panel	1
㉒	07736-A01000B or 07736-A01000A	Adjustable Bearing Puller, 25—40 mm	1
㉓	07741-0010201	Sliding Hammer Weight	1
㉔	07746-0010200	Attachment, 37 x 40 mm	1
㉕	07746-0010300	Attachment, 42 x 47 mm	1
㉖	07746-0010400	Attachment, 52 x 55 mm	1
㉗	07746-0010500	Attachment, 62 x 68 mm	1
㉘	07746-0010600	Attachment, 72 x 75 mm	1
㉙	07746-0010800	Attachment, 22 x 24 mm	1
㉚	07746-0030100	Driver, 40 mm I.D.	1
㉛	07746-0030300	Attachment, 30 mm I.D.	1
㉜	07749-0010000	Driver	1
㉝	07936-1660101	Bearing Remover Shaft Set, 12 mm	1
㉞	07936-3710100	Bearing Remover Shaft Handle	1
㉟	07936-3710600	Bearing Remover Shaft Set, 20 mm	1
㊱	07936-8890300	Bearing Remover Shaft Set, 30 mm	1
㊲	07936-GE00100	Bearing Remover Shaft, 10 mm	1
㊳	07936-GE00200	Bearing Remover Head, 10 mm	1
㊴	07947-6340500	Driver Attachment	1

07736-A01000B or 07736-A01000A must be used with commercially available 3/8 ″-16 slide hammer.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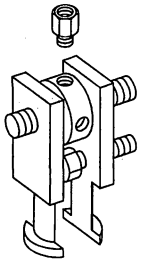
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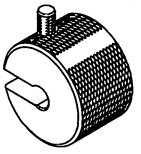
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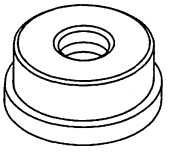
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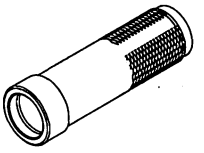
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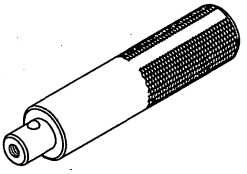
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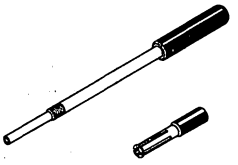
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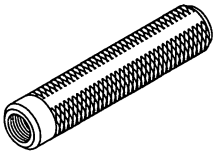
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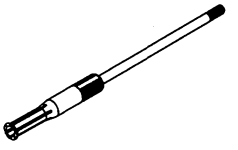
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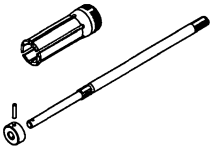
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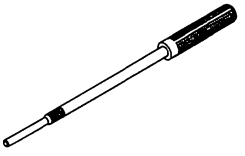
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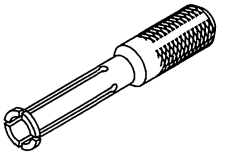
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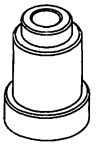
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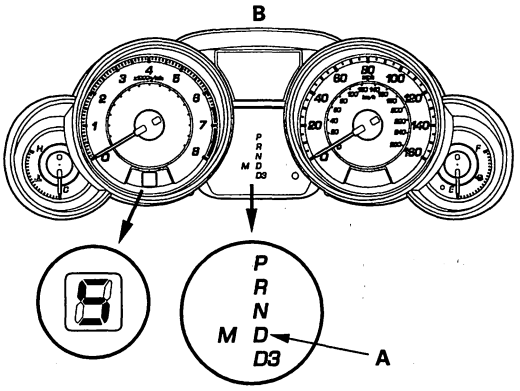
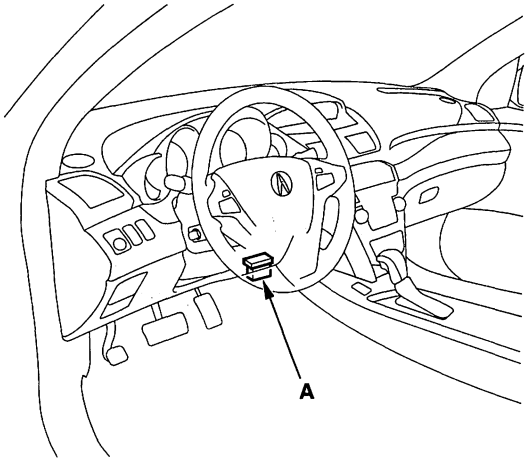
General Troubleshooting Information

How to Check for DTCs with the Honda Diagnostic System (HDS)

When the powertrain control module (PCM) senses an abnormality in the input or output system, the D indicator (A) in the gauge assembly (B) will usually blink.



When the Honda Diagnostic System (HDS) is connected to the data link connector (DLC) (A) (located behind the driver's dashboard lower cover), it will indicate the diagnostic trouble code (DTC) when the ignition switch is turned ON (II) and the appropriate menu is selected.



If the D indicator or malfunction indicator lamp (MIL) has been reported on, or if a driveability problem is suspected, follow this procedure:

1. Connect the HDS to the DLC. (See the HDS user's manual for specific instructions.)
2. Turn the ignition switch ON (II), select A/T system, and observe the DTC in the DTCs MENU on the HDS screen.
3. Record all fuel and emissions DTCs, and A/T DTCs, and freeze data.
4. If there is a fuel and emissions DTC, first check the fuel and emissions system as indicated by the DTC (except for DTC P0700, DTC P0700 means there is one or more A/T DTCs, and no problems were detected in the fuel and emissions circuit of the PCM).
5. Clear the DTC and data.
6. Drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, and then recheck for a DTC. If the A/T DTC returns, go to the indicated DTC's troubleshooting. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all pins and terminals in the circuit are tight.

Symptom Troubleshooting Versus DTC Troubleshooting

Some symptoms will not trigger diagnostic trouble codes (DTCs) or cause the D indicator to blink. If the malfunction indicator lamp (MIL) was reported ON or the D indicator has been blinking, check for DTCs. If the vehicle has an abnormal symptom, and there are no DTCs stored, do the symptom troubleshooting. Check the list of probable cause(s) for the symptom, in the sequence listed, until you find the problem.

BACK

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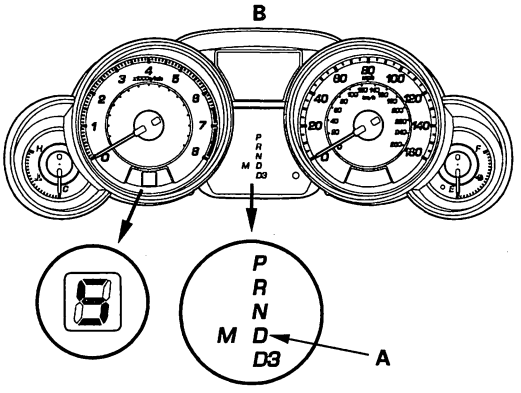
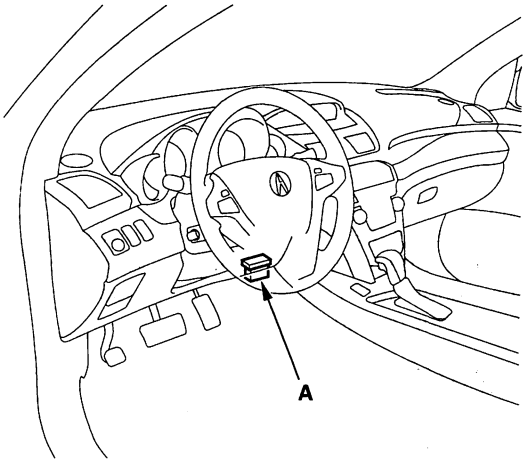
How to Check for DTCs with the SCS Mode (retrieving the flash codes)

NOTE: The preferred method is to use the HDS to retrieve the P-code.

When the PCM senses an abnormality in the input or output system, the D indicator (A) in the gauge assembly (B) will usually blink.



When the D indicator has been reported on, connect the HDS to the DLC (A) (located behind the driver's dashboard lower cover). Turn the ignition switch ON (II), select SCS mode, then the D indicator will indicate flash the DTC.



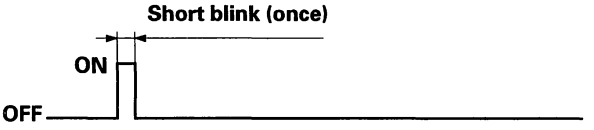
If the D indicator and the MIL come on at the same time, or if a driveability problem is suspected, follow this procedure:

1. Connect the HDS to the DLC. (See the HDS user's manual for specific instructions.)

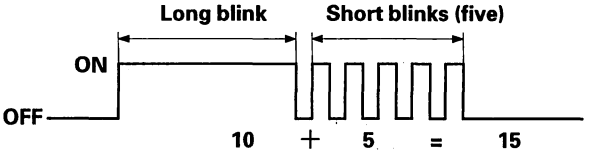
2. Turn the ignition switch ON (II), select SCS mode, then observe the D indicator in the gauge assembly.

   Codes 1 through 9 are indicated by individual short blinks. Code 10 and above are indicated by a series of long and short blinks. One long blink equals 10 short blinks. Add the long and short blinks together to determine the code.

Example: DTC 1-1



Example: DTC 15-5



3. Record all fuel and emissions DTCs and A/T DTCs.

4. If there is a fuel and emissions DTC, first check the fuel and emissions system as indicated by the DTC (except DTC 70, DTC 70 means there is one or more A/T DTCs, and no problems were detected in the fuel and emissions circuit of the PCM).

5. Clear the DTC and data.

6. Drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, and then recheck for DTC. If the A/T DTC returns, go to the indicated DTC's troubleshooting. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all pins and terminals in the circuit are tight.

(cont'd)

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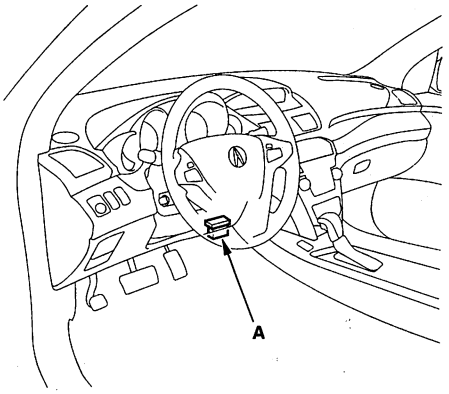
General Troubleshooting Information (cont'd)

How to Troubleshoot Circuits at the PCM Connectors

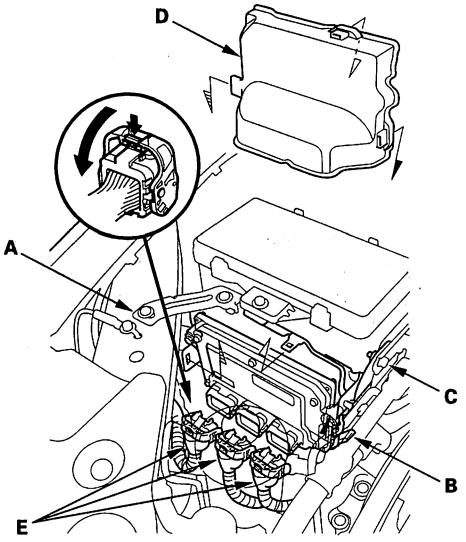
NOTE: The PCM overwrite data and monitors the EVAP system for up to 15 minutes after the ignition switch is turned OFF. Jumping the SCS line after turning the ignition switch OFF cancels this function. Disconnecting the PCM during this function, without jumping the SCS line first, can damage the PCM.

1. Connect the HDS to the DLC (A), and jump the SCS line with the HDS.

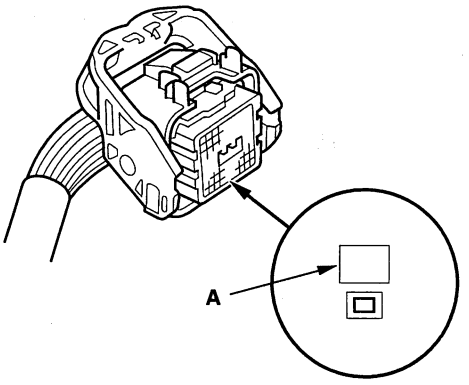


2. Inspect the circuit on the PCM, according to the DTC troubleshooting, with a commercially available digital multimeter, patch cords, and pin probes at PCM harness connectors.

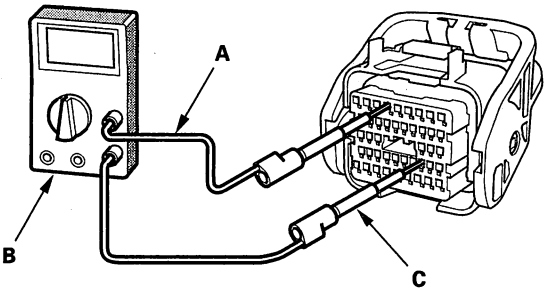
3. Remove the bracket (A), then free the A/C discharge line from the clip (B). Remove the A/C suction line mounting bracket bolt (C), then remove the PCM cover (D) and disconnect PCM connectors (E).



4. Check the connector inspection port (A) size, and select a suitable pin probe.



5. Connect one side of the patch cord (A) terminal to a digital multimeter (B), and connect the other side of the patch cord terminals to a commercially available banana jack (Pomona Electronics Tool No. 3563 or equivalent) (C).



6. Gently slide the pin probe into the inspection port at the connector terminal side. Always use the inspection port. Do not slide the probe into the connector terminals.

NOTICE

- For accurate result, always use the pin probe (male).
- To prevent damage to the connector terminals, do not insert test equipment probes, paper clips, or other substitutes as they can damage the terminals. Damaged terminals cause a poor connection and an incorrect measurement.
- Do not puncture the insulation on a wire. Punctures can cause poor or intermittent electrical connections.

BACK

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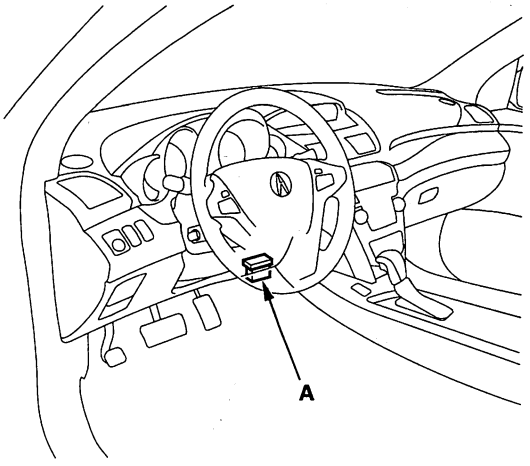
Clear A/T DTCs Procedures

1. Connect the HDS to the DLC (A).



2. Turn the ignition switch ON (II).
3. Clear the DTC(s) on the HDS screen.

   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-223).

OBD Status

The OBD status shows the current system status of each DTC and all of the parameters. This function is used to see if the technician's repair was successfully finished. The results of diagnostic tests for the DTC are displayed as:

- PASSED: On board diagnosis is successfully finished.
- FAILED: On board diagnosis has finished but failed.
- NOT COMPLETED: The on board diagnosis was running but is out of the enable conditions of the DTC.

How to End a Troubleshooting Session (required after any troubleshooting)

1. Reset the PCM with the HDS while the engine is stopped.
2. Turn the ignition switch OFF.
3. Turn the ignition switch ON (II), and wait for 30 seconds.
4. Turn the ignition switch OFF, and disconnect the HDS from the DLC.
5. Do the PCM idle learn procedure (see page 11-311).
6. Start the engine in the P or N position, and warm it up to normal operating temperature (the radiator fan comes on).
7. To verify that the problem is repaired, test-drive the vehicle for several minutes at speeds over 30 mph (50 km/h) or under the same conditions as those indicated by the freeze data.

(cont'd)

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General Troubleshooting Information (cont'd)

PCM Updating and Substitution for Testing

Special Tools Required
- Honda diagnosis system (HDS) TDSGD2200
- Honda interface module (HIM) EQS05A35570
- HDS pocket tester TDSS3557011401

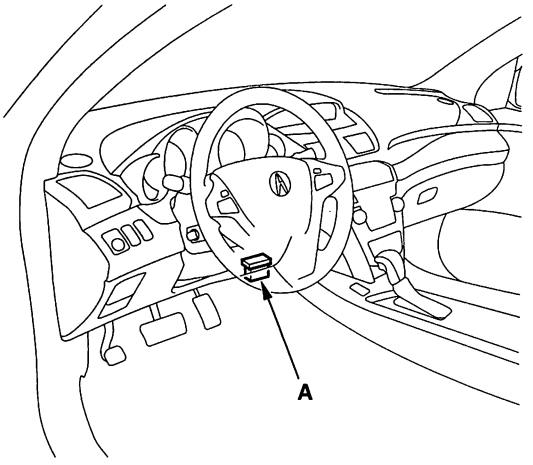
These special tools are available through the American Honda Tool and Equipment Program 1-888-424-6857.

Use this procedure when you have to update the PCM during troubleshooting procedures.

How to Update the PCM

NOTE:
- Make sure the HDS/HIM has the latest software version.
- Before you update the PCM, make sure the battery in the vehicle is fully charged.
- Never turn the ignition switch OFF during the update. If there is a problem with the update, leave the ignition switch ON.
- To prevent PCM damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, moonroof, door locks, and whatnot) during the update.
- To ensure the latest program is installed, do a PCM update whenever the PCM is substituted or replaced.
- You cannot update a PCM with a program it already has. It will only accept a new program.
- High temperature in the engine compartment might cause the PCM to become too hot to run the update. If the engine has been running before this procedure, open the hood and cool the engine compartment.
- If you need to diagnose the Honda interface module (HIM) because the HIM's red (#3) lamp came on or was flashed during the update, leave the ignition switch in the ON (II) position when you disconnect the HIM from the data link connector (DLC). This will prevent PCM damage.

1. Turn the ignition switch ON (II), but do not start the engine.
2. Connect the HDS to the DLC (A).



3. Make sure the HDS communicates with the PCM. If it doesn't, go to the DLC circuit troubleshooting (see page 11-223). If you are returning from the DLC circuit troubleshooting, skip steps 4 and 5, and clean the throttle body after you update the PCM (see page 11-363).
4. Select the INSPECTION MENU with the HDS.
5. Select the ETCS TEST, then select the TP POSITION CHECK, and follow the HDS screen prompts.

   NOTE: If the TP POSITION CHECK indicates FAILED, continue this procedure.
6. Exit the HDS diagnosis system, then select the update mode, and follow the screen prompts to update the PCM.

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7. If the software in the PCM is the latest, disconnect the HDS/HIM from the DLC, and go back to the procedure that you were doing. If the software in the PCM is not the latest, follow the instructions on the screen. If prompted to choose the PGM-FI system or the A/T system, make sure you update both.

   NOTE: If the PCM update system requires you to cool the PCM, follow the instructions on the screen. If you run into a problem during the update procedure (programming takes over 15 minutes, status bar goes over 100 %, D or immobilizer light flashes, HDS tablet freezes, and whatnot), follow these steps to minimize the chance of damaging the PCM:

   - Leave the ignition switch in the ON (II) position.
   - Connect a jumper battery (do not connect a battery charger).
   - Shut down the HDS.
   - Disconnect the HDS from the DLC.
   - Reboot the HDS.
   - Reconnect the HDS to the DLC, and try the update procedure again.

8. Select the ETCS TEST, then select the TP POSITION CHECK, and follow the HDS screen prompts. If the TP POSITION CHECK failed, clean the throttle body (see page 11-363).

9. Do the PCM idle learn procedure (see page 11-311).

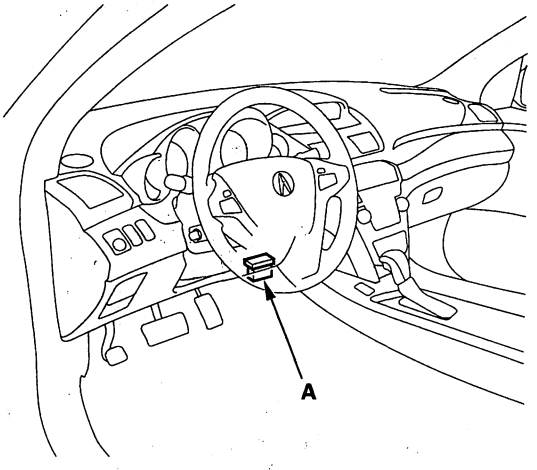
10. Do the CKP learn procedure (see page 11-4).

How to Substitute the PCM

1. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).

2. Turn the ignition switch OFF.

3. Connect the HDS to the DLC (A).



4. Turn the ignition switch ON (II).

5. Make sure the HDS communicates with the PCM. If it doesn't, go to the DLC circuit troubleshooting (see page 11-223). If you are returning from the DLC circuit troubleshooting, skip steps 5 to 6, and clean the throttle body after substituting the PCM (see page 11-363).

6. Select the INSPECTION MENU with the HDS.

7. Select the ETCS TEST, then select the TP POSITION CHECK, and follow the HDS screen prompts.

   NOTE: If the TP POSITION CHECK indicates FAILED, continue this procedure.

(cont'd)

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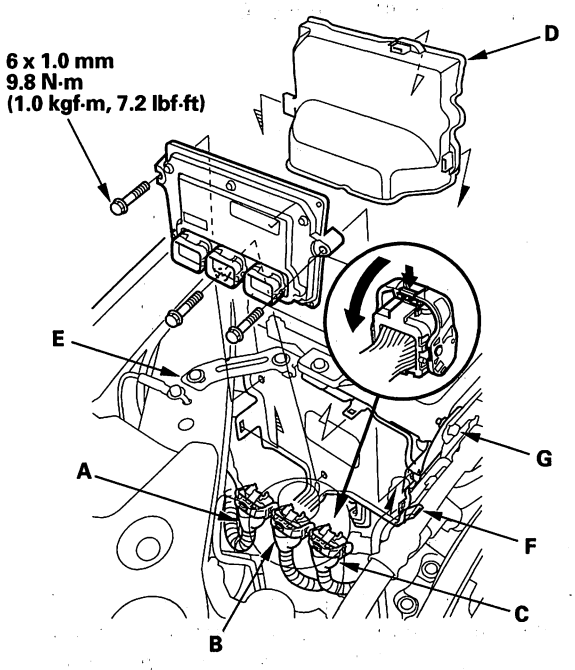
General Troubleshooting Information (cont'd)

8. Turn the ignition switch OFF.
9. Disconnect the negative cable from the battery, then disconnect the positive cable.
10. Remove the bracket (E), then free the A/C discharge line from the clip (F). Remove the A/C suction line mounting bracket bolt (G).



11. Remove the PCM cover (D), disconnect PCM connectors A, B, and C, and remove the mounting bolts, then remove the PCM.
12. Install the PCM and battery cables in the reverse order of removal.
13. Turn the ignition switch ON (II).

    NOTE: If DTC P0630 "VIN not Programmed or Mismatch" will be stored because the VIN has not been programmed into the PCM; ignore it, and continue this procedure.

14. Manually input the VIN to the PCM with the HDS.
15. Update the PCM if it does not have the latest software.
16. Select the IMMOBI SYSTEM with the HDS.
17. Enter the immobilizer code using the PCM replacement procedure in the HDS; this allows you to start the engine.
18. Reset the PCM with the HDS.
19. Select the ETCS TEST, then select the TP POSITION CHECK, and follow the HDS screen prompts. If the TP POSITION CHECK failed, clean the throttle body (see page 11-363).
20. Do the PCM idle learn procedure (see page 11-311).
21. Do the CKP learn procedure (see page 11-4).
22. Enter the anti-theft codes for the audio system and the navigation system (if equipped). Set the clock.
23. Do the steering column position memorization (see page 17-28).
24. Do the power window control unit reset procedure (see page 22-259).

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DTC Troubleshooting Index

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-4) before you troubleshoot.

DTC *(1)	D Indicator	MIL	Detection Item	Page
P0107 (12-7)	Blinks	OFF or ON *(3)	Manifold absolute pressure (MAP) sensor circuit low voltage input	(see page 14-84)
P0108 (12-8)	Blinks	OFF or ON *(3)	Manifold absolute pressure (MAP) sensor circuit high voltage input	(see page 14-85)
P0335 (88-2)	Blinks	OFF or ON *(3)	Crankshaft position (CKP) sensor A no signal	(see page 14-86)
P0339 (88-6)	Blinks	OFF or ON *(3)	Crankshaft position (CKP) sensor A intermittent interruption	(see page 14-87)
P0340 (126-2)	Blinks	OFF or ON *(3)	Camshaft position (CMP) sensor no signal	(see page 14-88)
P0344 (126-6)	Blinks	OFF or ON *(3)	Camshaft position (CMP) sensor intermittent interruption	(see page 14-89)
P0385 (125-2)	Blinks	OFF or ON *(3)	Crankshaft position (CMP) sensor B no signal	(see page 14-90)
P0389 (125-6)	Blinks	OFF or ON *(3)	Crankshaft position (CMP) sensor B intermittent interruption	(see page 14-91)
P062F (0-7)	Blinks	OFF or ON *(3)	Powertrain control module (PCM) internal control module keep alive memory (KAM) error	(see page 14-92)
P0705 (5-2) *(2)	Blinks	ON	Transmission range switch (multiple shift-position input)	(see page 14-93)
P0706 (6-2) *(2)	OFF	ON	Transmission range switch (open)	(see page 14-99)
P0711 (28-5) *(2)	Blinks	OFF	ATF temperature sensor (range/performance)	(see page 14-103)
P0712 (28-3) *(2)	Blinks	OFF	ATF temperature sensor (short)	(see page 14-104)
P0713 (28-4) *(2)	Blinks	OFF	ATF temperature sensor (open)	(see page 14-106)
P0716 (15-5) *(2)	Blinks	ON	Input shaft (mainshaft) speed sensor (range/performance)	(see page 14-109)
P0717 (15-3) *(2)	Blinks	ON	Input shaft (mainshaft) speed sensor (no signal input)	(see page 14-109)
P0718 (15-6) *(2)	Blinks	ON	Input shaft (mainshaft) speed sensor (intermittent failure)	(see page 14-115)
P0721 (9-5) *(2)	Blinks	ON	Output shaft (countershaft) speed sensor (range/performance)	(see page 14-120)
P0722 (9-3) *(2)	Blinks	ON	Output shaft (countershaft) speed sensor (no signal input)	(see page 14-120)
P0723 (9-6) *(2)	Blinks	ON	Output shaft (countershaft) speed sensor (intermittent failure)	(see page 14-126)

NOTE:

* (1): The DTC in parentheses is the Honda code that you will see when you use the SCS mode. The first number(s) before the - (hyphen) is the flash code the D indicator indicates when the data link connector (DLC) is connected to the HDS, and in the SCS mode.
* (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
* (3): The MIL comes on when the PGM-FI control system detects a failure simultaneous with the A/T DTC.

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DTC Troubleshooting Index (cont'd)

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-4) before you troubleshoot.

DTC *(1)	D Indicator	MIL	Detection Item	Page
P0731 (64-1)	Blinks	OFF	1st gear incorrect ratio	(see page 14-131)
P0732 (64-2)	Blinks	OFF	2nd gear incorrect ratio	(see page 14-132)
P0733 (64-3)	Blinks	OFF	3rd gear incorrect ratio	(see page 14-133)
P0734 (64-4)	Blinks	OFF	4th gear incorrect ratio	(see page 14-134)
P0735 (64-5)	Blinks	OFF	5th gear incorrect ratio	(see page 14-135)
P0741 (40-3)	OFF	OFF	Torque converter clutch circuit performance or stuck OFF	(see page 14-136)
P0746 (76-3)	Blinks	ON	A/T clutch pressure control solenoid valve A stuck OFF	(see page 14-137)
P0747 (76-4)	Blinks	ON	A/T clutch pressure control solenoid valve A stuck ON	(see page 14-138)
P0751 (70-3)	Blinks	ON	Shift solenoid valve A stuck OFF	(see page 14-139)
P0752 (70-4)	Blinks	ON	Shift solenoid valve A stuck ON	(see page 14-140)
P0756 (71-3)	Blinks	ON	Shift solenoid valve B stuck OFF	(see page 14-141)
P0757 (71-4)	Blinks	ON	Shift solenoid valve B stuck ON	(see page 14-142)
P0761 (72-3)	Blinks	ON	Shift solenoid valve C stuck OFF	(see page 14-143)
P0762 (72-4)	Blinks	ON	Shift solenoid valve C stuck ON	(see page 14-144)
P0766 (73-3)	Blinks	ON	Shift solenoid valve D stuck OFF	(see page 14-145)
P0767 (73-4)	Blinks	ON	Shift solenoid valve D stuck ON	(see page 14-146)
P0776 (77-3)	Blinks	ON	A/T clutch pressure control solenoid valve B stuck OFF	(see page 14-147)
P0777 (77-4)	Blinks	ON	A/T clutch pressure control solenoid valve B stuck ON	(see page 14-148)
P0796 (78-3)	Blinks	ON	A/T clutch pressure control solenoid valve C stuck OFF	(see page 14-149)
P0797 (78-4)	Blinks	ON	A/T clutch pressure control solenoid valve C stuck ON	(see page 14-150)
P0812 (65-2) *(2)	Blinks	ON	Transmission range switch ATP R switch	(see page 14-151)
P0815 (24-2) *(2)	Blinks	ON	Transmission gear selection switch upshift switch (short or stuck ON)	(see page 14-154)
P0816 (24-6) *(2)	Blinks	ON	Transmission gear selection switch downshift switch (short or stuck ON)	(see page 14-156)

NOTE:

* (1): The DTC in parentheses is the Honda code that you will see when you use the SCS mode. The first number(s) before the - (hyphen) is the flash code the D indicator indicates when the data link connector (DLC) is connected to the HDS, and in the SCS mode.
* (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

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NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-4) before you troubleshoot.

DTC *(1)	D Indicator	MIL	Detection Item	Page
P0842 (25-3) *(2)	Blinks	ON	2nd clutch transmission fluid pressure switch (short or stuck ON)	(see page 14-158)
P0843 (25-4) *(2)	Blinks	ON	2nd clutch transmission fluid pressure switch (open or stuck OFF)	(see page 14-160)
P0847 (26-3) *(2)	Blinks	ON	3rd clutch transmission fluid pressure switch (short or stuck ON)	(see page 14-163)
P0848 (26-4) *(2)	Blinks	ON	3rd clutch transmission fluid pressure switch (open or stuck OFF)	(see page 14-165)
P0872 (27-3) *(2)	Blinks	OFF	4th clutch transmission fluid pressure switch (short or stuck ON)	(see page 14-168)
P0873 (27-4) *(2)	Blinks	OFF	4th clutch transmission fluid pressure switch (open or stuck OFF)	(see page 14-170)
P0957 (27-4) *(2)	Blinks	ON	Transmission gear selection switch (short or stuck ON)	(see page 14-173)
P0958 (24-4) *(2)	Blinks	ON	Transmission gear selection switch (short or stuck OFF)	(see page 14-175)
P0962 (16-3) *(2)	Blinks	ON	A/T clutch pressure control solenoid valve A (open/short)	(see page 14-178)
P0963 (16-4) *(2)	Blinks	ON	A/T clutch pressure control solenoid valve A	(see page 14-182)
P0966 (23-3) *(2)	Blinks	ON	A/T clutch pressure control solenoid valve B (open/short)	(see page 14-184)
P0967 (23-4) *(2)	Blinks	ON	A/T clutch pressure control solenoid valve B	(see page 14-188)
P0970 (29-3) *(2)	Blinks	ON	A/T clutch pressure control solenoid valve C (open/short)	(see page 14-190)
P0971 (29-4) *(2)	Blinks	ON	A/T clutch pressure control solenoid valve C	(see page 14-194)

NOTE:

* (1): The DTC in parentheses is the Honda code that you will see when you use the SCS mode. The first number(s) before the - (hyphen) is the flash code the D indicator indicates when the data link connector (DLC) is connected to the HDS, and in the SCS mode.
* (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

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DTC Troubleshooting Index (cont'd)

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-4) before you troubleshoot.

DTC *(1)	D Indicator	MIL	Detection Item	Page
P0973 (7-3) *(2)	Blinks	ON	Shift solenoid valve A (short)	(see page 14-196)
P0974 (7-4) *(2)	Blinks	ON	Shift solenoid valve A (open)	(see page 14-199)
P0976 (8-3) *(2)	Blinks	ON	Shift solenoid valve B (short)	(see page 14-202)
P0977 (8-4) *(2)	Blinks	ON	Shift solenoid valve B (open)	(see page 14-206)
P0979 (22-3) *(2)	Blinks	ON	Shift solenoid valve C (short)	(see page 14-209)
P0980 (22-4) *(2)	Blinks	ON	Shift solenoid valve C (open)	(see page 14-213)
P0982 (60-3) *(2)	Blinks	ON	Shift solenoid valve D (short)	(see page 14-216)
P0983 (60-4) *(2)	Blinks	ON	Shift solenoid valve D (open)	(see page 14-219)
P16C0 (99-1) *(2)	OFF	ON	PCM A/T control system incomplete update	(see page 14-222)
P1717 (62-1) *(2)	Blinks	ON	Transmission range switch ATP RVS switch (open or short)	(see page 14-223)
P1743 (45-11)	Blinks	OFF	Hydraulic control system (Shift valve E stuck OFF)	(see page 14-226)
P1744 (45-12)	Blinks	OFF	Hydraulic control system (Shift valve E stuck ON)	(see page 14-227)
P1745 (45-13)	Blinks	OFF	Hydraulic control system (Servo control valve or servo valve stuck OFF)	(see page 14-228)
P1780 (49-1)	Blinks	OFF	Shift control system (transmission default mode)	(see page 14-229)
P2122 (20-3)	Blinks	ON	Accelerator pedal position (APP) sensor A (throttle position sensor D) circuit low voltage	(see page 14-230)
P2123 (20-4)	Blinks	ON	Accelerator pedal position (APP) sensor A (throttle position sensor D) circuit high voltage	(see page 14-231)
U0028 (107-1)	Blinks	OFF or ON *(3)	F-CAN malfunction (F-CAN bus OFF)	(see page 14-232)
U0122 (107-4)	Blinks	OFF or ON *(3)	F-CAN malfunction (PCM-to-VSA modulator-control unit)	(see page 14-233)
U0155 (107-3)	Blinks	OFF or ON *(3)	F-CAN malfunction (PCM-to-gauge control module)	(see page 14-234)

NOTE:

* (1): The DTC in parentheses is the Honda code that you will see when you use the SCS mode. The first number(s) before the - (hyphen) is the flash code the D indicator indicates when the data link connector (DLC) is connected to the HDS, and in the SCS mode.
* (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
* (3): The MIL comes on when the PGM-FI control system detects a failure simultaneous with the A/T DTC.

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Symptom Troubleshooting Index

Symptom	Probable cause(s)	Notes
When you turn the ignition switch ON (II), the D indicator comes on and stays on in all shift lever positions, or it never comes on at all	• F-CAN communication line error • Gauge control module defective • PCM defective	• Check the F-CAN communication line for a DTC (see page 22-325). • Check the F-CAN communication line by gauge control module self-diagnostic function (see page 22-317). • Check indicator drive circuit in the gauge control module by gauge control module self-diagnostic function (see page 22-315).
A/T gear position indicator does not come on while the shift lever is in that position	• F-CAN communication line error • Gauge control module defective • PCM defective • Transmission range switch defective	• Check the F-CAN communication line for a DTC (see page 22-325). • Check the F-CAN communication line by gauge control module self-diagnostic function (see page 22-317). • Check indicator drive circuit in the gauge control module by gauge control module self-diagnostic function (see page 22-315). • Inspect the transmission range switch (see page 14-315).
M indicator does not come on in M position	• F-CAN communication line error • Gauge control module defective • PCM defective	• Check the F-CAN communication line for a DTC (see page 22-325). • Check the F-CAN communication line by gauge control module self-diagnostic function (see page 22-317). • Check indicator drive circuit in the gauge control module by gauge control module self-diagnostic function (see page 22-315). • Inspect the transmission gear selection switch (see page 14-319).
Shift indicator does not work in sequential sportshift mode	• F-CAN communication line error • Gauge control module defective • PCM defective	• Check the F-CAN communication line for a DTC (see page 22-325). • Check the F-CAN communication line by gauge control module self-diagnostic function (see page 22-317). • Check indicator drive circuit in the gauge control module by gauge control module self-diagnostic function (see page 22-315). • Inspect the transmission gear selection switch (see page 14-319).

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Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Shift lever cannot be moved from P while you are pressing on the brake pedal	• Accelerator pedal position sensor circuit • Accelerator pedal position sensor defective • Brake pedal position switch circuit • Brake pedal position switch defective • Shift lock solenoid defective • Shift lock solenoid control circuit • Shift lock solenoid mechanism • Throttle body defective • Transmission range switch ATP P switch stuck OFF • Transmission range switch ATP P switch line opened	• Troubleshoot the shift lock system circuit (see page 14-323). • Test the shift lock solenoid (see page 14-330). • Inspect the transmission range switch (see page 14-315).
Ignition switch cannot be moved from ACC (I) to LOCK (0) (key is pushed in, shift lever in P)	• Interlock control system circuit • Key interlock solenoid stuck ON • Park pin switch stuck ON • Transmission range switch ATP P line opened	• Troubleshoot the key interlock system circuit (see page 14-328). • Inspect the transmission range switch (see page 14-315).
HDS does not communicate with the PCM or the vehicle	DLC circuit	Troubleshoot the DLC circuit (see page 11-223).

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Symptom	Probable cause(s)	Notes
Engine runs, but vehicle does not move in any gear	1. Low ATF level 2. Shift cable broken or out of adjustment 3. Connection between shift cable and transmission or body is worn 4. ATF pump worn or binding 5. Regulator valve stuck or spring worn 6. ATF strainer clogged 7. Foreign material in separator plate orifice 8. Mainshaft worn or damaged 9. Countershaft worn or damaged 10. Final gears worn or damaged 11. Park mechanism defective 12. Drive plate worn or damaged 13. Torque converter worn or damaged 14. Transmission-to-engine assembly error 15. Axle disengaged	• Check the ATF level and check the ATF cooler lines for leakage and loose connections. If necessary, clean the ATF cooler lines. • Check for a loose shift cable at the shift lever and the transmission control lever. • Improper alignment of ATF pump and torque converter housing may cause ATF pump seizure. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Check the line pressure. • Check the ATF strainer for debris. If the strainer is clogged, find the damaged components that caused the debris. • Inspect the differential pinion gears for wear. If the differential pinion gears are worn, replace the differential assembly, replace the ATF strainer, and thoroughly clean the transmission, and clean the cooler and lines. Replace the torque converter. • Be careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the ATF pump when you torque down the main valve body. This will result in ATF pump seizure if not detected. Use the proper tools. • Install the main seal flush with the torque converter housing. If you push it into the torque converter housing until it bottoms out, it will block the fluid return passage and result in damage.
Vehicle moves in R, but not in D, D3, or 1st in M	1. 1st accumulator defective 2. Idler gears worn or damaged 3. 1st clutch defective 4. 5th clutch defective	• Check the 1st and 5th clutch pressures. • Inspect the secondary shaft and 1st/1st-hold clutch assembly for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end-plate.

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Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Vehicle moves in M and R, but not in D or D3	• 1st gear one-way clutch defective • 1st gears worn or damaged • 1st clutch defective	• Check the 1st clutch pressure. • Inspect the 1st gears and one-way clutch for wear and damage. • Inspect the 1st clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end-plate.
Vehicle moves in D, D3, 2nd in M, and R, but not in 1st in M	1st-hold clutch defective	• Check the 1st-hold clutch pressure. • Inspect the secondary shaft and 1st/1st-hold clutch assembly for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end-plate.
Vehicle moves in D, D3, 1st in M, and R, but not in 2nd in M	1. 2nd accumulator defective 2. 2nd clutch defective	• Check the 2nd clutch pressure. • Inspect the secondary shaft and 2nd clutch assembly for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end-plate.

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Symptom	Probable cause(s)	Notes
Vehicle moves in D, D3, and M, but not in R	1. Shift fork shaft stuck 2. 5th accumulator defective 3. 5th clutch defective 4. Reverse gears worn or damaged 5. Reverse idler gear shaft/holder worn or damaged	• Check the 5th clutch pressure. • Check for a missing shift fork bolt on the shift fork shaft. • Inspect the reverse selector gear teeth chamfers, and inspect the engagement teeth chamfers of the countershaft 5th gear and reverse gear. Replace the reverse gears and the reverse selector if they are worn or damaged. If the transmission makes clicking, grinding, or whirring noises, also replace the mainshaft 5th gear, reverse idler gear, and countershaft 5th gear. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end-plate.
Poor acceleration; flares when starting off in D, D3, and R	1. Low ATF level 2. Shift cable broken or out of adjustment 3. Torque converter one-way clutch defective 4. Stator shaft defective 5. ATF pump worn or binding 6. Regulator valve stuck or spring worn 7. ATF strainer clogged 8. Torque converter check valve defective 9. Shift valve E defective	• Check the ATF level and check the ATF cooler lines for leakage and loose connections. If necessary, clean the ATF cooler lines. • Check for a loose shift cable at the shift lever and the transmission control lever. • Check the line pressure. • Check the ATF strainer for debris. If the strainer is clogged, find the damaged components that caused the debris. • Improper alignment of ATF pump and torque converter housing may cause ATF pump seizure. The symptom is mostly an rpm-related ticking noise or a high pitched squeak. • Be careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the ATF pump when you torque down the main valve body. This will result in ATF pump seizure if not detected. Use the proper tools.

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Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Poor acceleration; flares when starting off in D, D3, and R; stall speed high in D and D3	1. 1st accumulator defective 2. 1st clutch defective	• Check the 1st clutch pressure. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end-plate.
Poor acceleration; flares when starting off in D, D3, and R; stall speed high in 1st in M	1st-hold clutch defective	• Check the 1st-hold clutch pressure. • Inspect the secondary shaft and 1st/1st-hold clutch assembly for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end-plate.
Poor acceleration; flares when starting off in D, D3, and R; stall speed high in 2nd in M	• 2nd accumulator defective • 2nd clutch defective	• Check the 2nd clutch pressure. • Inspect the secondary shaft and 2nd clutch assembly for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end-plate.

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Symptom	Probable cause(s)	Notes
Poor acceleration; flares when starting off in D, D3, and R; stall speed high in R	1. Shift cable broken or out of adjustment 2. 5th accumulator defective 3. 5th clutch defective	• Check for a loose shift cable at the shift lever and the transmission control lever. • Check the 5th clutch pressure. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end-plate.
Poor acceleration; flares when starting off in D, D3, and R; stall speed low	1. Engine output low 2. Torque converter clutch piston defective	Replace the torque converter.
Engine idle vibration	1. Low ATF level 2. Engine output low 3. Torque converter clutch piston defective	• Adjust the engine and transmission mounts. • Check the ATF level and check the ATF cooler lines for leakage and loose connections. If necessary, clean the ATF cooler lines. • Replace the torque converter.

(cont'd)

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Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Vehicle moves in N	1. Excessive ATF 2. ATF temperature sensor defective 3. Foreign material in separator plate orifice 4. Relief valve defective 5. Lubrication control valve defective 6. 1st-hold clutch defective 7. 1st clutch defective 8. 2nd clutch defective 9. 3rd clutch defective 10. 4th clutch defective 11. 5th clutch defective 12. Clutch end plate clearance incorrect 13. Needle bearing seized up, worn, or damaged	• Check the ATF level, and drain the ATF if necessary. • Check all clutch pressures. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end-plate.
Late shift after shifting from N to D or D3, or excessive shock when shifting	1. Shift solenoid valve A defective 2. Shift solenoid valve B defective 3. Shift solenoid valve C defective 4. A/T clutch pressure control solenoid valve C defective 5. Shift cable broken or out of adjustment 6. Connection between shift cable and transmission or body is worn 7. ATF temperature sensor defective 8. CPC valve C defective 9. Foreign material in separator plate orifice 10. Shift valve A defective 11. Shift valve D defective 12. Shift valve E defective 13. ATF strainer clogged 14. 1st accumulator defective 15. 2nd accumulator defective 16. 1st check ball stuck 17. 1st clutch defective 18. Clutch end plate clearance incorrect	• Check for a stored DTC, and check for loose connectors. • Inspect the O-ring, and check the shift solenoid valve for seizure. • Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • Check for a loose shift cable at the shift lever and the transmission control lever. • Check the 1st clutch pressure. • Check the ATF strainer for debris. If the strainer is clogged, find the damaged components that caused the debris. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end plate.

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Symptom	Probable cause(s)	Notes
Late shift after shifting from N to R, or excessive shock when shifting	1. A/T clutch pressure control solenoid valve C defective 2. Shift cable broken or out of adjustment 3. Connection between shift cable and transmission or body is worn 4. ATF temperature sensor defective 5. Reverse CPC valve defective 6. Foreign material in separator plate orifice 7. ATF strainer clogged 8. 5th clutch defective 9. Clutch end plate clearance incorrect	• Check for a stored DTC, and check for loose connectors. • Inspect the O-ring, and check the shift solenoid valve for seizure. • Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • Check for a loose shift cable at the shift lever and the transmission control lever. • Check the 5th clutch pressure. • Check the ATF strainer for debris. If the strainer is clogged, find the damaged components that caused the debris. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end plate.
Transmission does not shift	1. Input shaft (mainshaft) speed sensor defective 2. Output shaft (countershaft) speed sensor defective	Check for a stored DTC, and check for loose connectors.
Excessive shock or flares on all upshifts and downshifts	1. Input shaft (mainshaft) speed sensor defective 2. Output shaft (countershaft) speed sensor defective 3. ATF temperature sensor defective 4. Foreign material in separator plate orifice	Check for a stored DTC, and check for loose connectors.

(cont'd)

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Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Excessive shock or flares on 1-2 upshift or 2-1 downshift	1. Shift solenoid valve A defective 2. Shift solenoid valve B defective 3. Shift solenoid valve C defective 4. A/T clutch pressure control solenoid valve A defective 5. A/T clutch pressure control solenoid valve B defective 6. A/T clutch pressure control solenoid valve C defective 7. 2nd clutch transmission fluid pressure switch defective 8. CPC valve A defective 9. CPC valve B defective 10. CPC valve C defective 11. Shift valve C defective 12. Shift valve D defective 13. Foreign material in separator plate orifice 14. 2nd accumulator defective 15. 2nd clutch defective 16. Clutch end plate clearance incorrect	• Check for a stored DTC, and check for loose connectors. • Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • Check for clogged orifice in the transmission fluid pressure switch connector. If the orifice is clogged, remove it and clean the connector. • Check the 1st and 2nd clutch pressures. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end plate.
Excessive shock or flares on 2-3 upshift or 3-2 downshift	1. Shift solenoid valve D defective 2. A/T clutch pressure control solenoid valve A defective 3. A/T clutch pressure control solenoid valve B defective 4. A/T clutch pressure control solenoid valve C defective 5. 3rd clutch transmission fluid pressure switch defective 6. Shift fork shaft stuck 7. CPC valve A defective 8. CPC valve B defective 9. Foreign material in separator plate orifice 10. Servo control valve defective 11. Lock-up shift valve defective 12. 2nd accumulator defective 13. 3rd accumulator defective 14. 2nd check ball stuck 15. 2nd clutch defective 16. 3rd clutch defective 17. Clutch end plate clearance incorrect	• Check for a stored DTC, and check for loose connectors. • Inspect the O-rings, and check the shift solenoid valve for seizure. • Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • Check for clogged orifice in the transmission fluid pressure switch connector. If the orifice is clogged, remove it and clean the connector. • Check the 2nd and 3rd clutch pressures. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end plate.

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Symptom	Probable cause(s)	Notes
Excessive shock or flares on 3-4 upshift or 4-3 downshift	1. A/T clutch pressure control solenoid valve A defective 2. A/T clutch pressure control solenoid valve B defective 3. A/T clutch pressure control solenoid valve C defective 4. 4th clutch transmission fluid pressure switch defective 5. Shift fork shaft stuck 6. Foreign material in separator plate orifice 7. Servo control valve defective 8. 3rd accumulator defective 9. 4th accumulator defective 10. 3rd clutch defective 11. 4th clutch defective 12. Clutch end plate clearance incorrect	• Check for a stored DTC, and check for loose connectors. • Inspect the O-rings, and check the shift solenoid valve for seizure. • Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • Check for clogged orifice in the transmission fluid pressure switch connector. If the orifice is clogged, remove it and clean the connector. • Check the 3rd and 4th clutch pressures. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end plate.
Excessive shock or flares on 4-5 upshift or 5-4 downshift	1. A/T clutch pressure control solenoid valve A defective 2. A/T clutch pressure control solenoid valve B defective 3. A/T clutch pressure control solenoid valve C defective 4. Foreign material in separator plate orifice 5. 4th accumulator defective 6. 5th accumulator defective 7. 4th clutch defective 8. 5th clutch defective 9. Clutch end plate clearance incorrect	• Check for a stored DTC, and check for loose connectors. • Inspect the O-rings, and check the shift solenoid valve for seizure. • Inspect the A/T clutch pressure control solenoid valve body gasket and ATF feed pipes for wear and damage. If the A/T clutch pressure control solenoid valve is stuck, inspect the CPC valves. • Check the 4th and 5th clutch pressures. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and also inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace the discs and plates as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If the discs and plates are OK, adjust the clearance with the clutch end plate.

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Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Noise from transmission in all shift lever positions	1. ATF pump worn or binding 2. ATF strainer clogged 3. Idler gears worn or damaged 4. Bearings on mainshaft, countershaft, secondary shaft, and intermediary shaft worn or damaged 5. Thrust washer seized up, worn, or damaged	• Improper alignment of ATF pump and torque converter housing may cause ATF pump seizure. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Check the ATF strainer for debris. If the strainer is clogged, find the damaged components that caused the debris. • Be careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the ATF pump when you torque down the main valve body. This will result in ATF pump seizure if not detected. Use the proper tools.
Vehicle does not accelerate above 31 mph (50 km/h)	Torque converter one-way clutch defective	Replace torque converter.
Vibration in all shift lever positions	1. ATF pump worn or binding 2. Torque converter worn or damaged 3. Drive plate defective or transmission misassembled	• Adjust the engine and transmission mounts. • Check the stall speed. • Check the ATF strainer for debris. If the ATF strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, find the damaged components that caused the debris. If no cause for the contamination is found, replace the torque converter.
Shift lever does not operate smoothly	1. Transmission range switch defective or out of adjustment 2. Shift cable broken or out of adjustment 3. Connection between shift cable and transmission or body is worn 4. Manual valve defective 5. Selector control shaft worn or damaged	• Check for a stored DTC, and check for loose connectors. • Inspect the transmission range switch. If the transmission range switch is faulty, replace it. If the transmission range switch is out of adjustment, adjust it and the shift cable. • Check for a loose shift cable at the shift lever and the transmission control lever.
Transmission does not shift into P	1. Shift cable broken or out of adjustment 2. Connection between shift cable and transmission or body is worn 3. Park mechanism defective 4. Secondary shaft 2nd gear worn or damaged	• Check for a loose shift cable at the shift lever and the transmission control lever. • Check the park pawl, control shaft, and park lever link for wear and damage. Check if the control shaft lever pin is disengage from the manual valve guide.
Torque converter clutch does not disengage	1. Torque converter clutch piston defective 2. Lock-up control valve defective 3. Lock-up timing valve defective	• Replace the torque converter. • Check the lock-up control valves.

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Symptom	Probable cause(s)	Notes
Torque converter clutch does not operate smoothly	1. Torque converter clutch piston defective 2. Torque converter check valve defective 3. Lock-up control valve defective 4. Lock-up timing valve defective	• Replace the torque converter. • Check the lock-up control valves.
Torque converter clutch does not engage	1. Shift cable broken or out of adjustment 2. Connection between shift cable and transmission or body is worn 3. Foreign material in separator plate orifice 4. Torque converter clutch piston defective 5. Torque converter check valve defective 6. Lock-up control valve defective 7. Lock-up timing valve defective	• Check for a loose shift cable at the shift lever and the transmission control shaft. • Replace the torque converter. • Check the lock-up control valves.
A/T gear position indicator does not indicate shift lever positions	1. Transmission range switch defective or out of adjustment 2. Shift cable broken or out of adjustment 3. Connection between shift cable and transmission or body is worn	• Check for a stored DTC, and check for loose connectors. • Inspect the transmission range switch. If the transmission range switch is faulty, replace it. If the transmission range switch is out of adjustment, adjust it and the shift cable. • Check for a loose shift cable at the shift lever and the transmission control lever.
Speedometer and odometer do not work	Output shaft (countershaft) speed sensor defective	Check for a stored DTC, and check for loose connectors.
Engine does not rev to high rpm, and the transmission upshifts at low rpm (*engine at normal operating temperature*)	Engine rocker arms defective	Check the engine rocker arms.

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System Description

General Operation

The automatic transmission is a combination of a three-element torque converter and a four-shaft electronically controlled unit which provides five forward speeds and reverse. The entire unit is positioned in line with the engine.

Torque Converter, Shafts, Gears, and Clutches
The torque converter consists of a pump, turbine, and stator assembly in a single unit. The converter housing (pump) is connected to the engine crankshaft and turns as the engine turns. Around the outside of the torque converter is a ring gear which meshes with the starter pinion when the engine is being started. The entire torque converter assembly serves as a flywheel, transmitting power to the transmission mainshaft. The transmission has four parallel shafts: the mainshaft, the countershaft, the secondary shaft, and the intermediary shaft. The mainshaft is in line with the engine crankshaft. The mainshaft includes the 4th and 5th clutches, and gears for 3rd, 4th, 5th, and reverse (reverse gear is integral with the 5th gear). The countershaft includes gears for the final drive, 2nd, idler, 1st, 4th, 5th, and reverse (the final drive gear is integral with the countershaft). The secondary shaft includes the 1st, 1st-hold, and 2nd clutches, and gears for park, 2nd, idler, and 1st. The intermediary shaft includes the 3rd clutch, and gears for 3rd and 4th. The countershaft 5th gear and the countershaft reverse gear can be locked to the countershaft at its left end, providing 5th gear or reverse, depending with which way the selector is moved. The gears on the mainshaft, secondary shaft, and intermediary shaft are in constant mesh with those on the countershaft. When certain conditions of gears in the transmission are engaged by the clutches, power is transmitted through the mainshaft, and/or to the secondary shaft, intermediary shaft, then to the countershaft to provide drive.

Electronic Control
The electronic control system consists of the powertrain control module (PCM), sensors, and seven solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions. The PCM is located in the engine compartment.

Hydraulic Control
The valve bodies include the main valve body, the regulator valve body, the secondary valve body, and the accumulator body. They are bolted to the torque converter housing. The main valve body contains the manual valve, the modulator valve, the torque converter check valve, shift valves A, B, E, CPC valve A, the relief valve, the servo control valve, the lock-up shift valve, the lock-up timing valve, the lubrication control valve, the lubrication check valve, and the ATF pump gears. The secondary valve body contains shift valves C, D, CPC valves B and C, the reverse CPC valve, and the reverse control valve. The regulator valve body contains the regulator valve, the cooler check valve, the lock-up control valve, and the 3rd accumulator. The accumulator body contains the 1st, 1st-hold, 2nd, 4th, and 5th accumulators, shift solenoid valves A, B, C, and D. Fluid from the regulator valve passes through the manual valve to the various control valves. All the clutch receive fluid from the internal hydraulic circuit.

Shift Control Mechanism
To shift gears, the PCM controls shift solenoid valves A, B, C and D, and automatic transmission (A/T) clutch pressure control solenoid valves A, B, and C, while receiving input signals from various sensors and switches located throughout the vehicle. The shift solenoid valves shift the positions of the shift valves to switch the port to send hydraulic pressure to the clutches. The A/T clutch pressure control solenoid valves A, B, and C control the CPC valves A and B, and reverse CPC valve to shift smoothly between lower and higher gear. This pressurizes a line to one of the clutches, engaging the clutch and its corresponding gear.

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Lock-up Mechanism
The lock-up mechanism operates in 2nd, 3rd, 4th, and 5th gears in the D position, and in 2nd and 3rd gears in the D3 position. The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the torque converter cover. As this takes place, the mainshaft rotates at the same speed as the engine crankshaft. Together with hydraulic control, the PCM optimizes the timing and volume of the lock-up mechanism. When shift solenoid valve D is turned on by the PCM, shift solenoid valve D pressure switches the lock-up shift valve lock-up on and off. A/T clutch pressure control solenoid valve C, the lock-up control valve, and the lock-up timing valve control the amount of the lock-up conditions. Shift solenoid valve D is located on the accumulator body in the transmission, and A/T clutch pressure control solenoid valve C is mounted on the transmission housing.

Gear Selection
The shift lever has five positions; P: PARK, R: REVERSE, N: NEUTRAL, D: DRIVE 1st through 5th gear range with automatic shift and sequential sportshift in M (sequential sportshift mode) position, and D3: DRIVE 1st through 3rd gear range with automatic shift.

Position		Description
P: PARK		Front wheels locked; park pawl engaged with park gear on secondary shaft. All clutches are released.
R: REVERSE		Reverse; reverse selector engaged with countershaft reverse gear and 5th clutch engaged.
N: NEUTRAL		All clutches are released.
D: DRIVE (1st through 5th)	Automatic shift	General driving; starts off in 1st, shifts automatically to 2nd, 3rd, 4th, then 5th, depending on vehicle speed and accelerator pedal position. Downshifts through 4th, 3rd, 2nd, and 1st on deceleration to stop. The lock-up mechanism operates in 2nd, 3rd, 4th, and 5th gears.
	M: Sequential sportshift mode	Manual gear shift driving; vehicle can start off in 1st gear, and does not upshift automatically. Vehicle can also start off in 2nd gear, and does not upshift and downshift automatically. Downshifts automatically to 1st on deceleration to stop. The lock-up mechanism operates in 2nd, 3rd, 4th, and 5th gears.
D3: DRIVE (1st through 3rd)		Used for rapid acceleration at highway speeds and general driving, up-hill and down-hill driving; starts off in 1st, shifts automatically to 2nd, then 3rd, depending on vehicle speed and accelerator pedal position. Downshifts through 2nd and 1st on deceleration to stop. The lock-up mechanism operates in 2nd and 3rd gears.

Starting is possible only in the P and N positions because of a slide-type neutral-safety switch.

Automatic Transmission (A/T) Gear Position Indicator
The A/T gear position indicator in the gauge control module (located between speedometer and tachometer) shows which shift lever position has been selected without having look down at the console.

Shift Indicator and M indicator
When the shift lever is shifted into the M (sequential sportshift mode) position, the M indicator next to the D indicator comes on, and the shift indicator at the bottom of the tachometer displays the gear selected.

Transfer Assembly
The transfer assembly consists of the transfer drive gear on the differential, the transfer output shaft in the transmission, the transfer drive gear (hypoid gear), the transfer shaft, the transfer output shaft (hypoid gear), and the companion flange. The transfer assembly is on the rear side of the transmission, beside the differential. The transfer drive gear on the differential drives the transfer output shaft in the transmission. The transfer output shaft in the transmission is connected to the transfer drive gear (hypoid gear) by splines. Power is transmitted from the transfer drive gear on the differential to the rear differential via the transfer assembly and the propeller shaft.

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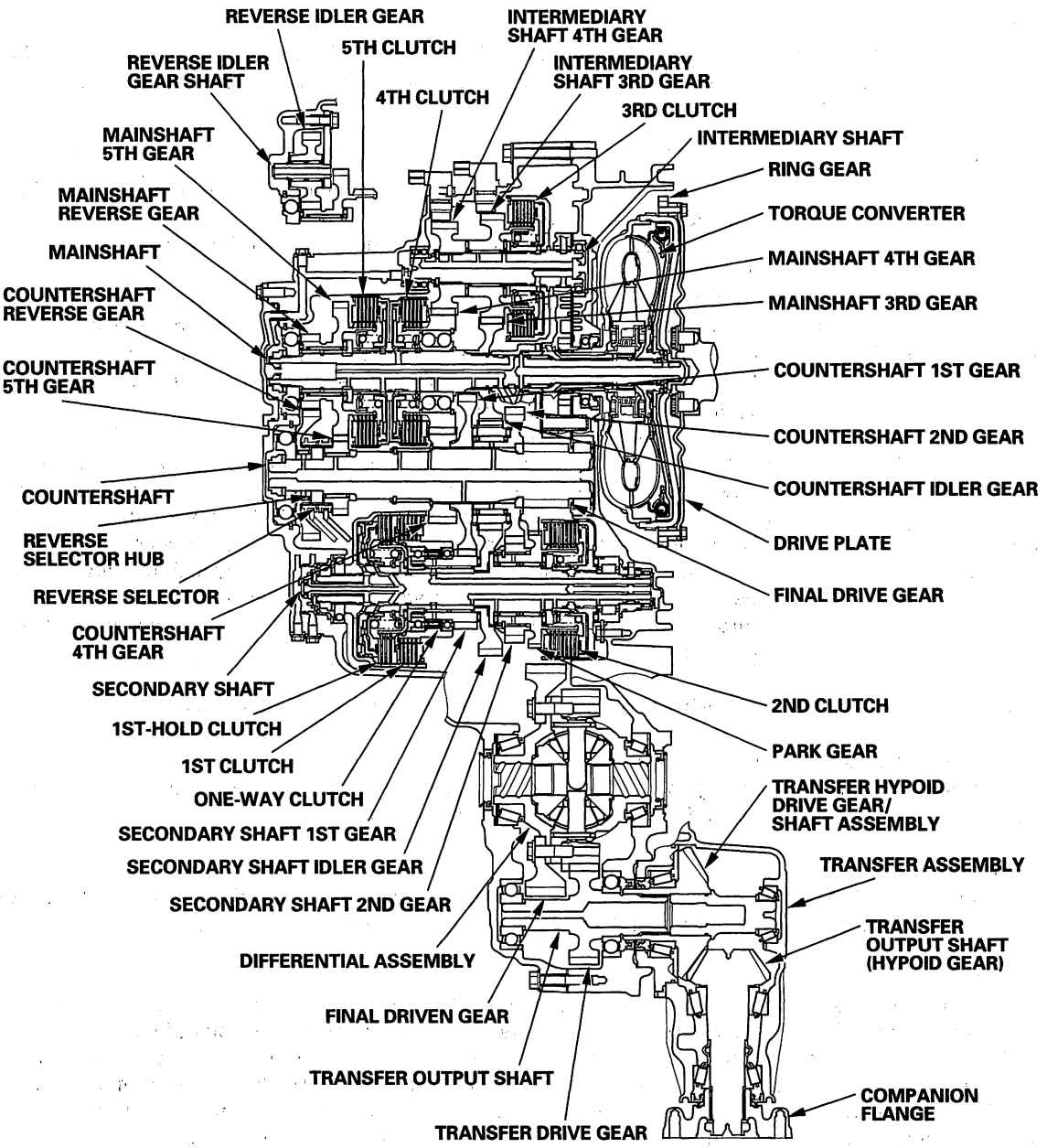
System Description (cont'd)

Clutches and Gears

The 5-speed automatic transmission uses hydraulically-actuated clutches to engage or disengage the transmission gears. When hydraulic pressure is introduced into the clutch drum, the clutch piston moves. This presses the friction discs and steel plates together, locking them so they don't slip. Power is then transmitted through the engaged clutch pack to its hub-mounted gear. Likewise, when the hydraulic pressure is bled from the clutch pack, the piston releases the friction discs and the steel plates, and they are free to slide past each other. This allows the gear to spin independently on its shaft, transmitting no power.

Transmission Cutaway View



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1st Clutch
The 1st clutch engages/disengages 1st gear, and is located at the left end of the secondary shaft. The 1st clutch is supplied hydraulic pressure by its ATF feed pipe within the secondary shaft.

1st-hold Clutch
The 1st-hold clutch engages/disengages 1st-hold in 1st gear in the M position. The 1st-hold clutch is located in the 1st clutch drum, and is supplied hydraulic pressure by its ATF feed pipe within the secondary shaft.

2nd Clutch
The 2nd clutch engages/disengages 2nd gear, and is located at the right end of the secondary shaft. The 2nd clutch is supplied hydraulic pressure through the secondary shaft by a circuit connected to the internal hydraulic circuit.

3rd Clutch
The 3rd clutch engages/disengages 3rd gear, and is located at the end of the intermediary shaft. The 3rd clutch is supplied hydraulic pressure through the intermediary shaft by a circuit connected to the internal hydraulic circuit.

4th Clutch
The 4th clutch engages/disengages 4th gear, and is located at the middle of the mainshaft. The 4th clutch is joined back-to-back to the 5th clutch. The 4th clutch is supplied hydraulic pressure through the mainshaft by a circuit connected to the internal hydraulic circuit.

5th Clutch
The 5th clutch engages/disengages 5th gear, as well as reverse gear, and is located at the middle of the mainshaft. The 5th clutch is joined back-to-back to the 4th clutch. The 5th clutch is supplied hydraulic pressure through the mainshaft by a circuit connected to the internal hydraulic circuit.

One-way Clutch
The one-way clutch is positioned between the 1st clutch hub and the secondary shaft 1st gear. The secondary shaft 1st gear is splined to the 1st-hold clutch hub, with the 1st-hold clutch hub splined to the secondary shaft. The secondary shaft 1st gear provides the outer race surface, and the 1st clutch hub provides the inner race surface. The one-way clutch locks when power is transmitted from the secondary shaft 1st gear to the countershaft 1st gear. The 1st clutch and gears remain engaged in the 1st, 2nd, 3rd, 4th, and 5th gear ranges in the D position, and in the 1st, 2nd, and 3rd gear ranges in the D3.
However, the one-way clutch disengages when the 2nd, 3rd, 4th, or 5th clutches and gears are applied in the D or D3 position. This is because the increased rotational speed of the gears on the secondary shaft causes the one-way clutch to free-wheel with the 1st clutch still engaged.

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System Description (cont'd)

Clutches and Gears (cont'd)

Gear operation

Gears on the mainshaft:
- 4th gear is engages/disengaged with the mainshaft by the 4th clutch.
- 5th gear is engaged/disengages with the mainshaft by the 5th clutch.
- Reverse gear is engaged/disengaged with the mainshaft by the 5th clutch.
- 3rd gear is splined with the mainshaft and rotates with the mainshaft.

Gears on the countershaft:
- Final gear is integral with the countershaft.
- 1st gear, 2nd gear, and 4th gear are splined with the countershaft, and rotate with the countershaft.
- 5th gear and reverse gear rotate freely from the countershaft. The reverse selector engages 5th gear and reverse gear with the reverse selector hub. The reverse selector hub is splined to the countershaft so 5th gear and reverse gear engage with the countershaft.
- Idler gear is located over the 2nd gear, and rotates freely from the countershaft.

Gears on the secondary shaft:
- 1st gear is engaged with the secondary shaft by the 1st clutch and the one-way clutch when accelerating, and 1st gear is disengaged from the 1st clutch at the one-way clutch when decelerating. 1st gear is engaged with the secondary shaft by the 1st-hold clutch when decelerating for engine braking.
- 2nd gear is engaged/disengaged with the secondary shaft by the 2nd clutch.
- Idler gear is splined with the secondary shaft, and rotates with the secondary shaft.
- Park gear is integral with the 2nd gear.

Gears on the intermediary shaft:
- 3rd gear is engaged/disengaged with the intermediary shaft by the 3rd clutch.
- 4th gear is splined with the intermediary shaft.

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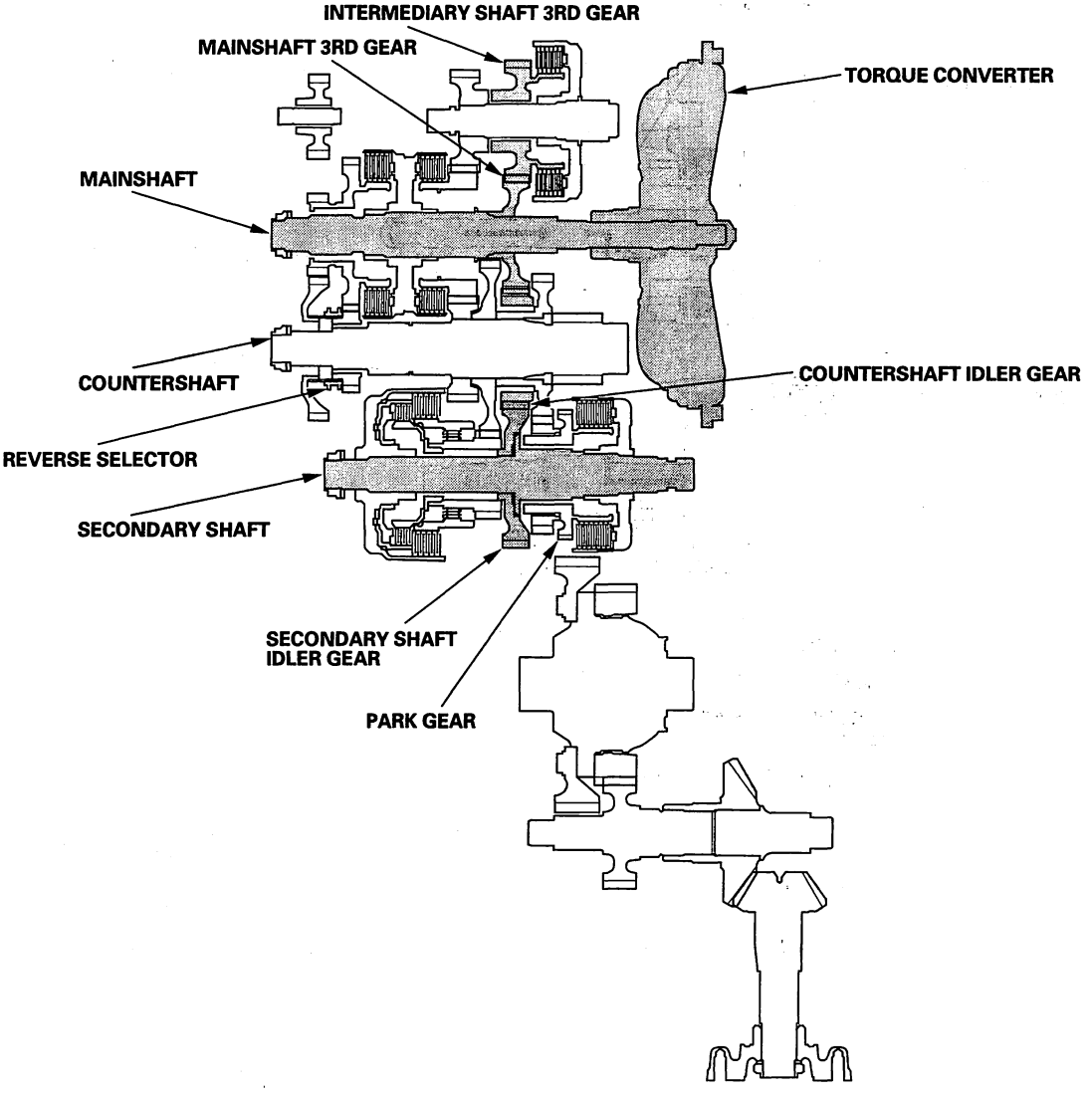
Power Flow

P Position
Hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft. The countershaft is locked by the park pawl interlocking the park gear, secondary shaft 2nd gear, and countershaft 2nd gear.

N Position
Engine power transmitted from the mainshaft drives the mainshaft 3rd gear, the intermediary shaft 3rd gear, but hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft. In this position, the position of the reverse selector differs according to whether the shift lever shifted from the D or R position:

- When shifted from the D position, the reverse selector engages with the countershaft 5th gear and the reverse selector hub, and the 5th gear engages with the countershaft.
- When shifted from the R position, the reverse selector engages with the countershaft reverse gear and the reverse selector hub, and the reverse gear engages with the countershaft.



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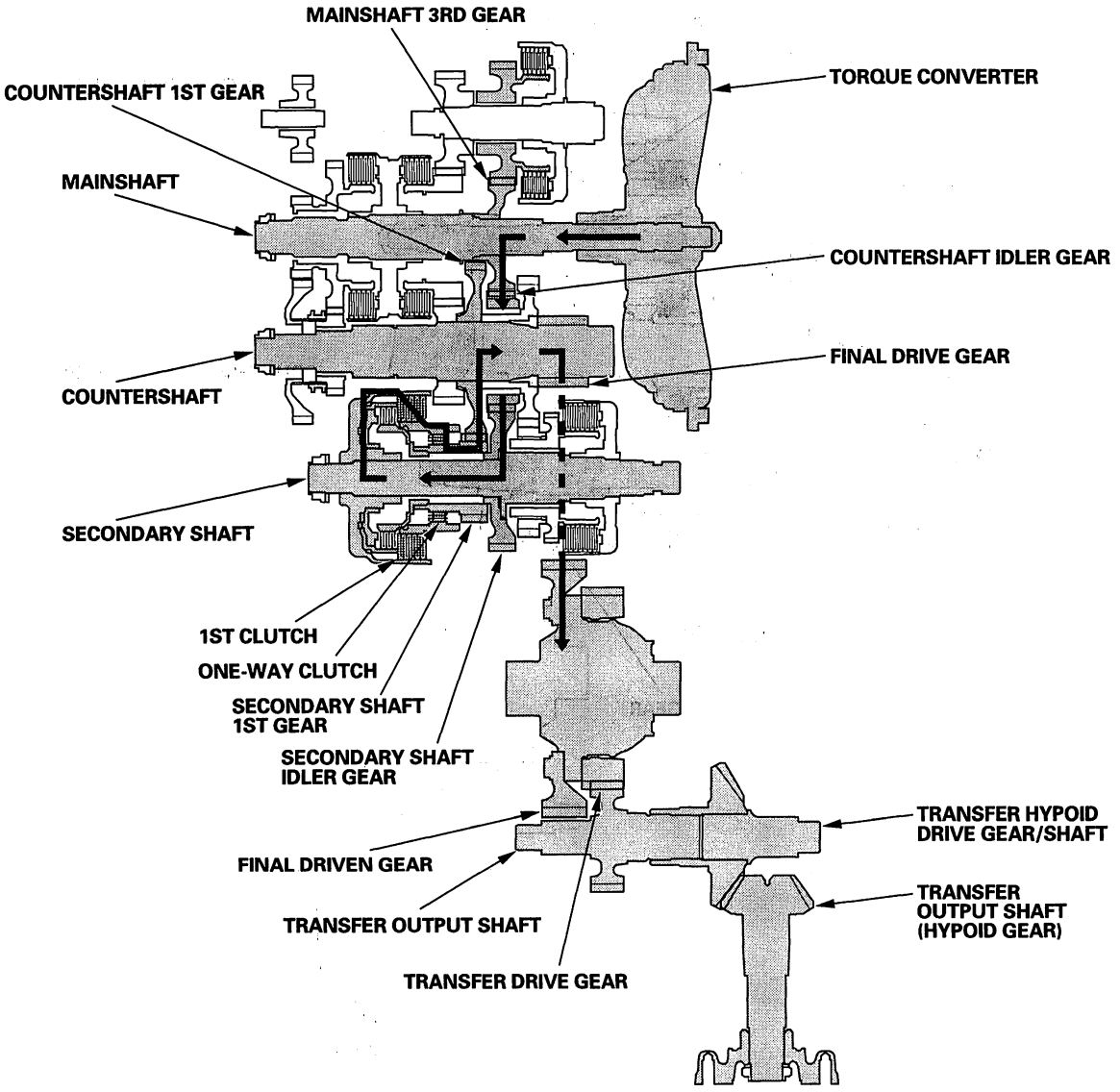
System Description (cont'd)

Power Flow (cont'd)

D and D3 Positions
In the D and D3 positions, the optimum gear is automatically selected from the 1st, 2nd, 3rd, 4th, and 5th gears in the D position; and 1st, 2nd, and, 3rd gears in the D3 position according to conditions such as the balance between the accelerator pedal opening (engine loading) and vehicle speed.

In 1st gear
- Hydraulic pressure is applied to the 1st clutch, then the 1st clutch engages the secondary shaft 1st gear with the secondary shaft by the one-way clutch.
- The mainshaft 3rd gear drives the secondary shaft via the countershaft idler gear and secondary shaft idler gear.
- The secondary shaft 1st gear drives the countershaft 1st gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear and the transfer drive gear.
- The transfer output shaft drives the transfer hypoid drive gear/shaft and the transfer output shaft (hypoid gear).



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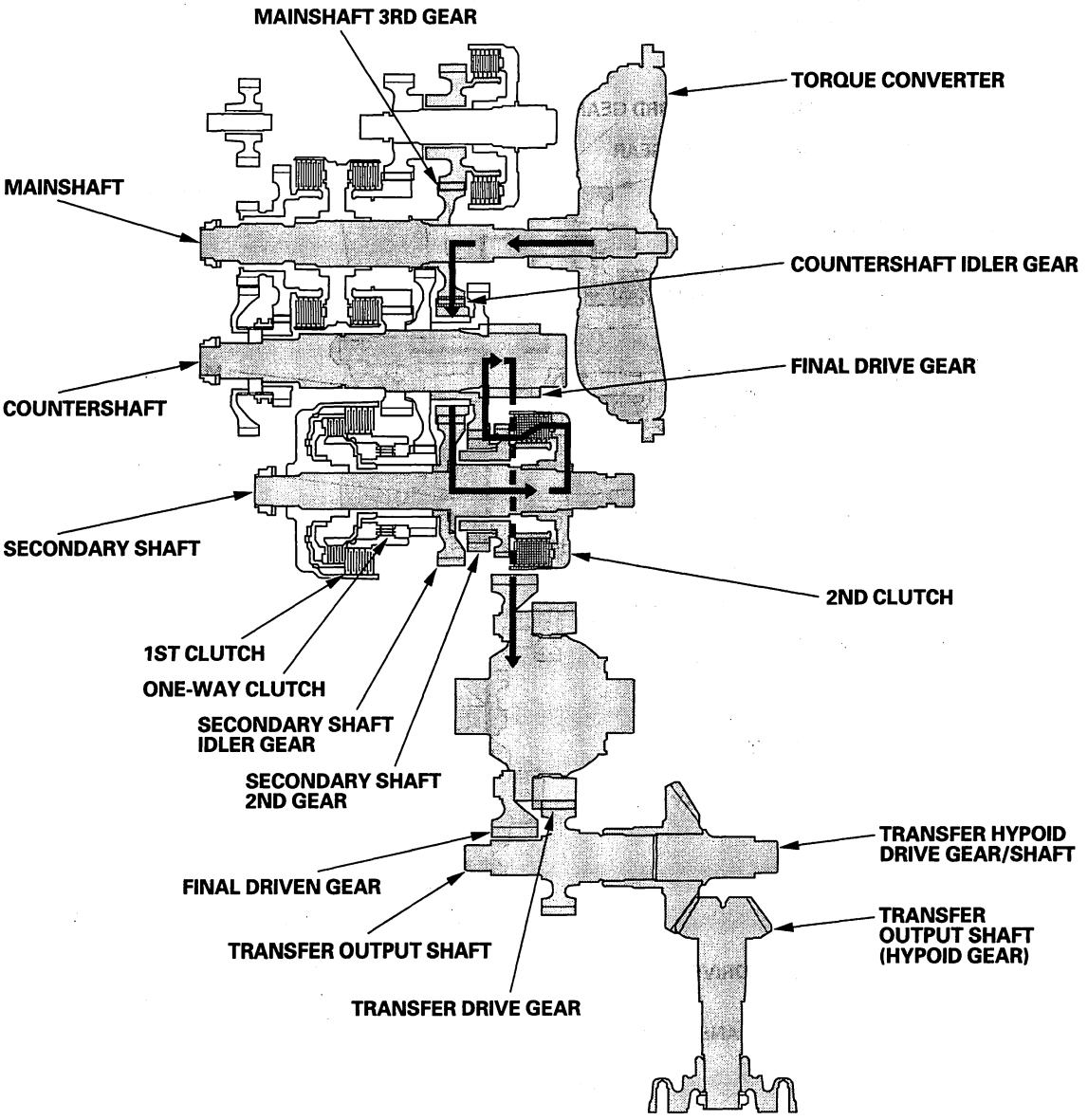
In 2nd gear

- Hydraulic pressure is applied to the 2nd clutch, then the 2nd clutch engages the secondary shaft 2nd gear with the secondary shaft.
- The mainshaft 3rd gear drives the secondary shaft via the countershaft idler gear and secondary shaft idler gear.
- The secondary shaft 2nd gear drives the countershaft 2nd gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear and the transfer drive gear.
- The transfer output shaft drives the transfer hypoid drive gear/shaft and the transfer output shaft (hypoid gear).
- Hydraulic pressure is also applied to the 1st clutch, but since the rotation speed of 2nd gear exceeds that of 1st gear, power from 1st gear is cut off at the one-way clutch.



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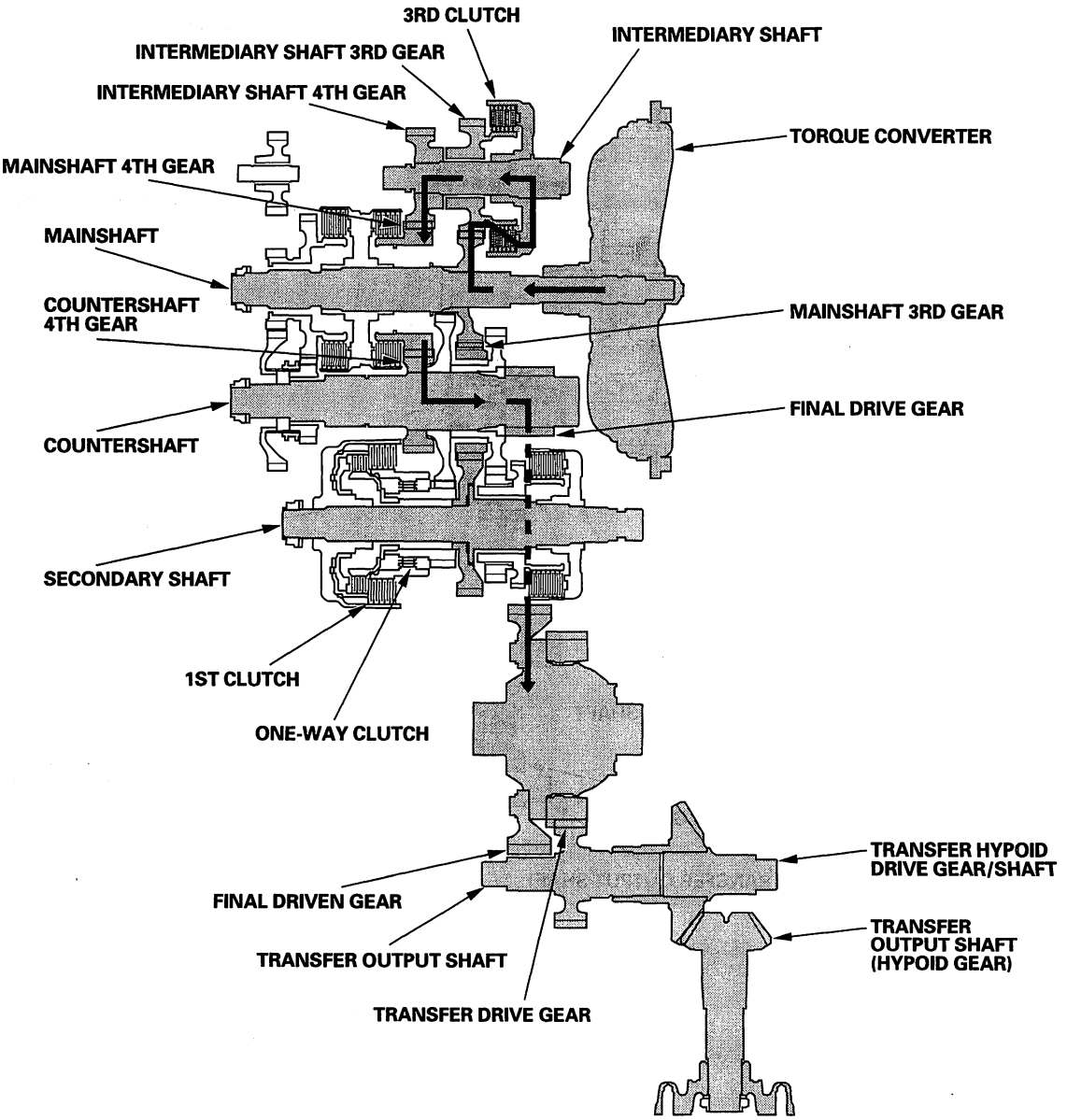
System Description (cont'd)

Power Flow (cont'd)

In 3rd gear

- Hydraulic pressure is applied to the 3rd clutch, then the 3rd clutch engages the intermediary shaft 3rd gear with the intermediary shaft.
- The mainshaft 3rd gear drives the intermediary shaft 4th gear via the intermediary shaft 3rd gear and the 3rd clutch.
- The intermediary shaft 4th gear drives the countershaft 4th gear and the countershaft via the mainshaft 4th gear.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear and the transfer drive gear.
- The transfer output shaft drives the transfer hypoid drive gear/shaft and the transfer output shaft (hypoid gear).
- Hydraulic pressure is also applied to the 1st clutch, but since the rotation speed of 3rd gear exceeds that of 1st gear, power from 1st gear is cut off at the one-way clutch.



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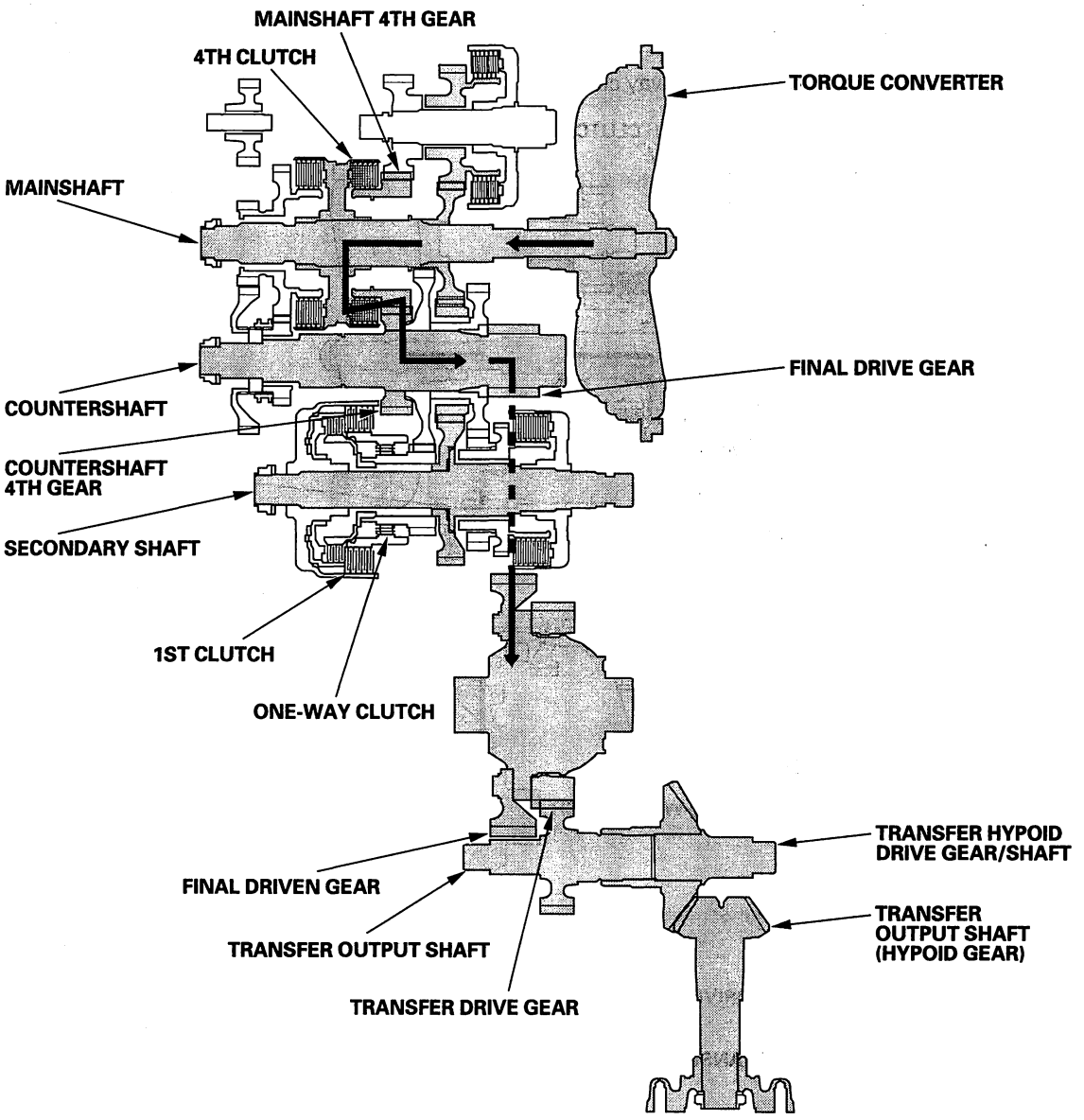
In 4th gear

- Hydraulic pressure is applied to the 4th clutch, then the 4th clutch engages the mainshaft 4th gear with the mainshaft.
- The mainshaft 4th gear drives the countershaft 4th gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear and the transfer drive gear.
- The transfer output shaft drives the transfer hypoid drive gear/shaft and the transfer output shaft (hypoid gear).
- Hydraulic pressure is also applied to the 1st clutch, but since the rotation speed of 4th gear exceeds that of 1st gear, power from 1st gear is cut off at the one-way clutch.



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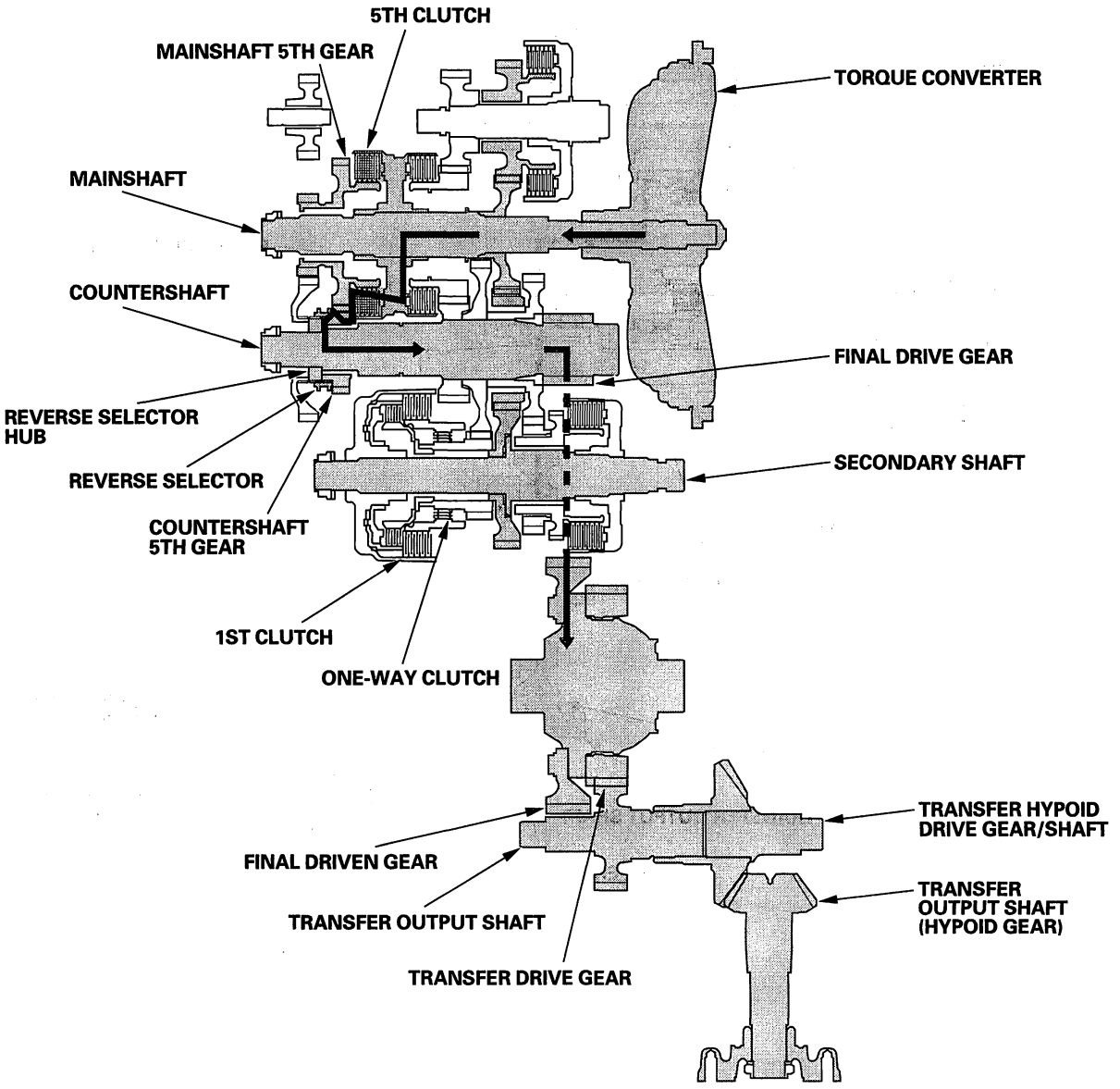
System Description (cont'd)

Power Flow (cont'd)

In 5th gear

- Hydraulic pressure is applied to the servo valve to engage the reverse selector with the countershaft 5th gear while the shift lever in the D position.
- Hydraulic pressure is applied to the 5th clutch, then the 5th clutch engages the mainshaft 5th gear with the mainshaft.
- The mainshaft 5th gear drives the countershaft 5th gear, which drives the reverse selector hub and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear and the transfer drive gear.
- The transfer output shaft drives the transfer hypoid drive gear/shaft and the transfer output shaft (hypoid gear).
- Hydraulic pressure is also applied to the 1st clutch, but since the rotation speed of 5th gear exceeds that of 1st gear, power from 1st gear is cut off at the one-way clutch.



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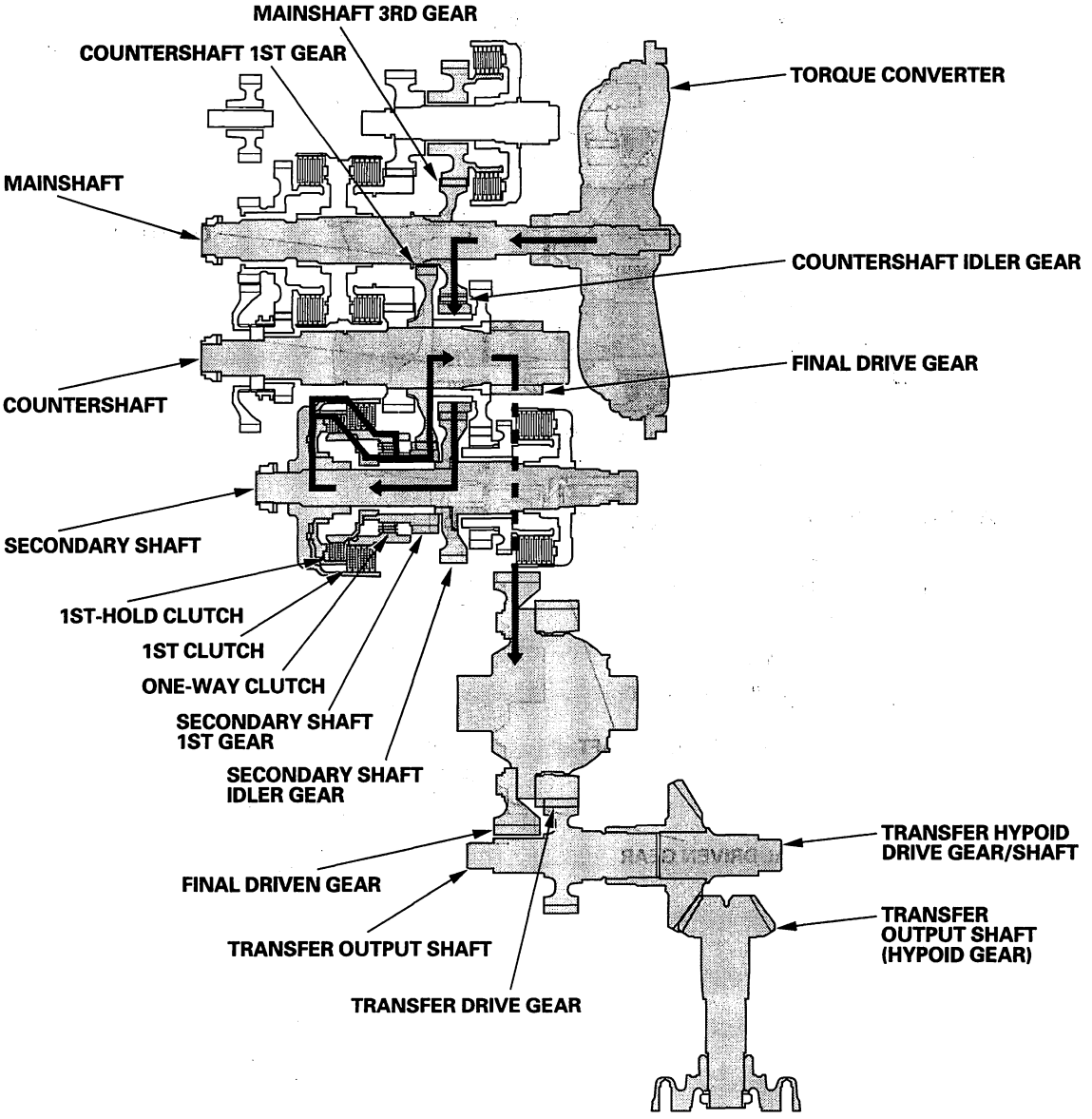
Acceleration in 1st gear in M (sequential sportshift mode) position

In 1st gear in the M (sequential sportshift mode) position, hydraulic pressure is applied to the 1st clutch and the 1st-hold clutch. The power flow when accelerating is as follows:

- Hydraulic pressure is applied to the 1st clutch, then the 1st clutch engages the secondary shaft 1st gear with the secondary shaft by the one-way clutch.
- The mainshaft 3rd gear drives the secondary shaft via the countershaft idler gear and secondary shaft idler gear.
- The secondary shaft 1st gear drives the countershaft 1st gear and the countershaft.
- Hydraulic pressure is also applied to the 1st-hold clutch, and the 1st-hold clutch engages the secondary shaft 1st gear with the secondary shaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear and the transfer drive gear.
- The transfer output shaft drives the transfer hypoid drive gear/shaft and the transfer output shaft (hypoid gear).



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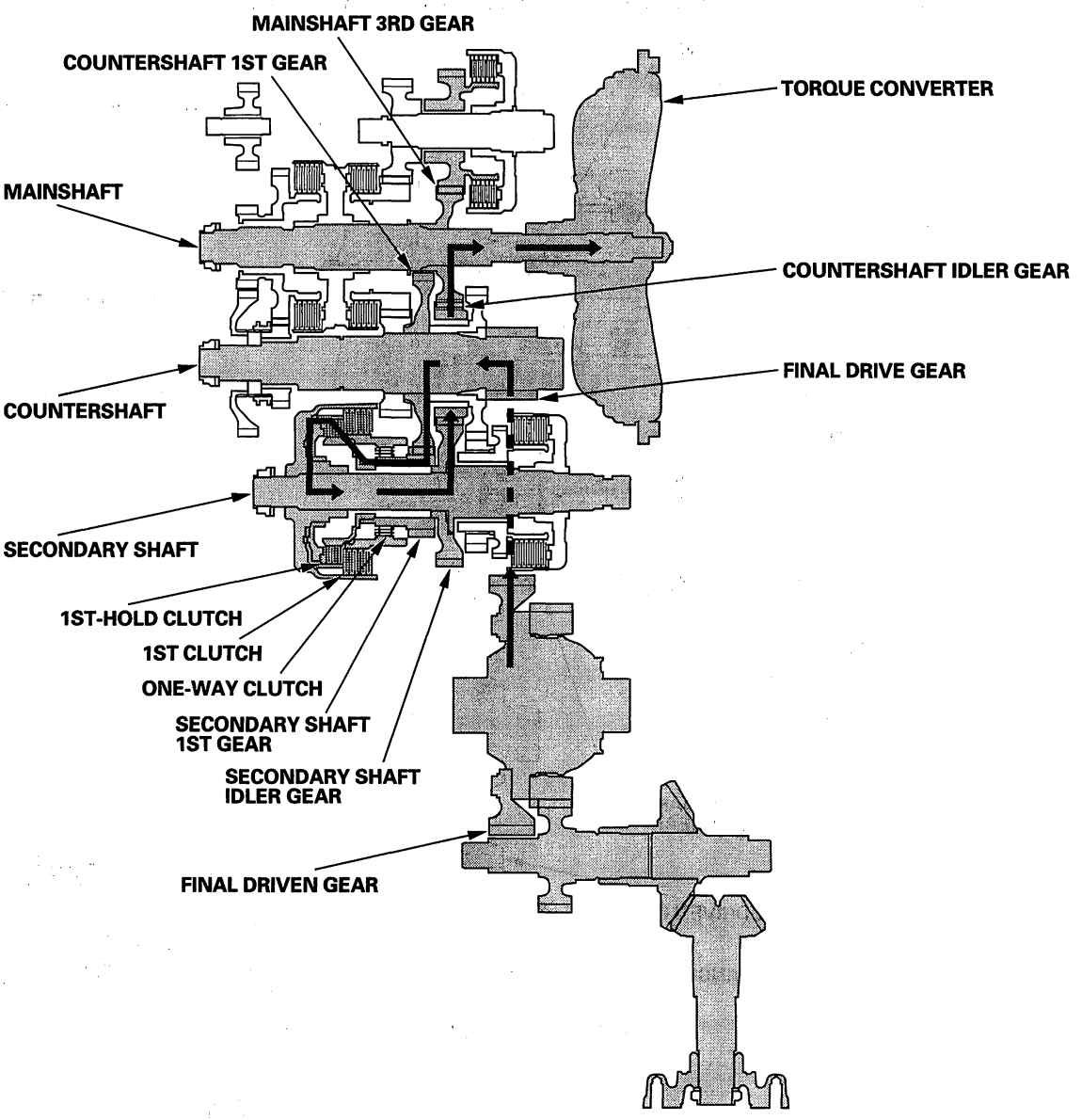
System Description (cont'd)

Power Flow (cont'd)

Deceleration in 1st gear in M (sequential sportshift mode) position

The power flow in 1st gear in the M (sequential sportshift mode) position when decelerating is as follows:

- Hydraulic pressure is applied to the 1st clutch and the 1st-hold clutch.
- Rolling resistance from the road surface goes through the front wheels to the final driven gear, then to the countershaft idler gear.
- The one-way clutch disengages because the application of torque is reversed.
- The force conveyed to the secondary shaft idler gear turns the mainshaft 3rd gear via the countershaft idler gear. As a result, engine braking can be obtained with 1st gear.



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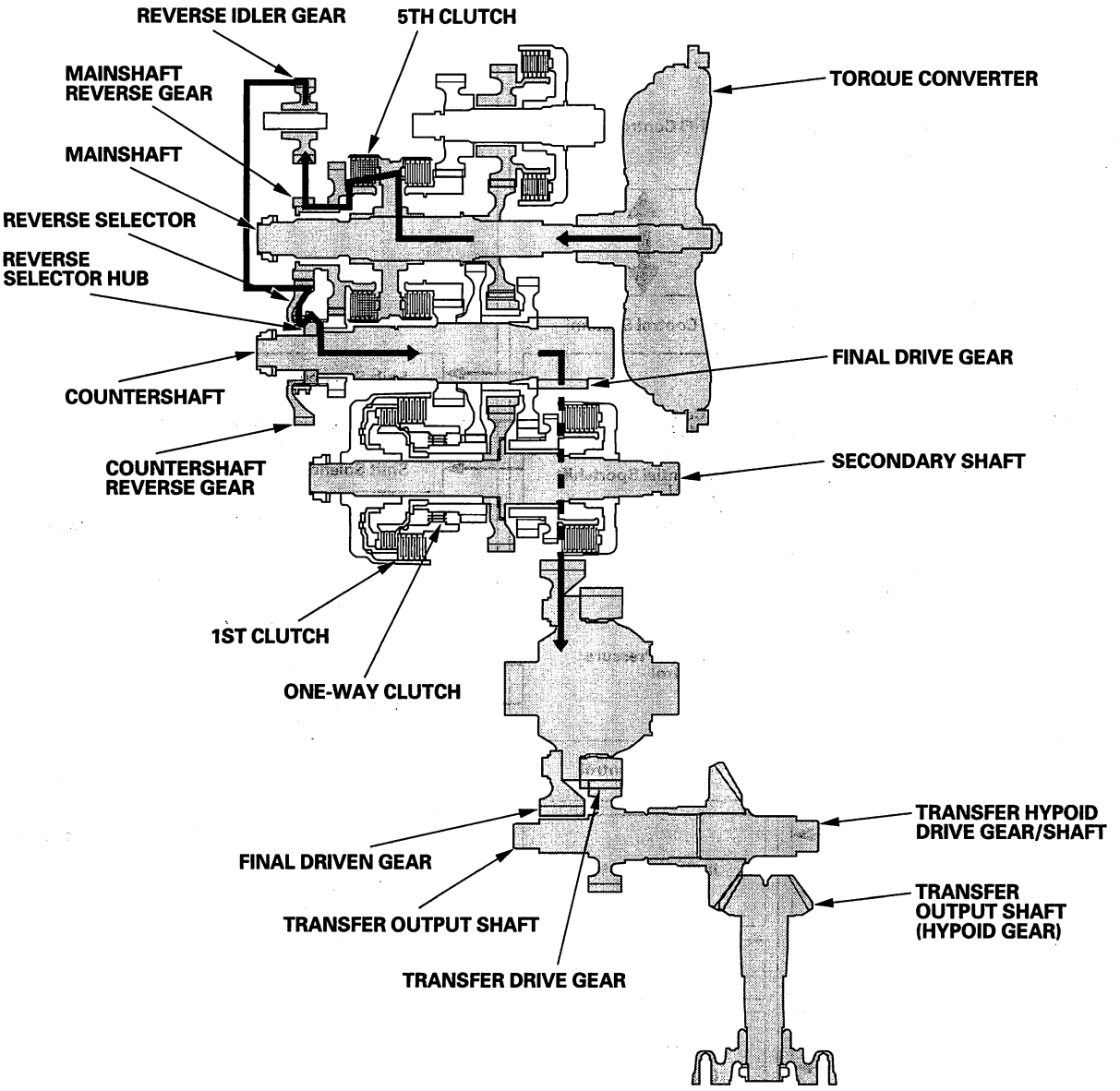
R Position

- Hydraulic pressure is applied to the servo valve to engage the reverse selector with the countershaft reverse gear while the shift lever is in the R position.
- Hydraulic pressure is applied to the 5th clutch, then the 5th clutch engages the mainshaft reverse gear with the mainshaft.
- The mainshaft reverse gear drives the countershaft reverse gear via the reverse idler gear.
- The countershaft reverse gear drives the countershaft via the reverse selector which drives the reverse selector hub.
- The rotation direction of the countershaft is changed by the reverse idler gear.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear and the transfer drive gear.
- The transfer output shaft drives the transfer hypoid drive gear/shaft and the transfer output shaft (hypoid gear).



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System Description (cont'd)

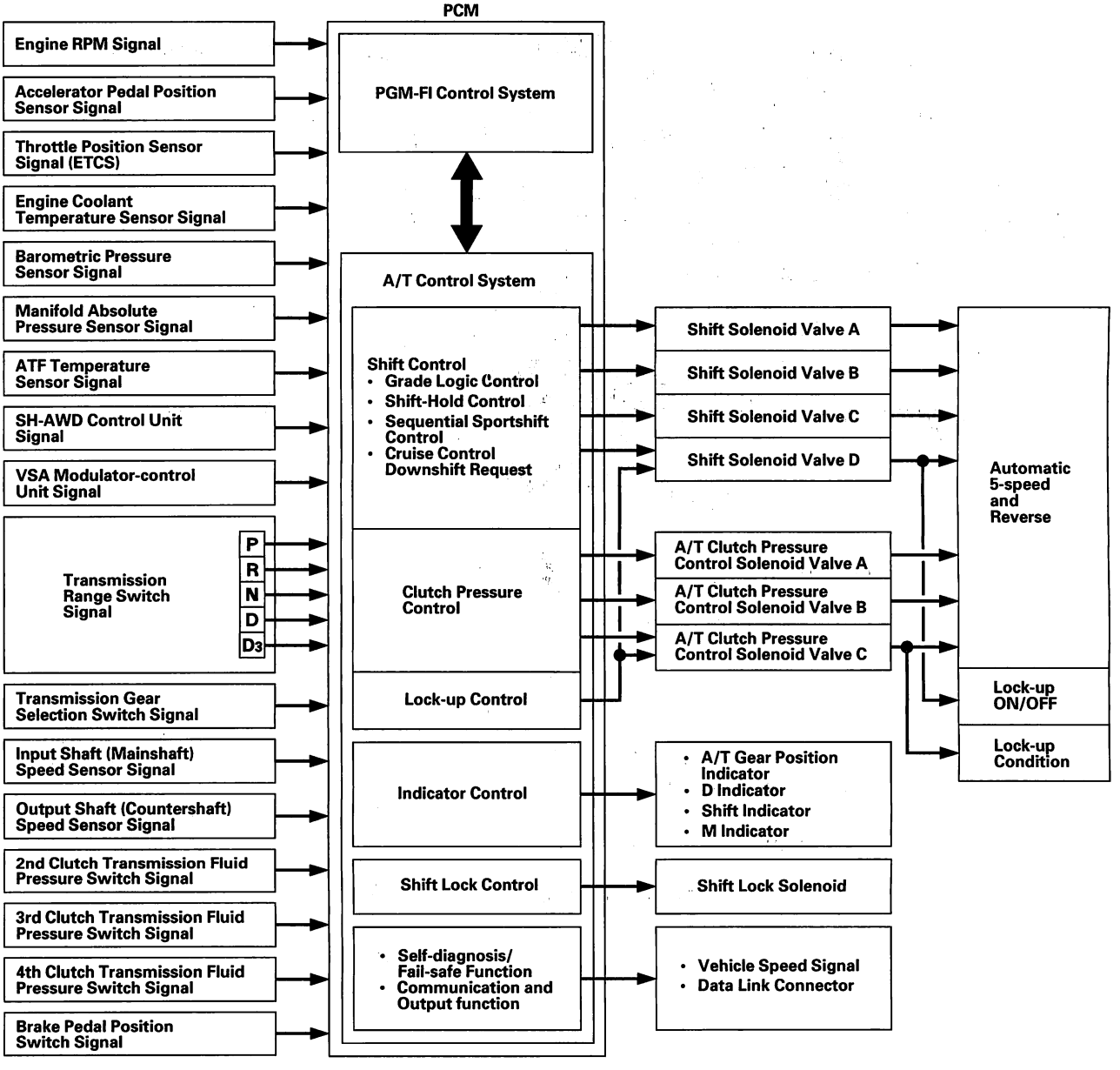
Electronic Control System

Electronic Control

The electronic control system consists of the powertrain control module (PCM), sensors, and seven solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions.

Functional Diagram

The PCM receives input signals from the sensors, switches, and other control units, processes data, and outputs signals for the engine control system and A/T control system. The A/T control system includes shift control, clutch pressure control, and lock-up control. The PCM switches the shift solenoid valves and the A/T clutch pressure control solenoid valves to control shifting transmission gears and lock-up torque converter clutch.



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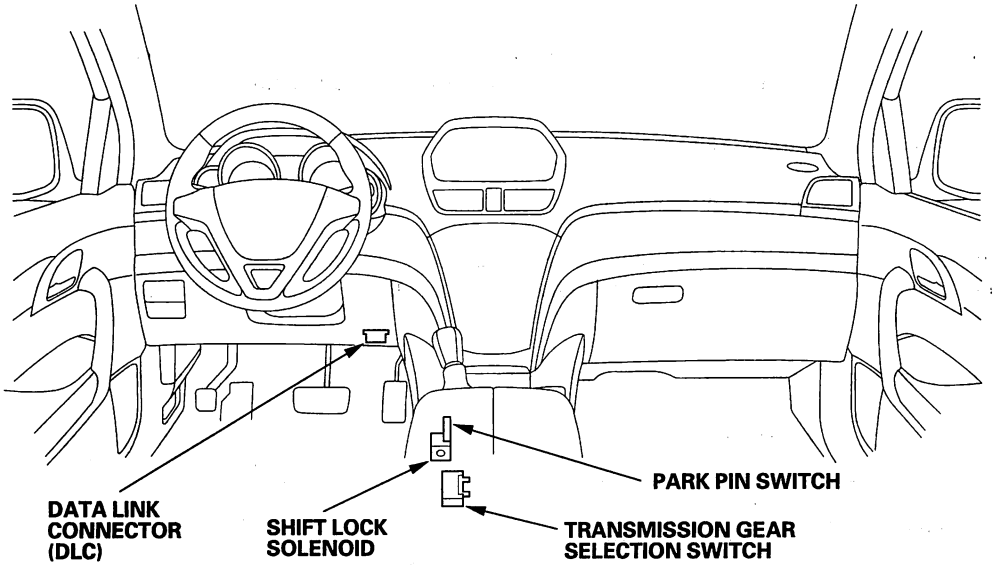
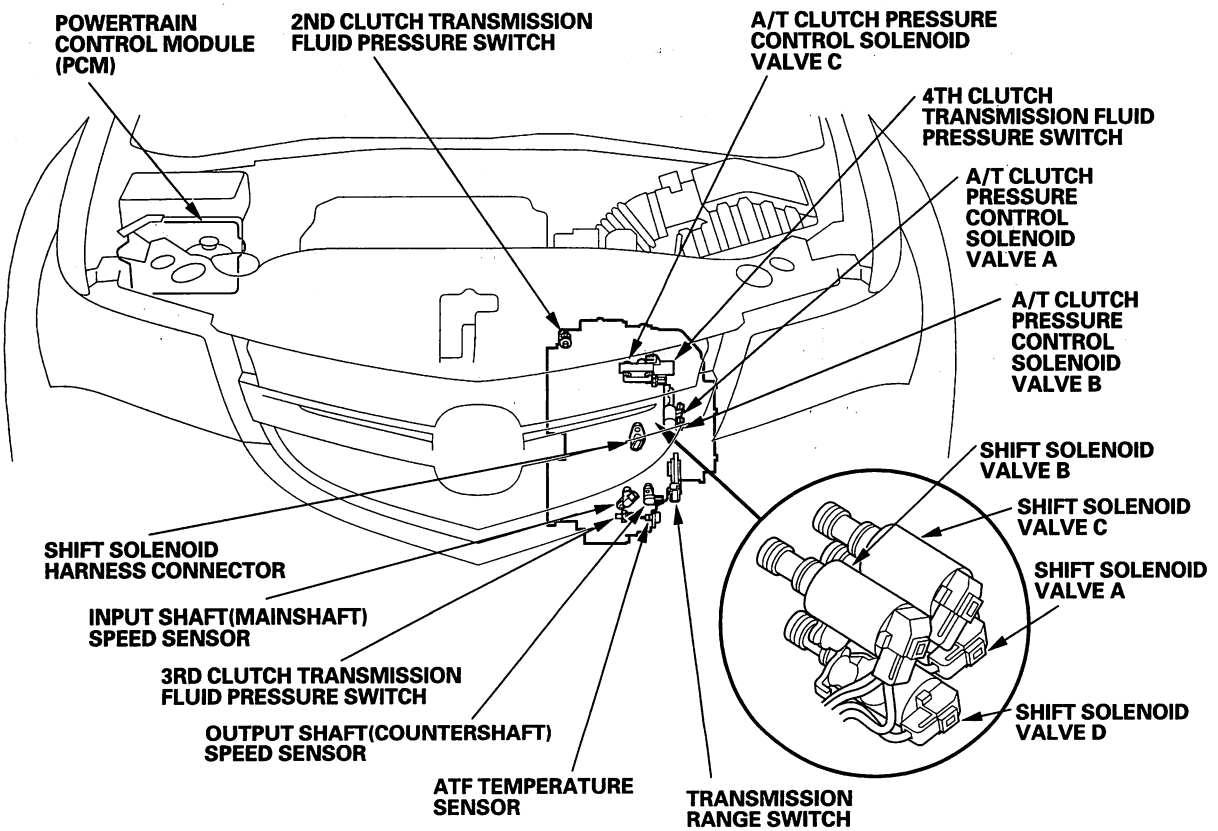
Electronic Control System Component Locations





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System Description (cont'd)

Electronic Control System (cont'd)

Shift Control
The PCM instantly determines which gear should be selected by various signals sent from sensors and switches, and it actuates the shift solenoid valves A, B, C, and D to control shifting transmission gear.

There are two types of shift solenoid valves:
- Shift solenoid valves A and D use the ON-OPEN/OFF-CLOSE type; the shift solenoid valve opens the port of shift solenoid valve pressure while the shift solenoid valve is turned ON by the PCM, and closes the port when shift solenoid valve is OFF.
- Shift solenoid valves B and C use the ON-CLOSE/OFF-OPEN type; the shift solenoid valve closes the port of shift solenoid valve pressure while the shift solenoid valve is turned ON by the PCM, and opens the port when shift solenoid valve is OFF.

The combination of driving signals to shift solenoid valves A, B, C, and D are shown in the table.

Position	Gear position	Shift solenoid valves			
		A	B	C	D
D and D3	Shifting from the N position	OFF	ON	OFF	OFF
	Stays in 1st	OFF	ON	ON	OFF
	Shifting gears between 1st and 2nd	ON	ON	ON	OFF or ON
	Stays in 2nd	ON	ON	OFF	OFF or ON
	Shifting gears between 2nd and 3rd	ON	ON	ON	OFF or ON
	Stays in 3rd	ON	OFF	ON	OFF or ON
D	Shifting gears between 3rd and 4th	ON	OFF	OFF	OFF or ON
	Stays in 4th	OFF	OFF	OFF	OFF or ON
	Shifting gears between 4th and 5th	OFF	OFF	ON	OFF or ON
	Stays in 5th	OFF	ON	ON	OFF or ON
M	1st	OFF	ON	ON	OFF or ON
	2nd	ON	ON	OFF	OFF or ON
	3rd	ON	OFF	ON	OFF or ON
	4th	OFF	OFF	OFF	OFF or ON
	5th	OFF	ON	ON	OFF or ON
N	Neutral	OFF	ON	OFF	OFF
R	Shifting from the P and N positions	OFF	ON	OFF	ON
	Stays in reverse	ON	ON	OFF	ON
	Reverse inhibit control	OFF	ON	OFF	OFF
P	Park	OFF	ON	OFF	ON

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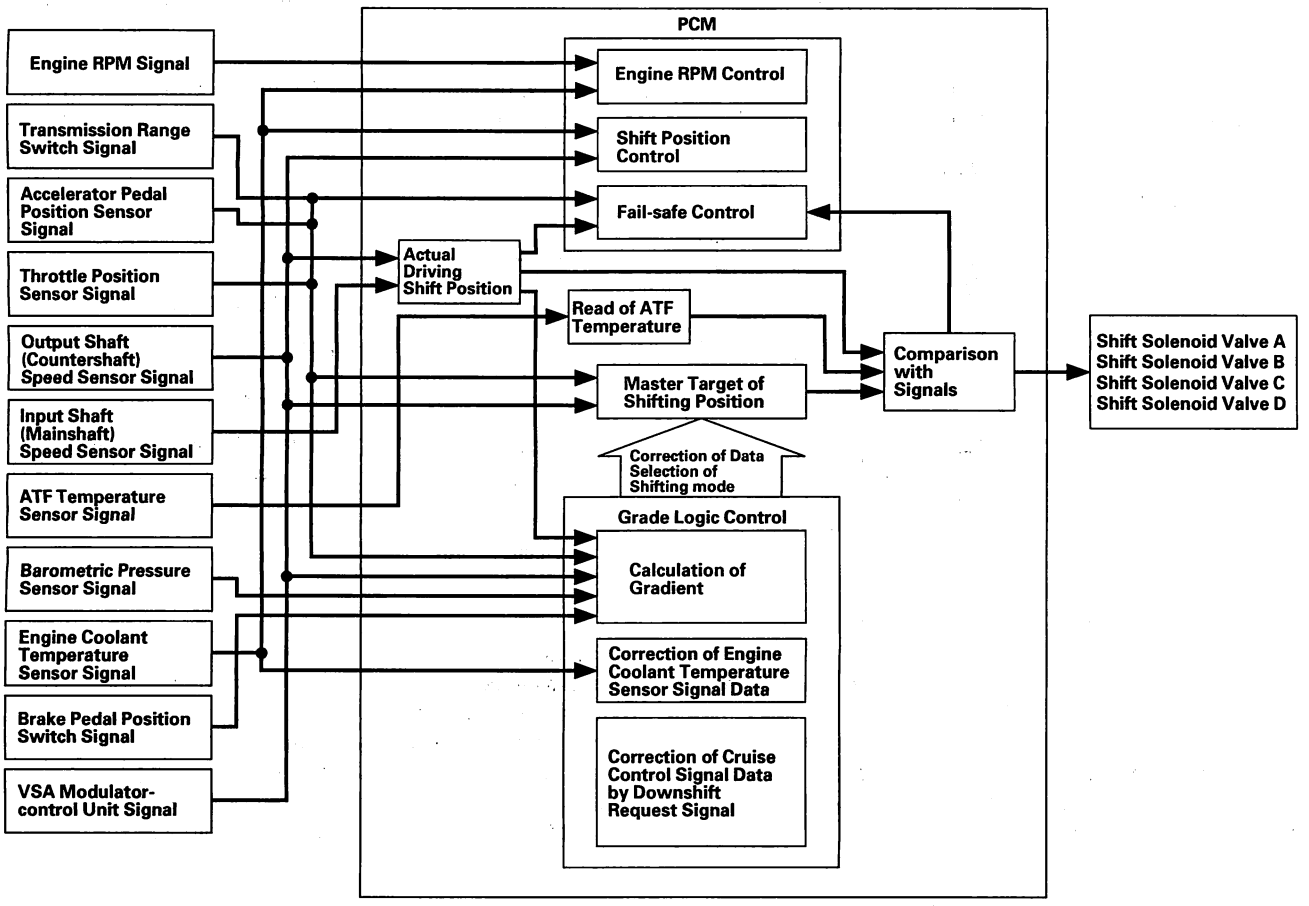
Shift Control - Grade Logic Control

The grade logic control system has been adopted to control shifting in the D and D3 positions. The PCM compares actual driving conditions with memorized driving conditions, based on the input from the throttle position sensor, the engine coolant temperature sensor, the barometric pressure sensor, the brake pedal position switch signal, and the shift lever position signal, to control shifting while the vehicle is ascending or descending a slope.



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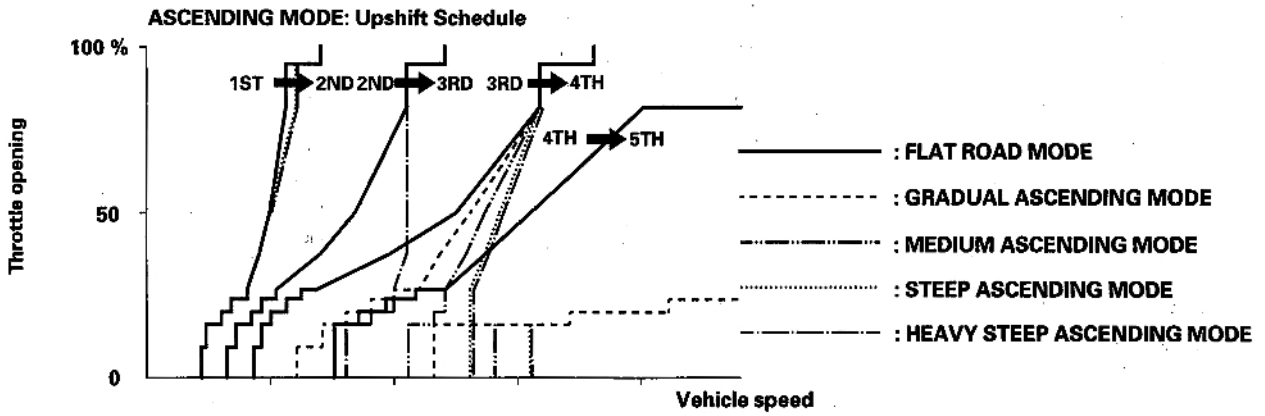
System Description (cont'd)

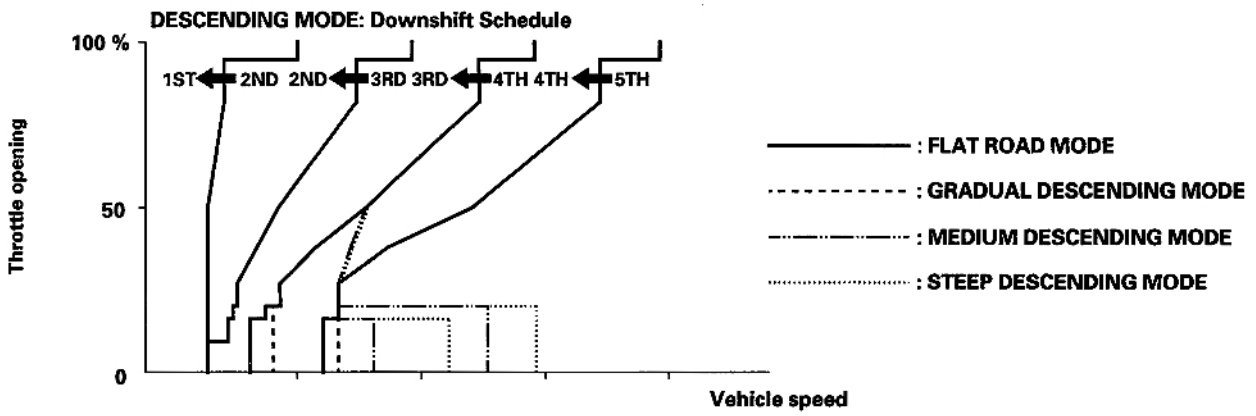
Electronic Control System (cont'd)

Grade Logic Control: Ascending Control
When the PCM determines that the vehicle is climbing a hill in the D and D3 positions, the system extends the engagement area of 2nd gear, 3rd gear, and 4th gear to prevent the transmission from frequently shifting between 2nd and 3rd gears, between 3rd and 4th gears, and between 4th and 5th gears, so the vehicle can run smooth and have more power when needed.

NOTE: Shift commands stored in the PCM between 2nd and 3rd gears, between 3rd and 4th gears, and between 4th and 5th gears, enable the PCM to automatically select the most suitable gear according to the magnitude of a gradient.



Grade Logic Control: Descending Control
When the PCM determines that the vehicle is going down a hill in the D and D3 positions, the shift-up speed from 4th to 5th gear, 3rd to 4th gear, and from 2nd to 3rd (when the throttle is closed) becomes faster than the set speed for flat road driving to widen the 4th gear, 3rd gear, and 2nd gear driving areas. This, in combination with engine braking from the deceleration lock-up, achieves smooth driving when the vehicle is descending. There are three descending modes with different 4th gear driving areas, 3rd gear driving areas, and 2nd gear driving areas according to the magnitude of a gradient stored in the PCM. When the vehicle is in 5th or 4th gear and you are decelerating while applying the brakes on a steep hill, the transmission will downshift to a lower gear. When you accelerate, the transmission will then return to a higher gear.



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Deceleration Control

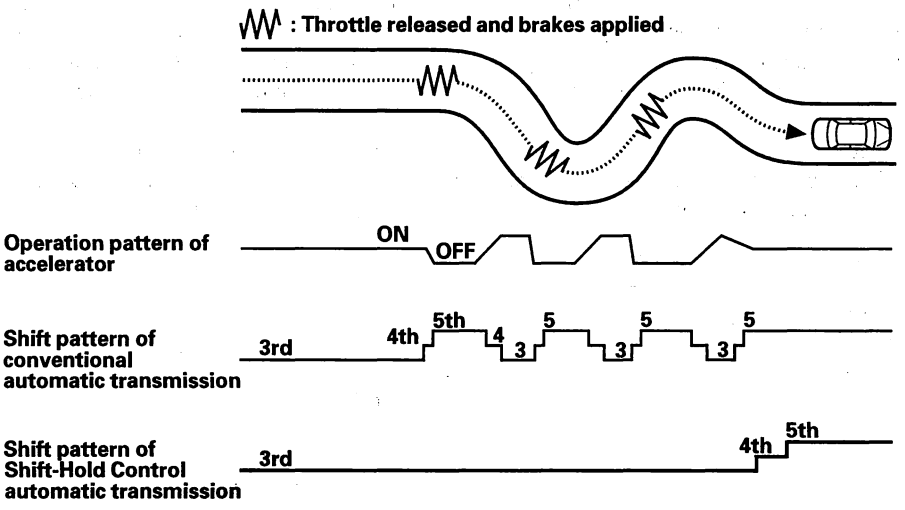
When the vehicle goes around a corner and needs to decelerate first and then accelerate, the PCM sets the data for deceleration control to reduce the number of times the transmission shifts. When the vehicle is decelerating from speeds above 25 mph (40 km/h), the PCM shifts the transmission from 4th to 3rd earlier than normal to cope with upcoming acceleration.

Shift-Hold Control

When negotiating winding roads, the throttle is suddenly released and the brakes are applied, as is the case when decelerating at the entrance of a corner, Shift-Hold Control keeps the transmission in its current (lower) ratio as it negotiates the corner and accelerates out.

When the vehicle is driven aggressively on a winding road, the PCM will extend the engagement time of 3rd gear and 4th gear to prevent the transmission from frequently shifting between 3rd, 4th, and 5th gears. This allows the driver to have more control for both acceleration and deceleration.

The PCM monitors the average change in vehicle speed and throttle over time. When these values exceed those for normal driving conditions, the shift-up from 3rd to 4th gear and 4th to 5th gear is delayed. This gives more control over power, and engine braking when the driver is driving aggressively around winding roads. The transmission will resume the normal shift-up pattern after the PCM determines that normal driving has resumed.



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System Description (cont'd)

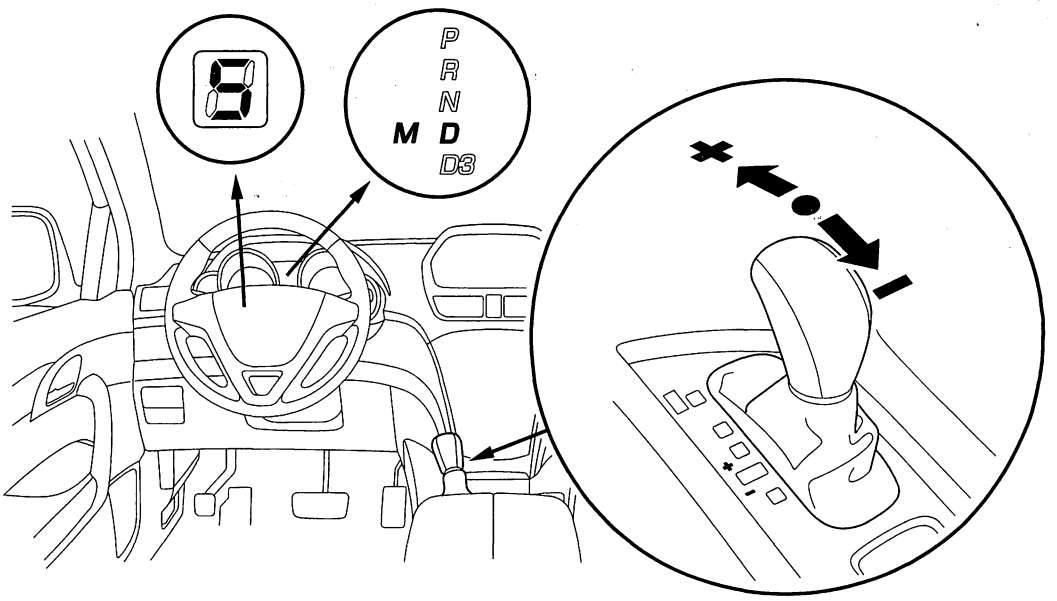
Electronic Control System (cont'd)

Shift Control - Sequential Sportshift Mode

The MDX transmission is provided a sequential sportshift mode in the D position. In the D position, the transmission has two shifting modes; the automatic shift mode and the sequential sportshift mode. In the automatic shift mode used for general driving, the transmission upshifts and downshifts automatically from 1st through 5th gear. In the automatic shift mode, the shift indicator and the M indicator in the gauge control module do not come on.

The transmission is switched to the sequential sportshift mode by moving the shift lever into the M position from the D, the automatic shift mode is canceled and the sequential sportshift mode comes into operation. The shift indicator displays the number of the selected gear, and the M indicator comes on. In the sequential sportshift mode, the driver can shift up and down manually from 1st through 5th gear by using the shift lever, much like a manual transmission, and the transmission must be shifted up and down by using the shift lever. However, the transmission cannot downshift and stays in the current gear if the shift lever is pulled while the vehicle is coasting at a speed that would cause the engine to over-rev by downshifting the transmission, and the shift indicator blinks the number of the selected gear several times, then returns to the number of the current gear. If the vehicle speed reaches an appropriate speed while the shift indicator is blinking the number of the selected gear, the transmission downshifts and the shift indicator displays the selected gear. The transmission also cannot upshift and stays in the current gear if the shift lever is pushed while driving below an appropriate upshifting speed, the shift indicator blinks the number of the selected gear several times, then returns to the number of the current gear. If the vehicle speed reaches the an appropriate upshift speed while the shift indicator is blinking the number of the selected gear, the transmission upshifts and the shift indicator displays the selected gear.

When the transmission decelerates to a stop, the transmission shifts to 1st gear automatically. The transmission can be shifted to 2nd gear by pushing the shift lever while the vehicle is stopped, and the vehicle can start off in 2nd gear. The sequential sportshift mode is canceled when moving the shift lever to any position other than M.



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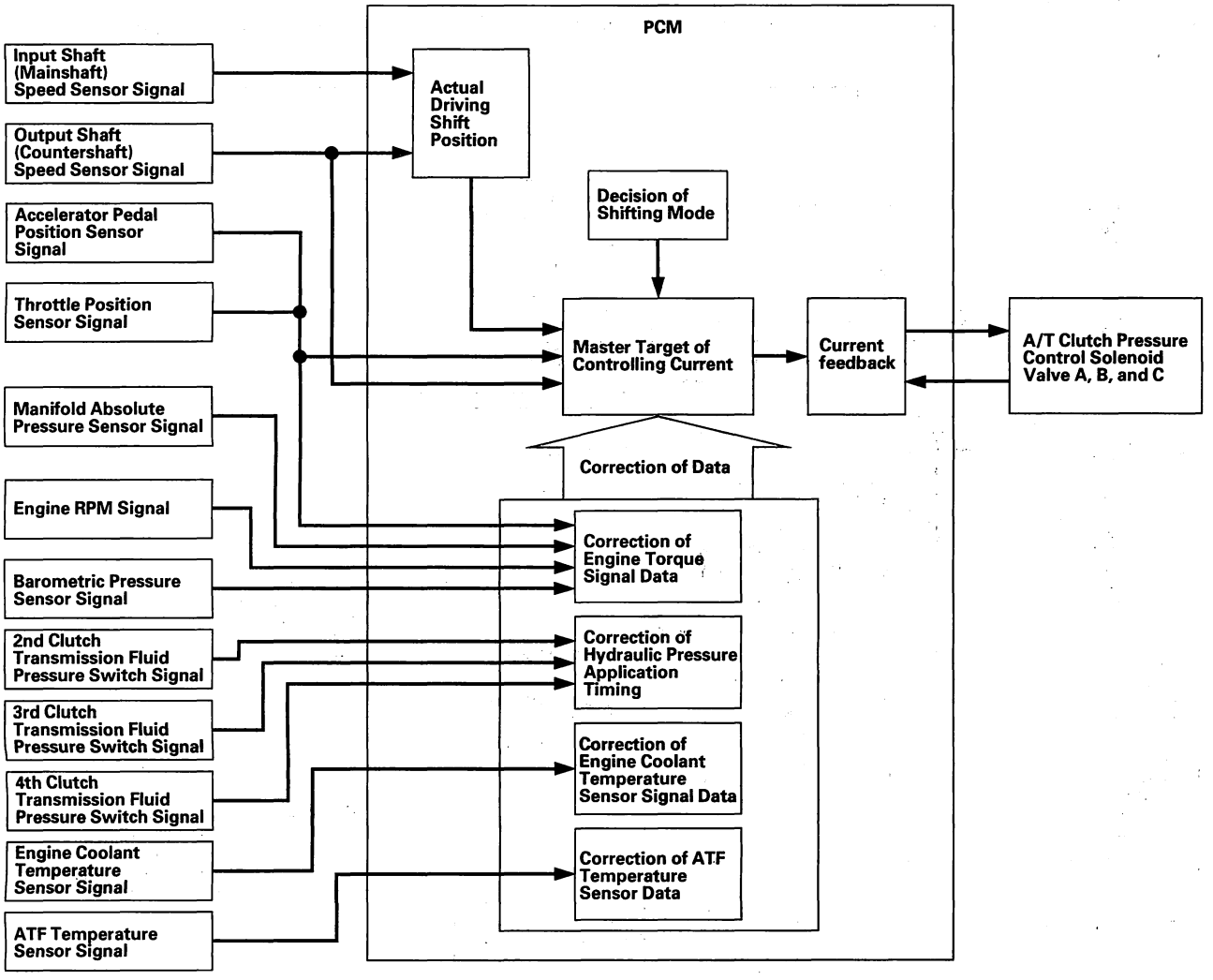
Clutch Pressure Control

The PCM actuates A/T clutch pressure control solenoid valves A, B, and C to control the clutch pressure. When shifting between gears, the clutch pressure regulated by A/T clutch pressure control solenoid valves A, B, and C engages and disengages the clutch smoothly.

The PCM receives input signals from the various sensors and switches, performs processing data, and outputs current to A/T clutch pressure control solenoid valves A, B, and C.



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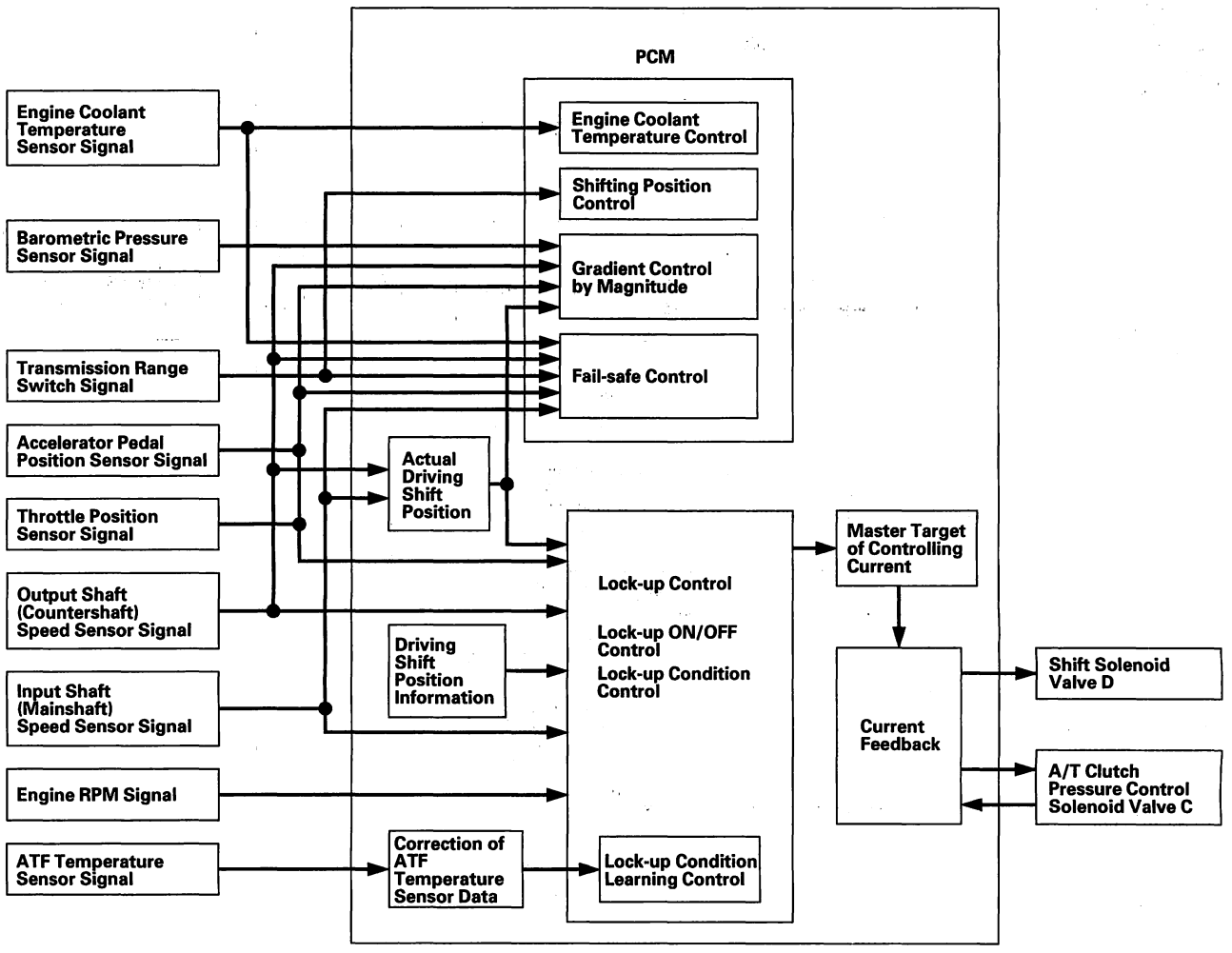
System Description (cont'd)

Electronic Control System (cont'd)

Lock-up Control

The shift solenoid valve D controls the hydraulic pressure to switch the lock-up shift valve and lock-up ON and OFF. The PCM actuates the shift solenoid valve D and the A/T clutch pressure control solenoid valve C ON, the condition of lock-up starts. The A/T clutch pressure control solenoid valve C regulates and applies hydraulic pressure to the lock-up control valve to control the volume of the lock-up.

The lock-up mechanism operates in 2nd, 3rd, 4th, and 5th gears in the D position, and in 2nd and 3rd gears in the D3 position.



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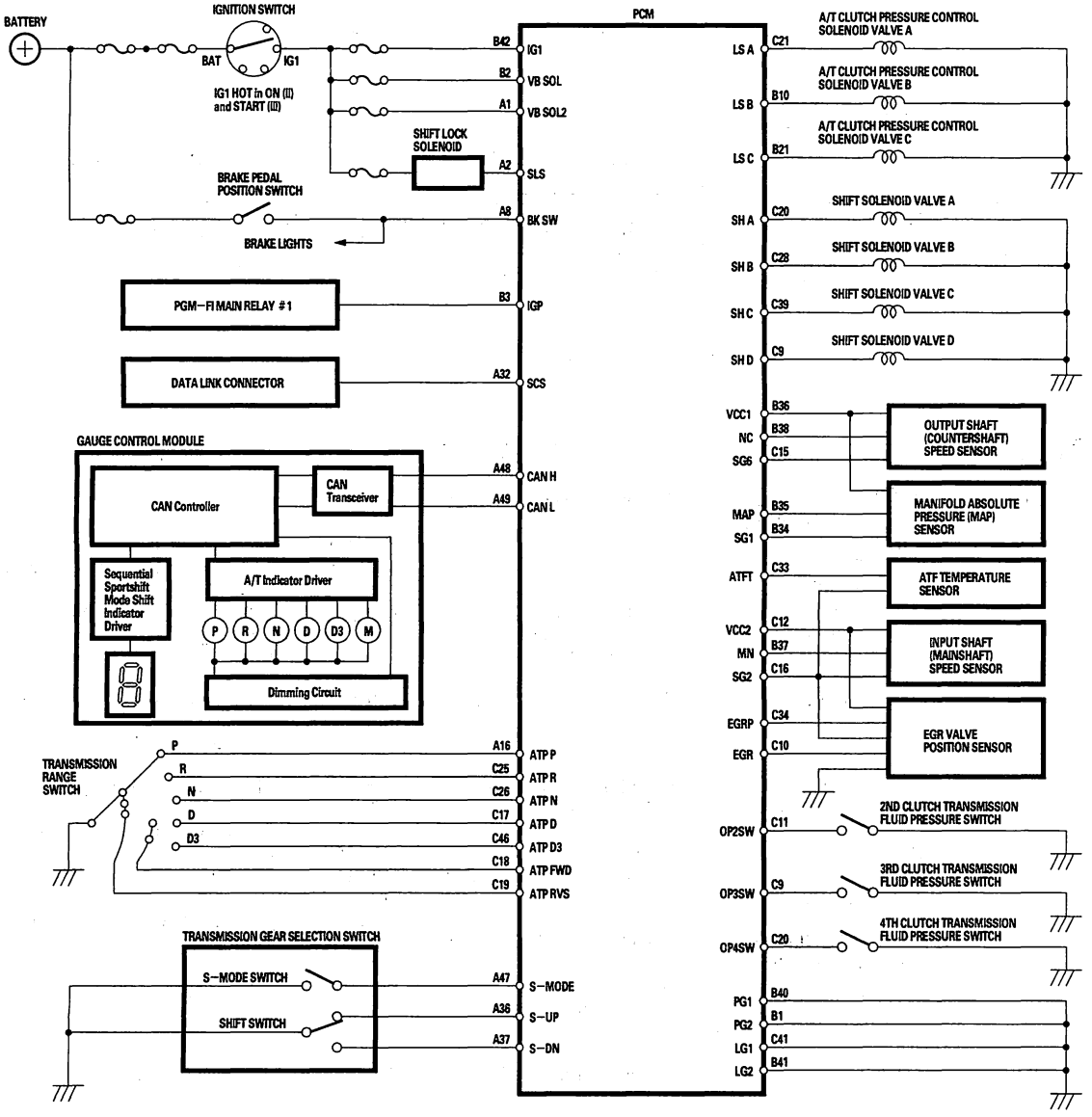
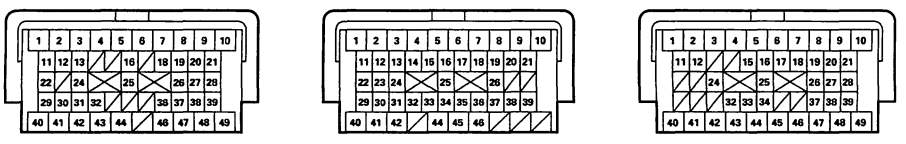
PCM A/T Control System Electrical Connections



PCM Harness Connector Terminal Locations



A (49P) □ B (49P) △ C (49P) ○

Terminal side of female terminals

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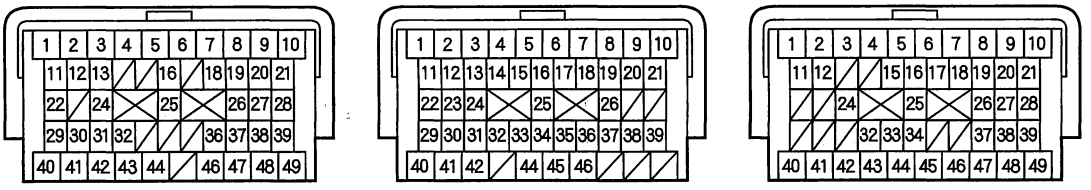
System Description (cont'd)

Electronic Control System (cont'd)

PCM A/T Control System Inputs and Outputs

PCM Harness Connector Terminal Locations



A (49P) □ **B (49P)** △ **C (49P)** ○

Terminal side of female terminals

PCM CONNECTOR A (49P) □

Terminal number	Wire color	Terminal name	Description	Signal
A1	WHT	VB SOL2 (POWER SOURCE FOR SOLENOID VALVES)	Power source for solenoid valves	With ignition switch ON (II): Battery voltage With ignition switch OFF: About 0 V
A2	PNK	SLS (SHIFT LOCK SOLENOID)	Drives shift lock solenoid	With ignition switch ON (II), in the P position, brake pedal pressed, and accelerator released: About 0 V
A8	LT GRN	BK SW (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With brake pedal released: About 0 V With brake pedal pressed: Battery voltage
A16	GRN	ATP P (TRANSMISSION RANGE SWITCH P POSITION)	Detects transmission range switch P position signal	In the P position: About 0 V In any position other than P: Battery voltage
A32	BRN	SCS (SERVICE CHECK SIGNAL)	Detects service check signal	With service check signal shorted with the HDS: About 0 V With service check signal opened: About 5.0 V
A36	BLU	S-UP (TRANSMISSION GEAR SELECTION SWITCH UPSHIFT SWITCH)	Detects transmission gear selection switch upshift switch signal	In the M position: • Shift lever pushed toward upshift position: About 0 V • Shift lever in neutral position: Battery voltage
A37	GRN	S-DN (TRANSMISSION GEAR SELECTION SWITCH DOWNSHIFT SWITCH)	Detects transmission gear selection switch downshift switch signal	In the M position: • Shift lever pushed toward downshift position: About 0 V • Shift lever in neutral position: Battery voltage
A47	PUR	S-MODE (SEQUENTIAL SPORTSHIFT MODE)	Detects transmission gear selection switch S mode switch signal	In M position: About 0 V In any position other than M: Battery voltage
A48	WHT	CAN H (CAN COMMUNICATION SIGNAL HIGH)	Sends communication signal	With ignition switch ON (II): Pulses
A49	RED	CAN L (CAN COMMUNICATION SIGNAL LOW)	Sends communication signal	With ignition switch ON (II): Pulses

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PCM CONNECTOR B (49P) △

Terminal number	Wire color	Terminal name	Description	Signal
B1	BLK	PG2 (POWER GROUND)	Ground circuit for PCM circuit	Less than 1.0 V at all times
B2	BLK/YEL	VB SOL (POWER SOURCE FOR SOLENOID VALVES)	Power source for solenoid valves	With ignition switch ON (II): Battery voltage With ignition switch OFF: About 0 V
B3	YEL/BLK	IGP (POWER SOURCE FOR PCM)	Power source for PCM circuit	With ignition switch ON (II): Battery voltage With ignition switch OFF: About 0 V
B10	BRN/WHT	LS B (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B)	Drives A/T clutch pressure control solenoid valve B	With ignition switch ON (II): Pulses
B21	GRN/RED	LS C (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C)	Drives A/T clutch pressure control solenoid valve C	With ignition switch ON (II): Pulses
B34	GRN/WHT	SG1 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
B35	GRN/RED	MAP (MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): Battery voltage At idle: About 1.0 V depending on engine speed
B36	YEL/RED	VCC1 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): About 5.0 V With ignition switch OFF: About 0 V
B37	RED	NM (INPUT SHAFT (MAINSHAFT) SPEED SENSOR)	Detects input shaft (mainshaft) speed sensor signal	With ignition switch ON (II): About 0 V or about 5.0 V With engine running in N position: About 2.5 V
B38	BLU	NC (OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR)	Detects output shaft (countershaft) speed sensor signal	With ignition switch ON (II): About 0 V or about 5.0 V With driving: Pulses
B40	BLK	PG1 (POWER GROUND)	Ground circuit for PCM circuit	Less than 1.0 V at all times
B41	BRN/YEL	LG2 (LOGIC GROUND)	Ground circuit for PCM	Less than 1.0 V at all times
B42	BLK/YEL	IG1 (IGNITION SIGNAL)	Detects ignition signal	With ignition switch ON (II): Battery voltage With ignition switch OFF: About 0 V

(cont'd)

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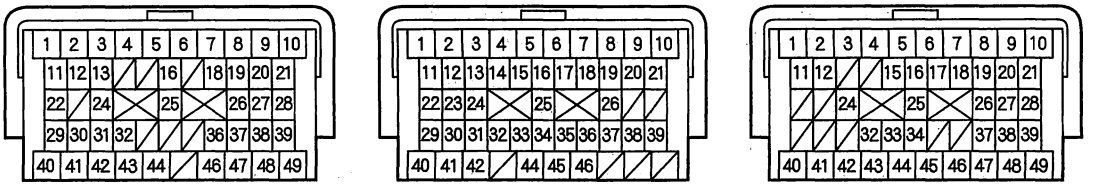
System Description (cont'd)

Electronic Control System (cont'd)

PCM A/T Control System Inputs and Outputs (cont'd)

PCM Harness Connector Terminal Locations



A (49P) □ **B (49P)** △ **C (49P)** ○

Terminal side of female terminals

PCM CONNECTOR C (49P) ○

Terminal number	Wire color	Terminal name	Description	Signal
C9	GRN/RED	SH D (SHIFT SOLENOID VALVE D)	Drives shift solenoid valve D	In N position, In D and D3 positions during no lock-up condition: About 0 V In P and R positions, and D and D3 positions during lock-up condition: Battery voltage
C10	BLU/RED	EGR (EXHAUST GAS RECIRCULATION (EGR) VALVE)	Drives EGR valve	With EGR operating: Duty controlled With EGR not operating: About 0 V
C12	YEL/BLU	VCC2 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): About 5.0 V With ignition switch OFF: About 0 V
C16	GRN/YEL	SG2 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
C17	YEL/GRN	ATP D (TRANSMISSION RANGE SWITCH D POSITION)	Detects transmission range switch D position signal input	In D position: About 0 V In any position other than D: Battery voltage
C18	BLU/YEL	ATP FWD (TRANSMISSION RANGE SWITCH D AND S)	Detects transmission range switch D and D3 signal input	In D and D3 positions: About 0 V In any position other than D and D3: Battery voltage
C19	RED/WHT	ATP RVS (TRANSMISSION RANGE SWITCH R POSITION)	Detects transmission range switch P, R, and N position signals	In P, R, and N positions: About 0 V In any position other than P, R, and N: Battery voltage
C20	BLU/YEL	SH A (SHIFT SOLENOID VALVE A)	Drives shift solenoid valve A	In R position, and 2nd and 3rd in D and D3 positions: Battery voltage In P and N positions, 1st in D and D3 positions, and 4th and 5th in D position: About 0 V
C21	RED	LS A (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A)	Drives A/T clutch pressure control solenoid valve A	With ignition switch ON (II): Pulses
C25	WHT	ATP R (TRANSMISSION RANGE SWITCH R POSITION)	Detects transmission range switch R position signal	In R position: About 0 V In any position other than R: Battery voltage

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PCM CONNECTOR C (49P) ○

Terminal number	Wire color	Terminal name	Description	Signal
C26	RED/BLK	ATP N (TRANSMISSION RANGE SWITCH N POSITION)	Detects transmission range switch N position signal	In the N position: About 0 V In any position other than N: Battery voltage
C27	BLU/BLK	OP2SW (2ND CLUTCH TRANSMISSION FLUID PRESSURE SWITCH)	Detects 2nd clutch transmission fluid pressure switch signal	With ignition switch ON (II): • Without 2nd clutch pressure: About 5.0 V • With 2nd clutch pressure: About 0 V
C28	GRN/WHT	SH B (SHIFT SOLENOID VALVE B)	Drives shift solenoid valve B	In P, R, and N positions, and 1st and 2nd in D and D 3 positions, and 5th in D position: Battery voltage In 3rd in D and D3 positions, and 4th in D position: About 0 V
C33	BLU/YEL	ATFT (ATF TEMPERATURE SENSOR)	Detects ATF temperature sensor signal	With ignition switch ON (II): About 0.2—4.0 V depending on ATF temperature With ignition switch OFF: About 0 V
C34	WHT/BLK	EGRP (EXHAUST GAS RECIRCULATION (EGR) VALVE POSITION SENSOR)	Detects EGR valve position sensor signal	With engine running: 1.2—3.0 V depending on EGR valve lift
C37	BLU/YEL	OP4SW (4TH CLUTCH TRANSMISSION FLUID PRESSURE SWITCH)	Detects 4th clutch transmission fluid pressure switch signal	With ignition switch ON (II): • Without 4th clutch pressure: About 5.0 V • With 4th clutch pressure: About 0 V
C38	BLU/WHT	OP3SW (3RD CLUTCH TRANSMISSION FLUID PRESSURE SWITCH)	Detects 3rd clutch transmission fluid pressure switch signal	With ignition switch ON (II): • Without 3rd clutch pressure: About 5.0 V • With 3rd clutch pressure: About 0 V
C39	GRN	SH C (SHIFT SOLENOID VALVE C)	Drives shift solenoid valve C	In 1st and 3rd in D and D3 positions, and 5th in D position: Battery voltage In P, R, and N positions, 2nd in D and D3 positions, and 4th in D position: About 0 V
C41	BRN/YEL	LG1 (LOGIC GROUND)	Ground circuit for PCM circuit	Less than 1.0 V at all times
C46	RED	ATP D3 (TRANSMISSION RANGE SWITCH D3)	Detects transmission range switch D3 signal input	In D3 position: About 0 V In any position other than D3: Battery voltage

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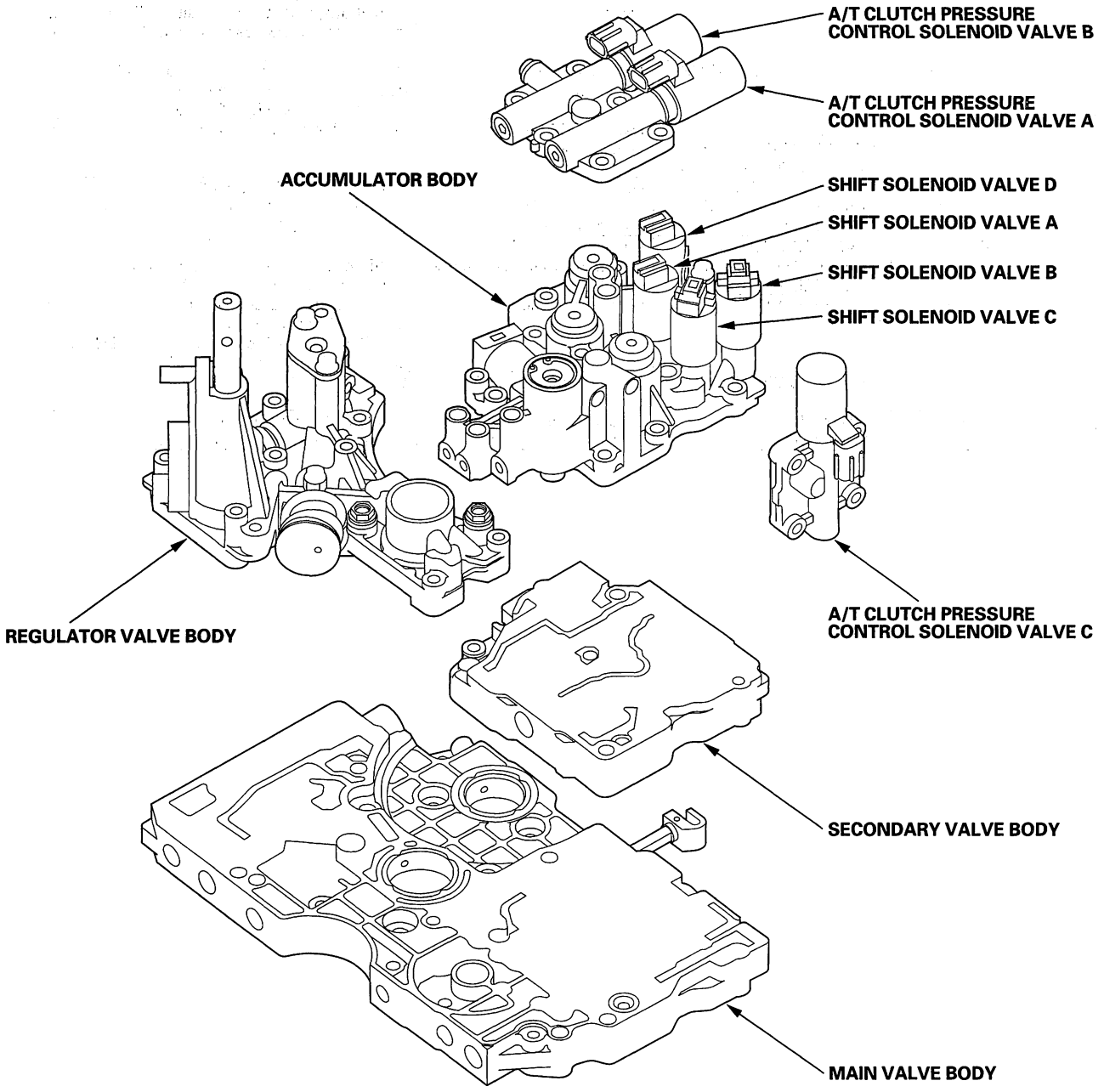
System Description (cont'd)

Hydraulic Controls

The valve body includes the main valve body, the regulator valve body, the secondary valve body, and the accumulator body. The ATF pump is driven by splines on the end of the torque converter which is attached to the engine. Fluid flows through the regulator valve to maintain specified pressure through the main valve body to the manual valve, directing pressure to each of the clutches. Shift solenoid valves A, B, C and D are mounted on the accumulator body. A/T clutch pressure control solenoid valves A, B, and C are mounted on the transmission housing.



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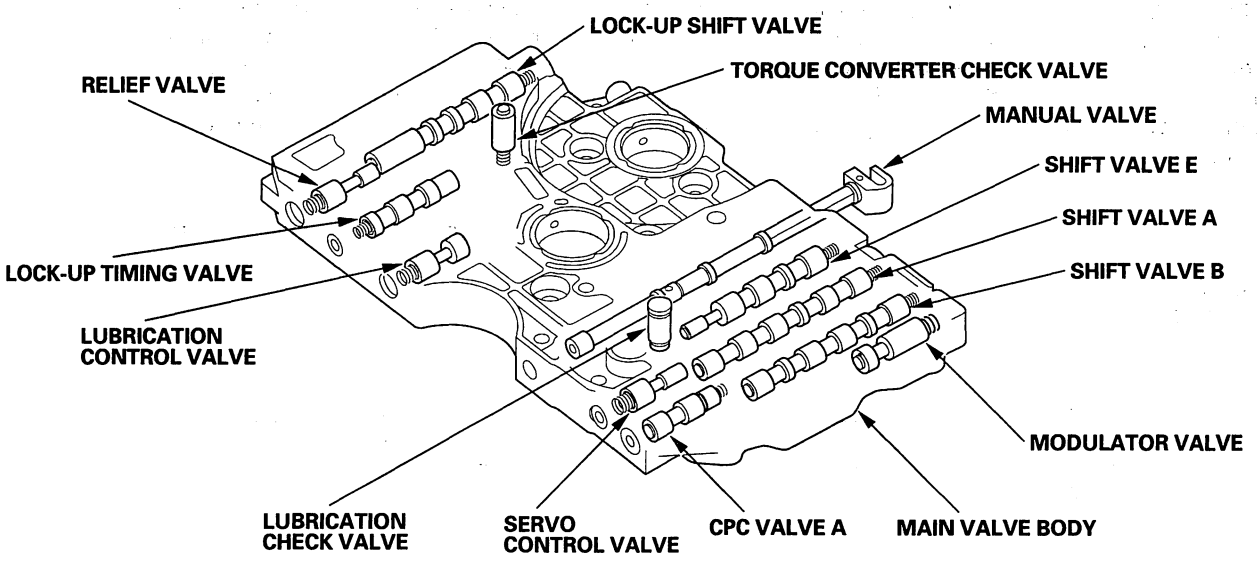
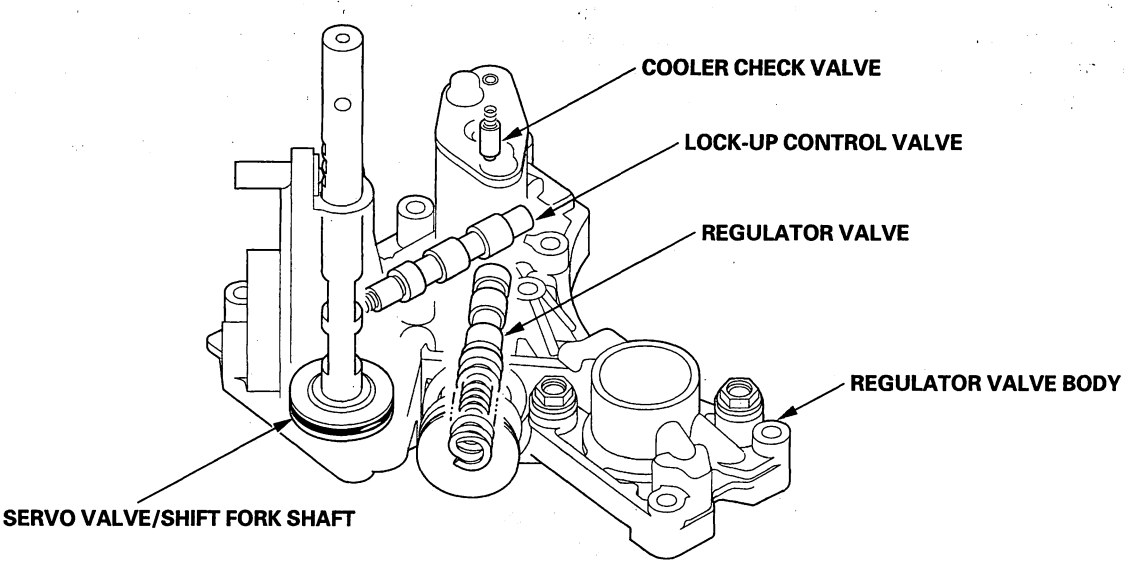
Main Valve Body

The main valve body contains the manual valve, the modulator valve, the torque converter check valve, shift valve A, shift valve B, shift valve D, shift valve E, CPC valve C, the relief valve, the lock-up shift valve, the lock-up timing valve, the lubrication control valve, the lubrication check valve, and the ATF pump gears. The primary function of the main valve body is to switch fluid pressure on and off to control hydraulic pressure going to the hydraulic control system.



Regulator Valve Body

The regulator valve body is located on the main valve body. The regulator valve body contains the regulator valve, the cooler check valve, the lock-up control valve, the servo valve, and the 3rd accumulator.



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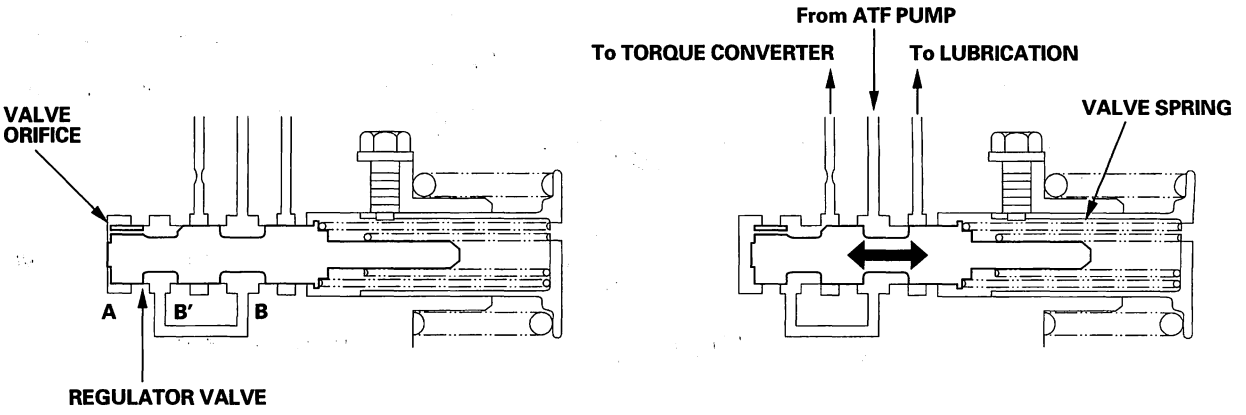
System Description (cont'd)

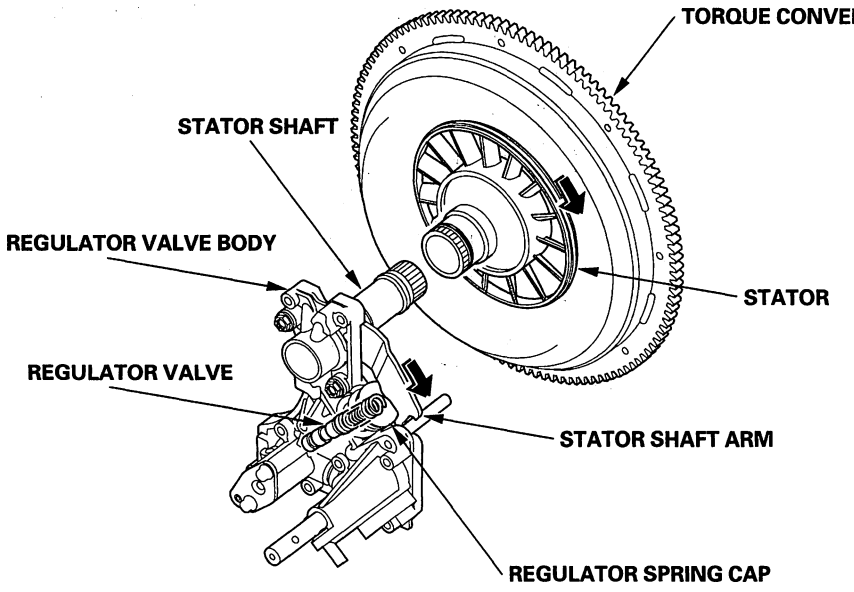
Hydraulic Controls (cont'd)

Regulator Valve

The regulator valve maintains constant hydraulic pressure from the ATF pump to the hydraulic control system, while also furnishing fluid to the lubrication system and torque converter. Fluid from the ATF pump flows through B and B'. Fluid entering from B flows through the valve orifice to the A cavity. This pressure of the A cavity pushes the regulator valve to the spring side, and this movement of the regulator valve uncovers the fluid port to the torque converter and the relief valve. The fluid flows out to the torque converter and the relief valve, and the regulator valve returns under spring force. According to the level of the hydraulic pressure through B, the position of the regulator valve changes, and the amount of fluid from B' through the torque converter changes. This operation is continued, maintaining the line pressure.



Increases in hydraulic pressure according to torque are provided by the regulator valve using stator torque reaction. The stator shaft is splined to the stator in the torque converter, and its arm end contacts the regulator spring cap. When the vehicle is accelerating or climbing (torque converter range), stator torque reaction acts on the stator shaft, and the stator arm pushes the regulator spring cap in the direction of the arrow in proportion to the reaction. The stator reaction spring compresses, and the regulator valve moves to increase the line pressure which is regulated by the regulator valve. The line pressure reaches its maximum when the stator torque reaction reaches its maximum.



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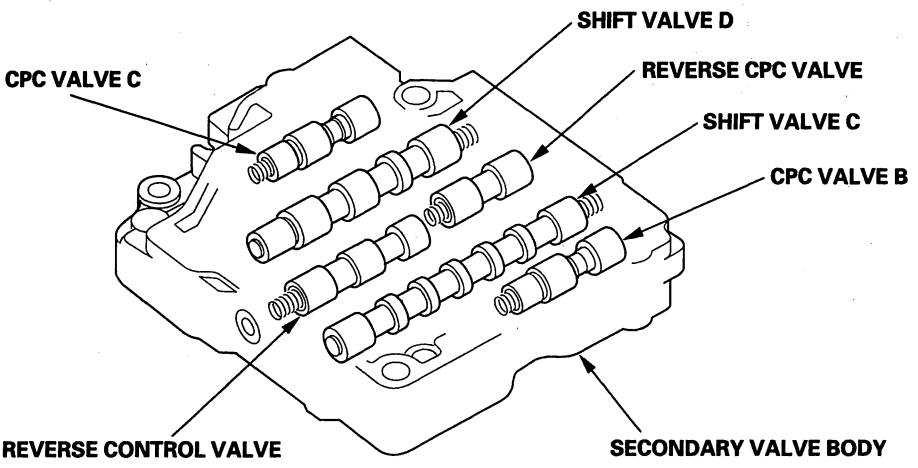
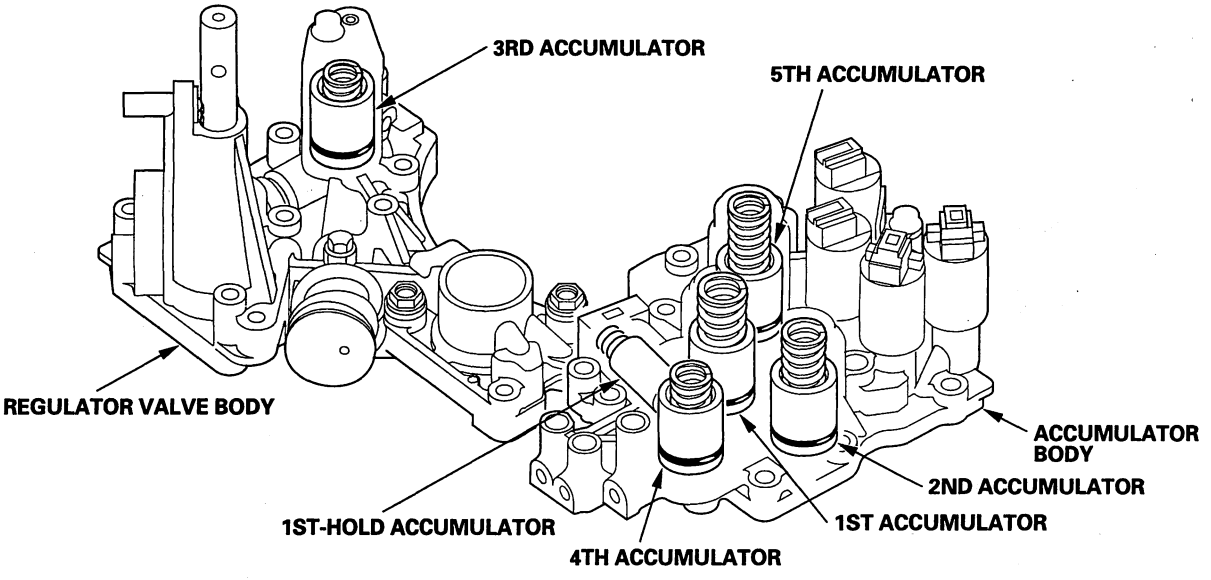
Secondary Valve Body

The secondary valve body is on the main valve body. The secondary valve body contain shift valve C, shift valve D, CPC valve B, CPC valve C, the reverse control valve, and the reverse CPC valve.



Accumulator Body

The accumulator body is on the secondary valve body, and contains the 1st, 1st-hold, 2nd, 4th, and 5th accumulators. The 3rd accumulator is in the regulator valve body.



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System Description (cont'd)

Hydraulic Flow

Distribution of Hydraulic Pressure

As the engine turns, the ATF pump starts to operate. Automatic transmission fluid (ATF) is drawn through the ATF strainer (filter) and discharged into the hydraulic circuit. Then, ATF flowing from the ATF pump becomes line pressure that is regulated by the regulator valve. Torque converter pressure from the regulator valve enters the torque converter through the lock-up shift valve and lock-up control valve, and it is discharged from the torque converter. The torque converter check valve prevents torque converter pressure from rising.

The PCM controls shift solenoid valves A, B, C, and D ON and OFF, and the shift solenoid valves control shift solenoid pressure to the shift valves. Applying shift solenoid pressure to the shift valves moves the position of the shift valve, and switches the port of hydraulic pressure. The PCM also controls A/T clutch pressure control solenoid valves A, B and C. The A/T clutch pressure control solenoid valves regulate hydraulic pressure, and apply the pressure to CPC valves A and B, and reverse CPC valve.

When shifting between gears, the clutch is engaged by pressure from the CPC pressure mode. The PCM controls one of the shift solenoid valves to move the position of the shift valve. This movement switches the port of CPC pressure and line pressure. Line pressure is then applied to the clutch, and CPC pressure is released. Engaging the clutch with line pressure mode happens when shifting is completed.

Hydraulic Pressure at the Port for use in the hydraulic circuit

Port	Hydraulic Pressure	Port	Hydraulic Pressure
1	Line	SC	Shift solenoid valve C
2	Line	SC'	Shift solenoid valve C
3	Line	SD	Shift solenoid valve D
3'	Line	10	1st clutch
3''	Reverse CPC or Line	15	1st-hold clutch
3A	Line	20	2nd clutch
3B	Reverse CPC	30	3rd clutch
4	Line	40	4th clutch
4'	Line	50	5th clutch
4''	Line	51	5th clutch
4A	CPC A	56	A/T clutch pressure control solenoid valve A
4B	CPC B	57	A/T clutch pressure control solenoid valve B
4C	CPC C	5R	A/T clutch pressure control solenoid valve B
5A	CPC A	58	A/T clutch pressure control solenoid valve C
5B	CPC A or Line	90	Torque converter
5C	CPC B or Line	90'	Torque converter
5D	CPC B	91	Torque converter
5E	CPC C	91'	Torque converter
5F	CPC C	92	Torque converter
5G	CPC C	93	ATF cooler
5H	CPC B or Line	94	Torque converter
5J	CPC B or Line	95	Lubrication
5K	CPC A or Line	95'	Lubrication
5L	CPC A or Line	96	Torque converter
5M	Line	99	Suction
5N	CPC C	X	Drain
6	Modulator	HX	High position drain
SA	Shift solenoid valve A	AX	Air drain
SB	Shift solenoid valve B	———	———

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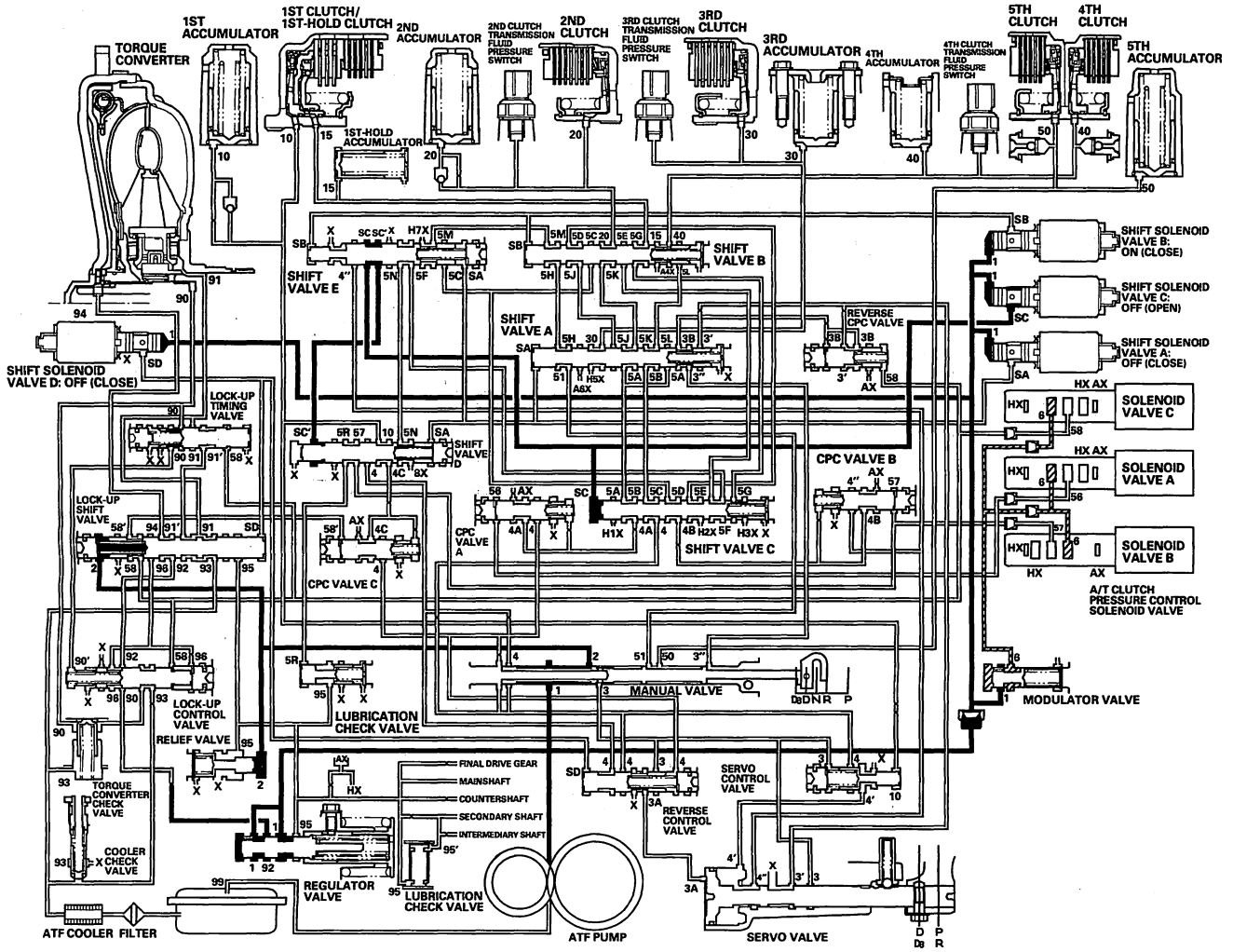
N Position

Line pressure (1) regulated by the regulator valve flows to shift solenoid valves. The PCM controls the shift solenoid valves ON and OFF. The conditions of the shift solenoid valves and the positions of the shift valves are as follows:

- Shift solenoid valve A is OFF, and closes the port of shift solenoid valve A pressure (SA); shift valve A stays on the left side.
- Shift solenoid valve B is turned ON, and closes the port of shift solenoid valve B pressure (SB); shift valve B and shift valve E stay on the left side.
- Shift solenoid valve C is OFF, and opens the port of shift solenoid valve C pressure (SC); shift valve C and shift valve D move to the right side.
- Shift solenoid valve D is OFF, and closes the port of shift solenoid valve D pressure (SD).

Line pressure (1) also flows to the modulator valve and becomes modulator pressure (6). Modulator pressure (6) flows to the A/T clutch pressure control solenoid valves. The manual valve covers the port leading pressure to the clutches, and hydraulic pressure is not applied to the clutches.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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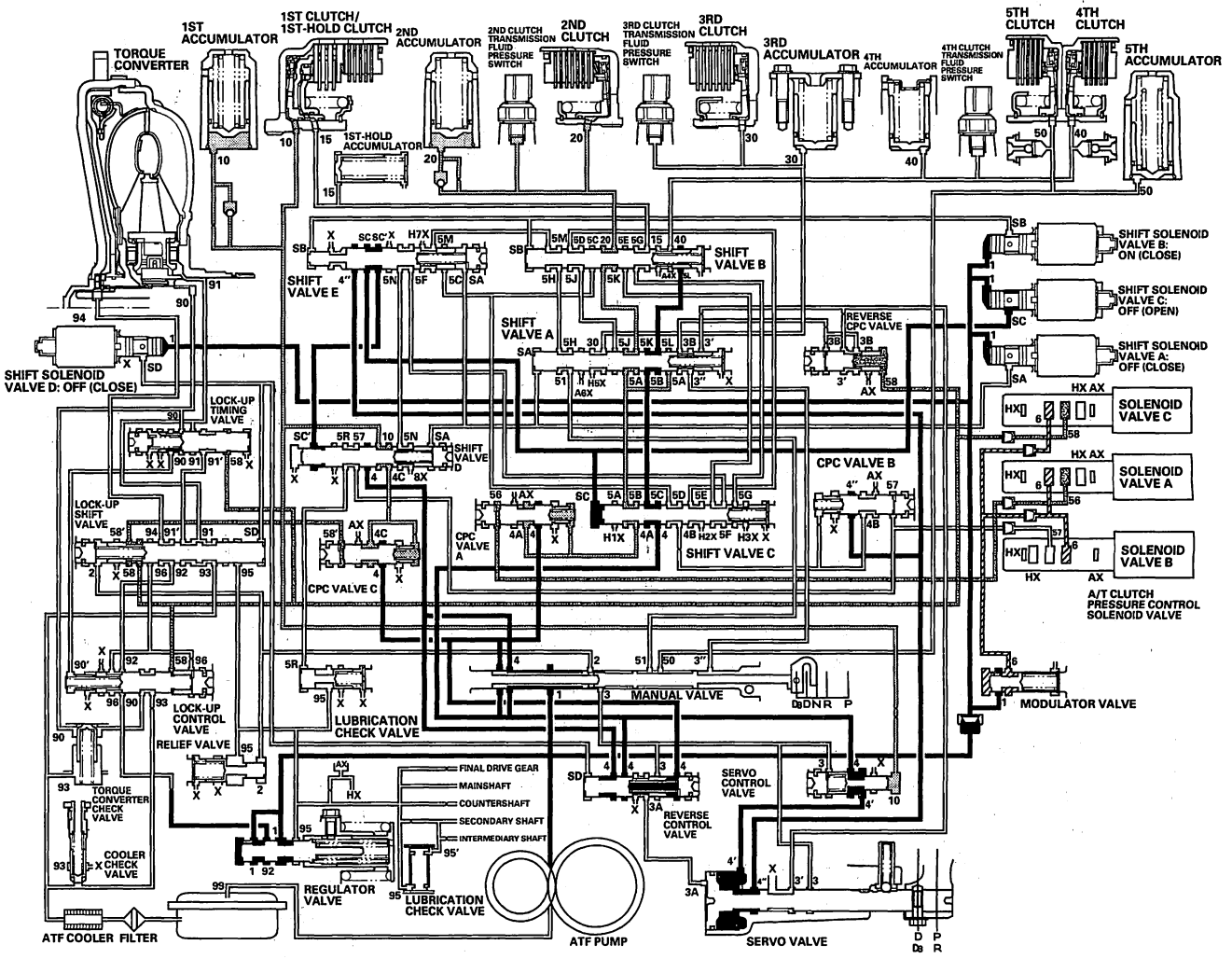
System Description (cont'd)

Hydraulic Flow (cont'd)

D and D3 Positions: 1st gear shifting from the N position

When shifting to the D position or S position from the N position, the condition of the shift solenoid valves remain the same as in the N position. The manual valve is moved to the D position, and uncovers the port of line pressure (4) leading to CPC valves A and C. The PCM controls the A/T clutch pressure control solenoid valves A and C, A/T clutch pressure control solenoid valve A pressure (56) flows to the CPC valve A, and A/T clutch pressure control solenoid valve C pressure (58) flows to the CPC valve C. CPC valves A and C regulate line pressure (4), line pressure (4) becomes CPC C pressure (4C) at the CPC valve C, and becomes CPC A pressure at CPC valve A. CPC C pressure (4C) becomes 1st clutch pressure (10) at shift valve D, and 1st clutch pressure flows to the 1st clutch. CPC A pressure (4A) becomes 2nd clutch pressure (20) at shift valve B via shift valves A and C. The 1st clutch and 2nd clutch engage gently with the CPC pressure mode.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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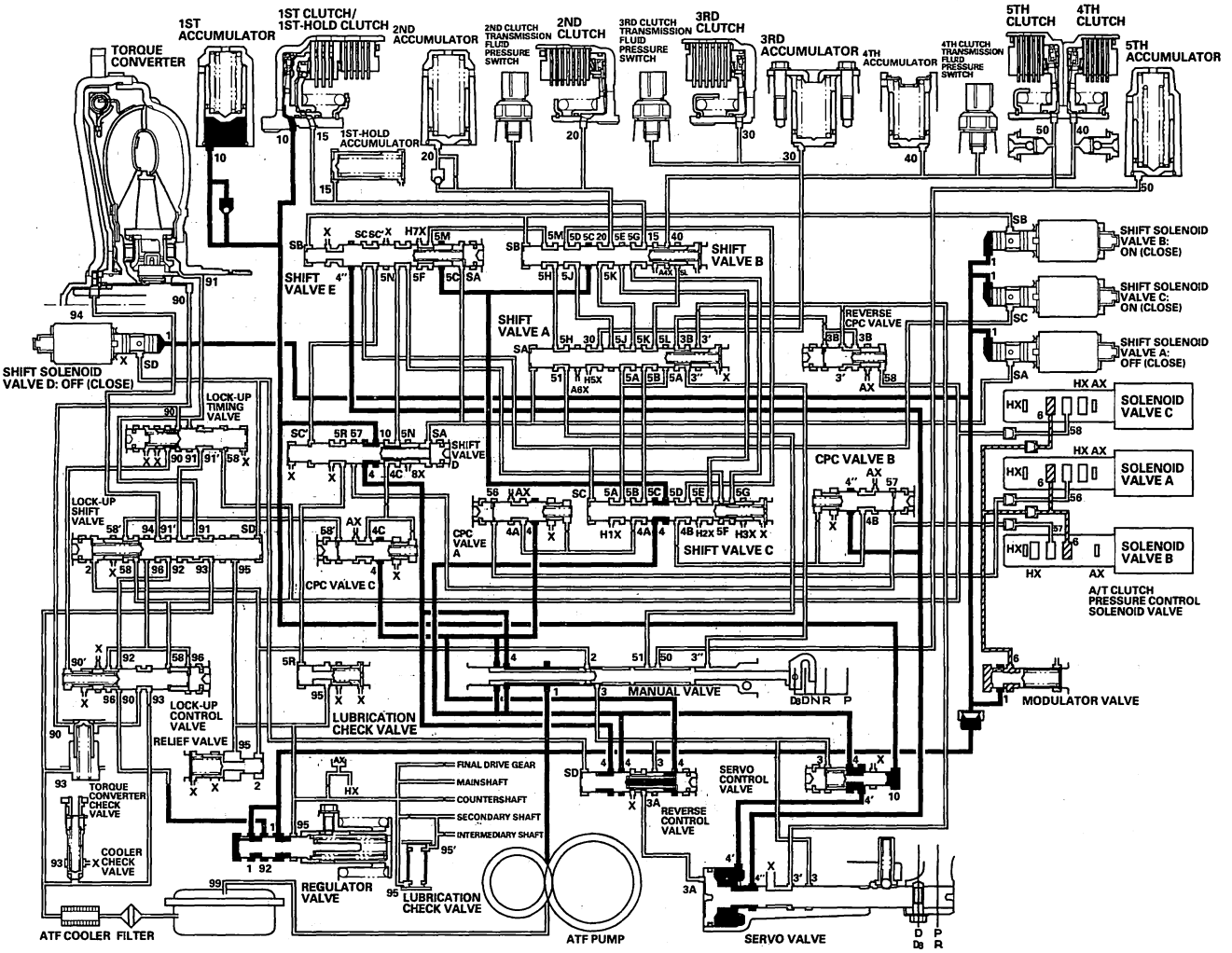
D and D3 Positions: Driving in 1st gear

The PCM turns shift solenoid valve C ON, and shift solenoid valve C covers the port of shift solenoid valve C pressure (SC) to shift valve C, and shift valve D via shift valve E. Shift solenoid valve A remains OFF, and shift solenoid valve B remains ON. Shift valves C and D are moved to the left side, shift valve D switches the port of line pressure (4) and CPC C pressure (4C) leading to the 1st clutch, and shift valve C switches the port of CPC A pressure (5A) releasing 2nd clutch pressure. Line pressure (4) becomes 1st clutch pressure (10) at shift valve D, and flows to the 1st clutch. The 1st clutch is engaged securely with the line pressure mode.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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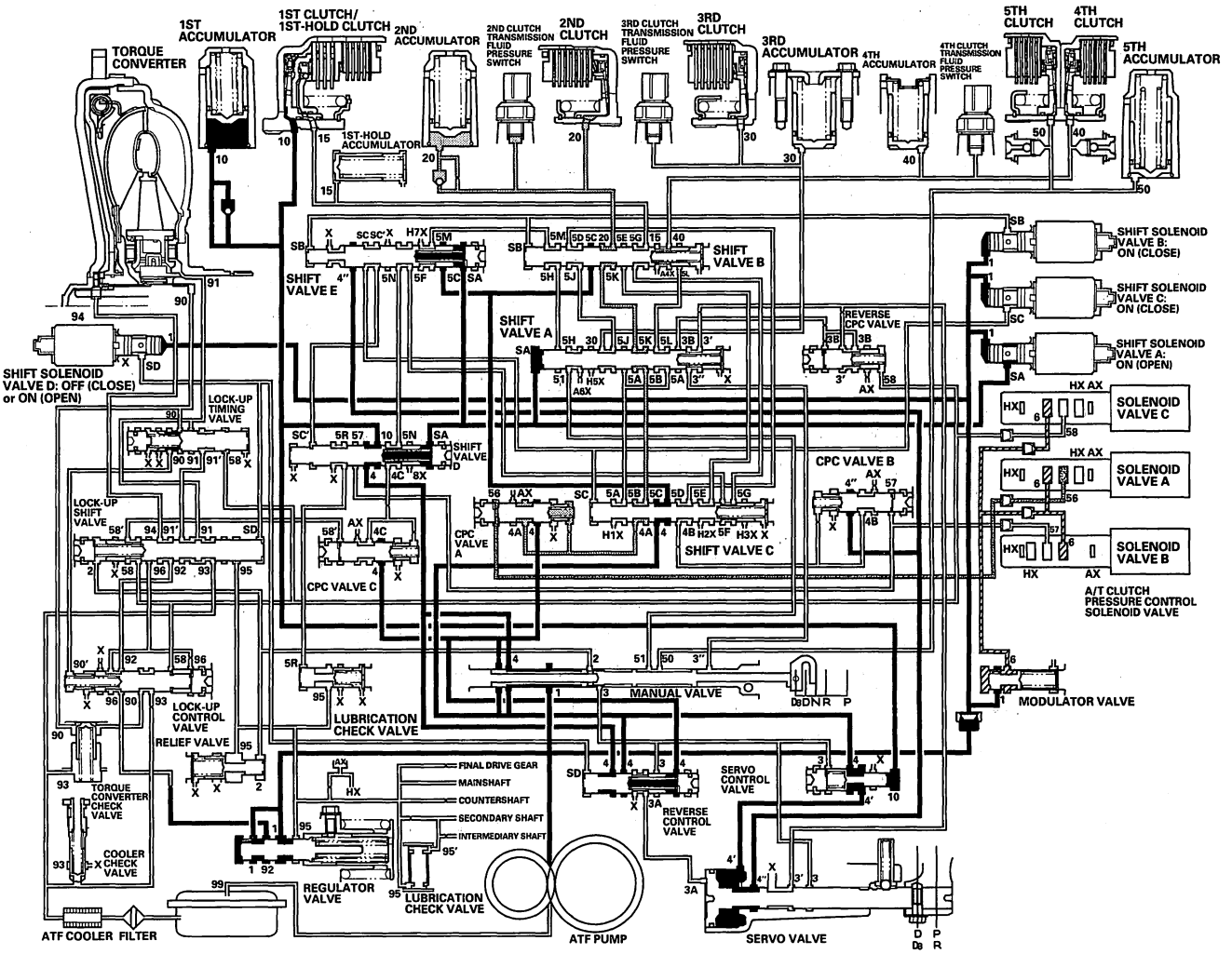
System Description (cont'd)

Hydraulic Flow (cont'd)

D and D3 Positions: Shifting between 1st gear and 2nd gear

As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valve A ON, and shift solenoid valve A uncovers the port of shift solenoid valve A pressure (SA) to shift valve A. Shift solenoid valves B and C remain ON. Shift valve A is moved to the right side to uncover the port of CPC A pressure (4A) leading to the 2nd clutch. The PCM controls A/T clutch pressure control solenoid valve A, and A/T clutch pressure control solenoid valve A pressure (56) is applied to CPC valve A. CPC valve A regulates line pressure (4), and line pressure (4) becomes CPC A pressure (4A). CPC A pressure (4A) flows to shift valve B via shift valves C and A, and becomes 2nd clutch pressure (20) at shift valve B. The 2nd clutch is engaged in the CPC pressure mode. The 1st clutch is also engaged, but no power is transmitted because of the one-way clutch.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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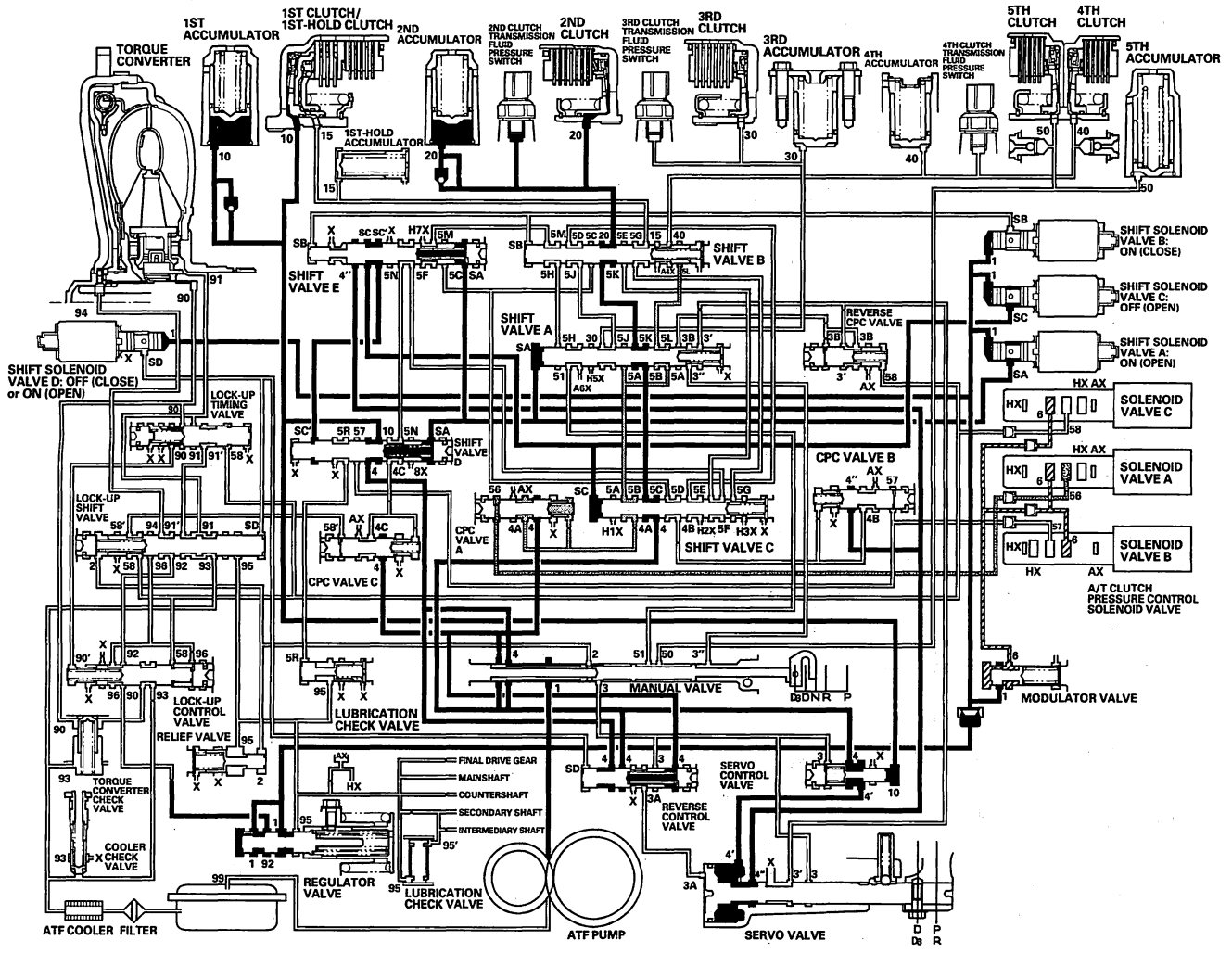
D and D3 Positions: Driving in 2nd gear

The PCM turns shift solenoid valve C OFF, and shift solenoid valve C uncovers the port of shift solenoid valve C pressure (SC) to shift valve C. Shift solenoid valves A and B remain ON. Shift valve C is moved to the right side to switch the port of line pressure (4) and CPC A pressure (4A) leading to the 2nd clutch. CPC A pressure (5B) (5K) changes to line pressure (5B) (5K) and 2nd clutch pressure (20) is changed to line pressure mode, and the 2nd clutch is engaged in the line pressure mode. The 1st clutch is also engaged, but no power is transmitted because of the one-way clutch.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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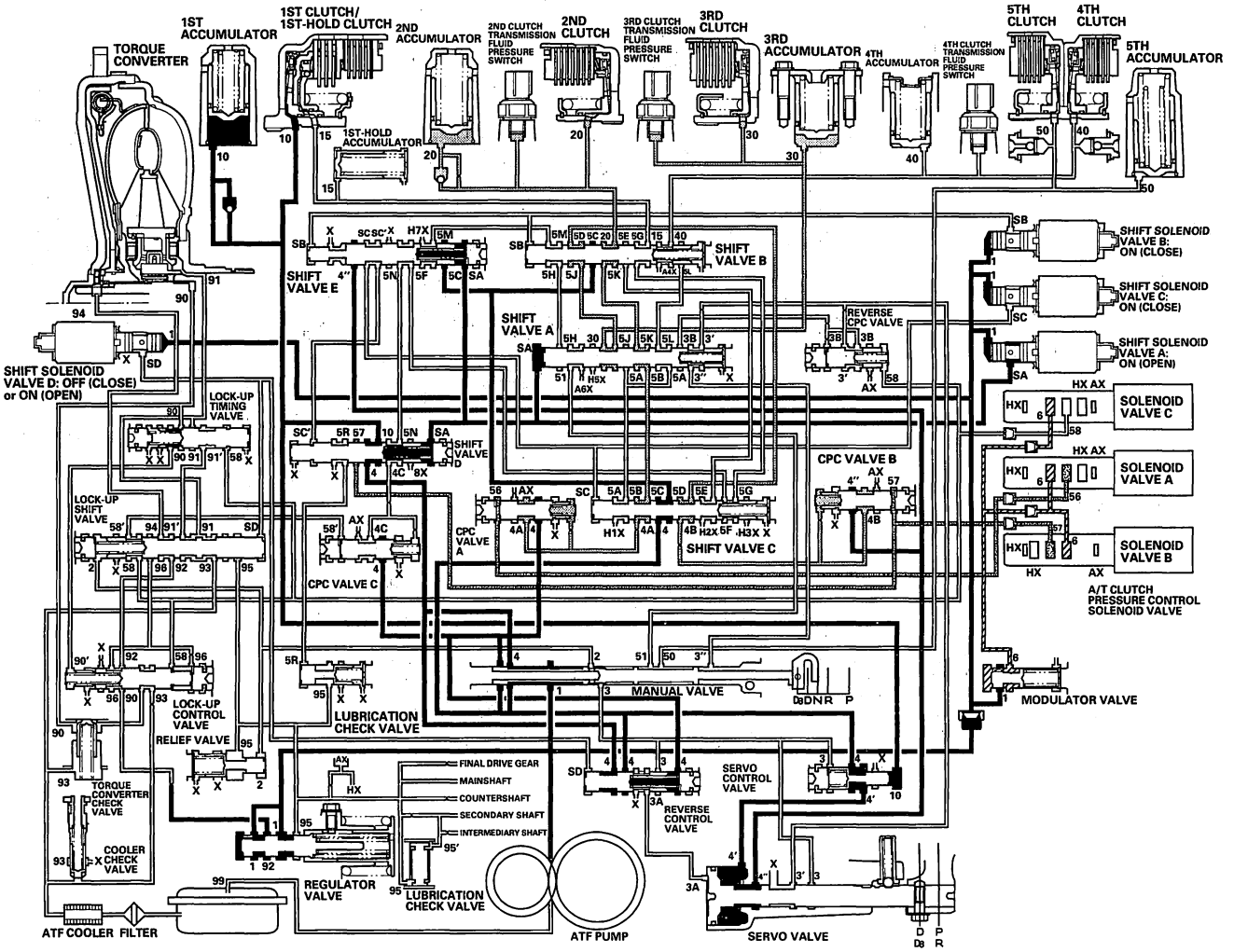
System Description (cont'd)

Hydraulic Flow (cont'd)

D and D3 Positions: Shifting between 2nd gear and 3rd gear

As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valve C ON, and shift solenoid valve C covers the port of shift solenoid valve C pressure (SC) to shift valve C. Shift solenoid valves A and B remain ON. Shift valve C is moved to the left side to switch the port of line pressure (4) and CPC A pressure (4A) leading to the 2nd clutch. Shift valve C also uncovers the port of CPC B pressure (4B) leading to the 3rd clutch. The PCM controls A/T clutch pressure control solenoid valves A and B. A/T clutch pressure control solenoid valve A pressure (56) is applied to CPC valve A, and A/T clutch pressure control solenoid valve B pressure (57) is applied to CPC valve B. CPC valve B regulates line pressure (4''), and line pressure (4'') becomes CPC B pressure (4B). CPC B pressure flows to shift valve A via shift valves C and B, and becomes 3rd clutch pressure (30) at shift valve A. The 2nd clutch pressure (20) is changed to CPC pressure mode, and the 3rd clutch is engaged with the CPC pressure mode. The 1st clutch is also engaged, but no power is transmitted because of the one-way clutch.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



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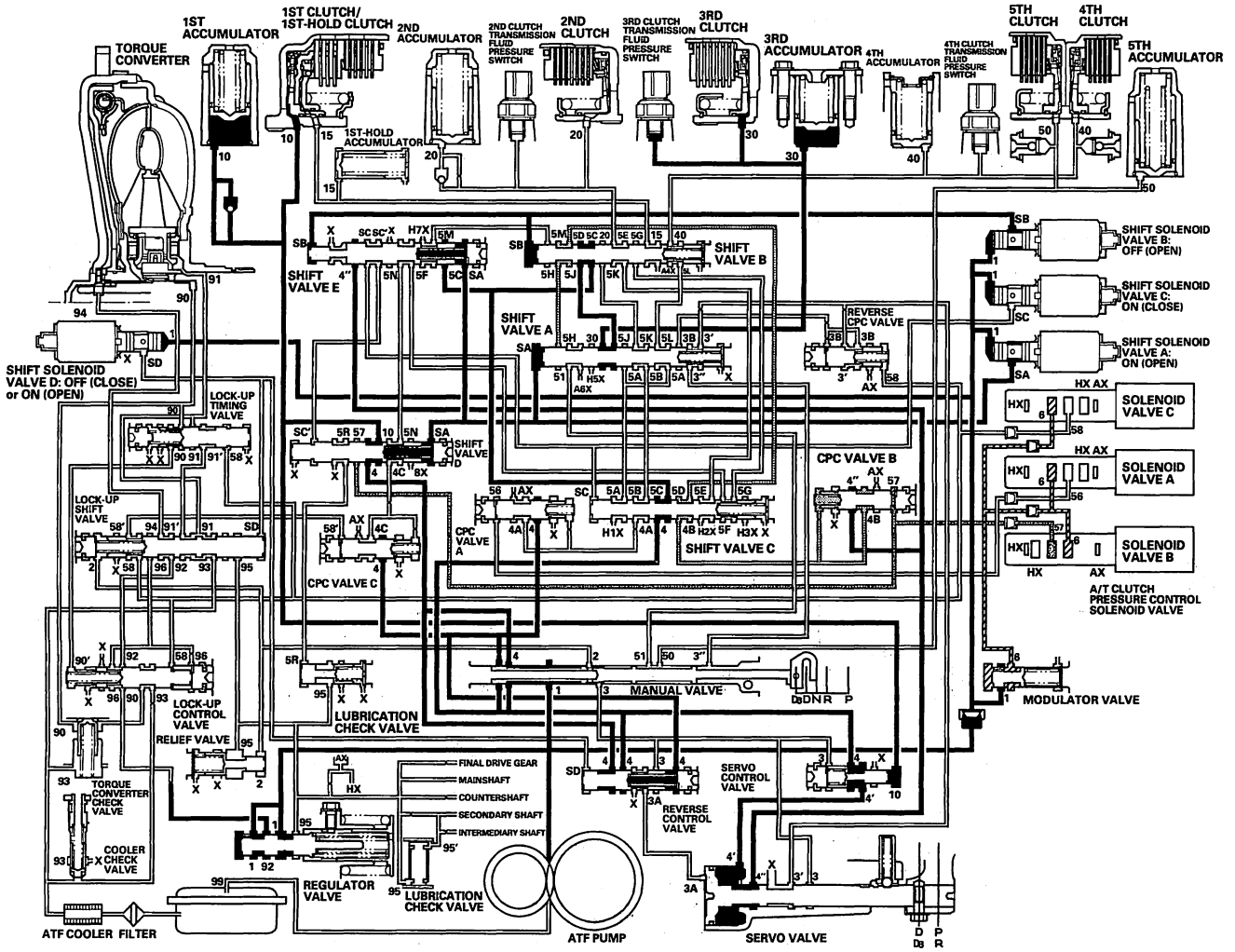
D and D3 Positions: Driving in 3rd gear

The PCM turns shift solenoid valve B OFF, and shift solenoid valve B uncovers the port of shift solenoid valve B pressure (SB) to shift valve B. Shift solenoid valves A and C remain ON. Shift valve B is moved to the right side to switch the port of line pressure (5C), CPC B pressure (5J) leading to the 3rd clutch, and 2nd clutch pressure (20) releasing 2nd clutch pressure. CPC B pressure (5J) changes to line pressure (5J) and 3rd clutch pressure (30) is changed to line pressure mode, and the 3rd clutch is engaged with the line pressure mode. The 1st clutch is also engaged, but no power is transmitted because of the one-way clutch.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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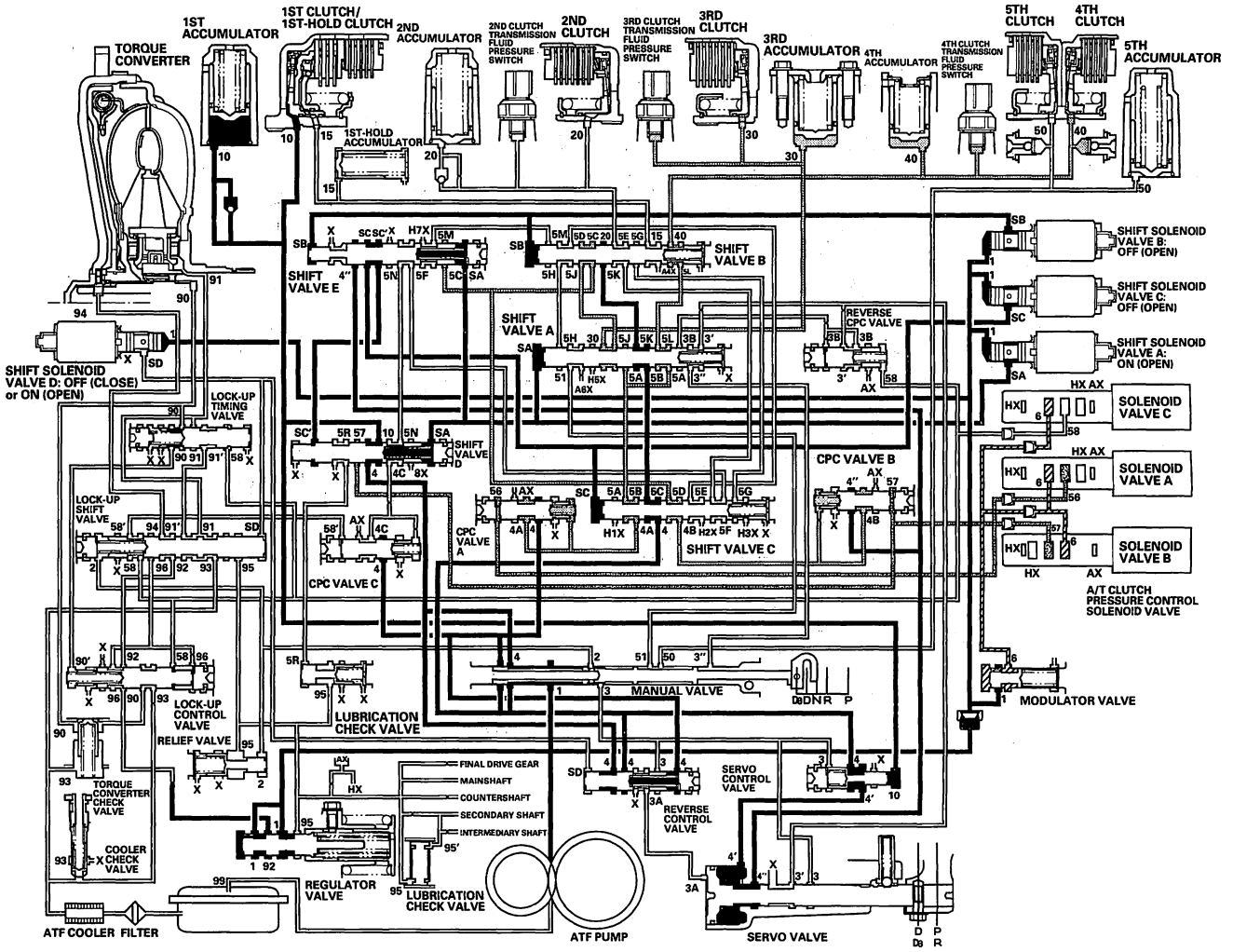
System Description (cont'd)

Hydraulic Flow (cont'd)

D Position: Shifting between 3rd gear and 4th gear

As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valve C OFF, and shift solenoid valve C uncovers the port of shift solenoid valve C pressure (SC) to shift valve C. Shift solenoid valve A remains ON, and shift solenoid valve B remains OFF. Shift valve C is moved to the right side to switch the port of line pressure (4) and CPC B pressure (4B) leading to the 3rd clutch. Shift valve C also uncovers the port of CPC A pressure (4A) leading to the 4th clutch. The PCM controls A/T clutch pressure control solenoid valves A and B. A/T clutch pressure control solenoid valve A pressure (56) is applied to the CPC valve A, and A/T clutch pressure control solenoid valve B pressure (57) is applied to CPC valve B. CPC valve A regulates line pressure (4), and line pressure (4) becomes CPC A pressure (4A). CPC A pressure (4A) flows to shift valve B via shift valves C and A, and becomes 4th clutch pressure (40) at shift valve B. The 3rd clutch pressure (30) is changed to CPC pressure mode, and the 4th clutch is engaged in the CPC pressure mode. The 1st clutch is also engaged, but no power is transmitted because of the one-way clutch.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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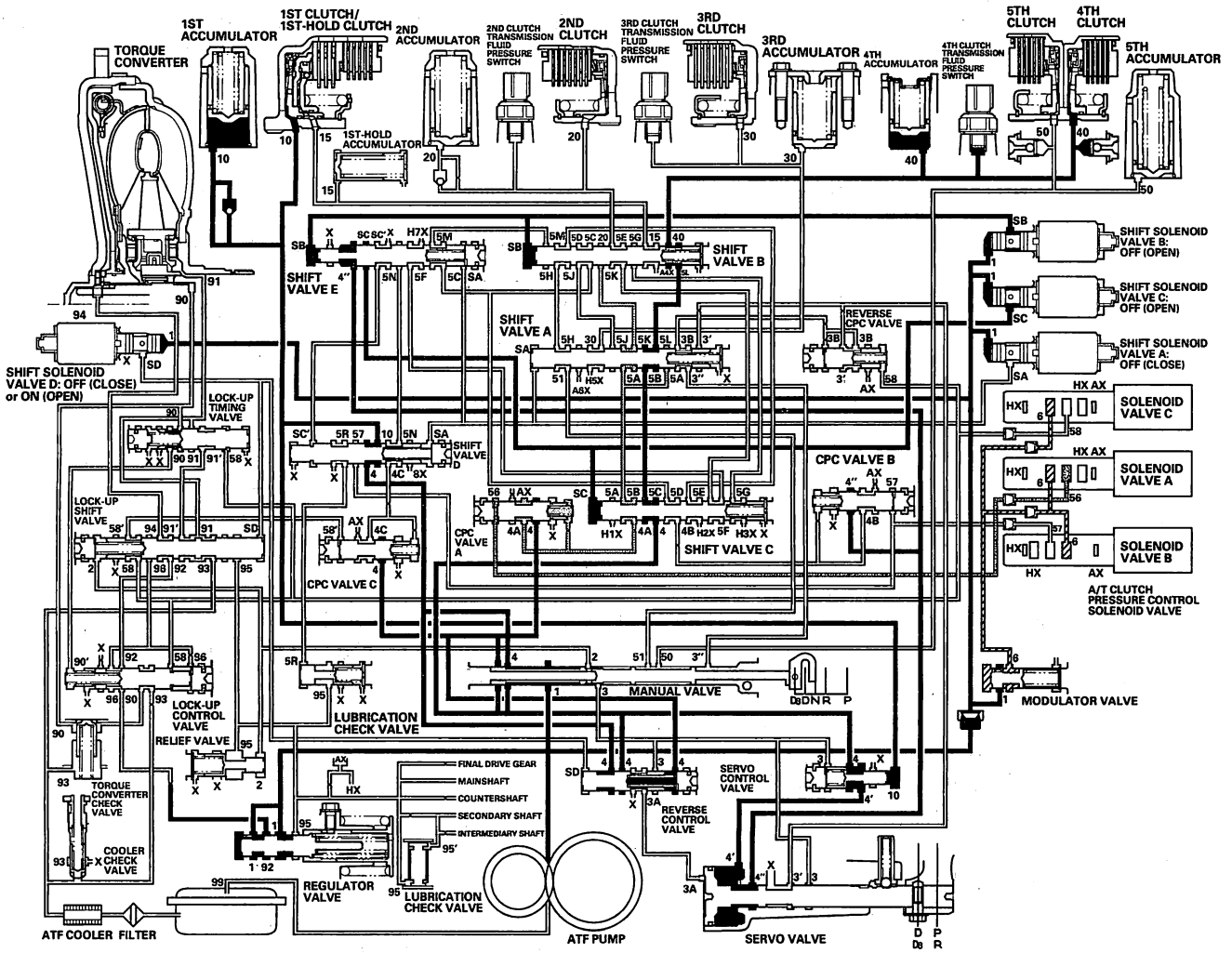
D Position: Driving in 4th gear

The PCM turns shift solenoid valve A OFF, and shift solenoid valve A covers the port of shift solenoid valve A pressure (SA) to the shift valve A. Shift solenoid valves B and C remain OFF. The shift valve A is moved to the left side to switch the port of pressure (5B), CPC A pressure (5A) (5L) leading to the 4th clutch, and 3rd clutch pressure (30) releasing 3rd clutch pressure. CPC A pressure (5L) changes to line pressure (5L) and 4th clutch pressure (40) is changed to line pressure mode, and the 4th clutch is engaged with the line pressure mode. The 1st clutch is also engaged, but no power is transmitted because of the one-way clutch.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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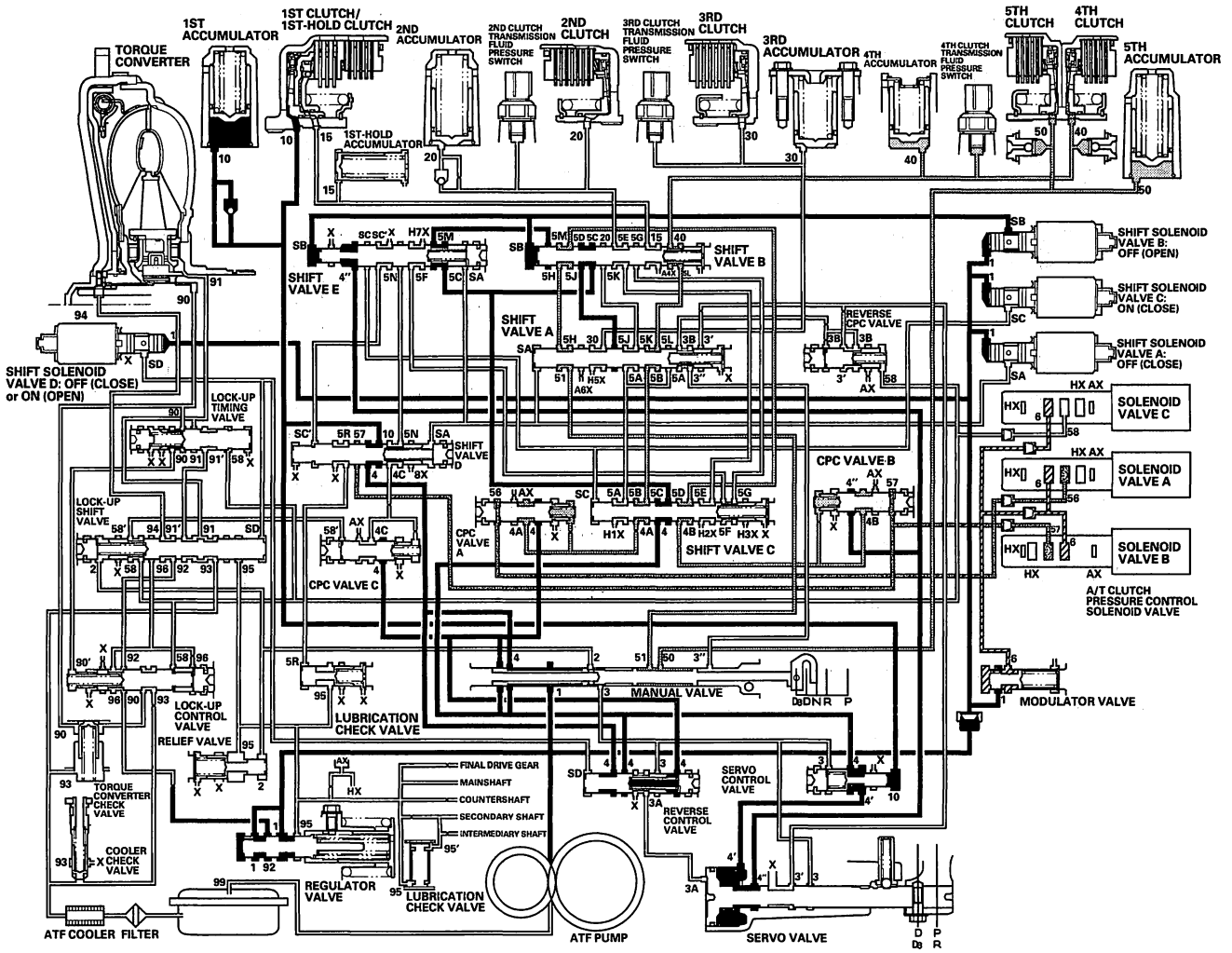
System Description (cont'd)

Hydraulic Flow (cont'd)

D Position: Shifting between 4th gear and 5th gear

As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valve C ON, and shift solenoid valve C covers the port of shift solenoid valve C pressure (SC) to shift valve C. Shift solenoid valve A remains OFF, and shift solenoid valve B remains OFF. Shift valve C is moved to the left side to switch the port of line pressure (4) and CPC A pressure (4A) leading to the 4th clutch. Shift valve C also uncovers the port of CPC B pressure (4B) leading to the 5th clutch. The PCM controls A/T clutch pressure control solenoid valves A and B. A/T clutch pressure control solenoid valve A pressure (56) is applied to the CPC valve A, and A/T clutch pressure control solenoid valve B pressure (57) is applied to CPC valve B. CPC valve B regulates line pressure (4''), and line pressure (4'') becomes CPC B pressure (4B). CPC B pressure (4B) flows to shift valve A via shift valves C and B, and becomes 5th clutch pressure (51) at shift valve A. The 4th clutch pressure (40) is changed to CPC pressure mode, and the 5th clutch is engaged in the CPC pressure mode. The 1st clutch is also engaged, but no power is transmitted because of the one-way clutch.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



BACK

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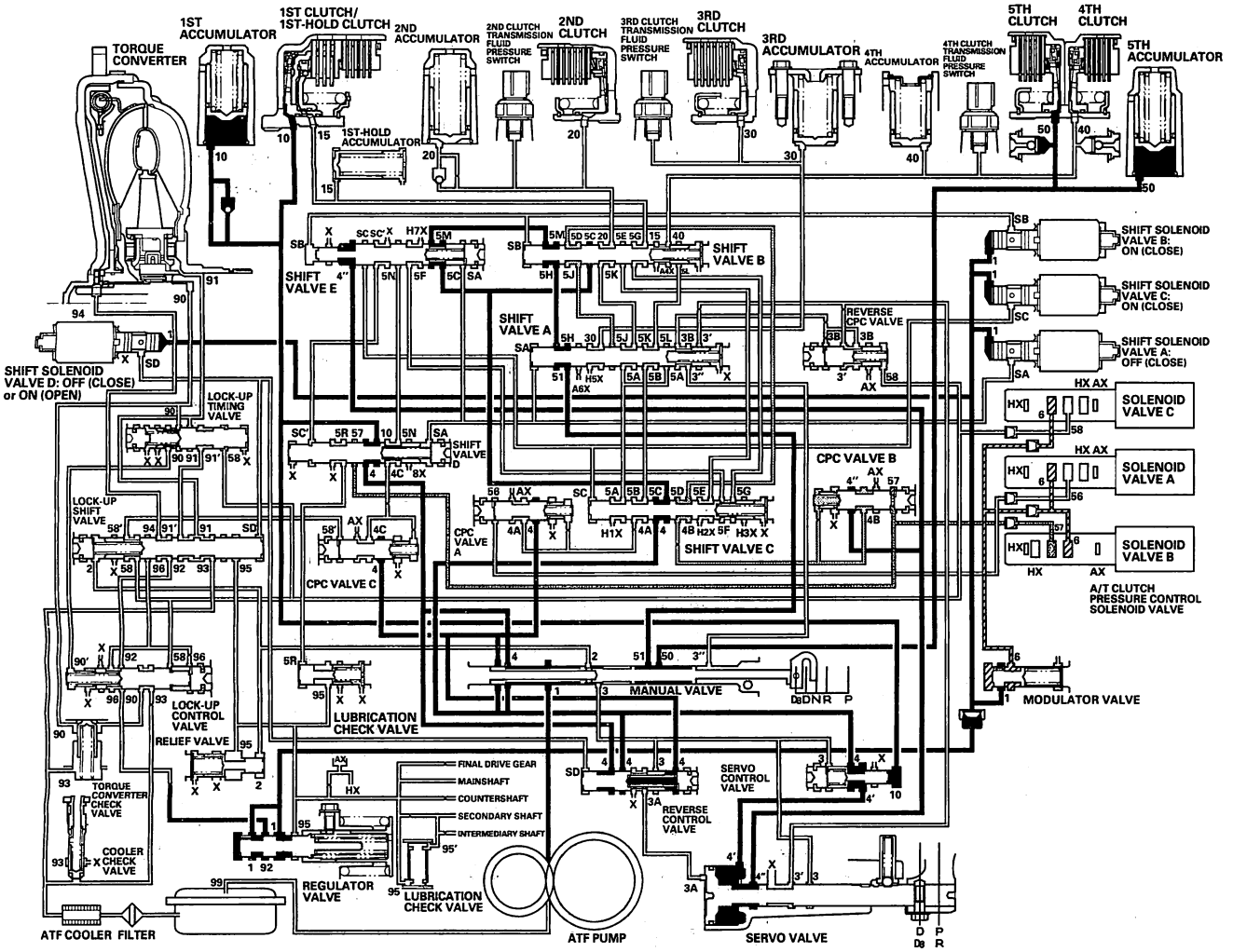
D Position: Driving in 5th gear

The PCM turns shift solenoid valve B ON, and shift solenoid valve B covers the port of shift solenoid valve B pressure (SB) to shift valve B. Shift solenoid valve A remains OFF, and shift solenoid valve C remains ON. Shift valve B is moved to the left side to switch the port of line pressure (5H), CPC B pressure (5D) leading to the 5th clutch, and 4th clutch pressure (40) releasing 4th clutch pressure. CPC B pressure (5H) changes to line pressure (5H) and 5th clutch pressure (51) (50) is changed to line pressure mode, and the 5th clutch is engaged in the line pressure mode. The 1st clutch is also engaged, but no power is transmitted because of the one-way clutch.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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System Description (cont'd)

Hydraulic Flow (cont'd)

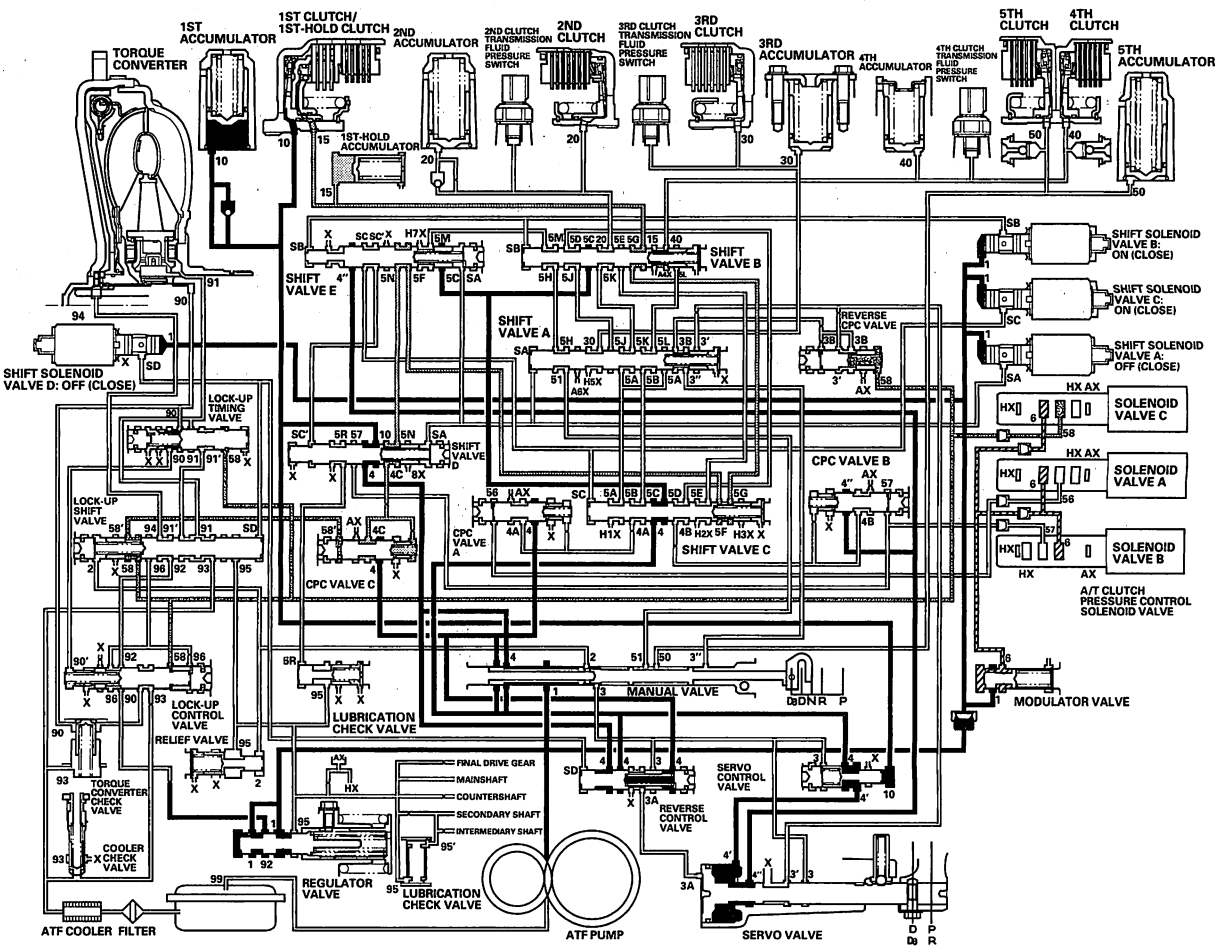
Driving in 1st gear (engaged with 1st and 1st-hold clutches) in the sequential sportshift mode

Line pressure (1) regulated by the regulator valve flows to shift solenoid valves. The PCM controls the shift solenoid valves ON and OFF. The conditions of the shift solenoid valves and the positions of the shift valves are as follows:

- Shift solenoid valve A is OFF, and closes the port of shift solenoid valve A pressure (SA); shift valve A stays on the left side.
- Shift solenoid valve B is turned ON, and closes the port of shift solenoid valve B pressure (SB); shift valve B and shift valve E stay on the left side.
- Shift solenoid valve C is turned ON, and closes the port of shift solenoid valve C pressure (SC); shift valve C and shift valve D stay on the left side.
- Shift solenoid valve D is OFF, and closes the port of shift solenoid valve D pressure (SD).

Line pressure (4) becomes 1st clutch pressure (10) at shift valve D, and flows to the 1st clutch. The 1st clutch is engaged. The PCM controls A/T clutch pressure control solenoid valve C, and A/T clutch pressure control solenoid valve C pressure (58) is applied to CPC valve C via the lock-up shift valve. CPC valve C regulates line pressure (4), and line pressure (4) becomes CPC C pressure (4C). CPC C pressure (4C) flows to shift valve B via shift valves D, E, and C, and becomes 1st-hold clutch pressure (15) at shift valve B. 1st-hold clutch pressure (15) is applied to the 1st-hold clutch, and the 1st-hold clutch is engaged.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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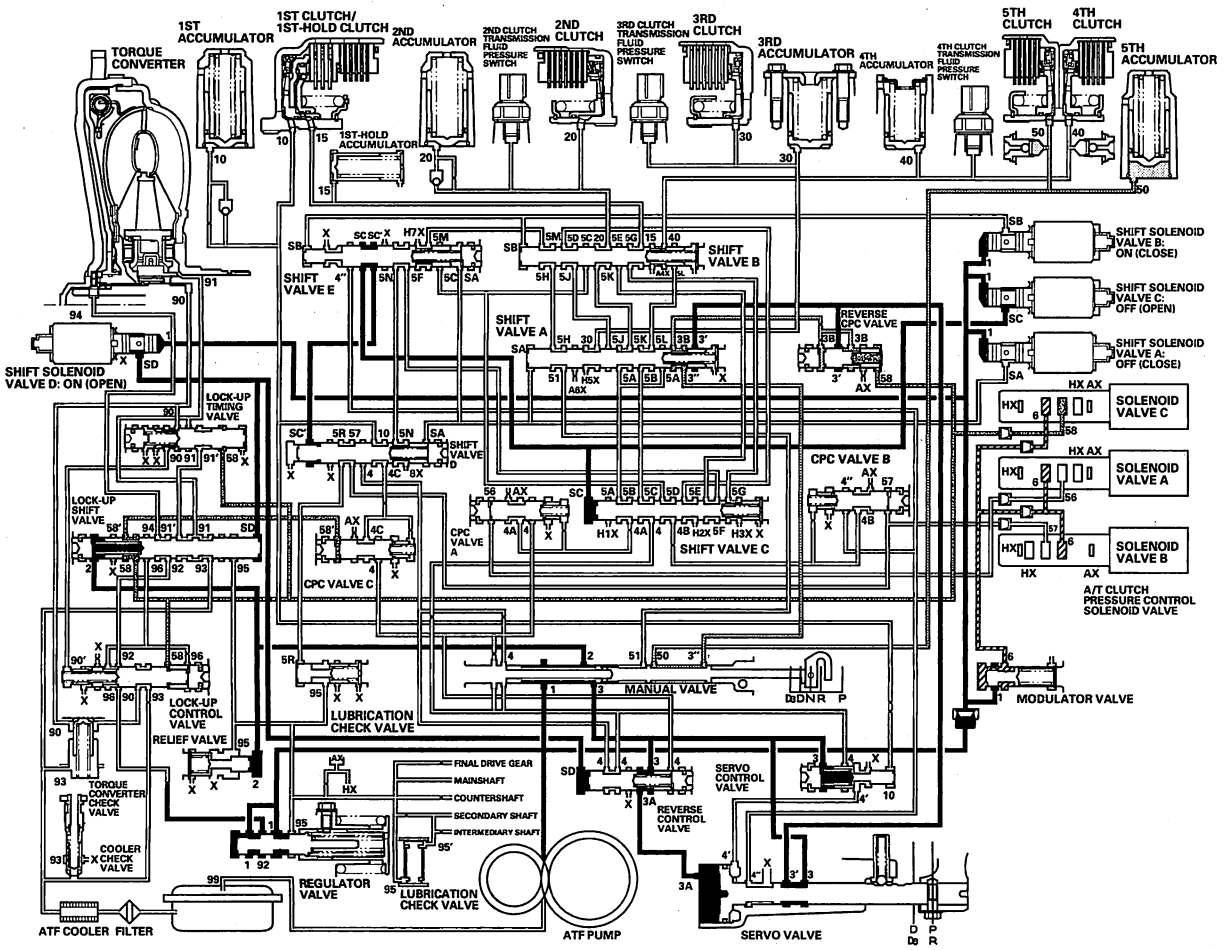
R Position: Shifting to the R position from the P or N position

The PCM controls the shift solenoid valves ON and OFF. The conditions of the shift solenoid valves and the positions of the shift valves are as follows:

- Shift solenoid valve A is OFF, and closes the port of shift solenoid valve A pressure (SA); shift valve A stays on the left side.
- Shift solenoid valve B is turned ON, and closes the port of shift solenoid valve B pressure (SB); shift valve B and shift valve E stay on the left side.
- Shift solenoid valve C is OFF, and opens the port of shift solenoid valve C pressure (SC); shift valve C and shift valve D move to the right side.
- Shift solenoid valve D is turned ON, and opens the port of shift solenoid valve D pressure (SD); reverse control valve moves to the right side.

The manual valve is moved to the R position, and line pressure (1) becomes line pressure (3) at the manual valve. Line pressure (3) passes through the reverse control valve, and becomes line pressure (3A), then flows to the servo valve. Line pressure (3A) pushes the servo valve to the reverse position. Line pressure (3) also flows to the reverse CPC valve, and becomes reverse CPC pressure (3B) (3''). Reverse CPC pressure (3'') becomes 5th clutch pressure (50) at the manual valve, and 5th clutch pressure (50) flows to the 5th clutch. The 5th clutch is engaged with reverse CPC pressure mode.

NOTE: When used, ''left'' or ''right'' indicates direction on the hydraulic circuit.



(cont'd)

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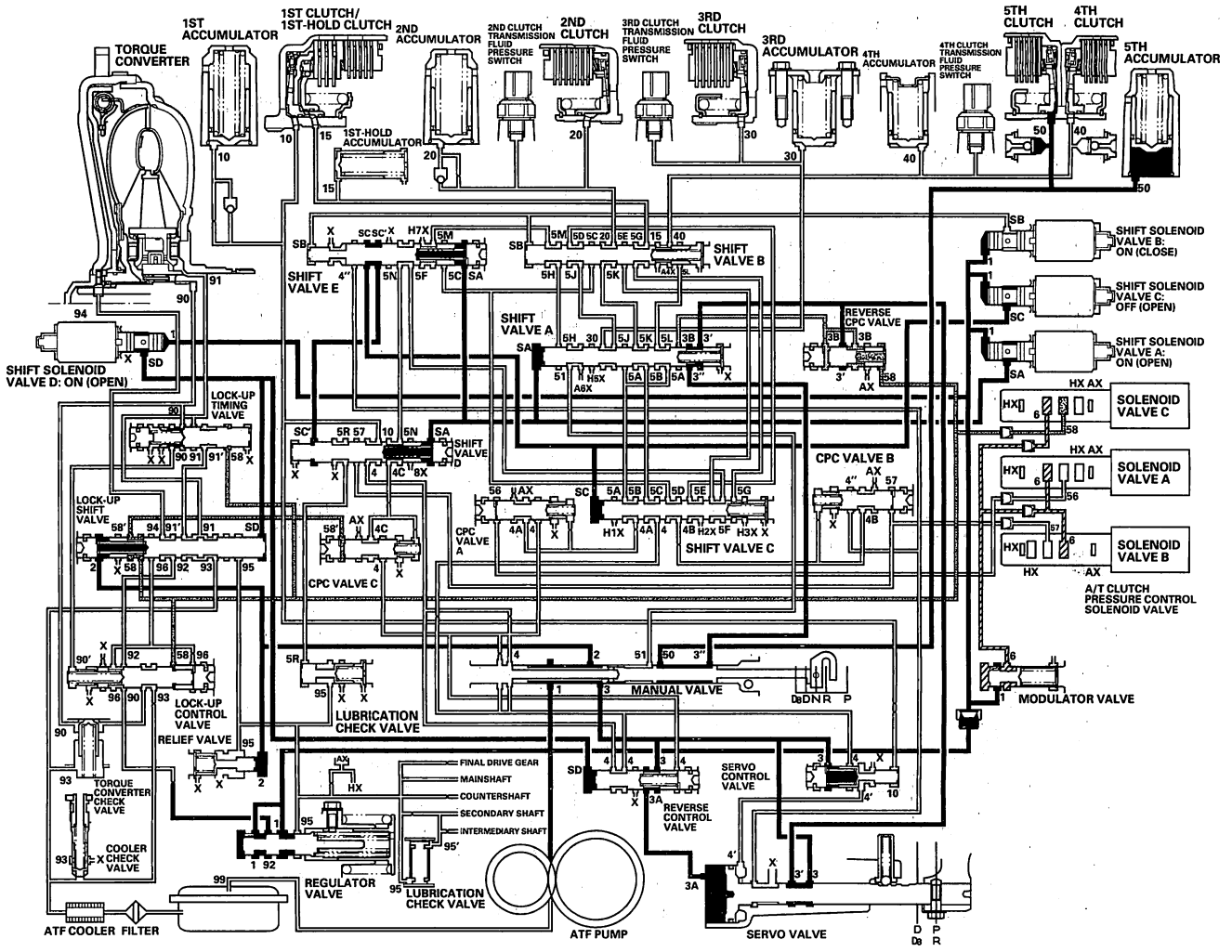
System Description (cont'd)

Hydraulic Flow (cont'd)

R Position: Driving in reverse gear
As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valve A ON, and shift solenoid valve A uncovers the port of shift solenoid valve A pressure (SA) to shift valve A. Shift valve A is moved to the right side to switch the port of line pressure (3') and reverse CPC pressure (3B) leading to the 5th clutch. Line pressure (3) flows to the manual valve via the servo valve and shift valve A, and becomes 5th clutch pressure (50) at the manual valve. The 5th clutch pressure (50) flows to the 5th clutch, and the 5th clutch is engaged with the line pressure mode.

Reverse Inhibitor Control
When the R position is selected while the vehicle is moving forward at a speed over 6 mph (10 km/h), the PCM commands shift solenoid valve D to remain OFF so that shift solenoid valve D pressure (SD) is not applied to the reverse control valve. Line pressure (3) stops at the reverse control valve, and is not applied to the servo valve. No power is transmitted to the reverse direction.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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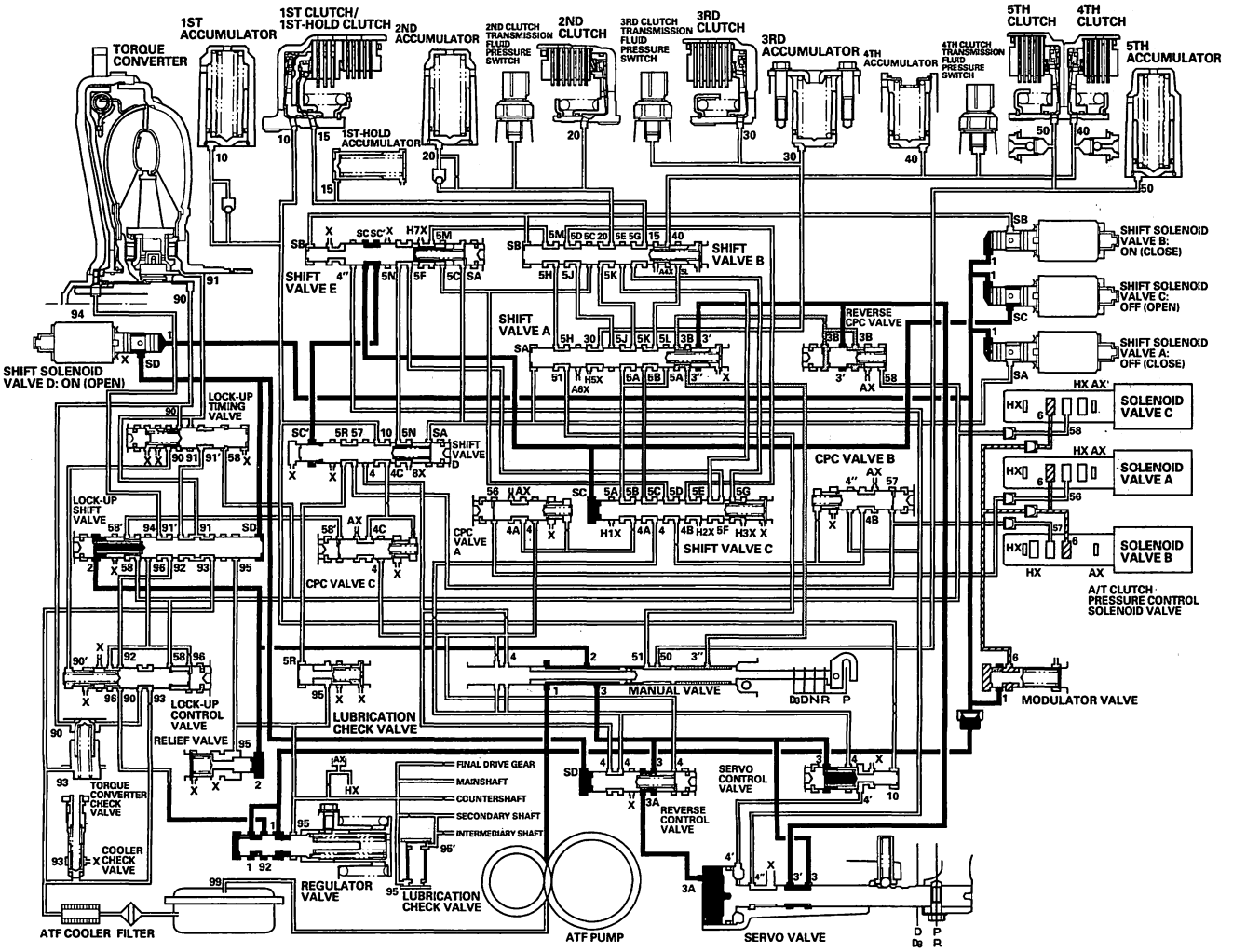
P Position

The PCM controls the shift solenoid valves ON and OFF. The conditions of the shift solenoid valves and the positions of the shift valves are as follows:

- Shift solenoid valve A is OFF, and closes the port of shift solenoid valve A pressure (SA); shift valve A stays on the left side.
- Shift solenoid valve B is turned ON, and closes the port of shift solenoid valve B pressure (SB); shift valve B and shift valve E stay on the left side.
- Shift solenoid valve C is OFF, and opens the port of shift solenoid valve C pressure (SC); shift valve C and shift valve D move to the right side.
- Shift solenoid valve D is turned ON, and opens the port of shift solenoid valve D pressure (SD); reverse control valve moves to the right side.

The manual valve is moved to the P position, and line pressure (1) becomes line pressure (3) at the manual valve. Line pressure (3) passes through the reverse control valve, and becomes line pressure (3A), then flows to the servo valve. Line pressure (3A) pushes the servo valve to the reverse position. Line pressure (3) flows to the manual valve via the reverse CPC valve and shift valve A, and stops at the manual valve. Hydraulic pressure is not applied the clutches.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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System Description (cont'd)

Lock-up System

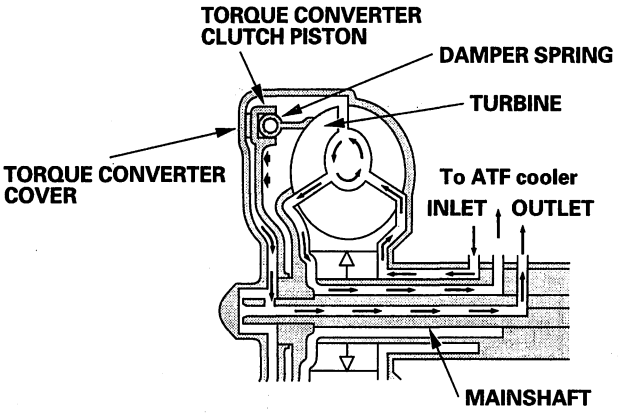
The lock-up mechanism of the torque converter clutch operates in 2nd, 3rd, 4th, and 5th gears in the D position, and in 2nd and 3rd gears in the D3 position. The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the torque converter cover. As this takes place, the mainshaft rotates at the same speed as the engine crankshaft. Together with the hydraulic control, the PCM optimizes the timing and amount of the lock-up mechanism. When shift solenoid valve D is turned on by the PCM, shift solenoid valve D pressure switches the lock-up shift valve lock-up on and off. A/T clutch pressure control solenoid valve C, the lock-up control valve, and lock-up timing valve control the amount of lock-up.

Torque Converter Clutch Lock-up ON (Engaging Torque Converter Clutch)
Fluid in the chamber between the torque converter cover and the torque converter clutch piston is drained off, and fluid entering from the chamber between the pump and stator exerts pressure through the torque converter clutch piston against the torque converter cover. The torque converter clutch piston engages with the torque converter cover; the torque converter clutch lock-up is ON, and the mainshaft rotates at the same speed as the engine.

Power flow

The power flows by way of:

Engine
↓
Drive plate
↓
Torque converter cover
↓
Torque converter clutch piston
↓
Damper spring
↓
Turbine
↓
Mainshaft

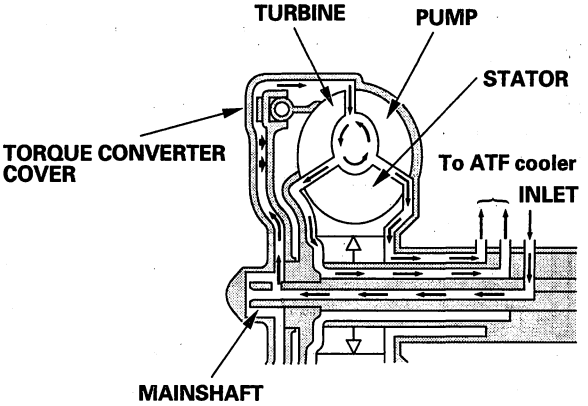


Torque Converter Clutch Lock-up OFF (Disengaging Torque Converter Clutch)
Fluid entered from the chamber between the torque converter cover and the torque converter clutch piston passes through the torque converter and goes out from the chambers between the turbine and the stator, and between the pump and the stator. As a result, the torque converter clutch piston moves away from the torque converter cover, and the torque converter clutch lock-up is released; the torque converter clutch lock-up is OFF.

Power flow

The power flows by way of:

Engine
↓
Drive plate
↓
Torque converter cover
↓
Pump
↓
Turbine
↓
Mainshaft



BACK

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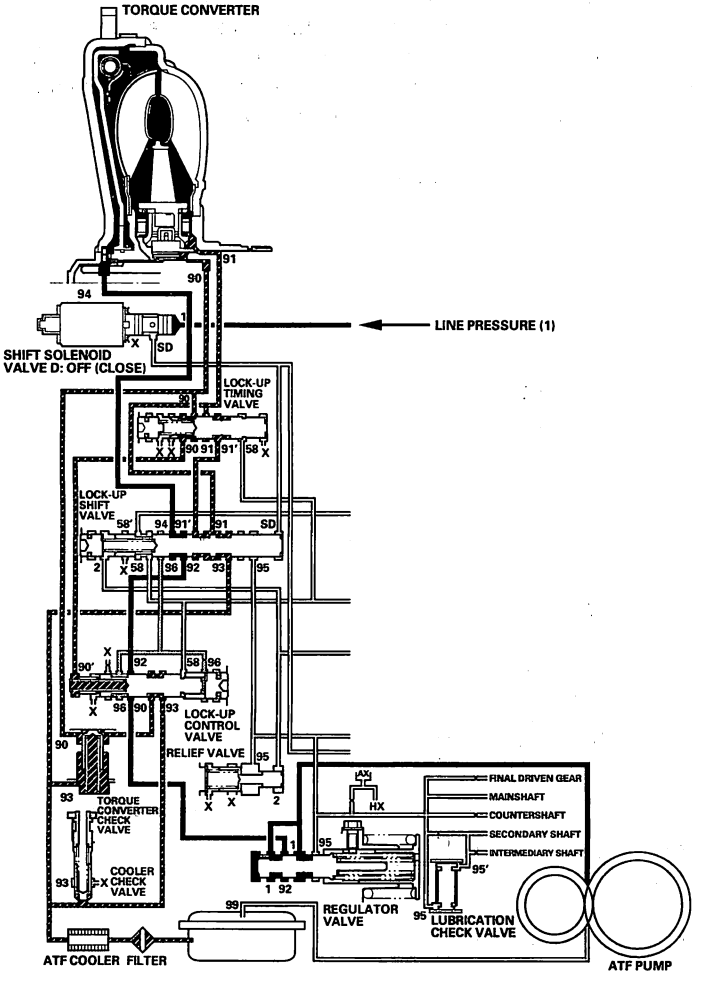
No Lock-up

The PCM commands shift solenoid valve D to remain OFF, and shift solenoid valve D covers the port of shift solenoid valve D pressure (SD) to the lock-up shift valve. The lock-up shift valve is in the right side, and uncovers the port leading torque converter pressure (92) to the left side of the torque converter. Torque converter pressure (92) from regulator valve becomes torque converter pressure (94) at the lock-up shift valve, and enters into the left side of the torque converter to disengage the torque converter clutch. The torque converter clutch is OFF.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



(cont'd)

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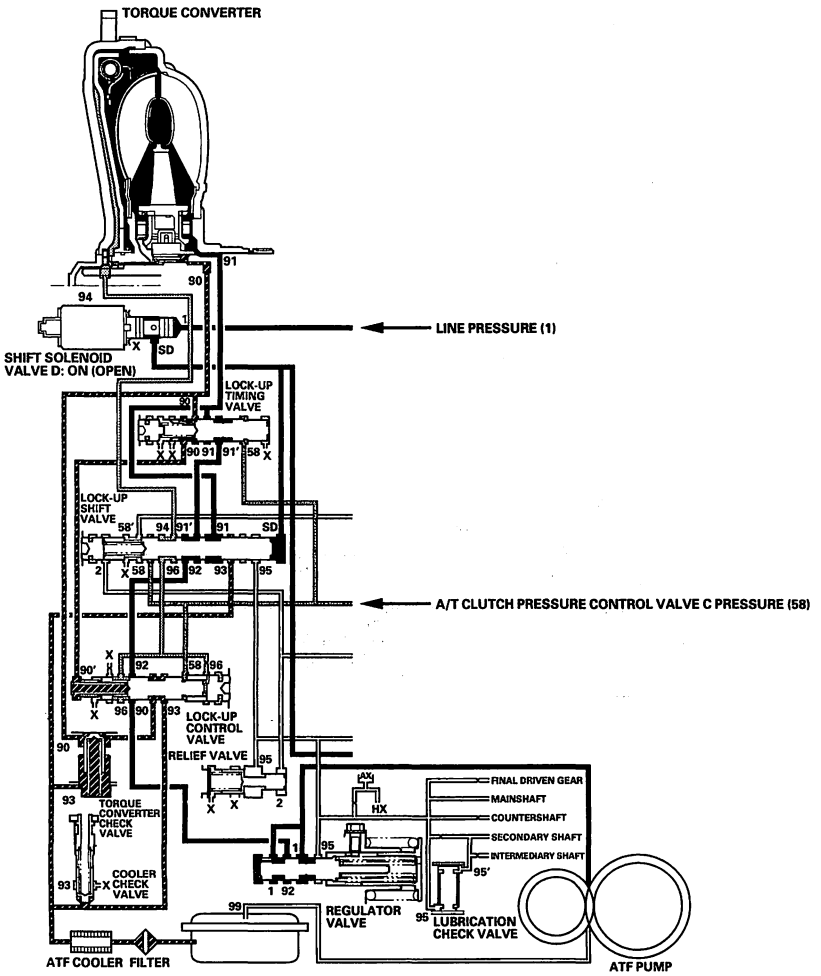
System Description (cont'd)

Lock-up System (cont'd)

Partial Lock-up

As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valve D ON, and shift solenoid valve D uncovers the port of shift solenoid valve D pressure (SD) to the lock-up shift valve. The lock-up shift valve is moved to the left side to uncover the port of torque converter pressure (91) leading to the right side of the torque converter to engage the torque converter clutch. The PCM also controls A/T clutch pressure control solenoid valve C, and A/T clutch pressure control solenoid valve C pressure (58) is applied to the lock-up control valve and lock-up timing valve. When A/T clutch pressure control solenoid valve C pressure (58) is low, torque converter pressure (91) from the lock-up timing valve is low. The torque converter clutch is engaged partially. A/T clutch pressure control solenoid valve C pressure (58) increases, and the lock-up timing valve is moved to the left side to uncover the port leading torque converter pressure to high. Under this condition, the torque converter clutch is engaged by pressure from the right side of the torque converter; this condition is partial lock-up.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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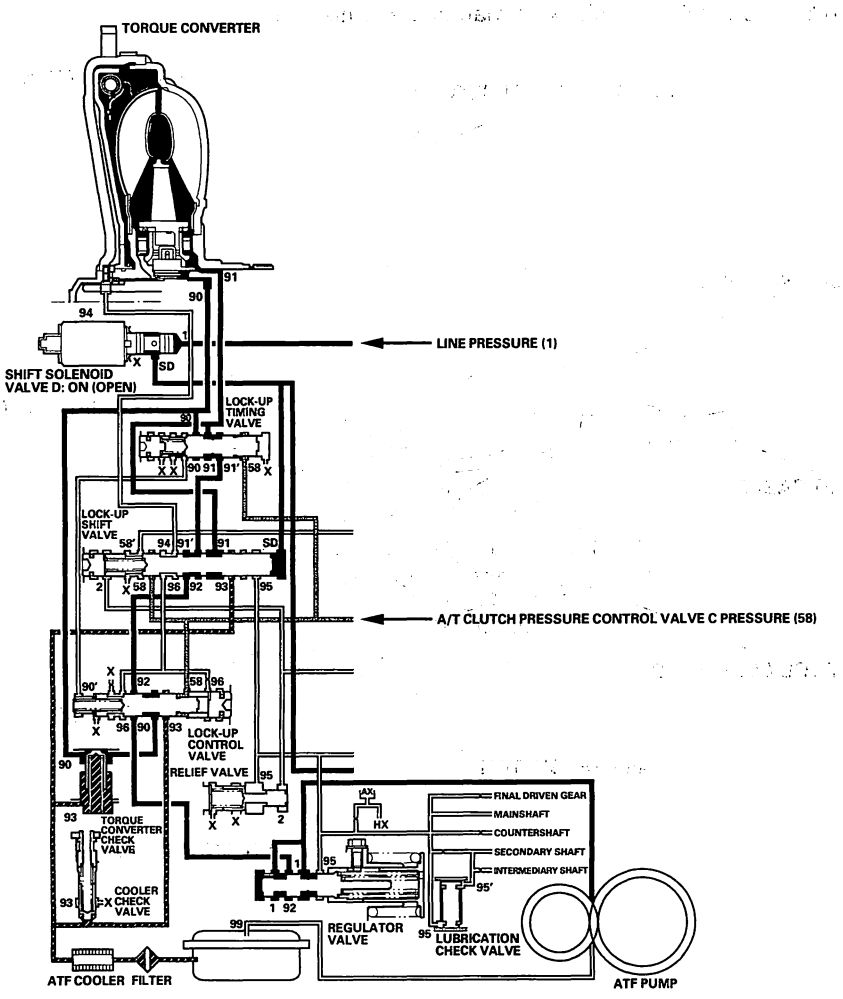
Full Lock-up

When the vehicle speed further increases, the PCM controls A/T clutch pressure control solenoid valve C to increase A/T clutch pressure control solenoid valve C pressure (58). A/T clutch pressure control solenoid valve C pressure (58) is applied to the lock-up control valve and lock-up timing valve, and the lock-up control valve and lock-up timing valve are moved to the left side. Torque converter pressure (94) from the left side of the torque converter releases at the lock-up control valve, and lock-up timing valve uncovers the port of torque converter pressure (91) leading to the right side of the torque converter. Torque converter back pressure is released fully, and torque converter clutch is engaged fully.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



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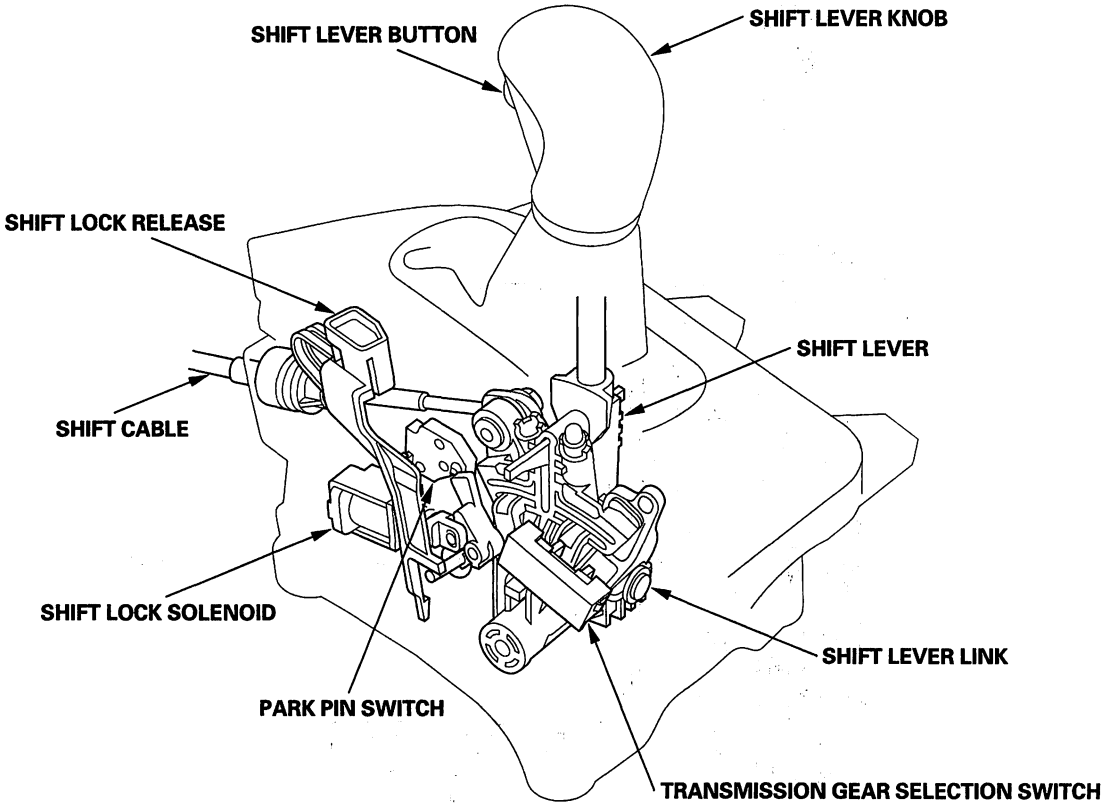
System Description (cont'd)

Shift Lever Mechanism

The shift lever has five positions; P, R, N, D, and D3 positions. The D position has two modes; automatic shift mode and sequential sportshift mode with the shift lever moved to the M position. The shift lever shifts out of the P position and into the R position with pressing the shift lever button, and the shift lever shifts into the D3 position from the D with pressing the shift lever button. The shift lever is engaged with the shift lever link in the P, R, N, D, and D3 positions. This unit shifts the transmission using the shift cable connected between the shift lever link and the transmission control shaft.

In the M position, the shift lever is disengaged from the shift lever link, and the shift lever can be used to shift gears manually between 1st though 5th, much like a manual transmission.



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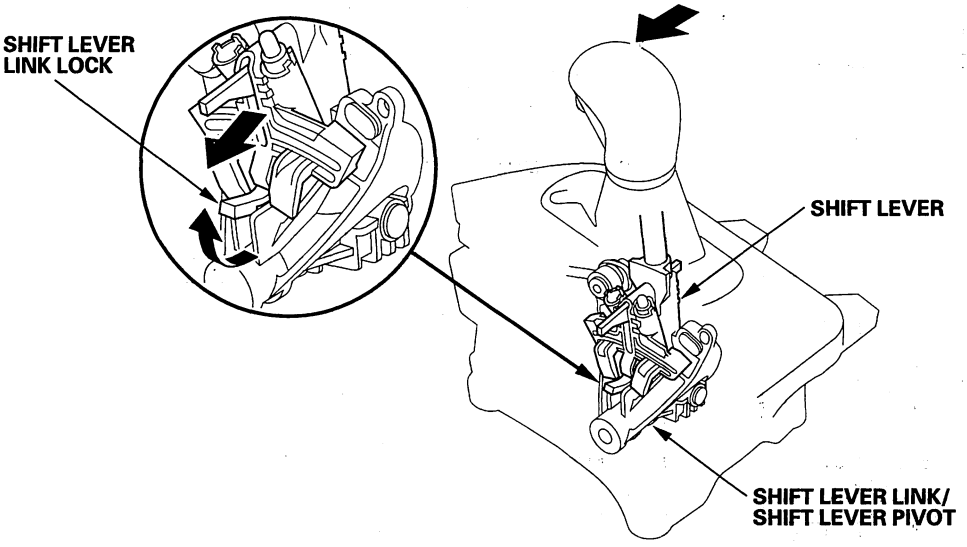
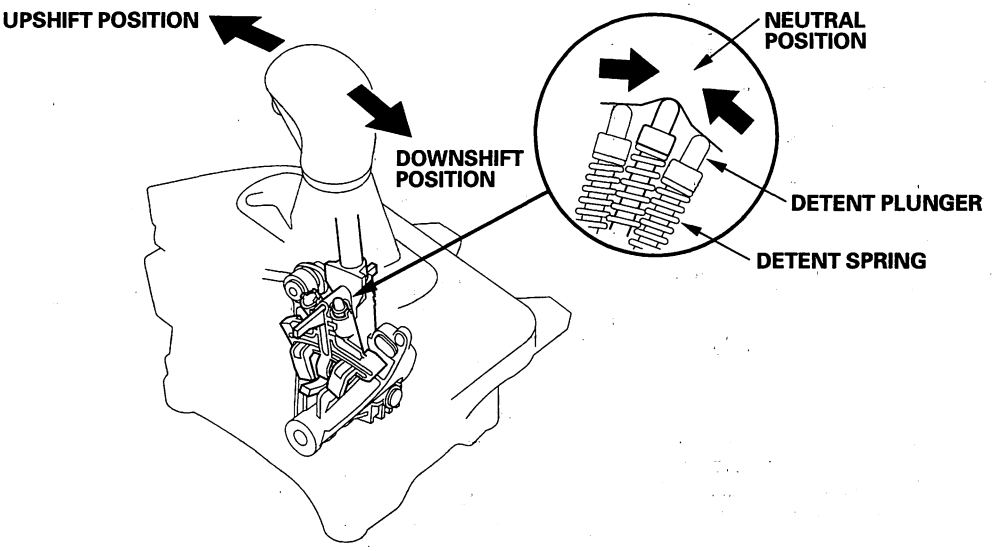
Shift Lever Mechanism in M Position

When the shift lever shifts to the M position, the shift lever is disengaged from the shift lever link/shift lever pivot, and the shift lever link lock pops up to engage with the shift lever bracket base; the shift lever link and shifting position in the transmission are held in the D position. The shift lever link lock is spring loaded, it pops up in the M position, and does not engage the shift lever link in any position except M.



The shift lever fits into the M position by using a detent plunger with a spring. When shifting to upshift and downshift position, the detent plunger is depressed by the detent bracket wall, and detent plunger spring puts the shift lever back into the neutral position. The detent plunger also works in the P position.



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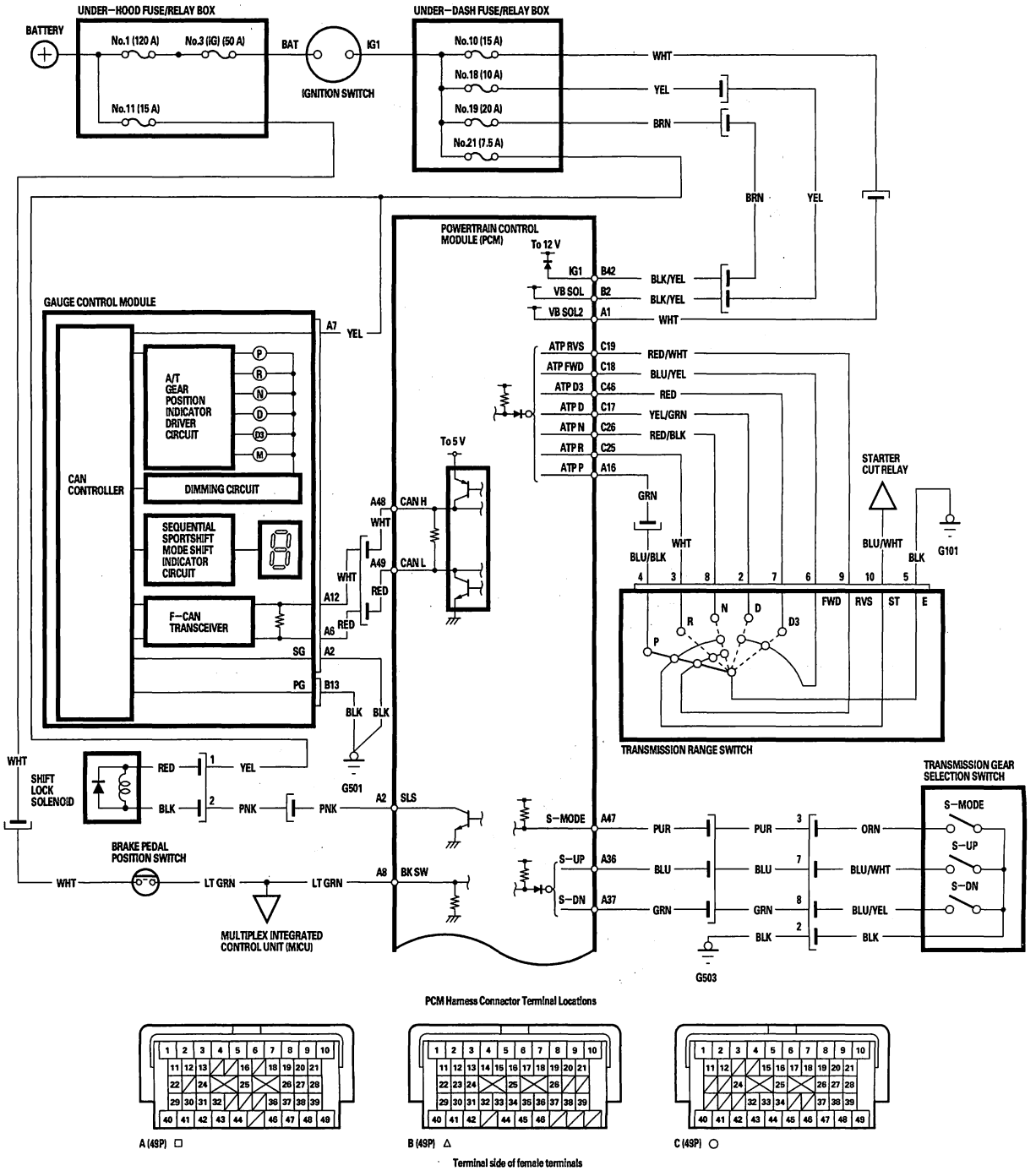
System Description (cont'd)

Circuit Diagram - PCM A/T Control System



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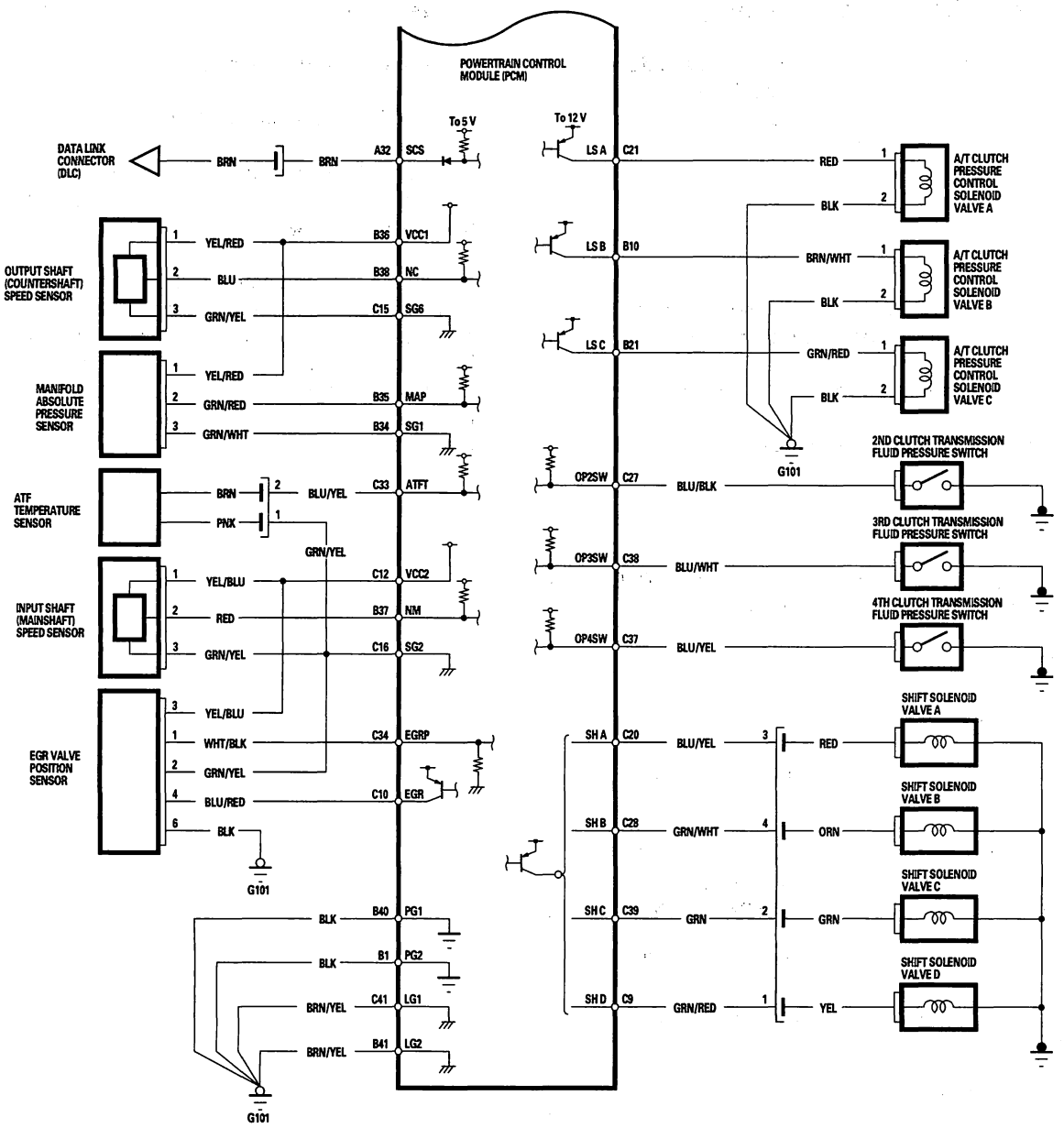
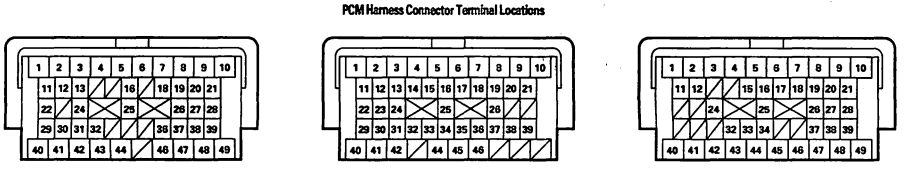


PCM Harness Connector Terminal Locations



A (49P) □ B (49P) △ C (49P) ○

Terminal side of female terminals

BACK

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DTC Troubleshooting

DTC P0107: Manifold Absolute Pressure (MAP) Sensor Circuit Low Voltage Input

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF, then turn it ON (II) again.
3. Check whether DTC P0107 is indicated in the DTCs/ Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC P0107 indicated in the PGM-FI system?

   YES—Troubleshoot for DTC P0107 in the PGM-FI System (see page 11-78). ■

   NO—Go to step 4.
4. Check whether DTC P0107 is indicated in the DTCs/ Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0107 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. ■
5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Turn the ignition switch OFF, then turn it ON (II).
7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0107 indicated?

   YES—Check for poor connections and loose terminals at the MAP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 8.
8. Monitor the OBD STATUS for P0107 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting. ■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the MAP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

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DTC P0108: Manifold Absolute Pressure (MAP) Sensor Circuit High Voltage Input

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF, then turn it ON (II) again.
3. Check whether DTC P0108 is indicated in the DTCs/ Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC P0108 indicated in the PGM-FI system?

   YES—Troubleshoot for DTC P0108 in the PGM-FI System (see page 11-80).■

   NO—Go to step 4.
4. Check whether DTC P0108 is indicated in the DTCs/ Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0108 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Turn the ignition switch OFF, then turn it ON (II).
7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0108 indicated?

   YES—Check for poor connections and loose terminals at the MAP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 8.
8. Monitor the OBD STATUS for P0108 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting.■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the MAP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P0335: Crankshaft Position (CKP) Sensor A No Signal

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Start the engine.
3. Check whether DTC P0335 is indicated in the DTCs/Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC P0335 indicated in the PGM-FI system?

   YES—Troubleshoot for DTC P0335 in the PGM-FI System (see page 11-133). ■

   NO—Go to step 4.
4. Check whether DTC P0335 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0335 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. ■
5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Start the engine.
7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0335 indicated?

   YES—Check for poor connections and loose terminals at the CKP sensor A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 8.
8. Monitor the OBD STATUS for P0335 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting. ■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the CKP sensor A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

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DTC P0339: Crankshaft Position (CKP) Sensor A Intermittent Interruption

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Start the engine, and let it idle for 10 seconds.
3. Check whether DTC P0339 is indicated in the DTCs/ Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC P0339 indicated in the PGM-FI system?

   YES—Troubleshoot for DTC P0339 in the PGM-FI System (see page 11-136). ■

   NO—Go to step 4.
4. Check whether DTC P0339 is indicated in the DTCs/ Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0339 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. ■
5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Start the engine, and let it idle for 10 seconds.
7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0339 indicated?

   YES—Check for poor connections and loose terminals at the CKP sensor A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 8.
8. Monitor the OBD STATUS for P0339 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting. ■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the CKP sensor A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P0340: Camshaft Position (CMP) Sensor No signal

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Start the engine.
3. Check whether DTC P0340 is indicated in the DTCs/ Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC P0340 indicated in the PGM-FI system?

   YES—Troubleshoot for DTC P0340 in the PGM-FI System (see page 11-137).■

   NO—Go to step 4.
4. Check whether DTC P0340 is indicated in the DTCs/ Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0340 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Start the engine.
7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0340 indicated?

   YES—Check for poor connections and loose terminals at the CMP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 8.
8. Monitor the OBD STATUS for P0340 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting.■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the CMP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

BACK

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DTC P0344: Camshaft Position (CMP) Sensor Intermittent Interruption

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Start the engine, and let it idle for 10 seconds.
3. Check whether DTC P0344 is indicated in the DTCs/ Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC P0344 indicated in the PGM-FI system?

   YES—Troubleshoot for DTC P0344 in the PGM-FI System (see page 11-140).■

   NO—Go to step 4.
4. Check whether DTC P0344 is indicated in the DTCs/ Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0344 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Start the engine, and let it idle for 10 seconds.
7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0344 indicated?

   YES—Check for poor connections and loose terminals at the CMP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 8.
8. Monitor the OBD STATUS for P0344 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting.■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the CMP sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P0385: Crankshaft Position (CKP) Sensor B No signal

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Start the engine.
3. Check whether DTC P0385 is indicated in the DTCs/Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC P0385 indicated in the PGM-FI system?

   YES—Troubleshoot for DTC P0385 in the PGM-FI System (see page 11-133). ■

   NO—Go to step 4.
4. Check whether DTC P0385 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0385 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. ■
5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Start the engine.
7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0385 indicated?

   YES—Check for poor connections and loose terminals at the CKP sensor B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 8.
8. Monitor the OBD STATUS for P0385 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting. ■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the CKP sensor B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

BACK

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DTC P0389: Crankshaft Position (CKP) Sensor B Intermittent Interruption

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Start the engine, and let it idle for 10 seconds.
3. Check whether DTC P0389 is indicated in the DTCs/ Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC P0389 indicated in the PGM-FI system?

   YES—Troubleshoot for DTC P0389 in the PGM-FI System (see page 11-136). ■

   NO—Go to step 4.
4. Check whether DTC P0389 is indicated in the DTCs/ Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0389 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. ■
5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Start the engine, and let it idle for 10 seconds.
7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0389 indicated?

   YES—Check for poor connections and loose terminals at the CKP sensor B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 8.
8. Monitor the OBD STATUS for P0389 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting. ■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the CKP sensor B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

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DTC Troubleshooting (cont'd)

DTC P062F: Powertrain Control Module (PCM) Internal Control Module Keep Alive Memory (KAM) Error

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Check whether DTC P062F is indicated in the DTCs/Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC P062F indicated in the PGM-FI system?

   YES—Troubleshoot for DTC P062F in the PGM-FI System (see page 11-153).■

   NO—Go to step 3.
3. Check whether DTC P062F is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P062F indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time.■
4. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
5. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P062F indicated?

   YES—Check for poor connections and loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 6.
6. Monitor the OBD STATUS for P062F in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 5, go to the indicated DTC's troubleshooting.■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

BACK

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DTC P0705: Short in Transmission Range Switch Circuit (Multiple Shift-position Input)

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Start the engine.
3. With the brake pedal pressed, move the shift lever through all positions. Stop for at least 1 second in each position, and monitor the OBD STATUS for P0705 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 4.

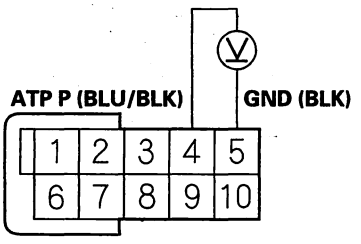
   NO—Intermittent failure, the system is OK at this time. Check for an intermittent short in the wire between the transmission range switch and the PCM. If the HDS indicates NOT COMPLETED, return to step 2 and recheck.
4. Turn the ignition switch OFF.
5. Inspect the transmission range switch (see page 14-315).

   Is the switch OK?

   YES—With the switch connector disconnected, go to step 6.

   NO—Replace the transmission range switch (see page 14-316), then go to step 49.
6. Turn the ignition switch ON (II).
7. Measure the voltage between transmission range switch connector terminals No. 4 and No. 5.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

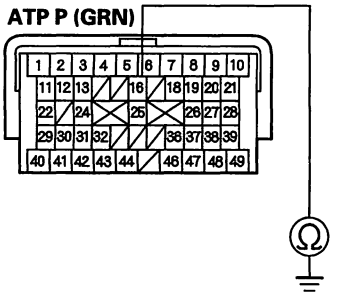
Is there battery voltage?

YES—Go to step 13.

NO—Go to step 8.

8. Turn the ignition switch OFF.
9. Jump the SCS line with the HDS.
10. Disconnect PCM connector A (49P).
11. Check for continuity between PCM connector terminal A16 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal A16 and the transmission range switch, then go to step 49.

NO—Go to step 12.

(cont'd)

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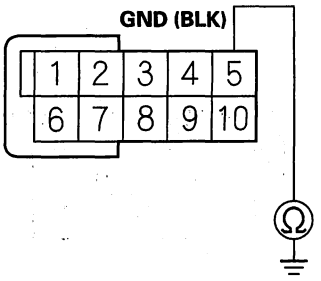
DTC Troubleshooting (cont'd)

12. Check for continuity between transmission range switch connector terminal No. 5 and body ground.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

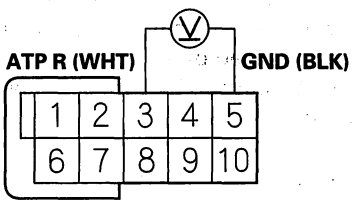
Is there continuity?

YES—Go to step 43.

NO—Repair open in the wire between transmission range switch connector terminal No. 6 and ground (G101), or repair poor ground (G101), then go to step 49.

13. Measure the voltage between transmission range switch connector terminals No. 3 and No. 5.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 18.

NO—Go to step 14.

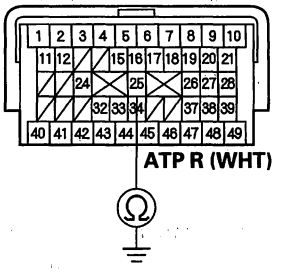
14. Turn the ignition switch OFF.

15. Jump the SCS line with the HDS.

16. Disconnect PCM connector C (49P).

17. Check for continuity between PCM connector terminal C25 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal C25 and the transmission range switch, then go to step 49.

NO—Go to step 43.

BACK

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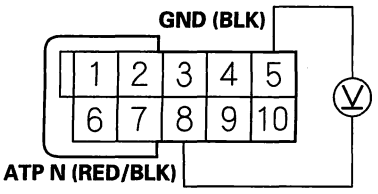
18. Measure the voltage between transmission range switch connector terminals No. 5 and No. 8.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

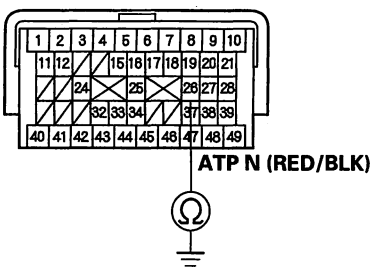
Is there battery voltage?

YES—Go to step 23.

NO—Go to step 19.

19. Turn the ignition switch OFF.
20. Jump the SCS line with the HDS.
21. Disconnect PCM connector C (49P).
22. Check for continuity between PCM connector terminal C26 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

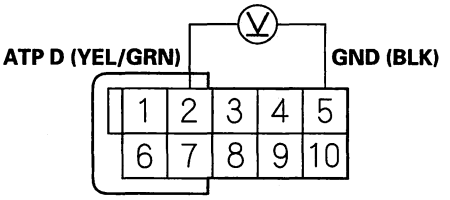
Is there continuity?

YES—Repair short in the wire between PCM connector terminal C26 and the transmission range switch, then go to step 49.

NO—Go to step 43.

23. Measure the voltage between transmission range switch connector terminals No. 2 and No. 5.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

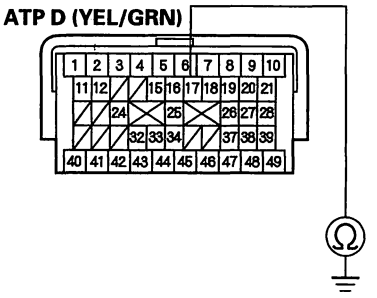
Is there battery voltage?

YES—Go to step 28.

NO—Go to step 24.

24. Turn the ignition switch OFF.
25. Jump the SCS line with the HDS.
26. Disconnect PCM connector C (49P).
27. Check for continuity between PCM connector terminal C17 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal C17 and the transmission range switch, then go to step 49.

NO—Go to step 43.

(cont'd)

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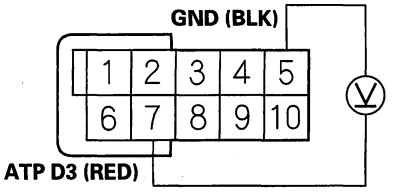
DTC Troubleshooting (cont'd)

28. Measure the voltage between transmission range switch connector terminals No. 5 and No. 7.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

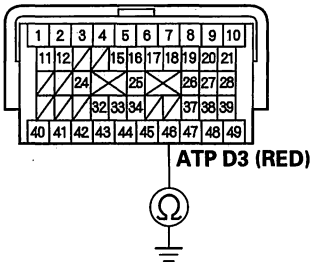
Is there battery voltage?

YES—Go to step 33.

NO—Go to step 29.

29. Turn the ignition switch OFF.
30. Jump the SCS line with the HDS.
31. Disconnect PCM connector C (49P).
32. Check for continuity between PCM connector terminal C46 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

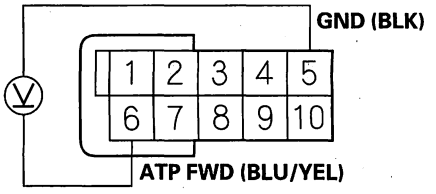
Is there continuity?

YES—Repair short in the wire between PCM connector terminal C46 and the transmission range switch, then go to step 49.

NO—Go to step 43.

33. Measure the voltage between transmission range switch connector terminals No. 5 and No. 6.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

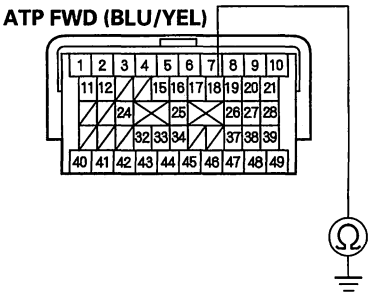
Is there battery voltage?

YES—Go to step 38.

NO—Go to step 34.

34. Turn the ignition switch OFF.
35. Jump the SCS line with the HDS.
36. Disconnect PCM connector C (49P).
37. Check for continuity between PCM connector terminal C18 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal C18 and the transmission range switch, then go to step 49.

NO—Go to step 43.

BACK

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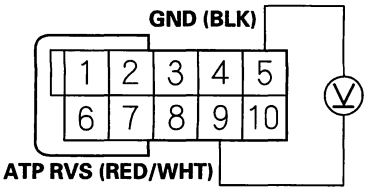
38. Measure the voltage between transmission range switch connector terminals No. 5 and No. 9.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 43.

NO—Go to step 39.

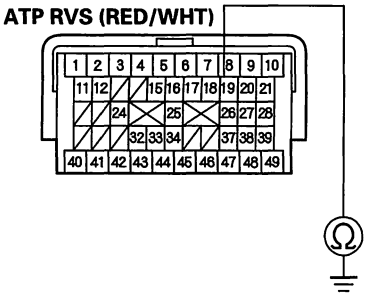
39. Turn the ignition switch OFF.

40. Jump the SCS line with the HDS.

41. Disconnect PCM connector C (49P).

42. Check for continuity between PCM connector terminal C19 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal C19 and the transmission range switch, then go to step 49.

NO—Go to step 43.

43. Reconnect all connectors.

44. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

45. Start the engine.

46. With the brake pedal pressed, move the shift lever through all position. Stop for at least 1 second in each position.

47. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

Is DTC P0705 indicated?

YES—Check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 48.

48. Monitor the OBD STATUS for P0705 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

Does the result indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 47, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 45 and recheck.

(cont'd)

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DTC Troubleshooting (cont'd)

49. Clear the DTC with the HDS.

50. Start the engine.

51. With the brake pedal pressed, move the shift lever through all position. Stop for at least 1 second in each position.

52. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0705 indicated?

    YES—Replace the transmission range switch (see page 14-316), then return to step 49 and recheck.

    NO—Go to step 53.

53. Monitor the OBD STATUS for P0705 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 52, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission range switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to the step 50 and recheck.

BACK

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DTC P0706: Open in Transmission Range Switch Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Raise the vehicle on a lift, make sure it is securely supported, and allow all four wheels to rotate freely.
3. Start the engine, and turn the VSA off (the light on the VSA OFF switch comes on). Run the engine in the D position until the vehicle speed reaches 25 mph (40 km/h), then slow down and stop the wheels.
4. Monitor the OBD STATUS for P0706 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the transmission range switch and the PCM. If the HDS indicates NOT COMPLETED, return to step 3 and recheck.
5. Turn the ignition switch OFF.
6. Inspect the transmission range switch (see page 14-315).

   Is the switch OK?

   YES—Go to step 7.

   NO—Replace the transmission range switch (see page 14-316), then go to step 30.
7. Install the transmission range switch correctly, and adjust the shift cable (see page 14-311).
8. Clear the DTC with the HDS.
9. Start the engine, and turn the VSA off (the light on the VSA OFF switch comes on). Run the engine in the D position until the vehicle speed reaches 25 mph (40 km/h), then slow down and stop the wheels.
10. Monitor the OBD STATUS for P0706 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate FAILED?

    YES—Go to step 11.

    NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the transmission range switch and the PCM. If the HDS indicates NOT COMPLETED, return to step 9 and recheck.
11. Shift to the D position, and verify the ATP FWD and ATP D inputs with the HDS in the A/T data list.

    Is ATP FWD and ATP D ON?

    YES—Go to step 12.

    NO—Go to step 16.
12. Shift to the D3 position, and verify the ATF FWD and ATP D3 inputs with the HDS in the A/T data list.

    Is ATP FWD and ATP D3 ON?

    YES—Go to step 13.

    NO—Go to step 16.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

13. Clear the DTC with the HDS.

14. Start the engine, and turn the VSA off (the light on the VSA OFF switch comes on). Run the engine in the D position until the vehicle speed reaches 25 mph (46 km/h), then slow down and stop the wheels.

15. Monitor the OBD STATUS for P0706 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate FAILED?

    YES—Go to step 16.

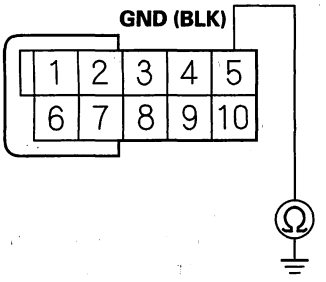
    NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the transmission range switch and the PCM. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

16. Turn the ignition switch OFF.

17. Disconnect the transmission range switch connector.

18. Check for continuity between transmission range switch connector terminal No. 5 and body ground.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 19.

NO—Repair open in the wire between the transmission range switch and ground (G101), or repair poor ground (G101), then go to step 30.

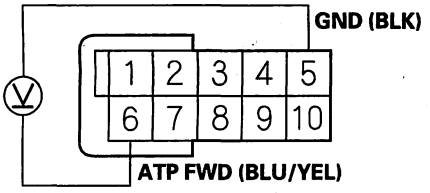
BACK

Protected by AR

19. Turn the ignition switch ON (II).

20. Measure the voltage between transmission range switch connector terminals No. 5 and No. 6.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

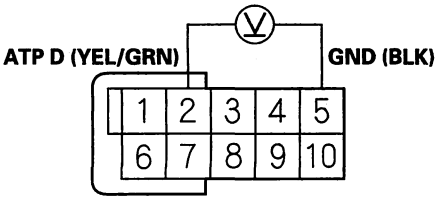
Is there voltage?

YES—Go to step 21.

NO—Repair open in the wire between the transmission range switch and PCM connector terminal C18, then go to step 30.

21. Measure the voltage between transmission range switch connector terminals No. 2 and No. 5.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

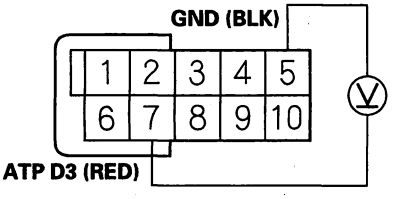
Is there voltage?

YES—Go to step 22.

NO—Repair open in the wire between the transmission range switch and PCM connector terminal C17, then go to step 30.

22. Measure the voltage between transmission range switch connector terminals No. 5 and No. 7.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

Is there voltage?

YES—Go to step 23.

NO—Repair open in the wire between the transmission range switch and PCM connector terminal C46, then go to step 30.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

23. Reconnect all connectors.

24. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

25. Turn the ignition switch OFF.

26. Raise the vehicle on a lift, make sure it is securely supported, and allow all four wheels to rotate freely.

27. Start the engine, and turn the VSA off (the light on the VSA OFF switch comes on). Run the engine in the D position until the vehicle speed reaches 25 mph (40 km/h), then slow down and stop the wheels.

28. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0706 indicated?

    YES—Check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 29.

29. Monitor the OBD STATUS for P0706 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 28, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 25 and recheck.

30. Clear the DTC with the HDS.

31. Turn the ignition switch OFF.

32. Raise the vehicle on a lift, make sure it is securely supported, and allow all four wheels to rotate freely.

33. Start the engine, and turn the VSA off (the light on the VSA OFF switch comes on). Run the engine in the D position until the vehicle speed reaches 25 mph (40 km/h), then slow down and stop the wheels.

34. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0706 indicated?

    YES—Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to step 1.

    NO—Go to step 35.

35. Monitor the OBD STATUS for P0706 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 34, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission range switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 31 and recheck.

BACK

Protected by AR

DTC P0711: Problem in ATF Temperature Sensor Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Check the ATF temperature with the HDS in the A/T data list.

   Does the ATF temperature exceed the ambient-air temperature?

   YES—Record the ATF temperature. Leave the engine off for more than 30 minutes, and go to step 2.

   NO—Record the ATF temperature. Test the stall speed RPM (see page 14-237) three times. Go to step 2 after stall speed testing.

2. Check the ATF temperature with the HDS.

   Does the ATF temperature change?

   YES—Leave the engine off for more than 30 minutes, and go to step 3.

   NO—Replace the ATF temperature sensor (see page 14-264), then go to step 5.

3. Check the ECT SENSOR with the HDS.

   Is the ECT SENSOR equal to the ambient-air temperature?

   YES—Go to step 4.

   NO—Leave the engine off until the ECT SENSOR reads the same as ambient-air temperature, then go to step 4.

4. Check the ATF TEMP SENSOR with the HDS.

   Does the ATF temperature read about the same as the ECT SENSOR?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ATF temperature sensor and the PCM. ■

   NO—Replace the ATF temperature sensor (see page 14-264), then go to step 5.

5. Clear the DTC with the HDS.

6. Test-drive the vehicle for several minutes in the D position through all five gears.

7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P0711 indicated?

   YES—Check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to step 1.

   NO—Go to step 8.

8. Monitor the OBD STATUS for P0711 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—Troubleshooting is complete. If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting. ■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 6 and recheck.

Protected by AR

DTC Troubleshooting (cont'd)

DTC P0712: Short in ATF Temperature Sensor Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Check the ATF temperature sensor voltage with the HDS in the A/T data list.

   Is the ATF TEMP SENSOR voltage 0.07 V or less?

   YES—Go to step 2.

   NO—Intermittent failure, the system is OK at this time. Check for an intermittent short in the ATFT wire between the ATF temperature sensor and the PCM. ■

2. Disconnect the ATF temperature sensor connector at the transmission end cover.

3. Check the ATF TEMP SENSOR voltage with the HDS.

   Is the ATF TEMP SENSOR voltage 0.07 V or less?

   YES—Go to step 4.

   NO—Replace the ATF temperature sensor (see page 14-264), then go to step 13.

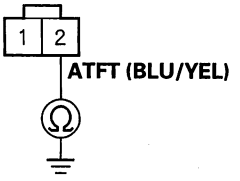
4. Turn the ignition switch OFF.

5. Jump the SCS line with the HDS.

6. Disconnect PCM connector C (49P).

7. Check for continuity between ATF temperature sensor connector terminal No. 2 and body ground.

ATF TEMPERATURE SENSOR CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal C33 and ATF temperature sensor connector terminal No. 2, then go to step 13.

NO—Go to step 8.

BACK

Protected by AR

8. Reconnect all connectors.

9. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

10. Test-drive the vehicle for several minutes in the D position through all five gears.

11. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0712 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 12.

12. Monitor the OBD STATUS for P0712 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 11, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the ATF temperature sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.

13. Clear the DTC with the HDS.

14. Test-drive the vehicle for several minutes in the D position through all five gears.

15. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0712 indicated?

    YES—Check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to step 1.

    NO—Go to step 16.

16. Monitor the OBD STATUS for P0712 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 15, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, go to step 1. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0713: Open in ATF Temperature Sensor Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Check the ATF TEMP SENSOR voltage with the HDS in the A/T data list.

   Does the ATF TEMP SENSOR voltage exceed 4.93 V?

   YES—Go to step 2.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ATF temperature sensor and the PCM. ■

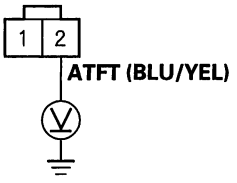
2. Turn the ignition switch OFF.

3. Disconnect the ATF temperature sensor connector at the transmission end cover.

4. Turn the ignition switch ON (II).

5. Measure the voltage between ATF temperature sensor connector terminal No. 2 and body ground.

ATF TEMPERATURE SENSOR CONNECTOR



Wire side of female terminals

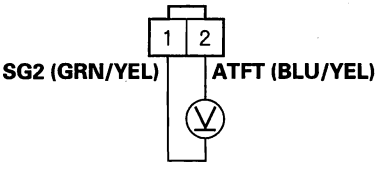
Is there about 5 V?

YES—Go to step 6.

NO—Go to step 7.

6. Measure the voltage between ATF temperature sensor connector terminals No. 1 and No. 2.

ATF TEMPERATURE SENSOR CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Replace the ATF temperature sensor (see page 14-264), then go to step 16.

NO—Repair open in the wire between PCM connector terminal C16 and the ATF temperature sensor connector, then go to step 16.

BACK

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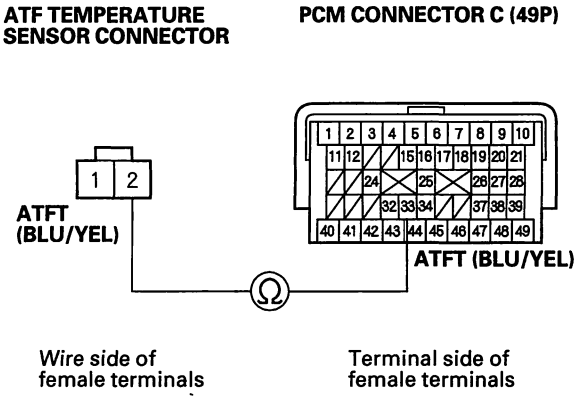
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector C (49P).
10. Check for continuity between PCM connector terminal C33 and ATF temperature sensor connector terminal No. 2.



Is there continuity?

YES—Check for poor connections and loose terminals at the ATF temperature sensor and the PCM. If the connections are OK, go to step 11.

NO—Repair open in the wire between PCM connector terminal C33 and the ATF temperature sensor, then go to step 16.

11. Connect all connectors.
12. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
13. Test-drive the vehicle for several minutes in the D position through all five gears.
14. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0713 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 15.
15. Monitor the OBD STATUS for P0713 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 14, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the ATF temperature sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

16. Connect the ATF temperature sensor connector.

17. Clear the DTC with the HDS.

18. Test-drive the vehicle for several minutes in the D position through all five gears.

19. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0713 indicated?

    YES—Check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to step 1.

    NO—Go to step 20.

20. Monitor the OBD STATUS for P0713 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 19, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 18 and recheck.

BACK

Protected by AR

DTC P0716: Problem in Input Shaft (Mainshaft) Speed Sensor Circuit

DTC P0717: Problem in Input Shaft (Mainshaft) Speed Sensor Circuit (No Signal Input)

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

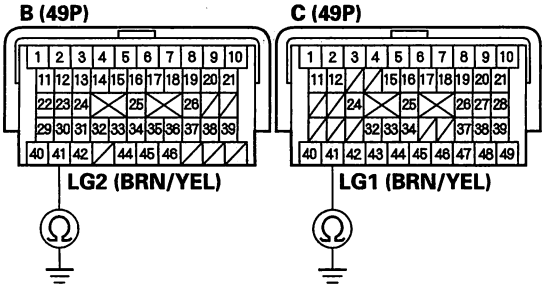
1. Clear the DTC with the HDS.
2. Raise the vehicle on a lift, make sure it is securely supported, and allow all four wheels to rotate freely.
3. Check for proper input shaft (mainshaft) speed sensor installation (see page 14-259). If the sensor was installed improperly, correct the problem, then go to step 37.
4. Start the engine, and turn the VSA off (the light on the VSA OFF switch comes on). Run the engine in the D position, and hold the vehicle at speeds over 30 mph (48 km/h) for more than 10 seconds. Slow down and stop the wheel.
5. Monitor the OBD STATUS for P0716 or P0717 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections at the PCM and input shaft (mainshaft) speed sensor connectors. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
6. Turn the ignition switch OFF.
7. Jump the SCS line with the HDS.
8. Disconnect PCM connectors B (49P) and C (49P).
9. Check for continuity between PCM connector terminals B41 and body ground, and between C41 and body ground.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Go to step 10.

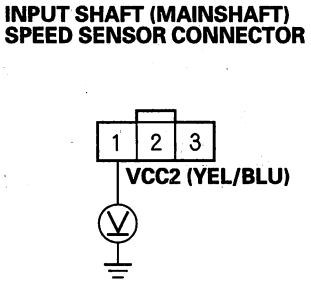
NO—Repair open in the wires between PCM connector terminals B41, C41 and ground (G101), or repair poor ground (G101), then go to step 38.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

10. Connect PCM connectors B (49P) and C (49P).
11. Disconnect the input shaft (mainshaft) speed sensor connector.
12. Turn the ignition switch ON (II).
13. Measure the voltage between input shaft (mainshaft) speed sensor connector terminal No. 1 and body ground.



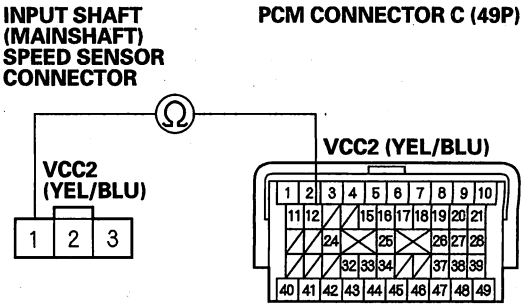
Wire side of female terminals

Is there about 5 V?

YES—Go to step 18.

NO—Go to step 14.

14. Turn the ignition switch OFF.
15. Disconnect PCM connector C (49P).
16. Check for continuity between PCM connector terminal C12 and input shaft (mainshaft) speed sensor connector terminal No. 1.



Wire side of female terminals

Terminal side of female terminals

Is there continuity?

YES—Go to step 17.

NO—Repair open in the wire between PCM connector terminal C12 and the input shaft (mainshaft) speed sensor, then go to step 38.

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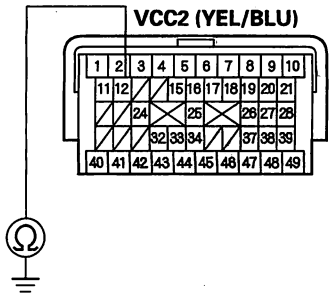
17. Check for continuity between PCM connector terminal C12 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal C12 and the input shaft (mainshaft) speed sensor, then go to step 38.

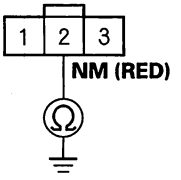
NO—Check for poor connections and loose terminals at the PCM. If the connections are OK, go to step 33.

18. Turn the ignition switch OFF.

19. Disconnect PCM connector B (49P).

20. Check for continuity between input shaft (mainshaft) speed sensor connector terminal No. 2 and body ground.

INPUT SHAFT (MAINSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal B37 and the input shaft (mainshaft) speed sensor connector, then go to step 38.

NO—Go to step 21.

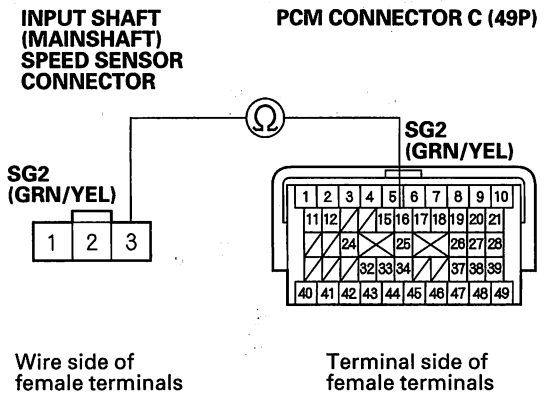
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

21. Disconnect PCM connector C (49P).

22. Check for continuity between PCM connector terminal C16 and input shaft (mainshaft) speed sensor connector terminal No. 3.



Is there continuity?

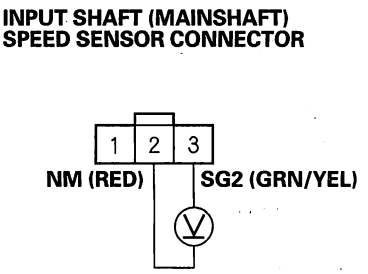
YES—Go to step 23.

NO—Repair open in the wire between the input shaft (mainshaft) speed sensor connector and PCM connector terminal C16, then go to step 38.

23. Connect PCM connectors B (49P) and C (49P).

24. Turn the ignition switch ON (II).

25. Measure the voltage between input shaft (mainshaft) speed sensor connector terminals No. 2 and No. 3.



Is there about 5 V?

YES—Go to step 29.

NO—Go to step 26.

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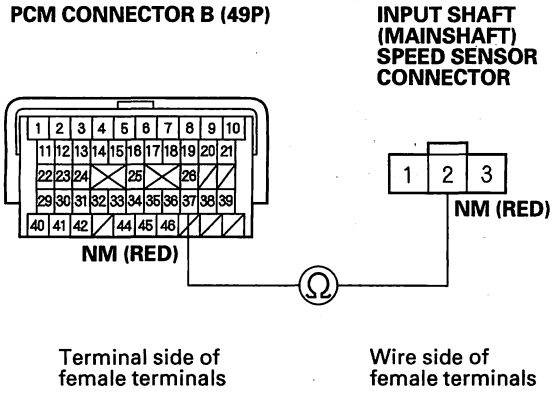
Protected by AR

26. Turn the ignition switch OFF.

27. Disconnect PCM connector B (49P).

28. Check for continuity between PCM connector terminal B37 and input shaft (mainshaft) speed sensor connector terminal No. 2.



Is there continuity?

YES—Go to step 33.

NO—Repair open in the wire between PCM connector terminal B37 and the input shaft (mainshaft) speed sensor, then go to step 38.

29. Connect the input shaft (mainshaft) speed sensor connector.

30. Clear the DTC with the HDS.

31. Start the engine, run the vehicle in the D position, and hold the vehicle at speeds over 30 mph (48 km/h) for more than 10 seconds.

32. Monitor the OBD STATUS for P0716 or P717 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the result indicate FAILED?

YES—Replace the input shaft (mainshaft) speed sensor (see page 14-259), then go to step 38.

NO—Go to step 33.

(cont'd)

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DTC Troubleshooting (cont'd)

33. Reconnect all connectors.

34. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

35. Start the engine, run the vehicle in the D position, and hold the vehicle at speeds over 30 mph (48 km/h) for more than 10 seconds.

36. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0716 or P0717 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 37.

37. Monitor the OBD STATUS for P0716 or P717 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 36, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 35 and recheck.

38. Clear the DTC with the HDS.

39. Start the engine, run the vehicle in the D position, and hold the vehicle at speeds over 30 mph (48 km/h) for more than 10 seconds.

40. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0716 or P0717 indicated?

    YES—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor and the PCM, then go to step 1.

    NO—Go to step 41.

41. Monitor the OBD STATUS for P0716 or P0717 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 40, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 39 and recheck.

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DTC P0718: Input Shaft (Mainshaft) Speed Sensor Intermittent Failure

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle for several minutes in the D position through all five gears.
3. Monitor the OBD STATUS for P0718 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the input shaft (mainshaft) speed sensor and the PCM. If the HDS indicates NOT COMPLETED, return to step 2 and recheck.
4. Turn the ignition switch OFF.
5. Disconnect the input shaft (mainshaft) speed sensor connector, and inspect the connector and connector terminals to be sure they are making good contact.

   Are the connector terminals OK?

   YES—Go to step 6.

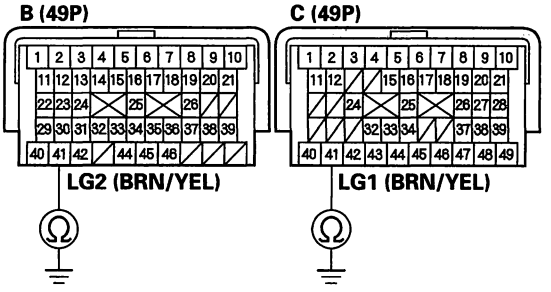
   NO—Repair the connector terminals, then go to step 6.
6. Connect the input shaft (mainshaft) speed sensor connector.
7. Test-drive the vehicle for several minutes in the D position through all five gears.
8. Monitor the OBD STATUS for P0718 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 9.

   NO—Troubleshooting is complete. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.
9. Turn the ignition switch OFF.
10. Jump the SCS line with the HDS.
11. Disconnect PCM connectors B (49P) and C (49P).
12. Check for continuity between PCM connector terminals B41 and body ground, and between C41 and body ground.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wires between PCM connector terminals B41, C41 and ground (G101), or repair poor ground (G101), then go to step 35.

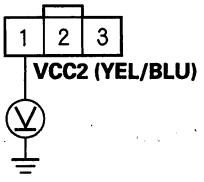
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

13. Connect PCM connectors B (49P) C (49P).
14. Disconnect the input shaft (mainshaft) speed sensor connector.
15. Turn the ignition switch ON (II).
16. Measure the voltage between input shaft (mainshaft) speed sensor connector terminal No. 1 and body ground.

INPUT SHAFT (MAINSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

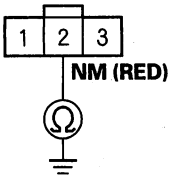
Is there about 5 V?

YES—Go to step 17.

NO—Go to step 26.

17. Turn the ignition switch OFF.
18. Disconnect PCM connector B (49P).
19. Check for continuity between input shaft (mainshaft) speed sensor connector terminal No. 2 and body ground.

INPUT SHAFT (MAINSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal B37 and the input shaft (mainshaft) speed sensor connector, then go to step 35.

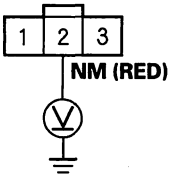
NO—Go to step 20.

BACK

Protected by AR

20. Connect PCM connector B (49P).
21. Turn the ignition switch ON (II).
22. Measure the voltage between input shaft (mainshaft) speed sensor connector terminal No. 2 and body ground.

INPUT SHAFT (MAINSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there about 5 V?

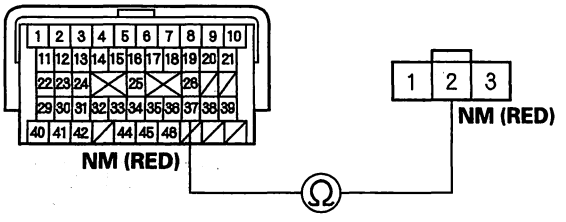
YES—Replace the input shaft (mainshaft) speed sensor (see page 14-259), then go to step 35.

NO—Go to step 23.

23. Turn the ignition switch OFF.
24. Disconnect PCM connector B (49P).
25. Check for continuity between PCM connector terminal B37 and input shaft (mainshaft) speed sensor connector terminal No. 2.

PCM CONNECTOR B (49P)

INPUT SHAFT (MAINSHAFT) SPEED SENSOR CONNECTOR



Terminal side of female terminals

Wire side of female terminals

Is there continuity?

YES—Go to step 30.

NO—Repair open in the wire between PCM connector terminal B37 and the input shaft (mainshaft) speed sensor, then go to step 35.

(cont'd)

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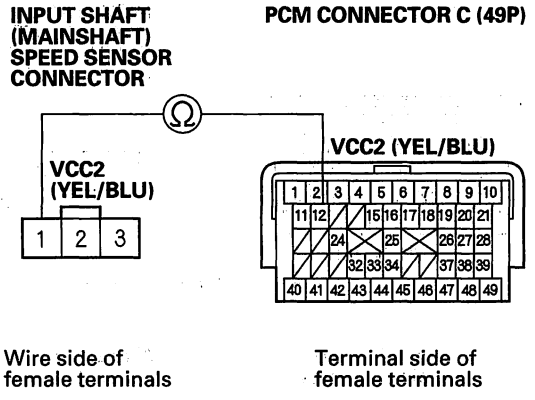
DTC Troubleshooting (cont'd)

26. Turn the ignition switch OFF.

27. Disconnect PCM connector C (49P).

28. Check for continuity between PCM connector terminal C12 and input shaft (mainshaft) speed sensor connector terminal No. 1.

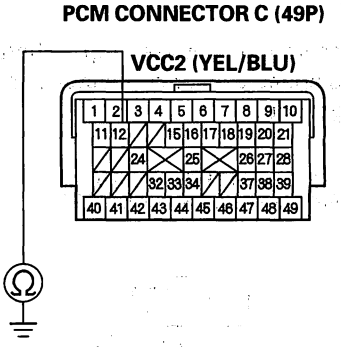


Is there continuity?

YES—Go to step 29.

NO—Repair open in the wire between PCM connector terminal C12 and the input shaft (mainshaft) speed sensor, then go to step 35.

29. Check for continuity between PCM connector terminal C12 and body ground.



Is there continuity?

YES—Repair short in the wire between PCM connector terminal C12 and the input shaft (mainshaft) speed sensor, then go to step 30.

NO—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor and the PCM. If the connections are OK, go to step 30.

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30. Reconnect all connectors.

31. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

32. Test-drive the vehicle for several minutes in the D position through all five gears.

33. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0718 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 34.

34. Monitor the OBD STATUS for P0718 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 33, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 32 and recheck.

35. Clear the DTC with the HDS.

36. Test-drive the vehicle for several minutes in the D position through all five gears.

37. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0718 indicated?

    YES—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor and the PCM, then go to step 1.

    NO—Go to step 38.

38. Monitor the OBD STATUS for P0718 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 37, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 36 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0721: Problem in Output Shaft (Countershaft) Speed Sensor Circuit

DTC P0722: Problem in Output Shaft (Countershaft) Speed Sensor Circuit (No Signal Input)

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

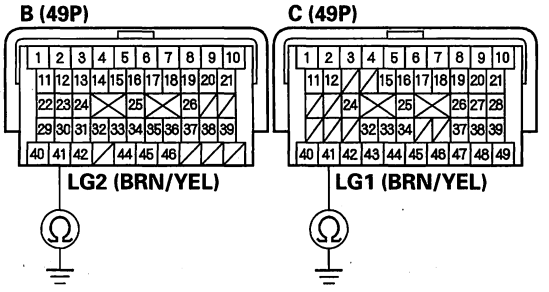
1. Clear the DTC with the HDS.
2. Raise the vehicle on a lift, make sure it is securely supported, and allow all four wheels to rotate freely.
3. Check for proper output shaft (countershaft) speed sensor installation (see page 14-260). If the sensor is installed improperly, correct problem, then go to step 38.
4. Start the engine, run the vehicle in the D position with engine speed 2,000 rpm or higher for more than 10 seconds. Slow down and stop the wheels.
5. Monitor the OBD STATUS for P0721 or P0722 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections at the PCM and output shaft (countershaft) speed sensor connectors. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
6. Turn the ignition switch OFF.
7. Jump the SCS line with the HDS.
8. Disconnect PCM connectors B (49P) and C (49P).
9. Check for continuity between PCM connector terminals B41 and body ground, and between C41 and body ground.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wires between PCM connector terminals B41, C41 and ground (G101), or repair poor ground (G101), then go to step 38.

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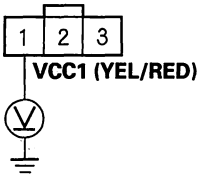
10. Connect PCM connectors B (49P) and C (49P).
11. Disconnect the output shaft (countershaft) speed sensor connector.
12. Turn the ignition switch ON (II).
13. Measure the voltage between output shaft (countershaft) speed sensor connector terminal No. 1 and body ground.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there about 5 V?

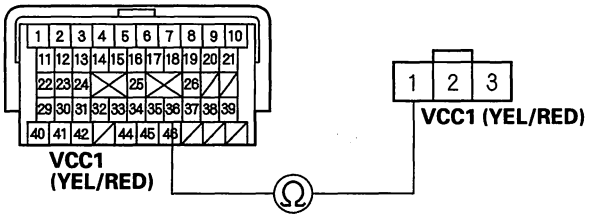
YES—Go to step 18.

NO—Go to step 14.

14. Turn the ignition switch OFF.
15. Disconnect PCM connector B (49P).
16. Check for continuity between PCM connector terminal B36 and output shaft (countershaft) speed sensor connector terminal No. 1.

PCM CONNECTOR B (49P)

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR CONNECTOR



Terminal side of female terminals

Wire side of female terminals

Is there continuity?

YES—Go to step 17.

NO—Repair open in the wire between PCM connector terminal B36 and the output shaft (countershaft) speed sensor, then go to step 38.

(cont'd)

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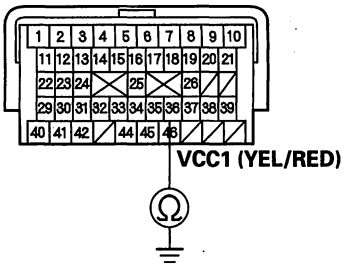
DTC Troubleshooting (cont'd)

17. Check for continuity between PCM connector terminal B36 and body ground.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal B36 and the output shaft (countershaft) speed sensor, then go to step 38.

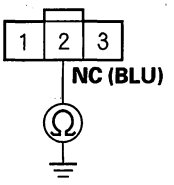
NO—Check for poor connections and loose terminals at the PCM. If the connections are OK, go to step 33.

18. Turn the ignition switch OFF.

19. Disconnect PCM connector B (49P).

20. Check for continuity between output shaft (countershaft) speed sensor connector terminal No. 2 and body ground.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal B38 and the output shaft (countershaft) speed sensor connector, then go to step 38.

NO—Go to step 21.

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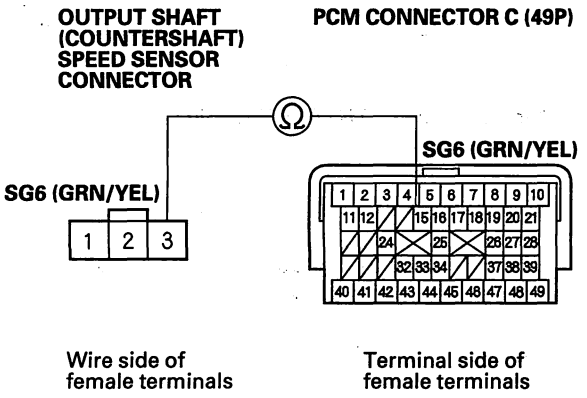
21. Disconnect PCM connector C (49P).

22. Check for continuity between PCM connector terminal C15 and output shaft (countershaft) speed sensor connector terminal No. 3.



Is there continuity?

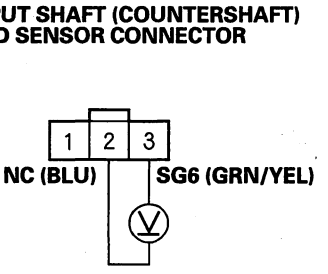
YES—Go to step 23.

NO—Repair open in the wire between the output shaft (countershaft) speed sensor connector and PCM connector terminal C15, then go to step 38.

23. Connect PCM connectors B (49P) and C (49P).

24. Turn the ignition switch ON (II).

25. Measure the voltage between output shaft (countershaft) speed sensor connector terminals No. 2 and No. 3.



Is there about 5 V?

YES—Go to step 29.

NO—Go to step 26.

(cont'd)

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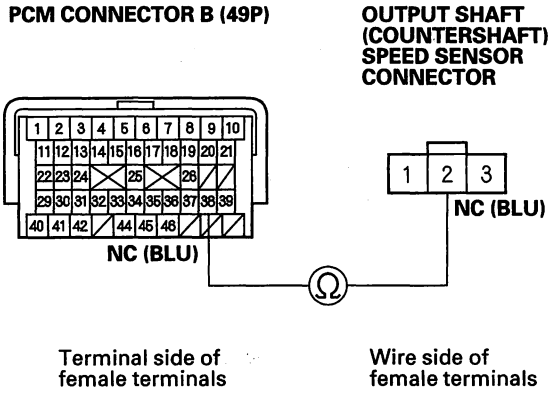
DTC Troubleshooting (cont'd)

26. Turn the ignition switch OFF.
27. Disconnect PCM connector B (49P).
28. Check for continuity between PCM connector terminal B38 and output shaft (countershaft) speed sensor connector terminal No. 2.



Is there continuity?

YES—Go to step 33.

NO—Repair open in the wire between PCM connector terminal B38 and the output shaft (countershaft) speed sensor, then go to step 38.

29. Connect the output shaft (countershaft) speed sensor connector.
30. Clear the DTC with the HDS.
31. Start the engine, run the vehicle in the D position with engine speed 2,000 rpm or higher for more than 10 seconds. Slow down and stop the wheels.
32. Monitor the OBD STATUS for P0721 or P0722 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the result indicate FAILED?

YES—Replace the output shaft (countershaft) speed sensor (see page 14-260), then go to step 38.

NO—Go to step 33.

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33. Reconnect all connectors.

34. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

35. Start the engine, run the vehicle in the D position with engine speed 2,000 rpm or higher for more than 10 seconds. Slow down and stop the wheels.

36. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0721 or P0722 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 37.

37. Monitor the OBD STATUS for P0721 or P0722 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 36, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 35 and recheck.

38. Clear the DTC with the HDS.

39. Start the engine, run the vehicle in the D position with engine speed 2,000 rpm or higher for more than 10 seconds. Slow down and stop the wheels.

40. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0721 or P0722 indicated?

    YES—Check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM, then go to step 1.

    NO—Go to step 41.

41. Monitor the OBD STATUS for P0721 or P0722 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 40, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 39 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0723: Output Shaft (Countershaft) Speed Sensor Intermittent Failure

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle for several minutes in the D position through all five gears.
3. Monitor the OBD STATUS for P0723 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM. If the HDS indicates NOT COMPLETED, return to step 2 and recheck.
4. Turn the ignition switch OFF.
5. Disconnect the output shaft (countershaft) speed sensor connector, and inspect the connector and connector terminals to be sure they are making good contact.

   Are the connector terminals OK?

   YES—Go to step 6.

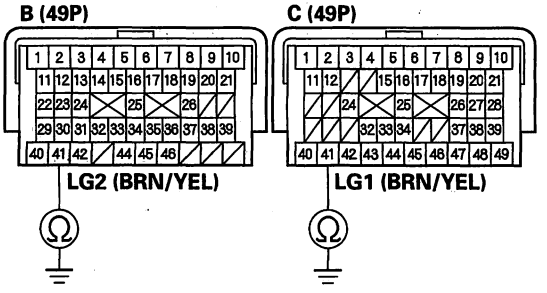
   NO—Repair the connector terminals, then go to step 6.
6. Connect the output shaft (countershaft) speed sensor connector.
7. Test-drive the vehicle for several minutes in the D position through all five gears.
8. Monitor the OBD STATUS for P0723 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 9.

   NO—Troubleshooting is complete. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.
9. Turn the ignition switch OFF.
10. Jump the SCS line with the HDS.
11. Disconnect PCM connectors B (49P) and C (49P).
12. Check for continuity between PCM connector terminals B41 and body ground, and between C44 and body ground.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wires between PCM connector terminals B41, C41 and ground (G101), or repair poor ground (G101), then go to step 35.

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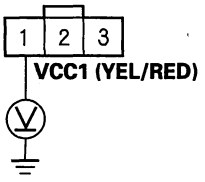
13. Connect PCM connectors B (49P) and C (49P).
14. Disconnect the output shaft (countershaft) speed sensor connector.
15. Turn the ignition switch ON (II).
16. Measure the voltage between output shaft (countershaft) speed sensor connector terminal No. 1 and body ground.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

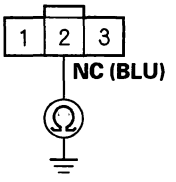
Is there about 5 V?

YES—Go to step 17.

NO—Go to step 26.

17. Turn the ignition switch OFF.
18. Disconnect PCM connector B (49P).
19. Check for continuity between output shaft (countershaft) speed sensor connector terminal No. 2 and body ground.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal B38 and the output shaft (countershaft) speed sensor connector, then go to step 35.

NO—Go to step 20.

(cont'd)

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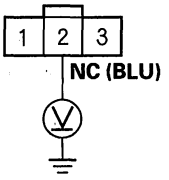
DTC Troubleshooting (cont'd)

20. Connect PCM connector B (49P).
21. Turn the ignition switch ON (II).
22. Measure the voltage between output shaft (countershaft) speed sensor connector terminal No. 2 and body ground.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there about 5 V?

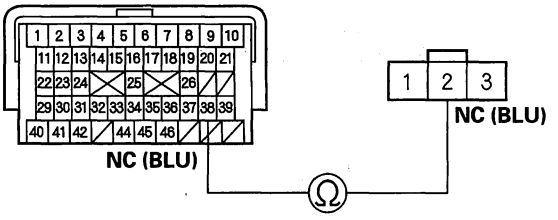
YES—Replace the output shaft (countershaft) speed sensor (see page 14-260), then go to step 35.

NO—Go to step 23.

23. Turn the ignition switch OFF.
24. Disconnect PCM connector B (49P).
25. Check for continuity between PCM connector terminal B38 and output shaft (countershaft) speed sensor connector terminal No. 2.

PCM CONNECTOR B (49P)

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR CONNECTOR



Terminal side of female terminals

Wire side of female terminals

Is there continuity?

YES—Go to step 30.

NO—Repair open in the wire between PCM connector terminal B38 and the output shaft (countershaft) speed sensor, then go to step 35.

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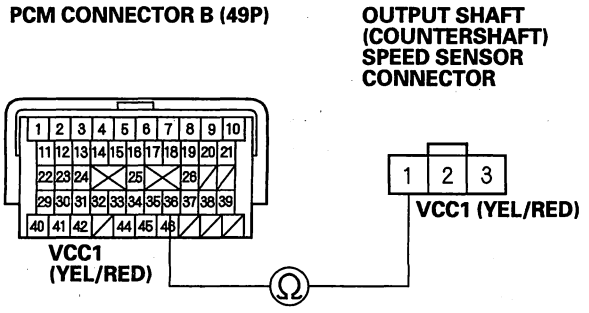
26. Turn the ignition switch OFF.

27. Disconnect PCM connector B (49P).

28. Check for continuity between PCM connector terminal B36 and output shaft (countershaft) speed sensor connector terminal No. 1.

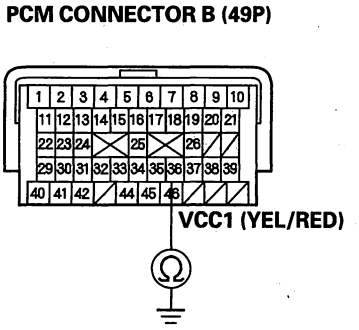


Is there continuity?

YES—Go to step 29.

NO—Repair open in the wire between PCM connector terminal B36 and the output shaft (countershaft) speed sensor, then go to step 35.

29. Check for continuity between PCM connector terminal B36 and body ground.



Is there continuity?

YES—Repair short in the wire between PCM connector terminal B36 and the output shaft (countershaft) speed sensor, then go to step 35.

NO—Check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM. If the connections are OK, go to step 30.

(cont'd)

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DTC Troubleshooting (cont'd)

30. Reconnect all connectors.

31. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

32. Test-drive the vehicle for several minutes in the D position through all five gears.

33. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0723 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 34.

34. Monitor the OBD STATUS for P0723 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 33, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 32 and recheck.

35. Clear the DTC with the HDS.

36. Test-drive the vehicle for several minutes in the D position through all five gears.

37. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0723 indicated?

    YES—Check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM, then go to step 1.

    NO—Go to step 38.

38. Monitor the OBD STATUS for P0723 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 37, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 36 and recheck.

BACK

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DTC P0731: Problem in 1st Clutch and 1st Clutch Hydraulic Circuit

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 9.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Measure the line pressure (see page 14-238).

   Is the line pressure within the service limits?

   YES—Go to step 5.

   NO—Repair the ATF pump and the regulator valve, or replace the transmission, then go to step 9.
5. Measure the 1st clutch pressure (see page 14-238).

   Is the 1st clutch pressure within the service limits?

   YES—Go to step 6.

   NO—Shift valves B and C are stuck. Repair these valves and hydraulic circuit, or replace the transmission, then go to step 9.
6. Clear the DTC with the HDS.
7. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, or drive in 1st gear in the M position at speeds over 10 mph (16 km/h) for 20 seconds. Slow down and stop the wheels.
8. Monitor the OBD STATUS for P0731 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Repair the 1st clutch, or replace the transmission, then go to step 9.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.
9. Clear the DTC with the HDS.
10. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, or drive in 1st gear in the M position at speeds over 10 mph (16 km/h) for 20 seconds. Slow down and stop the wheels.
11. Monitor the OBD STATUS for P0731 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.

Protected by AR

DTC Troubleshooting (cont'd)

DTC P0732: Problem in 2nd Clutch and 2nd Clutch Hydraulic Circuit

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 9.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Measure the line pressure (see page 14-238).

   Is the line pressure within the service limits?

   YES—Go to step 5.

   NO—Repair the ATF pump and the regulator valve, or replace the transmission, then go to step 9.
5. Measure the 2nd clutch pressure (see page 14-238).

   Is the 2nd clutch pressure within the service limits?

   YES—Go to step 6.

   NO—Shift valves A, B, and C are stuck. Repair these valves and the hydraulic circuit, or replace the transmission, then go to step 9.
6. Clear the DTC with the HDS.
7. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, or drive in 2nd gear in the M position at speeds over 10 mph (16 km/h) for 20 seconds. Slow down and stop the wheels.
8. Monitor the OBD STATUS for P0732 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Repair the 2nd clutch, or replace the transmission, then go to step 9.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.
9. Clear the DTC with the HDS.
10. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, or drive in 2nd gear in the M position at speeds over 10 mph (16 km/h) for 20 seconds. Slow down and stop the wheels.
11. Monitor the OBD STATUS for P0732 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete.■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.

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DTC P0733: Problem in 3rd Clutch and 3rd Clutch Hydraulic Circuit

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).

2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.

3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 9.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.

4. Measure the line pressure (see page 14-238).

   Is the line pressure within the service limits?

   YES—Go to step 5.

   NO—Repair the ATF pump and the regulator valve, or replace the transmission, then go to step 9.

5. Measure the 3rd clutch pressure (see page 14-238).

   Is the 3rd clutch pressure within the service limits?

   YES—Go to step 6.

   NO—Shift valves A, B, and C are stuck. Repair these valves and the hydraulic circuit, or replace the transmission, then go to step 9.

6. Clear the DTC with the HDS.

7. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, or drive in 3rd gear in the M position at speeds over 10 mph (16 km/h) for 20 seconds. Slow down and stop the wheels.

8. Monitor the OBD STATUS for P0733 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Repair the 3rd clutch, or replace the transmission, then go to step 9.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.

9. Clear the DTC with the HDS.

10. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, or drive in 3rd gear in the M position at speeds over 10 mph (16 km/h) for 20 seconds. Slow down and stop the wheels.

11. Monitor the OBD STATUS for P0733 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0734: Problem in 4th Clutch and 4th Clutch Hydraulic Circuit

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 9.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Measure the line pressure (see page 14-238).

   Is the line pressure within the service limits?

   YES—Go to step 5.

   NO—Repair the ATF pump and the regulator valve, or replace the transmission, then go to step 9.
5. Measure the 4th clutch pressure (see page 14-238).

   Is the 4th clutch pressure within the service limits?

   YES—Go to step 6.

   NO—Shift valves A, B, C, and D are stuck. Repair these valves and the hydraulic circuit, or replace the transmission, then go to step 9.
6. Clear the DTC with the HDS.
7. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, or drive in 4th gear in the M position at speeds over 10 mph (16 km/h) for 20 seconds. Slow down and stop the wheels.
8. Monitor the OBD STATUS for P0734 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Repair the 4th clutch, or replace the transmission, then go to step 9.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.
9. Clear the DTC with the HDS.
10. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, or drive in 4th gear in the M position at speeds over 10 mph (16 km/h) for 20 seconds. Slow down and stop the wheels.
11. Monitor the OBD STATUS for P0734 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.

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DTC P0735: Problem in 5th Clutch and 5th Clutch Hydraulic Circuit

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 9.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Measure the line pressure (see page 14-238).

   Is the line pressure within the service limits?

   YES—Go to step 5.

   NO—Repair the ATF pump and the regulator valve, or replace the transmission, then go to step 9.
5. Measure the 5th clutch pressure (see page 14-238).

   Is the 5th clutch pressure within the service limits?

   YES—Go to step 6.

   NO—Shift valves A, B, C, and D are stuck. Repair these valves and the hydraulic circuit, replace the transmission, then go to step 9.
6. Clear the DTC with the HDS.
7. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, or drive in 5th gear in the M position at speeds over 10 mph (16 km/h) for 20 seconds. Slow down and stop the wheels.
8. Monitor the OBD STATUS for P0735 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Repair the 5th clutch, or replace the transmission, then go to step 9.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.
9. Clear the DTC with the HDS.
10. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, or drive in 5th gear in the M position at speeds over 10 mph (16 km/h) for 20 seconds. Slow down and stop the wheels.
11. Monitor the OBD STATUS for P0735 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete.■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0741: Torque Converter Clutch Hydraulic Circuit Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 11.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Choose Shift Solenoid E in the Miscellaneous Test Menu, and check that shift solenoid valve D operates with the HDS.

   Is a clicking sound heard?

   YES—Go to step 6.

   NO—Replace shift solenoid valve D (see page 14-242), then go to step 11.
6. Run the engine until the engine coolant temperature reaches 176 °F (80 °C).
7. Choose Clutch Pressure Control (Linear) Solenoid C in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve C with the HDS.

   Is the result NORMAL?

   YES—Go to step 8.

   NO—Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to step 10. If any part is replaced, go to step 11.
8. Test-drive the vehicle on a level road with a steady throttle at 60 mph (100 km/h) for 30 seconds.
9. Monitor the OBD STATUS for P0741 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Repair the faulty torque converter clutch mechanism, torque converter clutch hydraulic circuit, lock-up shift valve, or lock-up control valve, or replace the transmission, then go to step 11.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 8 and recheck.
10. Inspect A/T clutch pressure control solenoid valve C (see page 14-254).

    Does A/T clutch pressure control solenoid valve C work properly?

    YES—Repair the hydraulic system related to the lock-up shift valve, lock-up control valve, and lock-up timing valve, or replace the transmission, then go to step 11.

    NO—Replace A/T clutch pressure control solenoid valve C (see page 14-257), then go to step 11.
11. Clear the DTC with the HDS.
12. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
13. Monitor the OBD STATUS for P0741 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

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DTC P0746: A/T Clutch Pressure Control Solenoid Valve A Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 11.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0746 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Clutch Pressure Control (Linear) Solenoid A in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve A with the HDS.

   Is the result NORMAL?

   YES—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 9 and recheck.

   NO—Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to step 10. If any part is replaced, go to step 11.
10. Inspect A/T clutch pressure control solenoid valve A (see page 14-246).

    Does A/T clutch pressure control solenoid valve A work properly?

    YES—Repair the hydraulic system related with shift valve A, or replace the transmission, then go to step 11.

    NO—Replace A/T clutch pressure control solenoid valve A (see page 14-252), then go to step 11.
11. Clear the DTC with the HDS.
12. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
13. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
14. Monitor the OBD STATUS for P0746 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete.■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0747: A/T Clutch Pressure Control Solenoid Valve A Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 11.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0747 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Clutch Pressure Control (Linear) Solenoid A in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve A with the HDS.

   Is the result NORMAL?

   YES—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 9 and recheck.

   NO—Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to step 10. If any part is replaced, go to step 11.
10. Inspect A/T clutch pressure control solenoid valve A (see page 14-246).

    Does A/T clutch pressure control solenoid valve A work properly?

    YES—Repair the hydraulic system related with shift valve A, or replace the transmission, then go to step 11.

    NO—Replace A/T clutch pressure control solenoid valve A (see page 14-252), then go to step 11.
11. Clear the DTC with the HDS.
12. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
13. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
14. Monitor the OBD STATUS for P0747 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

BACK

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DTC P0751: Shift Solenoid Valve A Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 13.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0751 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Shift Solenoid A in the Miscellaneous Test Menu, and check that shift solenoid valve A operates with the HDS.

   Is a clicking sound heard?

   YES—Go to step 10.

   NO—Replace shift solenoid valve A (see page 14-242), then go to step 13.
10. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
11. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
12. Monitor the OBD STATUS for P0751 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate FAILED?

    YES—Repair shift valve A, or replace the transmission, then go to step 13.

    NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.
13. Clear the DTC with the HDS.
14. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
15. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
16. Monitor the OBD STATUS for P0751 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0752: Shift Solenoid Valve A Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 13.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0752 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Shift Solenoid A in the Miscellaneous Test Menu, and check that shift solenoid valve A operates with the HDS.

   Is a clicking sound heard?

   YES—Go to step 10.

   NO—Replace shift solenoid valve A (see page 14-242), then go to step 13.
10. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
11. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
12. Monitor the OBD STATUS for P0752 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate FAILED?

    YES—Repair shift valve A, or replace the transmission, then go to step 13.

    NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.
13. Clear the DTC with the HDS.
14. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
15. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
16. Monitor the OBD STATUS for P0752 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

BACK

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DTC P0756: Shift Solenoid Valve B Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 13.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0756 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Shift Solenoid B in the Miscellaneous Test Menu, and check that shift solenoid valve B operates with the HDS.

   Is a clicking sound heard?

   YES—Go to step 10.

   NO—Replace shift solenoid valve B (see page 14-242), then go to step 13.
10. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
11. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
12. Monitor the OBD STATUS for P0756 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate FAILED?

    YES—Repair shift valve B, or replace the transmission, then go to step 13.

    NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.
13. Clear the DTC with the HDS.
14. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
15. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
16. Monitor the OBD STATUS for P0756 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete.■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0757: Shift Solenoid Valve B Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 13.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0757 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Shift Solenoid B in the Miscellaneous Test Menu, and check that shift solenoid valve B operates with the HDS.

   Is a clicking sound heard?

   YES—Go to step 10.

   NO—Replace shift solenoid valve B (see page 14-242), then go to step 13.
10. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
11. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
12. Monitor the OBD STATUS for P0757 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate FAILED?

    YES—Repair shift valve B, or replace the transmission, then go to step 13.

    NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.
13. Clear the DTC with the HDS.
14. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
15. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
16. Monitor the OBD STATUS for P0757 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

BACK

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DTC P0761: Shift Solenoid Valve C Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 13.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0761 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Shift Solenoid C in the Miscellaneous Test Menu, and check that shift solenoid valve C operates with the HDS.

   Is a clicking sound heard?

   YES—Go to step 10.

   NO—Replace shift solenoid valve C (see page 14-242), then go to step 13.
10. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
11. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
12. Monitor the OBD STATUS for P0761 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate FAILED?

    YES—Repair shift valve C, or replace the transmission, then go to step 13.

    NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.
13. Clear the DTC with the HDS.
14. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
15. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
16. Monitor the OBD STATUS for P0761 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0762: Shift Solenoid Valve C Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 13.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0762 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Shift Solenoid C in the Miscellaneous Test Menu, and check that shift solenoid valve C operates with the HDS.

   Is a clicking sound heard?

   YES—Go to step 10.

   NO—Replace shift solenoid valve C (see page 14-242), then go to step 13.
10. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
11. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
12. Monitor the OBD STATUS for P0762 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate FAILED?

    YES—Repair shift valve C, or replace the transmission, then go to step 13.

    NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.
13. Clear the DTC with the HDS.
14. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
15. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
16. Monitor the OBD STATUS for P0762 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete.■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

BACK

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DTC P0766: Shift Solenoid Valve D Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 13.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0766 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Shift Solenoid D in the Miscellaneous Test Menu, and check that shift solenoid valve D operates with the HDS.

   Is a clicking sound heard?

   YES—Go to step 10.

   NO—Replace shift solenoid valve D (see page 14-242), then go to step 13.
10. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
11. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
12. Monitor the OBD STATUS for P0766 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate FAILED?

    YES—Repair shift valve D, or replace the transmission, then go to step 13.

    NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.
13. Clear the DTC with the HDS.
14. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
15. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
16. Monitor the OBD STATUS for P0766 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete.■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0767: Shift Solenoid Valve D Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 13.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0767 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Shift Solenoid D in the Miscellaneous Test Menu, and check that shift solenoid valve D operates with the HDS.

   Is a clicking sound heard?

   YES—Go to step 10.

   NO—Replace shift solenoid valve D (see page 14-242), then go to step 13.
10. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
11. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
12. Monitor the OBD STATUS for P0767 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate FAILED?

    YES—Repair shift valve D, or replace the transmission, then go to step 13.

    NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.
13. Clear the DTC with the HDS.
14. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
15. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
16. Monitor the OBD STATUS for P0767 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

BACK

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DTC P0776: A/T Clutch Pressure Control Solenoid Valve B Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 11.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0776 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Clutch Pressure Control (Linear) Solenoid B in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve B with the HDS.

   Is the result NORMAL?

   YES—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 9 and recheck.

   NO—Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to step 10. If any part is replaced, go to step 11.
10. Inspect A/T clutch pressure control solenoid valve B (see page 14-249).

    Does A/T clutch pressure control solenoid valve B work properly?

    YES—Repair the hydraulic system related with shift valve B, or replace the transmission, then go to step 11.

    NO—Replace A/T clutch pressure control solenoid valve B (see page 14-252), then go to step 11.
11. Clear the DTC with the HDS.
12. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
13. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
14. Monitor the OBD STATUS for P0776 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete.■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

BACK

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DTC Troubleshooting (cont'd)

DTC P0777: A/T Clutch Pressure Control Solenoid Valve B Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 11.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0777 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Clutch Pressure Control (Linear) Solenoid B in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve B with the HDS.

   Is the result NORMAL?

   YES—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 9 and recheck.

   NO—Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to step 10. If any part is replaced, go to step 11.
10. Inspect A/T clutch pressure control solenoid valve B (see page 14-249).

    Does A/T clutch pressure control solenoid valve B work properly?

    YES—Repair the hydraulic system related with shift valve B, or replace the transmission, then go to step 11.

    NO—Replace A/T clutch pressure control solenoid valve B (see page 14-252), then go to step 11.
11. Clear the DTC with the HDS.
12. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
13. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
14. Monitor the OBD STATUS for P0777 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

BACK

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DTC P0796: A/T Clutch Pressure Control Solenoid Valve C Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 11.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0796 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Clutch Pressure Control (Linear) Solenoid C in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve C with the HDS.

   Is the result NORMAL?

   YES—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 9 and recheck.

   NO—Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to step 10. If any part is replaced, go to step 11.
10. Inspect A/T clutch pressure control solenoid valve C (see page 14-254).

    Does A/T clutch pressure control solenoid valve C work properly?

    YES—Repair the hydraulic system related with shift valve C, or replace the transmission, then go to step 11.

    NO—Replace A/T clutch pressure control solenoid valve C (see page 14-257), then go to step 11.
11. Clear the DTC with the HDS.
12. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
13. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
14. Monitor the OBD STATUS for P0796 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0797: A/T Clutch Pressure Control Solenoid Valve C Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 11.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
6. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
7. Monitor the OBD STATUS for P0797 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Choose Clutch Pressure Control (Linear) Solenoid C in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve C with the HDS.

   Is the result NORMAL?

   YES—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 9 and recheck.

   NO—Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to step 10. If any part is replaced, go to step 11.
10. Inspect A/T clutch pressure control solenoid valve C (see page 14-254).

    Does A/T clutch pressure control solenoid valve C work properly?

    YES—Repair the hydraulic system related with shift valve C, or replace the transmission, then go to step 11.

    NO—Replace A/T clutch pressure control solenoid valve C (see page 14-257), then go to step 11.
11. Clear the DTC with the HDS.
12. Test-drive the vehicle in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
13. Test-drive the vehicle again in the D position through all five gears at speeds over 12 mph (20 km/h) for more than 20 seconds, then slow down to a stop.
14. Monitor the OBD STATUS for P0797 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 1 and recheck. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

BACK

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DTC P0812: Open in Transmission Range Switch ATP R Switch Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch ON (II).
2. Shift to the R position, and verify the A/T R SWITCH signal with the HDS in the A/T data list.

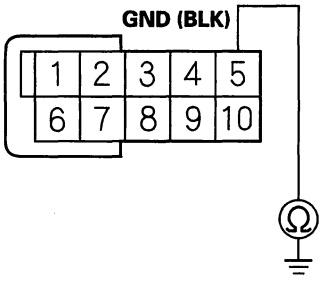
   Is the A/T R SWITCH ON?

   YES—Intermittent failure, the system is OK at this time.■

   NO—Go to step 3.

3. Turn the ignition switch OFF.
4. Disconnect the transmission range switch connector.
5. Check for continuity between transmission range switch connector terminal No. 5 and body ground.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 6.

NO—Repair open in the wire between transmission range switch connector terminal No. 5 and ground (G101), or repair poor ground (G101), then go to step 14.

(cont'd)

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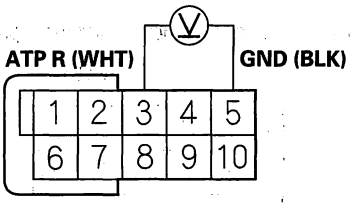
DTC Troubleshooting (cont'd)

6. Turn the ignition switch ON (II).

7. Measure the voltage between transmission range switch connector terminals No. 3 and No. 5.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

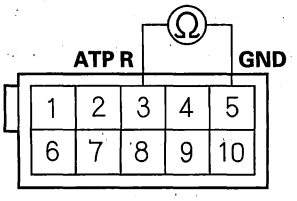
Is there voltage?

YES—Go to step 8.

NO—Repair open in the wire between PCM connector terminal C25 and the transmission range switch, then go to step 14.

8. Check for continuity between transmission range switch connector terminals No. 3 and No. 5 while the shift lever is in each position.

TRANSMISSION RANGE SWITCH CONNECTOR



Terminal side of male terminals

Is there continuity while the shift lever is in the P, R, and N positions, and no continuity while the shift lever is in the D and D3?

YES—Check for poor connections and loose terminals at the transmission range switch and the PCM. If the connections are OK, go to step 9.

NO—Replace the transmission range switch (see page 14-316), then go to step 9.

BACK

Protected by AR

9. Reconnect the transmission range switch connector.

10. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

11. Test-drive the vehicle in the R position at speeds below 3 mph (5 km/h) for more than 2 seconds, then increase the speed and test-drive at speeds over 3 mph (5 km/h) for more than 2 seconds. Slow down and stop the wheels.

12. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0812 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 13.

13. Monitor the OBD STATUS for P0812 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 12, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 11 and recheck.

14. Clear the DTC with the HDS.

15. Test-drive the vehicle in the R position at speeds below 3 mph (5 km/h) for more than 2 seconds, then increase the speed and test-drive at speeds over 3 mph (5 km/h) for more than 2 seconds. Slow down and stop the wheels.

16. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0812 indicated?

    YES—Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to step 1.

    NO—Go to step 17.

17. Monitor the OBD STATUS for P0812 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 16, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission range switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 15 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0815: Short in Transmission Gear Selection Switch Upshift Switch Circuit, or Transmission Gear Selection Switch Upshift Switch Stuck ON

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch ON (II).
2. Shift to the P position.
3. Verify the transmission gear selection switch upshift switch signal input with the HDS in the A/T data list.

   Is UPSHIFT SW ON?

   YES—Go to step 4.

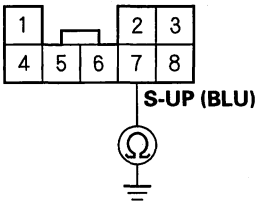
   NO—Intermittent failure, the system is OK at this time. Check the S-UP (BLU) wire for an intermittent short to ground between the transmission gear selection switch and the PCM.■
4. Turn the ignition switch OFF.
5. Disconnect the transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector at the shift lever bracket.
6. Turn the ignition switch ON (II).
7. Verify the transmission gear selection switch upshift switch signal input with the HDS in the A/T data list.

   Is UPSHIFT SW ON?

   YES—Go to step 8.

   NO—Replace the transmission gear selection switch (see page 14-319), then go to step 19.
8. Turn the ignition switch OFF.
9. Jump the SCS line with the HDS.
10. Disconnect PCM connector A (49P).
11. Check for continuity between transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector terminal No. 7 and body ground.

TRANSMISSION GEAR SELECTION SWITCH/ PARK PIN SWITCH/A/T GEAR POSITION INDICATOR PANEL LIGHT CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal A36 and the transmission gear selection switch, then go to step 19.

NO—Go to step 12.

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Protected by AR

12. Reconnect all connectors.

13. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

14. Start the engine in the P position, wait for more than 10 seconds, then shift to the M position.

15. Push the shift lever toward the upshift position (+) slowly, and release it; repeat this test 10 times or more.

16. Pull the shift lever toward the downshift position (−) slowly, and release it; repeat this test 10 times or more.

17. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0815 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for P0815 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission gear selection switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

19. Clear the DTC with the HDS.

20. Start the engine in the P position, wait for more than 10 seconds, then shift to the M position.

21. Push the shift lever toward the upshift position (+) slowly, and release it; repeat this test 10 times or more.

22. Pull the shift lever toward the downshift position (−) slowly, and release it; repeat this test 10 times or more.

23. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0815 indicated?

    YES—Check for poor connections and loose terminals at the transmission gear selection switch and the PCM, then go to step 1.

    NO—Go to step 24.

24. Monitor the OBD status for P0815 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 23, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission gear selection switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 20 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0816: Short in Transmission Gear Selection Switch Downshift Switch Circuit, or Transmission Gear Selection Switch Downshift Switch Stuck ON

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch ON (II).
2. Shift to the P position.
3. Verify the transmission gear selection switch downshift switch signal input with the HDS in the A/T data list.

   Is DOWNSHIFT SW ON?

   YES—Go to step 4.

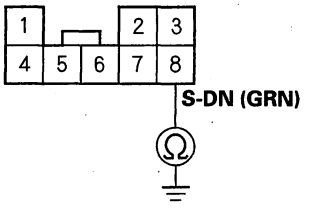
   NO—Intermittent failure, the system is OK at this time. Check the S-DN (GRN) wire for an intermittent short to ground between the transmission gear selection switch and PCM.■
4. Turn the ignition switch OFF.
5. Disconnect the transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector at the shift lever bracket.
6. Turn the ignition switch ON (II).
7. Verify the transmission gear selection switch downshift switch signal input with the HDS in the A/T data list.

   Is DOWNSHIFT SW ON?

   YES—Go to step 8.

   NO—Replace the transmission gear selection switch (see page 14-319), then go to step 19.
8. Turn the ignition switch OFF.
9. Jump the SCS line with the HDS.
10. Disconnect PCM connector A (49P).
11. Check for continuity between transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector terminal No. 8 and body ground.

TRANSMISSION GEAR SELECTION SWITCH/ PARK PIN SWITCH/A/T GEAR POSITION INDICATOR PANEL LIGHT CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire between PCM connector terminal A37 and the transmission gear selection switch, then go to step 19.

NO—Go to step 12.

BACK

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12. Reconnect all connectors.

13. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

14. Start the engine in the P position, wait for more than 10 seconds, then shift to the M position.

15. Push the shift lever toward the upshift position (+) slowly, and release it; repeat this test 10 times or more.

16. Pull the shift lever toward the downshift position (−) slowly, and release it; repeat this test 10 times or more.

17. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0816 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for P0816 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission gear selection switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

19. Clear the DTC with the HDS.

20. Start the engine in the P position, wait for more than 10 seconds, then shift to the M position.

21. Push the shift lever toward the upshift position (+) slowly, and release it; repeat this test 10 times or more.

22. Pull the shift lever toward the downshift position (−) slowly, and release it; repeat this test 10 times or more.

23. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0816 indicated?

    YES—Check for poor connections and loose terminals at the transmission gear selection switch and the PCM, then go to step 1.

    NO—Go to step 24.

24. Monitor the OBD status for P0816 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 23, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission gear selection switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 20 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0842: Short in 2nd Clutch Transmission Fluid Pressure Switch Circuit, or 2nd Clutch Transmission Fluid Pressure Switch Stuck ON

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check the 2nd PRESSURE SWITCH signal with the HDS in the A/T data list when not in 2nd gear.

   Is the 2nd PRESSURE SWITCH OFF?

   YES—Go to step 3.

   NO—Go to step 6.
3. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
4. Drive the vehicle in 2nd gear in the M position for more than 5 seconds, then upshift to 3rd gear, and drive in 3rd gear for more than 5 seconds. Slow down and stop the wheels.
5. Monitor the OBD STATUS for P0842 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 6.

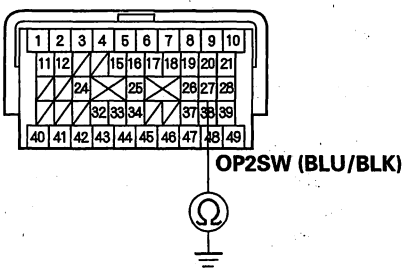
   NO—Intermittent failure, the system is OK at this time. Check the OP2SW wire for an intermittent short to ground between the 2nd clutch transmission fluid pressure switch and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
6. Turn the ignition switch OFF.
7. Disconnect the 2nd clutch transmission fluid pressure switch connector.
8. Turn the ignition switch ON (II).
9. Check the 2nd PRESSURE SWITCH signal with the HDS in the A/T data list.

   Is the 2nd PRESSURE SWITCH OFF?

   YES—Replace the 2nd clutch transmission fluid pressure switch (see page 14-261), then go to step 19.

   NO—Go to step 10.
10. Turn the ignition switch OFF.
11. Jump the SCS line with the HDS.
12. Disconnect PCM connector C (49P).
13. Check for continuity between PCM connector terminal C27 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal C27 and the 2nd clutch transmission fluid pressure switch, then go to step 19.

NO—Go to step 14.

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14. Reconnect all connectors.

15. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

16. Drive the vehicle in 2nd gear in the M position for more than 5 seconds, then upshift to 3rd gear, and drive in 3rd gear for more than 5 seconds. Slow down and stop the wheels.

17. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0842 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for P0842 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the 2nd clutch transmission fluid pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 16 and recheck.

19. Clear the DTC with the HDS.

20. Drive the vehicle in 2nd gear in the M position for more than 5 seconds, then upshift to 3rd gear, and drive in 3rd gear for more than 5 seconds. Slow down and stop the wheels.

21. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0842 indicated?

    YES—Check for poor connections and loose terminals at the 2nd clutch transmission fluid pressure switch and the PCM, then go to step 1.

    NO—Go to step 22.

22. Monitor the OBD STATUS for P0842 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 21, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the 2nd clutch transmission fluid pressure switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 20 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0843: Open in 2nd Clutch Transmission Fluid Pressure Switch Circuit, or 2nd Clutch Transmission Fluid Pressure Switch Stuck OFF

NOTE: Before you troubleshoot, record all freeze data freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
3. Shift the shift lever into the M position while pressing the brake pedal, upshift to 2nd gear by pushing the shift lever to upshift position, and verify with the HDS in the A/T data list that the SHIFT COMMAND indicates 2nd.
4. Check the 2nd PRESSURE SWITCH signal with the HDS in the A/T data list.

   Is the 2nd PRESSURE SWITCH ON?

   YES—Go to step 5.

   NO—Go to step 7.

5. Drive the vehicle in 2nd gear in the M position for more than 5 seconds, then upshift to 3rd gear, and drive in 3rd gear for more than 5 seconds. Slow down and stop the wheels.
6. Monitor the OBD STATUS for P0843 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at the 2nd clutch transmission fluid pressure switch and the PCM. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.

BACK

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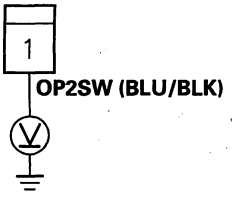
7. Turn the ignition switch OFF.
8. Disconnect the 2nd clutch transmission fluid pressure switch connector.
9. Turn the ignition switch ON (II).
10. Measure the voltage between the 2nd clutch transmission fluid pressure switch connector terminal and body ground.

2ND CLUTCH TRANSMISSION FLUID PRESSURE SWITCH CONNECTOR



Wire side of female terminals

Is there about 5 V?

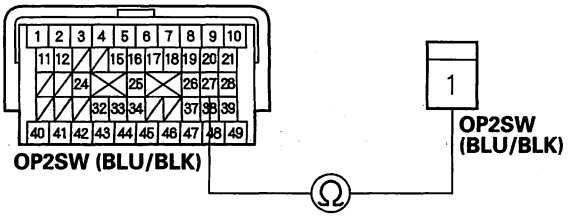
YES—Replace the 2nd clutch transmission fluid pressure switch (see page 14-261), then go to step 20.

NO—Go to step 11.

11. Turn the ignition switch OFF.
12. Jump the SCS line with the HDS.
13. Disconnect PCM connector C (49P).
14. Check for continuity between PCM connector terminal C27 and the 2nd clutch transmission fluid pressure switch connector terminal.

PCM CONNECTOR C (49P)

2ND CLUTCH TRANSMISSION FLUID PRESSURE SWITCH CONNECTOR



Terminal side of female terminals

Wire side of female terminals

Is there continuity?

YES—Check for poor connections and loose terminals at the 2nd clutch transmission fluid pressure switch and the PCM. If the connections are OK, go to step 15.

NO—Repair open in the wire between PCM connector terminal C27 and the 2nd clutch transmission fluid pressure switch, then go to step 20.

(cont'd)

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DTC Troubleshooting (cont'd)

15. Reconnect all connectors.

16. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

17. Drive the vehicle in 2nd gear in the M position for more than 5 seconds, then upshift to 3rd gear, and drive in 3rd gear for more than 5 seconds. Slow down and stop the wheels.

18. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0843 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 19.

19. Monitor the OBD STATUS for P0843 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the 2nd clutch transmission fluid pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.

20. Clear the DTC with the HDS.

21. Drive the vehicle in 2nd gear in the M position for more than 5 seconds, then upshift to 3rd gear, and drive in 3rd gear for more than 5 seconds. Slow down and stop the wheels.

22. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0843 indicated?

    YES—Check for poor connections and loose terminals at the 2nd clutch transmission fluid pressure switch and the PCM, then go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for P0843 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the 2nd clutch transmission fluid pressure switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

BACK

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DTC P0847: Short in 3rd Clutch Transmission Fluid Pressure Switch Circuit, or 3rd Clutch Transmission Fluid Pressure Switch Stuck ON

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check the 3rd PRESSURE SWITCH signal with the HDS in the A/T data list when not in 3rd gear.

   Is the 3rd PRESSURE SWITCH OFF?

   YES—Go to step 3.

   NO—Go to step 6.
3. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
4. Drive the vehicle in 3rd gear in the M position for more than 5 seconds, then upshift to 4th gear, and drive in 4th gear for more than 5 seconds. Slow down and stop the wheels.
5. Monitor the OBD STATUS for P0847 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 6.

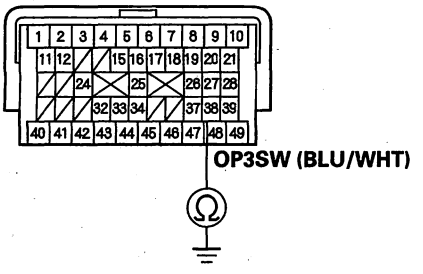
   NO—Intermittent failure, the system is OK at this time. Check the OP3SW wire for an intermittent short to ground between the 3rd clutch transmission fluid pressure switch and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
6. Turn the ignition switch OFF.
7. Disconnect the 3rd clutch transmission fluid pressure switch connector.
8. Turn the ignition switch ON (II).
9. Check the 3rd PRESSURE SWITCH signal with the HDS in the A/T data list.

   Is the 3rd PRESSURE SWITCH OFF?

   YES—Replace the 3rd clutch transmission fluid pressure switch (see page 14-262), then go to step 19.

   NO—Go to step 10.
10. Turn the ignition switch OFF.
11. Jump the SCS line with the HDS.
12. Disconnect PCM connector C (49P).
13. Check for continuity between PCM connector terminal C38 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal C38 and the 3rd clutch transmission fluid pressure switch, then go to step 19.

NO—Go to step 14.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

14. Reconnect all connectors.

15. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

16. Drive the vehicle in 3rd gear in the M position for more than 5 seconds, then upshift to 4th gear, and drive in 4th gear for more than 5 seconds. Slow down and stop the wheels.

17. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0847 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for P0847 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the 3rd clutch transmission fluid pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 16 and recheck.

19. Clear the DTC with the HDS.

20. Drive the vehicle in 3rd gear in the M position for more than 5 seconds, then upshift to 3rd gear, and drive in 3rd gear for more than 5 seconds. Slow down and stop the wheels.

21. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0847 indicated?

    YES—Check for poor connections and loose terminals at the 3rd clutch transmission fluid pressure switch and the PCM, then go to step 1.

    NO—Go to step 22.

22. Monitor the OBD STATUS for P0847 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 21, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the 3rd clutch transmission fluid pressure switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 20 and recheck.

BACK

Protected by AR

DTC P0848: Open in 3rd Clutch Transmission Fluid Pressure Switch Circuit, or 3rd Clutch Transmission Fluid Pressure Switch Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
3. Drive the vehicle in 3rd gear in the M position, and verify with the HDS in the A/T data list that the SHIFT COMMAND indicates 3rd.
4. Check the 3rd PRESSURE SWITCH signal with the HDS in the A/T data list.

   Is the 3rd PRESSURE SWITCH ON?

   YES—Go to step 5.

   NO—Go to step 7.

5. Drive the vehicle in 3rd gear in the M position for more than 5 seconds, then upshift to 4th gear, and drive in 4th gear for more than 5 seconds. Slow down and stop the wheels.
6. Monitor the OBD STATUS for P0848 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 7.

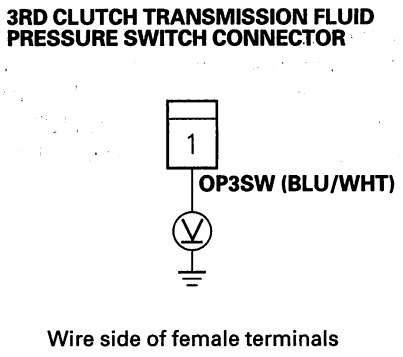
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the 3rd clutch transmission fluid pressure switch and the PCM. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

7. Turn the ignition switch OFF.
8. Disconnect the 3rd clutch transmission fluid pressure switch connector.
9. Turn the ignition switch ON (II).
10. Measure the voltage between the 3rd clutch transmission fluid pressure switch connector terminal and body ground.

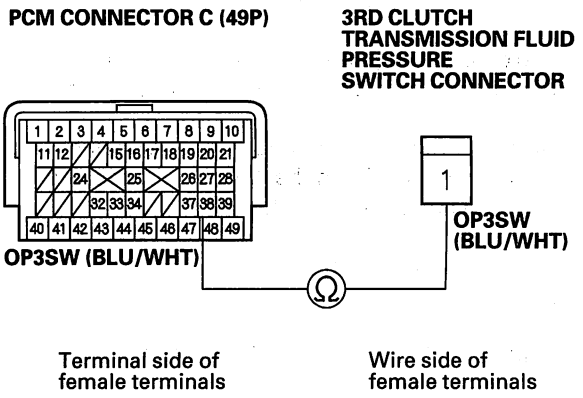


Is there about 5 V?

YES—Replace the 3rd clutch transmission fluid pressure switch (see page 14-262), then go to step 20.

NO—Go to step 11.

11. Turn the ignition switch OFF.
12. Jump the SCS line with the HDS.
13. Disconnect PCM connector C (49P).
14. Check for continuity between PCM connector terminal C38 and the 3rd clutch transmission fluid pressure switch connector terminal.



Is there continuity?

YES—Check for poor connections and loose terminals at the 3rd clutch transmission fluid pressure switch and the PCM. If the connections are OK, go to step 15.

NO—Repair open in the wire between PCM connector terminal C38 and the 3rd clutch transmission fluid pressure switch, then go to step 20.

BACK

Protected by AR

15. Reconnect all connectors.

16. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

17. Drive the vehicle in 3rd gear in the M position for more than 5 seconds, then upshift to 4th gear, and drive in 4th gear for more than 5 seconds. Slow down and stop the wheels.

18. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0848 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 19.

19. Monitor the OBD STATUS for P0848 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the 3rd clutch transmission fluid pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.

20. Clear the DTC with the HDS.

21. Drive the vehicle in 3rd gear in the M position for more than 5 seconds, then upshift to 3rd gear, and drive in 3rd gear for more than 5 seconds. Slow down and stop the wheels.

22. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0848 indicated?

    YES—Check for poor connections and loose terminals at the 3rd clutch transmission fluid pressure switch and the PCM, then go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for P0848 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the 3rd clutch transmission fluid pressure switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0872: Short in 4th Clutch Transmission Fluid Pressure Switch Circuit, or 4th Clutch Transmission Fluid Pressure Switch Stuck ON

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check the 4th PRESSURE SWITCH signal with the HDS in the A/T data list when not in 4th gear.

   Is the 4th PRESSURE SWITCH OFF?

   YES—Go to step 3.

   NO—Go to step 6.
3. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
4. Drive the vehicle in 4th gear in the M position for more than 5 seconds, then upshift to 5th gear, and drive in 5th gear for more than 5 seconds. Slow down and stop the wheels.
5. Monitor the OBD STATUS for P0872 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 6.

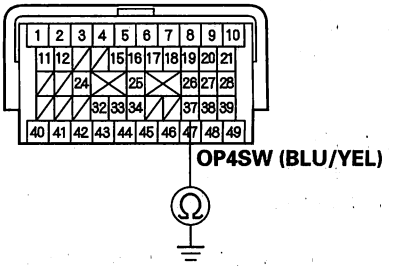
   NO—Intermittent failure, the system is OK at this time. Check the OP4SW wire for an intermittent short to ground between the 4th clutch transmission fluid pressure switch and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
6. Turn the ignition switch OFF.
7. Disconnect the 4th clutch transmission fluid pressure switch connector.
8. Turn the ignition switch ON (II).
9. Check the 4th PRESSURE SWITCH signal with the HDS in the A/T data list.

   Is the 4th PRESSURE SWITCH OFF?

   YES—Replace the 4th clutch transmission fluid pressure switch (see page 14-263), then go to step 19.

   NO—Go to step 10.
10. Turn the ignition switch OFF.
11. Jump the SCS line with the HDS.
12. Disconnect PCM connector C (49P).
13. Check for continuity between PCM connector terminal C37 and body ground.

PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal C37 and the 4th clutch transmission fluid pressure switch, then go to step 19.

NO—Go to step 14.

BACK

Protected by AR

14. Reconnect all connectors.

15. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

16. Drive the vehicle in 4th gear in the M position for more than 5 seconds, then upshift to 5th gear, and drive in 5th gear for more than 5 seconds. Slow down and stop the wheels.

17. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0872 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for P0872 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the 4th clutch transmission fluid pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 16 and recheck.

19. Clear the DTC with the HDS.

20. Drive the vehicle in 4th gear in the M position for more than 5 seconds, then upshift to 5th gear, and drive in 5th gear for more than 5 seconds. Slow down and stop the wheels.

21. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0872 indicated?

    YES—Check for poor connections and loose terminals at the 4th clutch transmission fluid pressure switch and the PCM, then go to step 1.

    NO—Go to step 22.

22. Monitor the OBD STATUS for P0872 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 21, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the 4th clutch transmission fluid pressure switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 20 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0873: Open in 4th Clutch Transmission Fluid Pressure Switch Circuit, or 4th Clutch Transmission Fluid Pressure Switch Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
3. Drive the vehicle in 4th gear in the M position, and verify with the HDS in the A/T data list that the SHIFT COMMAND indicates 4th.
4. Check the 4th PRESSURE SWITCH signal with the HDS in the A/T data list.

   Is the 4th PRESSURE SWITCH ON?

   YES—Go to step 5.

   NO—Go to step 7.

5. Drive the vehicle in 4th gear in the M position for more than 5 seconds, then upshift to 5th gear, and drive in 5th gear for more than 5 seconds. Slow down and stop the wheels.
6. Monitor the OBD STATUS for P0873 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the 4th clutch transmission fluid pressure switch and the PCM. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.

BACK

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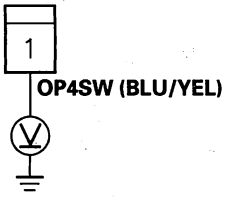
7. Turn the ignition switch OFF.
8. Disconnect the 4th clutch transmission fluid pressure switch connector.
9. Turn the ignition switch ON (II).
10. Measure the voltage between the 4th clutch transmission fluid pressure switch connector terminal and body ground.

4TH CLUTCH TRANSMISSION FLUID PRESSURE SWITCH CONNECTOR



Wire side of female terminals

Is there about 5 V?

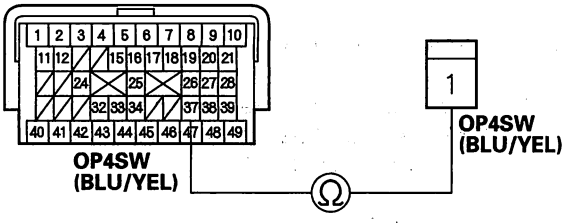
YES—Replace the 4th clutch transmission fluid pressure switch (see page 14-263), then go to step 20.

NO—Go to step 11.

11. Turn the ignition switch OFF.
12. Jump the SCS line with the HDS.
13. Disconnect PCM connector C (49P).
14. Check for continuity between PCM connector terminal C37 and the 4th clutch transmission fluid pressure switch connector terminal.

PCM CONNECTOR C (49P)

4TH CLUTCH TRANSMISSION FLUID PRESSURE SWITCH CONNECTOR



Terminal side of female terminals

Wire side of female terminals

Is there continuity?

YES—Check for poor connections and loose terminals at the 4th clutch transmission fluid pressure switch and the PCM. If the connections are OK, go to step 15.

NO—Repair open in the wire between PCM connector terminal C37 and the 4th clutch transmission fluid pressure switch, then go to step 20.

(cont'd)

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DTC Troubleshooting (cont'd)

15. Reconnect all connectors.

16. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

17. Drive the vehicle in 4th gear in the M position for more than 5 seconds, then upshift to 5th gear, and drive in 5th gear for more than 5 seconds. Slow down and stop the wheels.

18. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0873 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 19.

19. Monitor the OBD STATUS for P0873 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the 4th clutch transmission fluid pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.

20. Clear the DTC with the HDS.

21. Drive the vehicle in 4th gear in the M position for more than 5 seconds, then upshift to 4th gear, and drive in 4th gear for more than 5 seconds. Slow down and stop the wheels.

22. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0873 indicated?

    YES—Check for poor connections and loose terminals at the 4th clutch transmission fluid pressure switch and the PCM, then go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for P0873 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the 4th clutch transmission fluid pressure switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

BACK

Protected by AR

DTC P0957: Short in Transmission Gear Selection Switch Circuit, or Transmission Gear Selection Switch Stuck ON

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch ON (II).
2. Shift to the P position.
3. Verify the transmission gear selection switch sequential sportshift mode switch signal input with the HDS in the A/T data list.

   Is sequential sportshift mode switch ON?

   YES—Go to step 4.

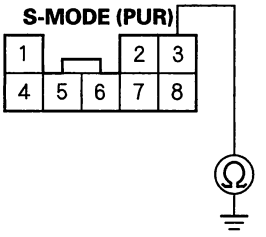
   NO—Intermittent failure, the system is OK at this time. Check the S-MODE wire for an intermittent short to ground between the transmission gear selection switch and the PCM. ■
4. Turn the ignition switch OFF.
5. Disconnect the transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector at the shift lever bracket.
6. Turn the ignition switch ON (II).
7. Verify the transmission gear selection switch sequential sportshift mode switch signal input with the HDS in the A/T data list.

   Is UPSHIFT SW ON?

   YES—Go to step 8.

   NO—Replace the transmission gear selection switch (see page 14-319), then go to step 19.
8. Turn the ignition switch OFF.
9. Jump the SCS line with the HDS.
10. Disconnect PCM connector A (49P).
11. Check for continuity between transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector terminal No. 3 and body ground.

TRANSMISSION GEAR SELECTION SWITCH/ PARK PIN SWITCH/A/T GEAR POSITION INDICATOR PANEL LIGHT CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal A47 and the transmission gear selection switch, then go to step 19.

NO—Go to step 12.

(cont'd)

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DTC Troubleshooting (cont'd)

12. Reconnect all connectors.

13. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

14. Start the engine in the P position, wait for more than 10 seconds, then shift to the M position.

15. Push the shift lever toward upshift position (+) slowly, and release it; repeat this test 10 times or more.

16. Pull the shift lever toward downshift position (−) slowly, and release it; repeat this test 10 times or more.

17. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0957 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for P0957 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission gear selection switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

19. Clear the DTC with the HDS.

20. Start the engine in the P position, wait for more than 10 seconds, then shift to the M position.

21. Push the shift lever toward upshift position (+) slowly, and release it; repeat this test 10 times or more.

22. Pull the shift lever toward downshift position (−) slowly, and release it; repeat this test 10 times or more.

23. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0957 indicated?

    YES—Check for poor connections and loose terminals at the transmission gear selection switch and the PCM, then go to step 1.

    NO—Go to step 24.

24. Monitor the OBD STATUS for P0957 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 23, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission gear selection switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 20 and recheck.

BACK

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DTC P0958: Open in Transmission Gear Selection Switch Circuit, or Transmission Gear Selection Switch Stuck OFF

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

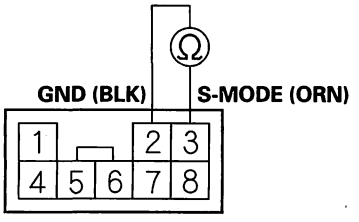
1. Turn the ignition switch ON (II).
2. Shift to the M position.
3. Verify the transmission gear selection switch sequential sportshift mode switch signal input with the HDS in the A/T data list.

   Is sequential sportshift mode switch OFF?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at the transmission gear selection switch and the PCM. ■
4. Turn the ignition switch OFF.
5. Disconnect the transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector at the shift lever bracket.
6. Check for continuity between transmission gear selection switch/park pin switch/A/T gear position indicator light harness connector terminals No. 2 and No. 3.

TRANSMISSION GEAR SELECTION SWITCH/ PARK PIN SWITCH/A/T GEAR POSITION INDICATOR PANEL LIGHT CONNECTOR



Terminal side of female terminals

Is there continuity while the shift lever is in the M position, and no continuity when the shift lever is in any position other than M?

YES—Go to step 7.

NO—Replace the transmission gear selection switch (see page 14-319), then go to step 20.

(cont'd)

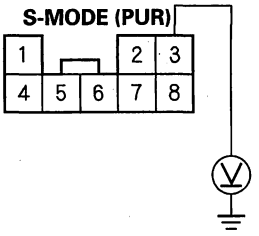
Protected by AR

DTC Troubleshooting (cont'd)

7. Turn the ignition switch ON (II).

8. Measure the voltage between transmission gear selection switch/park pin switch/A/T gear position indicator light connector terminal No. 3 and body ground.

TRANSMISSION GEAR SELECTION SWITCH/ PARK PIN SWITCH/A/T GEAR POSITION INDICATOR PANEL LIGHT CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Repair open in the wire between transmission gear selection switch/park pin switch/ A/T gear position indicator panel light connector and ground (G503), or repair poor ground (G503), then go to step 20.

NO—Go to step 9.

9. Turn the ignition switch OFF.

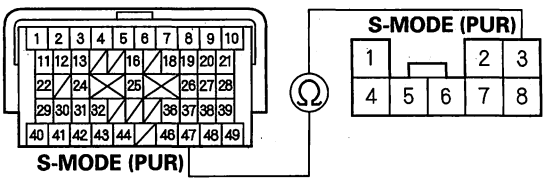
10. Jump the SCS line with the HDS.

11. Disconnect PCM connector A (49P).

12. Check for continuity between PCM connector terminal A47 and transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector terminal No. 3.

PCM CONNECTOR A (49P)

TRANSMISSION GEAR SELECTION SWITCH/ PARK PIN SWITCH/ A/T GEAR POSITION INDICATOR PANEL LIGHT CONNECTOR



Terminal side of female terminals

Wire side of female terminals

Is there continuity?

YES—Repair open in the wire between PCM connector terminal A47 and the transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector, then go to step 20.

NO—Go to step 13.

BACK

Protected by AR

13. Reconnect all connectors.

14. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

15. Start the engine in the P position, wait for more than 10 seconds, then shift to the M position.

16. Push the shift lever toward upshift position (+) slowly, and release it; repeat this test 10 times or more.

17. Pull the shift lever toward downshift position (−) slowly, and release it; repeat this test 10 times or more.

18. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0958 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 19.

19. Monitor the OBD STATUS for P0958 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission gear selection switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 15 and recheck.

20. Clear the DTC with the HDS.

21. Start the engine in the P position, wait for more than 10 seconds, then shift to the M position.

22. Push the shift lever toward upshift position (+) slowly, and release it; repeat this test 10 times or more.

23. Pull the shift lever toward downshift position (−) slowly, and release it; repeat this test 10 times or more.

24. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0958 indicated?

    YES—Check for poor connections and loose terminals at the transmission gear selection switch and the PCM, then go to step 1.

    NO—Go to step 25.

25. Monitor the OBD STATUS for P0958 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 24, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission gear selection switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 20 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0962: Problem in A/T Clutch Pressure Control Solenoid Valve A Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0962 recurs.

   Is DTC P0962 indicated?

   YES—Go to step 6.

   NO—Go to step 3.
3. Choose Clutch Pressure Control (Linear) Solenoid A in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve A with the HDS.

   Is the result NORMAL?

   YES—Go to step 4.

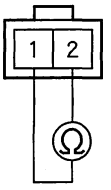
   NO—Go to step 6.
4. Choose Clutch Pressure Control Solenoid Control in the Miscellaneous Test Menu, and command A/T clutch pressure control solenoid valve A at 1.0 A with the HDS.
5. Monitor the OBD STATUS for P0962 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM. If the HDS indicates NOT COMPLETED, return to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Disconnect the A/T clutch pressure control solenoid valve A connector.
8. Measure the resistance between A/T clutch pressure control solenoid valve A connector terminals No. 1 and No. 2.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Terminal side of male terminals

Is there 3— 10 Ω ?

YES—Go to step 9.

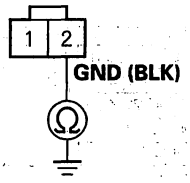
NO—Replace A/T clutch pressure control solenoid valve A (see page 14-252), then go to step 24.

BACK

Protected by AR

9. Check for continuity between A/T clutch pressure control solenoid valve A connector terminal No. 2 and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Wire side of female terminals

Is there continuity?

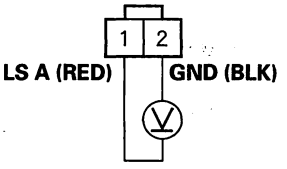
YES—Go to step 10.

NO—Repair open in the wire between A/T clutch pressure control solenoid valve A and ground (G101), or repair poor ground (G101), then go to step 24.

10. Turn the ignition switch ON (II).

11. Measure the voltage between A/T clutch pressure control solenoid valve A connector terminals No. 1 and No. 2.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Wire side of female terminals

Is there momentarily battery voltage when the ignition switch is turned ON (II)?

YES—Go to step 19.

NO—Check for open or short in the wire between PCM connector terminal C21 and A/T clutch pressure control solenoid valve A, if the wiring is OK, go to step 12.

(cont'd)

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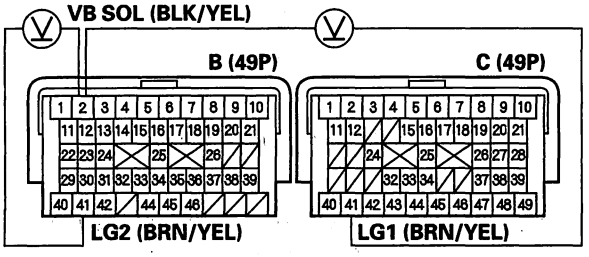
DTC Troubleshooting (cont'd)

12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect PCM connectors B (49P) and C (49P).
15. Turn the ignition switch ON (II).
16. Measure the voltage between PCM connector terminals B2 and B41 or C41.

PCM CONNECTORS



Terminal side of female terminals

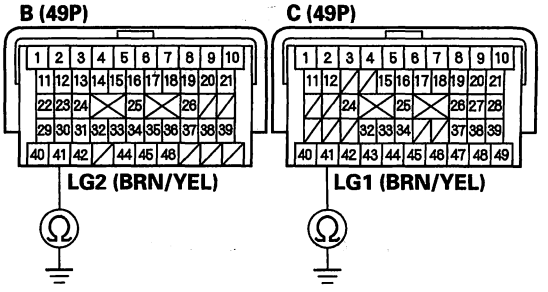
Is there battery voltage?

YES—Go to step 19.

NO—Go to step 17.

17. Turn the ignition switch OFF.
18. Check for continuity between PCM connector terminals B41 and body ground, and between C41 and body ground.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Check for a blown No. 18 fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal B2 and the under-dash fuse/relay box, then go to step 24.

NO—Repair open in the wires between PCM connector terminals B41, C41 and ground (G101), or repair poor ground (G101), then go to step 24.

BACK

Protected by AR

19. Reconnect all connectors.

20. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

21. Test-drive the vehicle for several minutes in the D position through all five gears.

22. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0962 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for P0962 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

24. Clear the DTC with the HDS.

25. Test-drive the vehicle for several minutes in the D position through all five gears.

26. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0962 indicated?

    YES—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM, then go to step 1.

    NO—Go to step 27.

27. Monitor the OBD STATUS for P0962 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 26, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 25 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0963: Problem in A/T Clutch Pressure Control Solenoid Valve A

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0963 recurs.

   Is DTC P0963 indicated?

   YES—Go to step 6.

   NO—Go to step 3.
3. Choose Clutch Pressure Control (Linear) Solenoid A in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve A with the HDS.

   Is the result NORMAL?

   YES—Go to step 4.

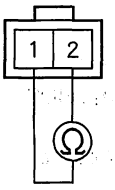
   NO—Go to step 6.
4. Choose Clutch Pressure Control Solenoid Control in the Miscellaneous Test Menu, and command A/T clutch pressure control solenoid valve A at 0.2 A with the HDS.
5. Monitor the OBD STATUS for P0963 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM. If the HDS indicates NOT COMPLETED, return to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Disconnect the A/T clutch pressure control solenoid valve A connector.
8. Measure the resistance between A/T clutch pressure control solenoid valve A connector terminals No. 1 and No. 2.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Terminal side of male terminals

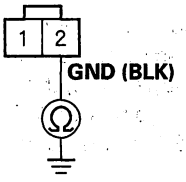
Is there 3— 10 Ω ?

YES—Go to step 9.

NO—Replace A/T clutch pressure control solenoid valve A (see page 14-252), then go to step 15.

9. Check for continuity between A/T clutch pressure control solenoid valve A connector terminal No. 2 and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between A/T clutch pressure control solenoid valve A and ground (G101), or repair poor ground (G101), then go to step 15.

BACK

Protected by AR

10. Reconnect the A/T clutch pressure control solenoid valve A connector.

11. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

12. Test-drive the vehicle for several minutes in the D position through all five gears.

13. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0963 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 14.

14. Monitor the OBD STATUS for P0963 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 13, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

15. Clear the DTC with the HDS.

16. Test-drive the vehicle for several minutes in the D position through all five gears.

17. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0963 indicated?

    YES—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM, then go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for P0963 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 16 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0966: Problem in A/T Clutch Pressure Control Solenoid Valve B Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0966 recurs.

   Is DTC P0966 indicated?

   YES—Go to step 6.

   NO—Go to step 3.
3. Choose Clutch Pressure Control (Linear) Solenoid B in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve B with the HDS.

   Is the result NORMAL?

   YES—Go to step 4.

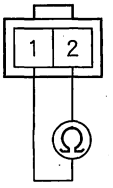
   NO—Go to step 6.
4. Choose Clutch Pressure Control Solenoid Control in the Miscellaneous Test Menu, and command A/T clutch pressure control solenoid valve B at 1.0 A with the HDS.
5. Monitor the OBD STATUS for P0966 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM. If the HDS indicates NOT COMPLETED, return to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Disconnect the A/T clutch pressure control solenoid valve B connector.
8. Measure the resistance between A/T clutch pressure control solenoid valve B connector terminals No. 1 and No. 2.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Terminal side of male terminals

Is there 3— 10 Ω ?

YES—Go to step 9.

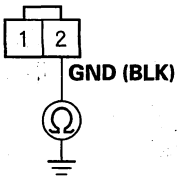
NO—Replace A/T clutch pressure control solenoid valve B (see page 14-252), then go to step 24.

BACK

Protected by AR

9. Check for continuity between A/T clutch pressure control solenoid valve B connector terminal No. 2 and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Wire side of female terminals

Is there continuity?

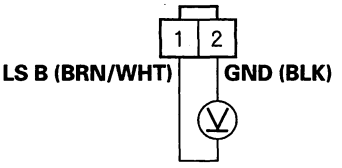
YES—Go to step 10.

NO—Repair open in the wire between A/T clutch pressure control solenoid valve B and ground (G101), or repair poor ground (G101), then go to step 24.

10. Turn the ignition switch ON (II).

11. Measure the voltage between A/T clutch pressure control solenoid valve B connector terminals No. 1 and No. 2.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Wire side of female terminals

Is there momentarily battery voltage when the ignition switch is turned ON (II)?

YES—Go to step 19.

NO—Check for open or short in the wire between PCM connector terminal B10 and A/T clutch pressure control solenoid valve B, if the wiring is OK, go to step 12.

(cont'd)

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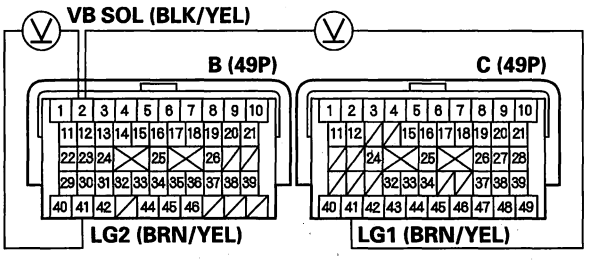
DTC Troubleshooting (cont'd)

12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect PCM connectors B (49P) and C (49P).
15. Turn the ignition switch ON (II).
16. Measure the voltage between PCM connector terminals B2 and B41 or C41.

PCM CONNECTORS



Terminal side of female terminals

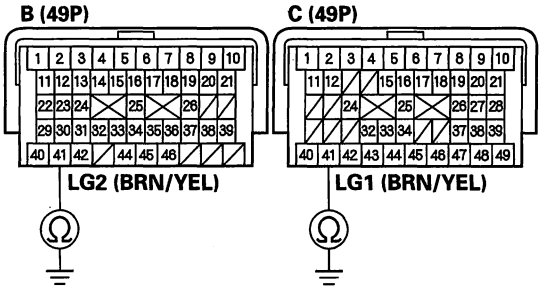
Is there battery voltage?

YES—Go to step 19.

NO—Go to step 17.

17. Turn the ignition switch OFF.
18. Check for continuity between PCM connector terminals B41 and body ground, and between C41 and body ground.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Check for a blown No. 18 fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal B2 and the under-dash fuse/relay box, then go to step 24.

NO—Repair open in the wires between PCM connector terminals B41, C41 and ground (G101), or repair poor ground (G101), then go to step 24.

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19. Reconnect all connectors.

20. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

21. Test-drive the vehicle for several minutes in the D position through all five gears.

22. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0966 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for P0966 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

24. Clear the DTC with the HDS.

25. Test-drive the vehicle for several minutes in the D position through all five gears.

26. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0966 indicated?

    YES—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM, then go to step 1.

    NO—Go to step 27.

27. Monitor the OBD STATUS for P0966 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 26, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 25 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0967: Problem in A/T Clutch Pressure Control Solenoid Valve B

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0967 recurs.

   Is DTC P0967 indicated?

   YES—Go to step 6.

   NO—Go to step 3.
3. Choose Clutch Pressure Control (Linear) Solenoid B in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve B with the HDS.

   Is the result NORMAL?

   YES—Go to step 4.

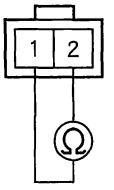
   NO—Go to step 6.
4. Choose Clutch Pressure Control Solenoid Control in the Miscellaneous Test Menu, and command A/T clutch pressure control solenoid valve B at 0.2 A with the HDS.
5. Monitor the OBD STATUS for P0967 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM. If the HDS indicates NOT COMPLETED, return to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Disconnect the A/T clutch pressure control solenoid valve B connector.
8. Measure the resistance between A/T clutch pressure control solenoid valve B connector terminals No. 1 and No. 2.

   A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



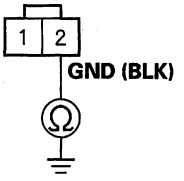
   Terminal side of male terminals

   Is there 3– 10 Ω ?

   YES—Go to step 9.

   NO—Replace A/T clutch pressure control solenoid valve B (see page 14-252), then go to step 15.
9. Check for continuity between A/T clutch pressure control solenoid valve B connector terminal No. 2 and body ground.

   A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



   Wire side of female terminals

   Is there continuity?

   YES—Go to step 10.

   NO—Repair open in the wire between A/T clutch pressure control solenoid valve C and ground (G101), or repair poor ground (G101), then go to step 15.

BACK

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10. Reconnect the A/T clutch pressure control solenoid valve B connector.

11. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

12. Test-drive the vehicle for several minutes in the D position through all five gears.

13. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0967 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 14.

14. Monitor the OBD STATUS for P0967 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 13, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

15. Clear the DTC with the HDS.

16. Test-drive the vehicle for several minutes in the D position through all five gears.

17. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0967 indicated?

    YES—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM, then go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for P0967 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 16 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0970: Problem in A/T Clutch Pressure Control Solenoid Valve C Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0970 recurs.

   Is DTC P0970 indicated?

   YES—Go to step 6.

   NO—Go to step 3.
3. Choose Clutch Pressure Control (Linear) Solenoid C in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve C with the HDS.

   Is the result NORMAL?

   YES—Go to step 4.

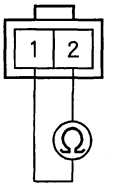
   NO—Go to step 6.
4. Choose Clutch Pressure Control Solenoid Control in the Miscellaneous Test Menu, and command A/T clutch pressure control solenoid valve C at 1.0 A with the HDS.
5. Monitor the OBD STATUS for P0970 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM. If the HDS indicates NOT COMPLETED, return to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Disconnect the A/T clutch pressure control solenoid valve C connector.
8. Measure the resistance between A/T clutch pressure control solenoid valve C connector terminals No. 1 and No. 2.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C CONNECTOR



Terminal side of male terminals

Is there 3— 10 Ω ?

YES—Go to step 9.

NO—Replace A/T clutch pressure control solenoid valve C (see page 14-257), then go to step 24.

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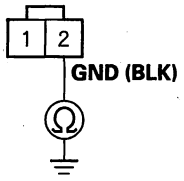
9. Check for continuity between A/T clutch pressure control solenoid valve C connector terminal No. 2 and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C CONNECTOR



Wire side of female terminals

Is there continuity?

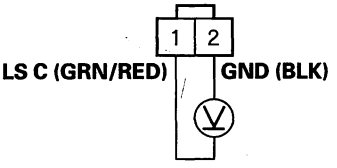
YES—Go to step 10.

NO—Repair open in the wire between A/T clutch pressure control solenoid valve C and ground (G101), or repair poor ground (G101), then go to step 24.

10. Turn the ignition switch ON (II).

11. Measure the voltage between A/T clutch pressure control solenoid valve C connector terminals No. 1 and No. 2.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C CONNECTOR



Wire side of female terminals

Is there momentarily battery voltage when the ignition switch is turned ON (II)?

YES—Go to step 19.

NO—Check for open or short in the wire between PCM connector terminal B21 and A/T clutch pressure control solenoid valve C, if the wiring is OK, go to step 12.

(cont'd)

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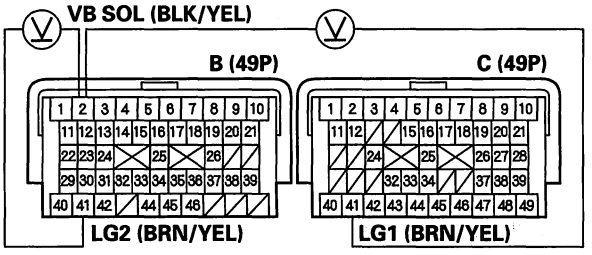
DTC Troubleshooting (cont'd)

12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect PCM connectors B (49P) and C (49P).
15. Turn the ignition switch ON (II).
16. Measure the voltage between PCM connector terminals B2 and B41 or C41.

PCM CONNECTORS



Terminal side of female terminals

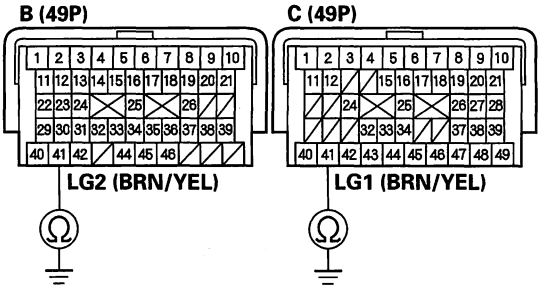
Is there battery voltage?

YES—Go to step 19.

NO—Go to step 17.

17. Turn the ignition switch OFF.
18. Check for continuity between PCM connector terminals B41 and body ground, and between C41 and body ground.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Check for a blown No. 18 fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal B2 and the under-dash fuse/relay box, then go to step 24.

NO—Repair open in the wires between PCM connector terminals B41, C41 and ground (G101), or repair poor ground (G101), then go to step 24.

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19. Reconnect all connectors.

20. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

21. Test-drive the vehicle for several minutes in the D position through all five gears.

22. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0970 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for P0970 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

24. Clear the DTC with the HDS.

25. Test-drive the vehicle for several minutes in the D position through all five gears.

26. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0970 indicated?

    YES—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM, then go to step 1.

    NO—Go to step 27.

27. Monitor the OBD STATUS for P0970 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 26, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 25 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0971: Problem in A/T Clutch Pressure Control Solenoid Valve C

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0971 recurs.

   Is DTC P0971 indicated?

   YES—Go to step 6.

   NO—Go to step 3.
3. Choose Clutch Pressure Control (Linear) Solenoid C in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve C with the HDS.

   Is the result NORMAL?

   YES—Go to step 4.

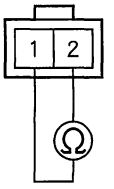
   NO—Go to step 6.
4. Choose Clutch Pressure Control Solenoid Control in the Miscellaneous Test Menu, and command A/T clutch pressure control solenoid valve C at 0.2 A with the HDS.
5. Monitor the OBD STATUS for P0971 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM. If the HDS indicates NOT COMPLETED, return to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Disconnect the A/T clutch pressure control solenoid valve C connector.
8. Measure the resistance between A/T clutch pressure control solenoid valve C connector terminals No. 1 and No. 2.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C CONNECTOR



Terminal side of male terminals

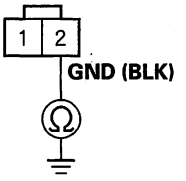
Is there 3— 10 Ω ?

YES—Go to step 9.

NO—Replace A/T clutch pressure control solenoid valve C (see page 14-257), then go to step 15.

9. Check for continuity between A/T clutch pressure control solenoid valve C connector terminal No. 2 and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between A/T clutch pressure control solenoid valve C and ground (G101), or repair poor ground (G101), then go to step 15.

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10. Reconnect the A/T clutch pressure control solenoid valve C connector.

11. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

12. Test-drive the vehicle for several minutes in the D position through all five gears.

13. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0971 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 14.

14. Monitor the OBD STATUS for P0971 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 13, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

15. Clear the DTC with the HDS.

16. Test-drive the vehicle for several minutes in the D position through all five gears.

17. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0971 indicated?

    YES—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM, then go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for P0971 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 16 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0973: Short in Shift Solenoid Valve A Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle for several minutes in the D position through all five gears.
3. Check that DTC P0973 recurs.

   Is DTC P0973 indicated?

   YES—Go to step 7.

   NO—Go to step 4.
4. Choose Shift Solenoid A in the Miscellaneous Test Menu, and test shift solenoid valve A with the HDS.

   Is a clicking sound heard?

   YES—Go to step 5.

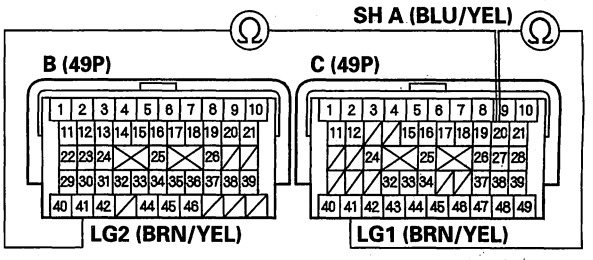
   NO—Go to step 7.
5. Test-drive the vehicle for several minutes in the D position through all five gears.
6. Monitor the OBD STATUS for P0973 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check the SH A wire for an intermittent short to ground between shift solenoid valve A and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals C20 and C41 or B41.

PCM CONNECTORS



Terminal side of female terminals

Is there less than 12 Ω ?

YES—Go to step 11.

NO—Go to step 19.

BACK

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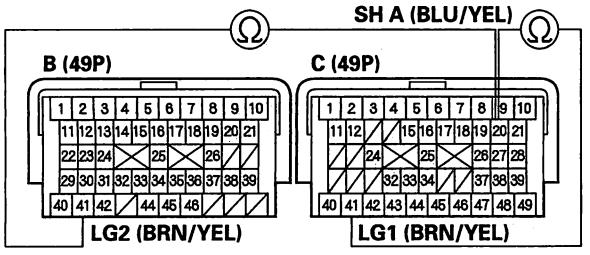
11. Disconnect the shift solenoid harness connector.

12. Check for continuity between PCM connector terminals C20 and C41 or B41.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal C20 and the shift solenoid harness connector, then go to step 24.

NO—Go to step 13.

13. Inspect shift solenoid valve A (see page 14-242).

Is shift solenoid valve A OK?

YES—Go to step 14.

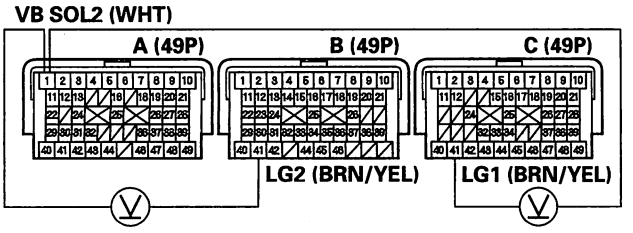
NO—Replace shift solenoid valve A or the shift solenoid harness (see page 14-242), then go to step 18.

14. Disconnect PCM connector A (49P).

15. Turn the ignition switch ON (II).

16. Measure the voltage between PCM connector terminals A1 and B41 or C41.

PCM CONNECTORS



Terminal side of female terminals

Is there battery voltage?

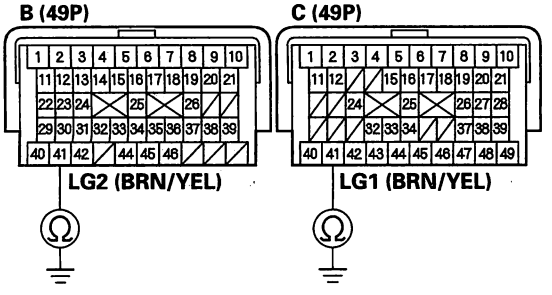
YES—Go to step 19.

NO—Go to step 17.

17. Turn the ignition switch OFF.

18. Check for continuity between PCM connector terminals B41 and body ground, and between C41 and body ground.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Check for a blown No. 10 fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal A1 and the under-dash fuse/relay box, then go to step 24.

NO—Repair open in the wires between PCM connector terminals B41, C41 and ground (G101), or repair poor ground (G101), then go to step 24.

(cont'd)

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DTC Troubleshooting (cont'd)

19. Reconnect all connectors.

20. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

21. Test-drive the vehicle for several minutes in the D position through all five gears.

22. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0973 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for P0973 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

24. Clear the DTC with the HDS.

25. Test-drive the vehicle for several minutes in the D position through all five gears.

26. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0973 indicated?

    YES—Check for poor connections and loose terminals at shift solenoid valve A and the PCM, then go to step 1.

    NO—Go to step 27.

27. Monitor the OBD STATUS for P0973 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 26, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve A and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 25 and recheck.

BACK

Protected by AR

DTC P0974: Open in Shift Solenoid Valve A Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle for several minutes in the D position through all five gears.
3. Check that DTC P0974 recurs.

   Is DTC P0974 indicated?

   YES—Go to step 7.

   NO—Go to step 4.
4. Choose Shift Solenoid A in the Miscellaneous Test Menu, and test shift solenoid valve A with the HDS.

   Is a clicking sound heard?

   YES—Go to step 5.

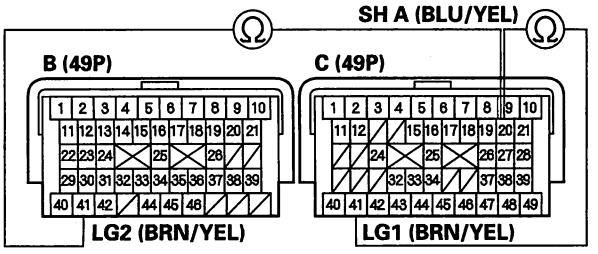
   NO—Go to step 7.
5. Test-drive the vehicle for several minutes in the D position through all five gears.
6. Monitor the OBD STATUS for P0974 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at shift solenoid valve A and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals C20 and C41 or B41.

PCM CONNECTORS



Terminal side of female terminals

Is there 12—25 Ω ?

YES—Go to step 15.

NO—Go to step 11.

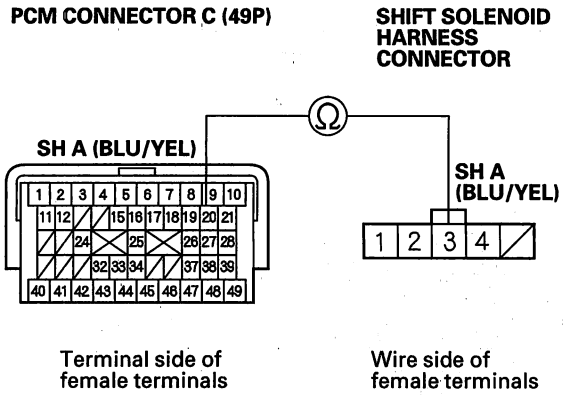
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

11. Disconnect the shift solenoid harness connector.

12. Check for continuity between PCM connector terminal C20 and shift solenoid harness connector terminal No. 3.



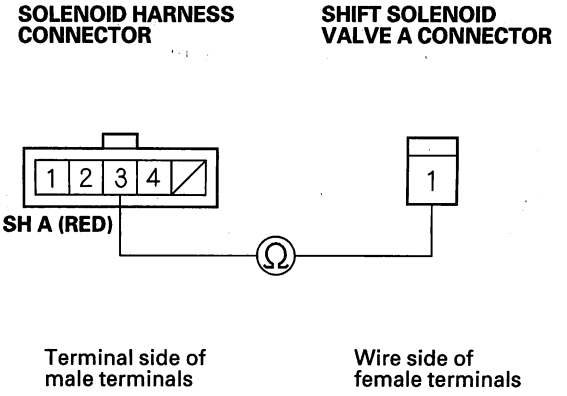
Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between PCM connector terminal C20 and the shift solenoid harness connector, then go to step 20.

13. Remove the shift solenoid harness (see page 14-242).

14. Check for continuity between shift solenoid harness connector terminal No. 3 and the shift solenoid valve A connector terminal.



Is there continuity?

YES—Replace shift solenoid valve A (see page 14-242), then go to step 20.

NO—Replace the shift solenoid harness (see page 14-242), then go to step 20.

BACK

Protected by AR

15. Reconnect all connectors.

16. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

17. Test-drive the vehicle for several minutes in the D position through all five gears.

18. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0974 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 19.

19. Monitor the OBD STATUS for P0974 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.

20. Clear the DTC with the HDS.

21. Test-drive the vehicle for several minutes in the D position through all five gears.

22. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0974 indicated?

    YES—Check for poor connections and loose terminals at shift solenoid valve A and the PCM, then go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for P0974 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve A and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

Protected by AR

DTC Troubleshooting (cont'd)

DTC P0976: Short in Shift Solenoid Valve B Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle for several minutes in the D position through all five gears.
3. Check that DTC P0976 recurs.

   Is DTC P0976 indicated?

   YES—Go to step 7.

   NO—Go to step 4.
4. Choose Shift Solenoid B in the Miscellaneous Test Menu, and test shift solenoid valve B with the HDS.

   Is a clicking sound heard?

   YES—Go to step 5.

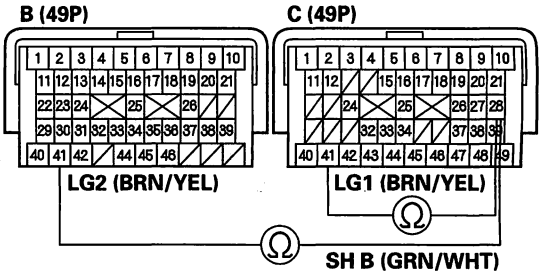
   NO—Go to step 7.
5. Test-drive the vehicle for several minutes in the D position through all five gears.
6. Monitor the OBD STATUS for P0976 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check the SH B wire for an intermittent short to ground between shift solenoid valve B and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals C28 and C41 or B41.

PCM CONNECTORS



Terminal side of female terminals

Is there less than 12 Ω ?

YES—Go to step 11.

NO—Go to step 18.

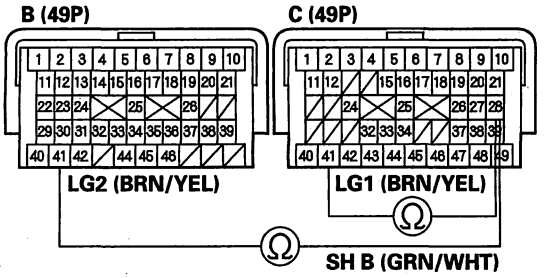
BACK

Protected by AR

11. Disconnect the shift solenoid harness connector.

12. Check for continuity between PCM connector terminals C28 and C41 or B41.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal C28 and the shift solenoid harness connector, then go to step 23.

NO—Go to step 13.

13. Inspect shift solenoid valve B (see page 14-242).

Is shift solenoid valve B OK?

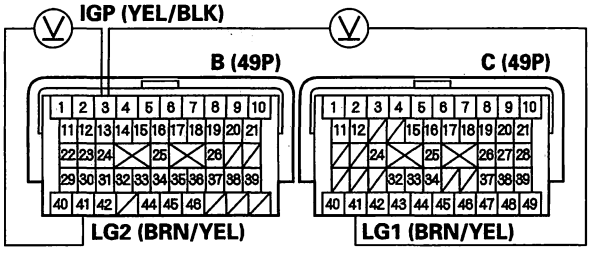
YES—Go to step 14.

NO—Replace shift solenoid valve B or the shift solenoid harness (see page 14-242), then go to step 23.

14. Turn the ignition switch ON (II).

15. Measure the voltage between PCM connector terminals B3 and B41 or C41.

PCM CONNECTORS



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 18.

NO—Go to step 16.

(cont'd)

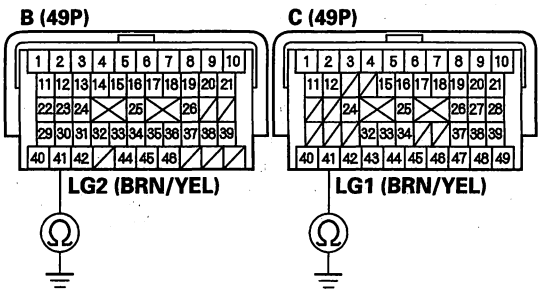
Protected by AR

DTC Troubleshooting (cont'd)

16. Turn the ignition switch OFF.

17. Check for continuity between PCM connector terminals B41 and body ground, and between C41 and body ground.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Check for a blown No. 19 fuse in the under-dash fuse/relay box, and check the PGM-FI main relay 1. If the fuse and relay are OK, repair open in the wire between PCM connector terminal B3 and the under-dash fuse/relay box via the main relay, then go to step 23.

NO—Repair open in the wires between PCM connector terminals B41, C41 and ground (G101), or repair poor ground (G101), then go to step 23.

18. Reconnect all connectors.

19. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

20. Test-drive the vehicle for several minutes in the D position through all five gears.

21. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

Is DTC P0976 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 22.

22. Monitor the OBD STATUS for P0976 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the result indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 21, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 20 and recheck.

BACK

Protected by AR

23. Clear the DTC with the HDS.

24. Test-drive the vehicle for several minutes in the D position through all five gears.

25. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0976 indicated?

    YES—Check for poor connections and loose terminals at shift solenoid valve B and the PCM, then go to step 1.

    NO—Go to step 26.

26. Monitor the OBD STATUS for P0976 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 25, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve B and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 24 and recheck.

Protected by AR

DTC Troubleshooting (cont'd)

DTC P0977: Open in Shift Solenoid Valve B Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle for several minutes in the D position through all five gears.
3. Check that DTC P0977 recurs.

   Is DTC P0977 indicated?

   YES—Go to step 7.

   NO—Go to step 4.
4. Choose Shift Solenoid B in the Miscellaneous Test Menu, and test shift solenoid valve B with the HDS.

   Is a clicking sound heard?

   YES—Go to step 5.

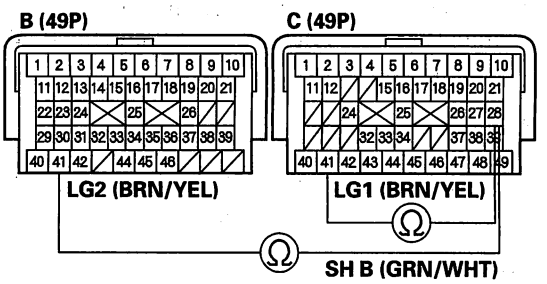
   NO—Go to step 7.
5. Test-drive the vehicle for several minutes in the D position through all five gears.
6. Monitor the OBD STATUS for P0977 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at shift solenoid valve B and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals C28 and C41 or B41.

PCM CONNECTORS



Terminal side of female terminals

Is there 12—25 Ω ?

YES—Go to step 15.

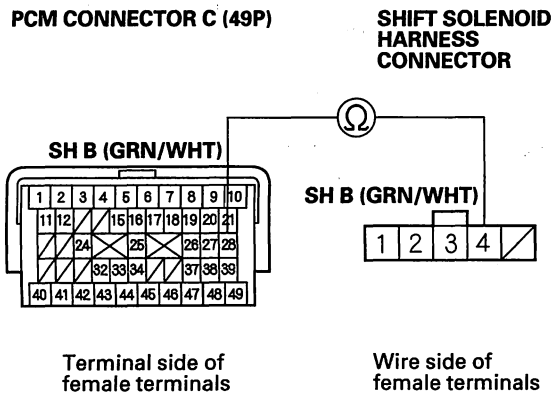
NO—Go to step 11.

BACK

Protected by AR

11. Disconnect the shift solenoid harness connector.

12. Check for continuity between PCM connector terminal C28 and shift solenoid harness connector terminal No. 4.



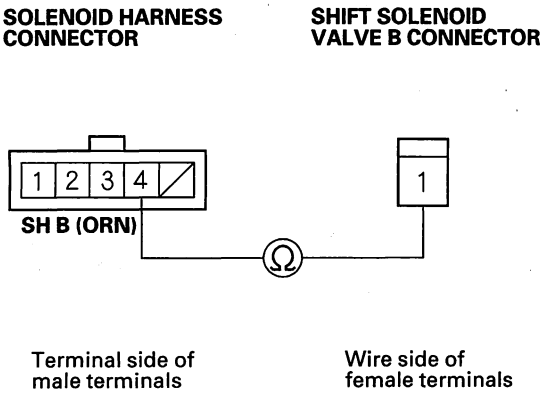
Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between PCM connector terminal C28 and the shift solenoid harness connector, then go to step 15.

13. Remove the shift solenoid harness (see page 14-242).

14. Check for continuity between shift solenoid harness connector terminal No. 4 and the shift solenoid valve B connector terminal.



Is there continuity?

YES—Replace shift solenoid valve B (see page 14-242), then go to step 20.

NO—Replace the shift solenoid harness (see page 14-242), then go to step 20.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

15. Reconnect all connectors.

16. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

17. Test-drive the vehicle for several minutes in the D position through all five gears.

18. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0977 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 19.

19. Monitor the OBD STATUS for P0977 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.

20. Clear the DTC with the HDS.

21. Test-drive the vehicle for several minutes in the D position through all five gears.

22. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0977 indicated?

    YES—Check for poor connections and loose terminals at shift solenoid valve B and the PCM, then go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for P0977 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve B and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

BACK

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DTC P0979: Short in Shift Solenoid Valve C Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle for several minutes in the D position through all five gears.
3. Check that DTC P0979 recurs.

   Is DTC P0979 indicated?

   YES—Go to step 7.

   NO—Go to step 4.
4. Choose Shift Solenoid C in the Miscellaneous Test Menu, and test shift solenoid valve C with the HDS.

   Is a clicking sound heard?

   YES—Go to step 5.

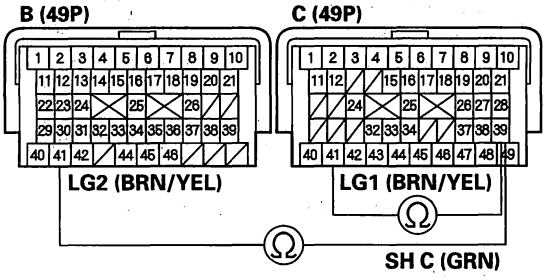
   NO—Go to step 7.
5. Test-drive the vehicle for several minutes in the D position through all five gears.
6. Monitor the OBD STATUS for P0979 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check the SH C wire for an intermittent short to ground between shift solenoid valve C and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals C39 and C41 or B41.

PCM CONNECTORS



Terminal side of female terminals

Is there less than 12 Ω ?

YES—Go to step 11.

NO—Go to step 18.

(cont'd)

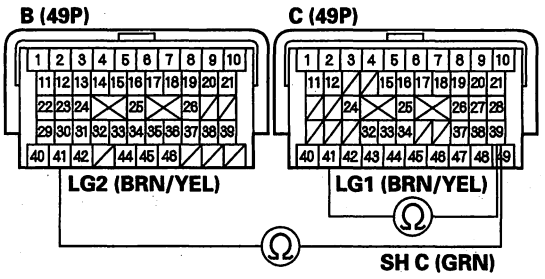
Protected by AR

DTC Troubleshooting (cont'd)

11. Disconnect the shift solenoid harness connector.

12. Check for continuity between PCM connector terminals C39 and C41 or B41.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal C39 and the shift solenoid harness connector, then go to step 23.

NO—Go to step 13.

13. Inspect shift solenoid valve C (see page 14-242).

Is shift solenoid valve C OK?

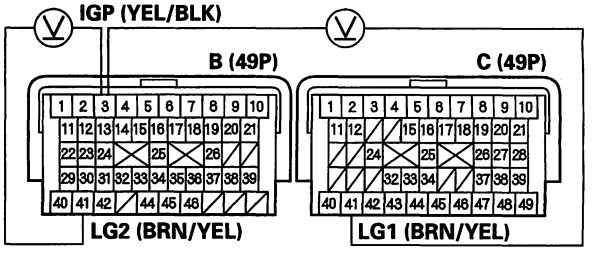
YES—Go to step 14.

NO—Replace shift solenoid valve C or the shift solenoid harness (see page 14-242), then go to step 23.

14. Turn the ignition switch ON (II).

15. Measure the voltage between PCM connector terminals B3 and B41 or C41.

PCM CONNECTORS



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 18.

NO—Go to step 16.

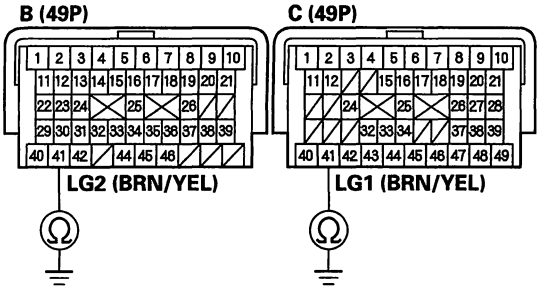
BACK

Protected by AR

16. Turn the ignition switch OFF.

17. Check for continuity between PCM connector terminals B41 and body ground, and between C41 and body ground.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Check for a blown No. 19 fuse in the under-dash fuse/relay box, and check the PGM-FI main relay 1. If the fuse and relay are OK, repair open in the wire between PCM connector terminal B3 and the under-dash fuse/relay box via the main relay, then go to step 23.

NO—Repair open in the wires between PCM connector terminals B41, C41 and ground (G101), or repair poor ground (G101), then go to step 23.

18. Reconnect all connectors.

19. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

20. Test-drive the vehicle for several minutes in the D position through all five gears.

21. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

Is DTC P0979 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 22.

22. Monitor the OBD STATUS for P0979 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

Does the result indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 21, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve C and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 20 and recheck.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

23. Clear the DTC with the HDS.

24. Test-drive the vehicle for several minutes in the D position through all five gears.

25. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0979 indicated?

    YES—Check for poor connections and loose terminals at shift solenoid valve C and the PCM, then go to step 1.

    NO—Go to step 26.

26. Monitor the OBD STATUS for P0979 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 25, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve C and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 24 and recheck.

BACK

Protected by AR

DTC P0980: Open in Shift Solenoid Valve C Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle for several minutes in the D position through all five gears.
3. Check that DTC P0980 recurs.

   Is DTC P0980 indicated?

   YES—Go to step 7.

   NO—Go to step 4.
4. Choose Shift Solenoid C in the Miscellaneous Test Menu, and test shift solenoid valve C with the HDS.

   Is a clicking sound heard?

   YES—Go to step 5.

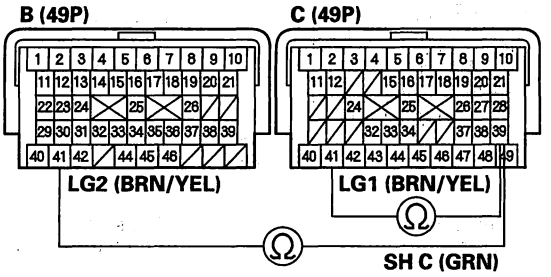
   NO—Go to step 7.
5. Test-drive the vehicle for several minutes in the D position through all five gears.
6. Monitor the OBD STATUS for P0980 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at shift solenoid valve C and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals C39 and C41 or B41.

PCM CONNECTORS



Terminal side of female terminals

Is there 12—25 Ω ?

YES—Go to step 15.

NO—Go to step 11.

(cont'd)

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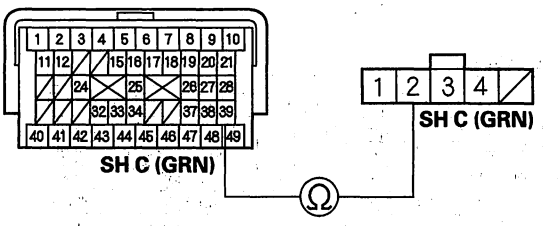
DTC Troubleshooting (cont'd)

11. Disconnect the shift solenoid harness connector.

12. Check for continuity between PCM connector terminal C39 and shift solenoid harness connector terminal No. 2.

PCM CONNECTOR C (49P) **SHIFT SOLENOID HARNESS CONNECTOR**



Terminal side of female terminals

Wire side of female terminals

Is there continuity?

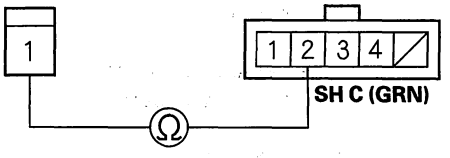
YES—Go to step 13.

NO—Repair open in the wire between PCM connector terminal C39 and the shift solenoid harness connector, then go to step 20.

13. Remove the shift solenoid harness (see page 14-242).

14. Check for continuity between shift solenoid harness connector terminal No. 2 and the shift solenoid valve C connector terminal.

SHIFT SOLENOID VALVE C CONNECTOR **SOLENOID HARNESS CONNECTOR**



Wire side of female terminals

Terminal side of male terminals

Is there continuity?

YES—Replace shift solenoid valve C (see page 14-242), then go to step 20.

NO—Replace the shift solenoid harness (see page 14-242), then go to step 20.

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15. Reconnect all connectors.

16. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

17. Test-drive the vehicle for several minutes in the D position through all five gears.

18. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0980 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 19.

19. Monitor the OBD STATUS for P0980 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve C and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.

20. Clear the DTC with the HDS.

21. Test-drive the vehicle for several minutes in the D position through all five gears.

22. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0980 indicated?

    YES—Check for poor connections and loose terminals at shift solenoid valve C and the PCM, then go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for P0980 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve C and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

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DTC Troubleshooting (cont'd)

DTC P0982: Short in Shift Solenoid Valve D Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle for several minutes in the D position through all five gears.
3. Check that DTC P0982 recurs.

   Is DTC P0982 indicated?

   YES—Go to step 7.

   NO—Go to step 4.
4. Choose Shift Solenoid D in the Miscellaneous Test Menu, and test shift solenoid valve D with the HDS.

   Is a clicking sound heard?

   YES—Go to step 5.

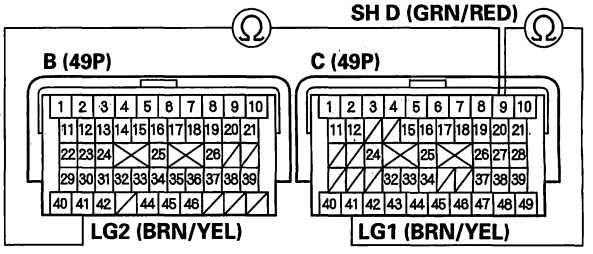
   NO—Go to step 7.
5. Test-drive the vehicle for several minutes in the D position through all five gears.
6. Monitor the OBD STATUS for P0982 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check the SH D wire for an intermittent short to ground between shift solenoid valve D and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals C9 and C41 or B41.

PCM CONNECTORS



Terminal side of female terminals

Is there less than 12 Ω ?

YES—Go to step 11.

NO—Go to step 19.

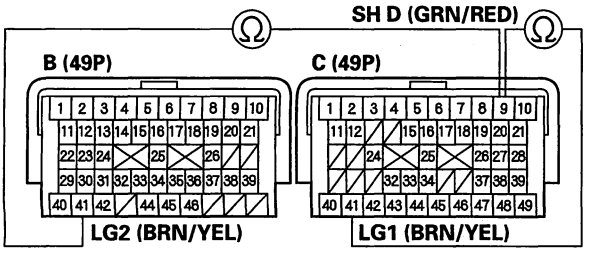
BACK

Protected by AR

11. Disconnect the shift solenoid harness connector.

12. Check for continuity between PCM connector terminals C9 and C41 or B41.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wire between PCM connector terminal C9 and the shift solenoid harness connector, then go to step 24.

NO—Go to step 13.

13. Inspect shift solenoid valve D (see page 14-242).

Is shift solenoid valve D OK?

YES—Go to step 14.

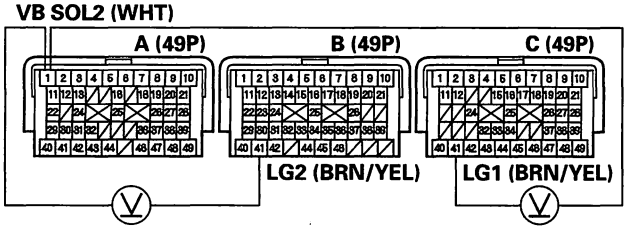
NO—Replace shift solenoid valve D or the shift solenoid harness (see page 14-242), then go to step 24.

14. Disconnect PCM connector A (49P).

15. Turn the ignition switch ON (II).

16. Measure the voltage between PCM connector terminals A1 and B41 or C41.

PCM CONNECTORS



Terminal side of female terminals

Is there battery voltage?

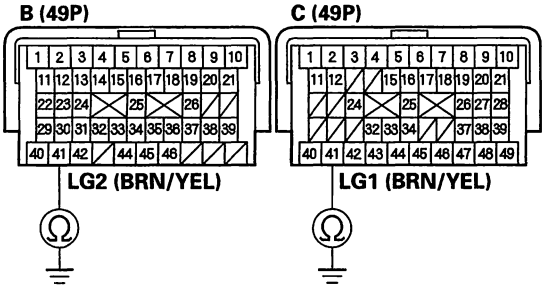
YES—Go to step 19.

NO—Go to step 17.

17. Turn the ignition switch OFF.

18. Check for continuity between PCM connector terminals B41 and body ground, and between C41 and body ground.

PCM CONNECTORS



Terminal side of female terminals

Is there continuity?

YES—Check for a blown No. 10 fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between PCM connector terminal A1 and the under-dash fuse/relay box, then go to step 24.

NO—Repair open in the wires between PCM connector terminals B41, C41 and ground (G101), or repair poor ground (G101), then go to step 24.

(cont'd)

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DTC Troubleshooting (cont'd)

19. Reconnect all connectors.

20. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

21. Test-drive the vehicle for several minutes in the D position through all five gears.

22. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0982 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for P0982 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve D and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

24. Clear the DTC with the HDS.

25. Test-drive the vehicle for several minutes in the D position through all five gears.

26. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0982 indicated?

    YES—Check for poor connections and loose terminals at shift solenoid valve D and the PCM, then go to step 1.

    NO—Go to step 27.

27. Monitor the OBD STATUS for P0982 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 21, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve D and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 20 and recheck.

BACK

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DTC P0983: Open in Shift Solenoid Valve D Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle for several minutes in the D position through all five gears.
3. Check that DTC P0983 recurs.

   Is DTC P0983 indicated?

   YES—Go to step 7.

   NO—Go to step 4.
4. Choose Shift Solenoid D in the Miscellaneous Test Menu, and test shift solenoid valve D with the HDS.

   Is a clicking sound heard?

   YES—Go to step 5.

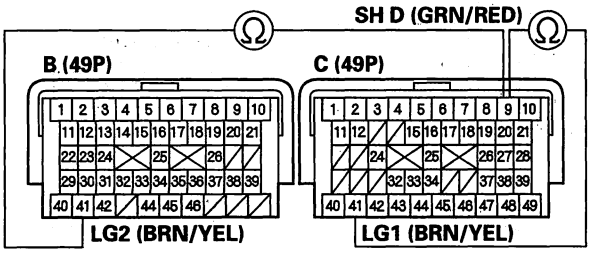
   NO—Go to step 7.
5. Test-drive the vehicle for several minutes in the D position through all five gears.
6. Monitor the OBD STATUS for P0983 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at shift solenoid valve D and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals C9 and C41 or B41.

PCM CONNECTORS



Terminal side of female terminals

Is there 12—25 Ω ?

YES—Go to step 15.

NO—Go to step 11.

(cont'd)

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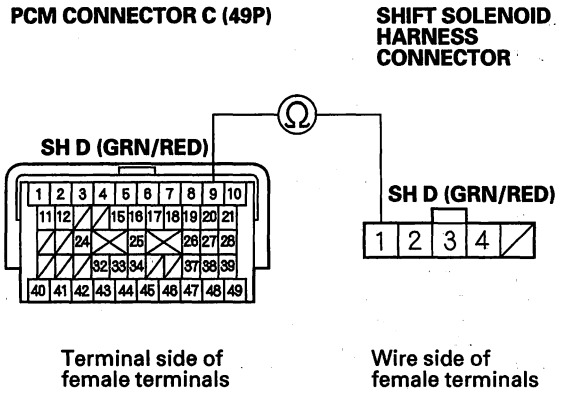
DTC Troubleshooting (cont'd)

11. Disconnect the shift solenoid harness connector.

12. Check for continuity between PCM connector terminal C9 and shift solenoid harness connector terminal No. 1.



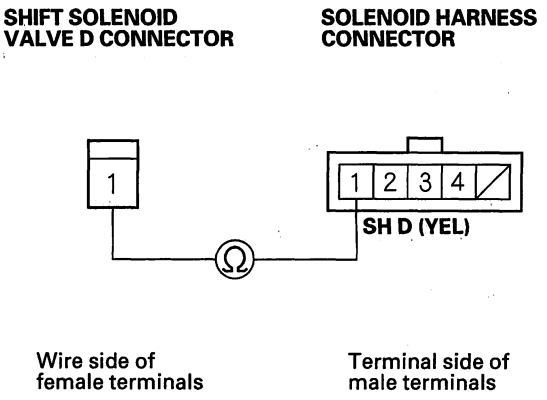
Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between PCM connector terminal C9 and the shift solenoid harness connector, then go to step 20.

13. Remove the shift solenoid harness (see page 14-242).

14. Check for continuity between shift solenoid harness connector terminal No. 1 and the shift solenoid valve D connector terminal.



Is there continuity?

YES—Replace shift solenoid valve D (see page 14-242), then go to step 20.

NO—Replace the shift solenoid harness (see page 14-242), then go to step 20.

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15. Reconnect all connectors.

16. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

17. Test-drive the vehicle for several minutes in the D position through all five gears.

18. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0983 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 19.

19. Monitor the OBD STATUS for P0983 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve D and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.

20. Clear the DTC with the HDS.

21. Test-drive the vehicle for several minutes in the D position through all five gears.

22. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P0983 indicated?

    YES—Check for poor connections and loose terminals at shift solenoid valve D and the PCM, then go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for P0983 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting. ■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at shift solenoid valve D and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

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DTC Troubleshooting (cont'd)

DTC P16C0: PCM A/T Control System Incomplete Updated

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is indicated when PCM updating is incomplete.

1. Update the A/T software in the PCM (see page 14-8).

2. Check whether the DTC P16C0 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P16C0 indicated?

   YES—Replace the original PCM (see page 11-244). ■

   NO—PCM updating is complete. ■

BACK

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DTC P1717: Open in Transmission Range Switch ATP RVS Switch Circuit

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch ON (II).
2. Shift to the R position, and check the A/T R SWITCH signal with the HDS in the A/T data list.

   Is the A/T R SWITCH ON?

   YES—Go to step 3.

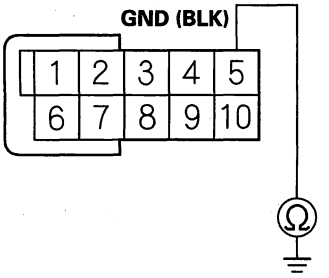
   NO—Check for proper transmission range switch installation (see page 14-315), adjust the shift cable (see page 14-311), then recheck. ■
3. Check the REVERSE SWITCH signal with the HDS.

   Is the REVERSE SWITCH ON?

   YES—Intermittent failure, the system is OK at this time. ■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Disconnect the transmission range switch connector.
6. Check for continuity between transmission range switch connector terminal No. 5 and body ground.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 7.

NO—Repair open in the wire between transmission range switch connector terminal No. 5 and ground (G101), or repair poor ground (G101), then go to step 15.

(cont'd)

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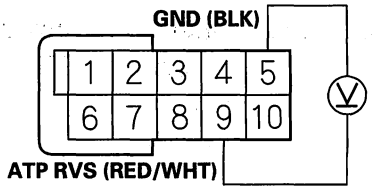
DTC Troubleshooting (cont'd)

7. Turn the ignition switch ON (II).

8. Measure the voltage between transmission range switch connector terminals No. 5 and No. 9.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

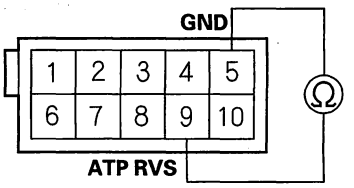
Is there voltage?

YES—Go to step 9.

NO—Repair open in the wire between PCM connector terminal C19 and the transmission range switch, then go to step 15.

9. Check for continuity between the No. 5 and No. 9 terminals at the transmission range switch.

TRANSMISSION RANGE SWITCH CONNECTOR



Terminal side of male terminals

Is there continuity when the shift lever is in the P, R, and N positions, and no continuity when the shift lever is in the D and D3 positions?

YES—Check for poor connections and loose terminals at the transmission range switch and the PCM. If the connections are OK, go to step 10.

NO—Replace the transmission range switch (see page 14-316), then go to step 15.

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10. Reconnect the transmission range switch connector.

11. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).

12. Start the engine, and shift the shift lever slowly into the P and R positions, then into the N position.

13. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P1717 indicated?

    YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

    NO—Go to step 14.

14. Monitor the OBD STATUS for P1717 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 13, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

15. Clear the DTC with the HDS.

16. Start the engine, and shift the shift lever slowly into the P and R positions, then into the N position.

17. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

    Is DTC P1717 indicated?

    YES—Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for P1717 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting.■

    NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the transmission range switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 16 and recheck.

Protected by AR

DTC Troubleshooting (cont'd)

DTC P1743: Problem in Shift Control System; Shift Valve E Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 8.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle for several minutes in the D position through all five gears, then slow down to a stop.
6. Test-drive the vehicle again for several minutes in the D position through all five gears, then slow down to a stop.
7. Monitor the OBD STATUS for P1743 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Repair shift valve E in the main valve body (see page 14-347), replace the main valve body, or replace the transmission, then go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Test-drive the vehicle for several minutes in the D position through all five gears, then slow down to a stop.
10. Test-drive the vehicle again for several minutes in the D position through all five gears, then slow down to a stop.
11. Monitor the OBD STATUS for P1743 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete.■

    NO—If the HDS indicates FAILED, return to step 8 and recheck. If the HDS indicates NOT COMPLETED, return to step 9 and recheck.

BACK

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DTC P1744: Problem in Shift Control System; Shift Valve E Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 8.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle for several minutes in the D position through all five gears, then slow down to a stop.
6. Test-drive the vehicle again for several minutes in the D position through all five gears, then slow down to a stop.
7. Monitor the OBD STATUS for P1744 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Repair shift valve E in the main valve body (see page 14-347), replace the main valve body, or replace the transmission, then go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.
8. Clear the DTC with the HDS.
9. Test-drive the vehicle for several minutes in the D position through all five gears, then slow down to a stop.
10. Test-drive the vehicle again for several minutes in the D position through all five gears, then slow down to a stop.
11. Monitor the OBD STATUS for P1744 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 8 and recheck. If the HDS indicates NOT COMPLETED, return to step 9 and recheck.

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DTC Troubleshooting (cont'd)

DTC P1745: Problem in Shift Control System; Servo Control Valve Stuck OFF or Servo Control Valve Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF (see step 5 on page 14-266) through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?

   YES—Replace the transmission, then go to step 8.

   NO—Replace the ATF (see step 7 on page 14-266), then go to step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle for several minutes in the D position through all five gears, then slow down to a stop.
6. Test-drive the vehicle again for several minutes in the D position through all five gears, then slow down to a stop.
7. Monitor the OBD STATUS for P1745 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate FAILED?

   YES—Repair the servo control valve in the main valve body (see page 14-347), servo valve in the regulator valve body (see page 14-350), or replace the main valve body, regulator valve body, or replace the transmission, then go to step 8.

   NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.
8. Clear the DTC with the HDS.
9. Test-drive the vehicle for several minutes in the D position through all five gears, then slow down to a stop.
10. Test-drive the vehicle again for several minutes in the D position through all five gears, then slow down to a stop.
11. Monitor the OBD STATUS for P1745 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

    Does the result indicate PASSED?

    YES—Troubleshooting is complete. ■

    NO—If the HDS indicates FAILED, return to step 8 and recheck. If the HDS indicates NOT COMPLETED, return to step 9 and recheck.

BACK

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DTC P1780: Problem in Shift Control System

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Test-drive the vehicle for several minutes in the D position through all five gears, then slow down to a stop.
3. Test-drive the vehicle again for several minutes in the D position through all five gears, then slow down to a stop.
4. Check for other DTCs indicated simultaneous with the code P1780.

   NOTE: DTC P1780 means there is one or more A/T DTCs about the shift control system.

   Are there other DTCs?

   YES—Troubleshoot a problem as indicated by the DTC.■

   NO—Go to step 5.
5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Test-drive the vehicle for several minutes in the D position through all five gears, then slow down to a stop.
7. Test-drive the vehicle again for several minutes in the D position through all five gears, then slow down to a stop.
8. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P1780 indicated?

   YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 9.
9. Monitor the OBD STATUS for P1780 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 8, go to the indicated DTC's troubleshooting.■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 6 and recheck.

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DTC Troubleshooting (cont'd)

DTC P2122: Accelerator Pedal Position (APP) Sensor A (Throttle Position Sensor D) Circuit Low Voltage Input

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Turn the ignition switch ON (II).
3. Check whether DTC P2122 is indicated in the DTCs/ Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC P2122 indicated in the PGM-FI system?

   YES—Troubleshoot for DTC P2122 in the PGM-FI System (see page 11-269).■

   NO—Go to step 4.
4. Check whether DTC P2122 is indicated in the DTCs/ Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P2122 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Turn the ignition switch ON (II).
7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P2122 indicated?

   YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 8.
8. Monitor the OBD STATUS for P2122 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting.■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 6 and recheck.

BACK

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DTC P2123: Accelerator Pedal Position (APP) Sensor A (Throttle Position Sensor D) Circuit High Voltage Input

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Turn the ignition switch ON (II).
3. Check whether DTC P2123 is indicated in the DTCs/Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC P2123 indicated in the PGM-FI system?

   YES—Troubleshoot for DTC P2123 in the PGM-FI System (see page 11-272).■

   NO—Go to step 4.

4. Check whether DTC P2123 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P2123 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■

5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Turn the ignition switch ON (II).
7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P2123 indicated?

   YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 8.

8. Monitor the OBD STATUS for P2123 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting.■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the accelerator pedal position sensor A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 6 and recheck.

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DTC Troubleshooting (cont'd)

DTC U0028: F-CAN Communication Circuit Error (F-CAN Bus OFF)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Turn the ignition switch ON (II).
3. Check whether DTC U0028 is indicated in the DTCs/ Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC U0028 indicated in the PGM-FI system?

   YES—Troubleshoot for DTC U0028 in the PGM-FI System (see page 11-199).■

   NO—Go to step 4.
4. Check whether DTC U0028 is indicated in the DTCs/ Freeze Data in A/T Mode Menu with the HDS.

   Is DTC U0028 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Turn the ignition switch ON (II).
7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC U0028 indicated?

   YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 8.
8. Monitor the OBD STATUS for U0028 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting.■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the PCM and the connectors on the F-CAN circuit. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 6 and recheck.

BACK

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DTC U0122: Lost Communication with VSA Modulator-Control Unit

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Turn the ignition switch ON (II).
3. Check whether DTC U0122 is indicated in the DTCs/ Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC U0122 indicated in the PGM-FI system?

   YES—Troubleshoot for DTC U0122 in the PGM-FI System (see page 11-203).■

   NO—Go to step 4.
4. Check whether DTC U0122 is indicated in the DTCs/ Freeze Data in A/T Mode Menu with the HDS.

   Is DTC U0122 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Turn the ignition switch ON (II).
7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC U0122 indicated?

   YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 8.
8. Monitor the OBD STATUS for U0122 in the DTCs/ Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting.■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the VSA modulator-control unit the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 6 and recheck.
9. Check the communication line between the VSA modulator-control unit and the gauge control module with the HDS.

   Is there malfunction in the F-CAN line between the VSA modulator-control unit and gauge control module?

   YES—Repair open in the wires between the VSA modulator-control unit connector and the CAN communication lines.■

   NO—Substitute a known-good VSA modulator-control unit (see page 19-102), then recheck. If the symptom/indication goes away with a known-good VSA modulator-control unit, replace the original VSA modulator-control unit.■

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DTC Troubleshooting (cont'd)

DTC U0155: Lost Communication with Gauge Control Module

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Turn the ignition switch ON (II).
3. Check whether DTC U0155 is indicated in the DTCs/Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC U0155 indicated in the PGM-FI system?

   YES—Troubleshoot for DTC U0155 in the PGM-FI System (see page 11-205). ■

   NO—Go to step 4.
4. Check whether the DTC U0155 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC U0155 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. ■
5. Update the A/T software in the PCM if it does not have the latest software (see page 14-8), or substitute a known-good PCM (see page 14-9).
6. Turn the ignition switch ON (II).
7. Check for DTC(s) in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC U0155 indicated?

   YES—If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1.

   NO—Go to step 8.
8. Monitor the OBD STATUS for U0155 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the result indicate PASSED?

   YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-244). If any other DTCs were indicated on step 7, go to the indicated DTC's troubleshooting. ■

   NO—If the HDS indicates FAILED, check for poor connections and loose terminals at the gauge control module and the PCM. If the PCM was updated, substitute a known-good PCM (see page 14-9), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 6 and recheck.

BACK

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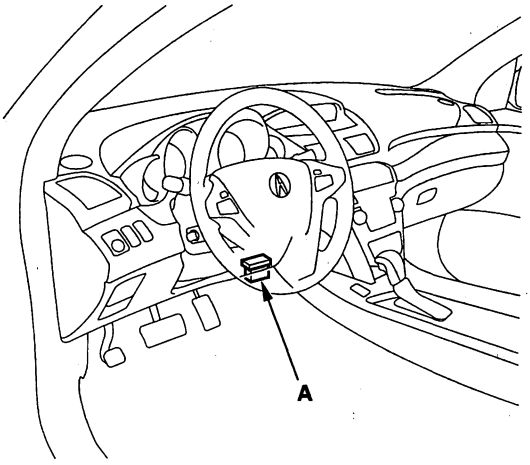
Road Test

1. Warm up the engine to normal operating temperature (the radiator fan comes on).

2. Apply the parking brake, and block all four wheels. Start the engine, then shift to the D position while pressing the brake pedal. Press the accelerator pedal, and release it suddenly. The engine should not stall.

3. Repeat step 2 in all shift lever positions.

4. Connect the HDS to the DLC (A), and go to the A/T data list. If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-223).



5. Prepare the HDS to take a HIGH SPEED SNAPSHOT (refer to the HDS user's guide for more details if needed):

   - Select High Speed icon.
   - Select these parameters:
     - VSS veh speed
     - Output Shaft (Countershaft) Speed
     - Input Shaft (Mainshaft) Speed (rpm)
     - RPM engine speed
     - Relative TP Sensor
     - APP Sensor A
     - ATF Temp sensor
     - Battery voltage
     - Shift control
     - Brake Switch
   - Set the Trigger Type to Parameter.
   - Adjust the Parameter setting to APP Sensor A above 0.8 V.
   - Set the recording time to 60 seconds.
   - Set the trigger point to −30 seconds.

6. Find a suitable level road. When you are ready to do the test, press OK on the HDS.

7. Monitor the HDS and accelerate quickly until the APP Sensor A reads 0.8 V. Maintain a steady throttle until the transmission shifts to 5th gear, then slow the vehicle and come to a stop.

8. Save the snapshot if the entire event was recorded or increase the recording time setting as necessary and repeat step 7.

9. Adjust the parameter setting to 2.25 V. Test-drive the vehicle again. While monitoring the HDS, accelerate quickly until the APP Sensor A reads 2.25 V. Maintain a steady throttle until the transmission shifts to 5th gear (or reasonable speed), then slow the vehicle and come to a stop.

10. Save the snapshot if the entire event was recorded or increase the recording time setting as necessary and repeat step 9.

11. Accelerate quickly until the accelerator pedal is to the floor. Maintain a steady pedal until the transmission shifts to 3rd gear, then slow to a stop, and save the snapshot.

(cont'd)

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Road Test (cont'd)

12. Review each snapshot individually, and compare the Shift Command, the APP Sensor A voltage, and the Vehicle Speed to the table below.

Upshift: D Position

Accelerator pedal position sensor voltage: 0.8 V	
1st→2nd	9—13 mph (14—21 km/h)
2nd→3rd	17—21 mph (27—34 km/h)
3rd→4th	25—31 mph (40—50 km/h)
4th→5th	40—48 mph (64—77 km/h)
Lock-up ON	47—53 mph (76—85 km/h)
Accelerator pedal position sensor voltage: 2.25 V	
1st→2nd	22—26 mph (35—42 km/h)
2nd→3rd	45—53 mph (72—85 km/h)
3rd→4th	70—78 mph (113—126 km/h)
4th→5th	99—109 mph (159—175 km/h)
Lock-up ON	100—110 mph (161—177 km/h)
Fully-opened throttle Accelerator pedal position sensor voltage: 4.5 V	
1st→2nd	36—42 mph (58—68 km/h)
2nd→3rd	65—73 mph (105—117 km/h)
3rd→4th	99—109 mph (159—175 km/h)

Downshift: D Position (reference)

Accelerator pedal position sensor voltage: 0.8 V	
Lock-up OFF	44—50 mph (71—80 km/h)
5th→4th	35—41 mph (56—66 km/h)
4th→3rd	17—21 mph (27—34 km/h)
3rd→2nd	7—11 mph (11—18 km/h)
Accelerator pedal position sensor voltage: 2.25 V	
Lock-up OFF	65—73 mph (105—117 km/h)
Fully-opened throttle Accelerator pedal position sensor voltage: 4.5 V	
5th→4th	128—140 mph (206—225 km/h)
4th→3rd	78—88 mph (126—142 km/h)
3rd→2nd	54—58 mph (87—93 km/h)
3rd→1st	26—32 mph (42—51 km/h)

13. Drive the vehicle in 4th or 5th gear in the sequential sportshift mode in the M position, then downshift to 2nd gear. The vehicle should immediately begin to slow down from engine braking.

14. Shift to the R position, accelerate from a stop at full throttle, and check for abnormal noise and clutch slippage.

15. Park the vehicle on a slope (about 16 degrees), apply the brake, and shift into the P position. Release the brake; the vehicle should not move.

    NOTE: Always use the brake to hold the vehicle, when stopped on an incline in gear. Depending on the grade of the incline, the vehicle could roll backwards if the brake is released.

BACK

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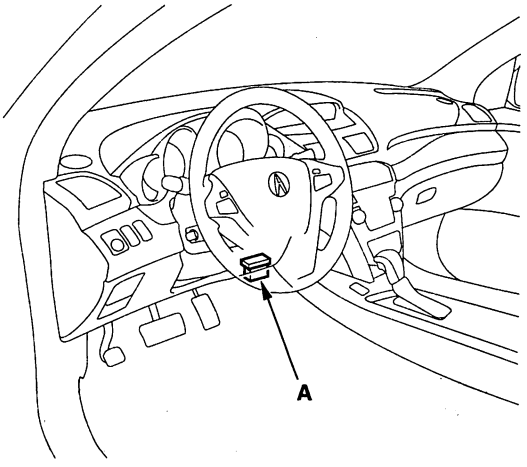
Stall Speed Test

1. Make sure the transmission fluid is filled to the proper level (see page 14-265).

2. Apply the parking brake, and block all four wheels.

3. Connect the HDS to the DLC (A), and go to the A/T data list. If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-223).



4. Make sure the A/C switch OFF.

5. After the engine has warmed up to normal operating temperature (the radiator fan comes on), shift to the D position.

6. Firmly press the brake pedal and accelerator pedal for 6 to 8 seconds, and note engine speed. Do not move the shift lever while raising engine speed.

7. Allow 2 minutes for cooling, then repeat the test in the R position.

   NOTE:
   - Do not test stall speed for more than 10 seconds at a time.
   - Stall speed tests should be used for diagnostic purposes only.
   - Stall speed should be the same in the D and R positions.
   - Do not test stall speed with the A/T pressure gauges installed.

   Stall Speed rpm:
   Specification: 1,950 rpm
   Service Limit: 1,800—2,100 rpm

8. If the measurements are out of the service limit, the possible problems and probable causes are listed in the table.

Problem	Probable causes
Stall speed rpm high in the D and R positions	• ATF pump output low • Regulator valve stuck • Slipping clutch
Stall speed rpm high in the R position	Slippage of 5th clutch
Stall speed rpm low in the D and R positions	• Engine output low • Engine throttle valve closed • Torque converter one-way clutch slipping

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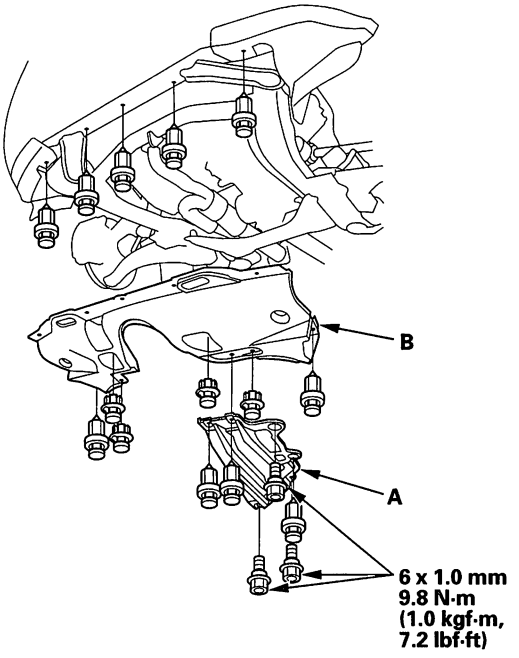
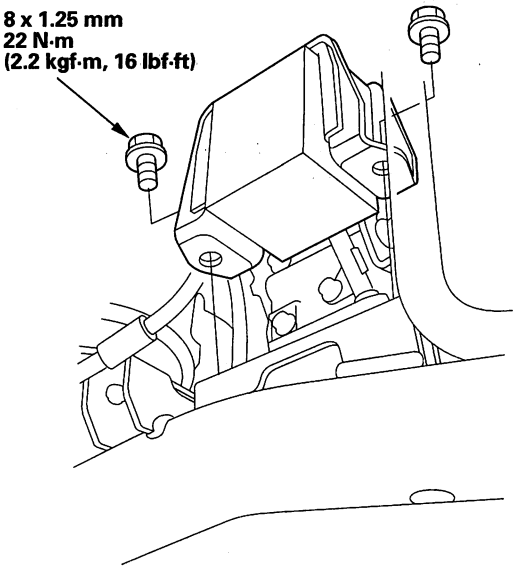
Pressure Test

Special Tools Required
- A/T clutch pressure gauge set 07406-0020400 or 07406-0020401
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure hose adapter 07MAJ-PY40120

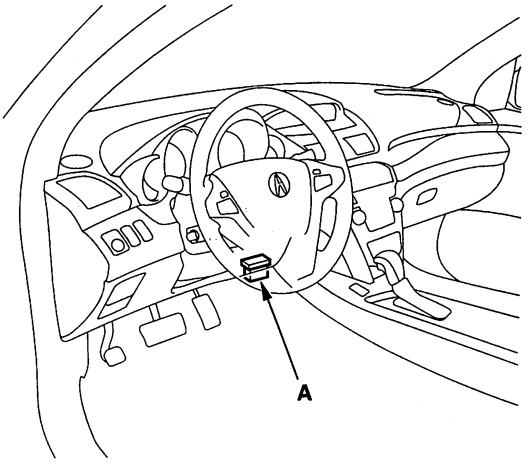
1. Make sure the transmission fluid is filled to the proper level (see page 14-265).
2. Raise the vehicle, and make sure it is securely supported.
3. Allow all four wheels to rotate freely.
4. Remove the transmission undercover (A) and splash shield (B).



5. Remove the damper from the front subframe.



6. Connect the HDS to the DLC (A), and go to the A/T data list. If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-223).



BACK

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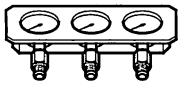
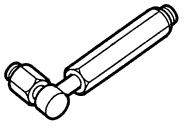
7. Connect the oil pressure gauge to the line pressure inspection hole (A). Do not allow dust or other foreign particles to enter the hole while connecting the gauge.

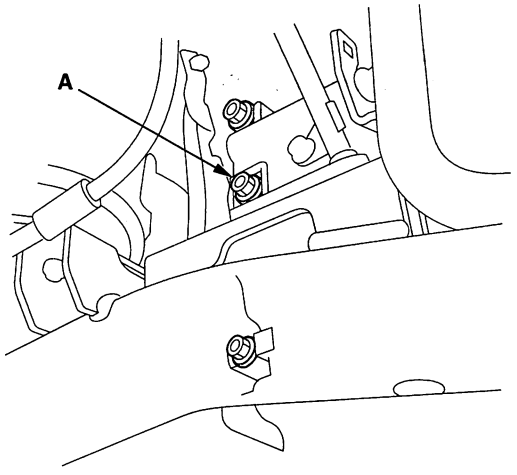
A/T CLUTCH PRESSURE GAUGE SET W/PANEL 07406-0020400 or 07406-0020401



A/T PRESSURE HOSE, 2,210 mm 07MAJ-PY4011A

A/T PRESSURE HOSE ADAPTER 07MAJ-PY40120





8. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).

9. Measure the line pressure at the line pressure inspection port (A) in the P or N position while holding the engine speed at 2,000 rpm.

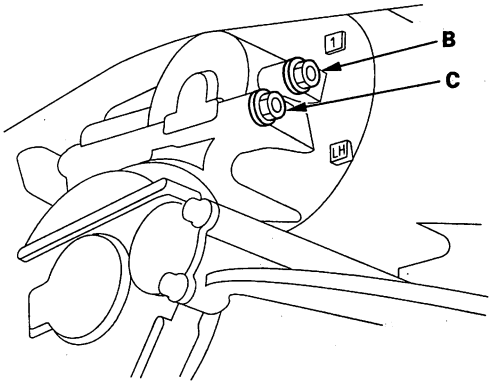
   NOTE: Higher pressure may be indicated if measurements are made in the shift lever position other than P or N.

Pressure	Fluid Pressure	
	Standard	Service Limit
Line (A)	950—1,010 kPa (9.7—10.3 kgf/cm², 140—146 psi)	900 kPa (9.2 kgf/cm², 130 psi)

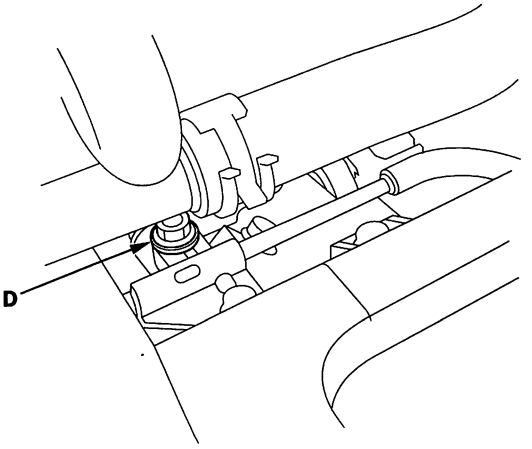
10. Turn the engine off, then disconnect the oil pressure gauge from the line pressure inspection port.

11. Install the sealing bolt to the line pressure inspection port with a new sealing washer, and tighten the bolt to 18 N·m (1.8 kgf·m, 13 lbf·ft). Do not reuse the old sealing washer.

12. Connect the oil pressure gauge to the 1st clutch pressure inspection port (B) and the 1st-hold clutch pressure inspection port (C).



13. Remove the air cleaner housing and intake air duct, and connect the oil pressure gauge to the 2nd clutch pressure inspection port (D). Then temporarily install the air cleaner housing and intake air duct.



(cont'd)

Protected by AR

Pressure Test (cont'd)

14. Start the engine, and shift into the M position.

15. Shift into 1st gear, and measure the 1st clutch pressure at the 1st clutch pressure inspection port (B) and 1st-hold clutch pressure at the 1st-hold clutch pressure inspection port (C) while holding the engine speed at 2,000 rpm.

16. Upshift to 2nd gear by pushing the shift lever, and measure the 2nd clutch pressure at the 2nd clutch pressure inspection port (D) while holding the engine speed at 2,000 rpm.

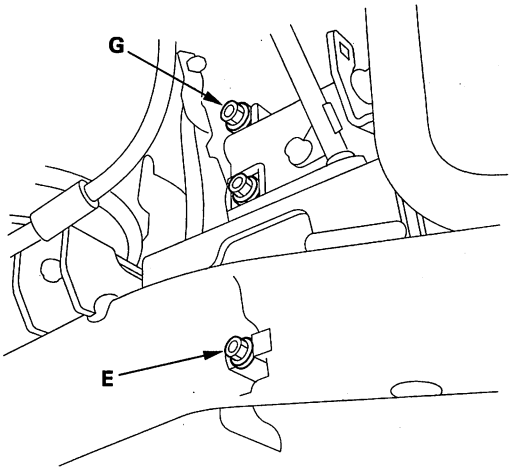
Pressure	Fluid Pressure	
	Standard	Service Limit
1st clutch (B) 2nd clutch (D)	940—1,020 kPa (9.6—10.4 kgf/cm², 140—148 psi)	890 kPa (9.1 kgf/cm², 130 psi)
1st-hold clutch (C)	680—760 kPa (6.9—7.7 kgf/cm², 98—110 psi)	630 kPa (6.4 kgf/cm², 91 psi)

17. Turn the engine off, remove the air cleaner housing and intake air duct, then disconnect the oil pressure gauges from the 1st clutch pressure, 1st-hold clutch pressure, and 2nd clutch pressure inspection ports.

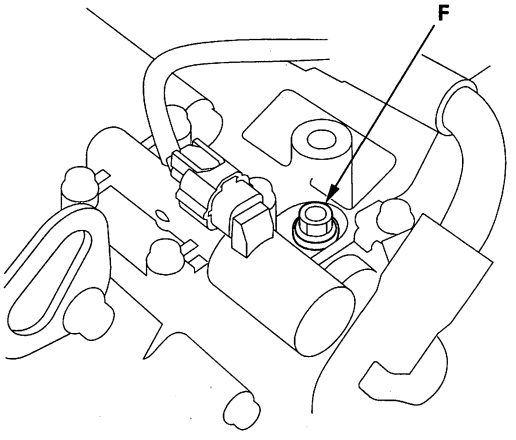
18. Install the sealing bolts in the 1st clutch pressure, 1st-clutch hold clutch pressure, and 2nd clutch pressure inspection ports with new sealing washers, and tighten the bolts to 18 N·m (1.8 kgf·m, 13 lbf·ft). Do not reuse the old sealing washers.

19. Install the air cleaner housing and intake air duct.

20. Connect the oil pressure gauge to the 3rd clutch pressure inspection port (E) and the 5th clutch pressure inspection port (G).



21. Connect the oil pressure gauge to the 4th clutch pressure inspection port (F).



BACK

Protected by AR

22. Cancel the transmission 2nd-hold control mode with the HDS; choose Pressure Assistance Mode in the Miscellaneous Test Menu of the A/T Mode Menu.

23. Start the engine, and shift to the D3 position.

24. Measure the 3rd clutch pressure at the 3rd clutch pressure inspection port (D) while holding the engine speed at 2,000 rpm.

25. Shift to the D position, and measure the 4th clutch pressure at the 4th clutch pressure inspection port (E) while holding the engine speed at 2,000 rpm.

26. Measure the 5th clutch pressure at the 5th clutch pressure inspection port (F) while holding the engine speed at 2,000 rpm.

Pressure	Fluid Pressure	
	Standard	Service Limit
3rd clutch (E) 4th clutch (F) 5th clutch (G)	940—1,020 kPa (9.6—10.4 kgf/cm², 140—148 psi)	890 kPa (9.1 kgf/cm², 130 psi)

27. Bring the engine back to an idle, then apply the brake pedal to stop the wheels from rotating.

28. Shift to the R position, then release the brake pedal. Raise the engine speed to 2,000 rpm, and measure the 5th clutch pressure at the 5th clutch pressure inspection port (G).

Pressure	Fluid Pressure	
	Standard	Service Limit
5th clutch (G) in R	940—1,020 kPa (9.6—10.4 kgf/cm², 140—148 psi)	890 kPa (9.1 kgf/cm², 130 psi)

29. Turn the engine off, then disconnect the oil pressure gauges from the 3rd, 4th, and 5th clutch pressure inspection ports.

30. Install the sealing bolts in the 3rd, 4th, and 5th clutch pressure inspection ports with new sealing washers, and tighten the bolts to 18 N·m (1.8 kgf·m, 13 lbf·ft). Do not reuse the old sealing washers.

31. If the measurements are out of the service limit, the possible problems and probable causes are listed in the table.

Problem	Probable causes
No or low line pressure	• Torque converter • ATF pump • Regulator valve • Torque converter check valve • Clogged ATF strainer
No or low 1st clutch pressure	• 1st clutch • O-rings
No or low 2nd clutch pressure	• 2nd clutch • O-rings
No or low 3rd clutch pressure	• 3rd clutch • O-rings
No or low 4th clutch pressure	• 4th clutch • O-rings
No or low 5th clutch pressure	• 5th clutch • O-rings
No or low 5th clutch pressure in the R position	• Servo valve • 5th clutch • O-rings
No or low 1st-hold clutch pressure	• 1st-hold clutch • O-rings

32. Install the damper on the front subframe.

33. Install the splash shield and transmission undercover.

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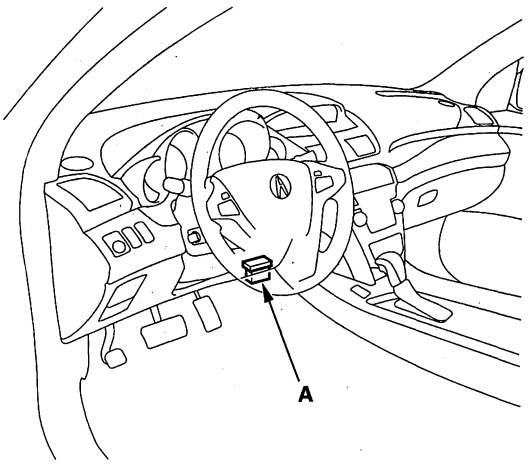
Shift Solenoid Valve Test, Replacement, and Shift Solenoid Wire Harness Replacement

1. Connect the HDS to the DLC (A).



2. Choose Shift Solenoid A, B, C, and D in the Miscellaneous Test Menu on the HDS.

   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-223).

3. Check that shift solenoid valves A, B, C, and D operate with the HDS. A clicking sound should be heard.

   - If a clicking sound is heard, the valves are OK. The test is complete, disconnect the HDS.
   - If no clicking sound is heard, go to step 4, and test the solenoid valves.

4. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).

5. Disconnect the negative terminal from the battery, then disconnect the positive terminal.

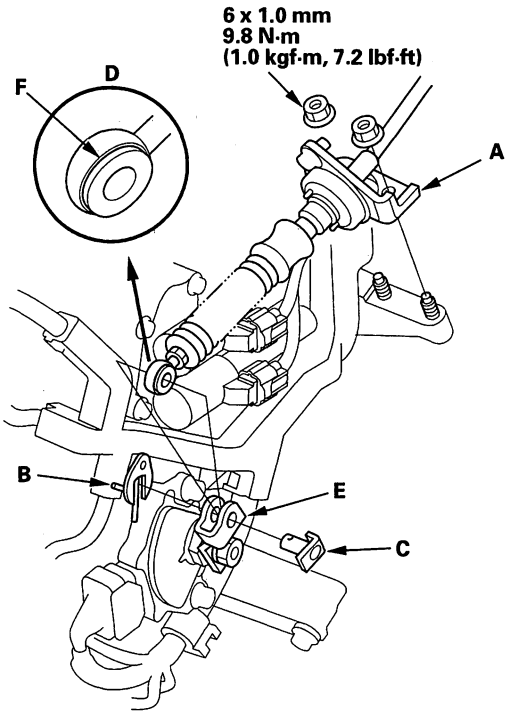
6. Remove the battery hold-down bracket, and remove the battery cover, battery, and battery tray.

7. Remove the under-hood subfuse box from its bracket, and remove the bracket from the battery base.

8. Remove the intake air duct and air cleaner housing.

9. Remove the battery base and battery base bracket.

10. Remove the nuts securing the shift cable bracket (A).



11. Remove the spring clip/washer (B) and control pin (C), then separate the shift cable end (D) from the control lever (E).

12. Check the synthetic resin bushing (F) in the shift cable end for a proper fit and wear. If the bushing is loose or worn, replace the shift cable (see page 14-309).

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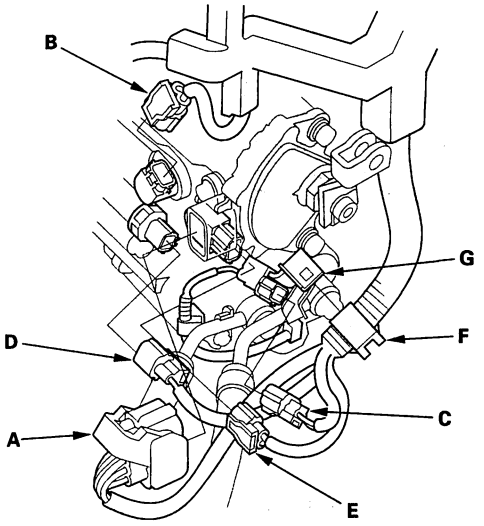
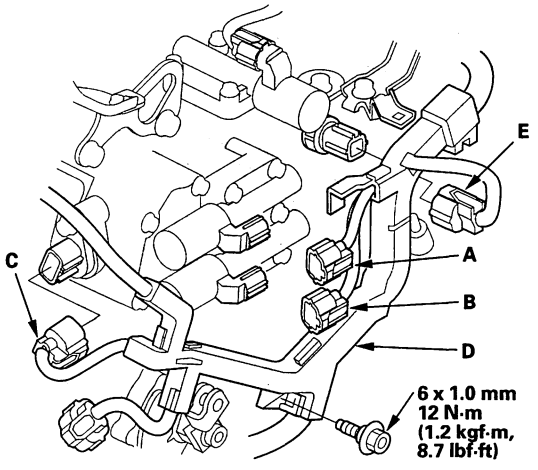
Protected by AR

13. Disconnect the transmission range switch connector (A), input shaft (mainshaft) speed sensor connector (B), output shaft (countershaft) speed sensor connector (C), 3rd clutch transmission fluid pressure switch connector (D), and ATF temperature sensor connector (E).



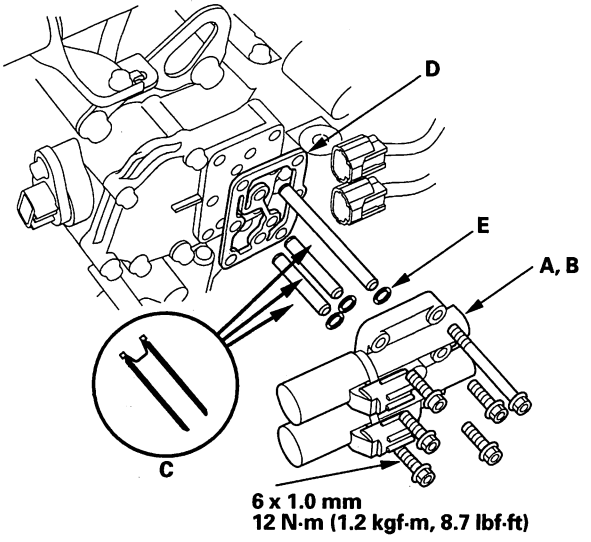
14. Remove the harness clamp (F) from the clamp bracket (G).

15. Disconnect the A/T clutch pressure control solenoid valve A connector (A), A/T clutch pressure control solenoid valve B connector (B), and shift solenoid harness connector (C).



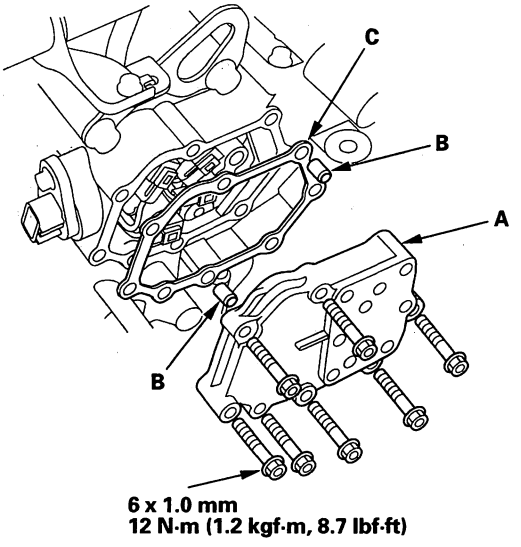
16. Remove the bolt securing the harness cover (D), and disconnect the 4th clutch transmission fluid pressure switch connector (E).

17. Remove the A/T clutch pressure control solenoid valve A and B, ATF pipes (C), and gasket (D).



18. Replace the gasket and O-rings (E) with new ones when installing the A/T clutch pressure control solenoid valve A and B.

19. Remove the solenoid valve cover (A), dowel pins (B), and gasket (C).



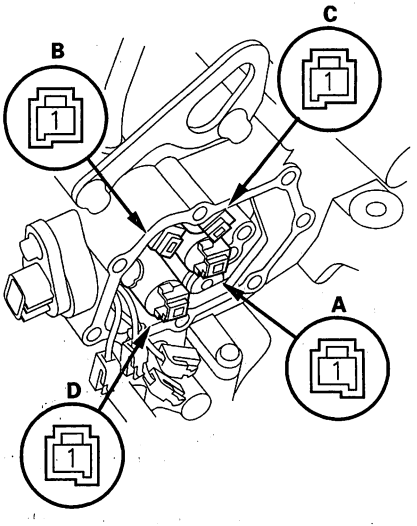
20. Replace the gasket with new one when installing the solenoid valve cover.

(cont'd)

Protected by AR

Shift Solenoid Valve Test, Replacement, and Shift Solenoid Wire Harness Replacement (cont'd)

21. Disconnect the connectors from shift solenoid valve A, shift solenoid valve B, shift solenoid valve C, and shift solenoid valve D.



22. Measure the resistance of each shift solenoid valve between the connector terminal and body ground.

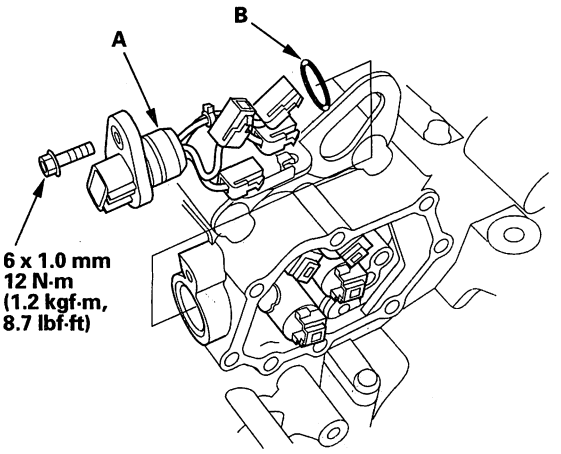
    Standard: 12—25 Ω

    - If the resistance is out of standard, go to step 25 and replace shift solenoid valve.
    - If the resistance is within the standard, go to step 23 and check solenoid valve for a clicking sound.

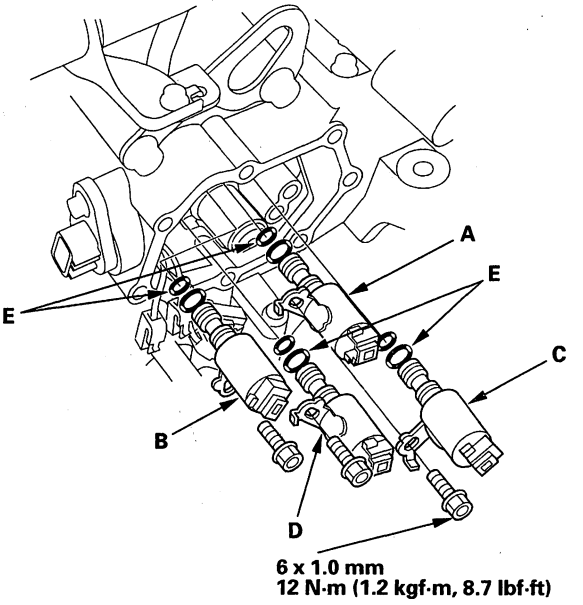
23. Connect a jumper wire from the negative battery terminal to the body ground, and connect another jumper wire from the positive battery terminal to each solenoid valve terminal individually.

    - If a clicking sound is heard, go to step 24 and replace the shift solenoid harness.
    - If no clicking sound is heard, go to step 25 and replace shift solenoid valve.

24. Remove the shift solenoid harness connector (A), and replace it. Install a new O-ring (B) on the shift solenoid harness connector, and install the connector in the transmission housing, then go to step 31.



25. Remove the mounting bolts, then remove the solenoid valves.



BACK

Protected by AR

26. Install new O-rings (two O-rings per solenoid valve) (E) on the reused solenoid valves.

    NOTE: A new solenoid valve comes with new O-rings. If you install a new solenoid valve, use the O-rings provided on it.

27. Install shift solenoid valve D (black connector) by holding the shift solenoid valve body; make sure the mounting bracket contacts the accumulator body.

    NOTE: Do not hold the solenoid valve by the connector when installing the solenoid valve. Be sure to hold the solenoid valve body.

28. Install shift solenoid valve A (black connector) by holding the shift solenoid valve body; make sure the mounting bracket contacts the accumulator body.

29. Install shift solenoid valve C (brown connector) by holding the shift solenoid valve body; make sure the mounting bracket contacts the bracket of shift solenoid valve A.

    NOTE: Do not install shift solenoid valve C before installing shift solenoid valve A. If shift solenoid valve C is installed before installing shift solenoid valve A, it may damage the hydraulic control system.

30. Install shift solenoid valve B (brown connector) by holding the shift solenoid valve body; make sure the mounting bracket contacts the accumulator body.

31. Connect the harness terminals to the solenoids:

    - YEL wire connector to shift solenoid valve A.
    - GRN wire connector to shift solenoid valve C.
    - RED wire connector to shift solenoid valve B.
    - ORN wire connector to shift solenoid valve D.

32. Install the shift solenoid valve cover, dowel pins, and a new gasket.

33. Install the new solenoid valve body gasket on the solenoid valve cover, and install the ATF pipes with their filter side into the transmission housing. Install the new O-rings over the ATF pipes.

34. Install A/T clutch pressure control solenoid valve A and B.

35. Secure the harness cover with the bolt.

36. Check the connectors for rust, dirt, or oil, clean or repair if necessary, then connect the connectors securely.

37. Apply molybdenum grease to the bore hole of the synthetic resin bushing in the shift cable end, and attach the shift cable end to the control lever, then insert the control pin into the control lever hole through the shift cable end, and secure the control pin with the spring clip/washer.

38. Secure the shift cable bracket with the nuts.

39. Install the battery base bracket and battery base.

40. Install the air cleaner housing and intake air duct.

41. Install the under-hood subfuse box on the battery base, and install the subfuse box on its bracket.

42. Install the battery tray, battery, battery cover, and battery hold-down bracket, then connect battery terminals.

43. Enter the anti-theft codes for the audio system and the navigation system (if equipped). Set the clock.

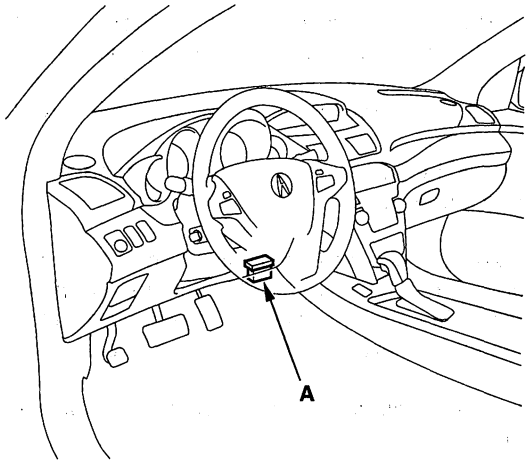
44. Do the steering column position memorization (see page 17-28).

45. Do the power window control unit reset procedure (see page 22-259).

Protected by AR

A/T Clutch Pressure Control Solenoid Valve A Test

1. Connect the HDS to the DLC (A).



2. Choose Clutch Pressure Control (Linear) Solenoid A in the Miscellaneous Test Menu on the HDS.

   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-223).

3. Test A/T clutch pressure control solenoid valve A with the HDS.

   - If the valve tests OK, the test is complete. Disconnect the HDS.
   - If the valve does not test OK, follow the instructions on the HDS.
   - If the valve does not test OK, and the HDS does not determine the cause, go to step 4.

4. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).

5. Disconnect the negative terminal from the battery, then disconnect the positive terminal.

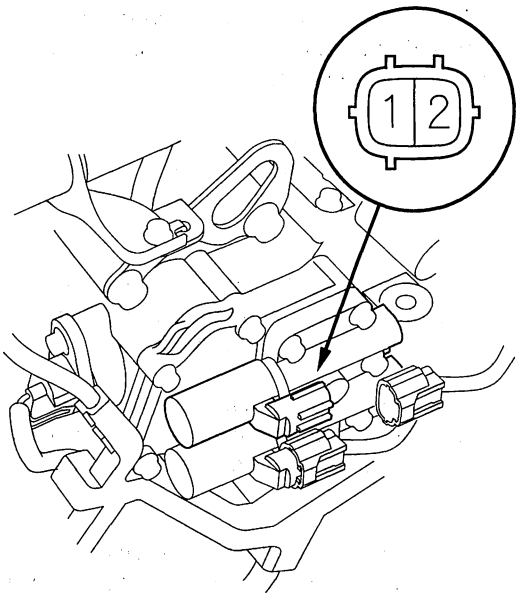
6. Remove the battery hold-down bracket, and remove the battery cover, battery, and battery tray.

7. Remove the under-hood subfuse box from its bracket, and remove the bracket from the battery base.

8. Remove the intake air duct and air cleaner housing.

9. Remove the battery base and battery base bracket.

10. Disconnect the A/T clutch pressure control solenoid valve A connector.



11. Measure A/T clutch pressure control solenoid valve A resistance at the connector terminals.

    Standard: 3—10 Ω

    - If the resistance is out of standard, replace A/T clutch pressure control solenoid valve A (see page 14-252).
    - If the resistance is within the standard, go to step 12.

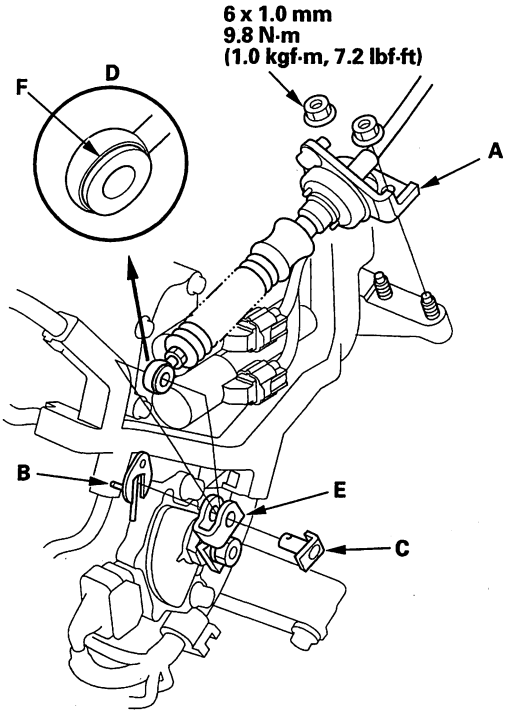
12. Connect a jumper wire from the negative battery terminal to the solenoid valve A connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1.

    - If a clicking sound is heard, the valve is OK. Reconnect the connector, and install all removed parts.
    - If no clicking sound is heard, go to step 13.

BACK

Protected by AR

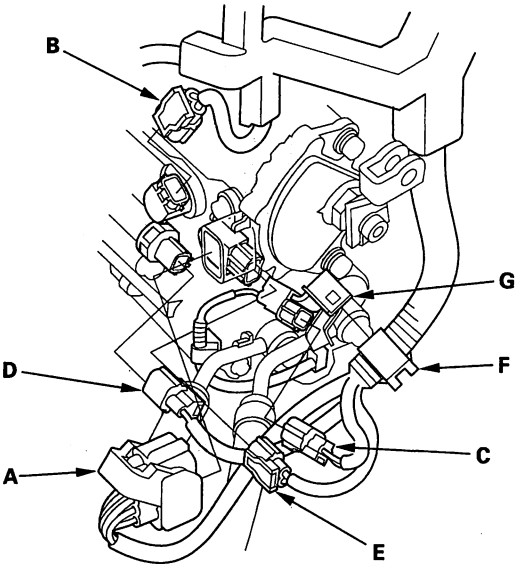
13. Remove the nuts securing the shift cable bracket (A).



14. Remove the spring clip/washer (B) and control pin (C), then separate the shift cable end (D) from the control lever (E).

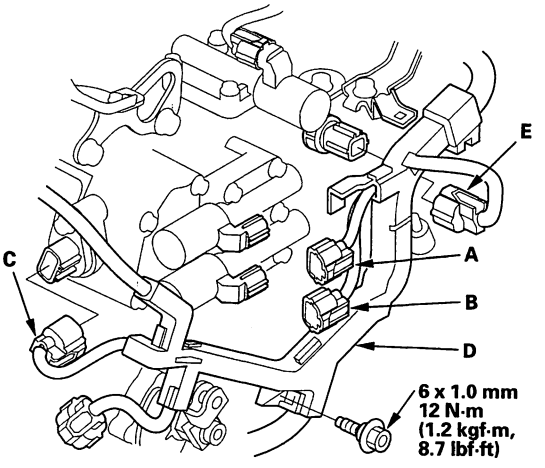
15. Check the synthetic resin bushing (F) in the shift cable end for a proper fit and wear. If the bushing is loose or worn, replace the shift cable (see page 14-309).

16. Disconnect the transmission range switch connector (A), input shaft (mainshaft) speed sensor connector (B), output shaft (countershaft) speed sensor connector (C), 3rd clutch transmission fluid pressure switch connector (D), and ATF temperature sensor connector (E).



17. Remove the harness clamp (F) from the clamp bracket (G).

18. Disconnect the A/T clutch pressure control solenoid valve A connector (A), A/T clutch pressure control solenoid valve B connector (B), and shift solenoid harness connector (C).



19. Remove the bolt securing the harness cover (D), and disconnect the 4th clutch transmission fluid pressure switch connector (E).

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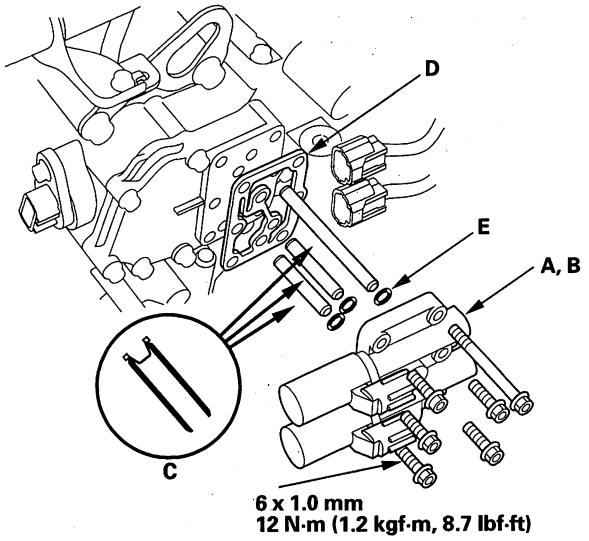
Protected by AR

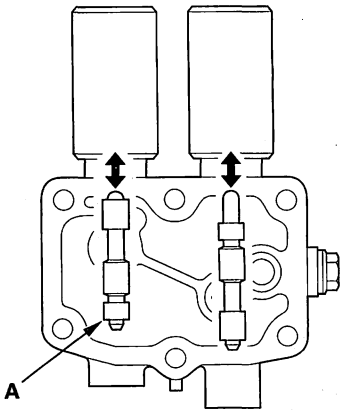
A/T Clutch Pressure Control Solenoid Valve A Test (cont'd)

20. Remove the A/T clutch pressure control solenoid valve A and B, ATF pipes (C), gasket (D), and O-rings (E).



21. Check the fluid passage of the solenoid valve for contamination.

22. Connect a jumper wire from the negative battery terminal to A/T clutch pressure control solenoid valve A connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1. Make sure A/T clutch pressure control solenoid valve A moves.



23. Disconnect one of the jumper wires and check valve movement at the fluid passage in valve body mounting surface. If the valve binds or moves sluggishly, or if the solenoid valve does not operate, replace A/T clutch pressure control solenoid valve A and B.

24. Clean the mounting surface and fluid passage of the solenoid valve body and solenoid valve cover.

25. Install the new solenoid valve body gasket on the solenoid valve cover, and install the ATF pipes with the filter end in the transmission housing. Install the new O-rings over the ATF pipes.

26. Install A/T clutch pressure control solenoid valve A and B.

27. Secure the harness cover with the bolt.

28. Check the connectors for rust, dirt, or oil, clean or repair if necessary, then connect the connectors securely.

29. Apply molybdenum grease to the bore hole of the synthetic resin bushing in the shift cable end, and attach the shift cable end to the control lever, then insert the control pin into the control lever hole through the shift cable end, and secure the control pin with the spring clip/washer.

30. Secure the shift cable bracket with the nuts.

31. Install the battery base bracket and battery base.

32. Install the air cleaner housing and intake air duct.

33. Install the under-hood subfuse box on the battery base, and install the subfuse box on its bracket.

34. Install the battery tray, battery, battery cover, and battery hold-down bracket, then connect battery terminals.

35. Enter the anti-theft codes for the audio system and the navigation system (if equipped). Set the clock.

36. Do the steering column position memorization (see page 17-28).

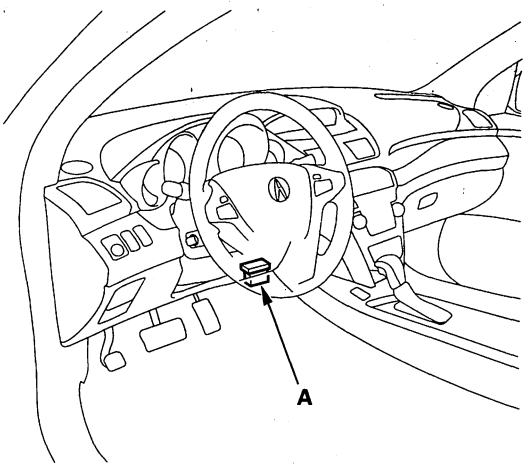
37. Do the power window control unit reset procedure (see page 22-259).

BACK

Protected by AR

A/T Clutch Pressure Control Solenoid Valve B Test

1. Connect the HDS to the DLC (A).



2. Choose Clutch Pressure Control (Linear) Solenoid B in the Miscellaneous Test Menu on the HDS.

   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-223).

3. Test A/T clutch pressure control solenoid valve B with the HDS.

   - If the valve tests OK, the test is complete. Disconnect the HDS.
   - If the valve does not test OK, follow the instructions on the HDS.
   - If the valve does not test OK, and the HDS does not determine the cause, go to step 4.

4. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).

5. Disconnect the negative terminal from the battery, then disconnect the positive terminal.

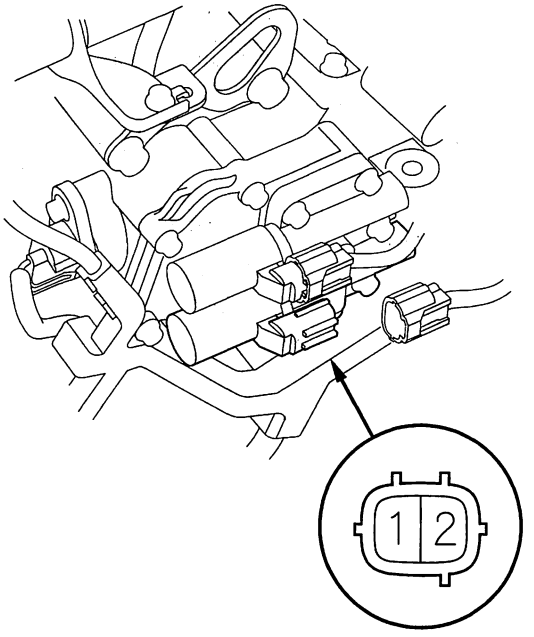
6. Remove the battery hold-down bracket, and remove the battery cover, battery, and battery tray.

7. Remove the under-hood subfuse box from its bracket, and remove the bracket from the battery base.

8. Remove the intake air duct and air cleaner housing.

9. Remove the battery base and battery base bracket.

10. Disconnect the A/T clutch pressure control solenoid valve B connector.



11. Measure A/T clutch pressure control solenoid valve B resistance at the connector terminals.

    Standard: 3—10 Ω

    - If the resistance is out of standard, replace A/T clutch pressure control solenoid valve B (see page 14-252).
    - If the resistance is within the standard, go to step 12.

12. Connect a jumper wire from the negative battery terminal to the solenoid valve B connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1.

    - If a clicking sound is heard, the valve is OK. Reconnect the connector, and install all removed parts.
    - If no clicking sound is heard, go to step 13.

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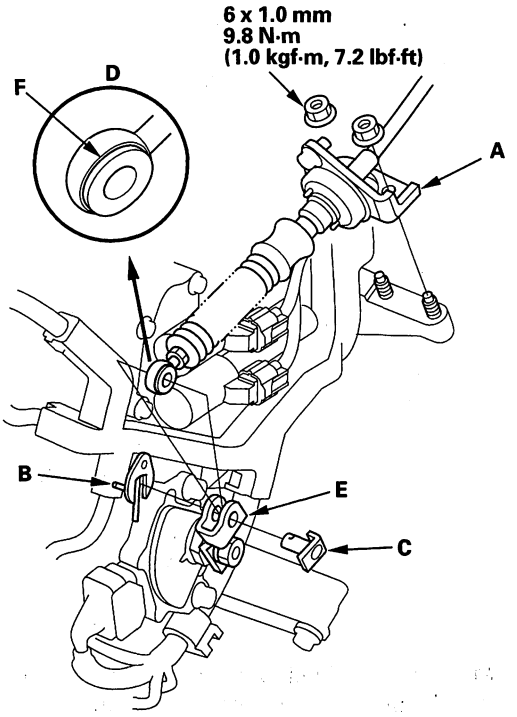
Protected by AR

A/T Clutch Pressure Control Solenoid Valve B Test (cont'd)

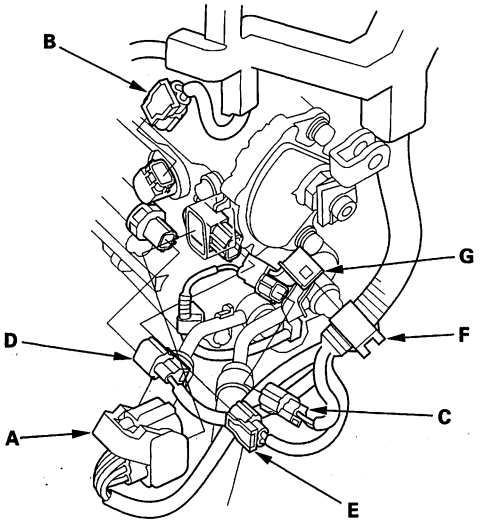
13. Remove the nuts securing the shift cable bracket (A).



14. Remove the spring clip/washer (B) and control pin (C), then separate the shift cable end (D) from the control lever (E).

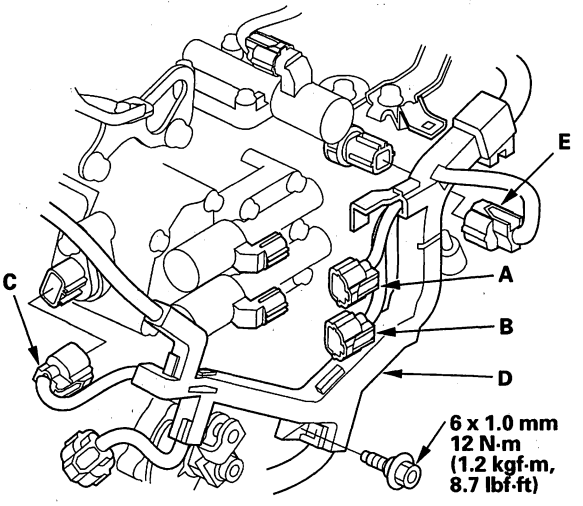
15. Check the synthetic resin bushing (F) in the shift cable end for a proper fit and wear. If the bushing is loose or worn, replace the shift cable (see page 14-309).

16. Disconnect the transmission range switch connector (A), input shaft (mainshaft) speed sensor connector (B), output shaft (countershaft) speed sensor connector (C), 3rd clutch transmission fluid pressure switch connector (D), and ATF temperature sensor connector (E).



17. Remove the harness clamp (F) from the clamp bracket (G).

18. Disconnect the A/T clutch pressure control solenoid valve A connector (A), A/T clutch pressure control solenoid valve B connector (B), and shift solenoid harness connector (C).



19. Remove the bolt securing the harness cover (D), and disconnect the 4th clutch transmission fluid pressure switch connector (E).

BACK

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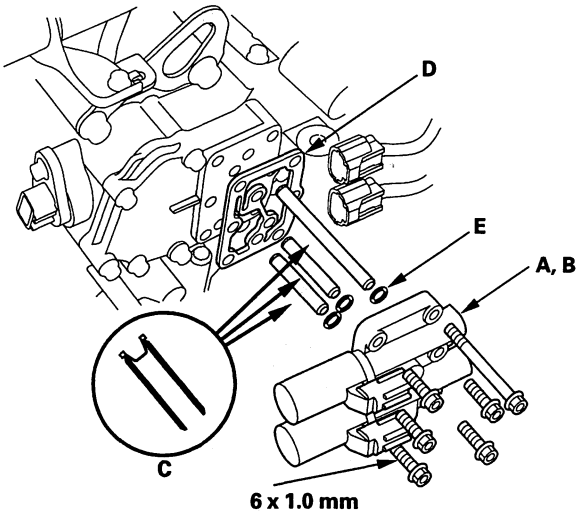
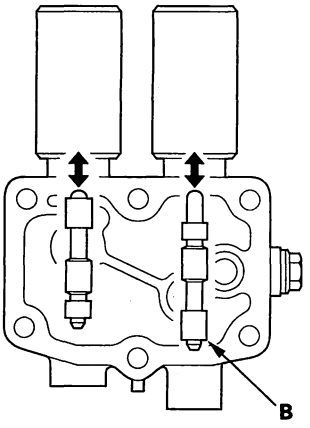
20. Remove the A/T clutch pressure control solenoid valve A and B, ATF pipes (C), gasket (D), and O-rings (E).



21. Check the fluid passage of the solenoid valve for contamination.

22. Connect a jumper wire from the negative battery terminal to A/T clutch pressure control solenoid valve B connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1. Make sure A/T clutch pressure control solenoid valve B moves.



23. Disconnect one of the jumper wires and check valve movement at the fluid passage in valve body mounting surface. If the valve binds or moves sluggishly, or if the solenoid valve does not operate, replace A/T clutch pressure control solenoid valve A and B.

24. Clean the mounting surface and fluid passage of the solenoid valve body and solenoid valve cover.

25. Install the new solenoid valve body gasket on the solenoid valve cover, and install the ATF pipes with the filter end in the transmission housing. Install the new O-rings over the ATF pipes.

26. Install A/T clutch pressure control solenoid valve A and B.

27. Secure the harness cover with the bolt.

28. Check the connectors for rust, dirt, or oil, clean or repair if necessary, then connect the connectors securely.

29. Apply molybdenum grease to the bore hole of the synthetic resin bushing in the shift cable end, and attach the shift cable end to the control lever, then insert the control pin into the control lever hole through the shift cable end, and secure the control pin with the spring clip/washer.

30. Secure the shift cable bracket with the nuts.

31. Install the battery base bracket and battery base.

32. Install the air cleaner housing and intake air duct.

33. Install the under-hood subfuse box on the battery base, and install the subfuse box on its bracket.

34. Install the battery tray, battery, battery cover, and battery hold-down bracket, then connect battery terminals.

35. Enter the anti-theft codes for the audio system and the navigation system (if equipped). Set the clock.

36. Do the steering column position memorization (see page 17-28).

37. Do the power window control unit reset procedure (see page 22-259).

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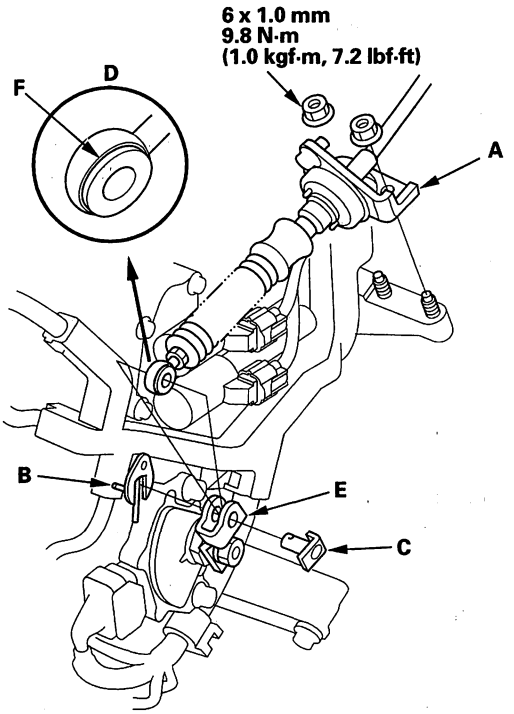
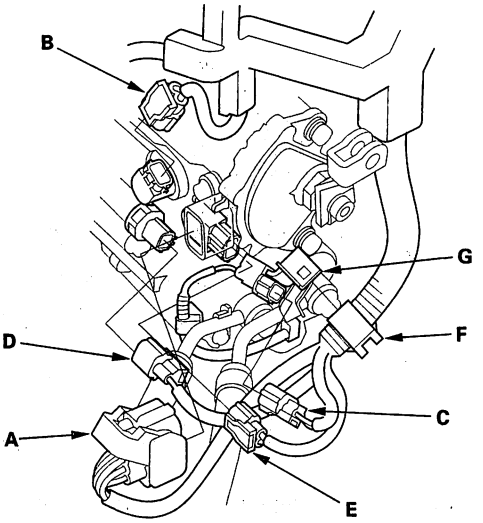
A/T Clutch Pressure Control Solenoid Valve A and B Replacement

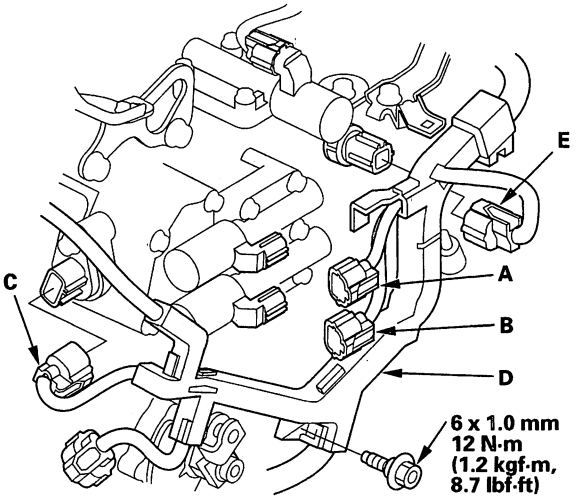
1. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).
2. Disconnect the negative terminal from the battery, then disconnect the positive terminal.
3. Remove the battery hold-down bracket, and remove the battery cover, battery, and battery tray.
4. Remove the under-hood subfuse box from its bracket, and remove the bracket from the battery base.
5. Remove the intake air duct and air cleaner housing.
6. Remove the battery base and battery base bracket.
7. Remove the nuts securing the shift cable bracket (A).



8. Remove the spring clip/washer (B) and control pin (C), then separate the shift cable end (D) from the control lever (E).
9. Check the synthetic resin bushing (F) in the shift cable end for a proper fit and wear. If the bushing is loose or worn, replace the shift cable (see page 14-309).
10. Disconnect the transmission range switch connector (A), input shaft (mainshaft) speed sensor connector (B), output shaft (countershaft) speed sensor connector (C), 3rd clutch transmission fluid pressure switch connector (D), and ATF temperature sensor connector (E).



11. Remove the harness clamp (F) from the clamp bracket (G).
12. Disconnect the A/T clutch pressure control solenoid valve A connector (A), A/T clutch pressure control solenoid valve B connector (B), and shift solenoid harness connector (C).



13. Remove the bolt securing the harness cover (D), and disconnect the 4th clutch transmission fluid pressure switch connector (E).

BACK

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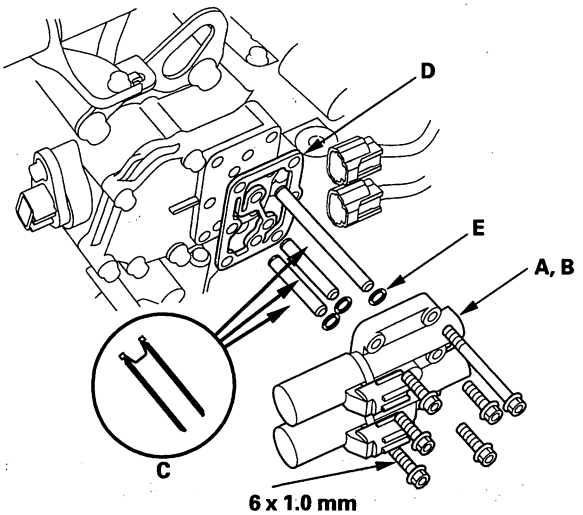
14. Remove the A/T clutch pressure control solenoid valve A and B, ATF pipes (C), gasket (D), and O-rings (E).



15. Check the fluid passage of the A/T clutch pressure control solenoid valve for dust or dirt, and clean the passage.

16. Install the new solenoid valve body gasket on the solenoid valve cover, and install the ATF pipes with the filter end in the transmission housing. Install the new O-rings over the ATF pipes.

17. Install A/T clutch pressure control solenoid valve A and B.

18. Secure the harness cover with the bolt.

19. Check the connectors for rust, dirt, or oil, clean, then connect the connectors securely.

20. Apply molybdenum grease to the bore hole of the synthetic resin bushing in the shift cable end, and attach the shift cable end to the control lever, then insert the control pin into the control lever hole through the shift cable end, and secure the control pin with the spring clip/washer.

21. Secure the shift cable bracket with the nuts.

22. Install the battery base bracket and battery base.

23. Install the air cleaner housing and intake air duct.

24. Install the under-hood subfuse box on the battery base, and install the subfuse box on its bracket.

25. Install the battery tray, battery, battery cover, and battery hold-down bracket, then connect battery terminals.

26. Enter the anti-theft codes for the audio system and the navigation system (if equipped). Set the clock.

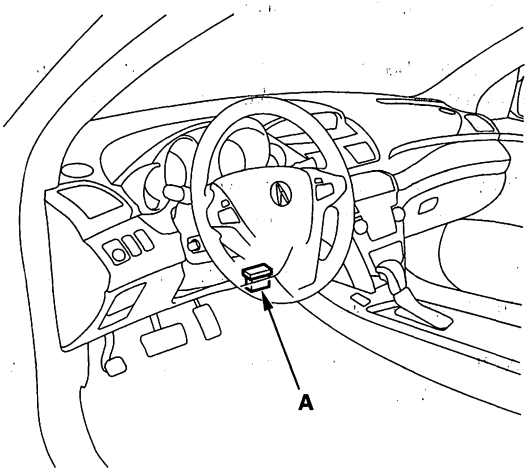
27. Do the steering column position memorization (see page 17-28).

28. Do the power window control unit reset procedure (see page 22-259).

Protected by AR

A/T Clutch Pressure Control Solenoid Valve C Test

1. Connect the HDS to the DLC (A).



2. Choose Clutch Pressure Control (Linear) Solenoid C in the Miscellaneous Test Menu on the HDS.

   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-223).

3. Test A/T clutch pressure control solenoid valve C with the HDS.

   - If the valve tests OK, the test is complete. Disconnect the HDS.
   - If the valve does not test OK, follow the instructions on the HDS.
   - If the valve does not test OK, and the HDS does not determine the cause, go to step 4.

4. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).

5. Disconnect the negative terminal from the battery, then disconnect the positive terminal.

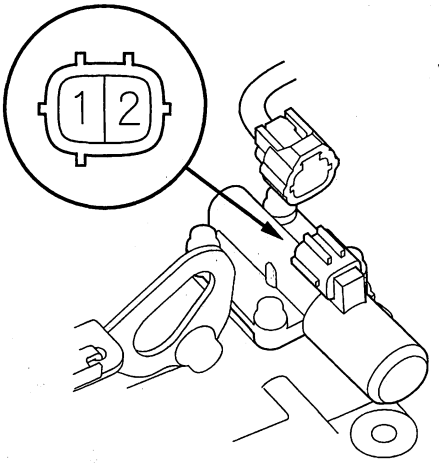
6. Remove the battery hold-down bracket, and remove the battery cover, battery, and battery tray.

7. Remove the under-hood subfuse box from its bracket, and remove the bracket from the battery base.

8. Remove the intake air duct and air cleaner housing.

9. Remove the battery base and battery base bracket.

10. Disconnect the A/T clutch pressure control solenoid valve C connector.



11. Measure A/T clutch pressure control solenoid valve C resistance at the connector terminals.

    Standard: 3—10 Ω

    - If the resistance is out of standard, replace A/T clutch pressure control solenoid valve C (see page 14-257).
    - If the resistance is within the standard, go to step 12.

12. Connect a jumper wire from the negative battery terminal to the solenoid valve C connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1.

    - If a clicking sound is heard, the valve is OK. Reconnect the connector, and install all removed parts.
    - If no clicking sound is heard, go to step 13.

BACK

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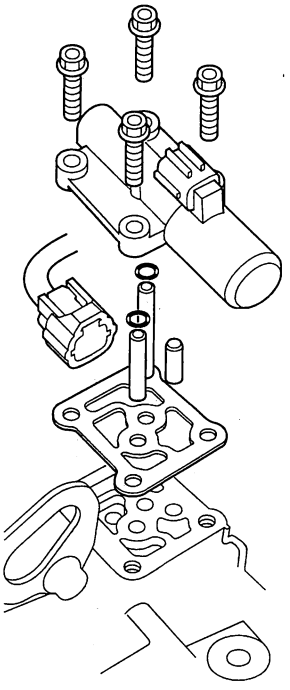
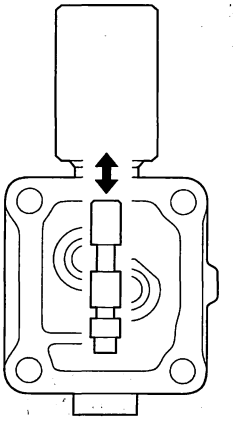
13. Remove A/T clutch pressure control solenoid valve C.



14. Remove the ATF joint pipes, O-rings, ATF pipe, and gasket.

15. Check the fluid passage of the solenoid valve for contamination.

16. Connect a jumper wire from the negative battery terminal to A/T clutch pressure control solenoid valve C connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1. Make sure A/T clutch pressure control solenoid valve C moves.



17. Disconnect one of the jumper wires and check valve movement at the fluid passage in valve body mounting surface. If the valve binds or moves sluggishly, or if the solenoid valve does not operate, replace A/T clutch pressure control solenoid valve C.

18. Clean the mounting surface and fluid passage of the solenoid valve body and transmission housing.

(cont'd)

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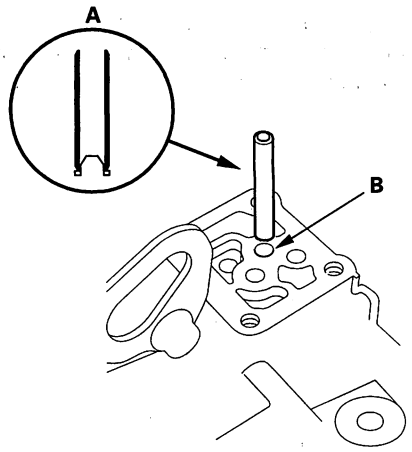
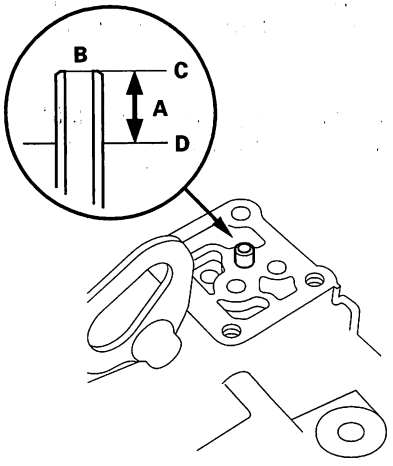
A/T Clutch Pressure Control Solenoid Valve C Test (cont'd)

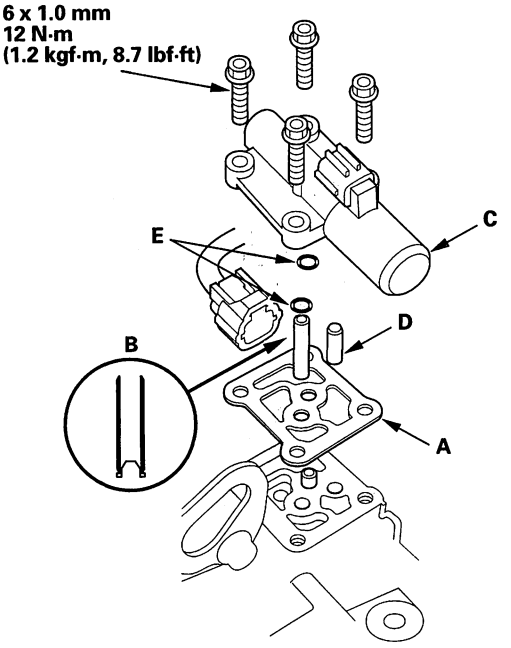
19. Install the 8 x 53 mm ATF joint pipe (A) with the filter end into its mounting hole (B).



20. Check the height (A) of the 8 x 53 mm ATF joint pipe (B) between the top (C) of the pipe and solenoid valve body mounting surface (D). The height is about 7 mm (0.3 in.) If the height is over 7 mm (0.3 in.), push the pipe until it bottoms in the accumulator body.



21. Install the new gasket (A) on the transmission housing, and install the 8 x 34.5 mm ATF joint pipe (B) with the filter end into the transmission housing and 8 x 25.2 mm ATF pipe (D).



22. Install the new O-rings (E) over the ATF joint pipes.

23. Install A/T clutch pressure control solenoid valve C.

24. Check the connector for rust, dirt, or oil, then connect the connector securely.

25. Install the battery base bracket and battery base.

26. Install the air cleaner housing and intake air duct.

27. Install the under-hood subfuse box on the battery base, and install the subfuse box on its bracket.

28. Install the battery tray, battery, battery cover, and battery hold-down bracket, then connect battery terminals.

29. Enter the anti-theft codes for the audio system and the navigation system (if equipped). Set the clock.

30. Do the steering column position memorization (see page 17-28).

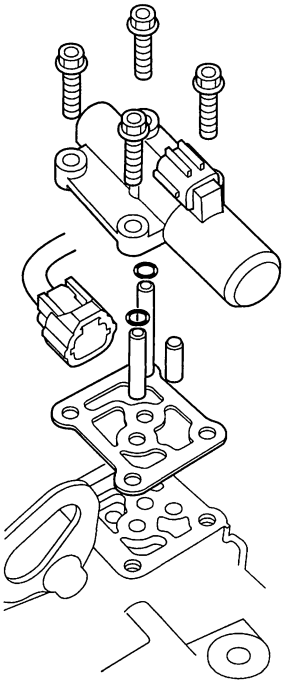
31. Do the power window control unit reset procedure (see page 22-259).

BACK

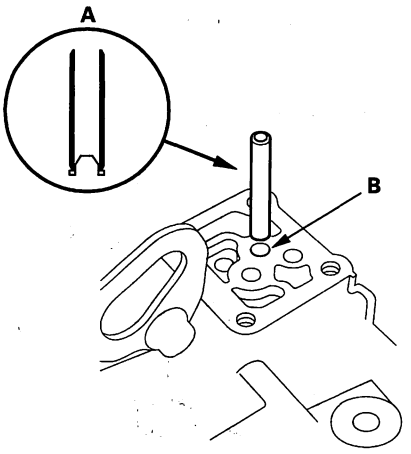
Protected by AR

A/T Clutch Pressure Control Solenoid Valve C Replacement

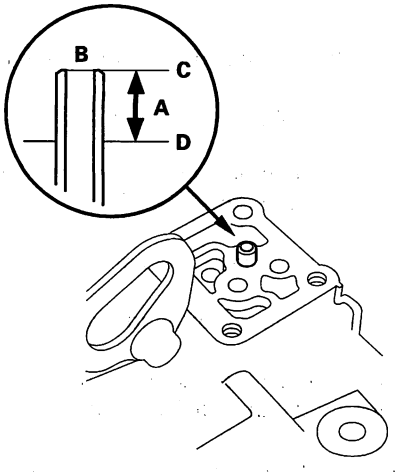
1. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).
2. Disconnect the negative terminal from the battery, then disconnect the positive terminal.
3. Remove the battery hold-down bracket, and remove the battery cover, battery, and battery tray.
4. Remove the under-hood subfuse box from its bracket, and remove the bracket from the battery base.
5. Remove the intake air duct and air cleaner housing.
6. Remove the battery base and battery base bracket.
7. Disconnect the A/T clutch pressure control solenoid valve C connector.



8. Remove A/T clutch pressure control solenoid valve C.
9. Remove the ATF joint pipes, O-rings, ATF pipe, and gasket.
10. Clean the mounting surface and the fluid passage of the solenoid valve body and transmission housing.
11. Install the 8 x 53 mm ATF joint pipe (A) with the filter end into its mounting hole (B).



12. Check the height (A) of the 8 x 53 mm ATF joint pipe (B) between the top (C) of the pipe and solenoid valve body mounting surface (D). The height is about 7 mm (0.3 in.) If the height is over 7 mm (0.3 in.), push the pipe until it bottoms in the accumulator body.

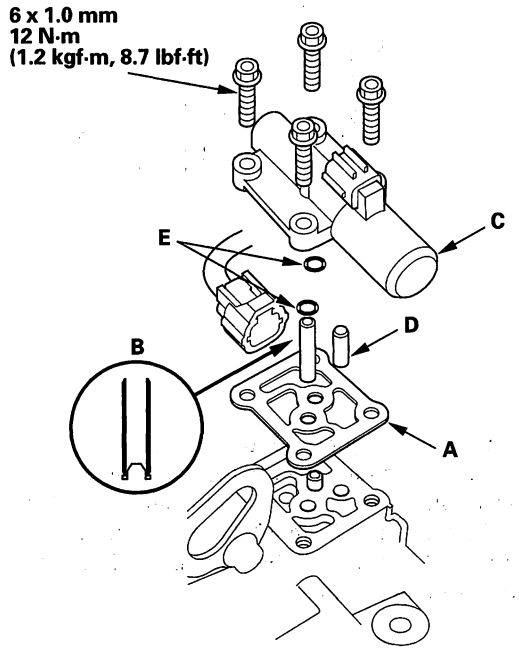


(cont'd)

Protected by AR

A/T Clutch Pressure Control Solenoid Valve C Replacement (cont'd)

13. Install the new gasket (A) on the transmission housing, and install the 8 x 34.5 mm ATF joint pipe (B) with the filter end into the transmission housing and 8 x 25.2 mm ATF pipe (D).



14. Install the new O-rings (E) over the ATF joint pipes.
15. Install A/T clutch pressure control solenoid valve C.
16. Check the connector for rust, dirt, or oil, then connect the connector securely.
17. Install the battery base bracket and battery base.
18. Install the air cleaner housing and intake air duct.
19. Install the under-hood subfuse box on the battery base, and install the subfuse box on its bracket.
20. Install the battery tray, battery, battery cover, and battery hold-down bracket, then connect battery terminals.
21. Enter the anti-theft codes for the audio system and the navigation system (if equipped). Set the clock.
22. Do the steering column position memorization (see page 17-28).
23. Do the power window control unit reset procedure (see page 22-259).

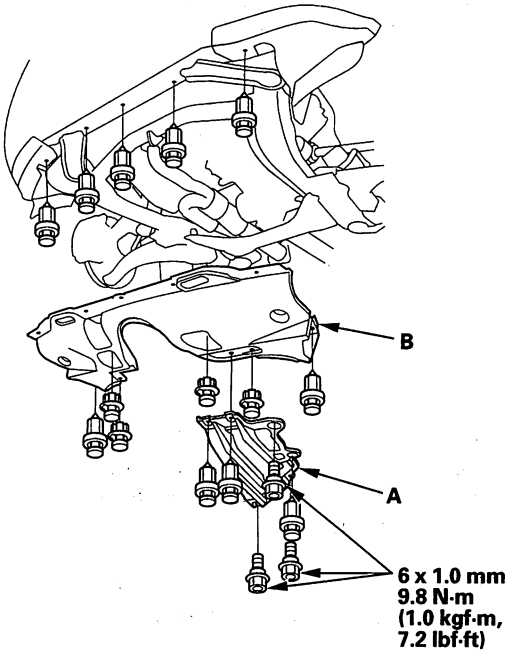
BACK

Protected by AR

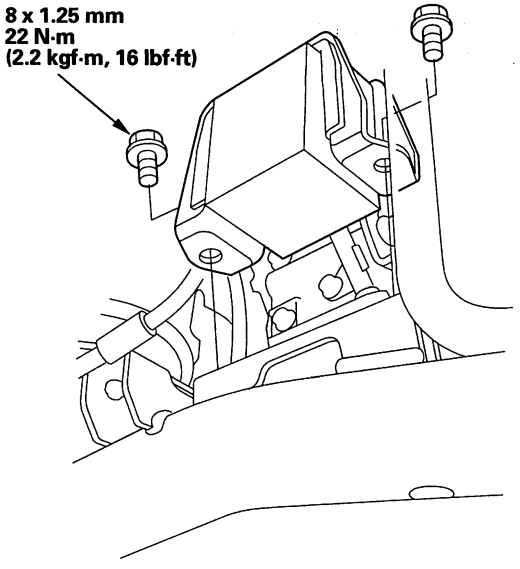
Input Shaft (Mainshaft) Speed Sensor Replacement

1. Raise the vehicle up on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.

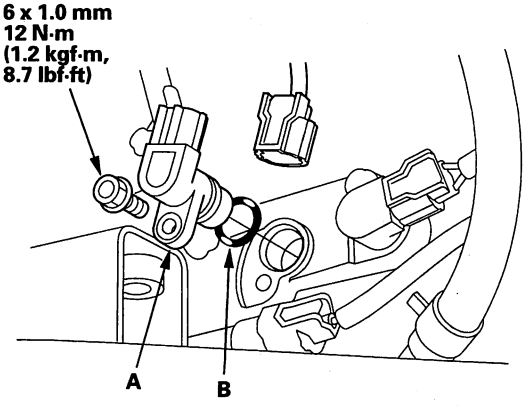
2. Remove the transmission undercover (A) and splash shield (B).



3. Remove the damper from the front subframe.



4. Disconnect the input shaft (mainshaft) speed sensor connector, and remove the input shaft (mainshaft) speed sensor (A).



5. Install the new O-ring (B) on the new input shaft (mainshaft) speed sensor, then install the input shaft (mainshaft) speed sensor.

6. Check the connector for rust, dirt, or oil, then connect the connector securely.

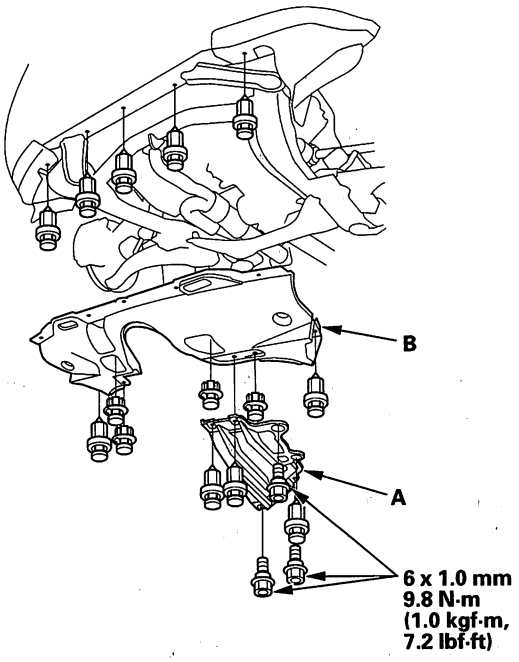
7. Install the damper on the front subframe.

8. Install the splash shield and transmission undercover.

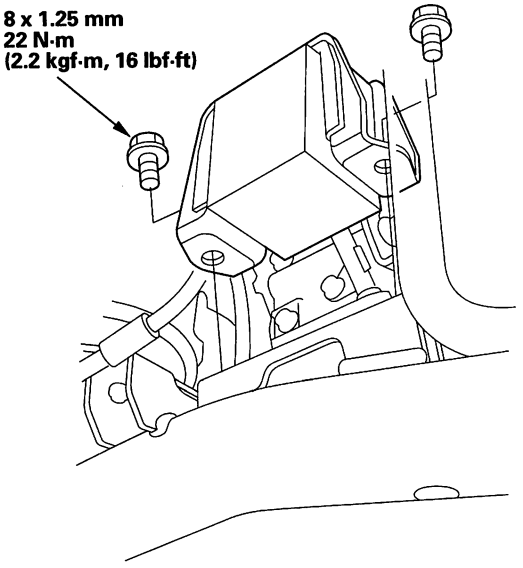
Protected by AR

Output Shaft (Countershaft) Speed Sensor Replacement

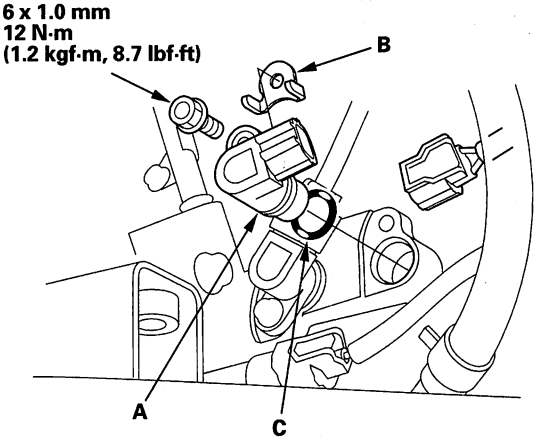
1. Raise the vehicle up on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
2. Remove the transmission undercover (A) and splash shield (B).



3. Remove the damper from the front subframe.



4. Disconnect the output shaft (countershaft) speed sensor connector, and remove the output shaft (countershaft) speed sensor (A) and sensor washer (B).



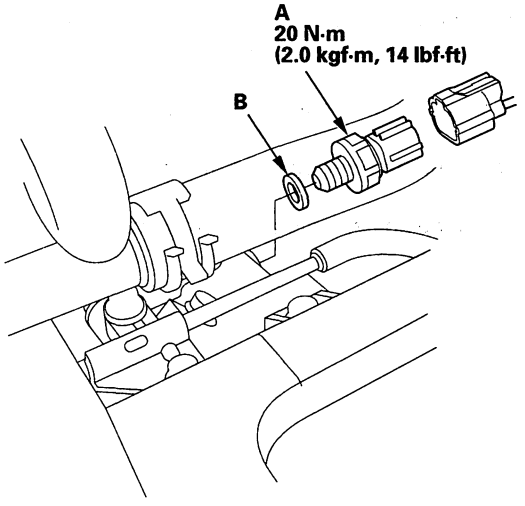
5. Install the new O-ring (C) on the new output shaft (countershaft) speed sensor (B), then install the output shaft (countershaft) speed sensor and sensor washer.
6. Check the connector for rust, dirt, or oil, then connect the connector securely.
7. Install the damper on the front subframe.
8. Install the splash shield and transmission undercover.

BACK

Protected by AR

2nd Clutch Transmission Fluid Pressure Switch Replacement

1. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).
2. Disconnect the negative terminal from the battery, then disconnect the positive terminal.
3. Remove the battery hold-down bracket, and remove the battery cover, battery, and battery tray.
4. Remove the under-hood subfuse box from its bracket, and remove the bracket from the battery base.
5. Remove the intake air duct and air cleaner housing.
6. Remove the battery base and battery base bracket.
7. Disconnect the 2nd clutch transmission fluid pressure switch connector, and remove the switch.

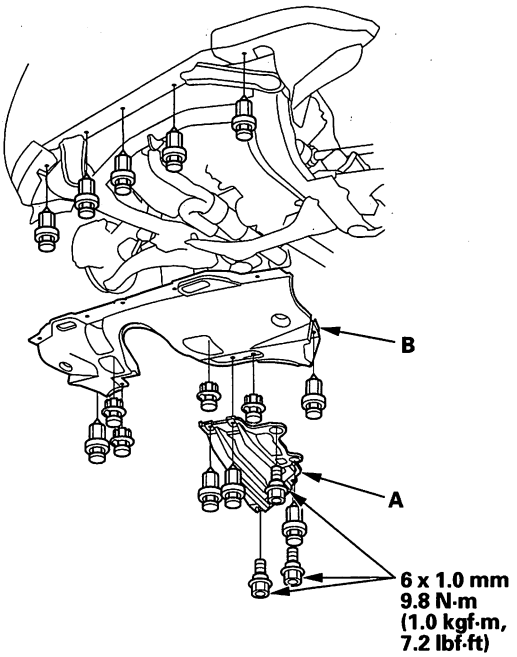


8. Install the new 2nd clutch transmission fluid pressure switch (A) and a new sealing washer (B), and tighten the switch.
9. Make sure there is no water, oil, dust, or foreign particles inside the connector.
10. Connect the connector securely.
11. Install the battery base bracket and battery base.
12. Install the air cleaner housing and intake air duct.
13. Install the under-hood subfuse box on the battery base, and install the subfuse box on its bracket.
14. Install the battery tray, battery, battery cover, and battery hold-down bracket, then connect battery terminals.
15. Enter the anti-theft codes for the audio system and the navigation system (if equipped). Set the clock.
16. Do the steering column position memorization (see page 17-28).
17. Do the power window control unit reset procedure (see page 22-259).

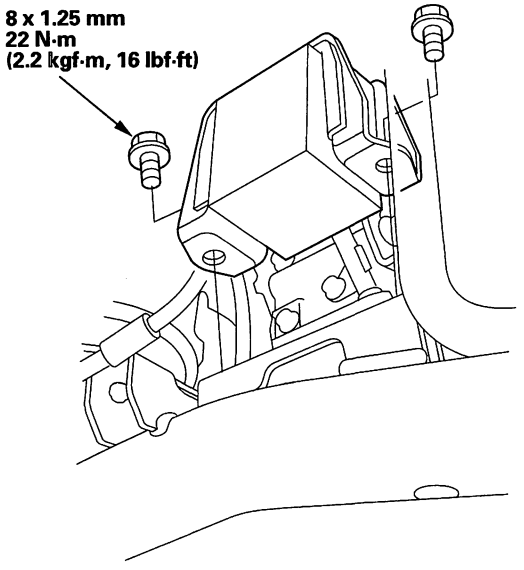
Protected by AR

3rd Clutch Transmission Fluid Pressure Switch Replacement

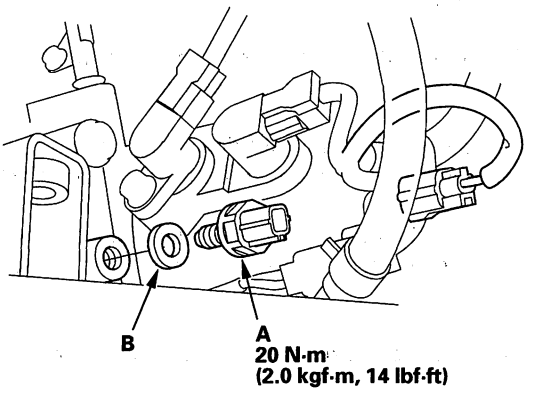
1. Raise the vehicle up on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
2. Remove the transmission undercover (A) and splash shield (B).



3. Remove the damper from the front subframe.



4. Disconnect the 3rd clutch transmission fluid pressure switch connector, and remove the switch.



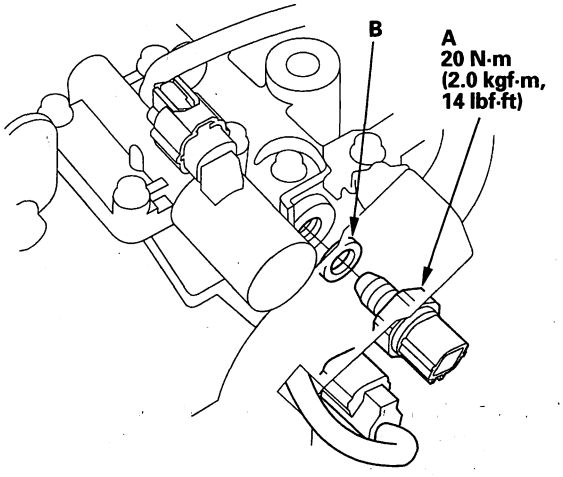
5. Install the new 3rd clutch transmission fluid pressure switch (A) and a new sealing washer (B), and tighten the switch.
6. Make sure there is no water, oil, dust, or foreign particles inside the connector.
7. Connect the connector securely.
8. Install the damper on the front subframe.
9. Install the splash shield and transmission undercover.

BACK

Protected by AR

4th Clutch Transmission Fluid Pressure Switch Replacement

1. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).
2. Disconnect the negative terminal from the battery, then disconnect the positive terminal.
3. Remove the battery hold-down bracket, and remove the battery cover, battery, and battery tray.
4. Remove the under-hood subfuse box from its bracket, and remove the bracket from the battery base.
5. Remove the intake air duct and air cleaner housing.
6. Remove the battery base and battery base bracket.
7. Disconnect the 4th clutch transmission fluid pressure switch connector, and remove the switch.



8. Install the new 4th clutch transmission fluid pressure switch (A) and a new sealing washer (B), and tighten the switch.
9. Make sure there is no water, oil, dust, or foreign particles inside the connector.
10. Connect the connector securely.
11. Install the battery base bracket and battery base.
12. Install the air cleaner housing and intake air duct.
13. Install the under-hood subfuse box on the battery base, and install the subfuse box on its bracket.
14. Install the battery tray, battery, battery cover, and battery hold-down bracket, then connect battery terminals.
15. Enter the anti-theft codes for the audio system and the navigation system (if equipped). Set the clock.
16. Do the steering column position memorization (see page 17-28).
17. Do the power window control unit reset procedure (see page 22-259).

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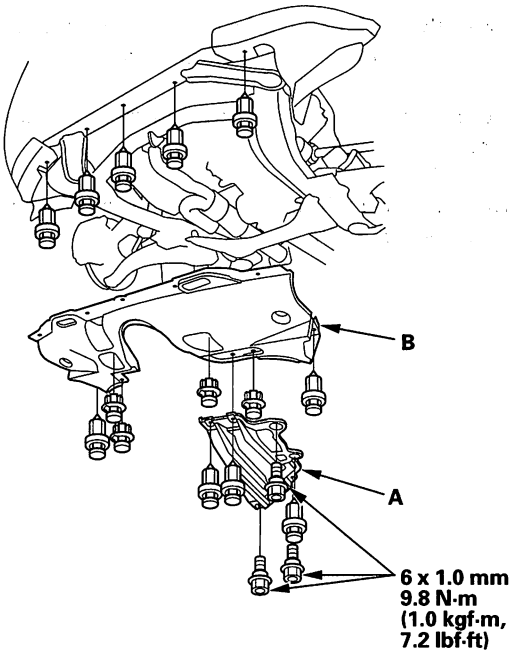
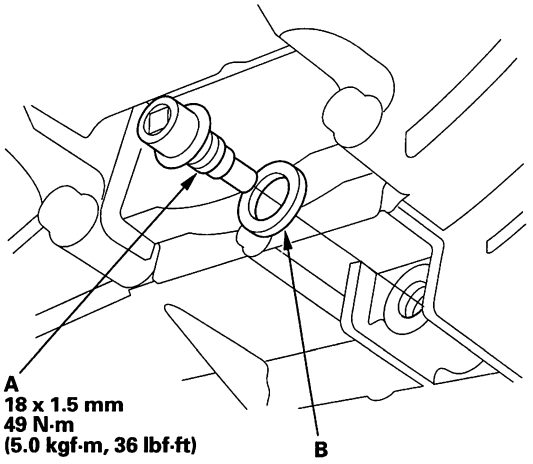
ATF Temperature Sensor Replacement

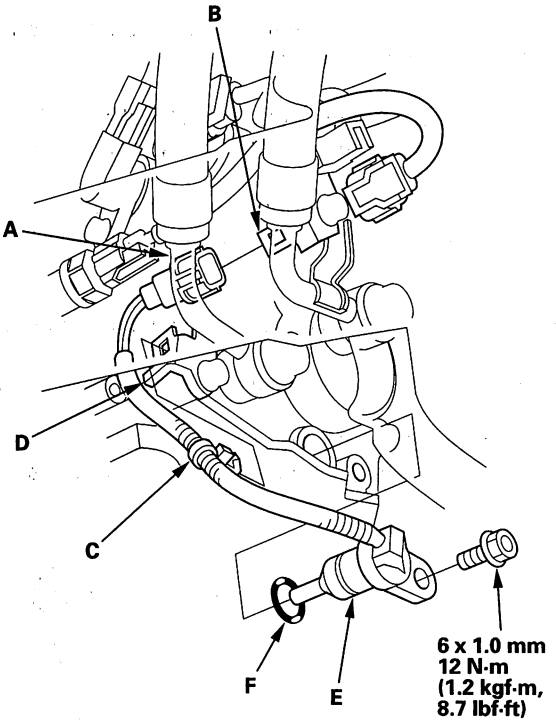
1. Raise the vehicle up on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
2. Remove the transmission undercover (A) and splash shield (B).



3. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).



4. Reinstall the drain plug with a new sealing washer (B).
5. Disconnect the ATF temperature sensor connector (A), then remove the connector from the connector bracket (B).



6. Remove the harness clamp (C) from its bracket (D).
7. Remove the ATF temperature sensor (E), and replace the sensor.
8. Install the new O-ring (F) on the new ATF temperature sensor, and install the ATF temperature sensor.
9. Check the connector for rust, dirt, or oil. Connect the connector securely, and install it on its bracket.
10. Install the harness clamp on its bracket.
11. Refill the transmission with ATF (see step 7 on page 14-266).
12. Install the splash shield and transmission undercover.

BACK

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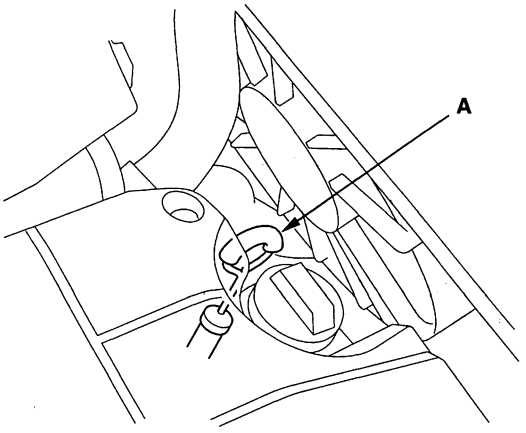
ATF Level Check

NOTE: Keep all foreign particles out of the transmission.

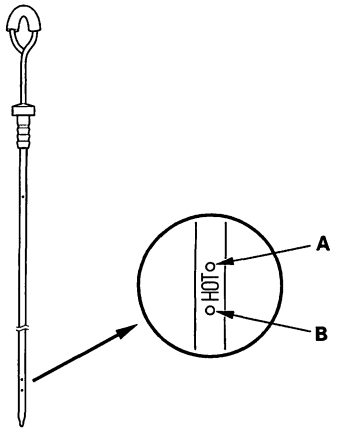
1. Park the vehicle on the level ground.
2. Warm up the engine to normal operating temperature (the radiator fan comes on), and turn the engine off. Do not allow the engine to warm up longer than the time it takes for the radiator fan to come on twice.

   NOTE: Check the fluid level within 60—90 seconds after turning the engine off. Higher fluid level may be indicated if the radiator fan comes on twice or more.

3. Remove the dipstick (yellow loop) (A) from the dipstick guide tube, and wipe it with a clean cloth.



4. Insert the dipstick into the guide tube.
5. Remove the dipstick and check the fluid level. It should be between the upper mark (A) and lower mark (B).



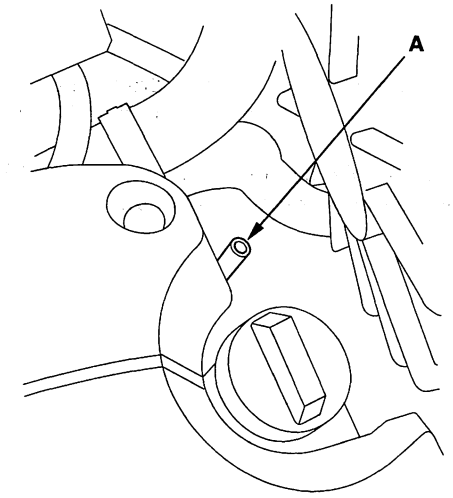
6. If the level is below the lower mark, check for fluid leaks at the transmission, and hose and line joints. If a problem is found, fix it before filling the transmission.

   NOTE: If the vehicle is driven when the ATF level is below the lower mark:
   - Transmission damage will result.
   - Vehicle does not move in any gear.
   - Vehicle accelerates poorly, and flares when starting off in the D and R positions.
   - The engine vibrates at idle.

7. If the level is above the upper mark, drain the ATF to proper level (see step 5 on page 14-266).

   NOTE: If the vehicle is driven when the ATF level is above the upper mark, the vehicle may creep forward while in the N position, or have shifting problems.

8. If necessary, fill the transmission with the ATF through the dipstick guide tube opening (A) to bring the fluid level midway between the upper mark and lower mark of the dipstick. Do not fill past the upper mark. Always use Acura ATF-Z1 Automatic Transmission Fluid (ATF). Using a non-Acura ATF can affect shift quality.



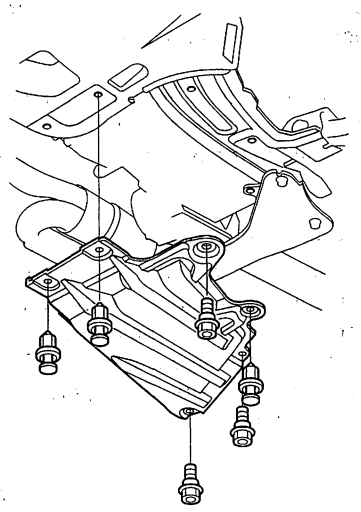
9. Insert the dipstick back into the dipstick guide tube.

Protected by AR

ATF Replacement

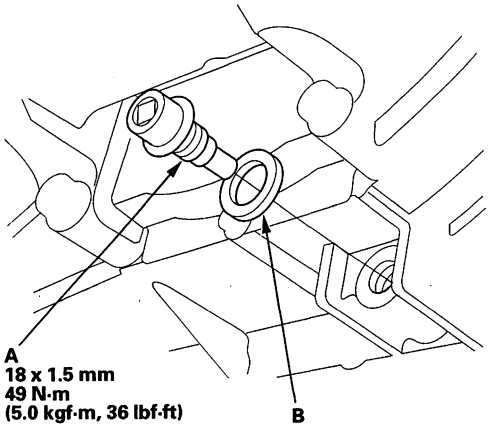
NOTE: Keep all foreign particles out of the transmission.

1. Park the vehicle on the level ground.
2. Warm up the engine to normal operating temperature (the radiator fan comes on), and turn the engine off.
3. Raise the vehicle up on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
4. Remove the transmission undercover.



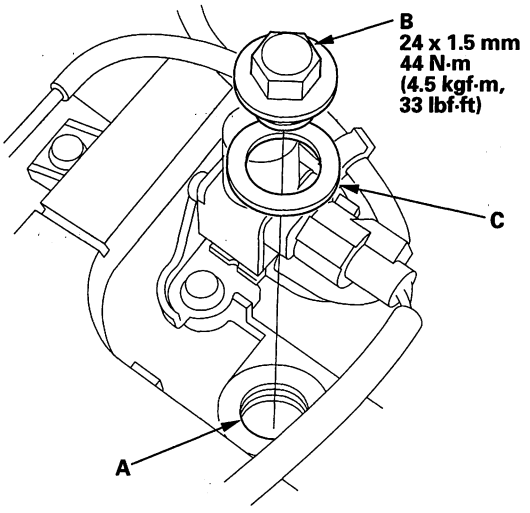
5. Remove the ATF filler bolt and drain plug (A), and drain the automatic transmission fluid (ATF).

   NOTE: If a cooler cleaning is done, refer to ATF Cooler Cleaning (see page 14-300).



6. Reinstall the drain plug with a new sealing washer (B).
7. Refill the transmission with the recommended fluid into the filler hole (A). Always use Acura ATF-Z1 Automatic Transmission Fluid (ATF). Using a non-Acura ATF can affect shift quality.

   Automatic Transmission Fluid Capacity:
   2.8 L (3.0 US qt) at change
   7.9 L (8.3 US qt) at overhaul



8. Install the ATF filler bolt (B) and a new sealing washer (C).

BACK

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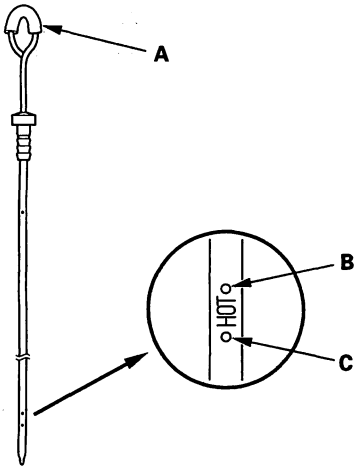
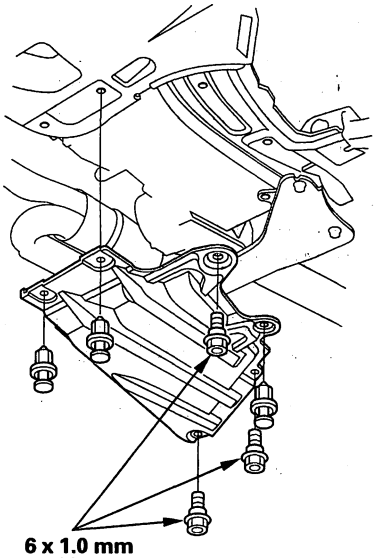
9. Remove the dipstick (A).



10. Make sure the fluid level is between the upper mark (B) and lower mark (C) on the dipstick.

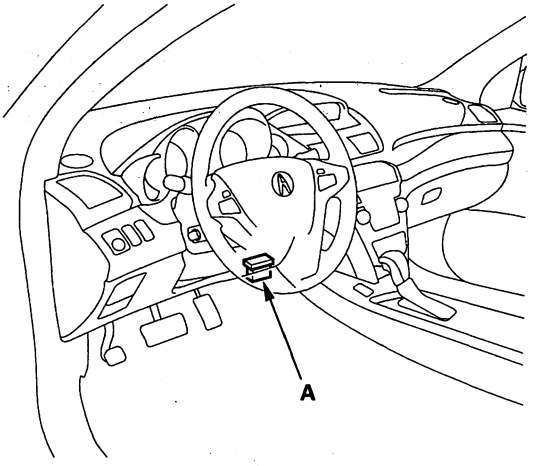
11. Install the transmission undercover.



6 x 1.0 mm
9.8 N·m
(1.0 kgf·m, 7.2 lbf·ft)

12. If the maintenance minder required to replace the ATF, reset the maintenance minder (see page 3-6), and this procedure is complete. If the maintenance minder did not require to replace the ATF, go to step 10 and reset the ATF life with the HDS.

13. Connect the HDS to the DLC (A), and go to the BODY ELECTRICAL. If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-223).



14. Select ADJUSTMENT in the GAUGES MENU with the HDS.

15. Select RESET in the MAINTENANCE MINDER with the HDS.

16. Select MAINTENANCE SUB ITEM 3 RESET, and reset the ATF life with the HDS.

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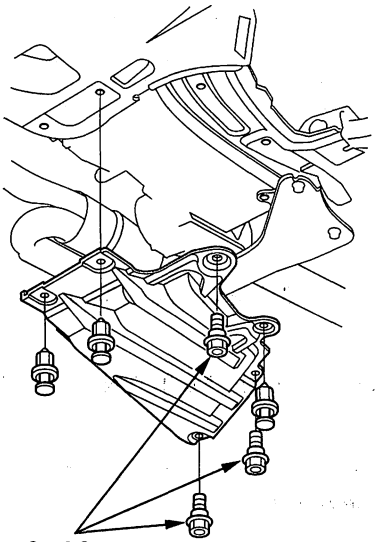
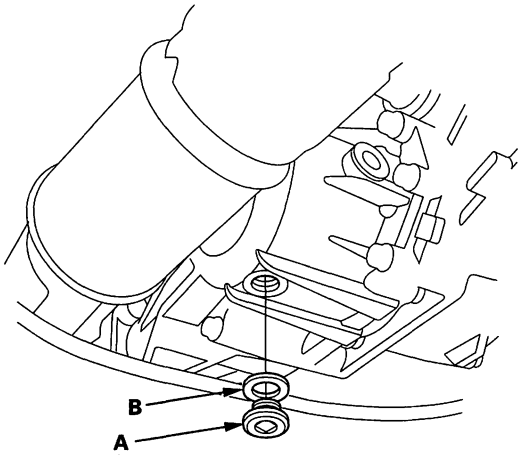
Transfer Assembly Fluid Replacement

1. Bring the transmission up to normal operating temperature (the radiator fan comes on).
2. Park the vehicle on level ground, and turn the engine off.
3. Raise the vehicle up on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
4. Remove the transmission undercover.



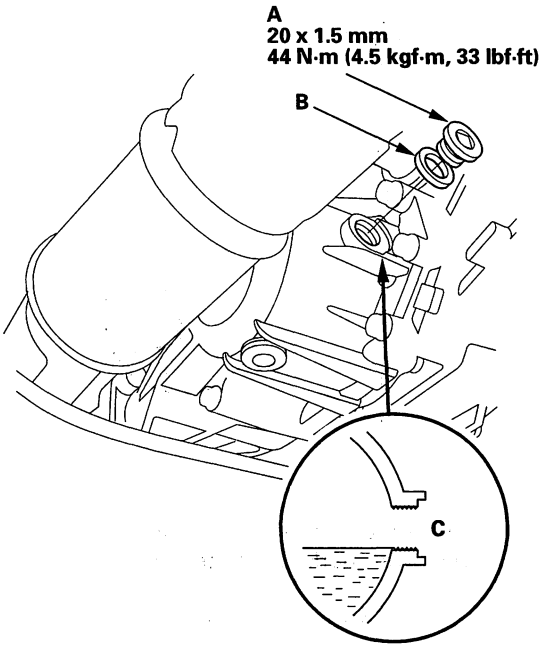
6 x 1.0 mm
9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)

5. Remove the drain plug (A), and drain the transfer fluid (hypoid gear oil).



20 x 1.5 mm
44 N·m (4.5 kgf·m, 33 lbf·ft)

6. Reinstall the drain plug with a new sealing washer (B).
7. Remove the filler plug (A) and sealing washer (B).



8. Refill the transfer assembly with the recommended fluid (hypoid gear oil) through the filler hole (C) until the fluid flows out. Use an SAE 90 or SAE 80W-90 viscosity hypoid gear oil, API classified GL4 or GL5 only.

Viscosity:
SAE 90: Above 0 °F (−18 °C)
SAE 80W-90: Below 0 °F (−18 °C)

Transfer Fluid (Hypoid Gear Oil) Capacity:
0.43 L (0.45 US qt) at fluid change

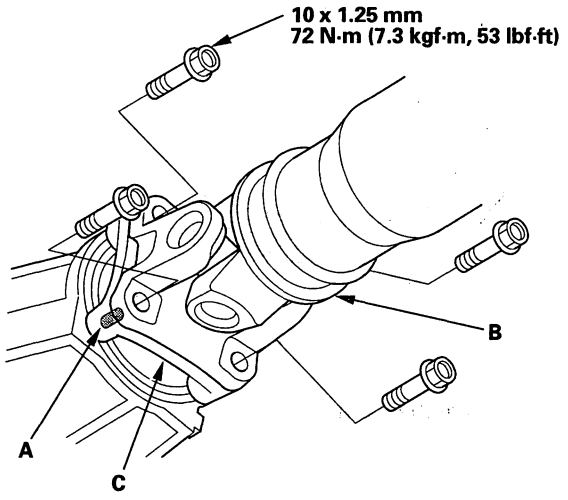
9. Install the filler plug with a new sealing washer.
10. Install the transmission undercover.

BACK

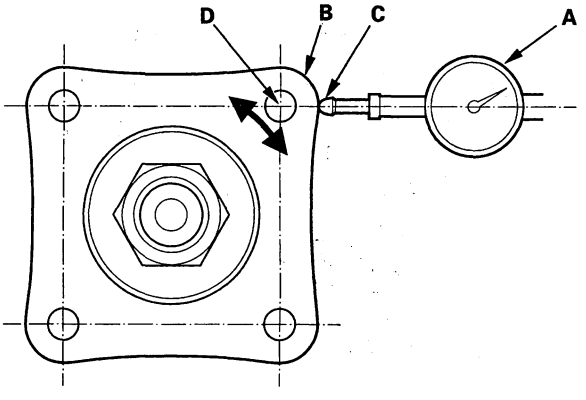
Protected by AR

Transfer Assembly Inspection

1. Raise the vehicle, and make sure it is supported securely.
2. Shift the transmission into the N position.
3. Make a reference mark (A) across the propeller shaft (B) and the transfer companion flange (C).



4. separate the propeller shaft from the transfer companion flange.
5. Set a dial indicator (A) on the transfer companion flange (B); position dial indicator tip (C) on the direct extension of the bolt hole center (D).



6. Measure the transfer gear backlash.

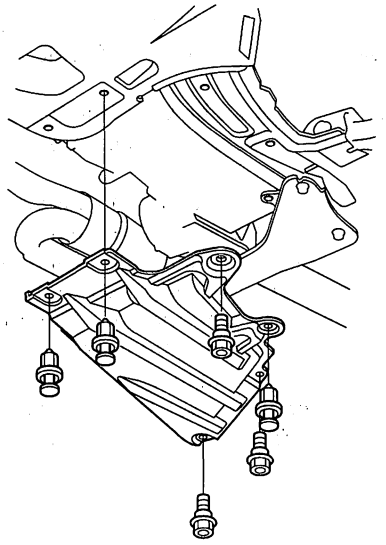
   Standard: 0.06—0.16 mm (0.002—0.006 in.)

7. If the measurement is out of standard, remove the transfer assembly, and adjust the transfer gear backlash (see page 14-435).
8. Check for fluid leaks between the mating faces of the transfer assembly and transmission.
9. If there is leak, remove the transfer assembly, remove the transfer cover, and replace the O-ring.
10. Check for fluid leaks between the transfer companion flange and transfer oil seal.
11. If there is leak, remove the transfer assembly from the transmission, and replace the transfer oil seal and O-ring on the transfer output shaft (hypoid gear). If oil seal and O-ring replacement is required, you will need to check and adjust the transfer gear tooth contact, transfer gear backlash, the tapered roller bearing starting torque, and the total starting torque (see page 14-435). Do not replace the oil seal with the transfer assembly on the transmission.

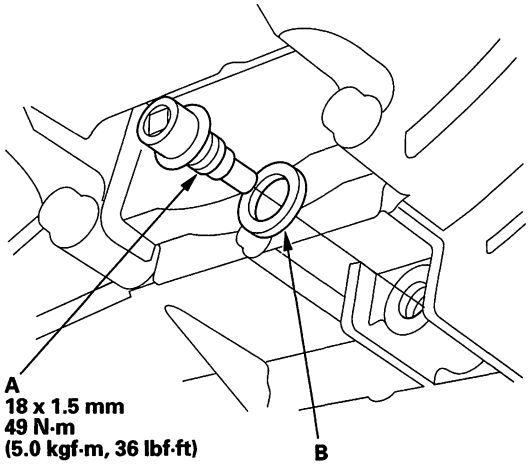
Protected by AR

Transfer Assembly Removal

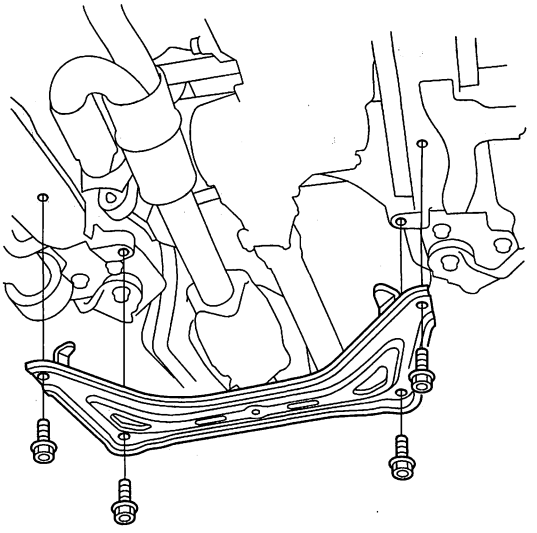
1. Raise the vehicle, and make sure it is supported securely.
2. Shift the transmission into the N position.
3. Remove the transmission undercover.



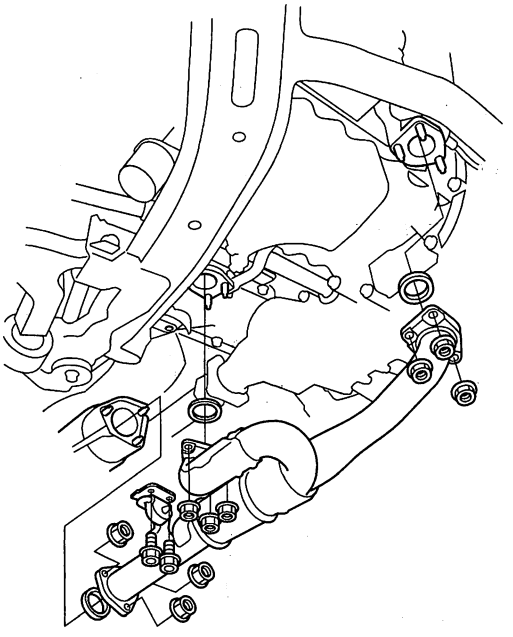
4. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).



5. Reinstall the drain plug with a new sealing washer (B).
6. Remove the front subframe stiffener.



7. Remove the exhaust pipe A.



BACK

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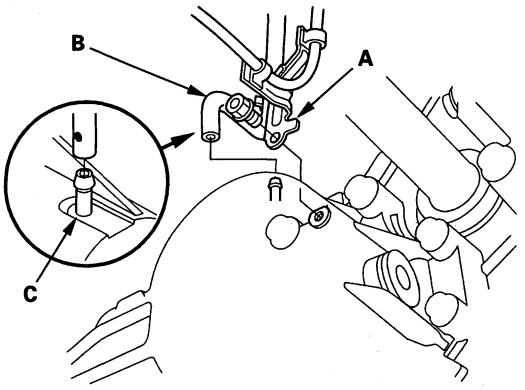
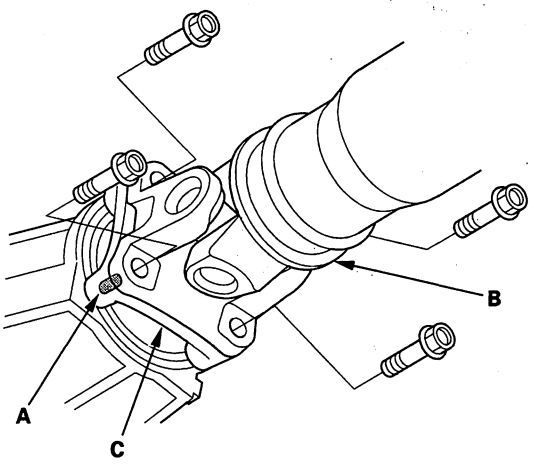
8. Remove the bolt securing the transfer breather hose bracket (A), and disconnect the breather hose (B) from the breather pipe (C) on the transfer assembly.

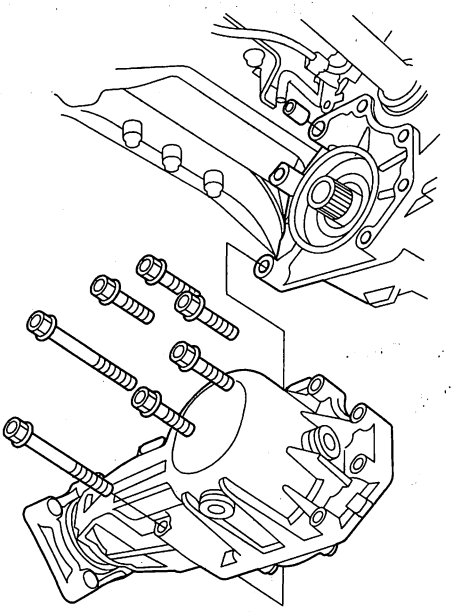


9. Make a reference mark (A) across the propeller shaft (B) and the transfer companion flange (C).



10. Separate the propeller shaft from the transfer companion flange.

11. Remove the transfer assembly from the transmission.



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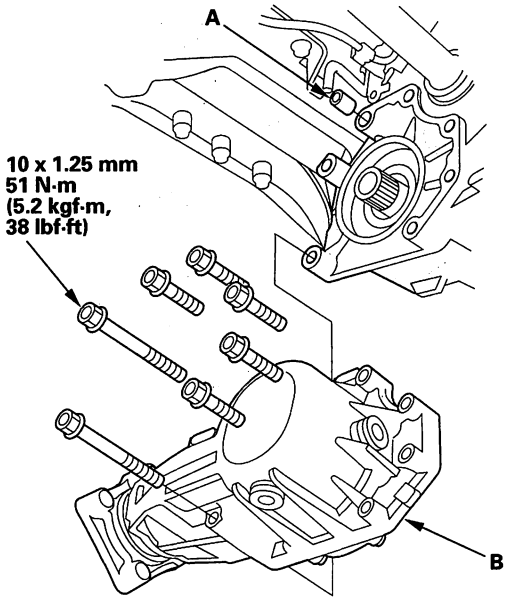
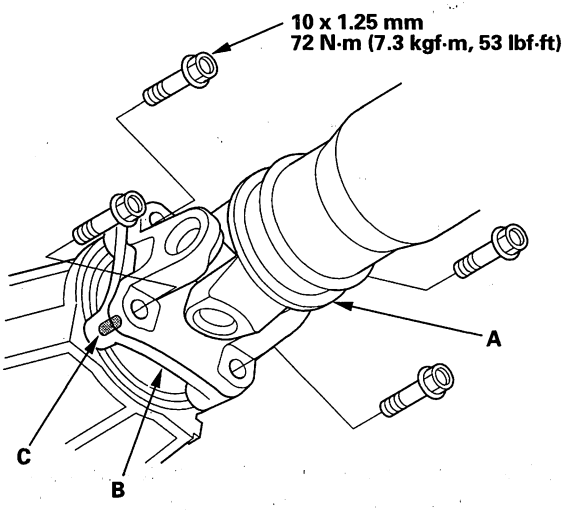
Transfer Assembly Installation

1. Clean the areas where the transfer assembly contacts the transmission with solvent, and dry with compressed air. Then apply transmission fluid to the contact area.

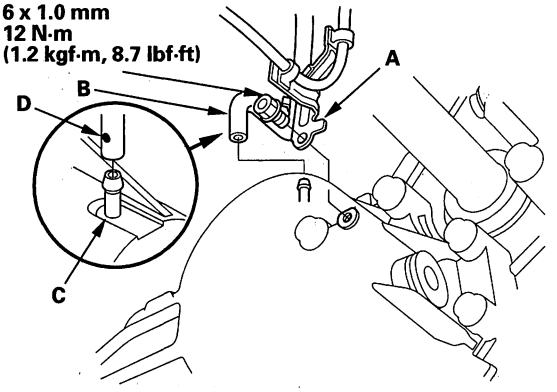
2. Install the dowel pin (A) in the transmission, and install the transfer assembly (B) on the transmission.



3. Install the propeller shaft (A) to the transfer companion flange (B) by aligning the reference mark (C).



4. Secure the transfer breather hose bracket (A) on the transfer assembly with the bolt, and install the breather hose (B) over the breather pipe (C) with the dot (D) facing out.



BACK

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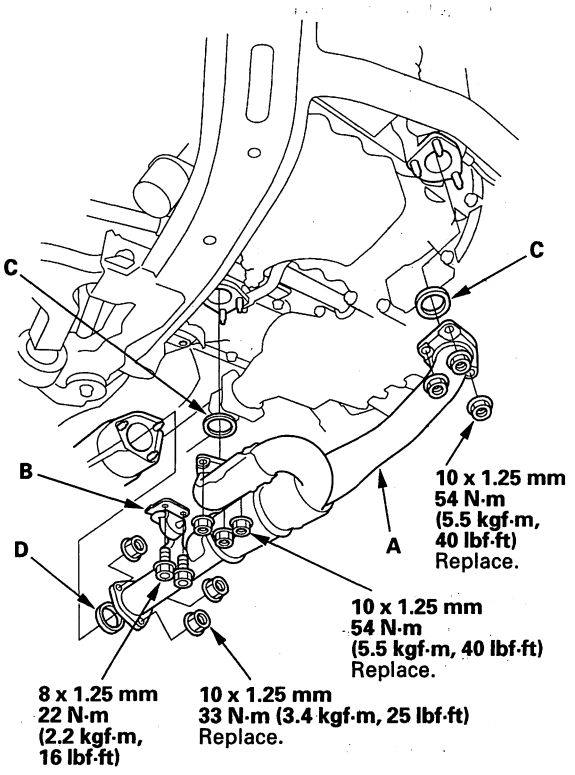
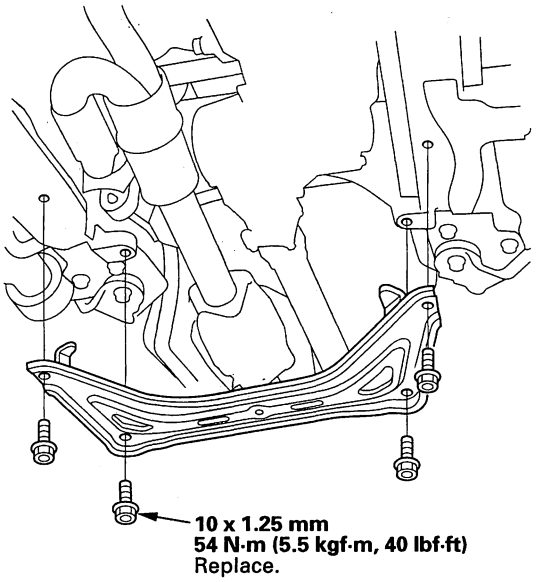
5. Install the exhaust pipe A with the new self-locking nuts, its mount (B), and new gaskets (C) (D).



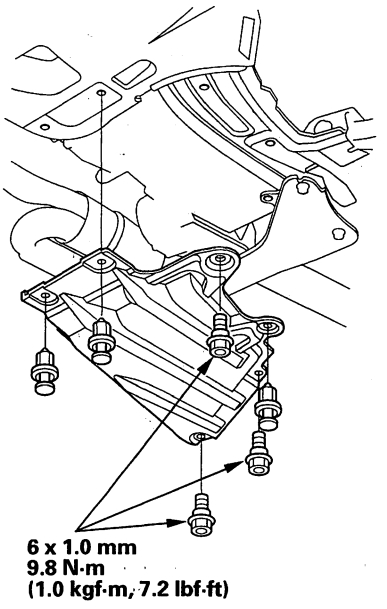
6. Install the front subframe stiffener with the new mounting bolts.



7. Refill the transfer with transfer fluid (hypoid gear oil), if necessary (see page 14-268).

8. Refill the transmission with ATF (see step 7 on page 14-266).

9. Install the transmission undercover.



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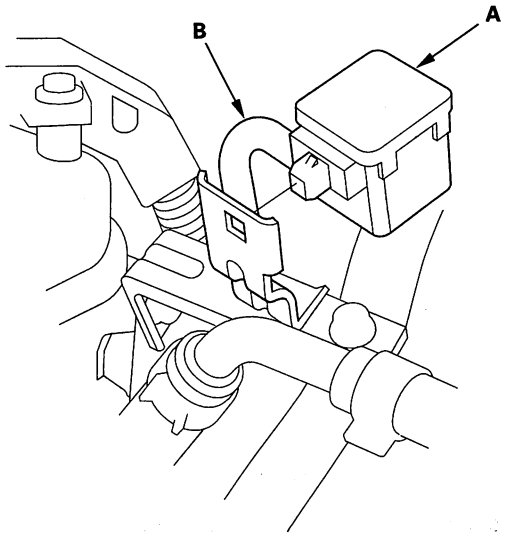
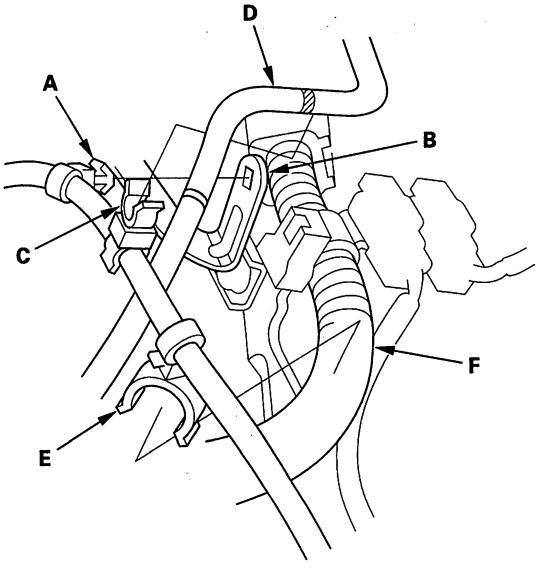
Transfer Breather Hose Replacement

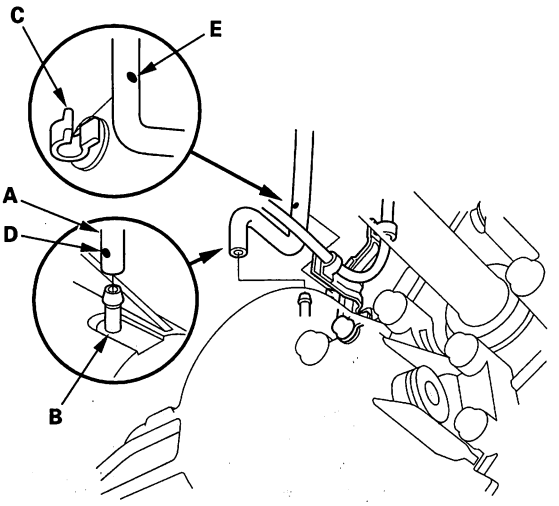
1. Raise the vehicle, and make sure it is supported securely.
2. Remove the transfer breather (A) from its bracket (B).



3. Remove the breather hose clamp (A) from the hose clamp (B), and remove the hose clamp (C) from the vacuum hose (D).



4. Remove the harness clamp (E) on the breather hose from the engine harness (F).
5. Disconnect the breather hose (A) from the transfer breather pipe (B), and remove the breather hose from the hose clamp (C).



6. Install the breather hose over the breather pipe with the dot (D) facing out, and install the hose on the hose clamp at the dot (E).
7. Install the breather hose clamp on the hose clamp, and install the hose clamp on the vacuum hose at the mark.
8. Install the harness clamp on the engine harness.
9. Install the transfer breather on its bracket.

BACK

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Transmission Removal

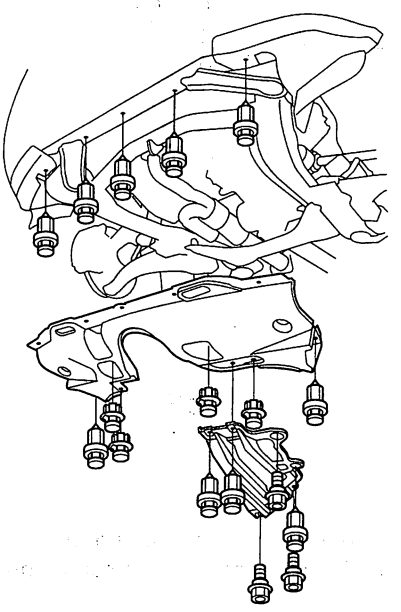
Special Tools Required
- Engine support hanger, A and Reds AAR-T-12566
- Engine hanger balancer bar VSB02C000019
- Engine hanger adapter set VSB02C000031
- Front subframe adapter EQS02BMDXSB0

These special tools are available through the American Honda Tool and Equipment Program 1-888-424-6857.

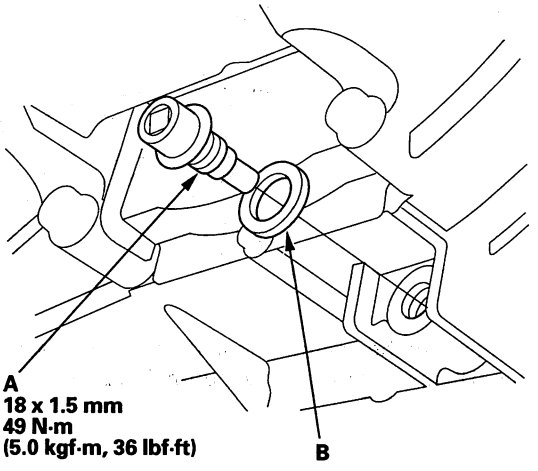
NOTE:
- Use fender covers to avoid damaging painted surfaces.
- Special tool Reds engine support hanger AAR-T12566 must be used with the side engine mount installed.

1. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).
2. Disconnect the support strut from the pivot ball on both sides (bolted to the hood). Raise and secure the hood in a vertical position. Remove the left side pivot ball and install it into the lower threaded hole, then reattach the support strut.

   NOTE: Do not attempt to close the hood with the support strut in the vertical position; it will damage the support strut and the hood.
3. Set the wheels in the straight ahead position, and lock the steering wheel.
4. Drain the power steering system fluid from the reservoir (see page 17-13).
5. Make sure the ignition switch is OFF. Disconnect the negative terminal from the battery, then disconnect the positive terminal from the battery.
6. Remove the battery hold-down bracket, and remove the battery cover, battery, and battery tray.
7. Remove the intake manifold cover, intake air duct, and air cleaner housing.
8. Remove the under-hood subfuse box from its bracket, and remove the bracket from the battery base.
9. Remove the battery base and battery base bracket.
10. Remove the front bulkhead cover.
11. Raise the vehicle, and make sure it is securely supported.
12. Remove the transmission undercover and splash shield.



13. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).



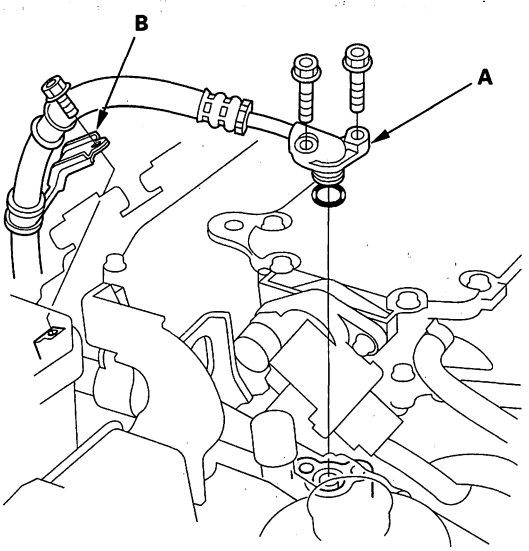
14. Reinstall the drain plug with a new sealing washer (B).
15. Disconnect the steering joint (see page 17-25).

(cont'd)

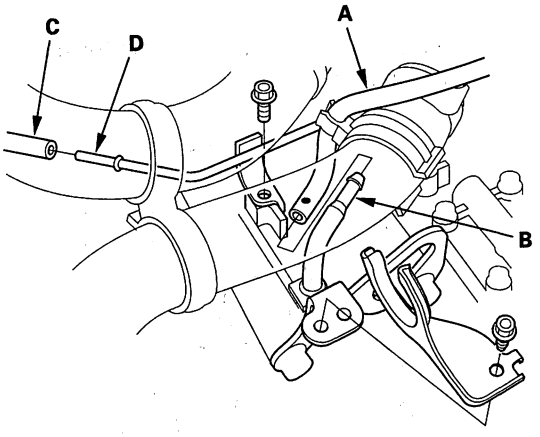
Protected by AR

Transmission Removal (cont'd)

16. Remove the power steering pump outlet line (A) from the power steering pump, and remove the hose clamp bolt (B).

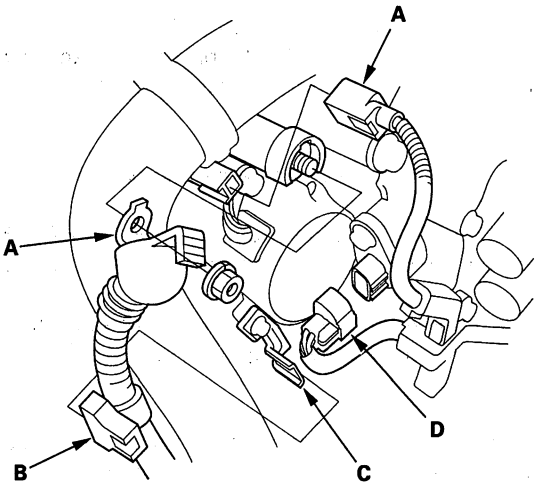


17. Disconnect the transmission breather hose (A) from the breather pipe (B) at the transmission housing.



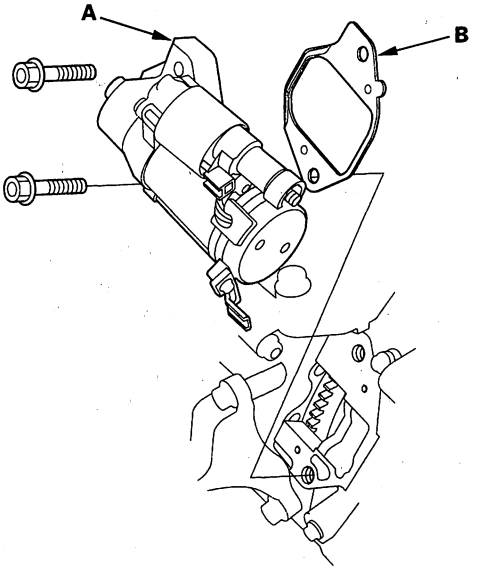
18. Disconnect the vacuum hose (C) from the vacuum line (D), and remove the vacuum line bolt.

19. Disconnect the starter cables (A) from the starter, and remove the harness clamp (B) from the clamp bracket (C).



20. Disconnect the solenoid harness connector (D).

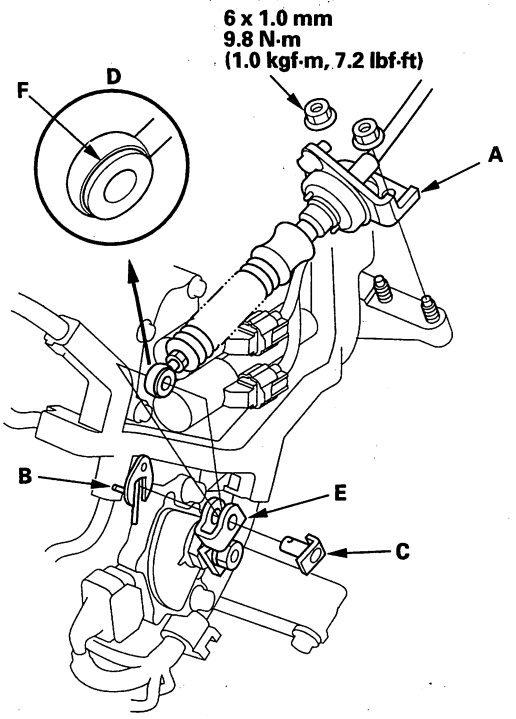
21. Remove the dipstick, then remove the starter (A) and gasket (B).



BACK

Protected by AR

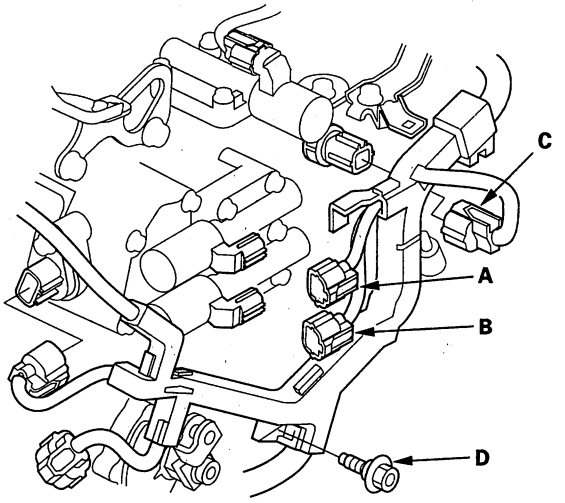
22. Remove the nuts securing the shift cable bracket (A).



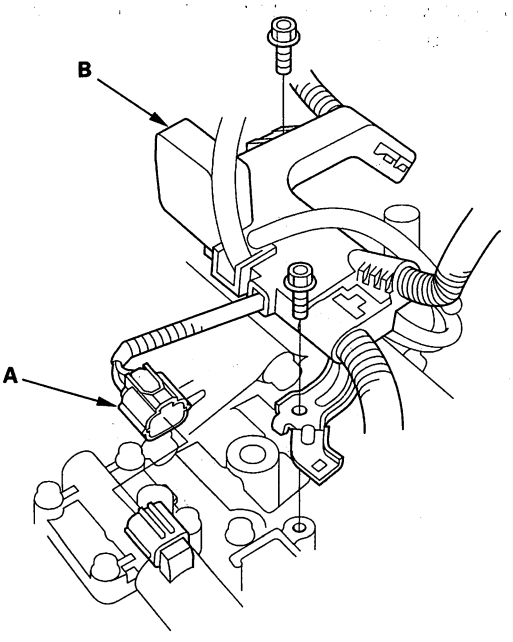
23. Remove the spring clip/washer (B) and control pin (C), then separate the shift cable end (D) from the control lever (E).

24. Check the synthetic resin bushing (F) in the shift cable end for a proper fit and wear. If the bushing is loose or worn, replace the shift cable (see page 14-309).

25. Disconnect the A/T clutch pressure control solenoid valve A connector (A), A/T clutch pressure control solenoid valve B connector (B), and 4th clutch transmission fluid pressure switch connector (C), and remove the harness cover mounting bolt (D).



26. Disconnect the A/T clutch pressure control solenoid valve C connector (A).



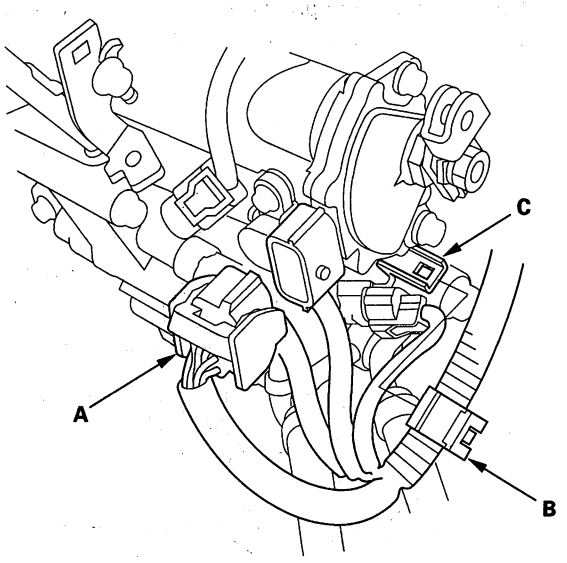
27. Remove the bolts securing the harness cover (B).

(cont'd)

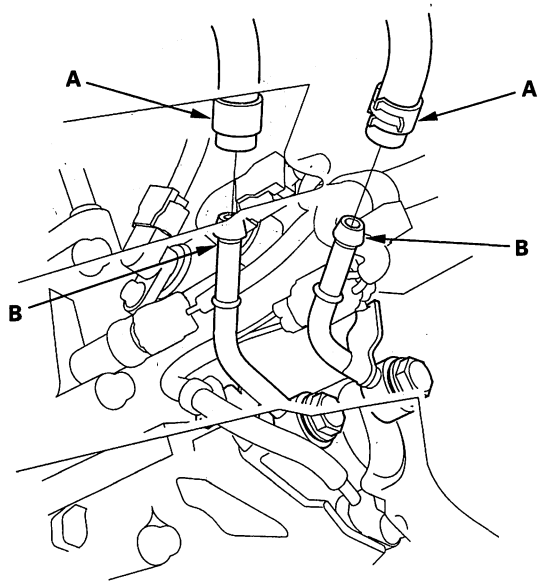
Protected by AR

Transmission Removal (cont'd)

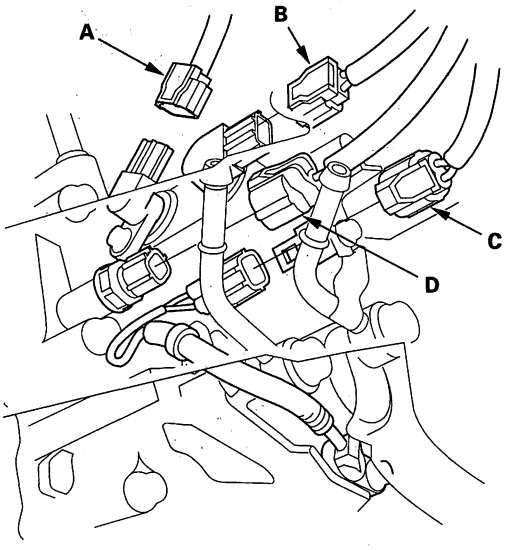
28. Disconnect the transmission range switch connector (A), and remove the harness clamp (B) from the clamp bracket (C).



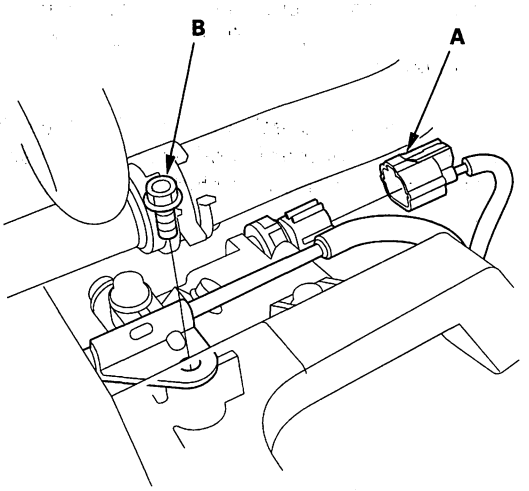
29. Remove the ATF cooler hoses (A) from the ATF cooler lines (B). Turn the ends of the cooler hoses up to prevent ATF from flowing out, then plug the cooler hoses and lines.



30. Disconnect the input shaft (mainshaft) speed sensor connector (A), output shaft (countershaft) speed sensor connector (B), ATF temperature sensor connector (C), and 3rd clutch transmission fluid pressure switch connector (D).



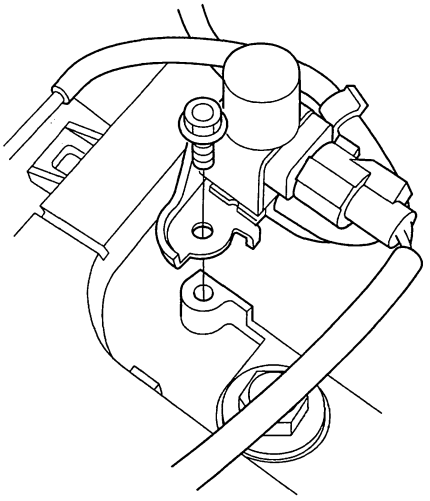
31. Disconnect the 2nd clutch transmission fluid pressure switch connector (A), and remove the vacuum line bolt (B).



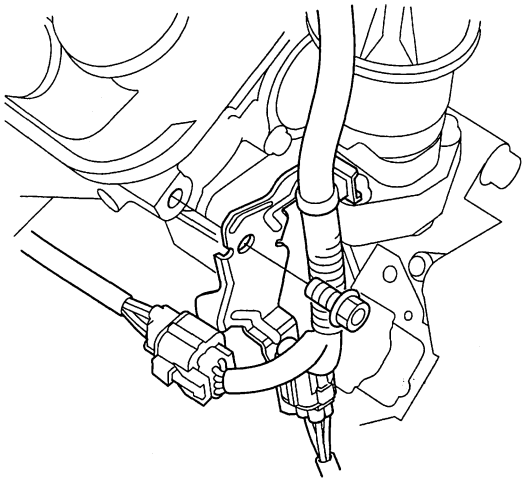
BACK

Protected by AR

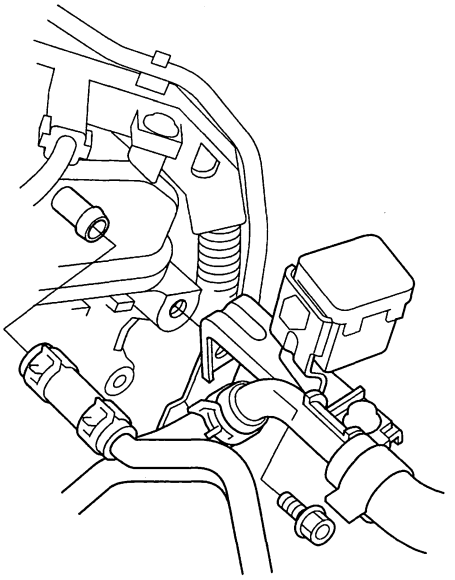
32. Remove the bolt securing the engine mount control solenoid valve mounting bracket.



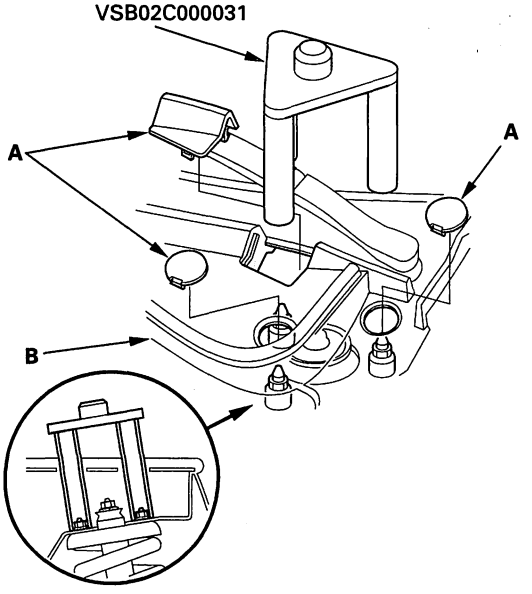
33. Remove the connector bracket from the engine front cylinder head; use the bracket bolt hole to attach engine hanger balancer bar front arm.



34. Remove the transfer breather bracket from the engine rear cylinder head; use the bracket bolt hole to attach engine hanger balancer bar rear arm.



35. Remove the service caps (A) for the front damper flange nuts from the cowl cover (B). Position the engine hanger adapters (VSB02C000031) over the damper flange nuts.

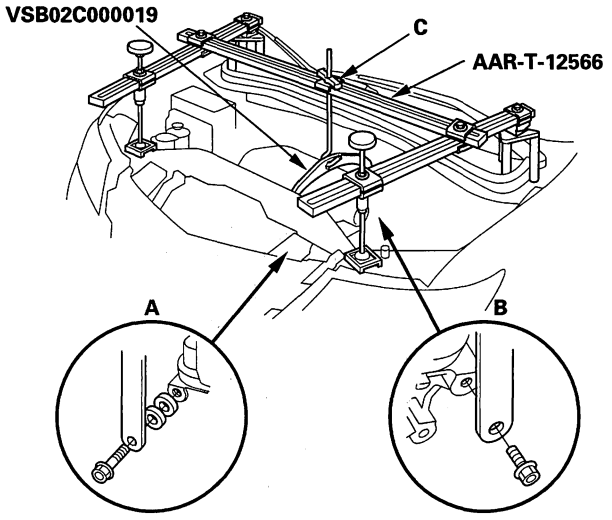


(cont'd)

Protected by AR

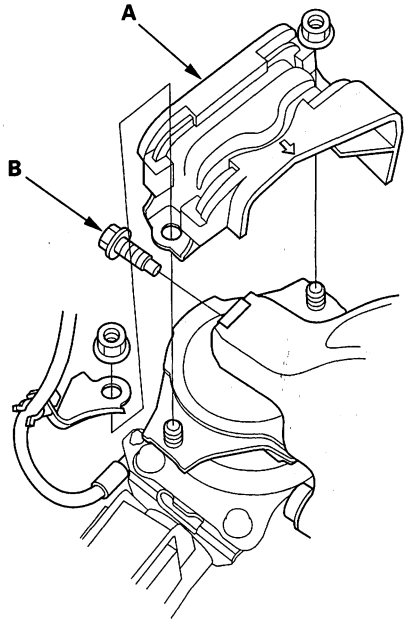
Transmission Removal (cont'd)

36. Install the engine balance bar (VSB02C000019); attach the front arm (A) to the front cylinder head with a spacer and the 10 mm bolt, and attach the rear arm (B) to the rear cylinder head with the 8 mm bolt.

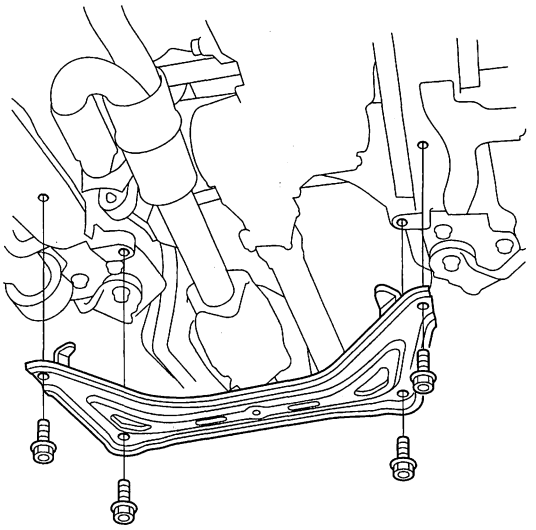


37. Install the engine support hanger (AAR-T12566) to the vehicle, and attach the hook to the slotted hole in the engine balance bar. Tighten the wing nut (C) by hand, and to lift and support the engine.

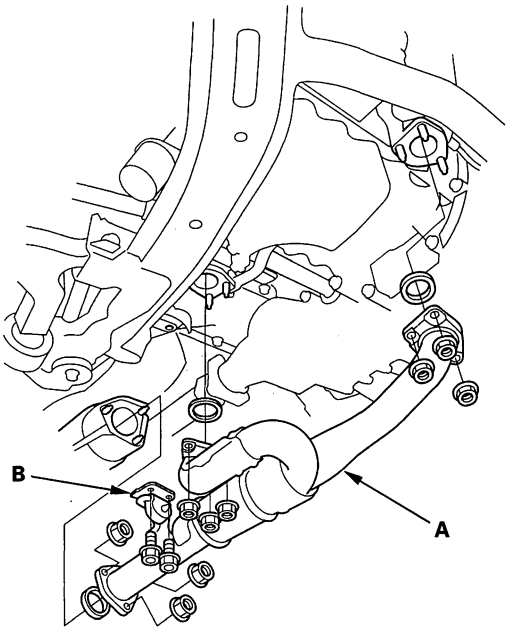
38. Remove the front mount stop (A) and front mount bolt (B).



39. Remove the front subframe stiffener.



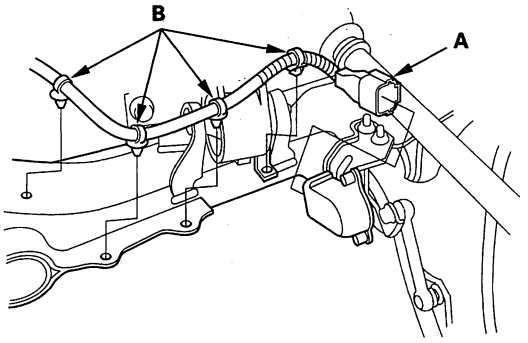
40. Remove the exhaust pipe A and its mount (B).



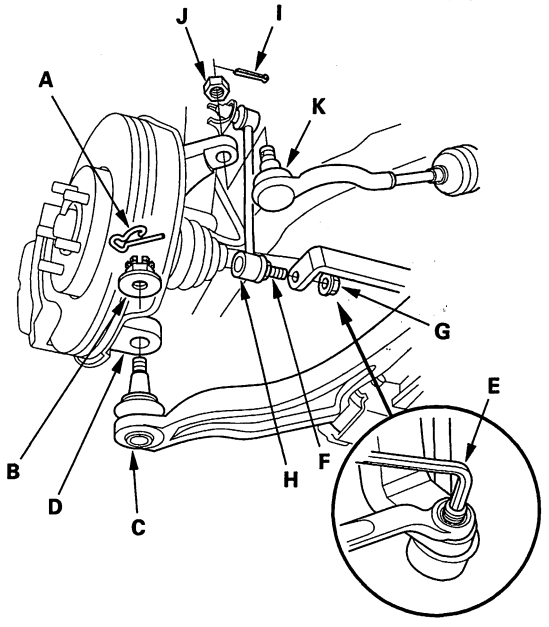
BACK

Protected by AR

41. Disconnect the headlight adjuster leveling sensor connector (A) on both lower arms, and remove the harness clamps (B) from the front subframe for model equipped with the headlight adjuster leveling system.



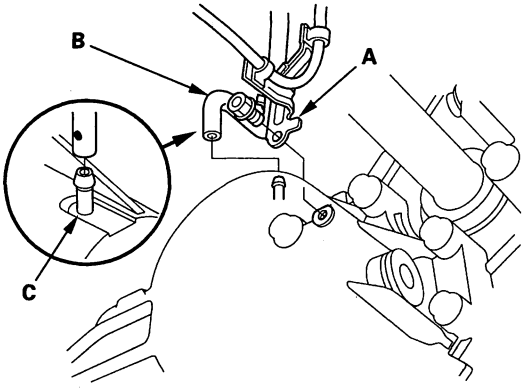
42. Remove the lock pins (A) and castle nuts (B), and separate the lower arms (C) from the knuckles (D) (see step 5 on page 18-15).



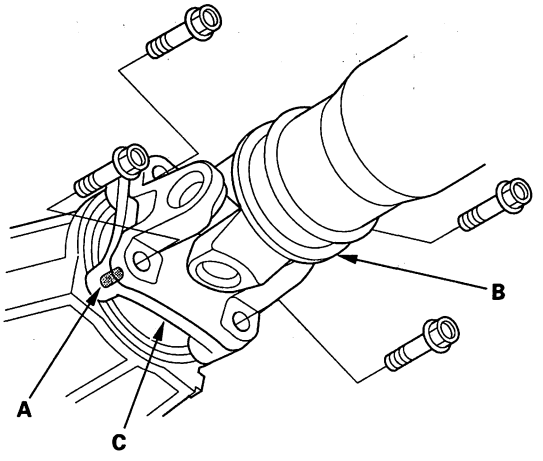
43. Insert a 6 mm Allen wrench (E) in the top of the ball joint pin (F), and remove the nuts (G), then separate the stabilizer link (H).

44. Remove the cotter pins (I) and nuts (J), and separate the tie-rod end ball joints (K) from the knuckles (see step 5 on page 18-15).

45. Remove the bolt securing the transfer breather hose bracket (A), and disconnect the breather hose (B) from the breather pipe (C) on the transfer assembly.



46. Make a reference mark (A) across the propeller shaft (B) and the transfer companion flange (C), and separate the propeller shaft from the transfer companion flange.



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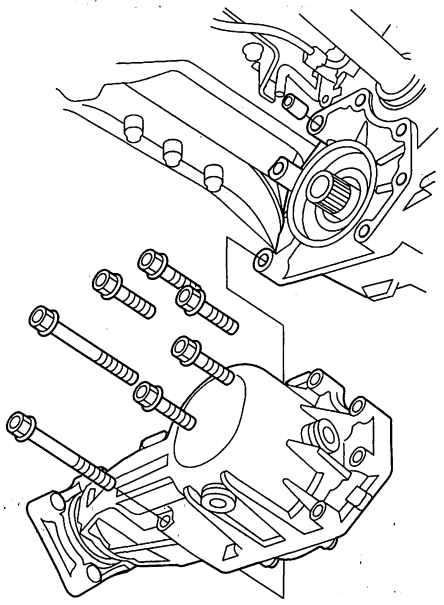
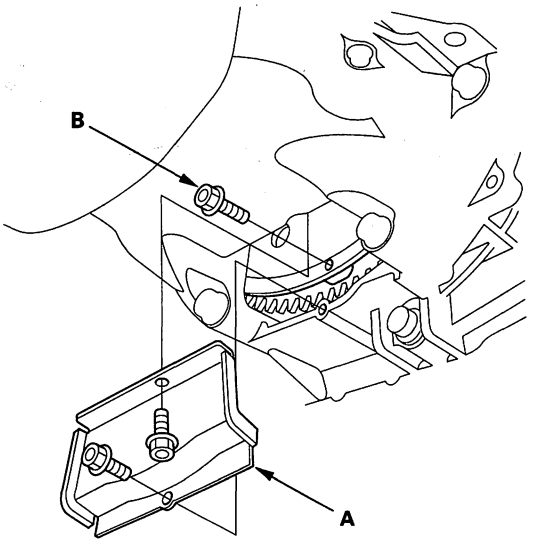
Protected by AR

Transmission Removal (cont'd)

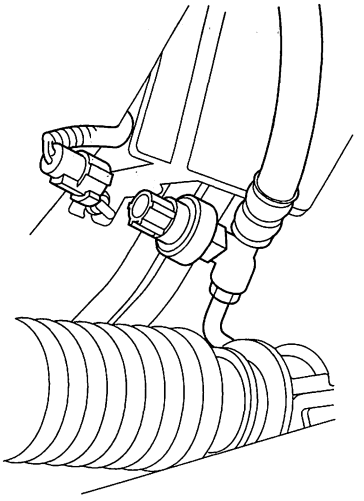
47. Remove the transfer assembly from the transmission.



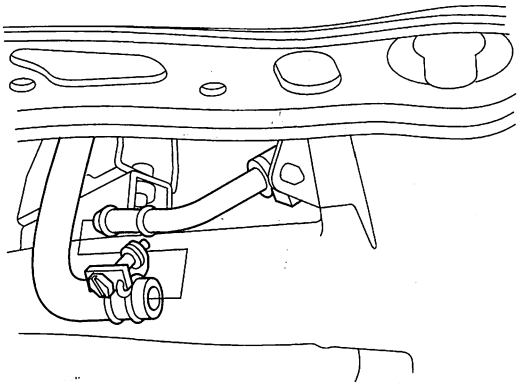
48. Remove the torque converter cover (A), and remove the drive plate bolts (B) (8) while rotating the crankshaft pulley.



49. Disconnect the power steering pressure switch connector.



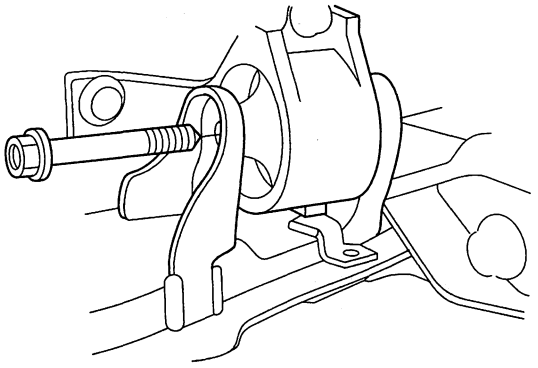
50. Loosen the hose clamp bolt, then disconnect the power steering fluid hose from the fluid line at the left front of the subframe.



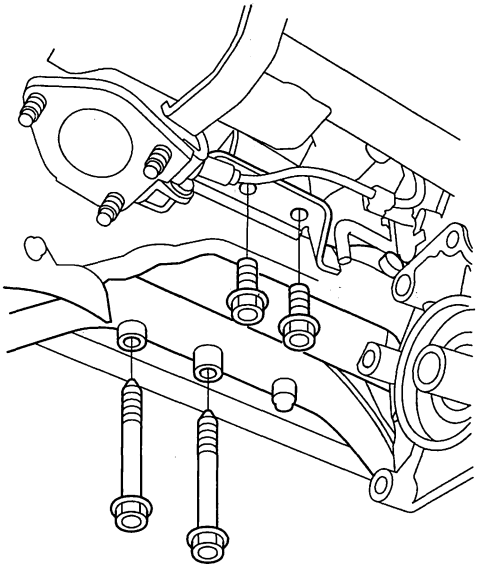
BACK

Protected by AR

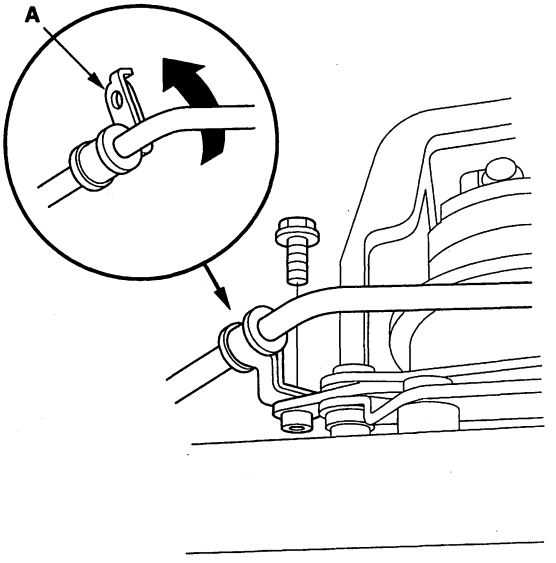
51. Remove the transmission lower mount bolt.



52. Remove the four rear mount bracket bolts.

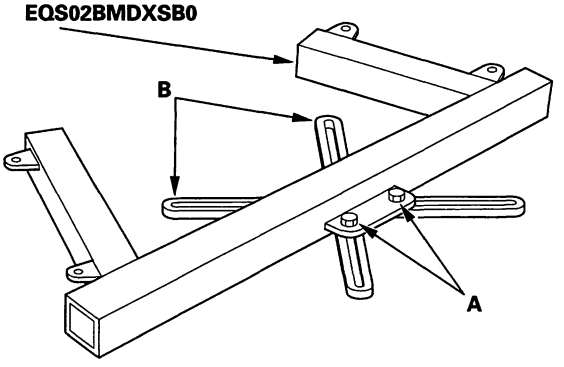


53. Remove the bolt securing the power steering fluid line clamp bracket (A) on the rear mount bracket, and turn the bracket away from the rear mount bracket.



54. Loosen the four bolts (A) holding the adjustable arms (B) of the front subframe adapter (EQS02BMDXSB0) to its center plate.

NOTE: The adapter is designed to be used with a commercially available transmission jack.



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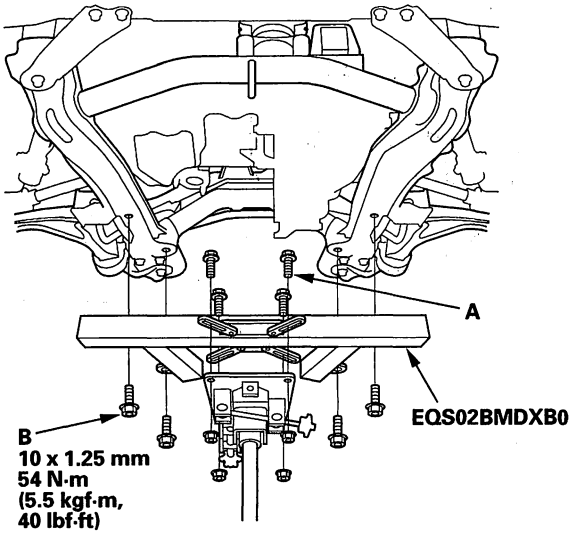
Protected by AR

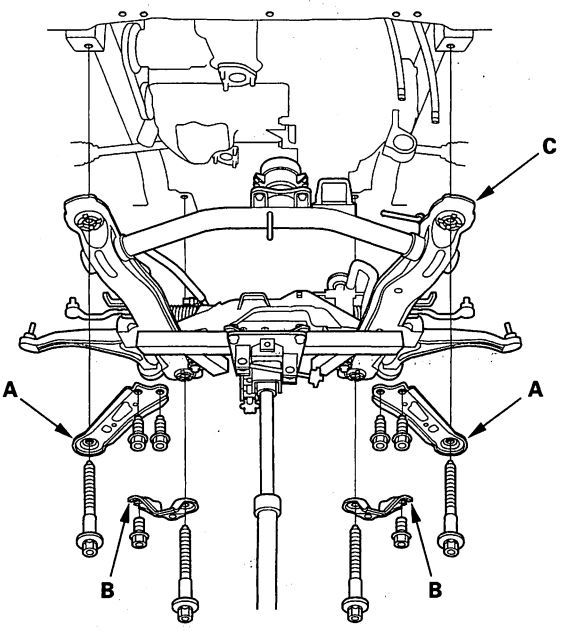
Transmission Removal (cont'd)

55. Line up the slots in the arms with the bolt holes on the corner of the jack base, then attach the adapter (EQS02BMDXB0) to the jack base with the bolts (A) that came with the jack. Tighten the bolts securely.

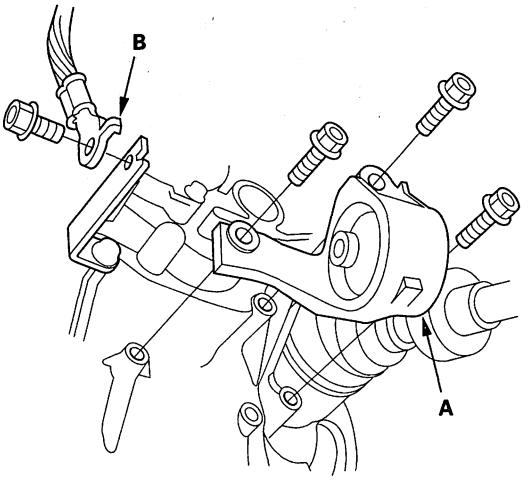


56. Raise the jack to the vehicle height, then attach the adapter to the front subframe using the subframe stiffener mounting bolts (B) and bolt holes.

57. Remove the six bolts securing the front stiffeners (A) and rear stiffeners (B), and four bolts securing the front subframe (C), and lower the front subframe.



58. Remove the transmission lower mount (A).

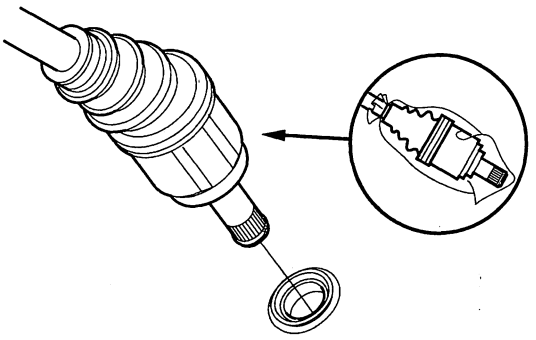


59. Remove the transmission ground terminal (B).

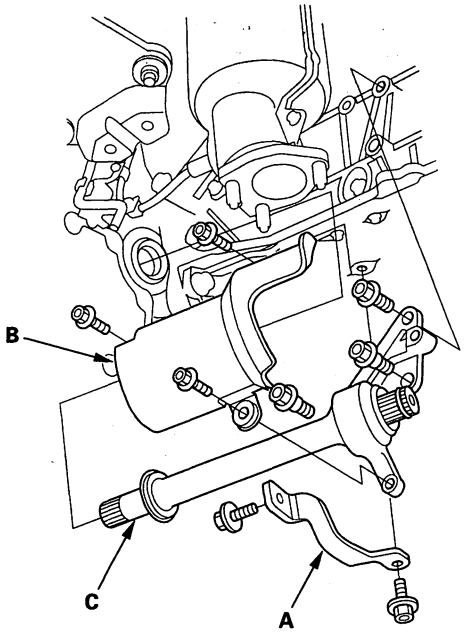
BACK

Protected by AR

60. Remove the driveshafts from the differential and the intermediate shaft. Coat all precision machined surfaces with clean engine oil, then put plastic bags over driveshaft ends.

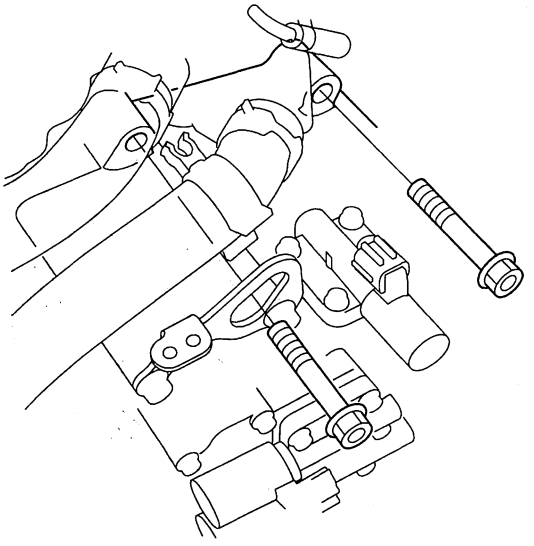


61. Remove the exhaust manifold bracket (A) and heat shield (B).

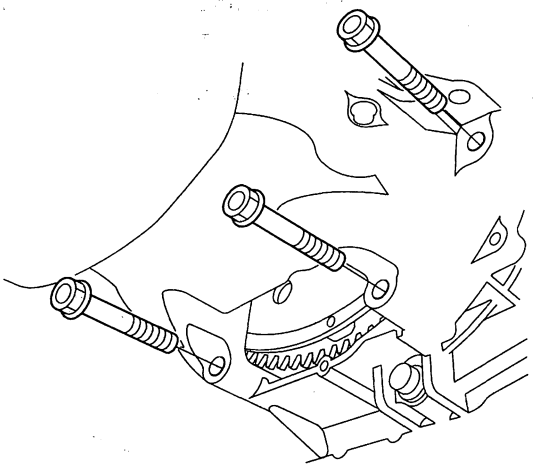


62. Remove the intermediate shaft (C). Coat all precision machined surfaces with clean engine oil, then put the plastic bags over intermediate shaft ends.

63. Remove the upper transmission housing mounting bolts.



64. Remove the lower transmission housing mounting bolts.



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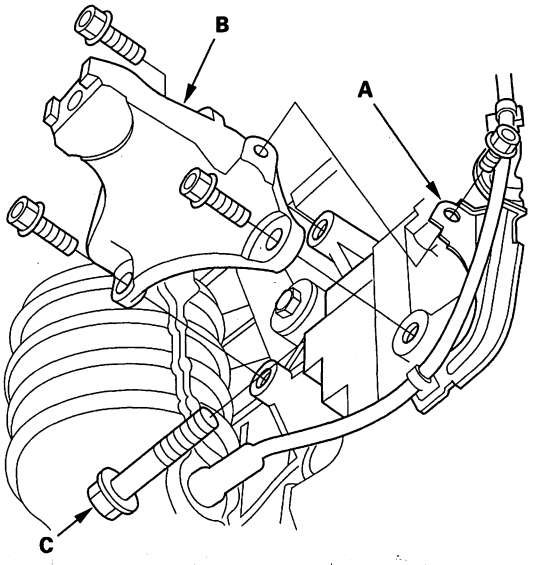
Protected by AR

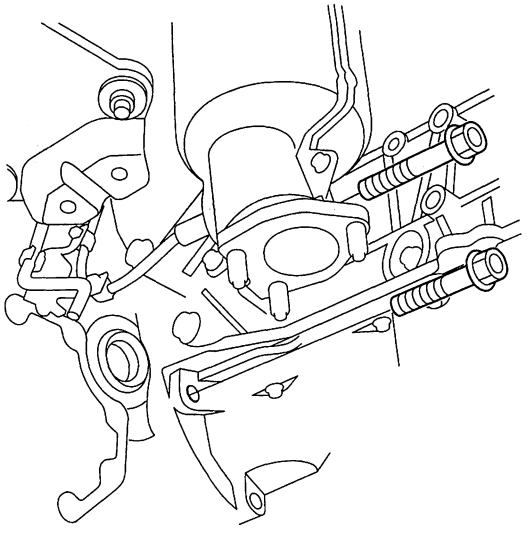
Transmission Removal (cont'd)

65. Remove the harness clamp bracket (A) from the front mount bracket (B), and remove the mount bracket.



66. Remove the transmission housing mounting bolt (C) using a socket 22 mm in length.

67. Remove the rear transmission housing mounting bolts.

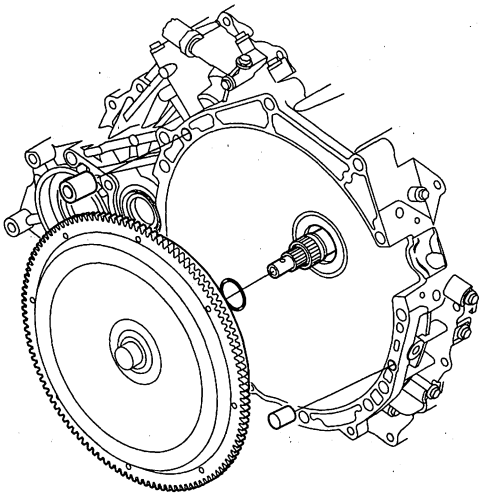


68. Place a jack under the transmission.

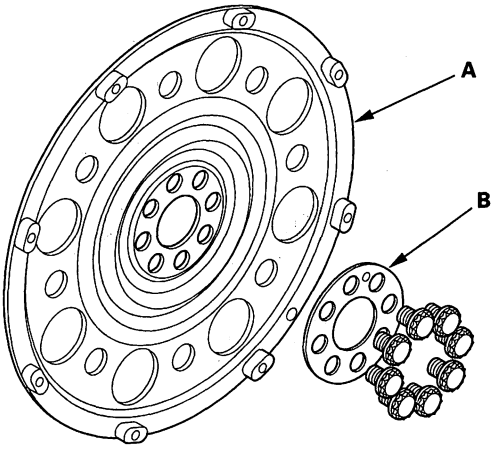
69. Lower the transmission by loosening the wing nut of the engine support hanger, and tilt the engine just enough for the transmission to clear its end from the side frame.

70. Slide the transmission away from the engine to remove it from the vehicle.

71. Remove the torque converter and dowel pins.



72. Remove the drive plate (A) and washer (B) from the engine crankshaft, and replace the drive plate whenever the transmission is removed from the engine.



BACK

Protected by AR

Transmission Installation

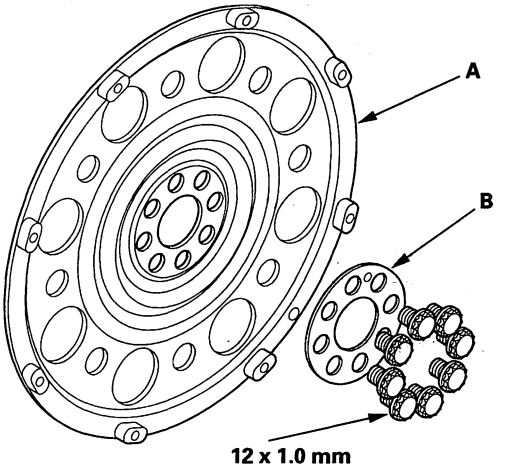
Special Tools Required
- Frame positioning guide pin 070AG-SJAA10S
- Engine support hanger, A and Reds AAR-T-12566
- Engine hanger balancer bar VSB02C000019
- Engine hanger adapter set VSB02C000031
- Front subframe adapter EQS02BMDXSB0

These special tools are available through the American Honda Tool and Equipment Program 1-888-424-6857.

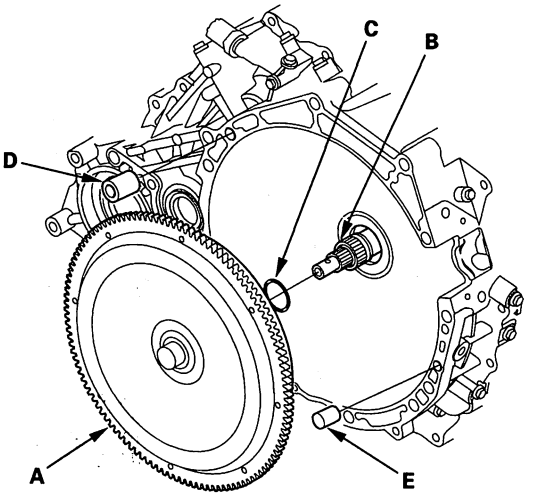
NOTE: Use fender covers to avoid damaging painted surfaces.

1. Clean the ATF cooler (see page 14-300).

2. Install the new drive plate and washer on the engine crankshaft, and tighten the eight bolts in a crisscross pattern in two or more steps.



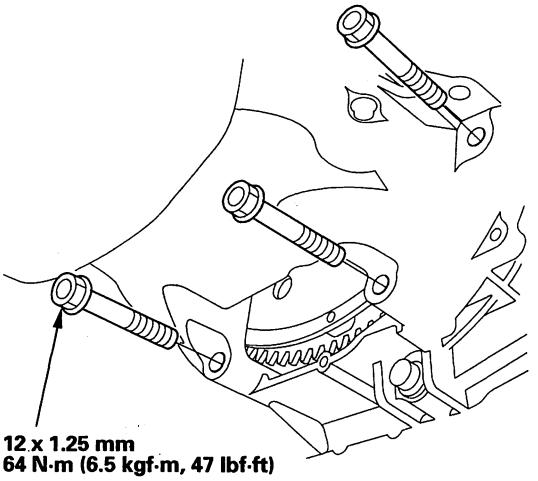
3. Install the torque converter (A) on the mainshaft (B) with the new O-ring (C).



4. Install the 14 mm dowel pin (D) and 10 mm dowel pin (E) in the torque converter housing.

5. Place the transmission on the jack, and raise it to engine level.

6. Attach the transmission to the engine, and install the lower transmission housing mounting bolts.



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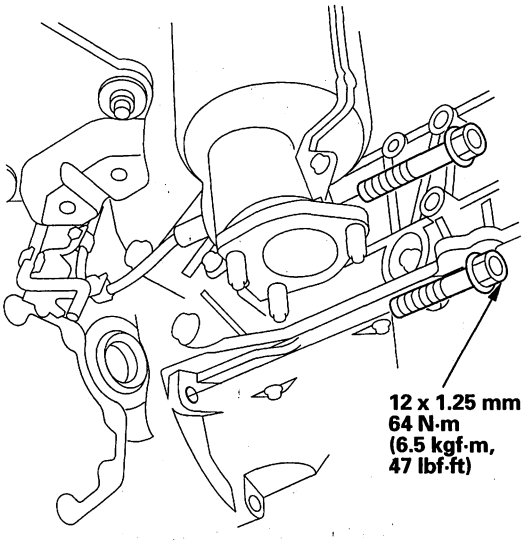
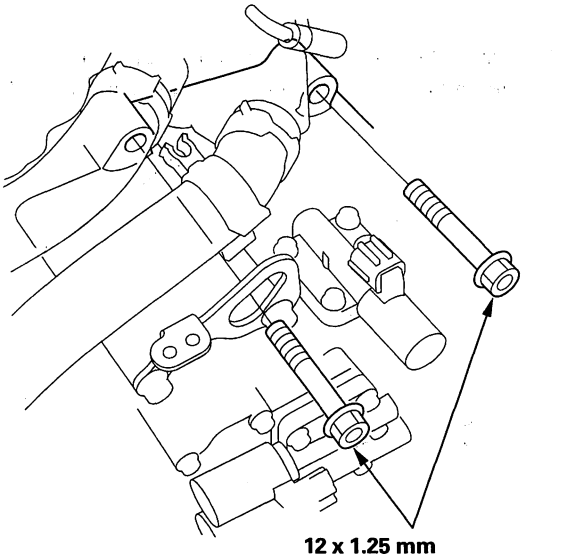
Protected by AR

Transmission Installation (cont'd)

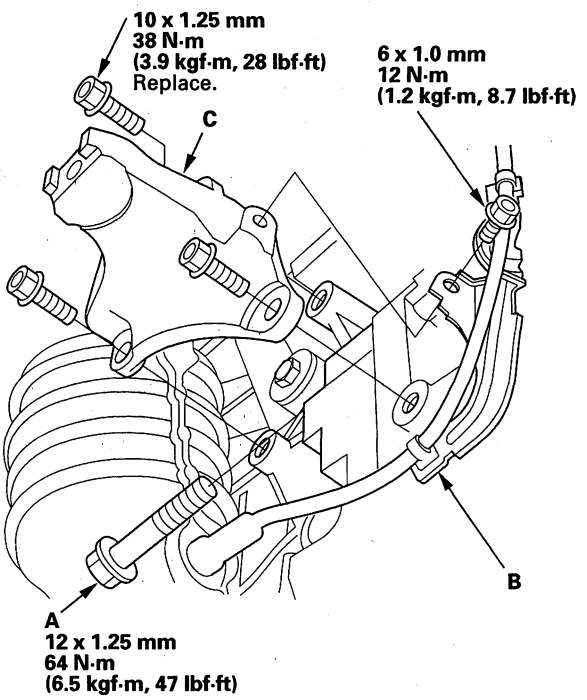
7. Install the rear transmission housing mounting bolts.



8. Install the upper transmission housing mounting bolts.



9. Install the transmission housing mounting bolt (A).



10. Install the front mount bracket (B) with the new mounting bolts.

11. Secure the harness clamp bracket (C) with the bolt.

BACK

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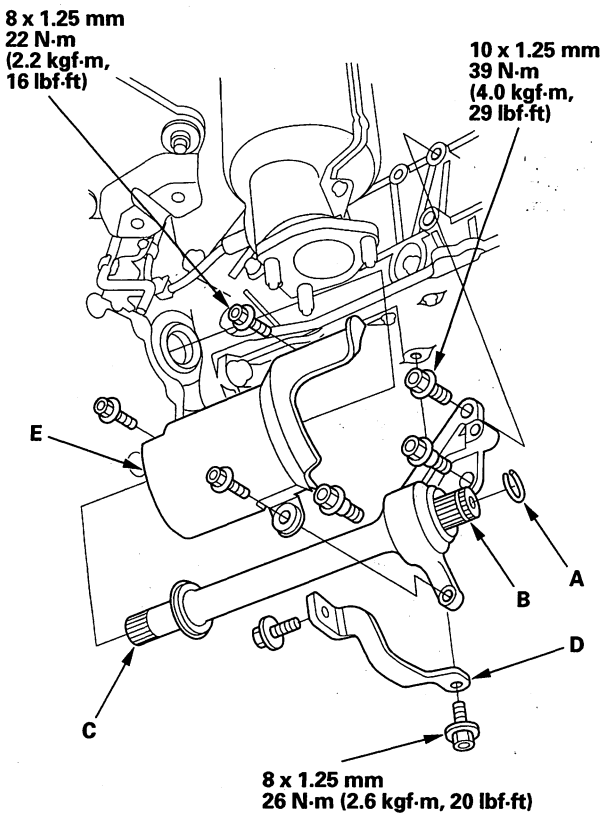
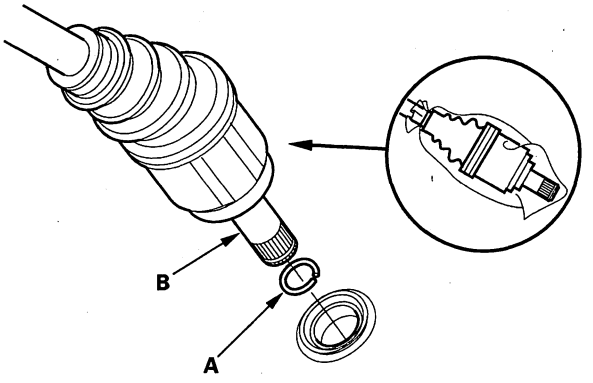
12. Install the new set ring (A) on the intermediate shaft (B).



13. Clean the areas where the intermediate shaft contacts the transmission (differential) with solvent, and dry with compressed air. Apply ATF to intermediate shaft splines (C), then install the intermediate shaft, be sure not to allow dust or other foreign particles to enter the transmission.

14. Install the exhaust manifold bracket (D) and heat shield (E).

15. Install the new set ring (A) on the left driveshaft (B).



16. Clean the areas where the left driveshaft contacts the transmission (differential) with solvent, and dry with compressed air. Then install the left driveshaft, be sure not to allow dust or other foreign particles to enter the transmission. Turn the steering knuckle fully outward, and slide the driveshaft into the differential until you feel its set ring fully engage the side gear.

17. Apply the recommended grease to the right driveshaft inboard-joint splines.

18. Slide the right driveshaft over the intermediate shaft splines until you feel the driveshaft fully engage the intermediate shaft set ring.

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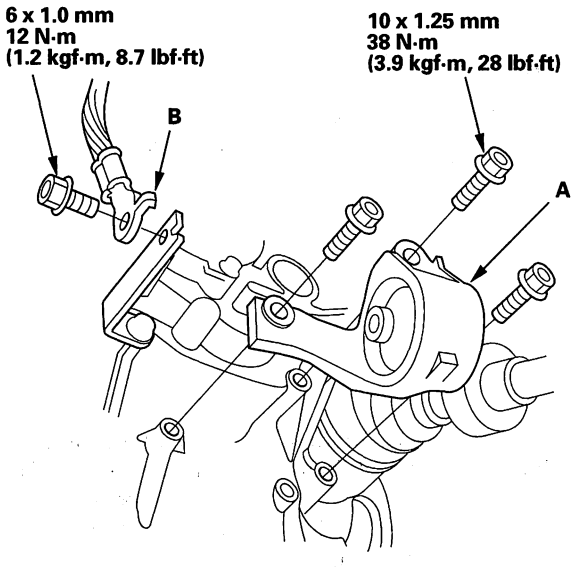
Protected by AR

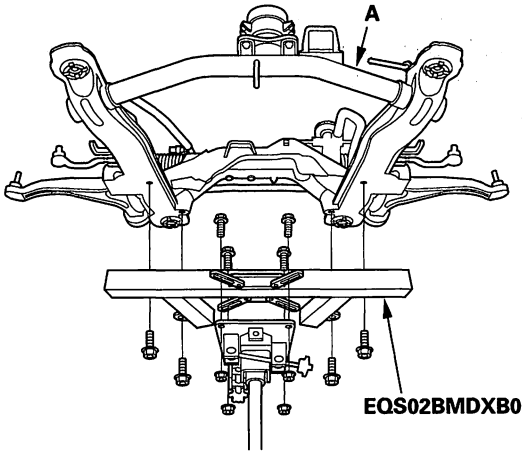
Transmission Installation (cont'd)

19. Install the transmission lower mount (A).

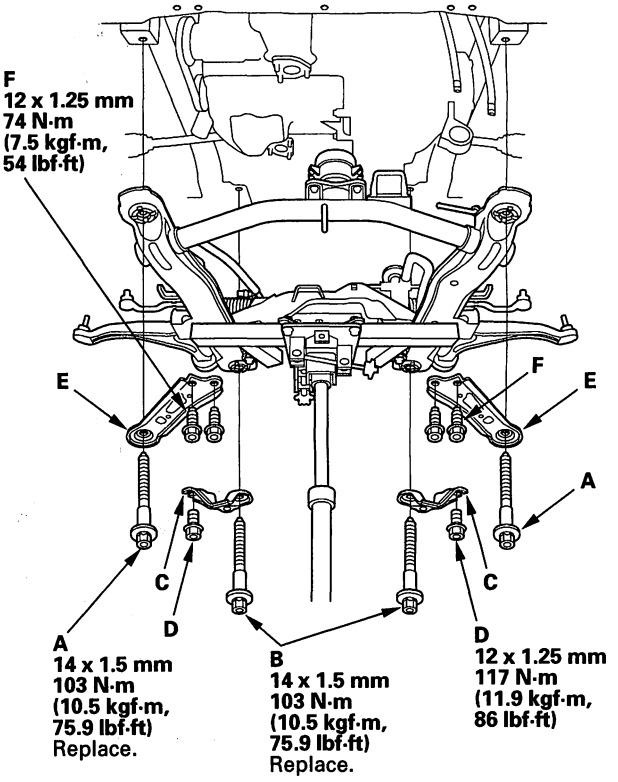


20. Install the transmission ground cable (B).

21. Support the front subframe (A) with the front subframe adapter (EQS02BMDXB0) and a jack, and lift it up to the body.



22. Loosely install the new subframe mounting bolts: front (A), rear (B), rear stiffeners (C) and mounting bolts (D), and front stiffeners (E) and mounting bolts (F).



BACK

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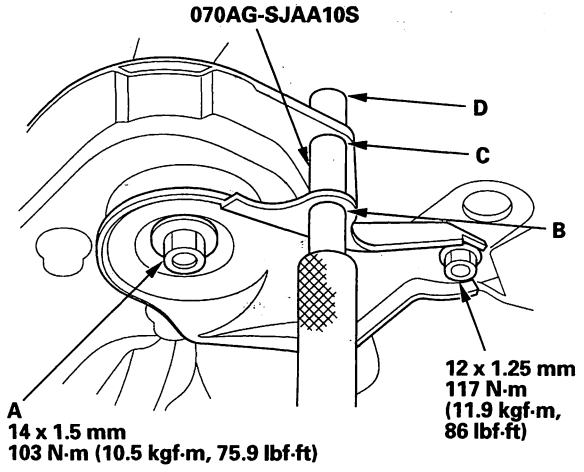
23. Loosely tighten the right rear subframe mounting bolt (A); insert the frame positioning guide pin (070AG-SJAA10S) through the positioning hole (B) on the rear stiffener, through the positioning hole (C) on the subframe, and into the positioning hole (D) on the body, then tighten the subframe mounting bolt.



24. Loosely tighten the left rear subframe mounting bolt in the same manner in step 23.

25. Loosely tighten the right and left front subframe mounting bolts.

26. Loosen the right rear mounting bolt, then tighten the bolt to the specified torque.

27. Tighten the left rear mounting bolt to the specified torque.

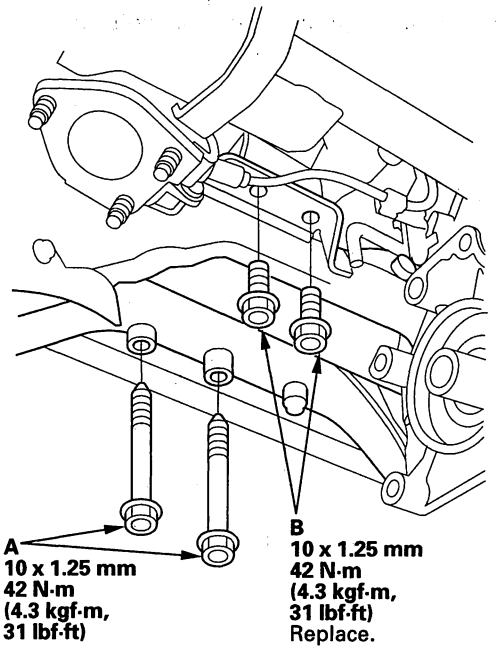
28. Tighten the right and left front mounting bolts to the specified torque.

29. Check that the positioning holes and slot are aligned using the frame positioning guide pin.

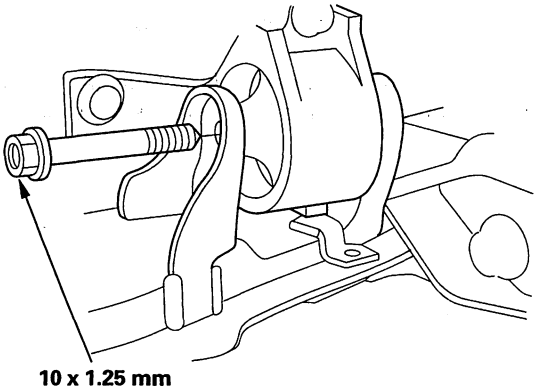
30. Tighten the rear and front stiffener mounting bolts to the specified torque.

31. Remove the jack and front subframe adapter.

32. Install the two mount bracket bolts (A) on the rear of the bracket, and install the new bolts (B) on the front.



33. Install the new transmission lower mount bolt.



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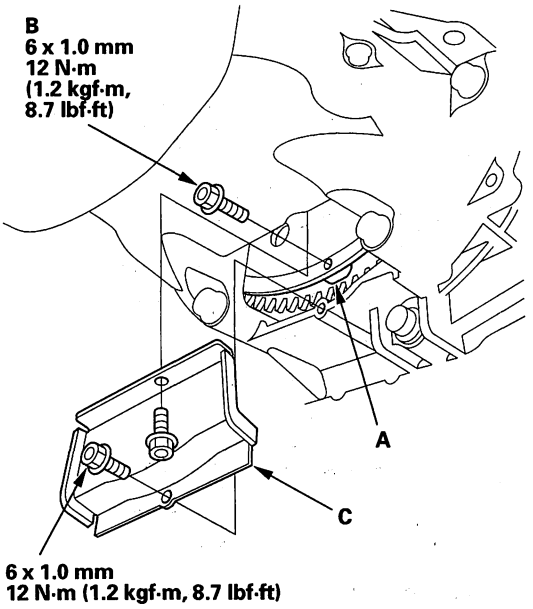
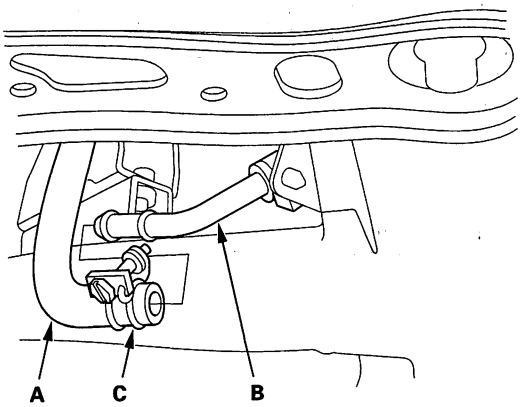
Transmission Installation (cont'd)

34. Attach the torque converter to the drive plate (A) with eight bolts (B). Rotate the crankshaft pulley as necessary to tighten the bolt to 1/2 of the specified torque, then to the final torque, in a crisscross pattern. After tightening the last bolt, check that the crankshaft rotates freely.

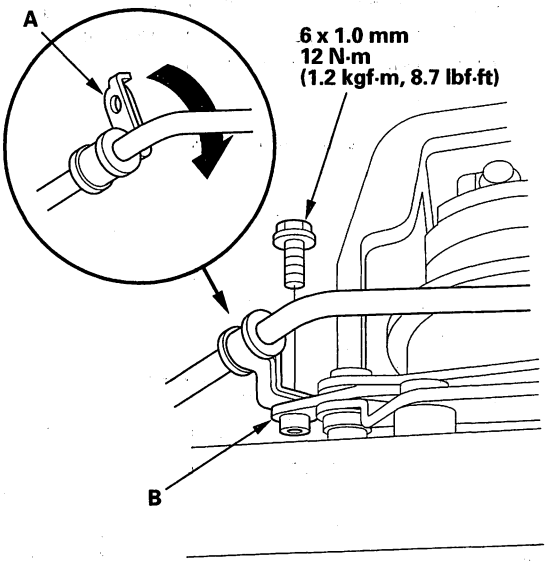


35. Install the torque converter cover (C).

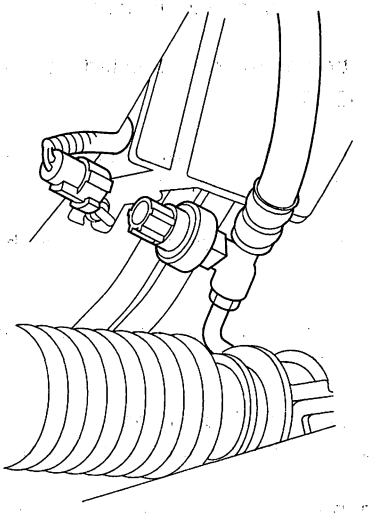
36. Connect the power steering fluid hose (A) to the line (B), and secure the hose with its hose clamp (C).



37. Turn the power steering fluid line clamp bracket (A) to seat on the rear mount bracket (B), and secure the bracket on the rear mount bracket.



38. Connect the power steering pressure switch connector.



BACK

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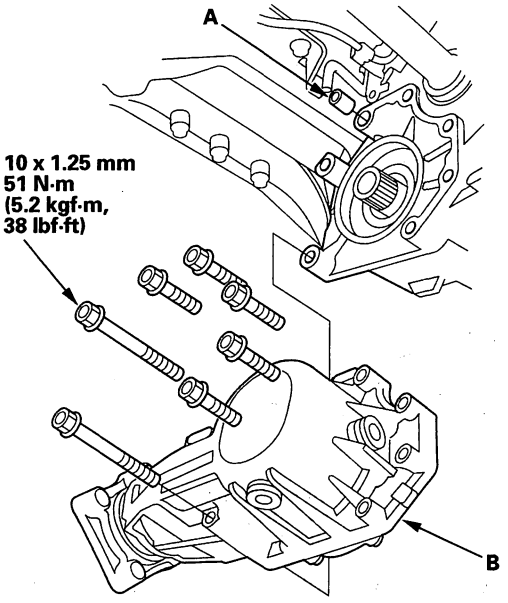
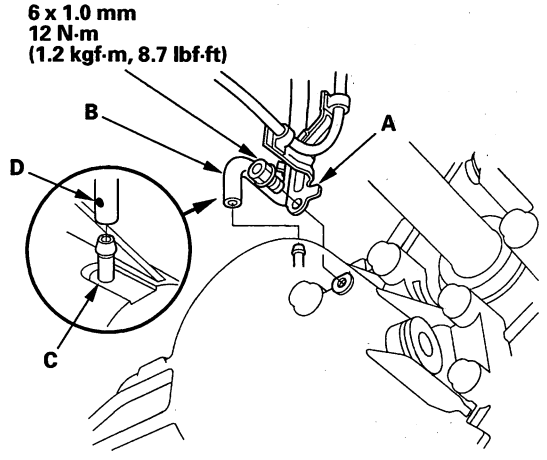
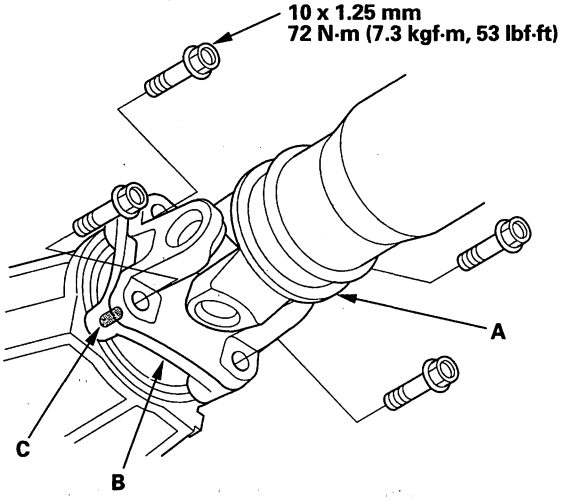
39. Install the dowel pin (A) in the transmission, and install the transfer assembly (B) on the transmission.



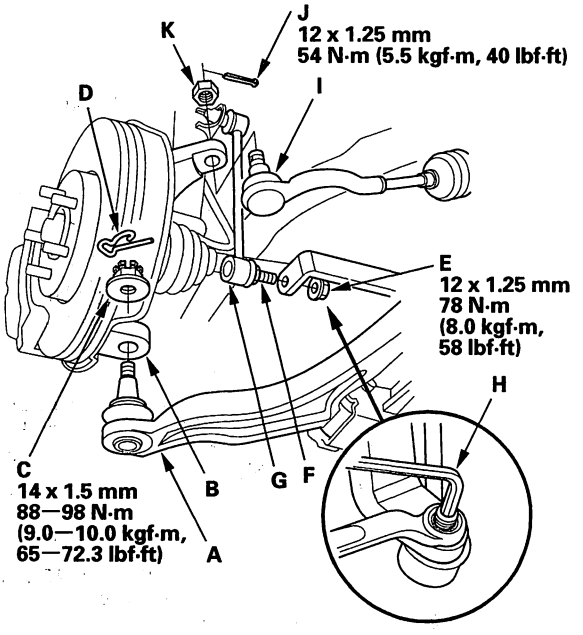
40. Secure the transfer breather hose bracket (A) on the transfer assembly with the bolt, and install the breather hose (B) over the breather pipe (C) with the dot (D) facing out.



41. Install the propeller shaft (A) to the transfer companion flange (B) by aligning the reference mark (C).



42. Install the ball joints on each lower arm (A) to each knuckle (B) with new castle nuts (C), and secure the castle nuts with the lock pins (D).



43. Install the nuts (E) to the ball joint pins (F) on each stabilizer link (G). Insert a 6 mm Allen wrench (H) in the top of the ball joint pins, and tighten the nuts to the specified torque.

44. Install the tie-rod end ball joints (I) to each knuckle with the nuts (J) and new cotter pins (K).

(cont'd)

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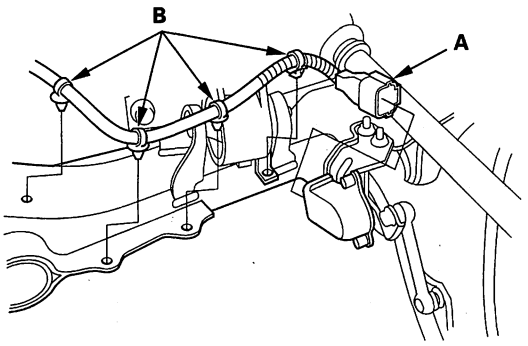
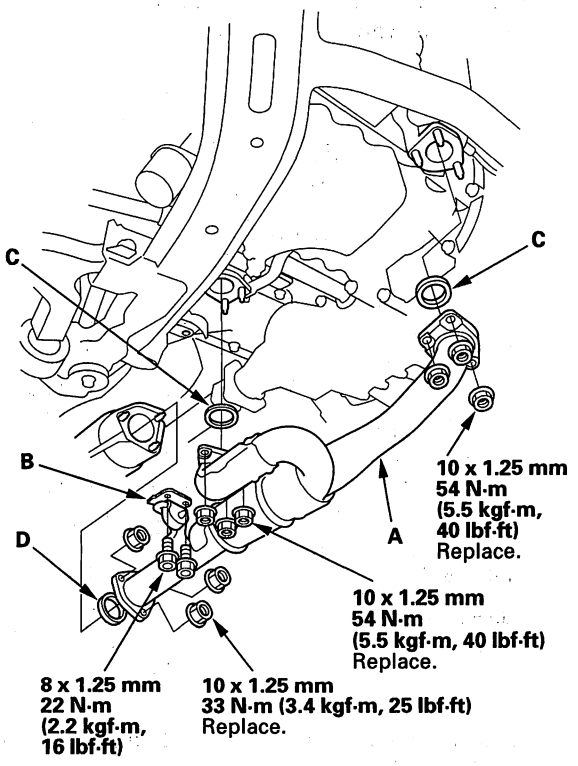
Transmission Installation (cont'd)

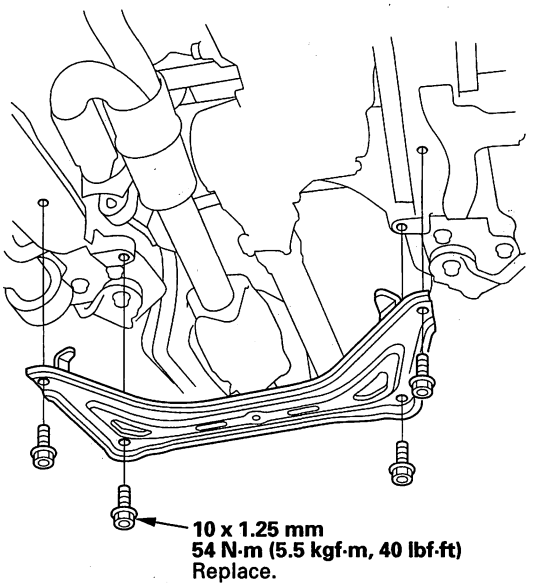
45. Connect the headlight adjuster leveling sensor connector (A) on both lower arms, and install the harness clamps (B) on the front subframe for model equipped with the headlight adjuster leveling system.



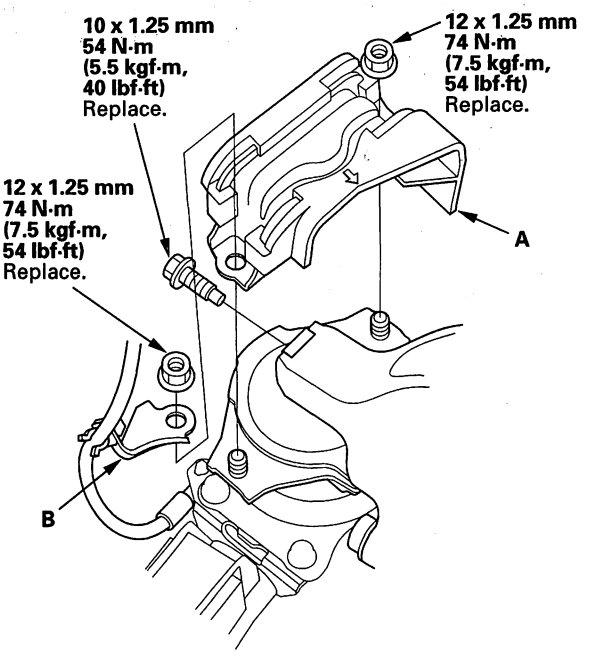
46. Install the exhaust pipe A with the new self-locking nuts, its mount (B), and new gaskets (C) (D).



47. Install the front subframe stiffener with the new mounting bolts.



48. Install the new front mount bolt, and install the front mount stop (A) with new nuts and vacuum hose clamp (B).



49. Remove the engine support hanger, engine support hanger stands, and engine balancer bar.

BACK

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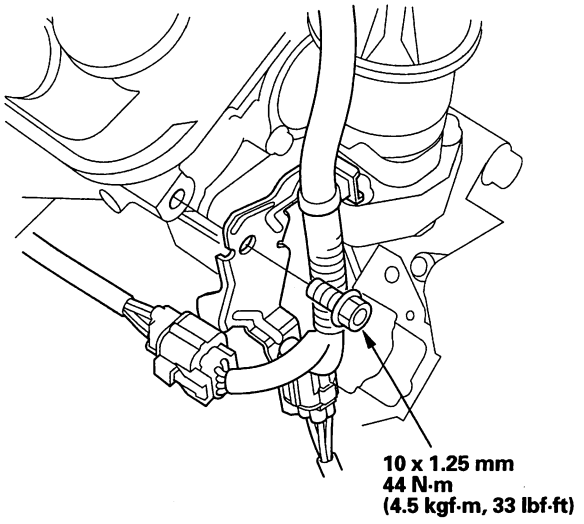
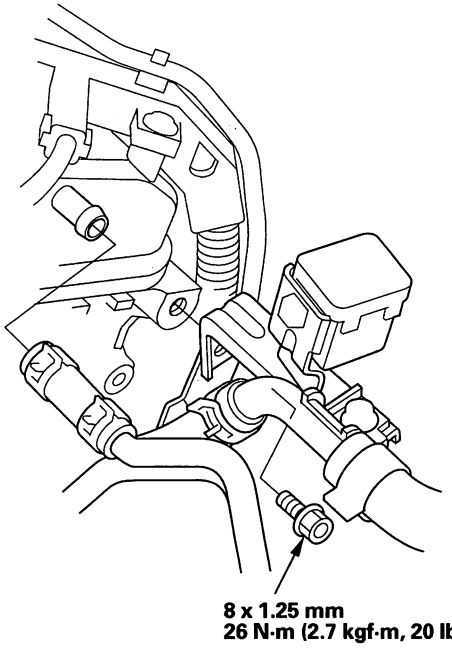
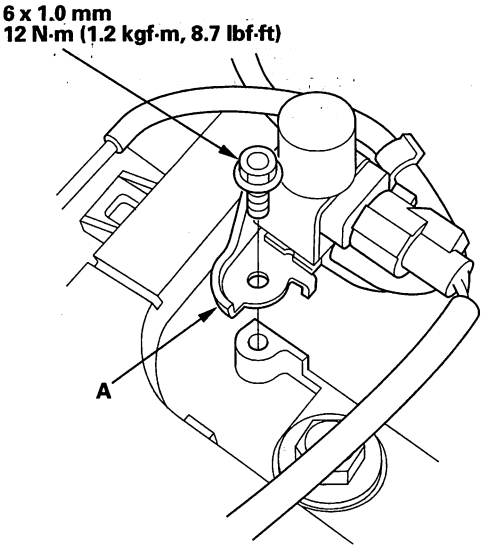
50. Install the connector bracket on the engine front cylinder head.



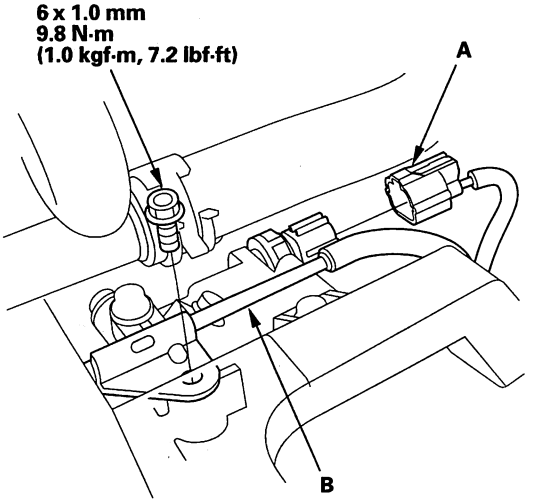
51. Install the transfer breather bracket on the engine rear cylinder head, and connect the breather hose over the breather pipe.



52. Securing the engine mount control solenoid valve mounting bracket (A) with the bolt.



53. Connect the 2nd clutch transmission fluid pressure switch connector (A), and secure the vacuum line (B) with the bolt.



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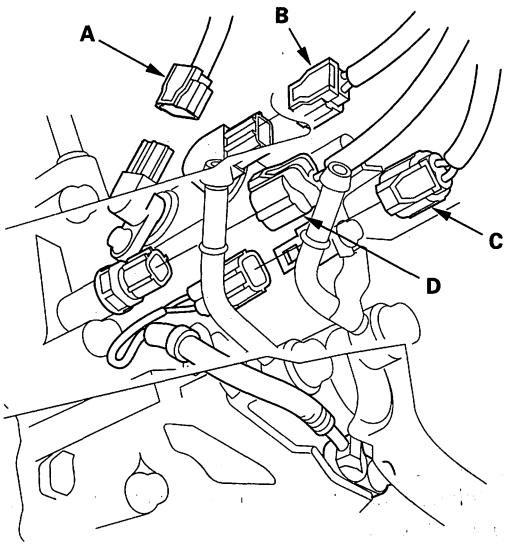
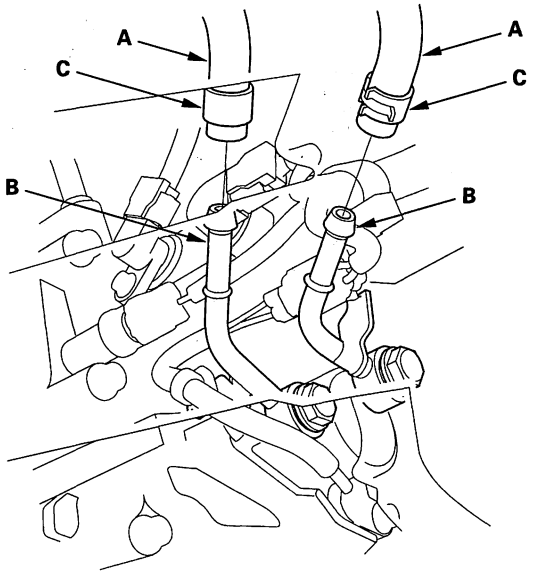
Transmission Installation (cont'd)

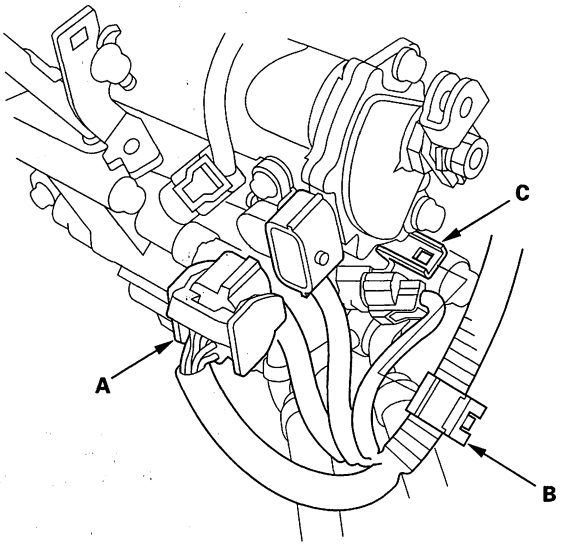
54. Connect the input shaft (mainshaft) speed sensor connector (A), output shaft (countershaft) speed sensor connector (B), ATF temperature sensor connector (C), and 3rd clutch transmission fluid pressure switch connector (D). Do not allow water, fluid, oil, dust, or other foreign particles to enter any of the connectors.



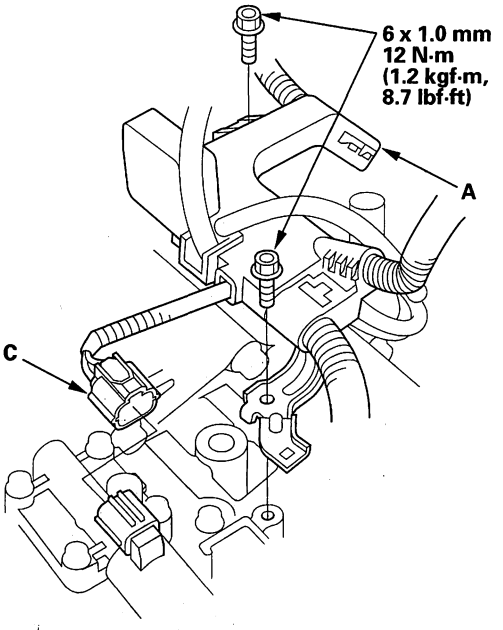
55. Connect the ATF cooler hoses (A) to the ATF cooler lines (B), and secure the hoses with the clips (C) (see page 14-302).



56. Connect the transmission range switch connector (A), and install the harness clamp (B) on the clamp bracket (C).



57. Secure the harness cover (A) with the bolts.



58. Connect the A/T clutch pressure control solenoid valve C connector.

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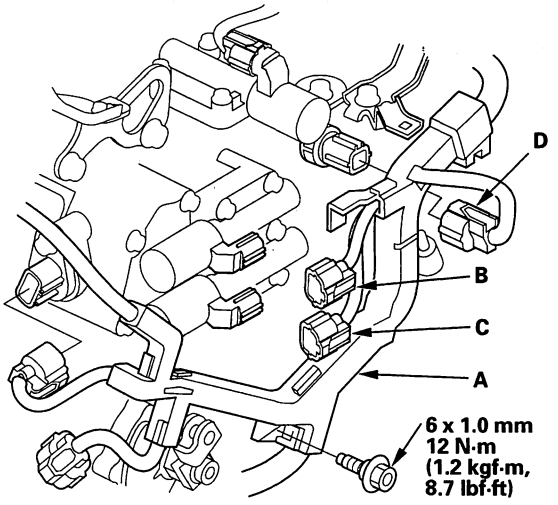
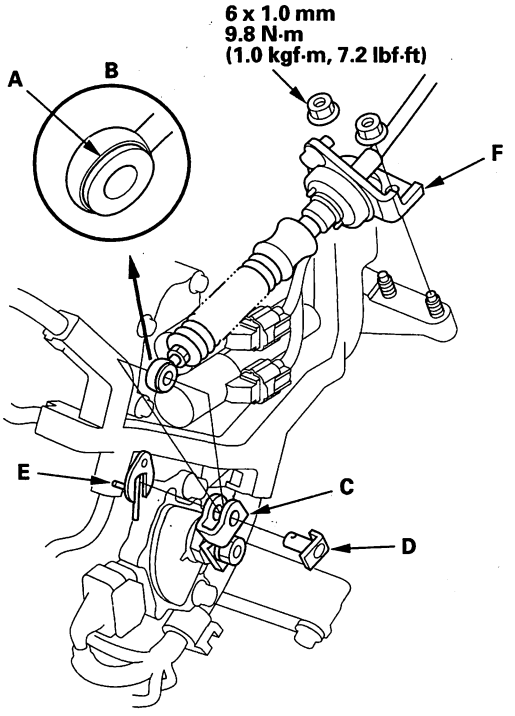
59. Secure the harness cover (A) with the bolt.



60. Connect the A/T clutch pressure control solenoid valve A connector (B), A/T clutch pressure control solenoid valve B connector (C), and 4th clutch transmission pressure switch connector (D).

61. Apply molybdenum grease to the bore hole of the synthetic resin bushing (A) in the shift cable end (B), and attach the shift cable end to the control lever (C), then insert the control pin (D) into the control lever hole through the shift cable end, and secure the control pin with the spring clip/washer (E).



62. Secure the shift cable bracket (F) with the nuts.

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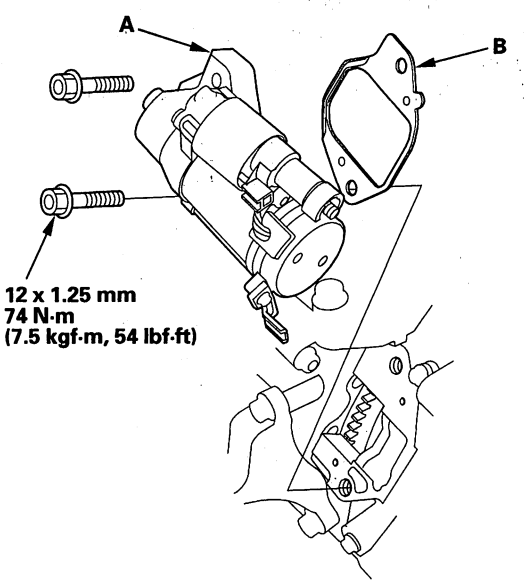
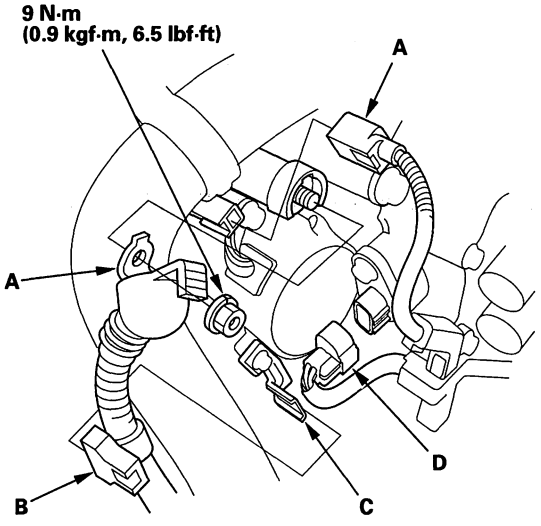
Transmission Installation (cont'd)

63. Install the starter (A) and new gasket (B) (see page 4-10).

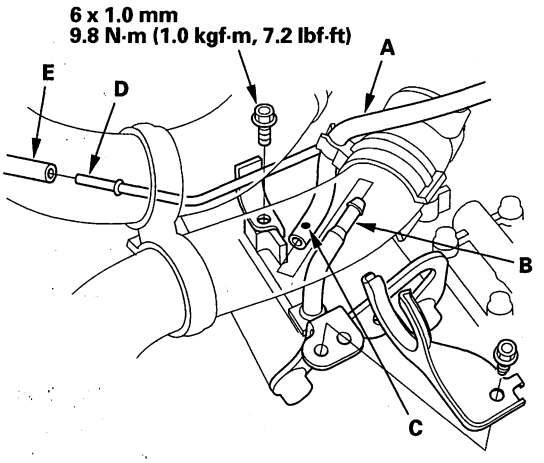


64. Install the starter cables (A), and install the harness clamp (B) on the clamp bracket (C).



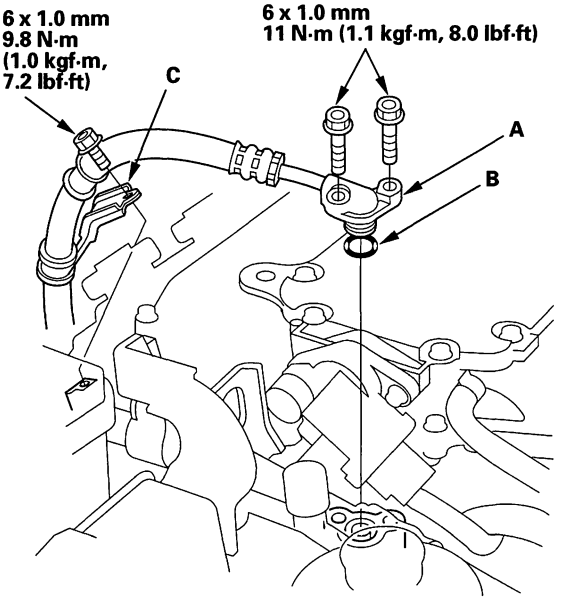
65. Connect the solenoid harness connector (D).

66. Install the transmission breather hose (A) over the breather pipe (B) with the dot (C) facing up.



67. Secure the vacuum line (D) with the bolt, and connect the vacuum hose (E) to the line.

68. Install the power steering pump outlet line (A) with the new O-ring (B) to the pump, and secure the hose clamp (C) with the bolt.



69. Connect the steering joint (see page 17-27).

BACK

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70. Refill the power steering fluid reservoir with fluid to the upper level line.

71. Refill the transmission with ATF (see step 7 on page 14-266).

72. Install the battery base bracket and battery base.

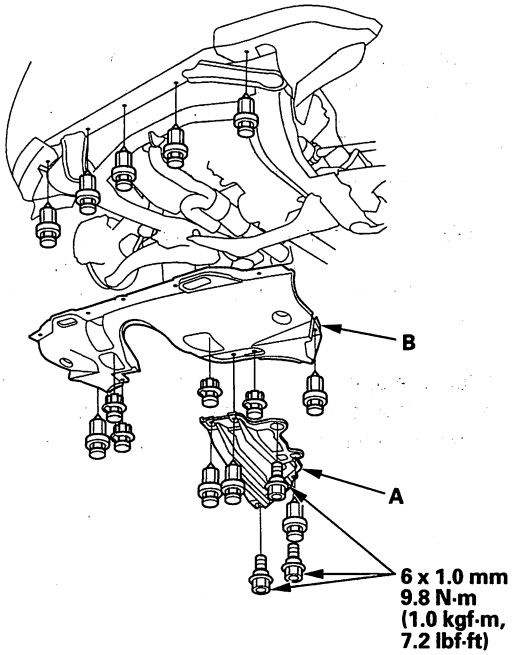
73. Install the air cleaner housing, intake air duct, and intake manifold cover.

74. Install the under-hood subfuse box on the battery base, and install the subfuse box on its bracket.

75. Install the battery tray, battery, battery cover, and battery hold-down bracket, then connect the battery terminals.

76. Install the bulkhead cover.

77. Install the splash shield (A) and transmission undercover (B).



78. Install the service caps on the cowl cover.

79. Set the parking brake, run the engine at fast idle, and turn the steering wheel from lock-to-lock several times to bleed air from the system. Recheck the fluid level, and refill if necessary.

80. Set the parking brake. Start the engine, and shift the transmission through all positions three times. Check the shift lever operation, A/T gear position indicator operation, and shift cable adjustment.

81. Check and adjust the front wheel alignment (see page 18-5).

82. Check the ATF level (see page 14-265).

83. Perform the road test (see page 14-235).

84. Enter the anti-theft codes for the audio system and the navigation system (if equipped). Set the clock.

85. Do the power steering column position memorization (see page 17-28).

86. Do the power window control unit reset procedure (see page 22-259).

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ATF Cooler Cleaning

Special Tools Required
- ATF cooler cleaner GHTTTCF6H
- Magnetic nonbypass spin-on filter GTHGNBP2

These special tools are available through the American Honda Tool and Equipment Program 1-888-424-6857.

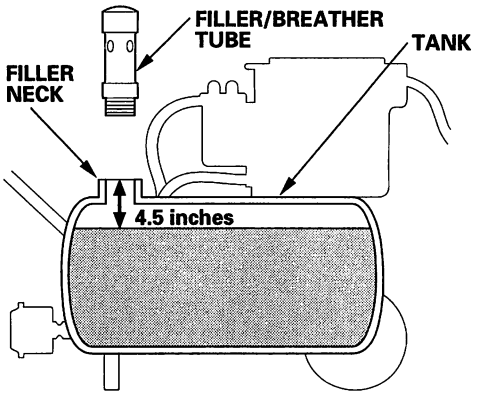
Before installing an overhauled or remanufactured automatic transmission, you must thoroughly clean the ATF cooler to prevent system contamination. Failure to do so could cause a repeat automatic transmission failure.

The cleaning procedure involves heated ATF-Z1 delivered under high pressure (100 psi). Check the security of all hoses and connections. Always wear safety glasses or a face shield, along with gloves and protective clothing. If you get ATF in your eyes or on your skin, rinse with water immediately.

⚠ WARNING

- Improper use of the ATF cooler cleaner can result in burns and other serious injuries.
- Always wear eye protection and protective clothing, and follow all instructions in this manual.

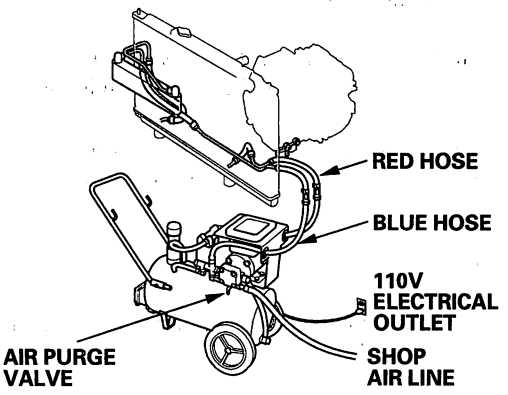
1. Check the fluid in the cooler cleaner tank. (The fluid level should be 4.5 inches from the top of the filler neck.) Adjust the level if needed; do not overfill. Use only Acura ATF-Z1; do not use any additives.



2. Plug the cooler cleaner into a 110 V grounded electrical outlet.

NOTICE

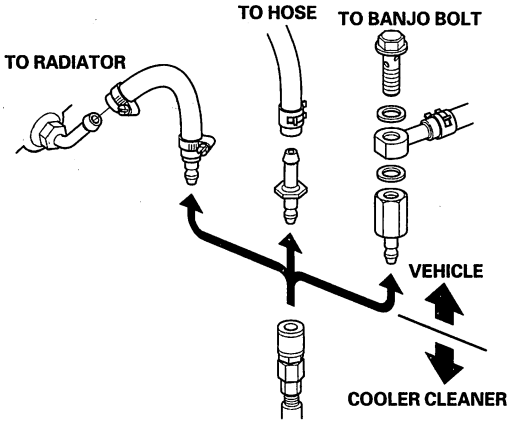
Make sure the outlet has no other appliances (light fixtures, drop lights, extension cords) plugged into it. Also, never plug the cooler cleaner into an extension cord or drop light; you could damage the unit.



3. Flip the HEAT toggle switch to ON; the green indicator above the toggle switch comes on. Wait 1 hour for the cooler cleaner to reach its operating temperature. (The cooler cleaner is ready to use when the temperature gauge reads 140 °to 150 °F.)

   NOTE: If the red indicator above the HEAT toggle switch comes on, the fluid level in the tank is too low for the tank heater to work (see step 1 of this procedure).

4. Select the appropriate pair of fittings, and attach them to the radiator, to the hoses, or to the banjo bolts for flow through the ATF cooler cleaner.



BACK

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5. Connect the red hose to the cooler outlet line (the line that normally goes to the external filter on the transmission).

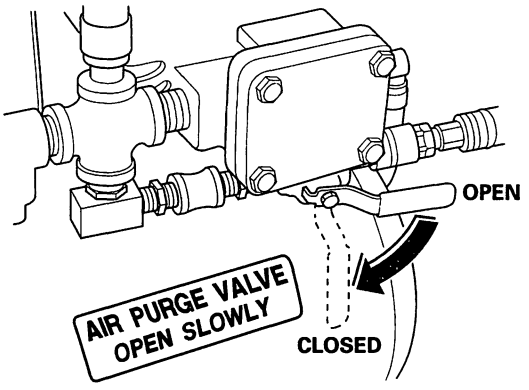
6. Connect the blue hose to the cooler inlet line.

7. Connect a shop air hose (regulated to 100 to 125 psi) to the air purge valve.

   NOTICE
   The quick-connect fitting has a one-way check valve to keep ATF from entering your shop's air system. Do not remove or replace the fitting. Attach the coupler provided with the cooler cleaner to your shop air line if your coupler is not compatible.

8. Flip the MOTOR toggle switch to ON; the green indicator above the toggle switch comes on. Let the pump run for 5 minutes. While the pump is running, open and close the air purge valve periodically to cause agitation and improve the cleaning process. Always open the valve slowly. At the end of the 5-minutes cleaning period, leave the air purge valve open.

   NOTE: While the pump is running with the air purge valve open, it is normal to see vapor coming from the filler/breather tube vents.



9. With the air purge valve open, flip the MOTOR toggle switch to OFF; the green indicator goes off. Leave the air purge valve open for at least 15 seconds to purge the lines and hoses of residual ATF, then close the valve.

10. Disconnect the red and blue hoses from the ATF cooler. Now connect the red hose to the cooler inlet line.

11. Now connect the blue hose to the cooler outlet line.

12. Flip the MOTOR toggle switch to ON, and let the pump run for 5 minutes. While the pump is running, open and close the air purge valve periodically. Always open the valve slowly. At the end of the 5-minutes cleaning period, leave the air purge valve open.

    NOTE: While the pump is running with the air purge valve open, it is normal to see vapor coming from the filler/breather tube vents.

13. With the air purge valve open, flip the MOTOR toggle switch to OFF. Leave the air purge valve open for at least 15 seconds to purge the lines and hoses of residual ATF, then close the valve.

14. Disconnect the red and blue hoses from the ATF cooler lines.

15. Connect the red and blue hoses to each other.

16. Disconnect the shop air from the air purge valve. Disconnect and stow the coupler if used.

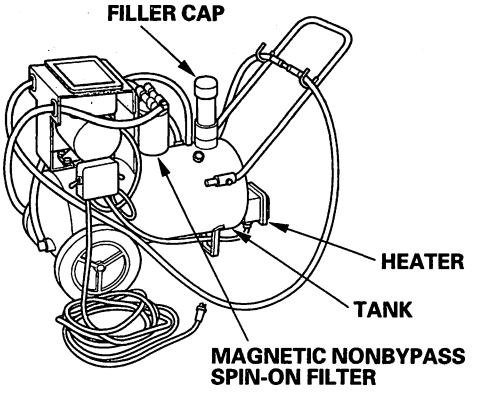
17. Disconnect and stow the fittings from the ATF cooler inlet and outlet lines.

18. Unplug the cooler cleaner from the 110 V outlet.

Tool Maintenance

Follow these instructions to keep the ATF cooler cleaner working properly:

- Replace the two magnetic nonbypass spin-on filters once a year or when you notice a restriction in the ATF flow.
- Check the level and condition of the fluid in the tank before each use.
- Replace the ATF in the tank when it looks dark or dirty.



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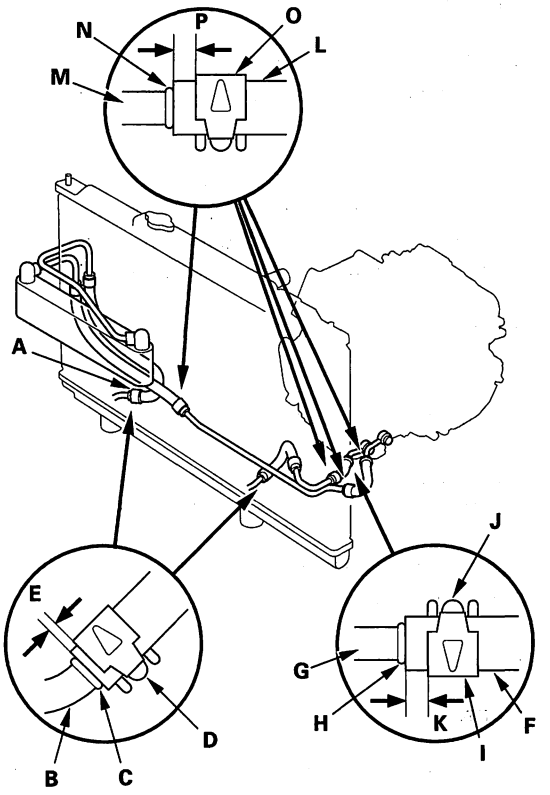
ATF Cooler Hose Replacement

1. Slide the ATF cooler hoses (A) over the ATF cooler lines (B) until the hose ends contact with the bulge (C) of the ATF cooler line, and secure the hoses with the clips (D) at 2—4 mm (0.1—0.2 in.) (E) from the hose end.



2. Slide the ATF cooler outlet hose (F) over the ATF cooler outlet line (G) at the transmission until the hose end contacts with the bulge (H) of the ATF cooler line. Secure the hose with the clip (I) facing tab (J) up at 6—8 mm (0.2—0.3 in.) (K) from the hose end.

3. Slide the ATF cooler hoses (L) over the ATF cooler lines (M) until the hose ends contact with the bulge (N) of the ATF cooler line, and secure the hoses with the clips (O) at 6—8 mm (0.2—0.3 in.) (P) from the hose end.

BACK

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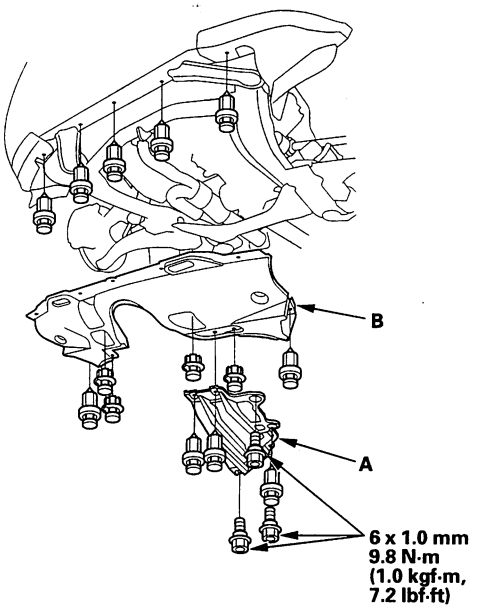
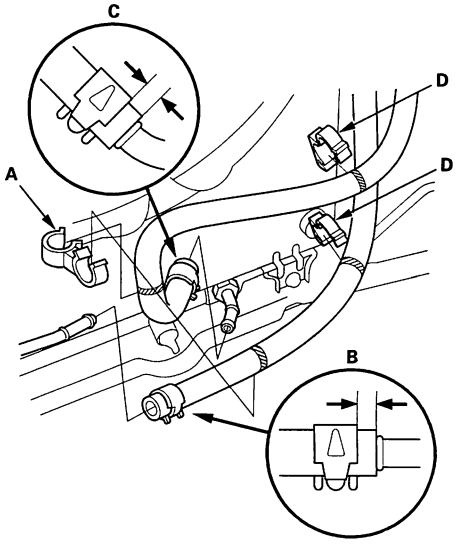
ATF Cooler Replacement

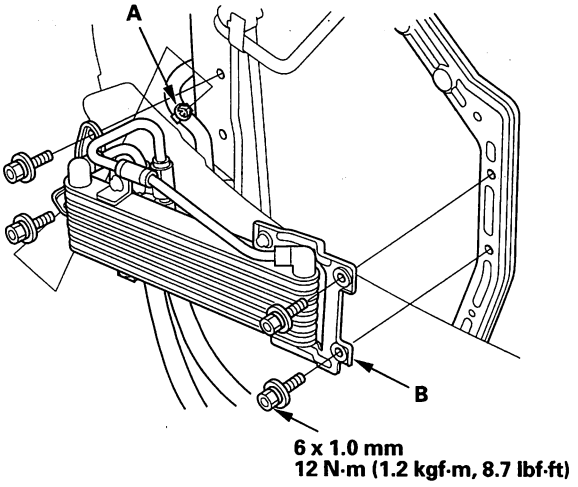
1. Raise the vehicle, and make sure it is supported securely.
2. Remove the transmission undercover (A) and splash shield (B).



3. Remove the front bulkhead cover, and remove the front bumper (see page 20-188).
4. Remove the hose clamp (A), and remove the ATF cooler inlet hose (B) and outlet hose (C) from the hose clamps (D), then disconnect the hoses from the ATF cooler lines.



5. Remove the power steering fluid hose clamp (A) from the ATF cooler mounting bracket.



6. Remove the ATF cooler (B), and replace it. Install the new ATF cooler.
7. Install the power steering fluid hose clamp on the bracket.
8. Slide the ATF cooler inlet hose over the ATF cooler line until the hose end contacts with the bulge, and secure the hose with the clip at 6—8 mm (0.2—0.3 in.) from the hose end.
9. Slide the ATF cooler outlet hose over the ATF cooler line until the hose end contacts with the bulge, and secure the hose with the clip at 2—4 mm (0.1—0.2 in.) from the hose end.
10. Secure the cooler hoses with the hose clamps at the marks on the hoses.
11. Install the hose clamp at the mark.
12. Install the front bumper (see page 20-188), and install the front bulkhead cover.
13. Install the splash shield and transmission undercover.
14. Check the ATF level (see page 14-265).

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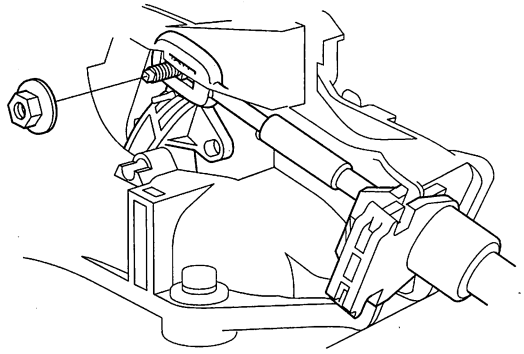
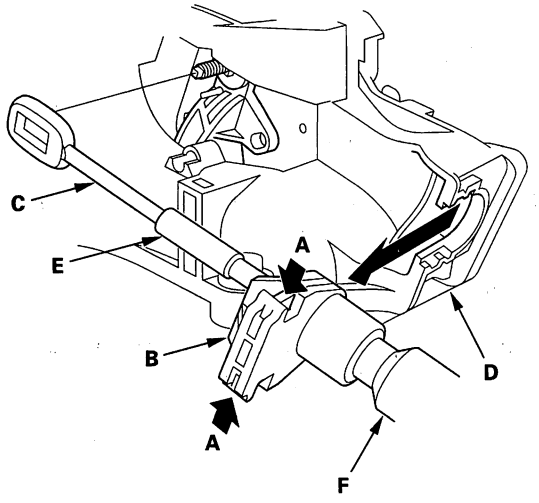
Shift Lever Removal

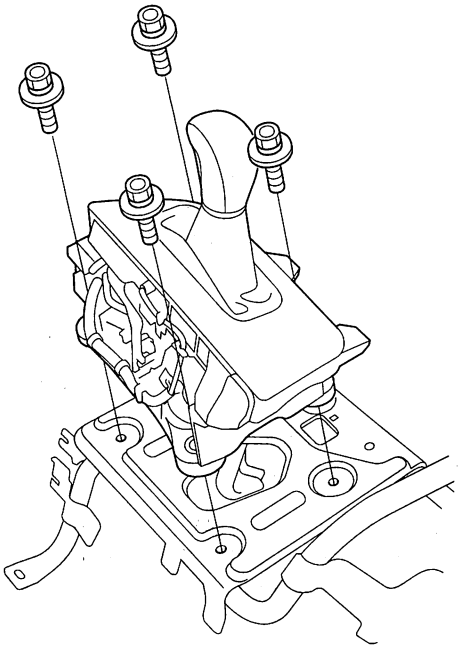
1. Remove passenger's center console trim (see step 6 on page 20-107).
2. Remove the beverage holder inner case (see step 10 on page 20-108).
3. Shift the transmission into the R position.
4. Remove the nut securing the shift cable end.



5. Press the holder lock release (A), and pull out the socket holder (B) to remove the shift cable (C) from the shift lever bracket base (D). Do not remove the shift cable by pulling the shift cable guide (E) and damper (F).



6. Remove the center console (see page 20-107).
7. Disassemble the center console by removing the following:
   - Console armrest (see page 20-112)
   - Center console latch panel (see page 20-113)
   - Center console panel (see page 20-113)
   - Center console beverage holder (see page 20-114)
   - Center console box (see page 20-115)
8. Remove the shift lever assembly from the console frame.



BACK

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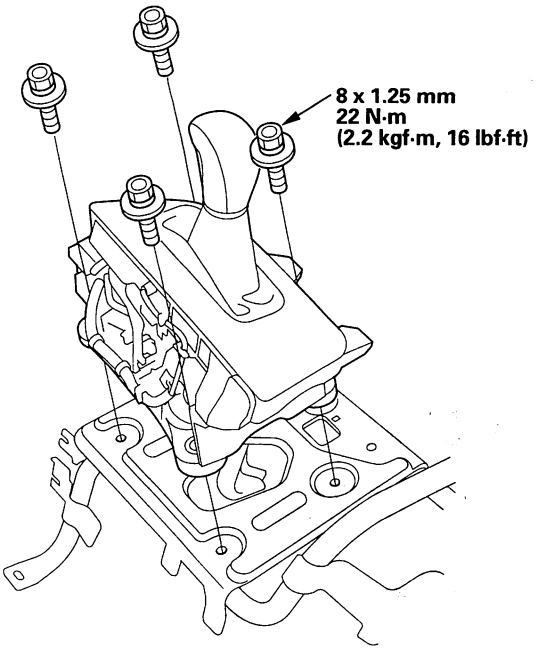
Shift Lever Installation

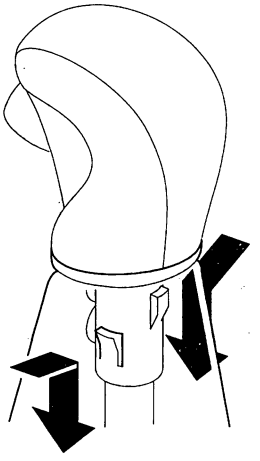
1. Install the shift lever assembly on the console frame.



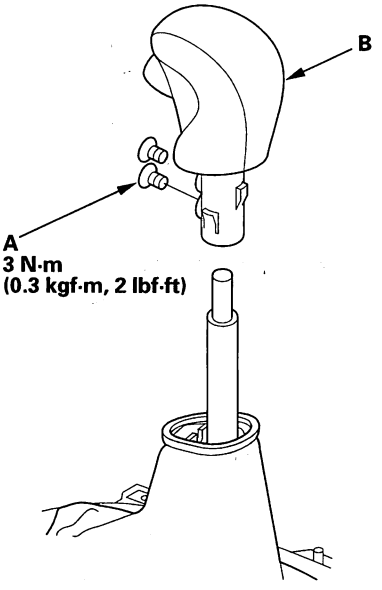
2. Assemble the center console by installing the following:
   - Center console box (see page 20-115)
   - Center console beverage holder (see page 20-114)
   - Center console panel (see page 20-113)
   - Center console latch panel (see page 20-113)
   - Console armrest (see page 20-112)
3. Install the center console (see page 20-107).
4. Install the shift cable on the shift lever, and adjust the shift cable (see step 6 on page 14-311).
5. Install the beverage holder inner case (see step 10 on page 20-108).
6. Install the passenger's center console trim (see step 6 on page 20-107).

Shift Lever Knob Replacement

1. Grasp the shift lever boot ring, and slip it out of the shift lever knob cover.



2. Remove the screws (A), and remove the shift lever knob (B).



3. Apply non-hardening thread lock sealant to the screw threads.
4. Install the new shift lever knob, and secure it with the screws.
5. Slide the shift lever boot ring over the shift lever knob until it snaps on.

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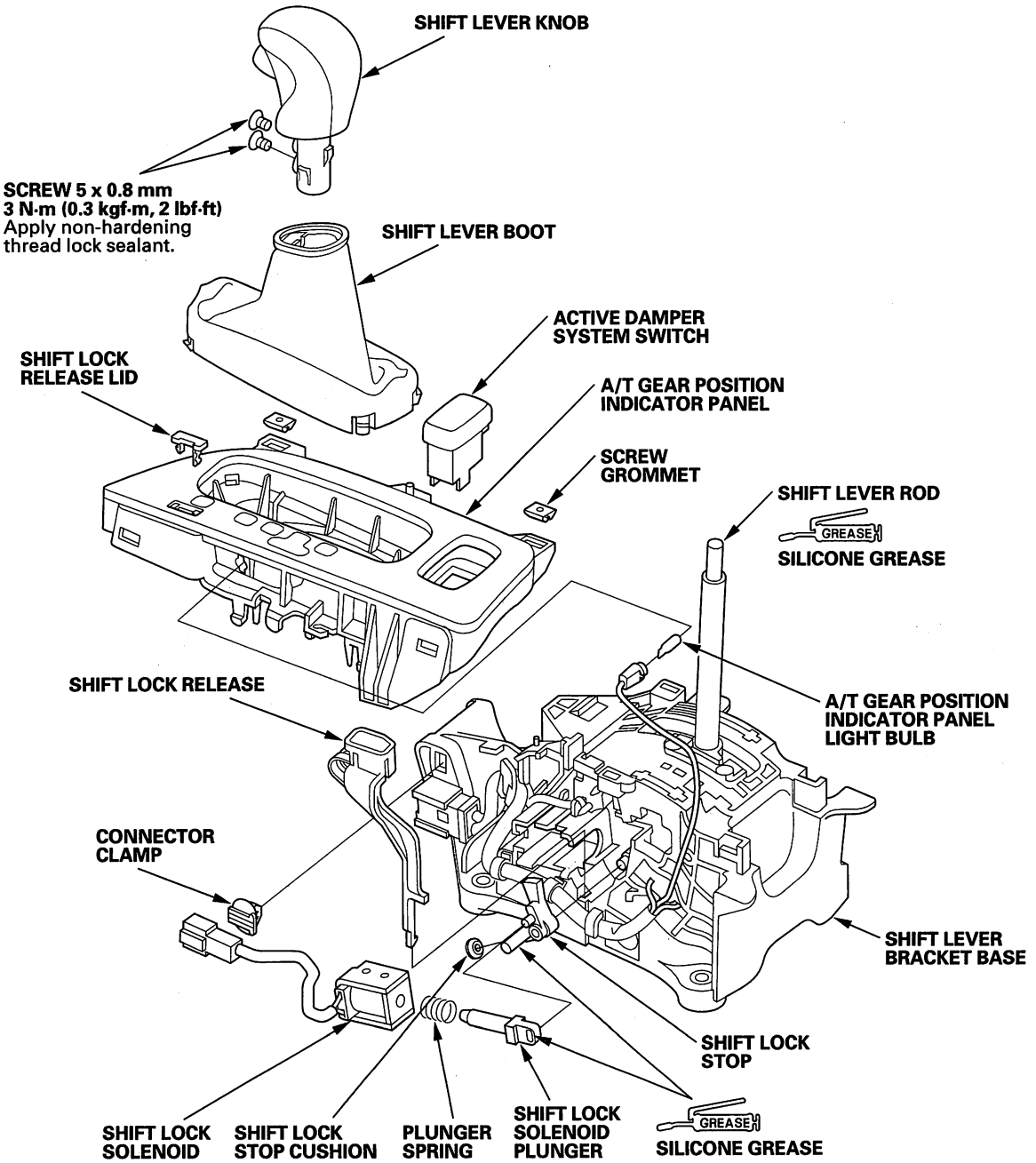
Shift Lever Disassembly/Reassembly

Apply silicon grease to movable joints of the shift lock mechanism and shift lever.



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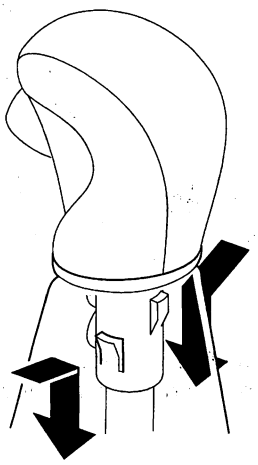
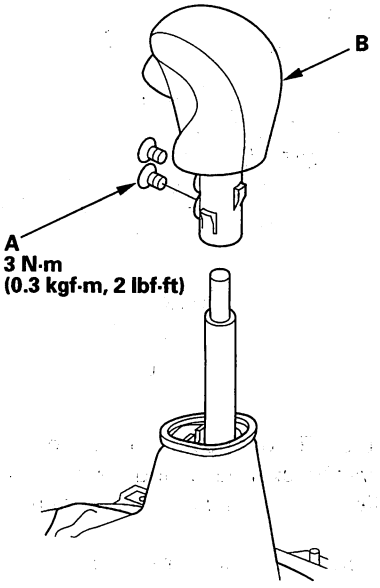
Shift Lever Bracket Base Replacement

NOTE: Refer to the Shift Lever Disassembly/ Reassembly (see page 14-306) during the following procedures.

1. Remove the shift lever (see page 14-304).
2. Grasp the shift lever boot ring, and slip it out of the shift lever knob cover.



3. Remove the screws (A), and remove the shift lever knob (B).



4. Remove the A/T gear position indicator panel light socket from the indicator panel, and remove the indicator panel from the shift lever bracket base.
5. Remove the shift lock release.
6. Remove the shift lock solenoid and harness connector.
7. Remove the shift lock stop and stop cushion as an assembly.
8. Replace the shift lever bracket base.
9. Apply silicone grease to mounting pin of the shift lock stop, and install the shift lock stop and stop cushion over the pin.
10. Apply silicone grease to joint of the shift lock solenoid plunger and shift lock stop.
11. Install the shift lock solenoid plunger and plunger spring in the shift lock solenoid.
12. Install the shift lock solenoid by aligning the joint of the shift lock solenoid plunger with the tip of the shift lock stop, then push the shift lock solenoid into the shift lever securely.
13. Install the shift lock release.
14. Install the A/T gear position indicator panel light bulb in its socket.
15. Install the A/T gear position indicator panel on the shift lever bracket base, and install the indicator panel light socket in the indicator panel.
16. Apply non-hardening thread lock sealant to the screw threads, install the shift lever knob, and secure it with the screws.
17. Slide the shift lever boot ring over the shift lever knob until it snaps on.
18. Install the shift lever (see page 14-305).

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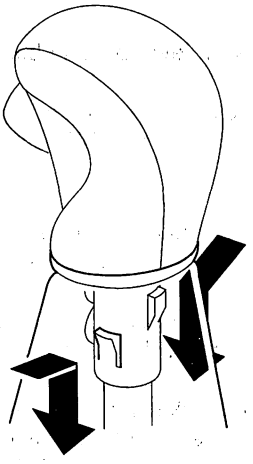
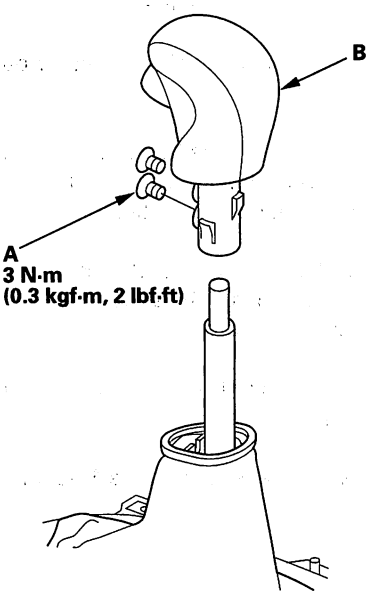
Shift Lever Boot and A/T Gear Position Indicator Panel Replacement

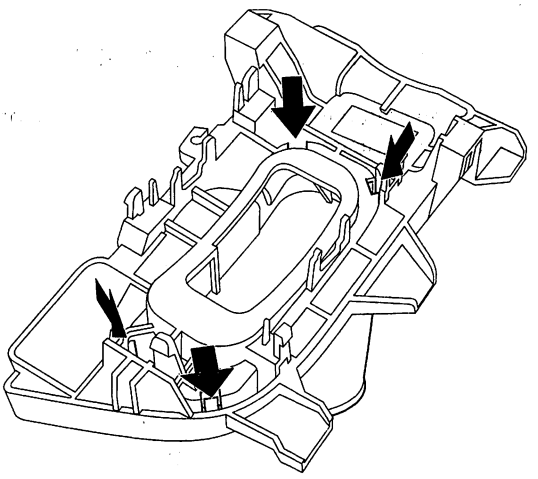
1. Remove the shift lever (see page 14-304).
2. Grasp the shift lever boot ring, and slip it out of the shift lever knob cover.



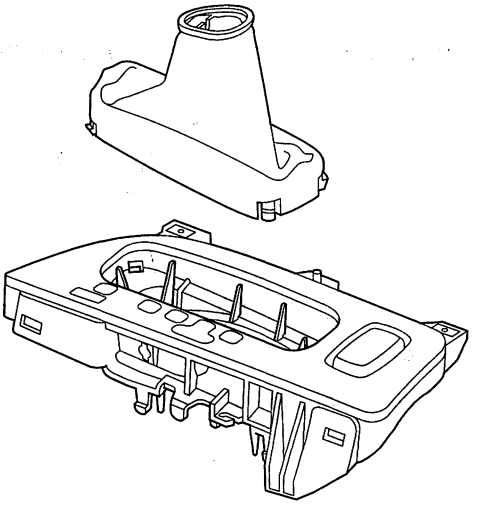
3. Remove the screws (A), and remove the shift lever knob (B).



4. Remove the A/T gear position indicator panel light socket from the indicator panel, and remove the indicator panel from the shift lever bracket base.
5. Release the lock tabs retaining the shift lever boot using a screwdriver.



6. Replace the shift lever boot or A/T gear position indicator panel, and install the boot in the indicator panel.



7. Install the A/T gear position indicator panel on the shift lever bracket base, and install the indicator panel light socket in the indicator panel.
8. Apply non-hardening thread lock sealant to the screw threads, install the shift lever knob, and secure it with the screws.
9. Slide the shift lever boot ring over the shift lever knob until it snaps on.
10. Install the shift lever (see page 14-305).

BACK

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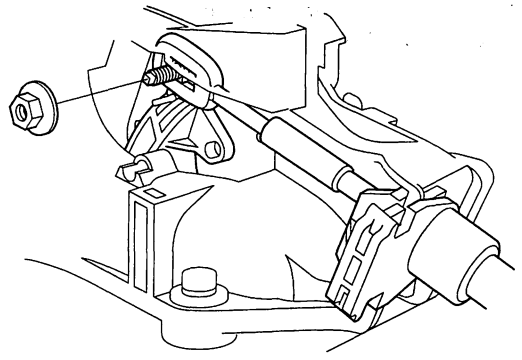
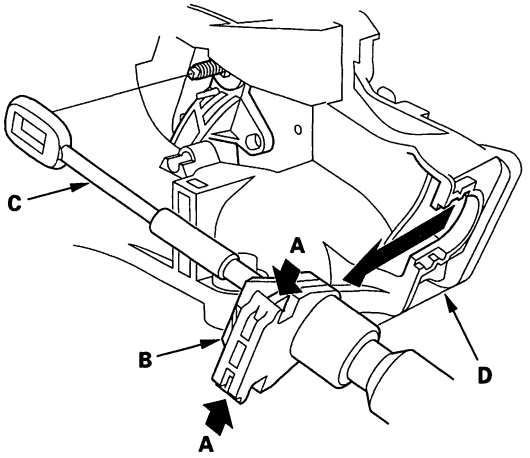
Shift Cable Replacement

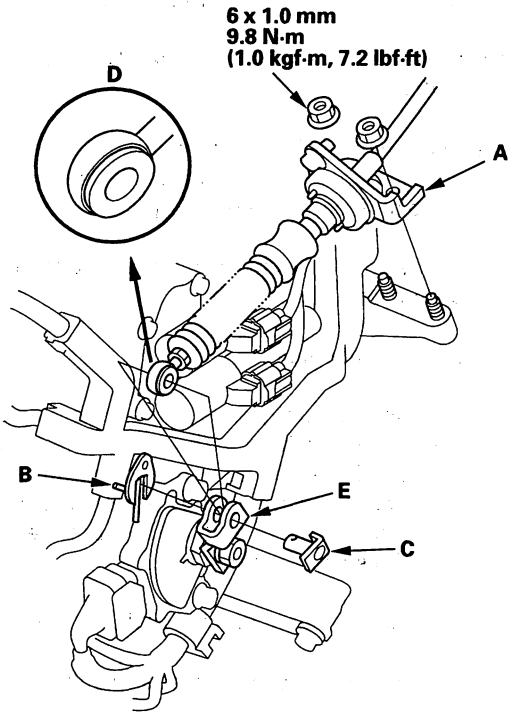
1. Raise the vehicle, and make sure it is supported securely.
2. Remove passenger's center console trim (see step 6 on page 20-107).
3. Remove the beverage holder inner case (see step 10 on page 20-108).
4. Shift the transmission into the R position.
5. Remove the nut securing the shift cable end.



6. Press the holder lock release (A), and pull out the socket holder (B) to remove the shift cable (C) from the shift lever bracket base (D).



7. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).
8. Disconnect the negative terminal from the battery, then disconnect the positive terminal.
9. Remove the battery hold-down bracket, and remove the battery cover, battery, and battery tray.
10. Remove the under-hood subfuse box from its bracket, and remove the bracket from the battery base.
11. Remove the intake air duct and air cleaner housing.
12. Remove the battery base and battery base bracket.
13. Remove the nuts securing the shift cable bracket (A).



14. Remove the spring clip/washer (B) and control pin (C), then separate the shift cable end (D) from the control lever (E).
15. Remove the heat shield under the shift cable grommet.

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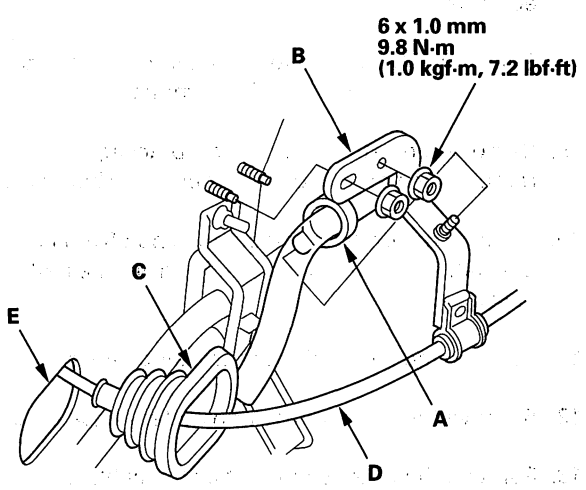
Shift Cable Replacement (cont'd)

16. Remove the drain hose clamp (A) from the shift cable bracket (B).



17. Remove the nuts securing the shift cable bracket.
18. Remove the shift cable grommet (C), and pull out the shift cable (D).
19. Insert the new shift cable through the grommet hole (E), and install the grommet in its hole. Do not bend the shift cable excessively.
20. Install the shift cable bracket, and install the drain hose clamp on the bracket.
21. Install the heat shield.
22. Apply molybdenum grease to the bore hole of the synthetic resin bushing in the shift cable end, and attach the shift cable end to the control lever, then insert the control pin into the control lever hole through the shift cable end, and secure the control pin with the spring clip/washer.
23. Secure the shift cable bracket with the nuts.
24. Install the battery base bracket and battery base.
25. Install the air cleaner housing and intake air duct.
26. Install the under-hood subfuse box on the battery base, and install the subfuse box on its bracket.
27. Install the battery tray, battery, battery cover, and battery hold-down bracket, then connect battery terminals.
28. Install the shift cable on the shift cable, and adjust the shift cable (see step 6 on page 14-311).
29. Enter the anti-theft codes for the audio system and the navigation system (if equipped). Set the clock.
30. Do the steering column position memorization (see page 17-28).
31. Do the power window control unit reset procedure (see page 22-259).

BACK

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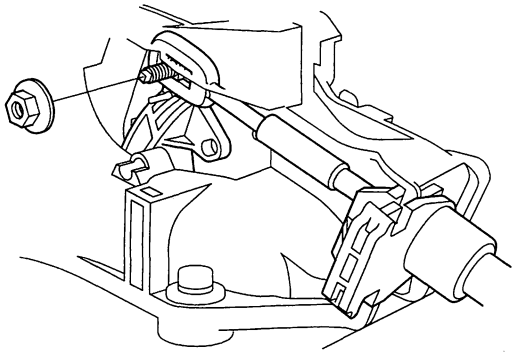
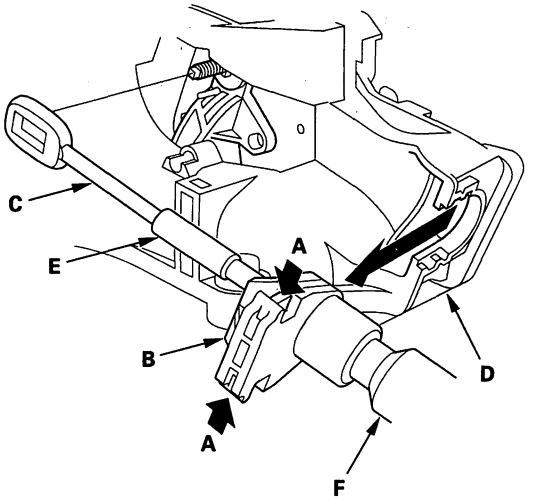
Shift Cable Adjustment

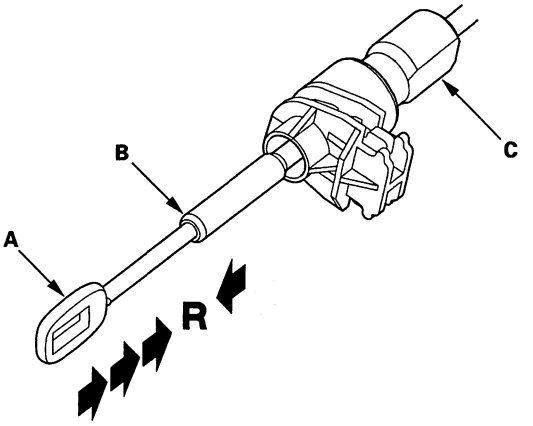
1. Remove passenger's center console trim (see step 6 on page 20-107).
2. Remove the beverage holder inner case (see step 10 on page 20-108).
3. Shift the transmission into the R position.
4. Remove the nut securing the shift cable end.



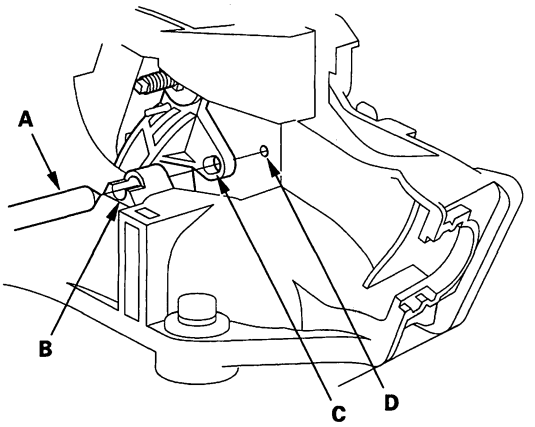
5. Press the holder lock release (A), and pull out the socket holder (B) to remove the shift cable (C) from the shift lever bracket base (D). Do not remove the shift cable by pulling the shift cable guide (E) and damper (F).



6. Push the shift cable (A) until it stops, then release it. Pull the shift cable back one step so that the shift position is in R. Do not hold the shift cable guide (B) and damper (C) to adjust the shift cable.



7. Turn the ignition switch ON (II), and verify that the R position indicator comes on.
8. Turn the ignition switch OFF.
9. Place the shift lever in the R position, then insert tapered tip 6.0 mm (0.24 in.) pin (A) through the positioning hole (B) on the shift lever bracket base, through the positioning hole (C) on the shift lever, and into the positioning small hole (D) on the shift lever bracket base. The shift lever is secured in the R position.



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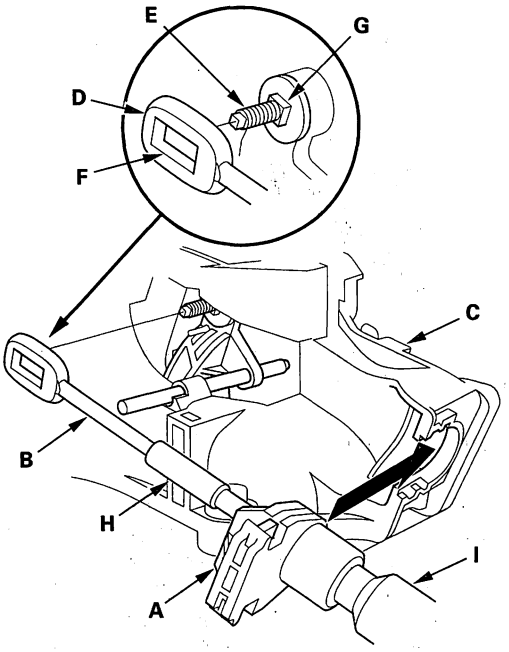
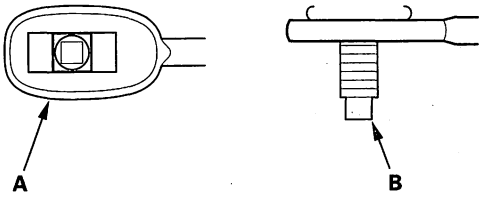
Shift Cable Adjustment (cont'd)

10. Align the socket holder (A) on the shift cable (B) with the slot in the bracket base (C), then slide the holder into the base. Install the shift cable end (D) over the mounting stud (E) by aligning its square hole (F) with the square fitting (G) at the bottom of the stud. Push the holder until it snaps securely in place. Do not install the shift cable by holding the shift cable guide (H) and damper (I).

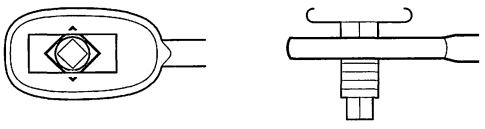


11. Verify that the shift cable end (A) is properly installed on the mounting stud (B).

Properly Installed:



Improperly Installed:

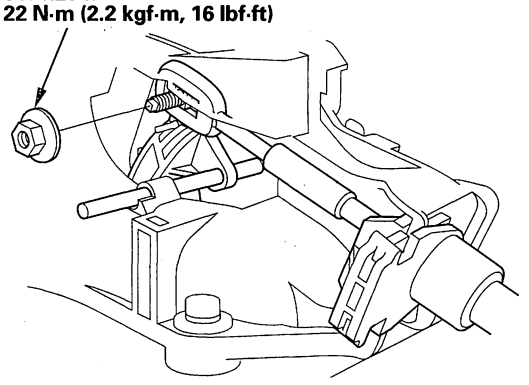


Cable end rides on the bottom of the mounting stud.

12. If improperly installed, remove the shift cable from the bracket base, and reinstall the shift cable. Do not install the shift cable end on the mounting stud while the shift cable is on the bracket base.

13. Install and tighten the nut.

8 x 1.25 mm
22 N·m (2.2 kgf·m, 16 lbf·ft)



14. Remove the 6.0 mm (0.24 in.) pin that was installed to hold the shift lever.

15. Turn the ignition switch ON (II). Move the shift lever to each position, and verify that the A/T gear position indicator follows the transmission range switch.

16. Shift to the P position, and check that the shift lock works properly. Push the shift lock release, and verify that the shift lever releases, and also check that the shift lever locks when it is shifted back to the P position.

17. Install the beverage holder inner case (see step 10 on page 20-108).

18. Install the passenger's center console trim (see step 6 on page 20-107).

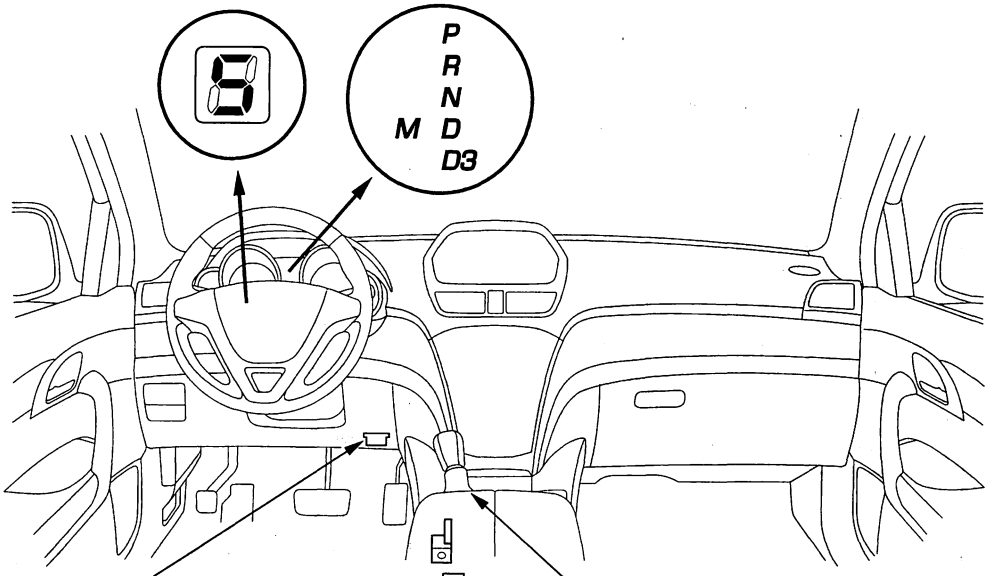
BACK

Protected by AR

A/T Gear Position Indicator

Component Location Index

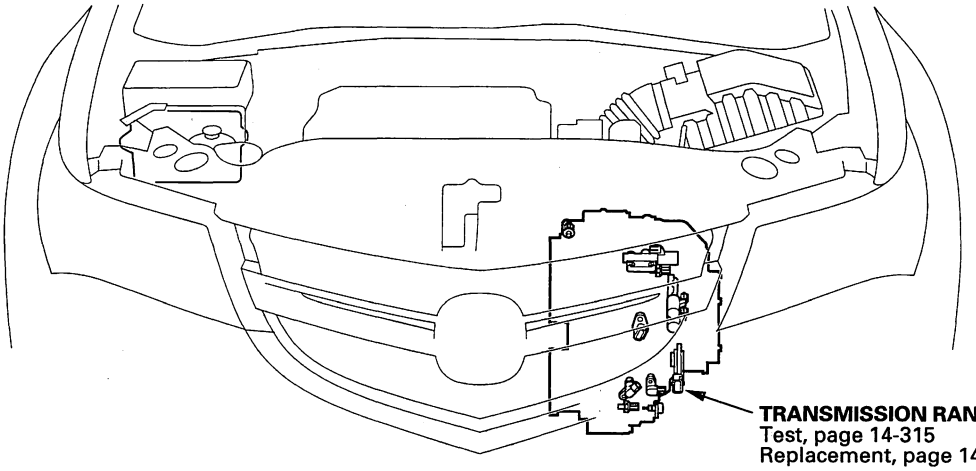
A/T GEAR POSITION INDICATOR
M INDICATOR
SHIFT INDICATOR
F-CAN Communication Circuit Troubleshooting, page 22-325
Gauge Control Module Self-diagnostic Function
Indicator Drive Circuit Check, page 22-315
Communication Line Check, page 22-317



DATA LINK CONNECTOR (DLC)

TRANSMISSION GEAR SELECTION SWITCH
Test, page 14-319
Replacement, page 14-319

A/T GEAR POSITION INDICATOR PANEL LIGHT HARNESS
Replacement, page 14-320
PANEL LIGHT BULB
Replacement, page 14-320



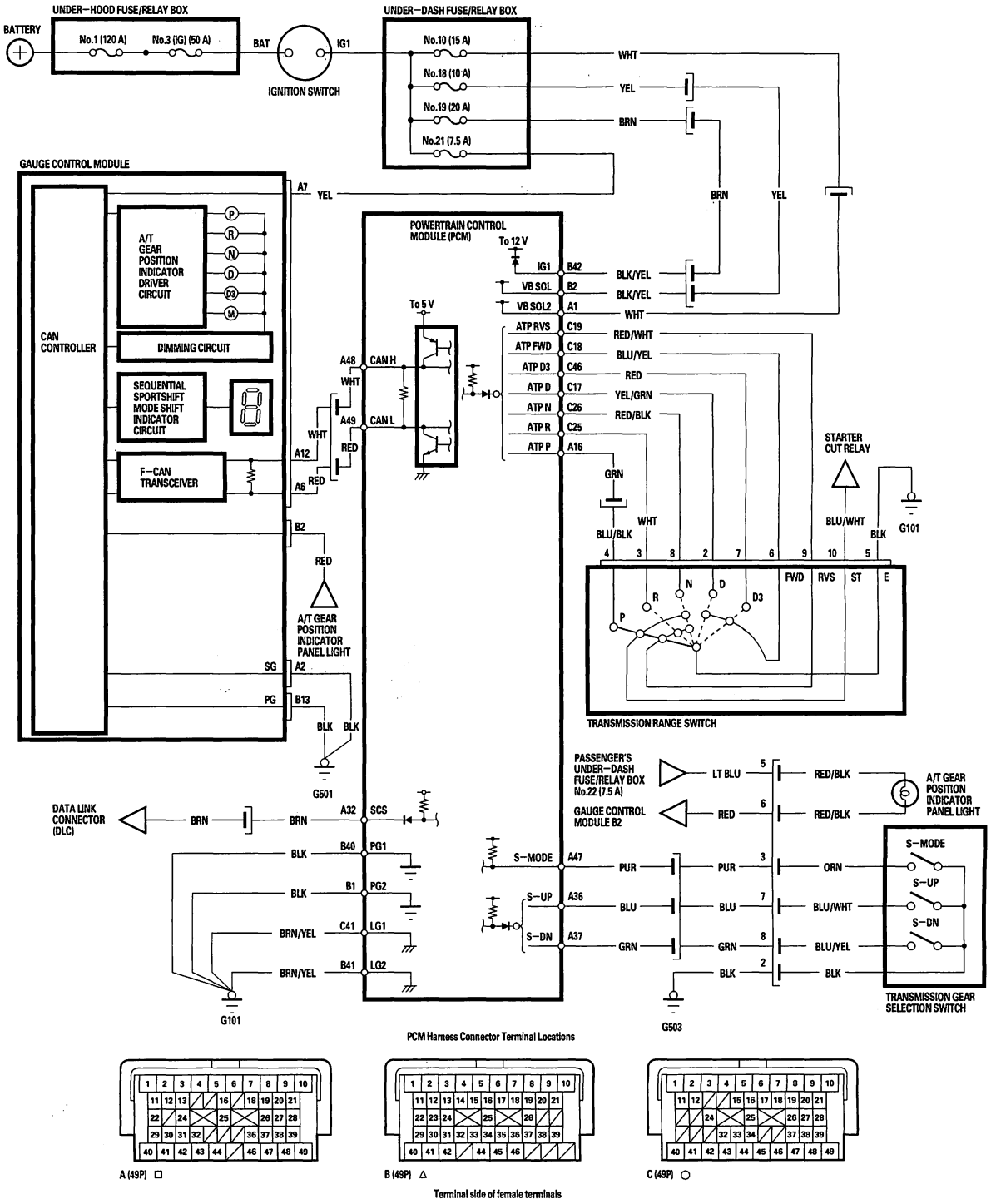
TRANSMISSION RANGE SWITCH
Test, page 14-315
Replacement, page 14-316

BACK

Protected by AR

A/T Gear Position Indicator

Circuit Diagram

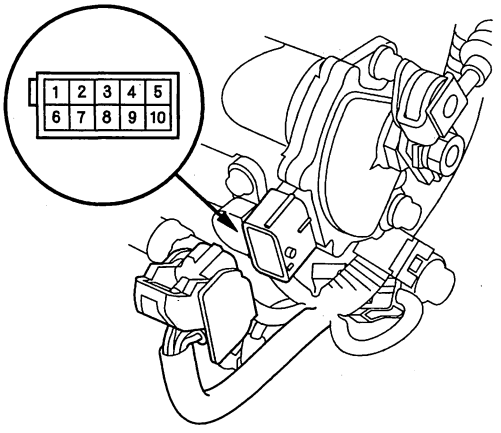


BACK

Protected by AR

Transmission Range Switch Test

1. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).
2. Disconnect the negative terminal from the battery, then disconnect the positive terminal.
3. Remove the battery hold-down bracket, and remove the battery cover, battery, and battery tray.
4. Remove the under-hood subfuse box from its bracket, and remove the bracket from the battery base.
5. Remove the intake air duct and air cleaner housing.
6. Remove the battery base and battery base bracket.
7. Disconnect the transmission range switch connector.



8. Check for continuity between terminals at the switch connector. There should be continuity between the terminals in the following table for each switch position.

Transmission Range Switch Connector

Position/Connector Terminal/Signal Connections										
	1	2	3	4	5	6	7	8	9	10
	-	D	R	P	GND	ATP FWD	D3	N	ATP RVS	ATP NP
P				○	○				○	○
R			○		○				○	
N					○			○	○	○
D		○			○	○				
D3					○	○	○			

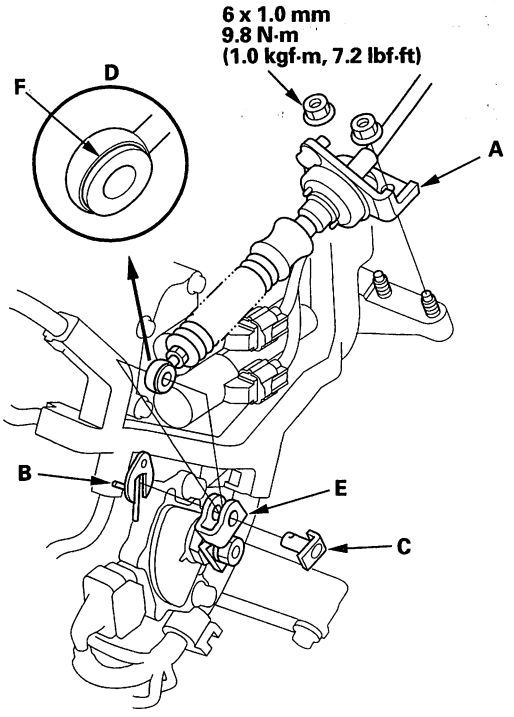
9. Transmission range switch test has finished if the test results are OK.
If there is no continuity between any terminals, check that the transmission range switch installation. If the switch installation is OK, replace the switch (see page 14-316).

Protected by AR

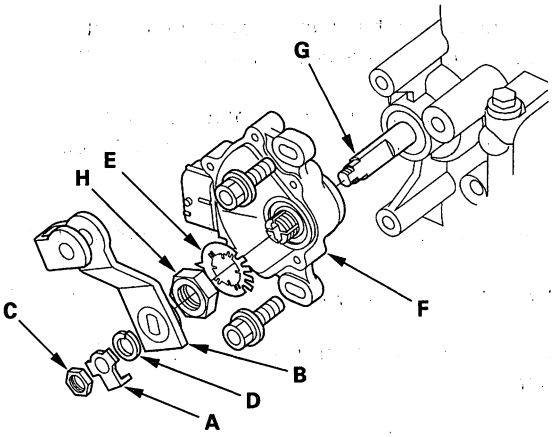
A/T Gear Position Indicator

Transmission Range Switch Replacement

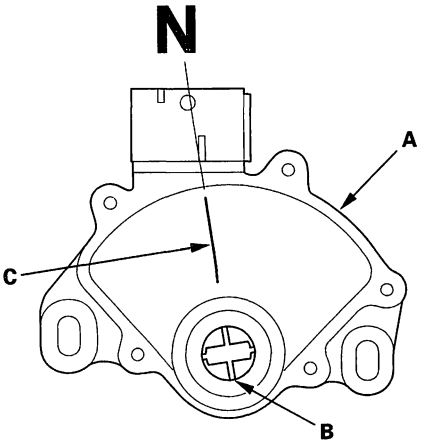
1. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).
2. Disconnect the negative terminal from the battery, then disconnect the positive terminal.
3. Remove the battery hold-down bracket, and remove the battery cover, battery, and battery tray.
4. Remove the under-hood subfuse box from its bracket, and remove the bracket from the battery base.
5. Remove the intake air duct and air cleaner housing.
6. Remove the battery base and battery base bracket.
7. Remove the nuts securing the shift cable bracket (A).



8. Remove the spring clip/washer (B) and control pin (C), then separate the shift cable end (D) from the control lever (E).
9. Check the synthetic resin bushing (F) in the shift cable end for a proper fit and wear. If the bushing is loose or worn, replace the shift cable (see page 14-309).
10. Disconnect the transmission range switch connector.
11. Pry the lock tab of the lock washer (A) on the control lever (B), and remove the nut (C), lock washer, spring washer (D) and control lever.



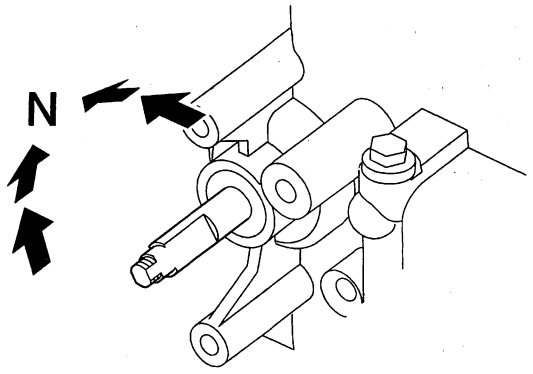
12. Pry the lock tabs of the lock washer (E) on the transmission range switch (F), hold the control shaft (G) with a 6.0 mm wrench, and loosen the locknut (H).
13. Remove the locknut and lock washer, then remove the transmission range switch (two bolts).
14. Set the new transmission range switch (A) to the N position. The transmission range switch clicks in the N position, and the control shaft hole (B) aligns with the N position line (C).



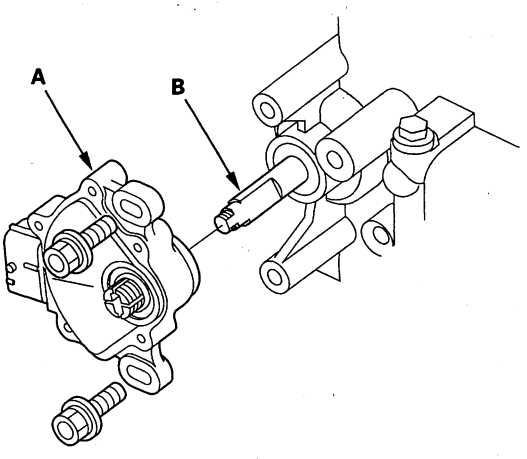
BACK

Protected by AR

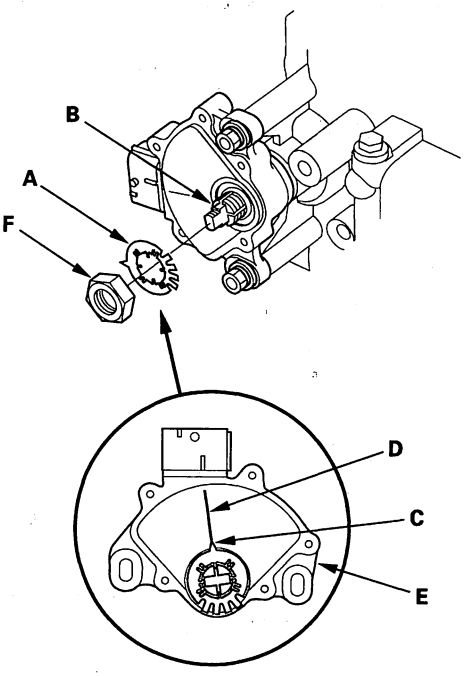
15. Set the control shaft to the N position by turning the control shaft with a 6.0 mm wrench.



16. Install the transmission range switch (A) gently over the control shaft (B), and install the bolts loosely.



17. Install the new lock washer (A) over the control shaft (B) with aligning the projection (C) of the lock washer with the N positioning line (D) on the transmission range switch (E), and install the locknut (F).



(cont'd)

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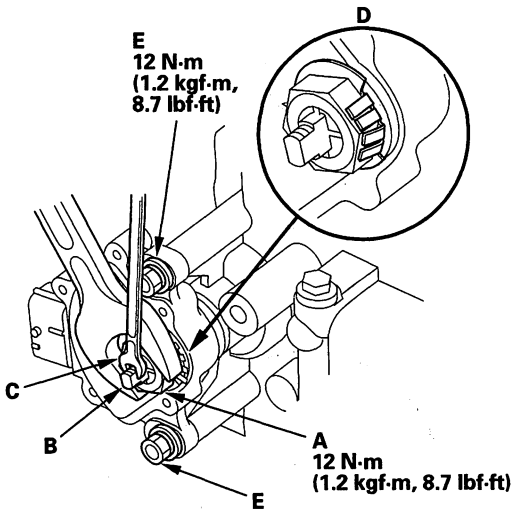
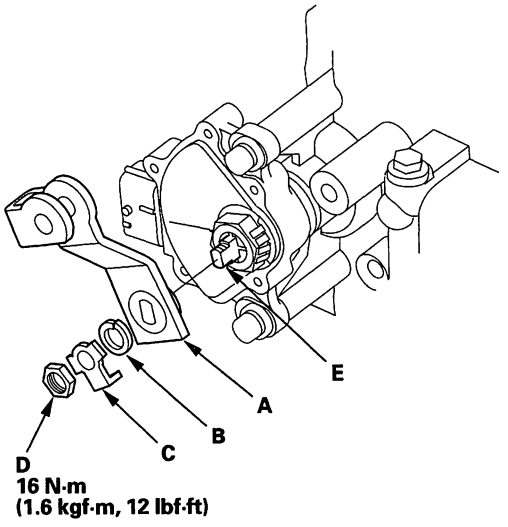
Transmission Range Switch Replacement (cont'd)

18. Push the locknut against the transmission housing to seat the transmission range switch into the control shaft, and tighten the locknut (A) to 12 N·m (1.2 kgf·m, 8.7 lbf·ft) while holding the control shaft (B) with a 6.0 mm wrench (C), then bend the lock tabs (D) of the lock washer against the locknut.



19. Tighten the bolts (E) to 12 N·m (1.2 kgf·m, 8.7 lbf·ft) securing the transmission range switch.

20. Install the control lever (A), spring washer (B), lock washer (C), and locknut (D) on the control shaft (E).



21. Check the connectors for rust, dirt, or oil, clean, then connect the connector securely.

22. Apply molybdenum grease to the bore hole of the synthetic resin bushing in the shift cable end, and attach the shift cable end to the control lever, then insert the control pin into the control lever hole through the shift cable end, and secure the control pin with the spring clip/washer.

23. Secure the shift cable bracket with the nuts.

24. Install the battery base bracket and battery base.

25. Install the air cleaner housing and intake air duct.

26. Install the under-hood subfuse box on the battery base, and install the subfuse box on its bracket.

27. Install the battery tray, battery, battery cover, and battery hold-down bracket, then connect battery terminals.

28. Turn the ignition switch ON (II). Move the shift lever through all positions, and check the transmission range switch synchronization with the A/T gear position indicator.

29. Check that the engine will start in the P and N positions, and will not start in any other shift lever position.

30. Check that the back-up lights come on when the shift lever is in the R position.

31. Allow the all four wheels to rotate freely, then start the engine, and check the shift lever operation.

32. Enter the anti-theft codes for the audio system and the navigation system (if equipped). Set the clock.

33. Do the steering column position memorization (see page 17-28).

34. Do the power window control unit reset procedure (see page 22-259).

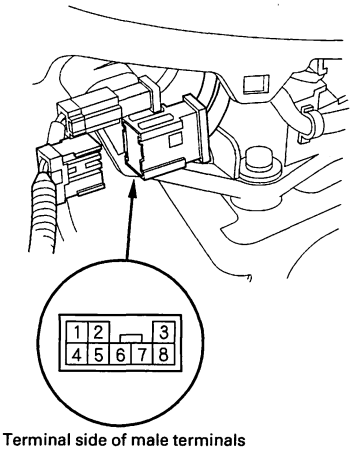
BACK

Protected by AR

Transmission Gear Selection Switch Test

1. Remove the driver's center console trim (see step 5 on page 20-107).

2. Disconnect the transmission gear selection switch/park pin switch/A/T gear position indicator panel light harness connector.



Terminal side of male terminals

3. Check for continuity between connector terminals No. 3 and No. 2.
   There should be continuity when the shift lever is in the M position, and no continuity when the shift lever is in any position other than M.

4. Check for continuity between connector terminals No. 7 and No. 2.
   There should be continuity when the shift lever is pushed toward the upshift position (+), and no continuity with the shift lever released to the neutral position.

5. Check for continuity between connector terminals No. 8 and No. 2.
   There should be continuity when the shift lever is pulled toward the downshift position (−), and no continuity with the shift lever released to the neutral position.

6. If the switch fails to work properly, replace the transmission gear selection switch and shift lever bracket base as an assembly (see page 14-307). The transmission gear selection switch, park pin switch, and A/T gear position indicator panel light harness are not available separately from the shift lever bracket base.

7. Install the driver's center console trim (see step 5 on page 20-107).

Transmission Gear Selection Switch Replacement

NOTE: The transmission gear selection switch is not available separately from the shift lever bracket base; replace the transmission gear selection switch (including park pin switch and A/T gear position indicator panel light harness) and select lever bracket base as an assembly.

Replace the transmission gear selection switch and shift lever bracket base assembly (see page 14-307).

Protected by AR

A/T Gear Position Indicator

A/T Gear Position Indicator Panel Light Harness Replacement

NOTE: The A/T gear position indicator panel light harness is not available from separately the shift lever bracket base; replace the A/T gear position indicator panel light harness (including transmission gear selection switch and park pin switch) and select lever bracket base as an assembly.

Replace the A/T gear position indicator panel light harness and shift lever bracket base assembly (see page 14-307).

A/T Gear Position Indicator Panel Light Bulb Replacement

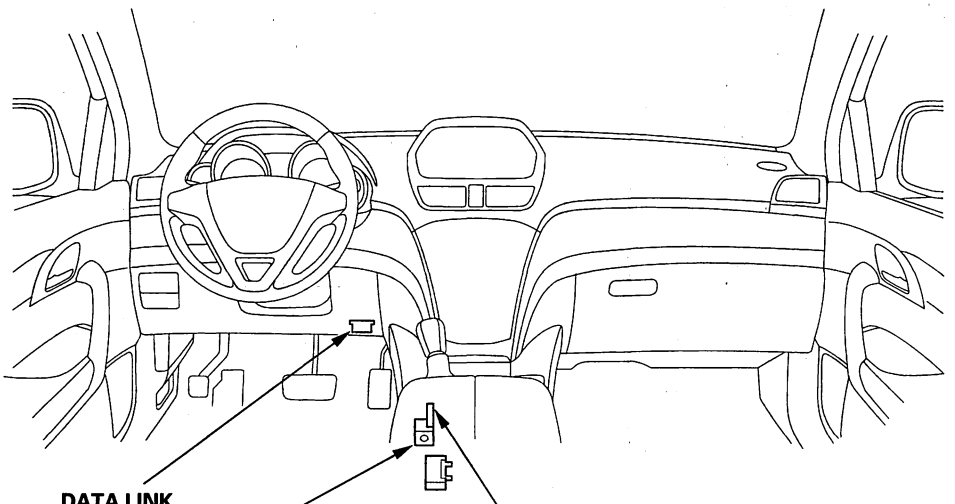
1. Remove the shift lever (see page 14-304).
2. Remove the A/T gear position indicator panel light socket from the indicator panel.
3. Remove the indicator panel light bulb from the socket, and replace the bulb with a new one.
4. Install the new bulb in the socket, and install the socket in the indicator panel.
5. Install the shift lever (see page 14-305).

BACK

Protected by AR

A/T Interlock System

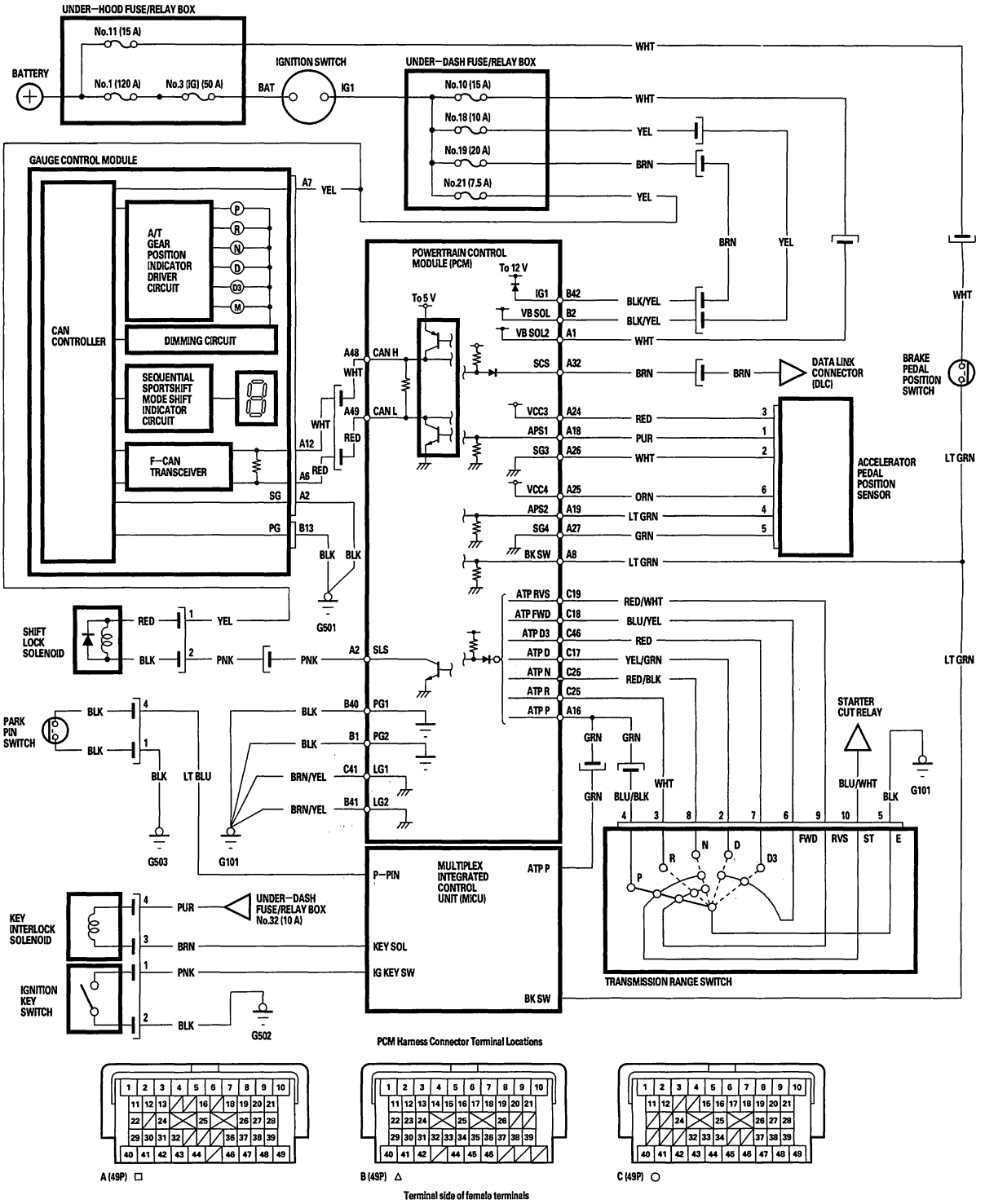
Component Location Index



Protected by AR

A/T Interlock System

Circuit Diagram



BACK

Protected by AR

Shift Lock System Circuit Troubleshooting

1. Connect the HDS to the DLC.
2. Choose Shift Lock Solenoid Test in the Miscellaneous Test Menu, and check that the shift lock solenoid operates with the HDS.

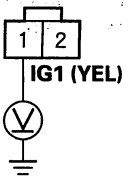
   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-223).

   Does the shift lock solenoid work properly?

   YES—Go to step 14.

   NO—Go to step 3.
3. Remove driver's center console trim (see step 5 on page 20-107).
4. Disconnect the shift lock solenoid connector.
5. Turn the ignition switch ON (II).
6. Measure the voltage between shift lock solenoid connector terminal No. 1 and body ground.

SHIFT LOCK SOLENOID CONNECTOR



Wire side of female terminals

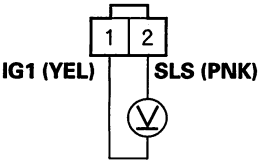
Is there battery voltage?

YES—Go to step 7.

NO—Check for a blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open or short in the wire between the shift lock solenoid connector terminal No. 1 and the under-dash fuse/relay box. ■

7. Shift the shift lever into the P position, and press the brake pedal. Do not press the accelerator.
8. Measure the voltage between shift lock solenoid connector terminals No. 1 and No. 2 while pressing the brake pedal.

SHIFT LOCK SOLENOID CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 9.

NO—Go to step 10.

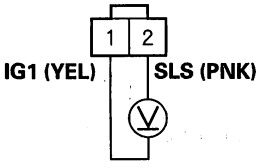
(cont'd)

Protected by AR

Shift Lock System Circuit Troubleshooting (cont'd)

9. Release the brake pedal, and measure the voltage between shift lock solenoid connector terminals No. 1 and No. 2. The shift lever must be in the P position.

SHIFT LOCK SOLENOID CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Repair short in the wire between PCM connector terminal A2 and the shift lock solenoid. ■

NO—Check the shift lock mechanism. If the mechanism is OK, replace the shift lock solenoid (see page 14-330). ■

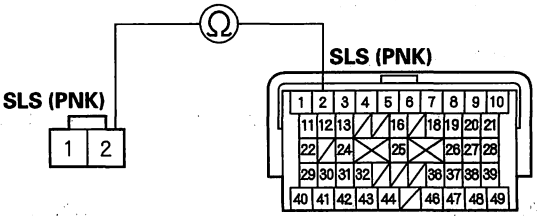
10. Turn the ignition switch OFF.

11. Jump the SCS line with the HDS.

12. Disconnect PCM connector A (49P).

13. Check for continuity between PCM connector terminal A2 and shift lock solenoid connector terminal No. 2.

SHIFT LOCK SOLENOID CONNECTOR **PCM CONNECTOR A (49P)**



Wire side of female terminals

Terminal side of female terminals

Is there continuity?

YES—Substitute a known-good PCM (see page 14-9) and recheck. ■

NO—Repair open in the wire between PCM connector terminal A2 and the shift lock solenoid. ■

BACK

Protected by AR

14. Press the brake pedal.

    Are the brake lights ON?

    YES—Go to step 15.

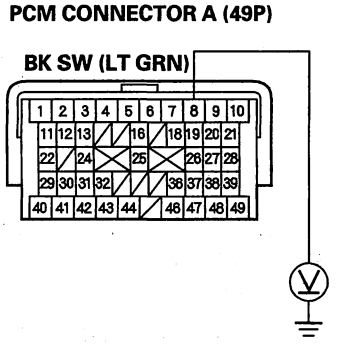
    NO—Repair faulty brake light circuit.■

15. Turn the ignition switch OFF.

16. Jump the SCS line with the HDS.

17. Disconnect PCM connector A (49P).

18. Measure the voltage between PCM connector terminal A8 and body ground while pressing the brake pedal and when the brake pedal is released.



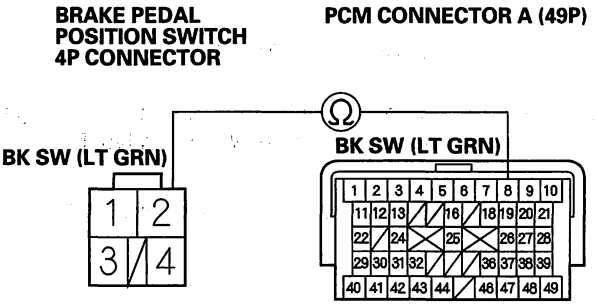
Terminal side of female terminals

Is there battery voltage while the brake pedal is pressed, and no voltage when the pedal is released?

YES—Go to step 20.

NO—Go to step 19.

19. Check for continuity between PCM connector terminal A8 and brake pedal position switch 4P connector terminal No. 2.



Wire side of female terminals

Terminal side of female terminals

Is there continuity?

YES—Substitute a known-good PCM (see page 14-9) and recheck.■

NO—Repair open in the wire between PCM connector terminal A8 and the brake pedal position switch.■

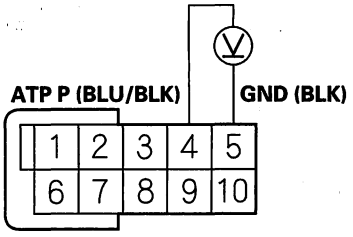
(cont'd)

Protected by AR

Shift Lock System Circuit Troubleshooting (cont'd)

20. Connect PCM connector A (49P).
21. Disconnect the transmission range switch connector.
22. Turn the ignition switch ON (II).
23. Measure the voltage between transmission range switch connector terminals No. 4 and No. 5.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

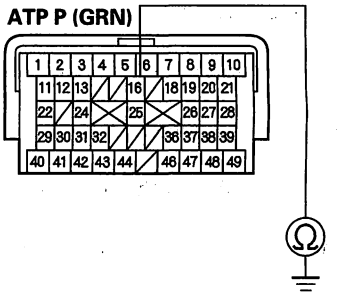
Is there battery voltage?

YES—Go to step 28.

NO—Go to step 24.

24. Turn the ignition switch OFF.
25. Disconnect PCM connector A (49P).
26. Check for continuity between PCM connector terminal A16 and body ground.

PCM CONNECTOR A (49P)



Terminal side of female terminals

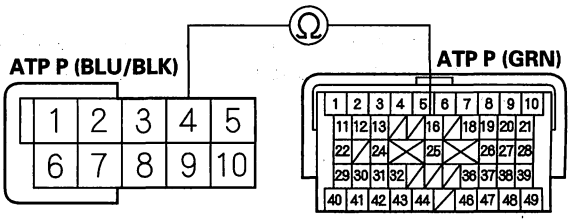
Is there continuity?

YES—Repair short in the wire between PCM connector terminal A16 and the transmission range switch connector. ■

NO—Go to step 27.

27. Check for continuity between PCM connector terminal A16 and transmission range switch connector terminal No. 4.

TRANSMISSION RANGE SWITCH CONNECTOR **PCM CONNECTOR A (49P)**



Wire side of female terminals

Terminal side of female terminals

Is there continuity?

YES—Go to step 28.

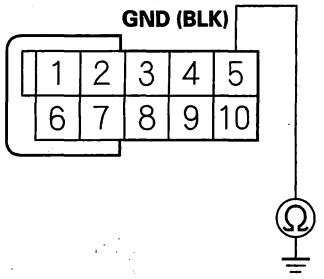
NO—Repair open in the wire between PCM connector terminal A16 and the transmission range switch connector. ■

BACK

Protected by AR

28. Check for continuity between transmission range switch connector terminal No. 5 and body ground.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good PCM (see page 14-9) and recheck.■

NO—Repair open in the wire between transmission range switch connector terminal No. 5 and ground (G101), or repair poor ground (G101).■

29. Test the transmission range switch (see page 14-315).

Is the switch OK?

YES—Go to step 30.

NO—Replace the transmission range switch (see page 14-316).■

30. Connect the HDS to the DLC.

31. Check the accelerator pedal position sensor 1 in the data list with the HDS. Do not press the accelerator.

Is the accelerator pedal position sensor 1 opening 11 % and above, or the sensor 1 voltage 0.90 V and above?

YES—Check the throttle body (see page 11-362).■

NO—Substitute a known-good PCM (see page 14-9) and recheck.■

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A/T Interlock System

Key Interlock System Circuit Troubleshooting

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repair or service.

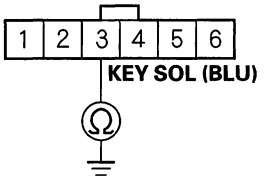
1. Turn the ignition switch to ACC (I). The shift lever must be in the P position.
2. Disconnect the steering lock assembly connector.
3. Check if the ignition switch can be turned to the LOCK (0) position.

   Can the ignition switch be turned the LOCK (0) position?

   YES—Go to step 4.

   NO—Replace the ignition key cylinder/steering lock assembly (see page 17-29).■
4. Turn the ignition switch OFF.
5. Shift the shift lever into any position other than P.
6. Check for continuity between steering lock assembly connector terminal No. 3 and body ground.

STEERING LOCK ASSEMBLY CONNECTOR



Wire side of female terminals

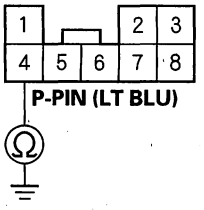
Is there continuity?

YES—Repair a short in the wire between key interlock solenoid and the MICU.■

NO—Go to step 7.

7. Remove driver's center console trim (see step 5 on page 20-107).
8. Disconnect transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector.
9. Check for continuity between transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector terminal No. 4 and body ground.

TRANSMISSION GEAR SELECTION SWITCH/ PARK PIN SWITCH/A/T GEAR POSITION INDICATOR PANEL LIGHT CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between transmission gear selection switch/park pin switch/ A/T gear position indicator panel light connector terminal No. 4 and the MICU.■

NO—Go to step 10.

BACK

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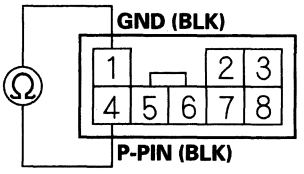
10. Shift the shift lever into the P position.

11. Check for continuity between transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector terminals No. 1 and No. 4. Do not push the shift lever button.

TRANSMISSION GEAR SELECTION SWITCH/ PARK PIN SWITCH/A/T GEAR POSITION INDICATOR PANEL LIGHT CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Replace the park pin switch (see page 14-332) and shift lever bracket base (see page 14-307). The park pin switch, transmission gear selection switch, and A/T gear position indicator panel light harness are not available separately from the shift lever bracket base. ■

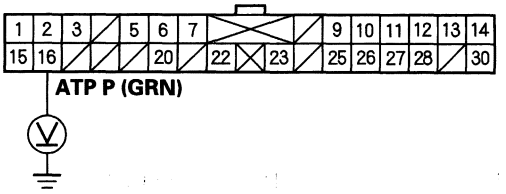
NO—Go to step 12.

12. Disconnect the multiplex integrated control unit 30P connector.

13. Turn the ignition switch ON (II).

14. Measure the voltage between multiplex integrated control unit 30P connector terminal No. 16 and body ground.

MULTIPLEX INTEGRATED CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

Is there battery voltage when the shift lever is in any position other than the P position, and no voltage when the shift lever is in the P position?

YES—Substitute a known-good multiplex integrated control unit (MICU) and recheck. ■

NO—Repair open or short in the wire between the MICU and the transmission range switch. ■

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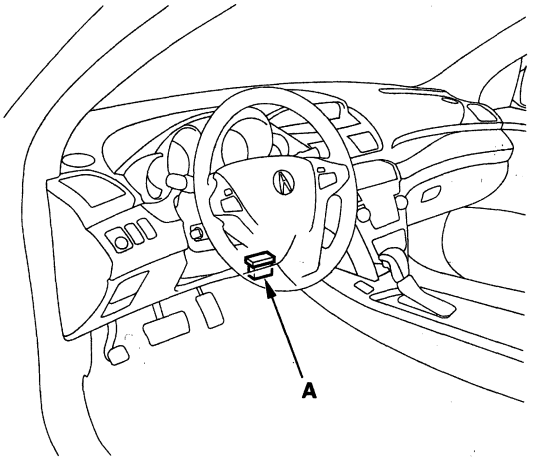
A/T Interlock System

Shift Lock Solenoid Test

1. Connect the HDS to the DLC (A).



2. Choose Shift Lock Solenoid Test in the Miscellaneous Test Menu, and check that the shift lock solenoid operates with the HDS.

   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-223).

3. Check that the shift lever can be moved out of the P position when Shift Lock Solenoid: ON. Move the shift lever back in the P position, and make sure it locks with Shift Lock Solenoid: OFF.

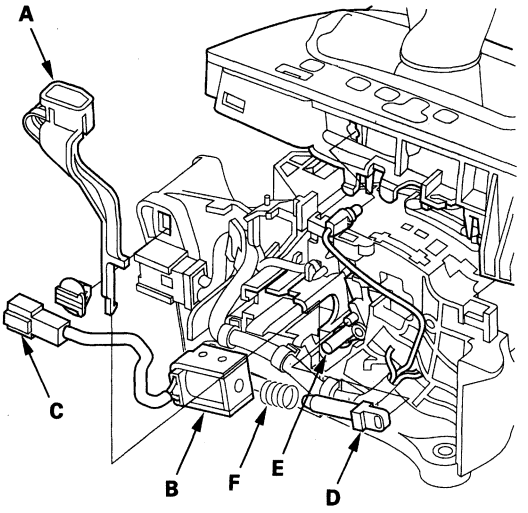
4. Check that the shift lock releases when the shift lock release is pushed, and check that it locks when the shift lock release is released.

5. If the shift lock solenoid does not work properly, perform shift lock system troubleshooting (see page 14-323).

Shift Lock Solenoid Replacement

1. Remove the shift lever (see page 14-304).

2. Remove the shift lock release (A).



3. Remove the shift lock solenoid (B) and harness connector (C), and replace the shift lock solenoid.

4. Apply silicone grease to joint of the new shift lock solenoid plunger (D) and shift lock stop (E).

5. Install the shift lock solenoid plunger and plunger spring (F) in the shift lock solenoid.

6. Install the new shift lock solenoid by aligning the joint of the shift lock solenoid plunger with the tip of the shift lock stop, then push the shift lock solenoid into the shift lever bracket base securely.

7. Install the shift lock solenoid connector on the shift lever bracket base.

8. Install the shift lock release.

9. Install the shift lever (see page 14-305).

BACK

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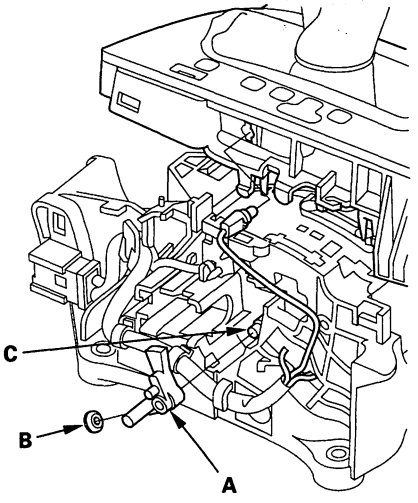
Shift Lock Stop, Shift Lock Stop Cushion Replacement

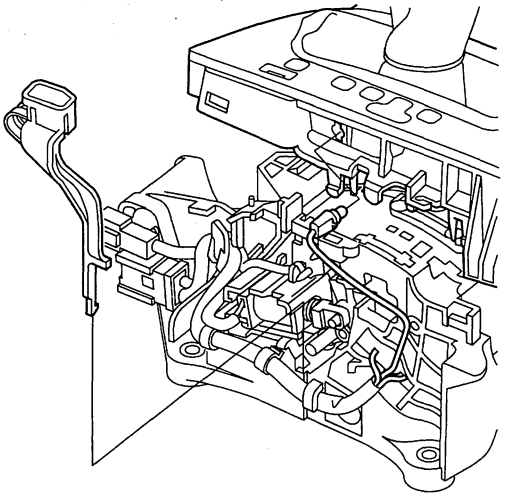
1. Remove the shift lock solenoid (see page 14-330).
2. Remove the shift lock stop (A) and stop cushion (B), and replace the shift lock stop or stop cushion.



3. Install the shift lock stop cushion on the shift lock stop.
4. Apply silicone grease to the pin (C) on the shift lever bracket base, and install the shift lock stop over the pin.
5. Install the shift lock solenoid (see page 14-330).

Shift Lock Release Replacement

1. Remove the shift lever (see page 14-304).
2. Remove the shift lock release, and replace it.



3. Install the shift lock release.
4. Install the shift lever (see page 14-305).

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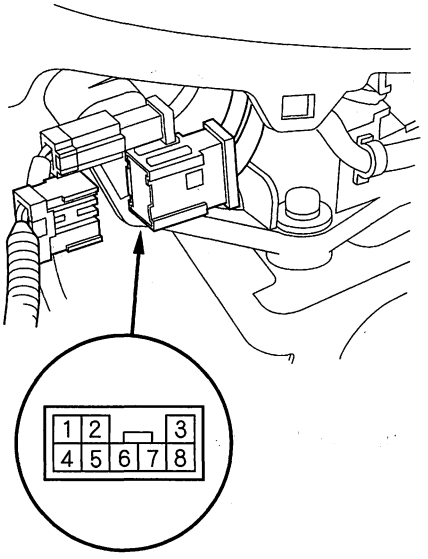
A/T Interlock System

Park Pin Switch Test

1. Remove the driver's center console trim (see step 5 on page 20-107).
2. Disconnect the transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector.



Terminal side of male terminals

3. Shift the shift lever into the P position, and check for continuity between transmission gear selection switch/park pin switch/A/T gear position indicator panel light connector terminals No. 1 and No. 4. There should be no continuity.
4. Shift out of the P position, and check for continuity between connector terminals No. 1 and No. 4. There should be continuity.
5. If the park pin switch fails the test, replace the park pin switch and shift lever bracket base as an assembly (see page 14-307). The park pin switch, transmission gear selection switch, and A/T gear position indicator panel light harness are not available separately from the shift lever bracket base.
6. Install the driver's center console trim (see step 5 on page 20-107).

Park Pin Switch Replacement

NOTE: The park pin switch is not available separately from the shift lever bracket base; replace the park pin switch (including the transmission gear selection switch and A/T gear position indicator panel light harness) and select lever bracket base as an assembly.

Replace the park pin switch and shift lever bracket base assembly (see page 14-307).

BACK

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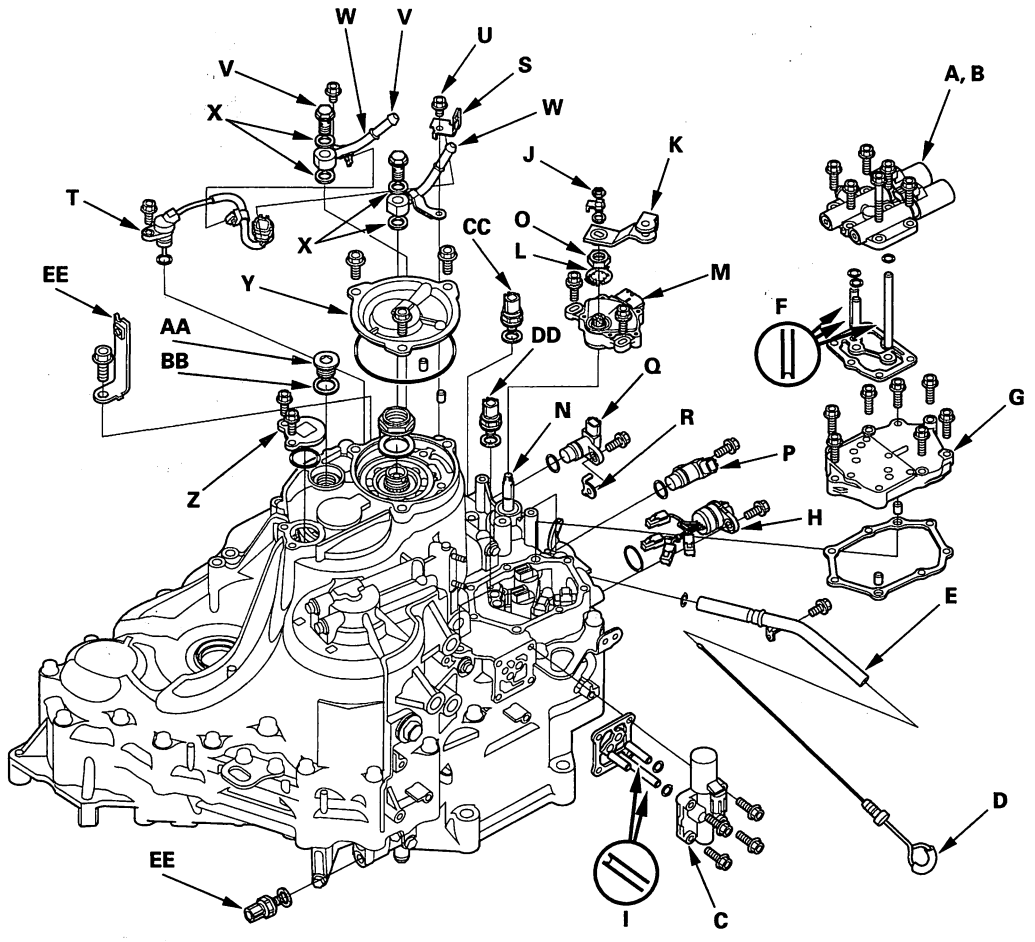
Transmission Disassembly

Special Tools Required
Mainshaft holder set 07GAB-PF50101

1. Remove the ATF dipstick (D) and the dipstick tube (E).



2. Remove A/T clutch pressure control solenoid valve A and B (six bolts), ATF feed pipes (F) (three), O-rings (three), and gasket.
3. Remove the solenoid valve cover (G) (seven bolts), dowel pins (two), and gasket.
4. Disconnect the solenoid valve connectors, then remove the solenoid harness connector (H).
5. Remove A/T clutch pressure control solenoid valve C (four bolts), ATF feed pipes (I) (three), O-rings (two), and gasket.
6. Pry the lock tab of the lock washer (J) on the control lever (K), and remove the nut, lock washer, spring washer, and control lever.

(cont'd)

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Transmission Disassembly (cont'd)

7. Pry up the lock tabs of the lock washer (K) on the transmission range switch (L), hold the selector control shaft (M) with a 6.0 mm wrench, and loosen the locknut (N).

8. Remove the locknut and lock washer, then remove the transmission range switch (two bolts).

9. Remove the input shaft (mainshaft) speed sensor (O), output shaft (countershaft) speed sensor (P), and sensor washer (Q).

10. Remove the ATF temperature sensor connector from the connector bracket (R) and the harness clamp from the clamp bracket, then remove the ATF temperature sensor (S).

11. Remove the connector bracket (R) and 6.0 mm bolt (T), then remove the line bolts (U), ATF cooler lines (V), and sealing washers (W).

12. Remove the end cover (X) (three bolts), snap ring cap (Y) (two bolts), sealing plug (Z), and washer (AA).

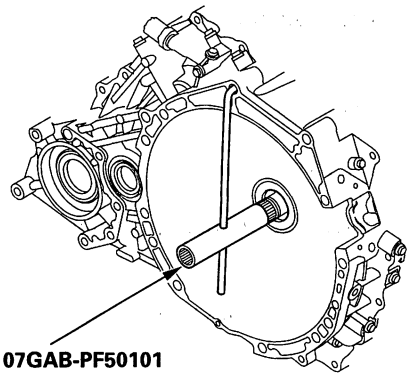
13. Remove the 3rd clutch transmission fluid pressure switch (BB) and sealing washer.

14. Remove the 4th clutch transmission fluid pressure switch (CC) and sealing washer.

15. Remove the 2nd clutch transmission fluid pressure switch (DD) and sealing washer.

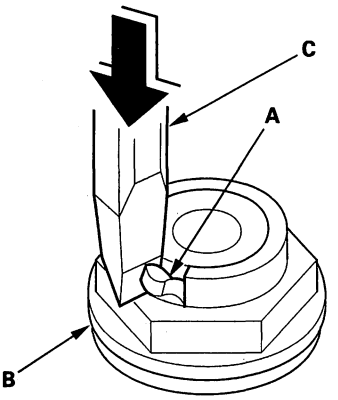
16. Remove the transmission ground terminal (EE).

17. Slip the mainshaft holder onto the mainshaft.

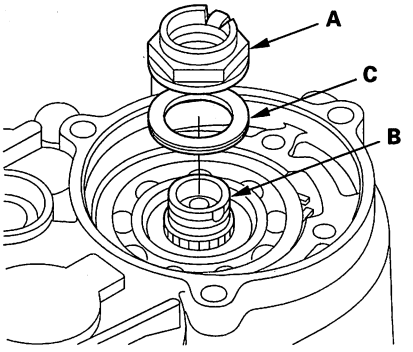


18. Cut the lock tab (A) of the mainshaft locknut (B) using a chisel (C).

    NOTE: Keep all of the chiseled particles out of the transmission.



19. Remove the locknut (A) from the mainshaft (B).



20. Pry the lock washer (C), and remove it.

BACK

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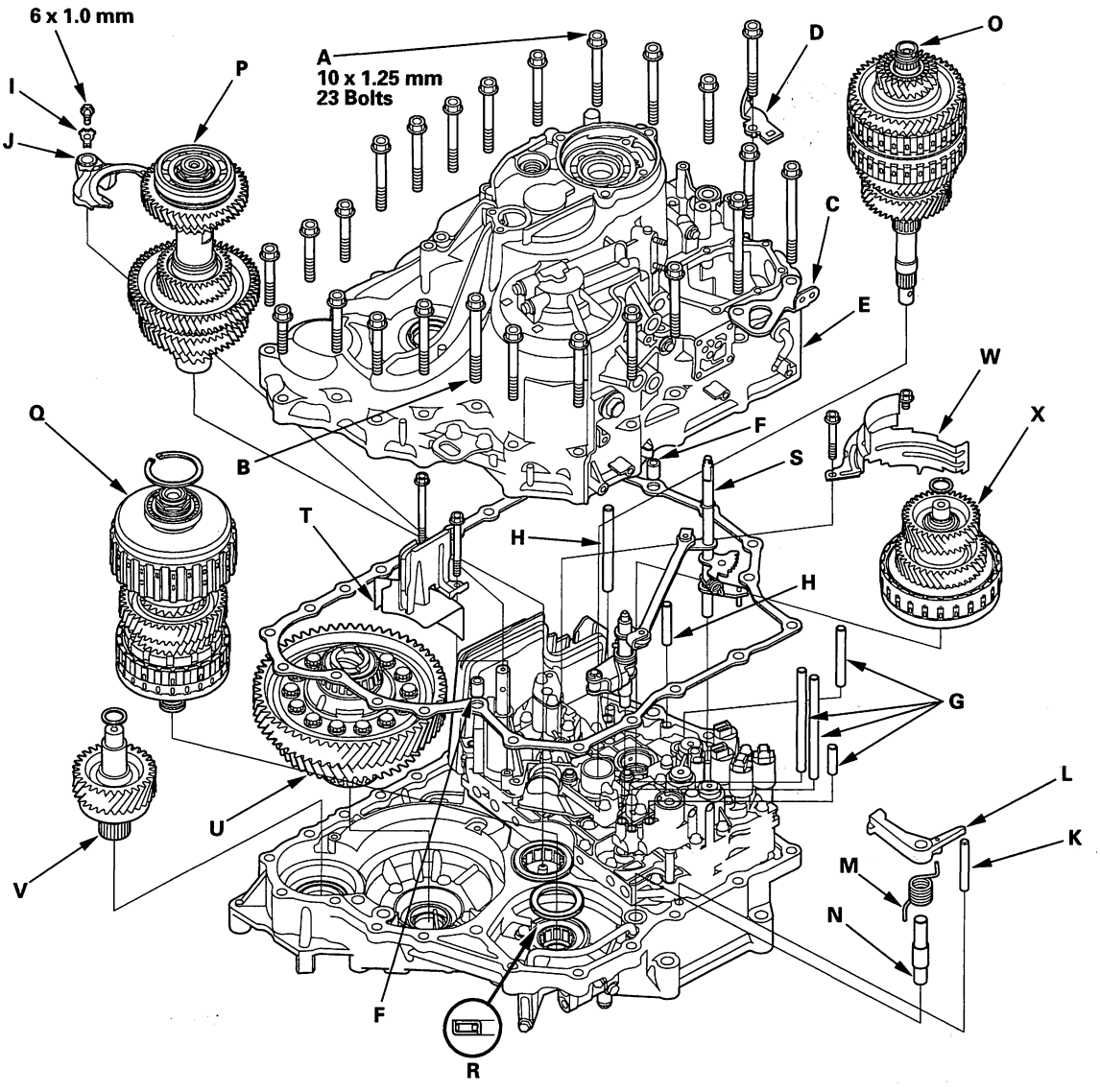
21. Remove the transmission housing mounting bolts (A) (23 bolts), special bolt (B), transmission hanger (C), and ground terminals bracket (D).



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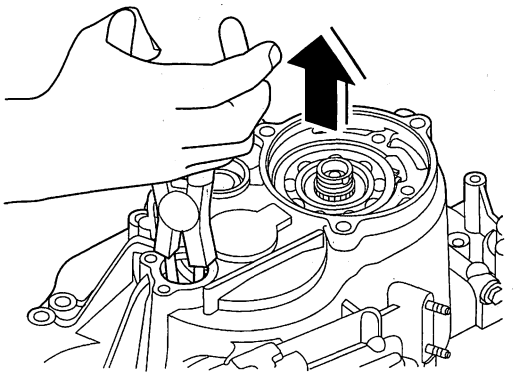
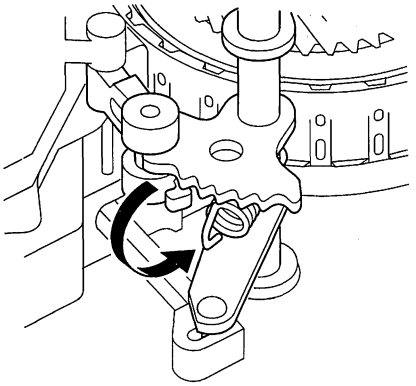
Transmission Disassembly (cont'd)

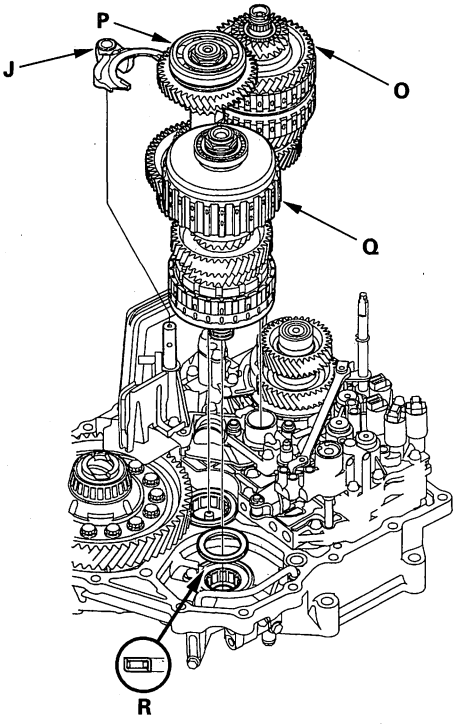
22. While expanding the snap ring of the countershaft bearing using the snap ring pliers, lift the transmission housing.



23. Release the pliers, and remove the transmission housing (E), two dowel pins (F), and gasket.
24. Remove the ATF feed pipes (G) (four) from the accumulator body.
25. Remove the ATF feed pipes (H) (two) from the torque converter housing.
26. Remove the mainshaft holder from the mainshaft.
27. Pry the lock tab of the lock washer (I) on the shift fork (J), then remove the bolt and lock washer.
28. Unlock the detent spring from the detent arm.



29. Remove the park pawl stop (K), park pawl (L), pawl spring (M), and pawl shaft (N).
30. Remove the mainshaft (O), countershaft (P), shift fork (J), and secondary shaft (Q) together, and remove the needle bearing (R) from the torque converter housing.



31. Remove the selector control shaft and park lever link (S).
32. Remove the baffle plate (T).
33. Remove the differential assembly (U).
34. Remove the transfer output shaft (V).
35. Remove the baffle plate (W).
36. Remove the intermediary shaft (X).

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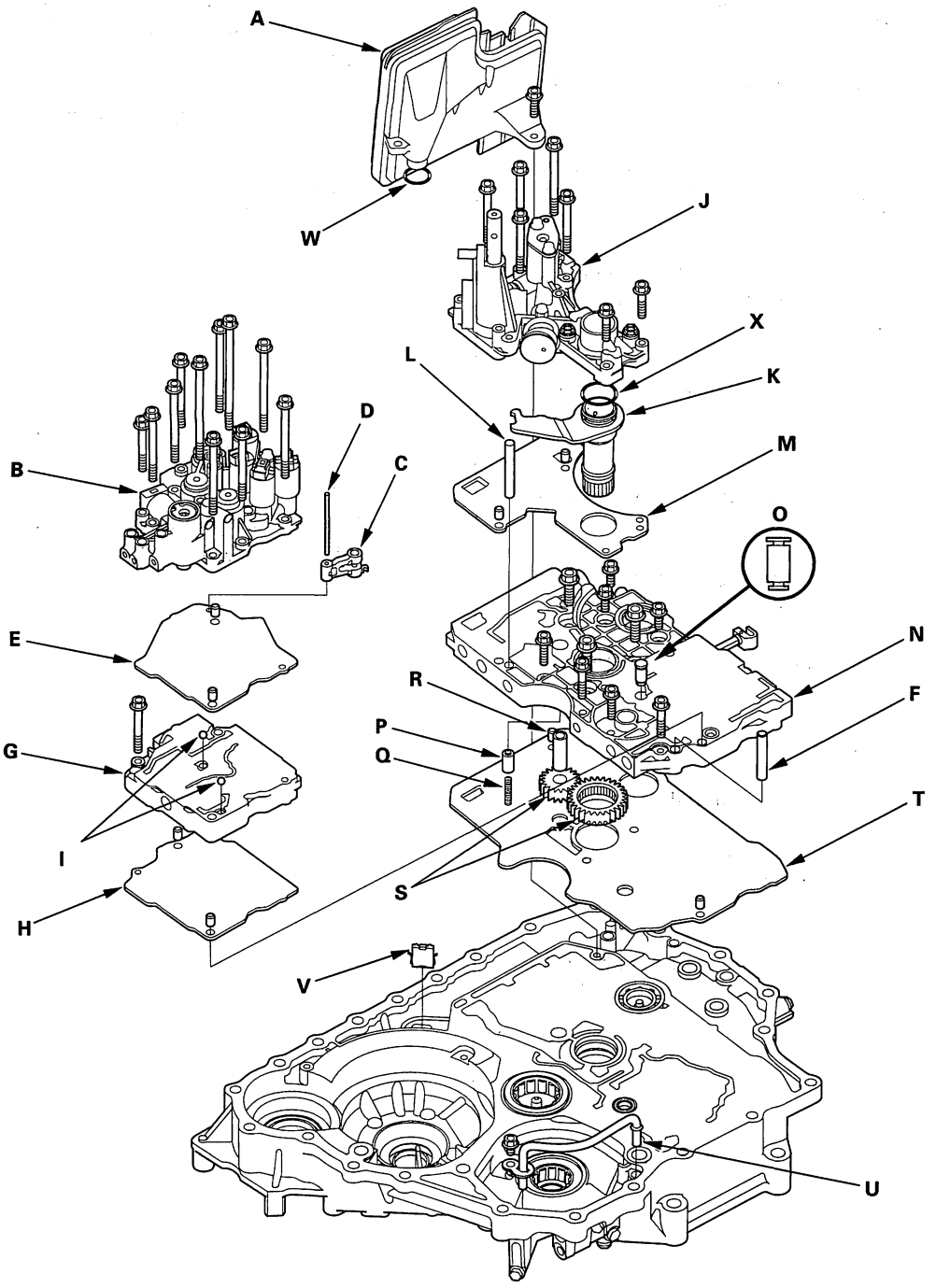
37. Remove the ATF strainer (A) (one bolt).



(cont'd)

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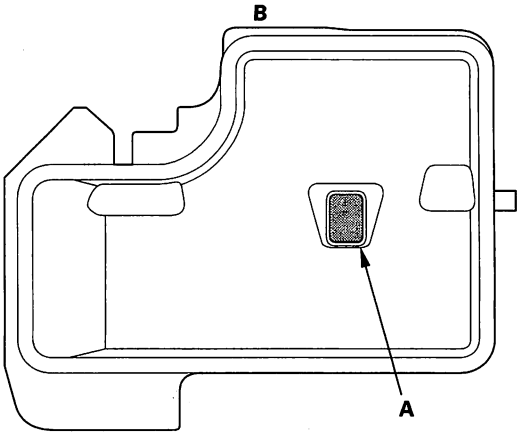
Transmission Disassembly (cont'd)

38. Remove the accumulator body (B) (11 bolts), dowel pins (two), detent arm (C), arm shaft (D), and separator plate (E).
39. Remove the ATF feed pipe (F) from the main valve body.
40. Remove the secondary valve body (G) (one bolt), dowel pins (two), and separator plate (H). Do not let the check balls (I) (two) fall out.
41. Remove the regulator valve body (J) (seven bolts), stator shaft (K), stator shaft stop (L), dowel pins (two), and separator plate (M).
42. Remove the main valve body (N) (8 mm: three bolts, 6 mm: seven bolts). Do not let the lubrication check valve (O) fall out.
43. Remove the torque converter check valve (P) and valve spring (Q).
44. Remove the ATF pump driven gear shaft (R), then remove the ATF pump gears (S).
45. Remove the dowel pins (two) and main separator plate (T).
46. Remove the ATF passage pipe (U).
47. Remove the ATF magnet (V), clean it, then reinstall.
48. Remove the O-ring (W) from the ATF strainer, and replace the new O-ring when reassembling the transmission.
49. Remove the O-ring (X) from the stator shaft, and replace the new O-ring when reassembling the transmission.
50. Clean the inlet opening (A) of the ATF strainer (B) thoroughly with compressed air, then check that it is good condition and that inlet opening is not clogged.



51. Test the ATF strainer by pouring clean ATF through the inlet opening, and replace if it is clogged or damaged.

BACK

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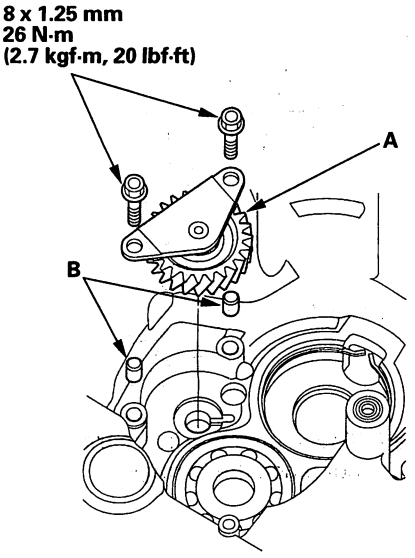
Reverse Idler Gear Removal/ Installation

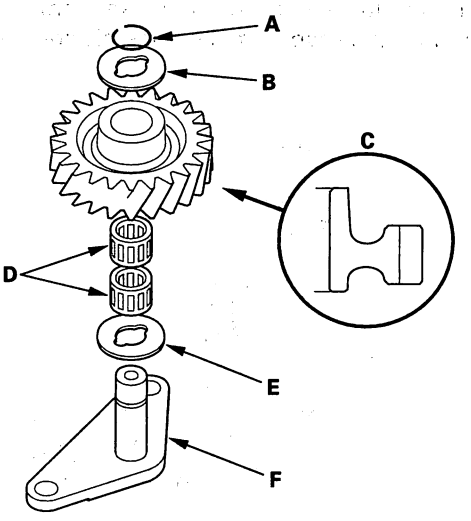
1. Remove the reverse idler gear assembly (A) from the transmission housing.



2. Install the reverse idler gear assembly with the two dowel pins (B) in the transmission housing.

Reverse Idler Gear Disassembly/ Inspection/Reassembly

1. Remove the snap ring (A), then remove the thrust washer (B), reverse idler gear (C), needle bearings (D), and thrust washer (E) from the reverse idler gear shaft/holder (F).



2. Inspect the reverse idler gear and gear shaft for excessive wear and damage.
3. Inspect the needle bearings for galling and rough movement.
4. Install the thrust washer and needle bearings over the gear shaft.
5. Install the reverse idler gear in the direction shown.
6. Install the thrust washer, then install the snap ring to secure the idler gear.

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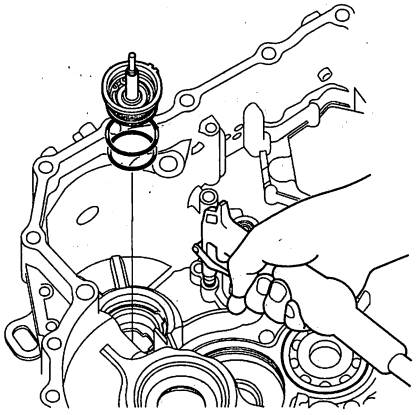
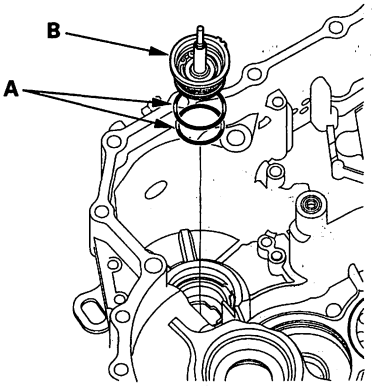
Secondary Shaft ATF Feed Pipe Cap Removal

1. Cover the tip of the 1st-hold clutch ATF feed pipe with a shop rag.
2. Apply air pressure to the ATF feed pipe hole of the 1st-hold clutch pressure circuit, and remove the ATF feed pipe cap from the transmission housing.



Secondary Shaft ATF Feed Pipe Cap Installation

1. Install the new O-rings (A) on the ATF feed pipe cap (B).



2. Install the ATF feed pipe cap in the transmission housing. Do not pinch the O-rings.

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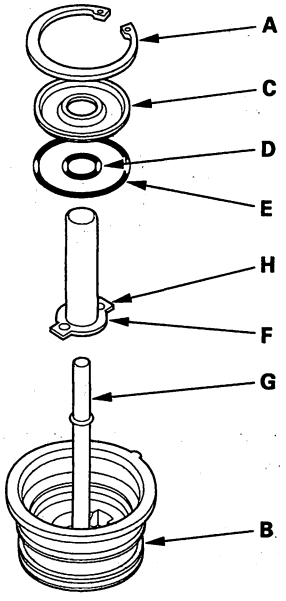
Secondary Shaft ATF Feed Pipe Cap, Feed Pipe Replacement

1. Remove the ATF feed pipe cap from the transmission housing (see page 14-340).

2. Remove the snap ring (A) from the feed pipe cap (B), then remove the feed pipe guide (C), O-rings (D) (E), and 1st clutch ATF feed pipe (F).



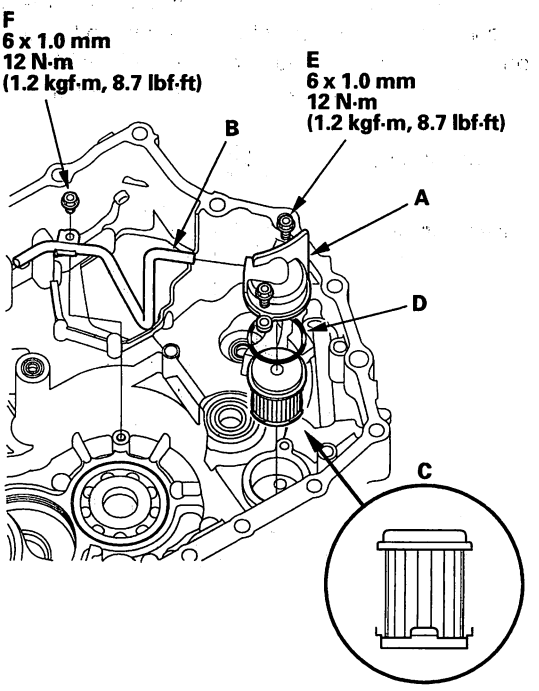
3. Replace the 1st clutch ATF feed pipe or 1st-hold clutch ATF feed pipe/ATF feed pipe cap assembly. The 1st-hold clutch ATF feed pipe/ATF feed pipe cap is not available separately.

4. Install the new O-ring (D) over the 1st clutch ATF feed pipe, then install the feed pipe over the 1st-hold clutch ATF feed pipe (G) while aligning the feed pipe tabs (H) with the guide in the cap.

5. Install the new O-ring (E) in the cap and feed pipe guide, then secure the guide with the snap ring.

ATF Filter Removal/Inspection/ Installation

1. Remove the three 6.0 mm bolts securing the ATF filter cover (A) and ATF pipe (B).



2. Remove the ATF pipe from the ATF filter cover, and remove the ATF filter (C) from the cover.

3. Clean the ATF filter, then check that it is in good condition, and is not clogged. Replace the ATF filter if it is clogged or damaged.

4. Install the ATF filter with the new O-ring (D) in the filter cover, and, install the ATF pipe in the cover, then install them in the transmission housing.

5. Secure the ATF filter cover with the two bolts (E), then secure the ATF pipe with the bolt (F).

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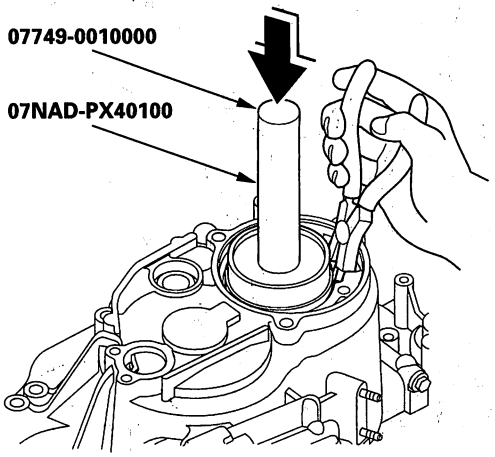
Mainshaft Bearing Removal

Special Tools Required
- Driver 07749-0010000
- Attachment, 78 x 80 mm 07NAD-PX40100

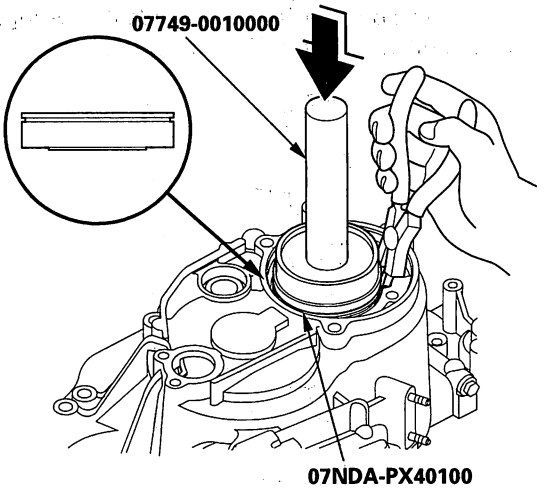
1. To remove the mainshaft bearing, expand the snap ring with the snap ring pliers, then push the bearing out. Do not remove the snap ring unless it's necessary to clean the groove in the housing.



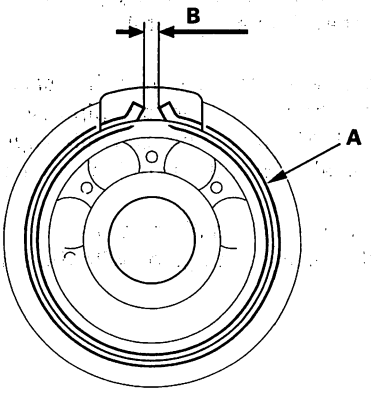
Mainshaft Bearing Installation

Special Tools Required
- Driver 07749-0010000
- Attachment, 78 x 80 mm 07NAD-PX40100

1. Install the bearing in the direction shown.



2. Expand the snap ring with the snap ring pliers, and insert the bearing part-way into the housing.
3. Release the pliers, then push the bearing down into housing until the snap ring snaps in place around it.
4. After installing the bearing, verify that the snap ring (A) is seated in the bearing and housing groove, and that the ring end gap (B) is 0—7 mm (0—0.28 in.).



BACK

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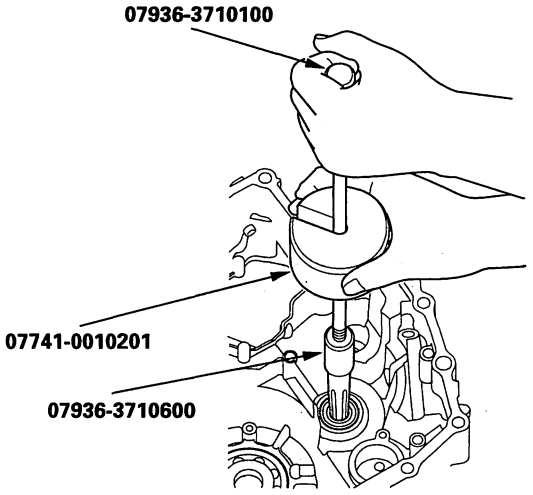
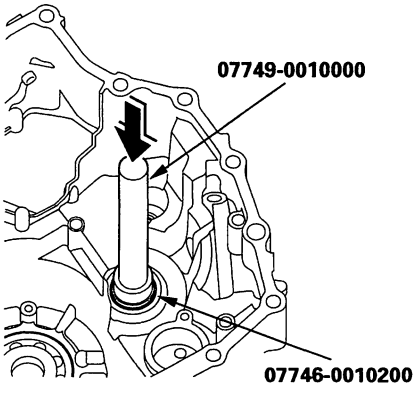
Intermediary Shaft Bearing Replacement

Special Tools Required
- Bearing remover shaft set, 20 mm 07936-3710600
- Bearing remover shaft handle 07936-3710100
- Sliding hammer weight 07741-0010201
- Driver 07749-0010000
- Attachment, 37 x 40 mm 07746-0010200

1. Remove the intermediary shaft bearing from the transmission housing using the bearing remover shaft set (20 mm), the bearing shaft handle, and the sliding hammer weight.



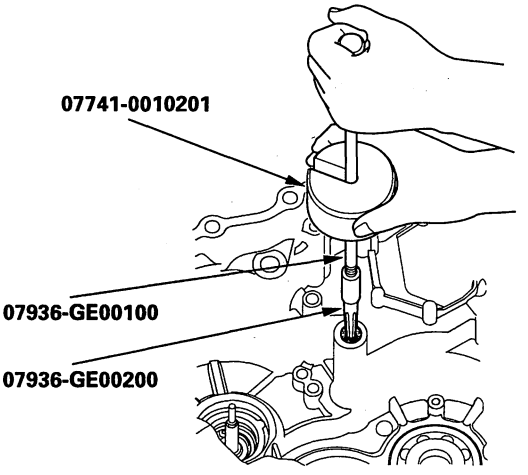
2. Install the new bearing until it bottoms in the transmission housing using the driver and the attachment (37 x 40 mm).



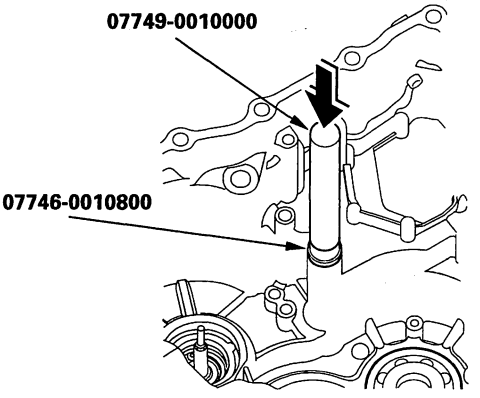
Park Lever Shaft Bearing Replacement

Special Tools Required
- Bearing remover shaft, 10 mm 07936-GE00100
- Bearing remover head, 10 mm 07936-GE00200
- Sliding hammer weight 07741-0010201
- Driver 07749-0010000
- Attachment, 22 x 24 mm 07746-0010800

1. Remove the park lever shaft bearing from the transmission housing using the bearing remover head (10 mm), the bearing remover shaft (10 mm), and the sliding hammer weight.



2. Install the new bearing until it bottoms in the transmission housing using the driver and the attachment (22 x 24 mm).



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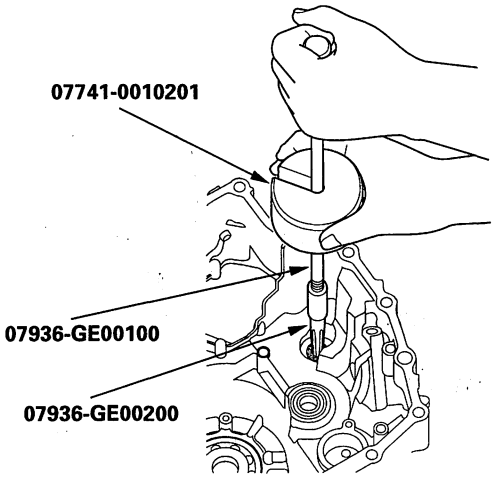
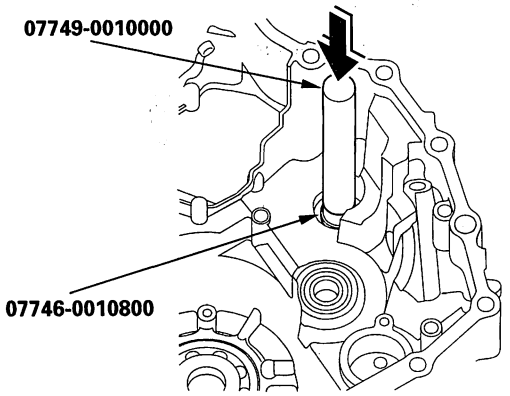
Selector Control Shaft Bearing Replacement

Special Tools Required
- Bearing remover shaft, 10 mm 07936-GE00100
- Bearing remover head, 10 mm 07936-GE00200
- Sliding hammer weight 07741-0010201
- Driver 07749-0010000
- Attachment, 22 x 24 mm 07746-0010800

1. Remove the control shaft bearing from the transmission housing using the bearing remover head (10 mm), the bearing remover shaft (10 mm), and the sliding hammer weight.



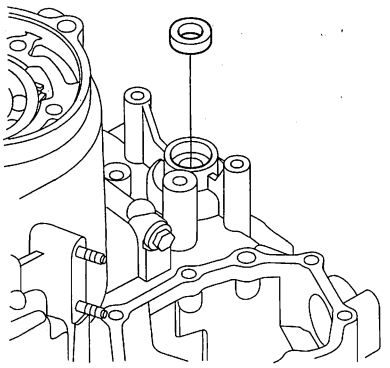
2. Install the new bearing in the transmission housing using the driver and the attachment (22 x 24 mm).



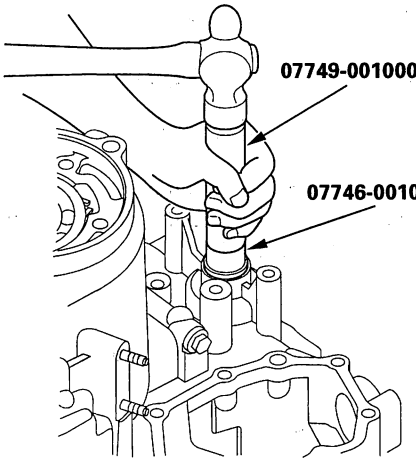
Selector Control Shaft Oil Seal Replacement

Special Tools Required
- Driver 07749-0010000
- Attachment, 22 x 24 mm 07746-0010800

1. Remove the oil seal from the transmission housing.



2. Install the new oil seal in the transmission housing using the driver and the attachment (22 x 24 mm).



BACK

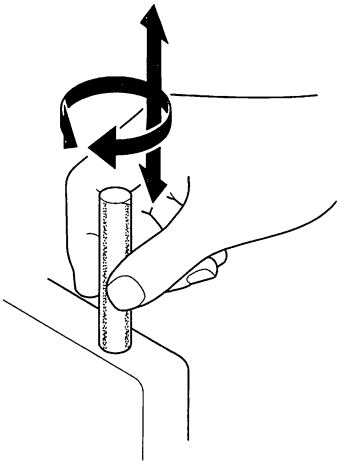
Protected by AR

Valve Body Repair

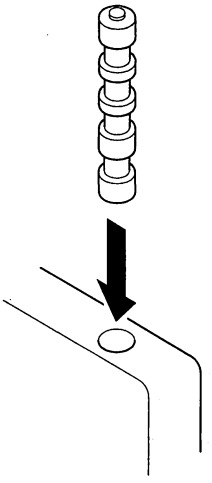
NOTE: Valve body repair is only necessary if one or more of the valves in a valve body do not slide smoothly in their bores. Use this procedure to free the valves.

1. Soak a sheet of #600 abrasive paper in ATF for about 30 minutes.
2. Carefully tap the valve body so the sticking valve drops out of its bore. It may be necessary to use a small screwdriver to pry the valve free. Be careful not to scratch the bore with the screwdriver.
3. Inspect the valve for any scuff marks. Use the ATF-soaked #600 paper to polish off any burrs that are on the valve, then wash the valve in solvent and dry it with compressed air.
4. Roll up half of the ATF-soaked #600 paper and insert it in the valve bore of the sticking valve. Twist the paper slightly, so that it unrolls and fits the bore tightly, then polish the bore by twisting the paper as you push it in and out.

   NOTE: The valve body is aluminum and doesn't require much polishing to remove any burrs.



5. Remove the #600 paper. Thoroughly wash the entire valve body in solvent, then dry it with compressed air.
6. Coat the valve with ATF, then drop it into its bore. It should drop to the bottom of the bore under its own weight. If not, repeat steps 4 and 5, then retest. If the valve still sticks, replace the valve body.



7. Remove the valve, and thoroughly clean it and the valve body with solvent. Dry all parts with compressed air, then reassemble using ATF as a lubricant.

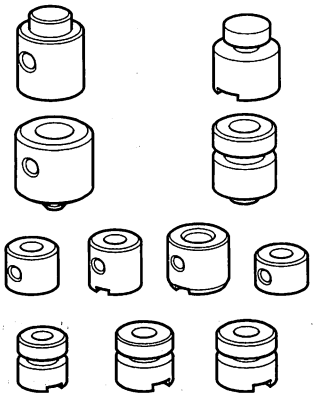
BACK

Protected by AR

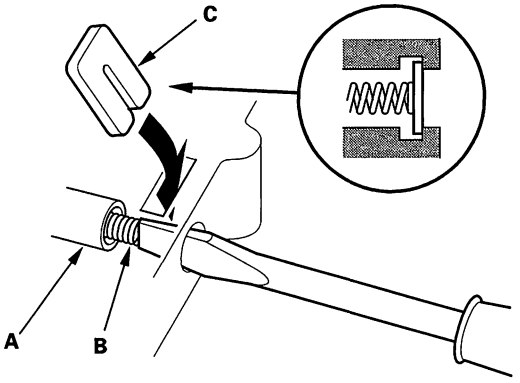
Valve Body Valve Installation

1. Coat all parts with ATF before assembly.

2. Install the valves and springs in the sequence shown for the main valve body (see page 14-347), secondary valve body (see page 14-349), regulator valve body (see page 14-350), and accumulator body (see page 14-351). Refer to the following valve cap illustrations, and install each valve cap so the end shown facing up will be facing the outside of the valve body, then secure the valve cap with the valve cap clip.



3. Install the valve (A) and valve spring (B) in the valve body. Push the valve spring in with a screwdriver, then install the spring seat (C).

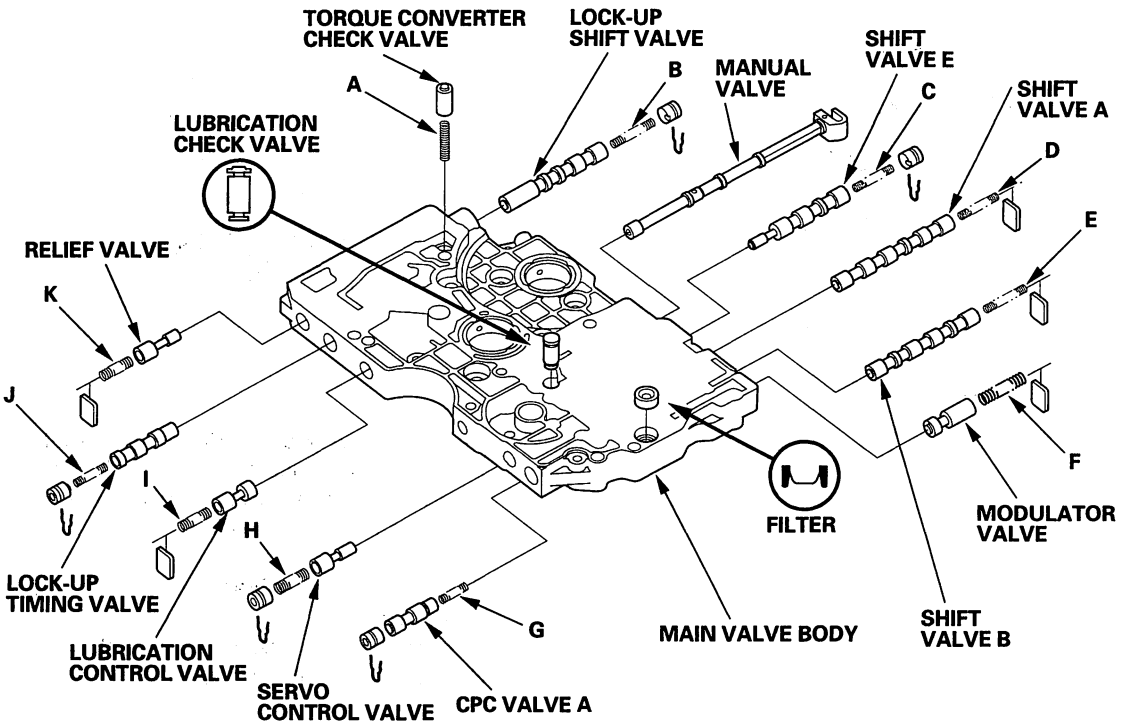


BACK

Protected by AR

Main Valve Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent, and dry them with compressed air. Blow out all passages.
2. Inspect the main valve body for scoring and damage.
3. Check all valves for free movement. If any fail to slide freely, refer to valve body repair (see page 14-345).
4. Coat all parts with ATF during assembly.
5. Replace the filter with new one, and install it and the lubrication check valve in the direction shown.



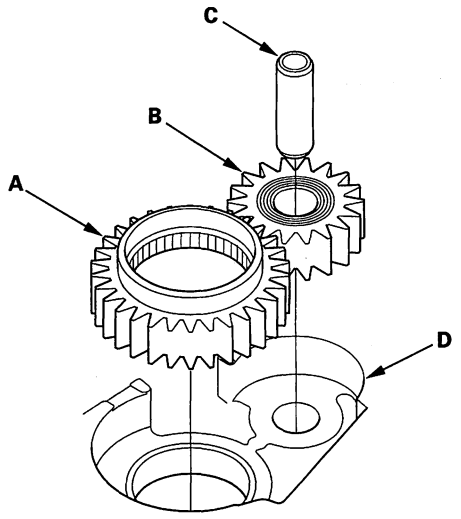
VALVE SPRING SPECIFICATIONS

Valve Springs		Standard (New)-Unit: mm (in.)			
		Wire Diameter	O.D.	Free Length	No. of Coils
A	Torque converter check valve spring	1.1 (0.043)	8.6 (0.339)	34.3 (1.350)	10.1
B	Lock-up shift valve spring	1.0 (0.039)	6.6 (0.260)	35.5 (1.398)	18.2
C	Shift valve E spring	0.7 (0.028)	6.6 (0.260)	42.4 (1.669)	17.6
D	Shift valve A spring	0.9 (0.035)	6.6 (0.260)	50.5 (1.988)	23.3
E	Shift valve B spring	0.8 (0.031)	6.6 (0.260)	49.1 (1.933)	21.7
F	Modulator valve spring	1.6 (0.063)	10.4 (0.409)	33.5 (1.319)	9.8
G	CPC valve A spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9
H	Servo control valve spring	0.9 (0.035)	9.6 (0.378)	30.2 (1.189)	8.4
I	Lubrication control valve spring	0.9 (0.035)	8.7 (0.343)	25.0 (0.984)	7.2
J	Lock-up timing valve spring	0.6 (0.024)	6.6 (0.260)	30.9 (1.217)	11.1
K	Relief valve spring	1.0 (0.039)	9.6 (0.378)	28.1 (1.106)	7.7

Protected by AR

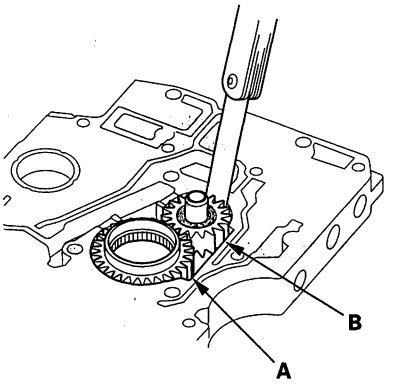
ATF Pump Inspection

1. Install the ATF pump drive gear (A), driven gear (B), and ATF pump driven gear shaft (C) in the main valve body (D). Lubricate all parts with ATF, and install the ATF pump driven gear with its grooved and chamfered side facing up.



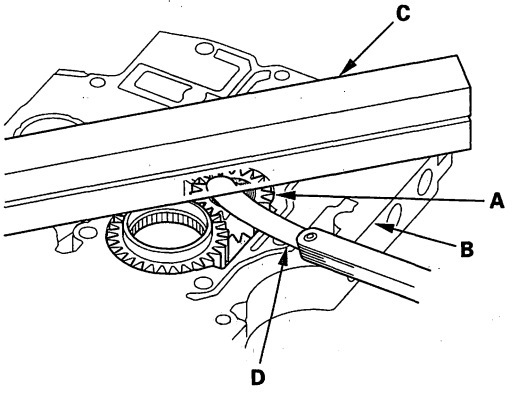
2. Measure the side clearance of the ATF pump drive gear (A) and driven gear (B).

ATF Pump Gears Side (Radial) Clearance
Standard (New):
ATF Pump Drive Gear:
0.210—0.265 mm (0.0083—0.00104 in.)
ATF Pump Driven Gear:
0.070—0.125 mm (0.0028—0.0050 in.)



3. Remove the ATF pump driven gear shaft. Measure the thrust clearance between the ATF pump driven gear (A) and the valve body (B) with a straight edge (C) and a feeler gauge (D).

ATF Pump Drive/Driven Gear Thrust (Axial) Clearance:
Standard (New): 0.03—0.06 mm (0.001—0.002 in.)
Service Limit: 0.07 mm (0.003 in.)

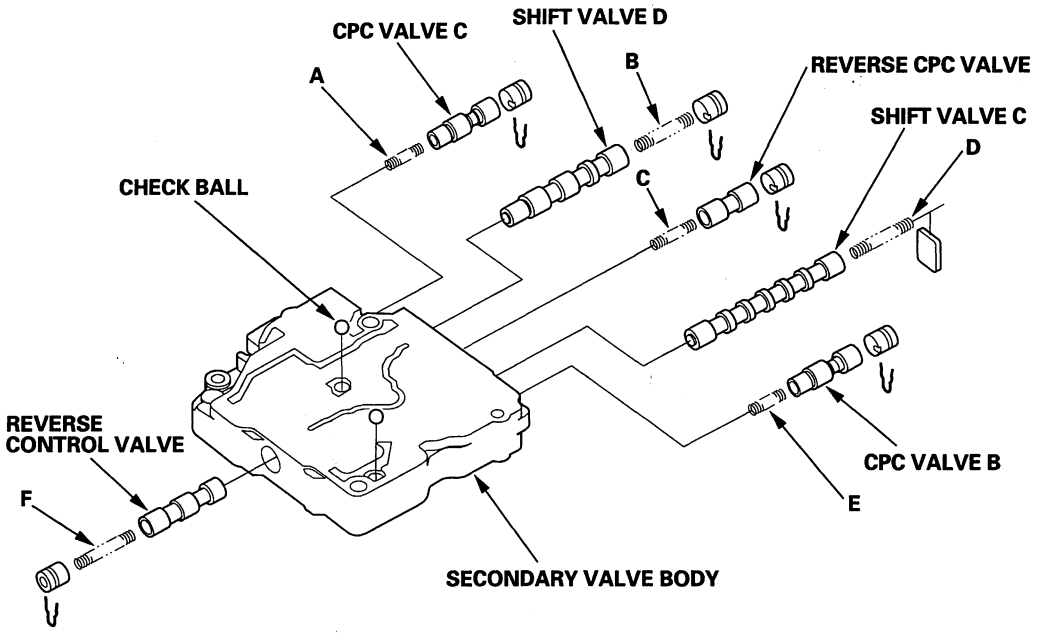


BACK

Protected by AR

Secondary Valve Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent, and dry them with compressed air. Blow out all passages.
2. Do not use a magnet to remove the check balls, it may magnetize the check balls.
3. Inspect the secondary valve body for scoring and damage.
4. Check all valves for free movement. If any fail to slide freely, refer to valve body repair (see page 14-345).
5. Coat all parts with ATF during assembly.



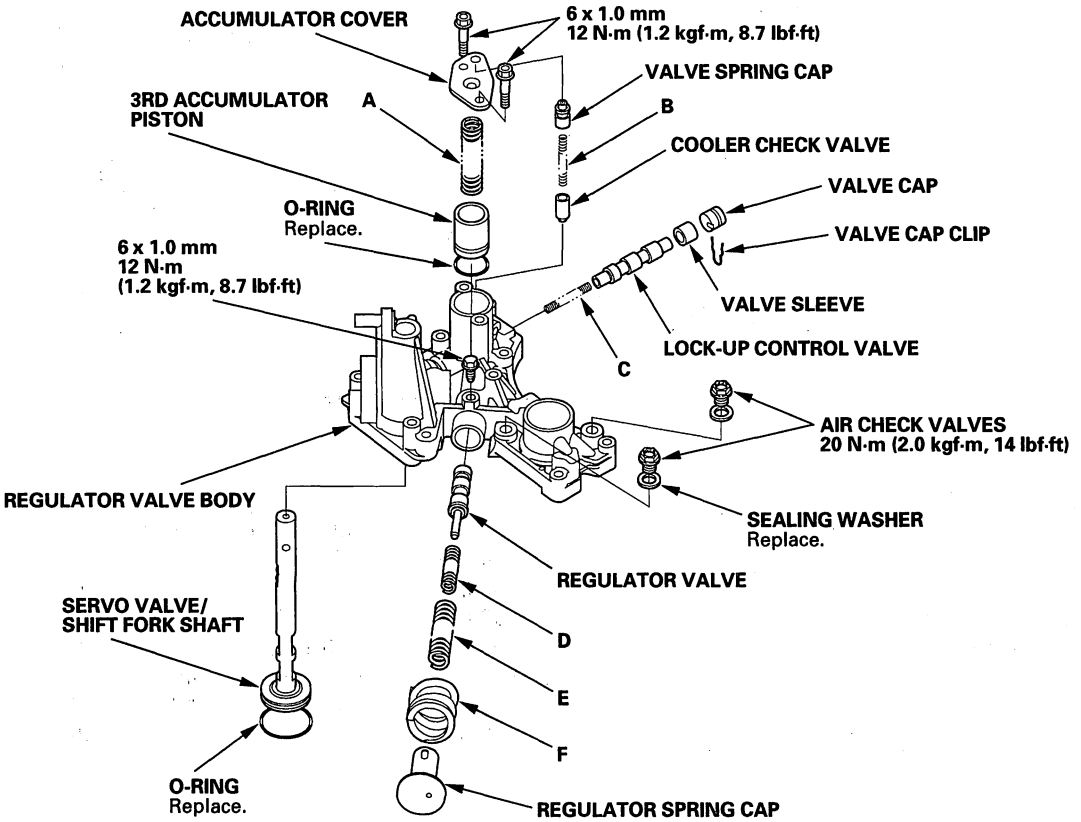
VALVE SPRING SPECIFICATIONS

Valve Springs		Standard (New)-Unit: mm (in.)			
		Wire Diameter	O.D.	Free Length	No. of Coils
A	CPC valve C spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9
B	Shift valve D spring	0.7 (0.028)	6.6 (0.260)	42.4 (1.669)	17.6
C	Reverse CPC valve spring	0.8 (0.031)	6.1 (0.240)	24.4 (0.961)	14.6
D	Shift valve C spring	0.8 (0.031)	6.6 (0.260)	49.1 (1.933)	21.7
E	CPC valve B spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9
F	Reverse control valve spring	0.8 (0.031)	6.6 (0.260)	49.1 (1.933)	21.7

Protected by AR

Regulator Valve Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent, and dry them with compressed air. Blow out all passages.
2. Inspect the regulator valve body for scoring and damage.
3. Hold the regulator spring cap in place while removing the stop bolt. The regulator spring cap is spring loaded. Once the stop bolt is removed, release the spring cap slowly so it does not pop out.
4. Check all valves for free movement. If any fail to slide freely, refer to valve body repair (see page 14-345).
5. Coat all parts with ATF during assembly.
6. Align the hole in the regulator spring cap with the stop bolt hole, then press the spring cap into the valve body, and tighten the stop bolt.
7. Install the servo valve with the new O-ring, and 3rd accumulator piston with the new O-ring.



VALVE SPRING SPECIFICATIONS

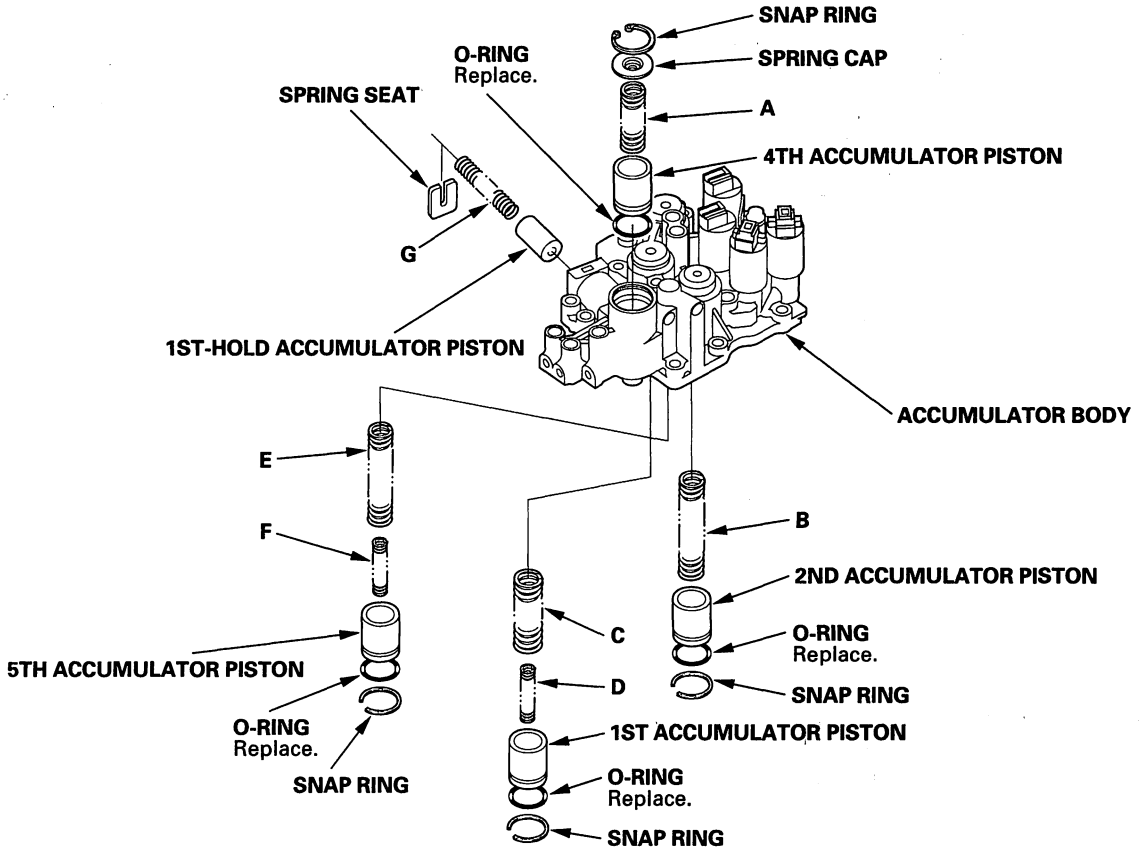
Valve Springs		Standard (New)-Unit: mm (in.)			
		Wire Diameter	O.D.	Free Length	No. of Coils
A	3rd accumulator spring	3.1 (0.122)	19.6 (0.772)	41.4 (1.630)	5.5
B	Cooler check valve spring	0.9 (0.035)	6.7 (0.264)	31.5 (1.240)	14.2
C	Lock-up control valve spring	0.7 (0.028)	6.6 (0.260)	42.9 (1.689)	14.2
		0.8 (0.031)	6.6 (0.260)	44.3 (1.744)	25.5
D	Regulator valve spring B	1.4 (0.055)	8.8 (0.346)	44.0 (1.732)	12.0
E	Regulator valve spring A	1.85 (0.073)	14.7 (0.579)	86.9 (3.421)	16.2
F	Stator reaction spring	5.5 (0.217)	37.4 (1.472)	30.3 (1.193)	2.1

BACK

Protected by AR

Accumulator Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent, and dry them with compressed air. Blow out all passages.
2. Inspect the accumulator body for scoring and damage.
3. Coat all parts with ATF during assembly.
4. Replace the O-rings with new ones.



VALVE SPRING SPECIFICATIONS

Valve Springs		Standard: (New)-Unit mm (in.)			
		Wire Diameter	O.D.	Free Length	No. of Coils
A	4th accumulator spring	3.3 (0.130)	19.6 (0.772)	39.1 (1.539)	5.8
B	2nd accumulator spring	3.1 (0.122)	19.6 (0.772)	53.4 (2.102)	7.5
C	1st accumulator spring A	2.3 (0.091)	19.6 (0.772)	60.8 (2.394)	9.5
D	1st accumulator spring B	2.5 (0.098)	12.8 (0.504)	46.0 (1.811)	9.5
E	5th accumulator spring A	2.4 (0.094)	19.6 (0.772)	65.5 (2.579)	12.0
F	5th accumulator spring B	2.6 (0.102)	13.2 (0.520)	50.5 (1.988)	10.1
G	1st-hold accumulator spring	2.0 (0.079)	13.1 (0.516)	42.9 (1.689)	9.8

BACK

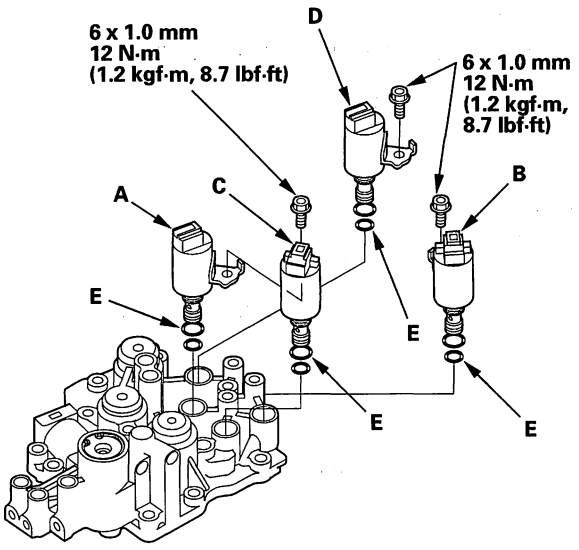
Protected by AR

Shift Solenoid Valve Removal and Installation

NOTE: Do not hold the solenoid valve connector to remove and install the solenoid valve. Be sure to hold the solenoid valve body.

1. Remove the mounting bolts, then remove the solenoid valves by holding the solenoid valve body.
2. Install the new O-rings (E) on each solenoid valves.

   NOTE: If you are installing a new solenoid valve, it comes with new O-rings already installed.



3. Install shift solenoid valve D (black connector) by holding the shift solenoid valve body; be sure to install mounting bracket contacts to the accumulator body.
4. Install shift solenoid valve A (black connector) by holding the shift solenoid valve body; be sure to install mounting bracket contacts to the accumulator body.
5. Install shift solenoid valve C (brown connector) by holding the shift solenoid valve body; be sure to position the mounting bracket on top of the bracket of shift solenoid valve A.

   NOTE: Do not install shift solenoid valve C before installing shift solenoid valve A. If shift solenoid valve C is installed before installing shift solenoid valve A, it may damage to hydraulic control system.
6. Install shift solenoid valve B (brown connector) by holding the shift solenoid valve body; be sure the mounting bracket contacts the accumulator body.

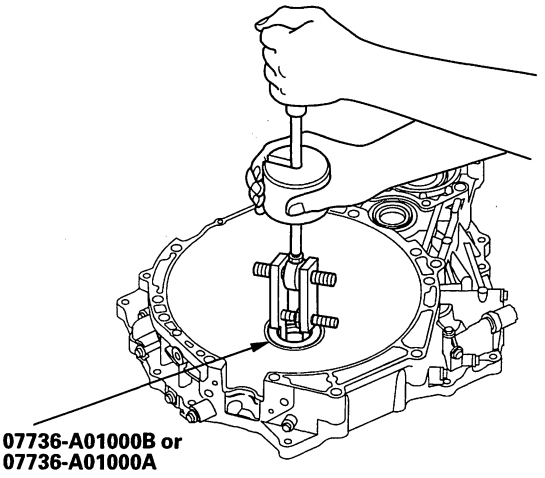
BACK

Protected by AR

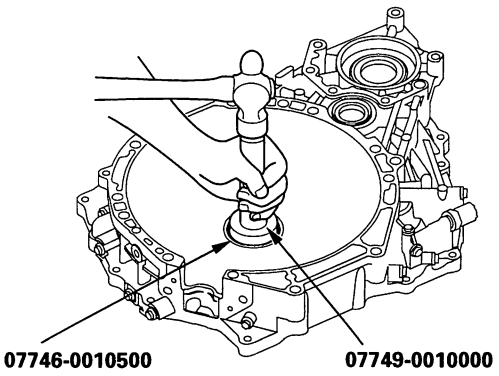
Mainshaft Bearing and Oil Seal Replacement

Special Tools Required
- Adjustable bearing puller, 25—40 mm 07736-A01000B or 07736-A01000A
- Driver 07749-0010000
- Attachment, 62 x 68 mm 07746-0010500
- Attachment, 72 x 75 mm 07746-0010600

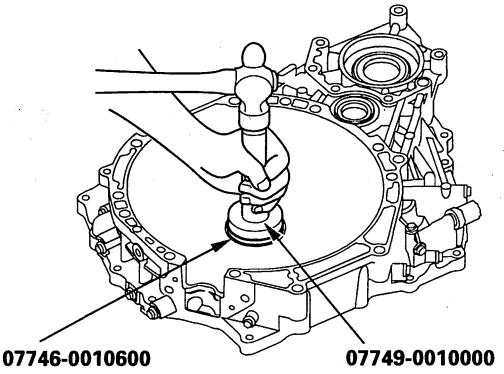
1. Remove the mainshaft bearing and oil seal using the adjustable bearing puller (25—40 mm) and a commercially available 3/8 "-16 slide hammer (A).



2. Install the new mainshaft bearing until it bottoms in the housing using the driver and the attachment (62 x 68 mm).



3. Install the new oil seal flush to the housing using the driver and the attachment (72 x 75 mm).



BACK

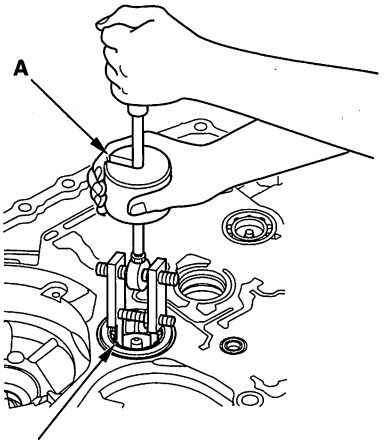
Protected by AR

Torque Converter Housing

Countershaft Bearing Replacement

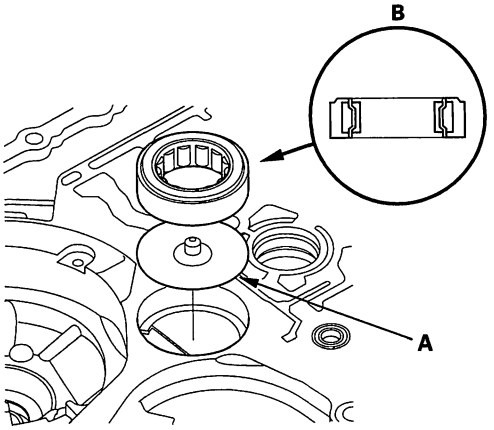
Special Tools Required
- Adjustable bearing puller, 25—40 mm 07736-A01000B or 07736-A01000A
- Driver 07749-0010000
- Attachment, 78 x 80 mm 07NAD-PX40100

1. Remove the countershaft bearing from the torque converter housing using the adjustable bearing puller (25—40 mm) and a commercially available 3/8 ″-16 slide hammer (A).

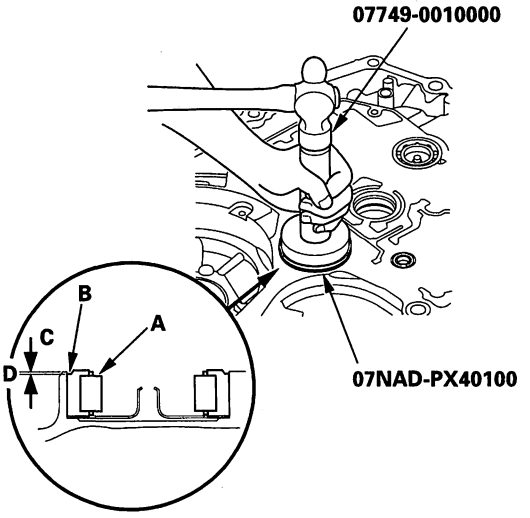


07736-A01000B or 07736-A01000A

2. Install the ATF guide plate (A) into the housing, then install the new bearing (B) in the direction shown.



3. Install the bearing (A) in the housing using the driver and the attachment (78 x 80 mm); install bearing outer notch-cut (B) in depth (C) of 0—0.03 mm (0—0.001 in.) below the housing surface (D).



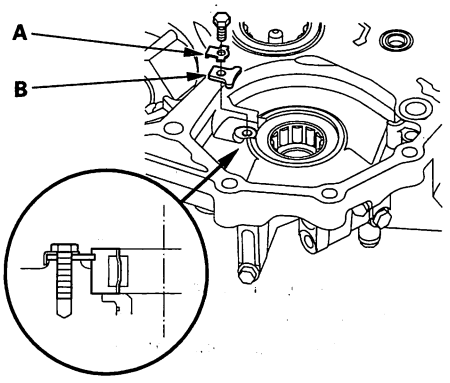
BACK

Protected by AR

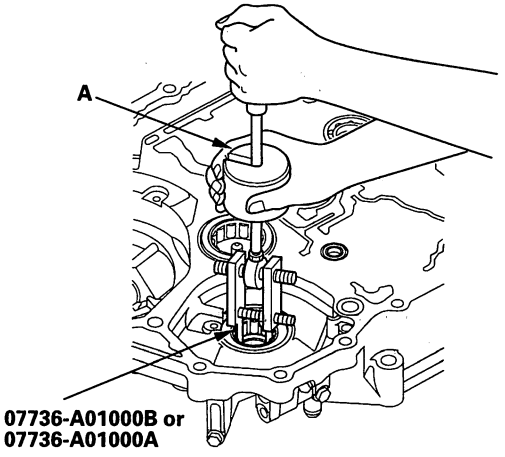
Secondary Shaft Bearing Replacement

Special Tools Required
- Adjustable bearing puller, 25—40 mm 07736-A01000B or 07736-A01000A
- Bearing remover shaft set, 30 mm 07936-8890300
- Bearing remover shaft handle 07936-3710100
- Sliding hammer weight 07741-0010201
- Driver 07749-0010000
- Attachment, 37 x 40 mm 07746-0010200
- Attachment, 62 x 68 mm 07746-0010500

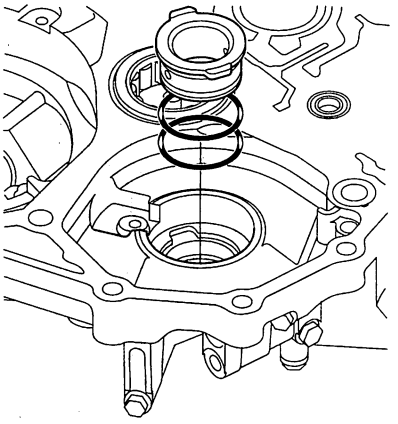
1. Remove the bolt, then remove the lock washer (A) and bearing set plate (B).



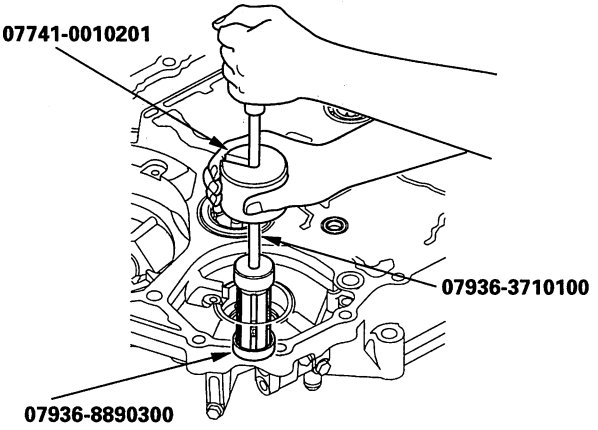
2. Remove the secondary shaft bearing from the torque converter housing using the adjustable bearing puller (25—40 mm) and a commercially available 3/8 ″-16 slide hammer (A).



3. Remove the ATF guide collar from the torque converter housing.



4. Remove the 29 x 39 x 9.5 mm secondary shaft bearing from the torque converter housing using the bearing remover shaft set (30 mm), the bearing remover shaft handle, and the sliding hammer weight.

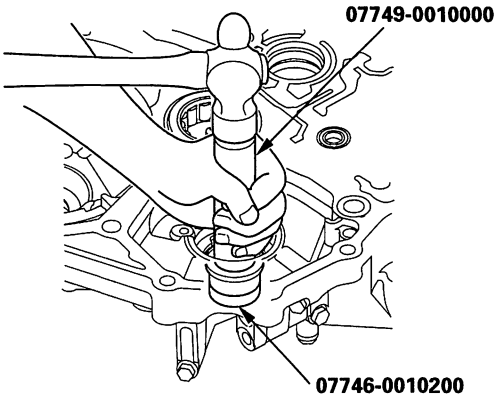


(cont'd)

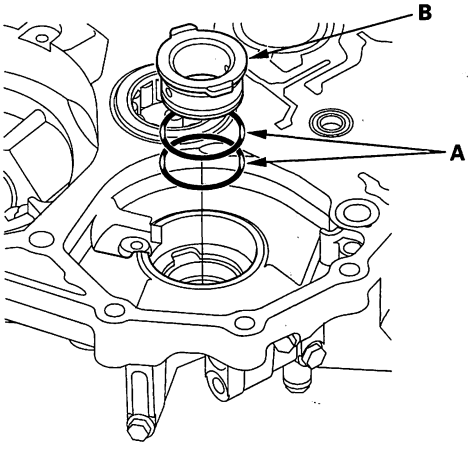
Protected by AR

Secondary Shaft Bearing Replacement (cont'd)

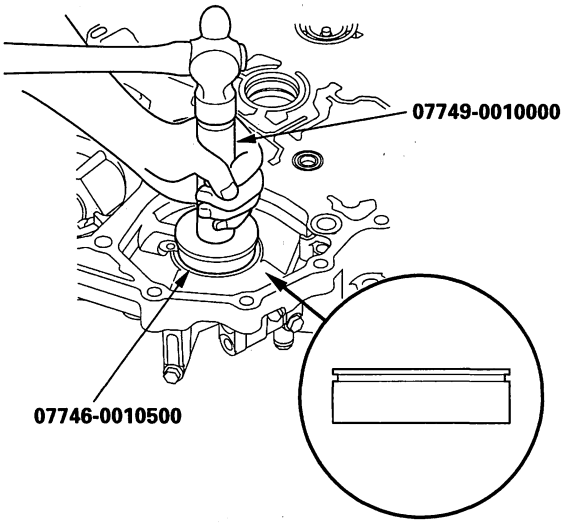
5. Install the 29 x 39 x 9.5 mm bearing into the torque converter housing using the driver and the attachment (37 x 40 mm).



6. Install the new O-rings (A) on the ATF guide collar (B), then install the guide collar in the torque converter housing.

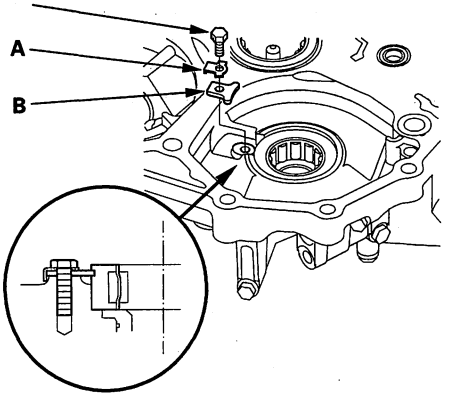


7. Install the bearing in the direction shown in the housing using the driver and the attachment (62 x 68 mm).



8. Check that the bearing groove aligns with the set plate mounting surface, then install the set plate (A) by aligning it with the bearing groove.

6 x 1.0 mm
12 N·m (1.2 kgf·m, 8.7 lbf·ft)



9. Install the new lock washer (B) and bolt, then bend the lock tab of the lock washer against the bolt head.

BACK

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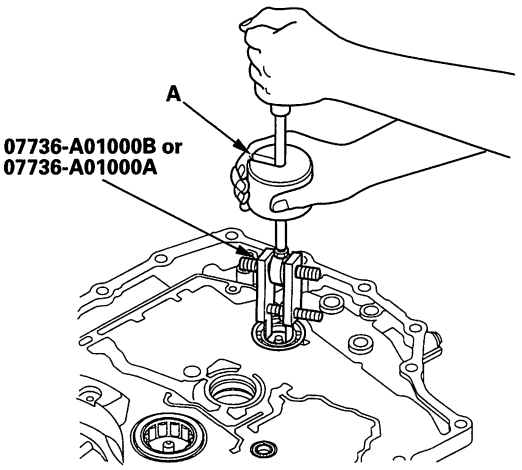
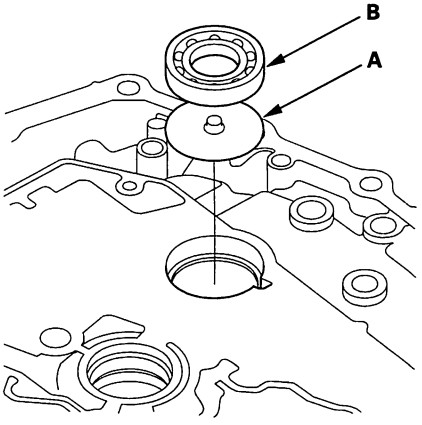
Intermediary Shaft Bearing Replacement

Special Tools Required
- Adjustable bearing puller, 25—40 mm 07736-A01000B or 07736-A01000A
- Driver 07749-0010000
- Attachment, 52 x 55 mm 07746-0010400

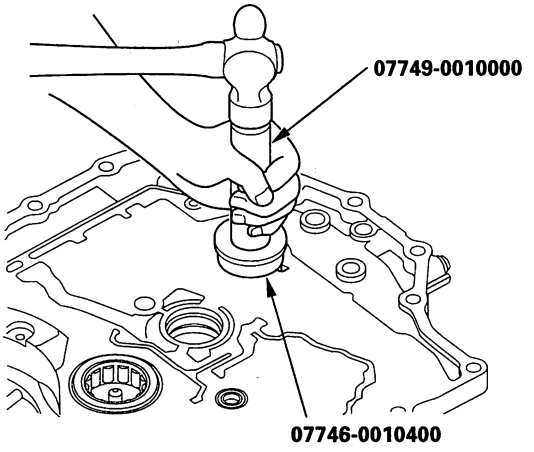
1. Remove the intermediary shaft bearing from the torque converter housing using the adjustable bearing puller (25—40 mm) and a commercially available 3/8 "-16 slide hammer (A).



2. Install the ATF guide plate (A), then install the new bearing (B) in the housing.



3. Drive the bearing into the housing using the driver and the attachment (52 x 55 mm).



BACK

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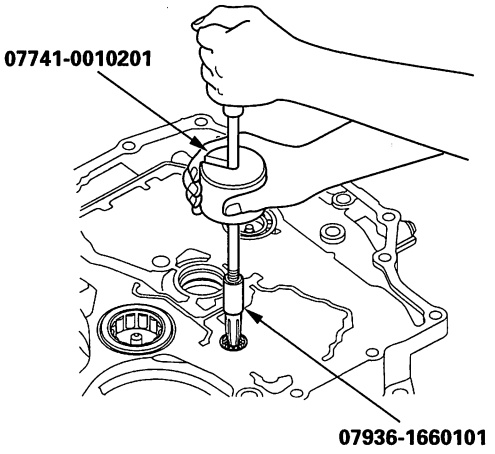
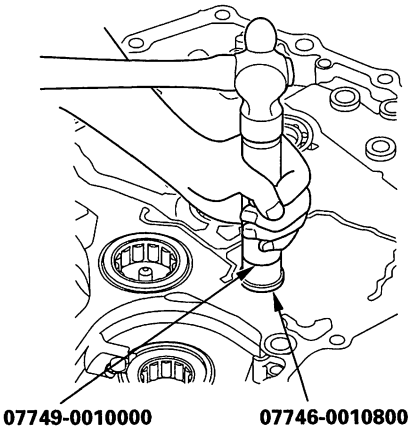
Park Lever Shaft Bearing Replacement

Special Tools Required
- Bearing remover shaft set, 12 mm 07936-1660101
- Sliding hammer weight 07741-0010201
- Driver 07749-0010000
- Attachment, 22 x 24 mm 07746-0010800

1. Remove the park lever shaft bearing from the torque converter housing using the bearing remover shaft set (12 mm) and the sliding hammer weight.



2. Install the new bearing until it bottoms in the housing using the driver and the attachment (22 x 24 mm).



BACK

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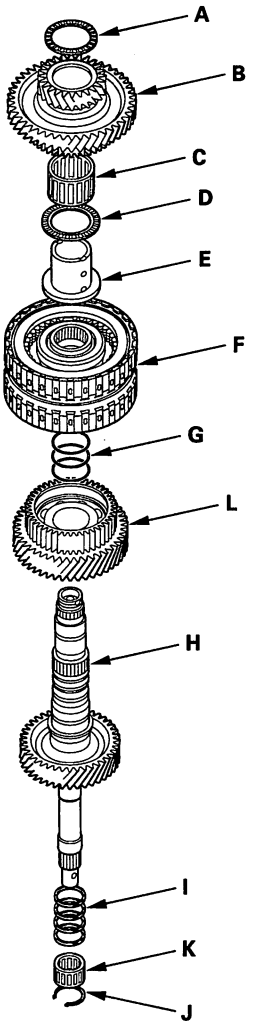
Mainshaft Disassembly, Inspection, and Reassembly

1. Remove the thrust needle bearing (A), mainshaft 5th gear (B), needle bearing (C), thrust needle bearing (D), mainshaft 5th gear collar (E), 4th/5th clutch (F), and O-rings (G) from the mainshaft (H).



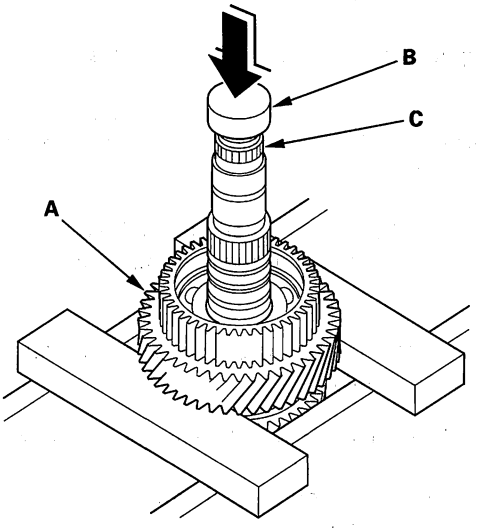
2. Inspect the condition of the sealing rings (I). If the sealing rings are worn, distorted, or damaged, remove the set ring (J) and needle bearing (K), and replace the sealing rings with new ones.
3. Inspect the thrust needle bearing and needle bearing for wear and rough movement.
4. Inspect the splines for excessive wear and damage.
5. Inspect the 4th gear for wear and damage, and inspect the 4th gear bearing for wear and rough rotation.
6. Replace the mainshaft 4th gear (L) if the 4th gear is worn or damaged, or the bearing is worn or damaged.
7. Check the shaft bearing surfaces for scoring and excessive wear.
8. Lubricate all parts with ATF during reassembly.
9. Wrap the shaft splines with tape to prevent O-ring damage, install the new O-rings on the mainshaft, then remove the tape.
10. Install the 4th/5th clutch.
11. Install the mainshaft 5th gear collar, thrust needle bearing, needle bearing, mainshaft 5th gear, and thrust needle bearing.

Protected by AR

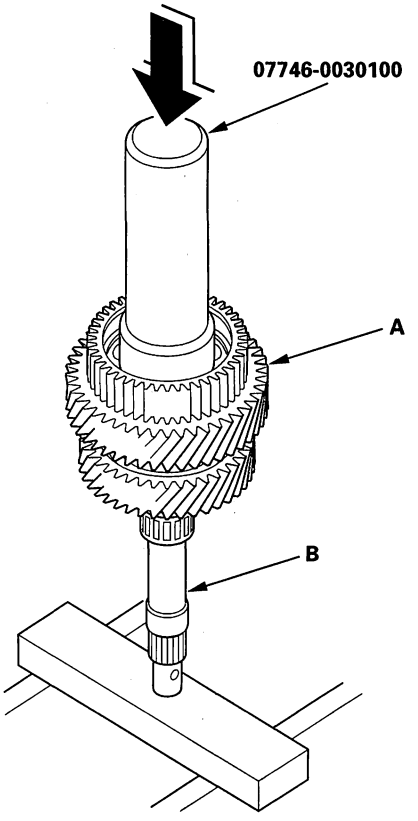
Mainshaft 4th Gear Replacement

Special Tools Required
Driver, 40 mm I.D. 07746-0030100

1. Remove the mainshaft 4th gear (A) with the press. Place a shaft protector (B) between the press and mainshaft (C) to prevent damaging the mainshaft.



2. Slide the new mainshaft 4th gear (A) over the mainshaft (B), then press it into place using the driver (40 mm I.D.) and the press.



BACK

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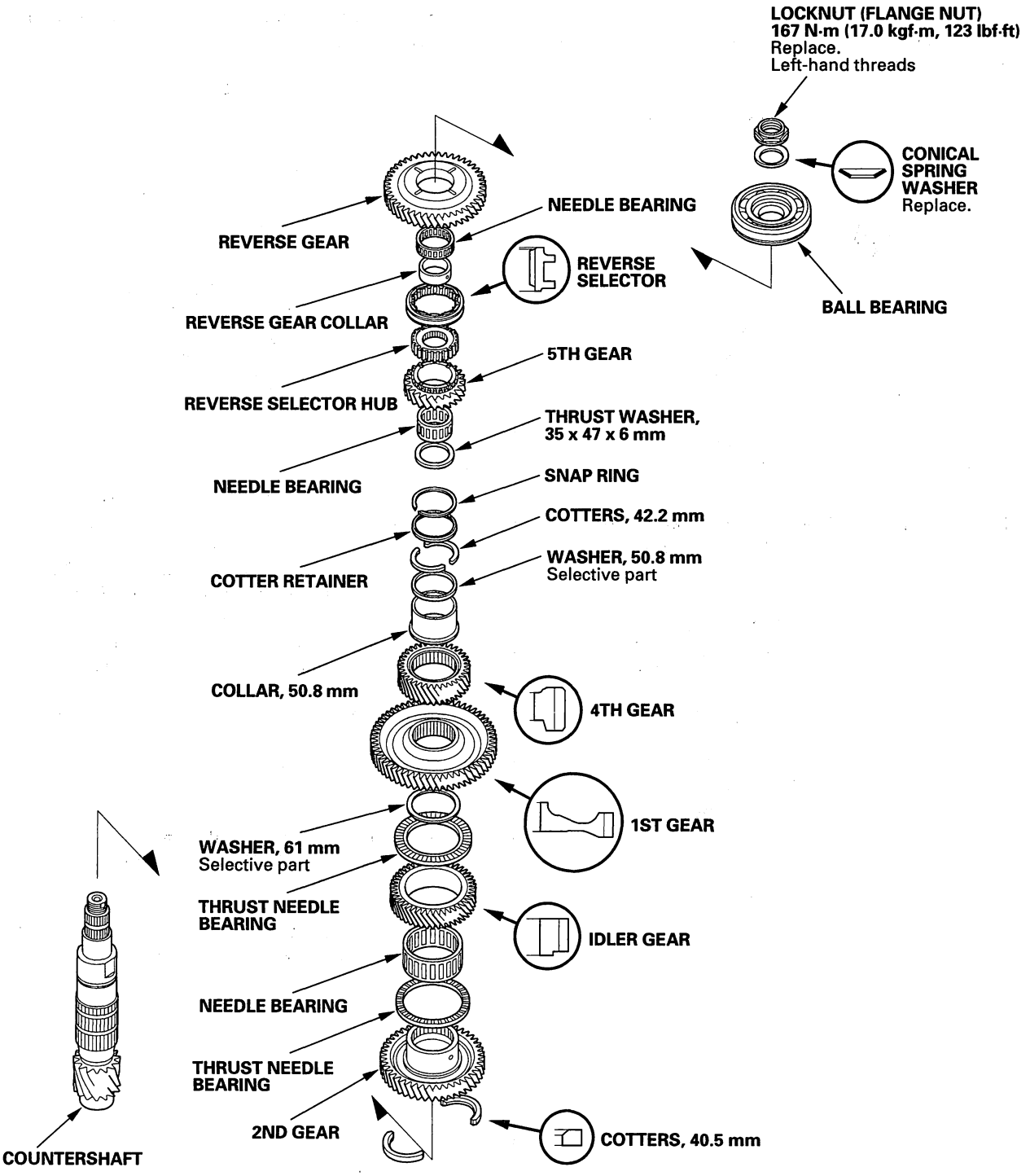
Countershaft Disassembly

Exploded View



(cont'd)

BACK

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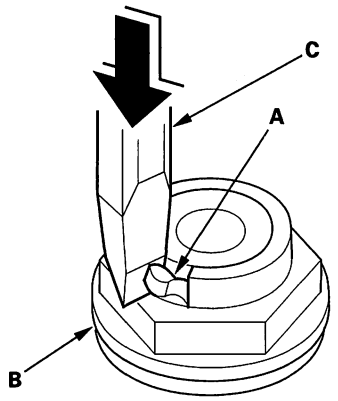
Countershaft Disassembly (cont'd)

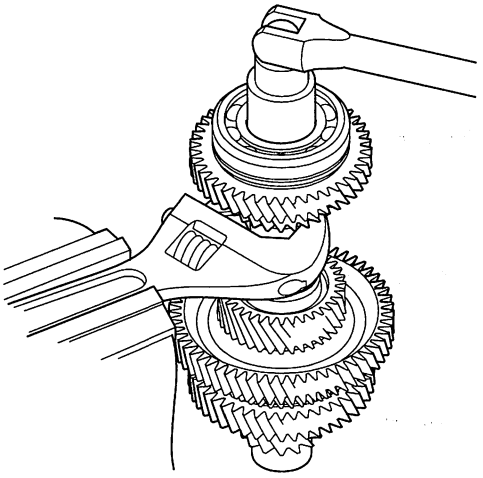
NOTE: Refer to the Exploded View as needed during the following procedure.

1. Cut the lock tab (A) off the countershaft locknut (B) using a chisel (C).

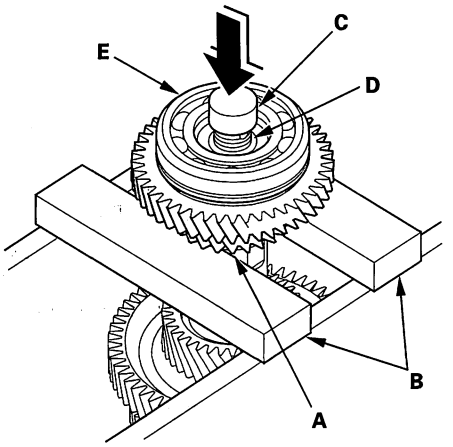
   NOTE: Keep all of the chiseled particles out of the countershaft.



2. Hold the countershaft with a wrench and a vise securely, loosen the locknut, and remove it. The locknut has left-hand threads.



3. Place the countershaft 5th gear (A) on press bases (B), and place a shaft protector (C) between the countershaft (D) and the press to prevent damaging the countershaft.



4. Press the countershaft out of the press-fitted bearing (E) and the press-fitted reverse selector hub, and remove the countershaft while holding the underside of the countershaft. The countershaft falls down when pressing the countershaft out of the press-fitted reverse selector hub. Some reverse selector hubs are not press-fitted, and the countershaft falls down when pressing the countershaft out of press-fitted bearing.

5. Remove the remaining parts from the countershaft.

6. Inspect the bearing for galling and rough movement.

7. Check the shaft bearing surfaces for scoring and excessive wear, and check the shaft splines for excessive wear and damage.

8. Check the idler gear axial clearance and 4th gear axial clearance (see page 14-363).

BACK

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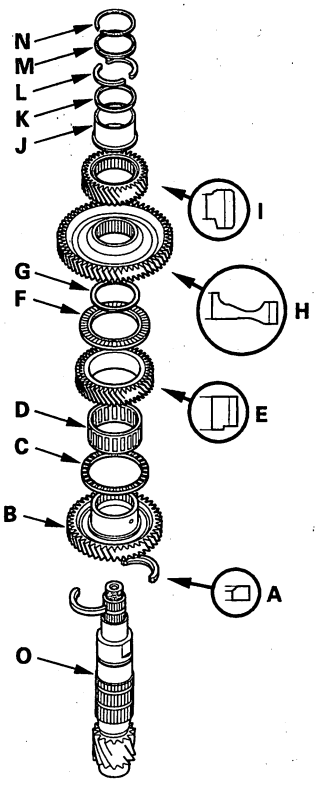
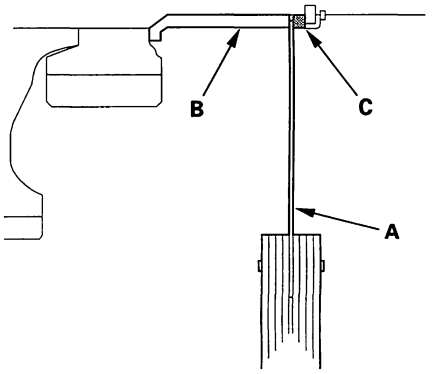
Countershaft Idler Gear and 4th Gear Axial Clearance Inspection

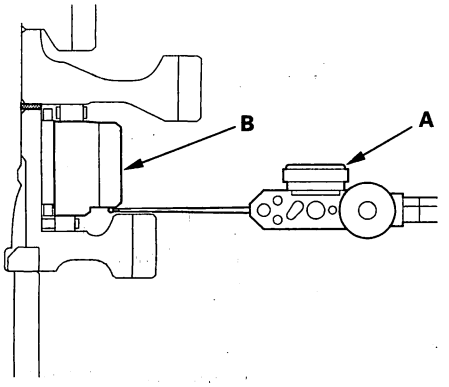
1. Install the 40.5 mm cotters (A), 2nd gear (B), thrust needle bearing (C), needle bearing (D), idler gear (E), thrust needle bearing (F), 61 mm washer (G), 1st gear (H), 4th gear (I), 50.8 mm collar (J), 50.8 mm washer (K), 42.2 mm cotters (L), cotter retainer (M), and snap ring (N) on the countershaft (O). Install the 40.5 mm cotters, idler gear, 1st gear, and 4th gear in the direction shown.



2. Insert a feeler gauge blade (A) as thick as possible between the 50.8 mm collar (B) and 50.8 mm washer (C).

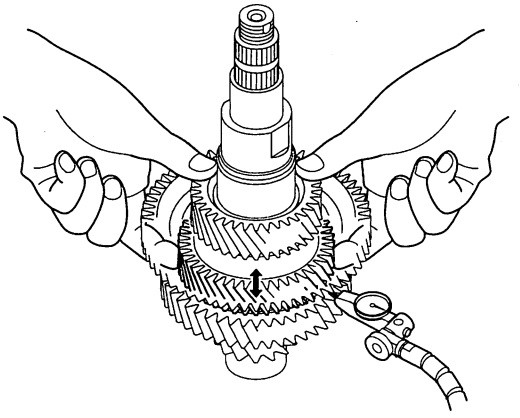


3. Set the dial indicator (A) on the idler gear (B).



4. Measure the idler gear axial clearance in at least three places while moving the idler gear. Use the average as the actual clearance.

Standard: 0.005—0.040 mm (0.0002—0.0016 in.)



5. If the measurement is out of standard, remove the 61 mm washer and measure its thickness.

(cont'd)

BACK

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Countershaft Idler Gear and 4th Gear Axial Clearance Inspection (cont'd)

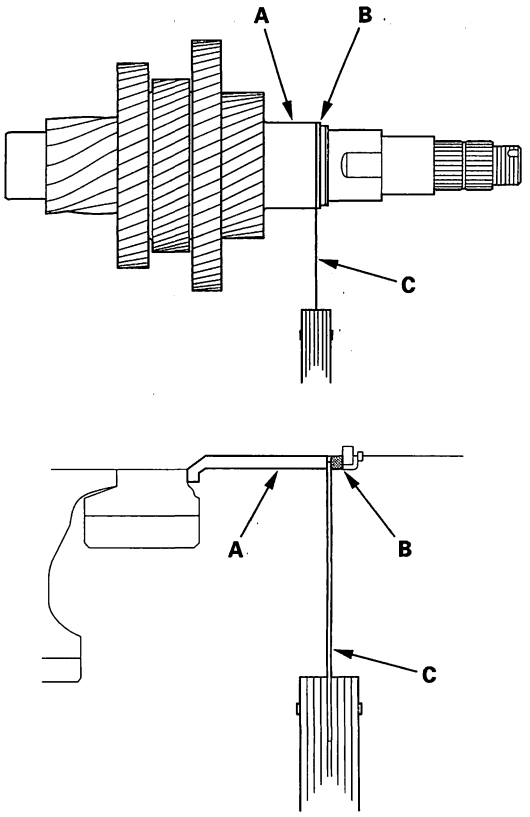
6. Select and install a new washer, then recheck the clearance.

WASHER, 61 mm

No.	Part Number	Thickness
A	90582-RJF-T00	1.525 mm (0.0600 in.)
B	90583-RJF-T00	1.505 mm (0.0593 in.)
C	90584-RJF-T00	1.485 mm (0.0585 in.)
D	90585-RJF-T00	1.465 mm (0.0577 in.)
E	90586-RJF-T00	1.445 mm (0.0569 in.)
F	90587-RJF-T00	1.425 mm (0.0561 in.)
G	90588-RJF-T00	1.405 mm (0.0553 in.)

7. Measure the clearance between the 50.8 mm collar (A) and the 50.8 mm washer (B) with a feeler gauge (C) in at least three places. Use the average as the actual clearance.

Standard: 0.005—0.040 mm (0.0002—0.0016 in.)



8. If the measurement is out of standard, remove the 50.8 mm washer and measure its thickness.

9. Select and install a new washer, then recheck the clearance.

WASHER, 50.8 mm

No.	Part Number	Thickness
A	90519-RJF-T00	1.91 mm (0.0752 in.)
B	90520-RJF-T00	1.93 mm (0.0760 in.)
C	90521-RJF-T00	1.95 mm (0.0768 in.)
D	90522-RJF-T00	1.97 mm (0.0776 in.)
E	90523-RJF-T00	1.99 mm (0.0783 in.)
F	90524-RJF-T00	2.01 mm (0.0791 in.)
G	90525-RJF-T00	2.03 mm (0.0799 in.)
H	90526-RJF-T00	2.05 mm (0.0807 in.)
I	90527-RJF-T00	2.07 mm (0.0815 in.)
J	90528-RJF-T00	2.09 mm (0.0823 in.)
K	90529-RJF-T00	2.11 mm (0.0831 in.)
L	90530-RJF-T00	2.13 mm (0.0839 in.)
M	90531-RJF-T00	2.15 mm (0.0846 in.)
N	90532-RJF-T00	2.17 mm (0.0854 in.)
O	90533-RJF-T00	2.19 mm (0.0862 in.)
P	90534-RJF-T00	2.21 mm (0.0870 in.)
Q	90535-RJF-T00	2.23 mm (0.0878 in.)
R	90536-RJF-T00	2.25 mm (0.0886 in.)
S	90537-RJF-T00	2.27 mm (0.0894 in.)
T	90538-RJF-T00	2.29 mm (0.0902 in.)
U	90539-RJF-T00	2.31 mm (0.0909 in.)
V	90540-RJF-T00	2.33 mm (0.0917 in.)
W	90541-RJF-T00	2.35 mm (0.0925 in.)
X	90542-RJF-T00	2.37 mm (0.0933 in.)
Y	90543-RJF-T00	2.39 mm (0.0941 in.)
Z	90544-RJF-T00	2.41 mm (0.0949 in.)
AA	90545-RJF-T00	2.43 mm (0.0957 in.)
AB	90546-RJF-T00	2.45 mm (0.0965 in.)

BACK

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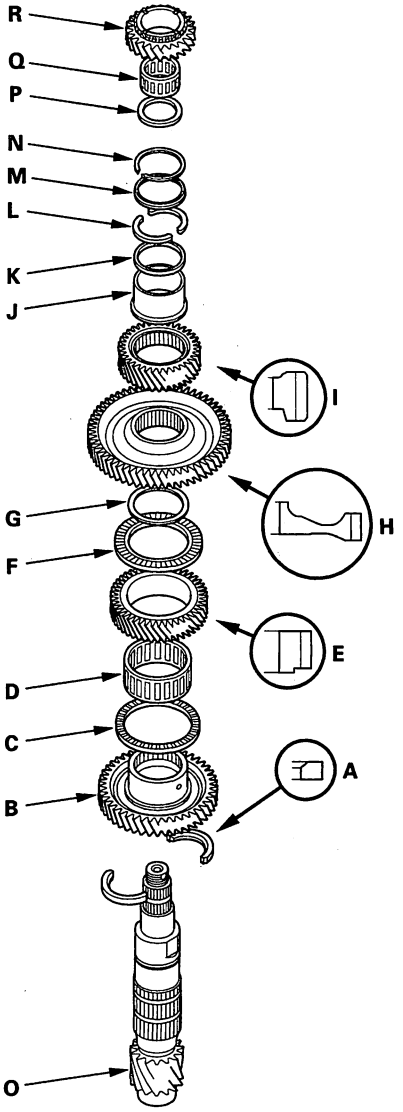
Countershaft Reassembly

Special Tools Required
Driver, 40 mm I.D. 07746-0030100

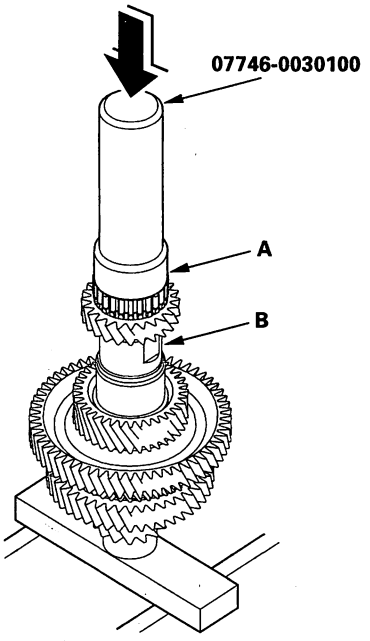
1. Install the 40.5 mm cotters (A), 2nd gear (B), thrust needle bearing (C), needle bearing (D), idler gear (E), thrust needle bearing (F), 61 mm washer (G), 1st gear (H), 4th gear (I), 50.8 mm collar (J), 50.8 mm washer (K), 42.2 mm cotters (L), cotter retainer (M), and snap ring (N) on the countershaft (O). Install the 40.5 mm cotters, idler gear, 1st gear, and 4th gear in the direction shown.



2. Install the thrust washer (P), needle bearing (Q) and 5th gear (R).

3. Slide the reverse selector hub (A) over the countershaft (B), then press it into place using the driver (40 mm I. D.) and the press.

   NOTE: Some reverse selector hubs are not press-fitted, and can be installed without using the special tool and a press.



4. Install the reverse selector, reverse gear collar, needle bearing, and reverse gear over the reverse selector hub.

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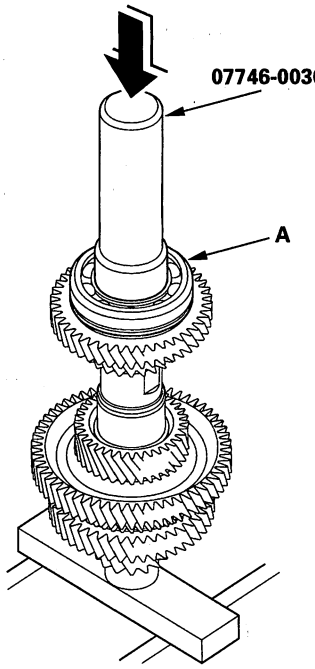
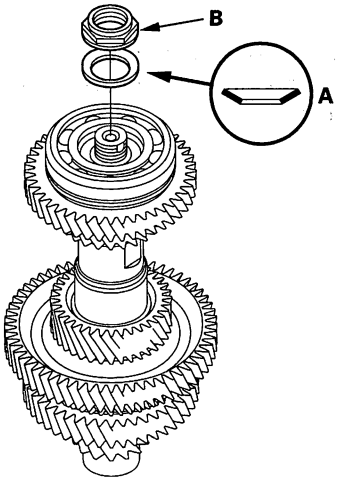
Countershaft Reassembly (cont'd)

5. Install the ball bearing (A) over the countershaft, then press it into place using the driver (40 mm I.D.) and the press.

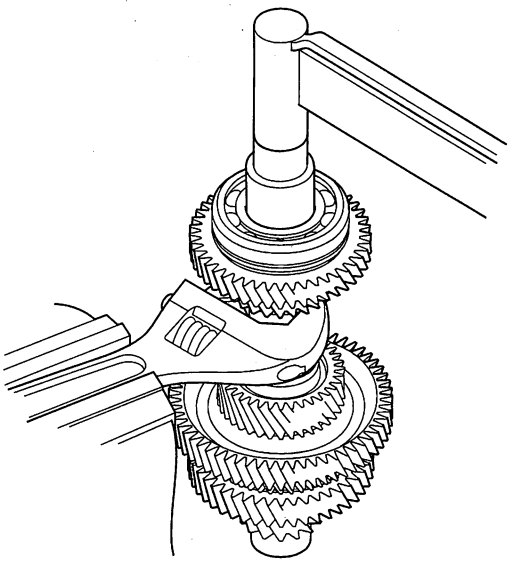


6. Install the conical spring washer (A) in the direction shown, and install the new locknut (B).

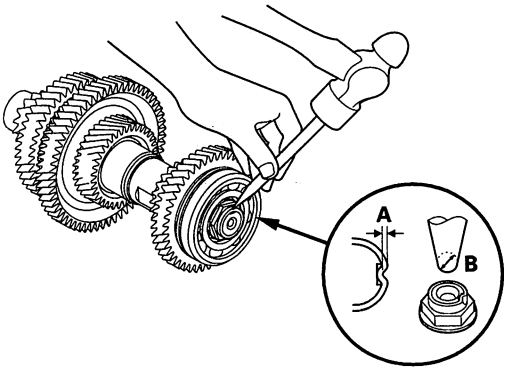


7. Hold the countershaft securely with a wrench and a vise, and tighten the locknut to 167 N·m (17.0 kgf·m, 123 lbf·ft).

NOTE:
- Use a torque wrench to tighten the locknut. Do not use an impact wrench.
- The locknut has left-hand threads.



8. Stake the locknut into its shaft in depth (A) of 0.7—1.3 mm (0.03—0.05 in.) using a 3.5 mm punch (B).



BACK

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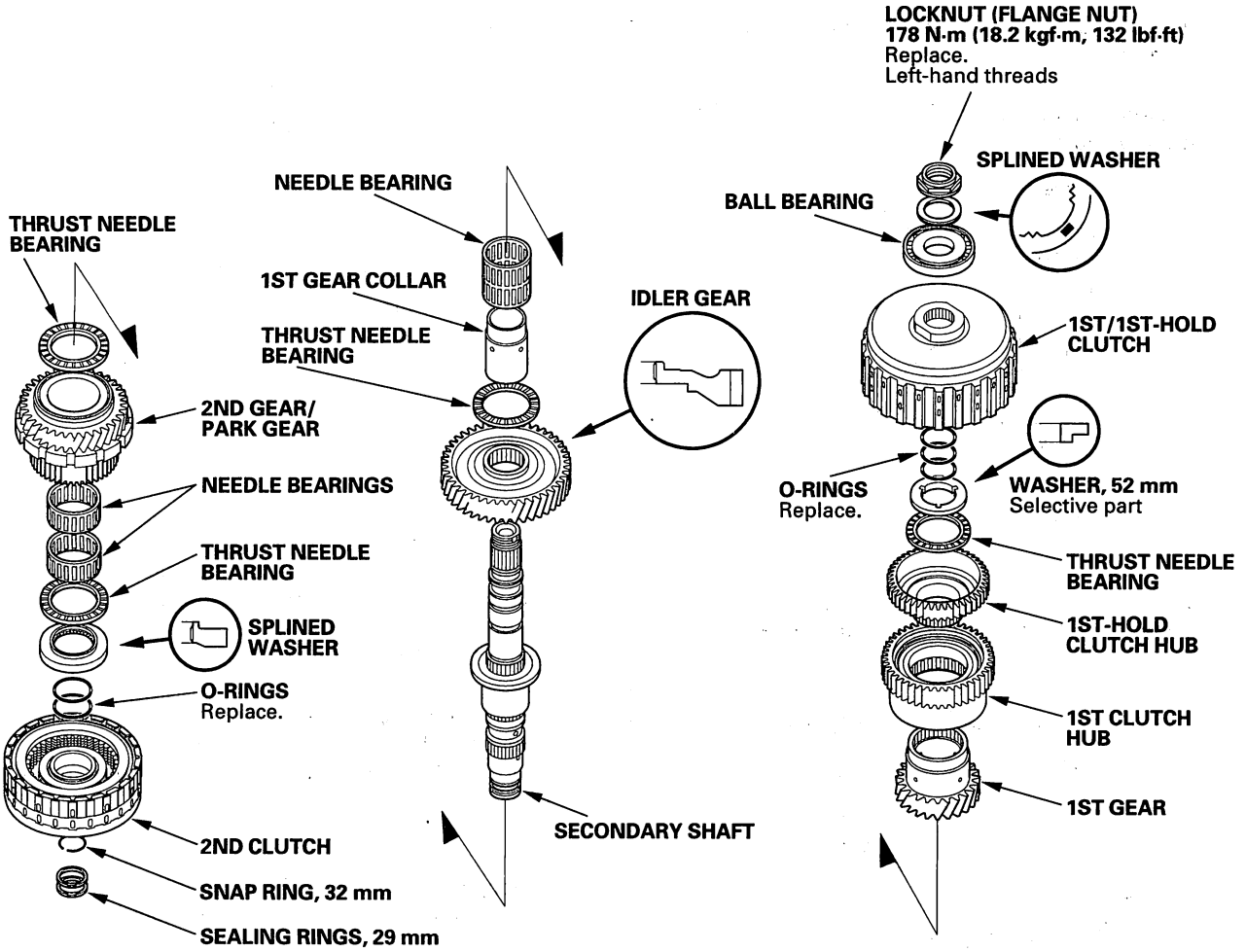
Secondary Shaft Disassembly

Exploded View



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BACK

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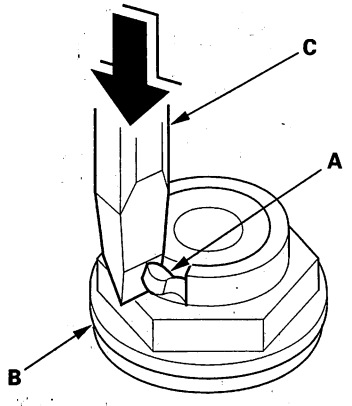
Secondary Shaft Disassembly (cont'd)

Special Tools Required
Wrench, 40 x 42 mm 07XAA-002010A

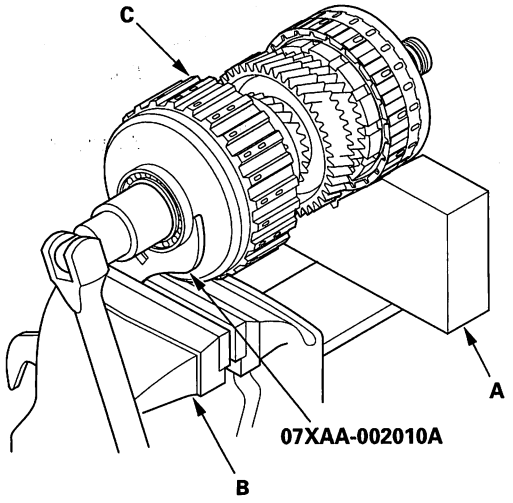
NOTE: Refer to the Exploded View as needed during the following procedure.

1. Cut the lock tab (A) off the secondary shaft locknut (B) using a chisel (C).

   NOTE: Keep all of the chiseled particles out of the secondary shaft.

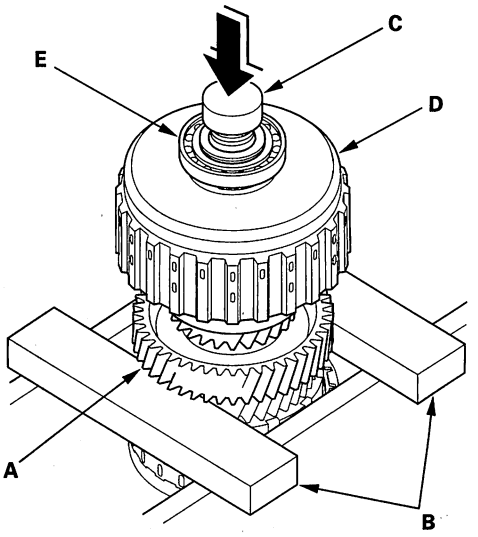


2. Place a V-block (A) on a vise (B), and put the secondary shaft (C) on the V-block and vise.



3. Attach the wrench (40 x 42 mm) onto the 1st clutch guide, and secure the wrench (40 x 42 mm) with the vise to hold the secondary shaft. Loosen the locknut, and remove it. Remove any burrs from splines on the shaft and splined washer.

4. Place the idler gear (A) on press bases (B), and place a shaft protector (C) between the secondary shaft (D) and the press to prevent damaging the secondary shaft.



5. Press the secondary shaft out of the press-fitted bearing (E), and remove the secondary shaft while holding the underside of the secondary shaft. The secondary shaft falls down when pressing the secondary shaft out of the press-fitted bearing.

6. Remove the 1st/1st-hold clutch, 52 mm washer, thrust needle bearing, 1st gear assembly, needle bearings, 1st gear collar, thrust needle bearing, and idler gear.

7. Remove the 32 mm snap ring, and remove the 2nd clutch, splined washer, thrust needle bearing, needle bearing, 2nd gear/park gear, and thrust needle bearing.

BACK

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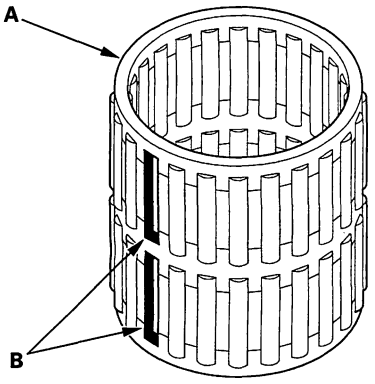
8. Inspect the bearings for galling and rough movement.

   NOTE: The needle bearing (A) on the 1st gear collar contains the only two no-roller cavities (B); this is normal.



9. Check the shaft bearing surfaces for scoring and excessive wear, and check the shaft splines for excessive wear and damage.

10. Check the 1st gear axial clearance (see page 14-370), 1st gear one-way clutch (see page 14-372), and secondary shaft installation height (see page 14-377).

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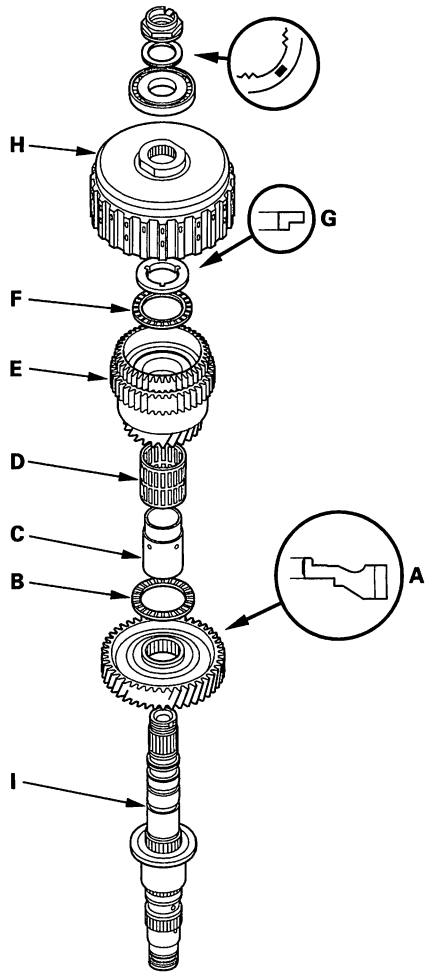
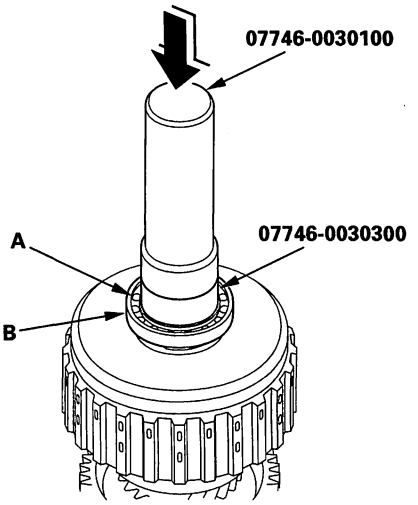
Secondary Shaft 1st Gear Axial Clearance Inspection

Special Tools Required
- Driver, 40 mm I.D. 07746-0030100
- Attachment, 30 mm I.D. 07746-0030300

1. Install the idler gear (A), thrust needle bearing (B), 1st gear collar (C), needle bearing (D), 1st gear assembly (E), thrust needle bearing (F), 52 mm washer (G), and 1st/1st-hold clutch (H) on the secondary shaft (I). Install the idler gear and 52 mm washer in the direction shown. Do not install the O-rings during inspection.



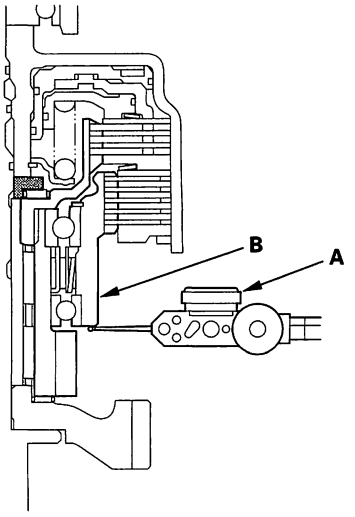
2. Install the ball bearing (A) over the 1st/1st-hold clutch guide using the driver (40 mm I.D.), the attachment (30 mm I.D.), and the press.



3. Install the splined washer with the marked side up over the ball bearing in the same manner as installing the ball bearing using the driver (40 mm I.D.), the attachment (30 mm I.D.), and the press.

4. Install the old locknut and tighten it to 29 N·m (3.0 kgf·m, 22 lbf·ft).

5. Set the dial indicator (A) on the 1st clutch hub (B).



BACK

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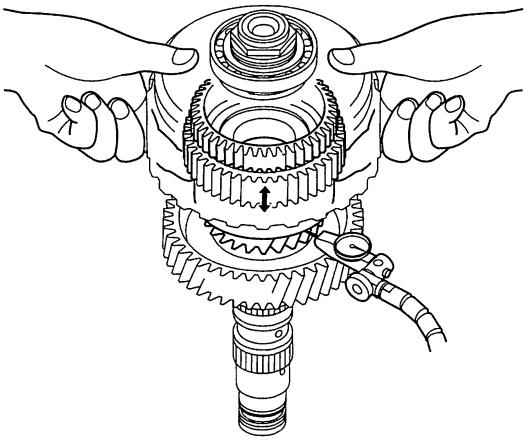
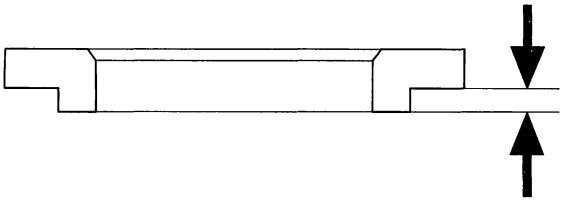
6. Measure the 1st gear axial clearance in at least three places while moving the 1st gear. Use the average as the actual clearance.

Standard: 0.100—0.145 mm (0.004—0.006 in.)



7. If the measurement is out of standard, remove the washer and measure its difference.



8. Select and install a new washer, then recheck the clearance.

WASHER, 52 mm

No.	Part Number	Thickness
A	90502-RWE-000	2.705 mm (0.107 in.)
B	90503-RWE-000	2.680 mm (0.106 in.)
C	90504-RWE-000	2.655 mm (0.105 in.)
D	90505-RWE-000	2.630 mm (0.104 in.)
E	90506-RWE-000	2.605 mm (0.103 in.)
F	90507-RWE-000	2.580 mm (0.102 in.)
G	90508-RWE-000	2.555 mm (0.101 in.)
H	90509-RWE-000	2.530 mm (0.100 in.)
I	90510-RWE-000	2.505 mm (0.099 in.)
J	90511-RWE-000	2.480 mm (0.098 in.)
K	90512-RWE-000	2.455 mm (0.097 in.)
L	90513-RWE-000	2.430 mm (0.096 in.)
M	90514-RWE-000	2.405 mm (0.095 in.)

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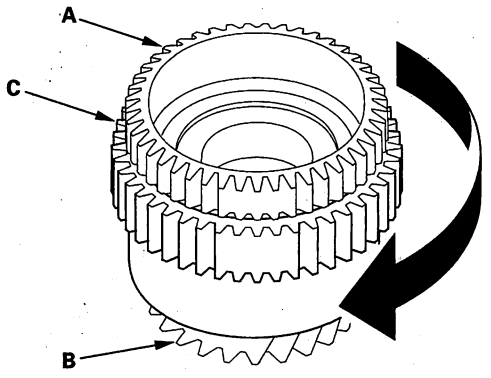
1st Gear One-way Clutch Inspection

1. Hold the 1st-hold clutch hub (A), and turn the 1st gear (B) in the direction shown to be sure it turns freely. Also make sure the 1st gear locks in the opposite direction.



2. If any problem occurs on the 1st gear one-way clutch, replace the 1st clutch hub (C). The 1st gear one-way clutch is not available separately from the 1st clutch hub.

3. Also check the 1st gear and the 1st-hold clutch hub for wear and damage. If the 1st gear and 1st-hold clutch hub are worn or damaged, replace the damaged part, refer to 1st Clutch Hub Replacement (see page 14-373).

BACK

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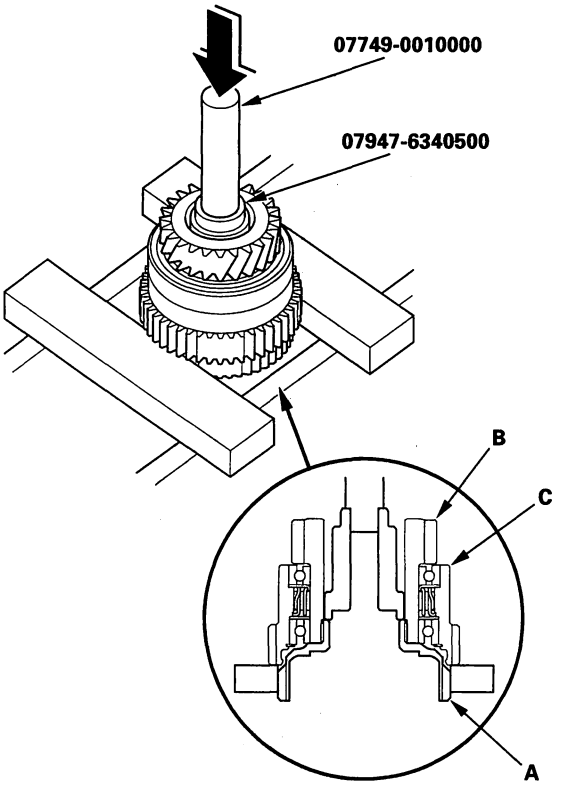
1st Clutch Hub Replacement

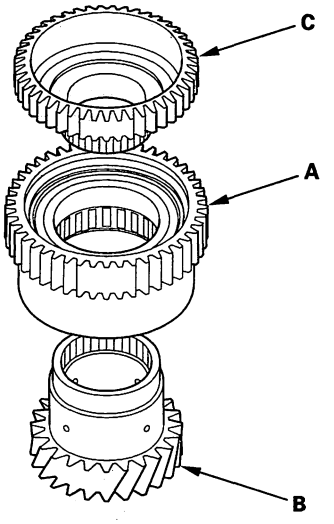
Special Tools Required
- Driver 07749-0010000
- Driver attachment 07947-6340500
- Attachment, 78 x 90 mm 07GAD-SD40101

1. Remove the 1st-hold clutch hub (A) from 1st gear (B) using the driver, the driver attachment, and the press.

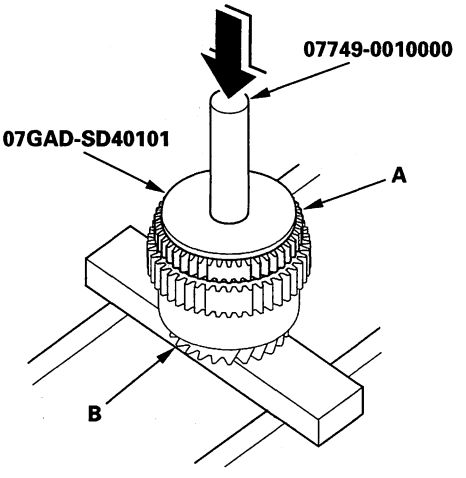


2. Remove the 1st clutch hub (C) from 1st gear.

3. Install the new 1st clutch hub (A) over 1st gear (B), and install the 1st-hold clutch hub (C) in 1st gear.



4. Install the 1st-hold clutch hub (A) in 1st gear (B) using the driver, the attachment (78 x 90 mm), and the press.



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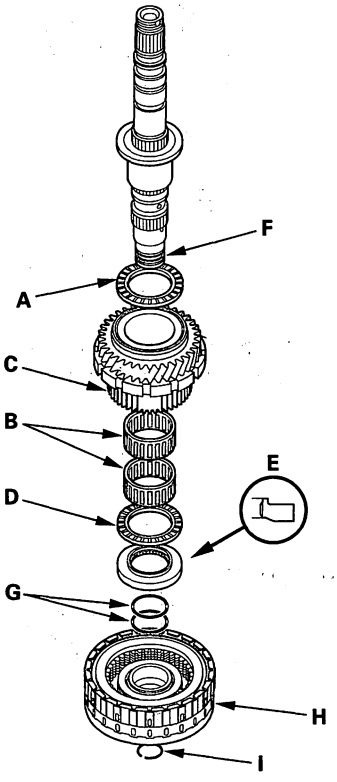
Secondary Shaft Reassembly

Special Tools Required
- Driver, 40 mm I.D. 07746-0030100
- Driver attachment, 30 mm I.D. 07746-0030300
- Wrench, 40 x 42 mm 07XAA-002010A

1. Install the thrust needle bearing (A), needle bearings (B), 2nd gear/park gear (C), thrust needle bearing (D), and splined washer (E) in the direction shown on the secondary shaft (F).



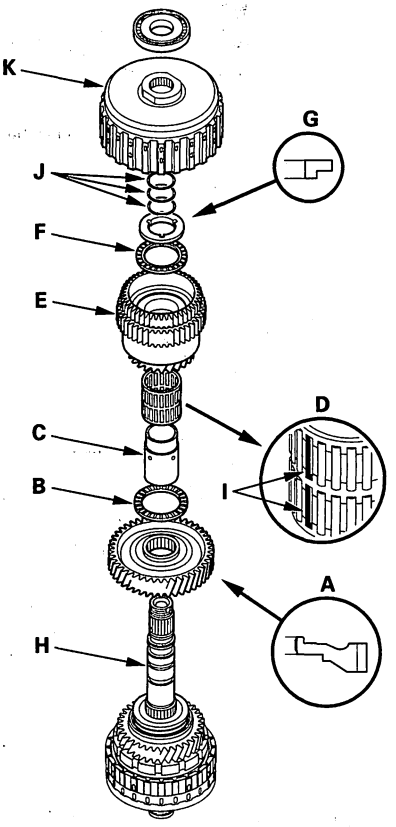
2. Wrap the shaft splines with tape, and install the new O-rings (G) in the 2nd clutch O-ring grooves, then remove the tape.

   NOTE: To prevent damaging to the O-rings, be sure to install the O-rings after installing the splined washer.

3. Install the 2nd clutch (H) on the secondary shaft, and secure the 2nd clutch with the snap ring (I).

4. Install the idler gear (A) in the direction shown, thrust needle bearing (B), 1st gear collar (C), needle bearing (D), 1st gear assembly (E), thrust needle bearing (F), and 52 mm washer (G) in the direction shown on the secondary shaft (H).

   NOTE: The needle bearing contains the only two no-roller cavities (I); this is normal.



5. Wrap the shaft splines with tape, and install the new O-rings (J) in 1st/1st-hold clutch O-ring grooves, then remove the tape.

   NOTE: To prevent damaging to the O-rings, be sure to install the O-rings after installing the 1st gear collar and 52 mm washer.

6. Install the 1st/1st-hold clutch (K).

BACK

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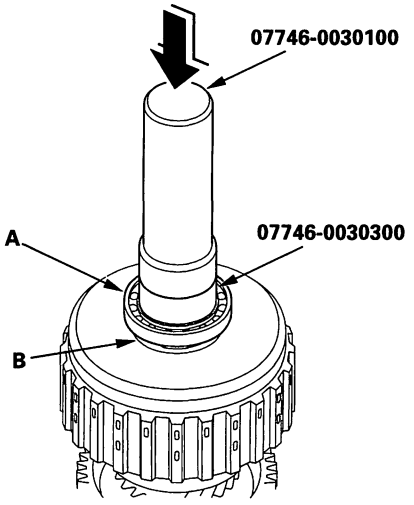
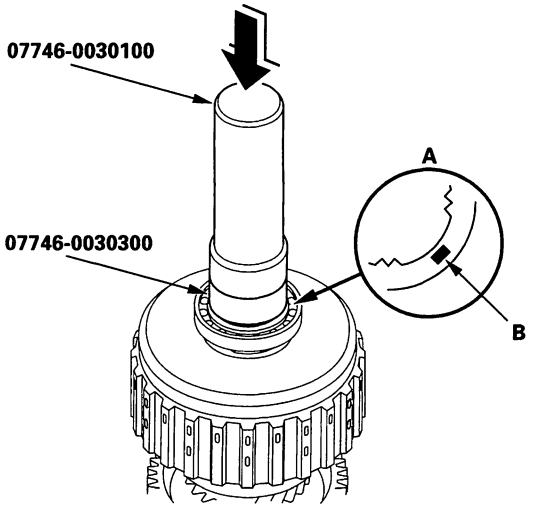
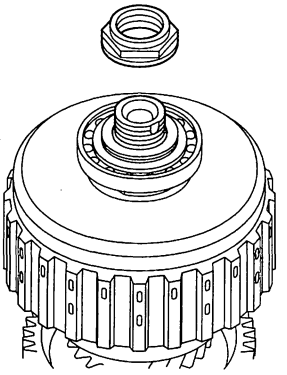
7. Install the ball bearing (A) over the 1st/1st-hold clutch guide (B) using the driver (40 mm I.D.), the driver attachment (30 mm I.D.), and the press.



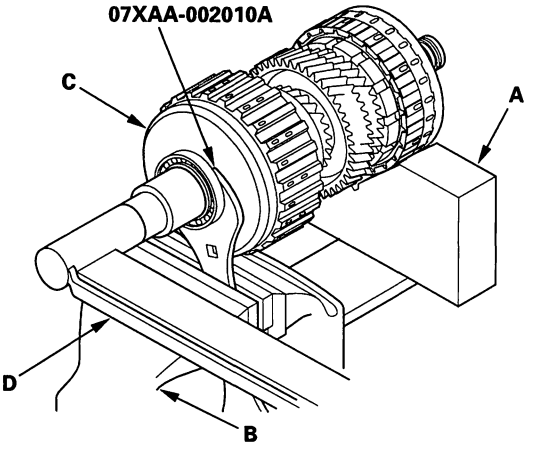
8. Install the new splined washer (A) with the marked side (B) up over the ball bearing using the driver (40 mm I.D.), the driver attachment (30 mm I.D.), and the press.



9. Install the new locknut.



10. Place a V-block (A) on a vise (B), and put the secondary shaft (C) on the V-block and vise.



11. Attach the wrench (40 x 42 mm) onto the top of the 1st clutch guide, and secure the wrench (40 x 42 mm) with the vise to hold the secondary shaft. Tighten the locknut to 178 N·m (18.2 kgf·m, 132 lbf·ft) with the torque wrench (D).

NOTE:
- Use a torque wrench to tighten the locknut. Do not use an impact wrench.
- The locknut has left-hand threads.

(cont'd)

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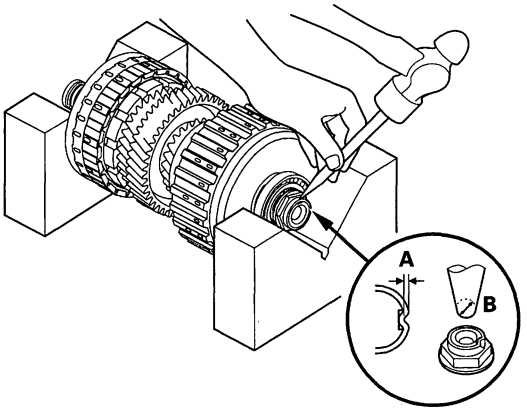
Secondary Shaft Reassembly (cont'd)

12. Stake the locknut to a depth (A) of 0.7—1.3 mm (0.03—0.05 in.) using a 3.5 mm punch (B).



BACK

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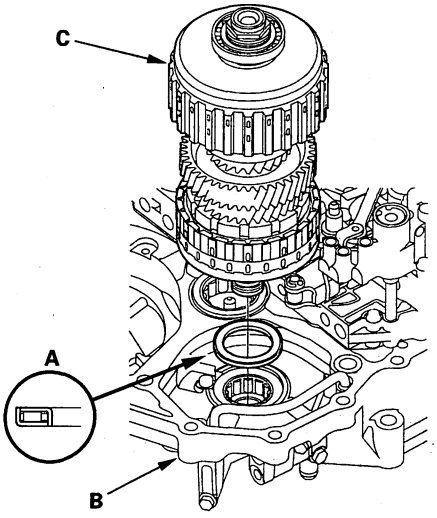
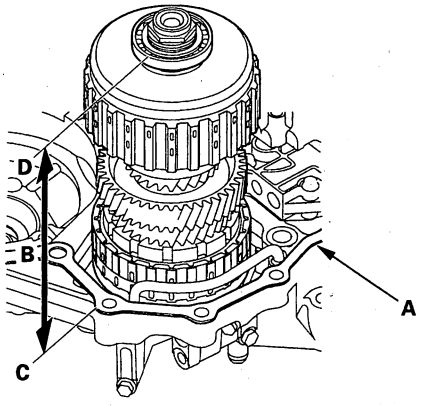
Secondary Shaft Installation Height Inspection/Adjustment

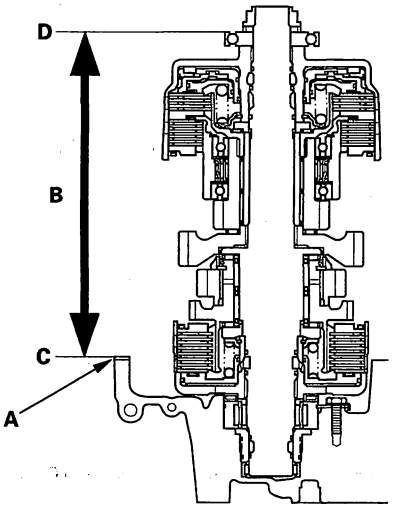
1. Install the thrust needle bearing (A) in the torque converter housing (B) in the direction shown, and install the secondary shaft assembly (C).



2. Install the new gasket (A) on the torque converter housing.



Secondary Shaft Cutaway View



3. Measure the height (B) of the secondary shaft installation between the surface (C) of the gasket and the top of the ball bearing outer race (D), then note the measurement.

(cont'd)

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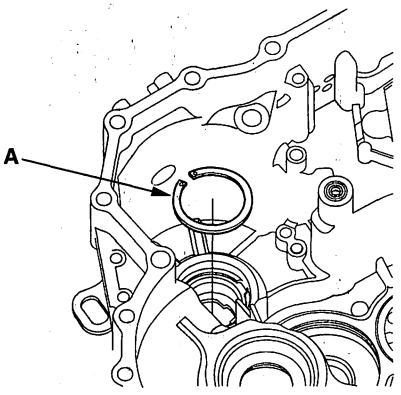
Secondary Shaft Installation Height Inspection/Adjustment (cont'd)

4. Remove the 65 mm thrust shim (A) from the transmission housing, and measure its thickness.



5. Calculate the thickness of the 65 mm thrust shim using the formula.

Formula:
65 mm Thrust Shim Thickness
= Secondary Shaft Installation Height Standard
— Measurement

Secondary Shaft Installation Height Standard:
228.04—228.13 mm (8.9779—8.9815 in.)

6. Select the 65 mm thrust shim from the following table.

THRUST SHIM, 65 mm

No.	Part Number	Thickness
0A	90460-RDK-000	0.80 mm (0.031 in.)
A	90461-RDK-010	0.84 mm (0.033 in.)
B	90462-RDK-010	0.88 mm (0.035 in.)
C	90463-RDK-010	0.92 mm (0.036 in.)
D	90464-RDK-010	0.96 mm (0.038 in.)
E	90465-RDK-010	1.00 mm (0.039 in.)
F	90466-RDK-010	1.04 mm (0.041 in.)
G	90467-RDK-010	1.08 mm (0.043 in.)
H	90468-RDK-010	1.12 mm (0.044 in.)
I	90469-RDK-010	1.16 mm (0.046 in.)
J	90470-RDK-010	1.20 mm (0.047 in.)
K	90471-RDK-010	1.24 mm (0.049 in.)
L	90472-RDK-010	1.28 mm (0.050 in.)
M	90473-RDK-010	1.32 mm (0.052 in.)
N	90474-RDK-010	1.36 mm (0.054 in.)
O	90475-RDK-010	1.40 mm (0.055 in.)
P	90476-RDK-010	1.44 mm (0.057 in.)
Q	90477-RDK-010	1.48 mm (0.058 in.)
R	90478-RDK-010	1.52 mm (0.060 in.)
S	90479-RDK-010	1.56 mm (0.061 in.)
T	90480-RDK-010	1.60 mm (0.063 in.)
U	90481-RDK-000	1.64 mm (0.065 in.)
V	90482-RDK-000	1.68 mm (0.066 in.)
W	90483-RDK-000	1.72 mm (0.068 in.)
X	90484-RDK-000	1.76 mm (0.069 in.)
Y	90485-RDK-000	1.80 mm (0.071 in.)
Z	90486-RDK-000	1.84 mm (0.072 in.)
AA	90487-RDK-000	1.88 mm (0.074 in.)
AB	90488-RDK-000	1.92 mm (0.076 in.)
AC	90489-RDK-000	1.96 mm (0.077 in.)
AD	90490-RDK-000	2.00 mm (0.079 in.)
AE	90491-RDK-000	2.04 mm (0.080 in.)
AF	90492-RDK-000	2.08 mm (0.082 in.)
AG	90493-RDK-000	2.12 mm (0.083 in.)
AH	90494-RDK-000	2.16 mm (0.085 in.)
AI	90495-RDK-000	2.20 mm (0.087 in.)
AJ	90496-RDK-000	2.24 mm (0.088 in.)
AK	90497-RDK-000	2.28 mm (0.090 in.)
AL	90498-RDK-000	2.32 mm (0.091 in.)

7. Install the thrust shim in the transmission housing.

BACK

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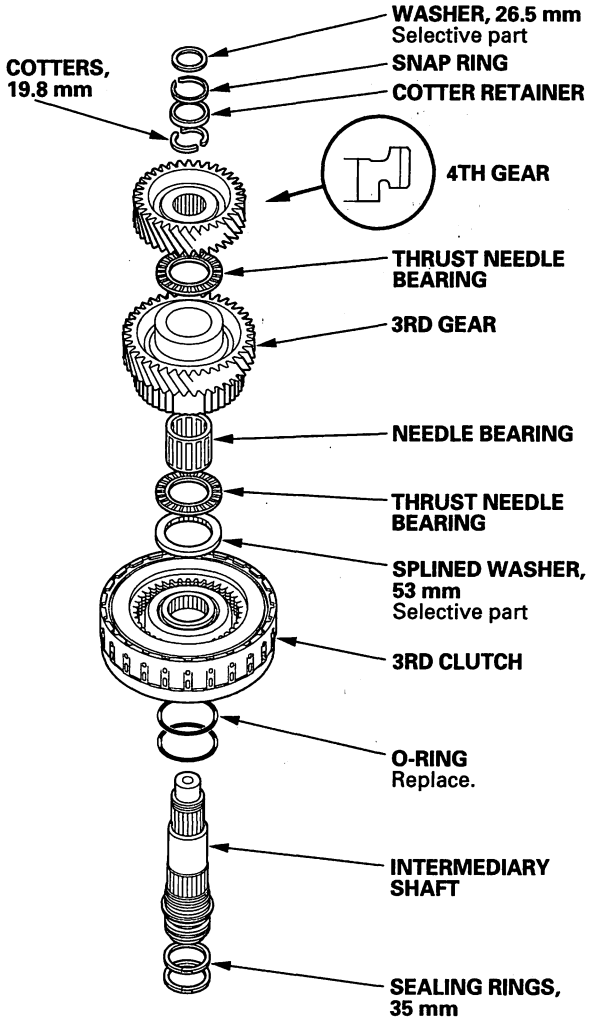
Intermediary Shaft Disassembly, Inspection, and Reassembly

1. Remove the 26.5 mm washer, snap ring, cotter retainer, and cotters from the third shaft.



2. Remove the intermediary shaft 4th gear using the press (see page 14-380), and disassemble the shaft and gears.

3. Inspect the bearings for galling and rough movement.

4. Check the shaft bearing surfaces for scoring and excessive wear, and check the shaft splines for excessive wear and damage.

5. Check the sealing rings for excessive wear and damage.

6. Check the 3rd gear axial clearance (see page 14-381), and intermediary shaft installation height (see page 14-383).

7. Before installing the O-rings, wrap the shaft splines with tape to prevent damage to the O-rings.

8. Lubricate all parts with ATF, and reassemble the shaft and gears.

9. Install the press-fitted 4th gear using the driver (40 mm I.D.) and the press (see page 14-380) in the direction shown.

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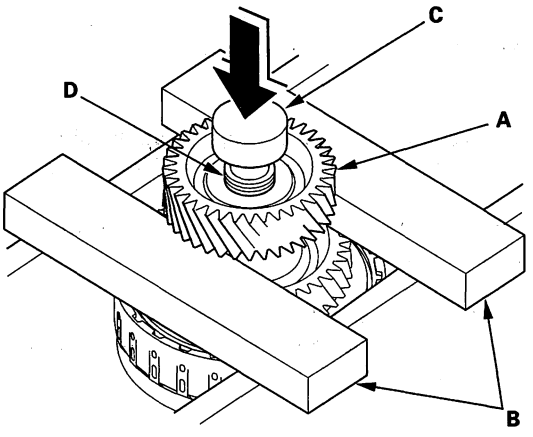
Intermediary Shaft 4th Gear Removal

1. Place 4th gear (A) on press bases (B), and place a shaft protector (C) between the intermediary shaft (D) and the press to prevent damaging the intermediary shaft.



2. Press the intermediary shaft out of the press-fitted 4th gear, and remove of the intermediary shaft while holding the underside the intermediary shaft. The intermediary shaft falls down when pressing the intermediary shaft out of the press-fitted gear.

3. Remove the remaining parts from the intermediary shaft.

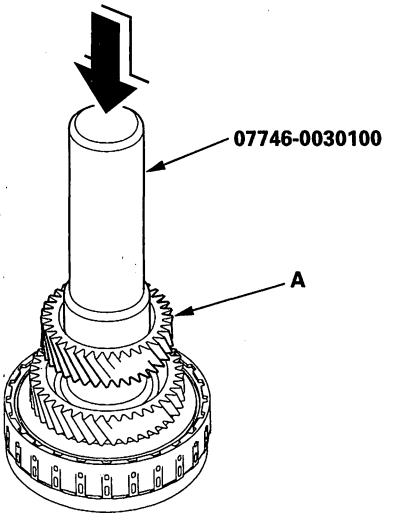
Intermediary Shaft 4th Gear Installation

Special Tools Required
Driver, 40 mm I.D. 07746-0030100

1. Wrap the shaft splines with tape, and install the new O-rings in the 3rd clutch O-ring grooves, then remove the tape.

2. Install the 3rd clutch, 53 mm splined washer, thrust needle bearing, needle bearing, 3rd gear, thrust needle bearing on the intermediary shaft.

3. Install 4th gear (A) using the driver (40 mm I.D.) and the press.



4. Install the 19.8 mm cotters, cotter retainer, and snap ring.

5. Install the 26.5 mm washer on the top of the intermediary shaft.

BACK

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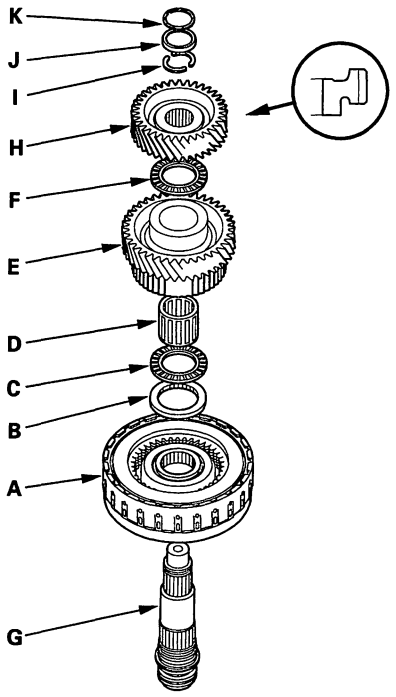
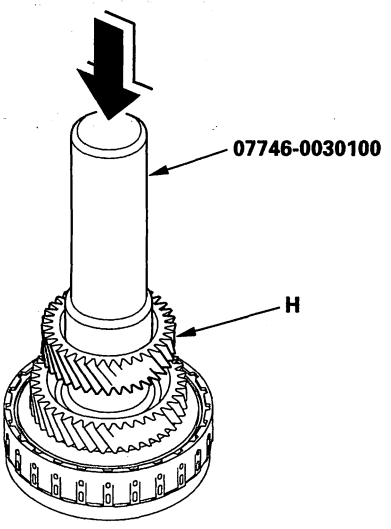
Intermediary Shaft 3rd Gear Axial Clearance Inspection

Special Tools Required
Driver, 40 mm I.D. 07746-0030100

1. Install the 3rd clutch (A), 53 mm splined washer (B), thrust needle bearing (C), needle bearing (D), 3rd gear (E), and thrust needle bearing (F) on the Intermediary shaft (G). Do not install the O-rings during inspection.

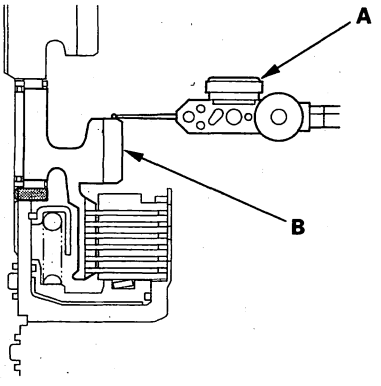




2. Install 4th gear (H) using the driver (40 mm I.D.) and the press.

3. Install the cotters (I), cotter retainer (J), and snap ring (K).

4. Set the dial indicator (A) on 4th gear (B).



(cont'd)

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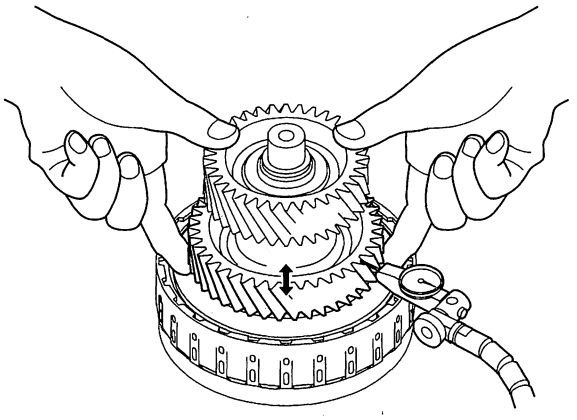
Intermediary Shaft 3rd Gear Axial Clearance Inspection (cont'd)

5. Measure the 4th gear axial clearance in at least three places while moving 4th gear. Use the average as the actual clearance.

   Standard: 0.005—0.045 mm (0.0002—0.0018 in.)



6. If the measurement is out of standard, remove the splined washer and measure its thickness.

7. Select and install a new splined washer, then recheck the clearance.

SPLINED WASHER, 53 mm

No.	Part Number	Thickness
A	90546-RDK-000	3.995 mm (0.1573 in.)
B	90547-RDK-000	4.015 mm (0.1581 in.)
C	90548-RDK-000	4.035 mm (0.1589 in.)
D	90549-RDK-000	4.055 mm (0.1596 in.)
E	90550-RDK-000	4.075 mm (0.1604 in.)
F	90551-RDK-000	4.095 mm (0.1612 in.)
G	90552-RDK-000	4.115 mm (0.1620 in.)
H	90553-RDK-000	4.135 mm (0.1628 in.)
I	90554-RDK-000	4.155 mm (0.1636 in.)
J	90555-RDK-000	4.175 mm (0.1644 in.)
K	90556-RDK-000	4.195 mm (0.1652 in.)
L	90557-RDK-000	4.215 mm (0.1659 in.)
M	90558-RDK-000	4.235 mm (0.1667 in.)
N	90559-RDK-000	4.255 mm (0.1675 in.)

BACK

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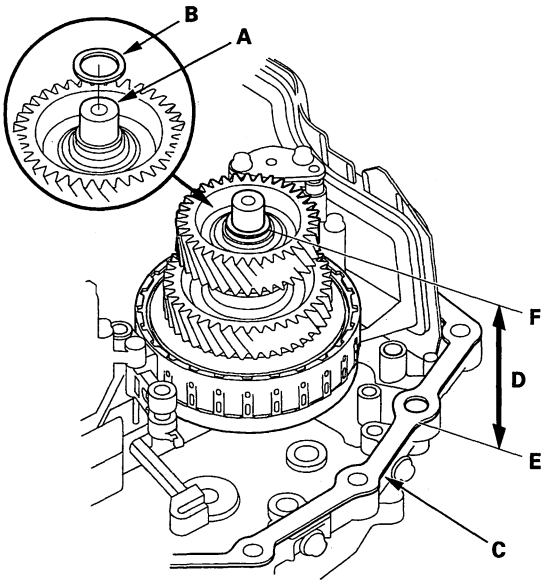
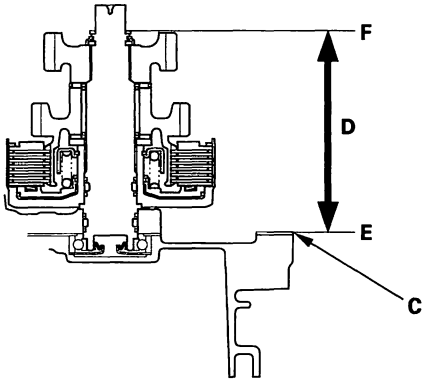
Intermediary Shaft Installation Height Inspection/Adjustment

1. Install the intermediary shaft (A) in the torque converter housing, and install the 26.5 mm washer (B) on the intermediary shaft.

   Intermediary Shaft Installation Height:
   Standard:
   137.285—137.385 mm (5.40491—5.40885 in.)



Intermediary Shaft Cutaway View



2. Install the new gasket (C) on the torque converter housing.

3. Measure the height (D) of the intermediary shaft installation between the surface (E) of the gasket and the surface of the 26.5 mm washer (F).

4. If the measurement is out of standard, remove the 26.5 mm washer and measure its thickness.

5. Select and install a new washer, then recheck the installation height.

WASHER, 26.5 mm

No.	Part Number	Thickness
A	90564-RDK-000	1.05 mm (0.041 in.)
B	90565-RDK-000	1.13 mm (0.044 in.)
C	90566-RDK-000	1.21 mm (0.048 in.)
D	90567-RDK-000	1.29 mm (0.051 in.)
E	90568-RDK-000	1.37 mm (0.054 in.)
F	90569-RDK-000	1.45 mm (0.057 in.)
G	90570-RDK-000	1.53 mm (0.060 in.)
H	90571-RDK-000	1.61 mm (0.063 in.)
I	90572-RDK-000	1.69 mm (0.067 in.)
J	90573-RDK-000	1.77 mm (0.070 in.)
K	90574-RDK-000	1.85 mm (0.073 in.)
L	90575-RDK-000	1.93 mm (0.076 in.)
M	90576-RDK-000	2.01 mm (0.079 in.)
N	90577-RDK-000	2.09 mm (0.082 in.)

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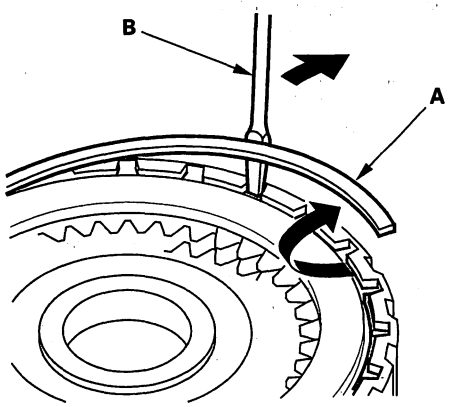
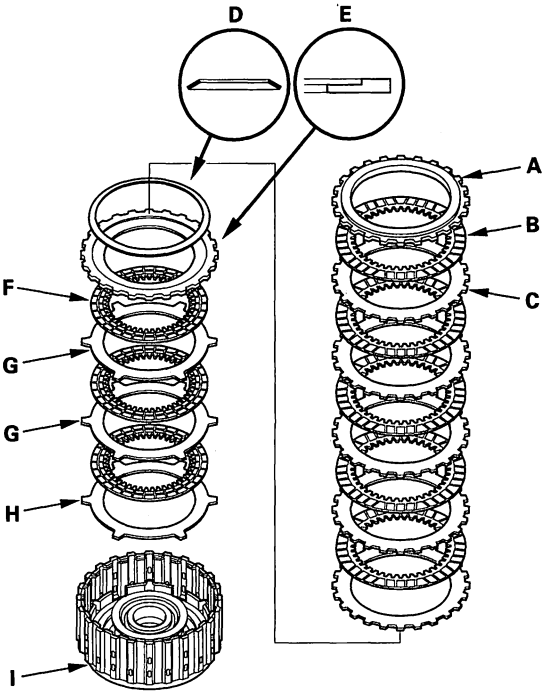
Clutch Disassembly

Special Tools Required
- Clutch spring compressor attachment 07LAE-PX40100 or 07HAE-PL50101
- Clutch spring compressor bolt assembly 07GAE-PG40200 or 07GAE-PG4020A

1. Remove the snap ring (A) with a screwdriver (B).



2. Remove the 1st clutch end plate (A), 1st clutch discs (B) (5), 1st clutch wave-plates (C) (5), disc spring (D), 1st-hold clutch plate B (E), 1st-hold clutch discs (F) (3), 1st-hold clutch wave-plates (G) (2), and 1st-hold clutch flat-plate (H) from the 1st/1st-hold clutch drum (I).

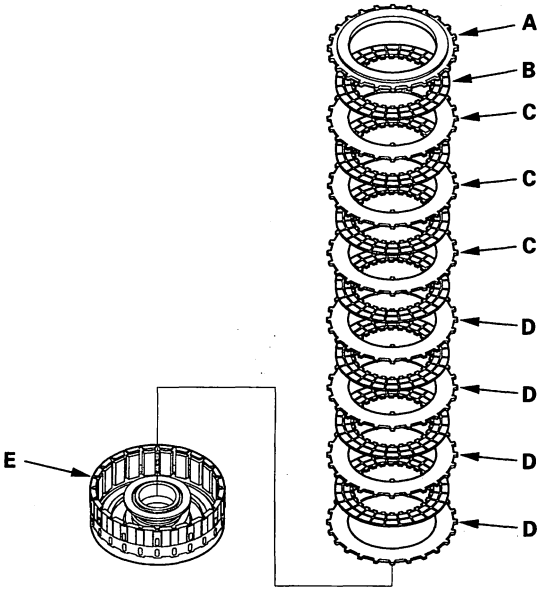


3. Make reference marks on the clutch wave-plates.

BACK

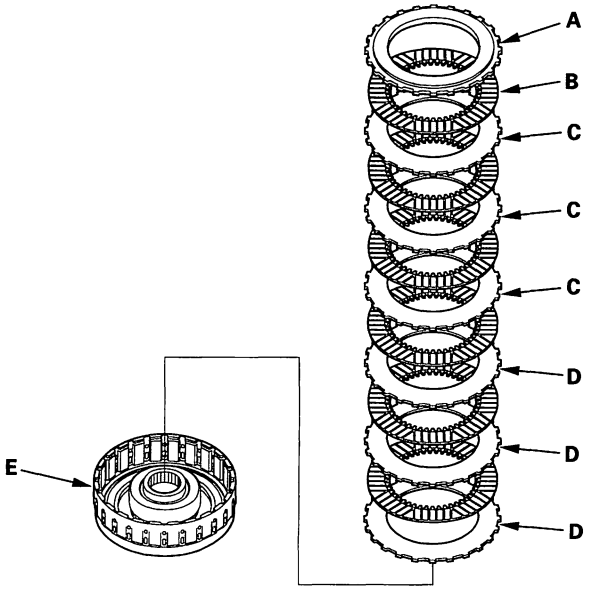
Protected by AR

4. Remove the clutch end plate (A), clutch discs (B) (7), clutch wave-plates (C) (3), and clutch flat-plates (D) (4) from the 2nd clutch drum (E).



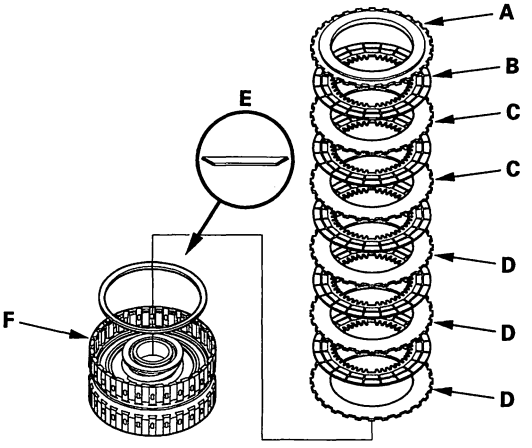
5. Make reference marks on the clutch wave-plates.

6. Remove the clutch end plate (A), clutch discs (B) (6), clutch wave-plates (C) (3), and clutch flat-plates (D) (3) from the 3rd clutch drum (E).



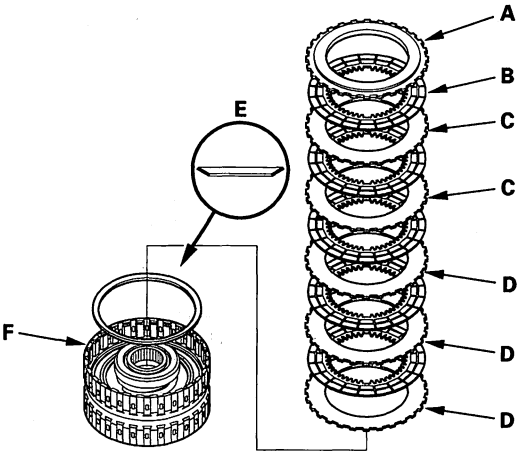
7. Make reference marks on the clutch wave-plates.

8. Remove the clutch end plate (A), clutch discs (B) (5), clutch wave-plates (C) (2), clutch flat-plates (D) (3), and disc spring (E) from the 4th clutch drum (F).



9. Make reference marks on the clutch wave-plates.

10. Remove the clutch end plate (A), clutch discs (B) (5), clutch wave-plates (C) (2), clutch flat-plates (D) (3), and disc spring (E) from the 5th clutch drum (F).



11. Make reference marks on the clutch wave-plates.

(cont'd)

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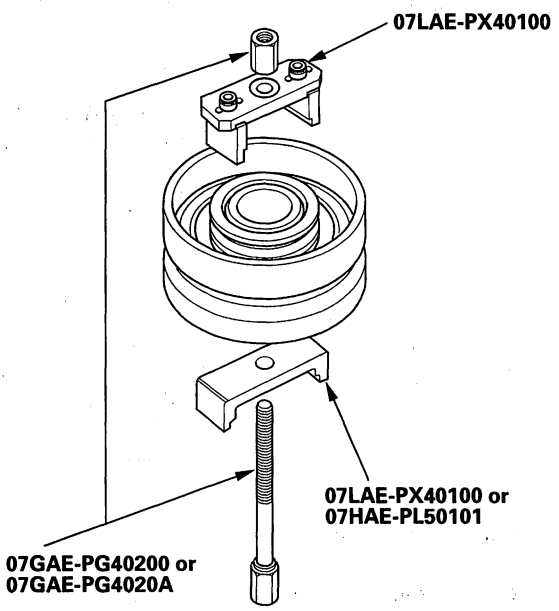
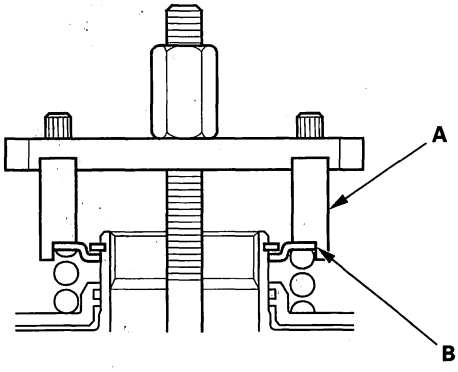
Clutch Disassembly (cont'd)

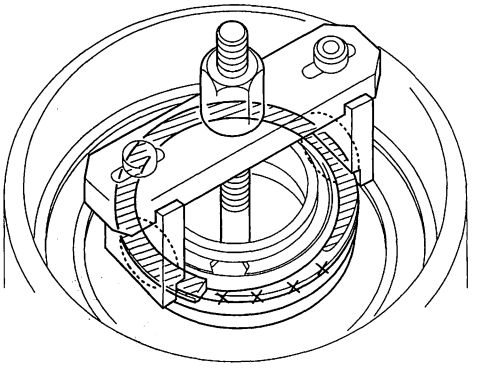
12. Install the clutch spring compressor attachments and the clutch spring compressor bolt assembly.



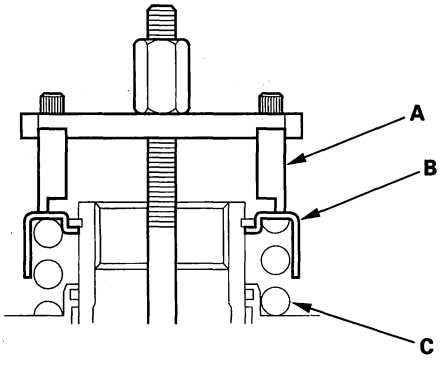
13. Be sure the clutch spring compressor attachment (A) is adjusted to have full contact with the spring retainer (B) on the 1st, 2nd, and 4th clutches.



14. If either end of the clutch spring compressor attachment is set over an area of the spring retainer that is unsupported by the return spring, the retainer may be damaged.



15. Set the clutch spring compressor attachment (A) on the spring retainer (B) of the 3rd and 5th clutches so the clutch spring compressor attachment works on the clutch return spring (C).



BACK

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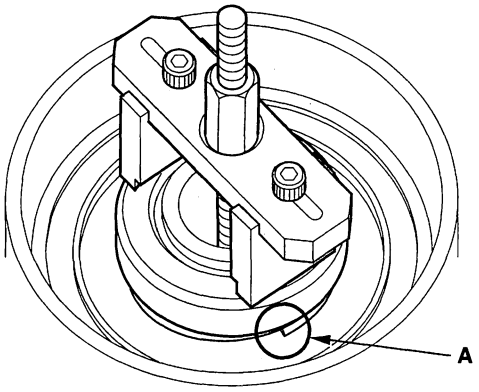
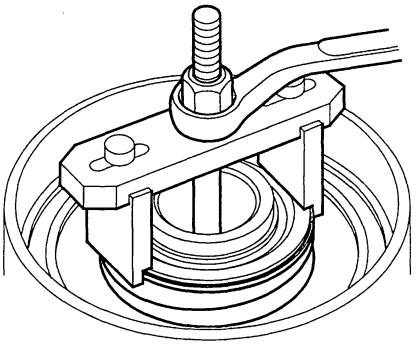
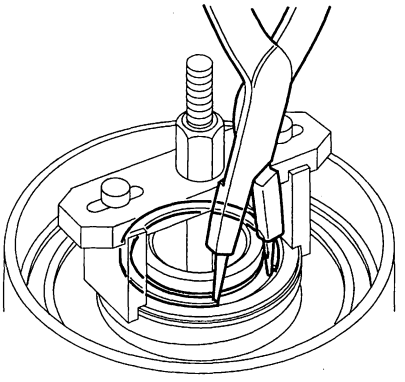
16. If either end of the clutch spring compressor attachment is not set over the clutch return spring end (A), the retainer may be damaged.



17. Compress the return spring until the snap ring can be removed.

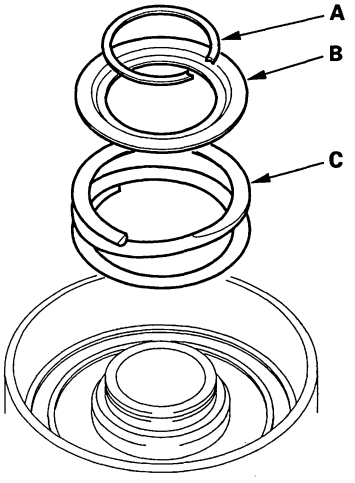


18. Remove the snap ring with the snap ring pliers.



19. Remove the clutch spring compressor attachments and the clutch spring compressor bolt assembly.

20. Remove the snap ring (A), spring retainer (B), and return spring (C).



(cont'd)

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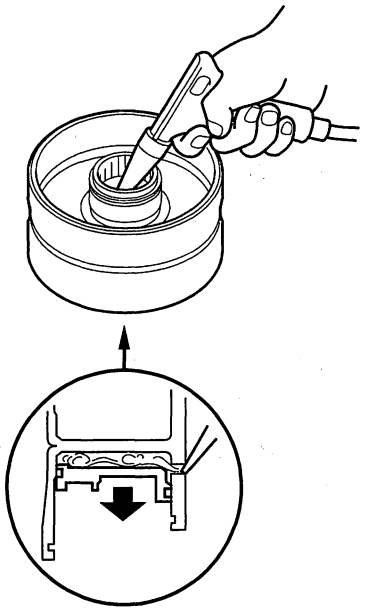
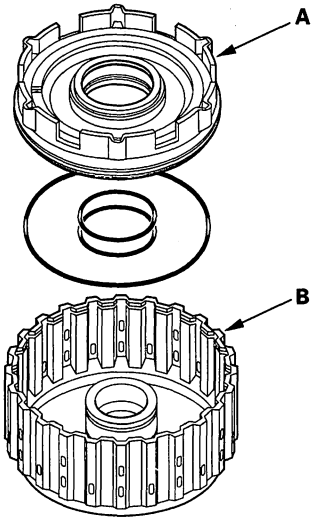
Clutch Disassembly (cont'd)

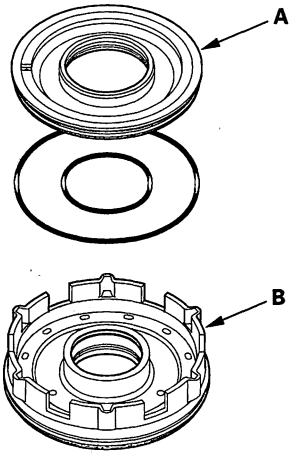
21. Wrap a shop rag around the clutch drum, and apply air pressure to the fluid passage to remove the piston. Place a finger tip on the other passage while applying air pressure.



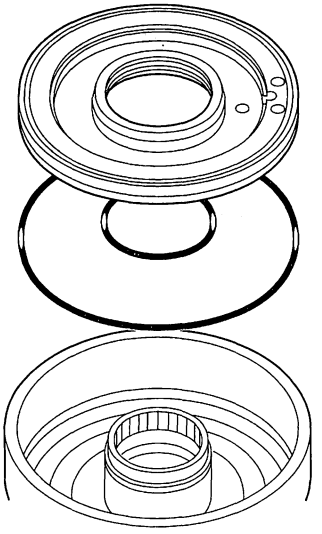
22. Remove the 1st/1st-hold clutch piston (A) from the clutch drum (B), and remove the O-rings from the 1st clutch piston.



23. Remove the 1st-hold clutch piston (A) from the 1st clutch piston (B), and remove the O-rings from the 1st-hold clutch piston.



24. Remove the clutch piston, and remove the O-rings from the 2nd, 3rd, 4th, and 5th clutch pistons.



BACK

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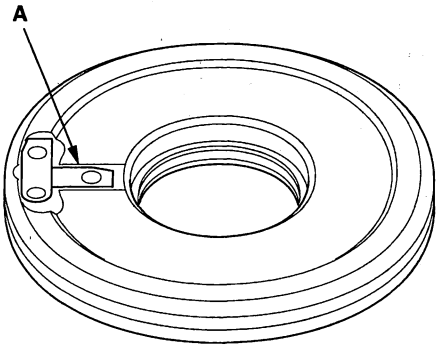
Clutch Inspection

1. Inspect the clutch pistons and clutch piston check valves (A).



2. If the clutch piston check valve is loose or damaged, replace the clutch piston.
3. Check the spring retainer for wear and damage.
4. If the spring retainer is worn or damaged, replace it.
5. Inspect the clutch discs, clutch plates, and clutch end plate for wear, damage, and discoloration.

Clutch Discs:
Standard Thickness: 1.94 mm (0.076 in.)

Clutch Flat-plates and Clutch Wave-plates
Standard Thickness:

1st clutch:	**1.6 mm (0.063 in.)**
1st-hold clutch:	**1.8 mm (0.071 in.)**
2nd clutch:	**1.8 mm (0.071 in.)**
3rd clutch:	**1.8 mm (0.071 in.)**
4th clutch:	**1.6 mm (0.063 in.)**
5th clutch:	**1.6 mm (0.063 in.)**

6. If the clutch discs are worn or damaged, replace them as a set. If the clutch discs are replaced, inspect the clutch end-plate-to-top disc clearance.
7. If any plate is worn, damaged, or discolored, replace the damaged plate with a new plate, and inspect the other wave-plates for a phase difference. If the clutch plate is replaced, inspect the clutch end-plate-to-top disc clearance.
8. If the clutch end plate is worn, damaged, or discolored, inspect the clutch end-plate-to-top disc clearance, then replace the clutch end plate.

BACK

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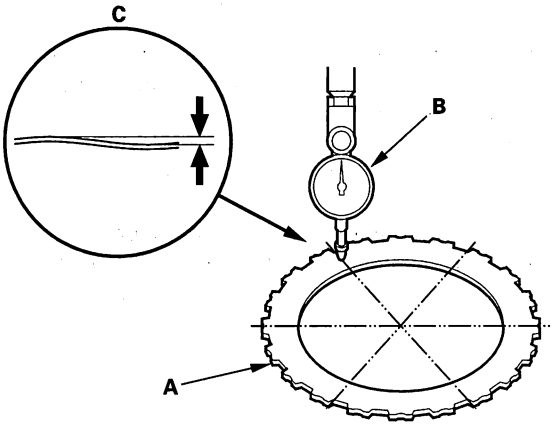
Clutch Wave-plate Phase Difference Inspection

1. Place the clutch wave-plate (A) on a surface plate, and set a dial indicator (B) on the wave-plate.



2. Find the bottom (C) of a phase difference of the wave-plate, zero the dial indicator and make a reference mark on the bottom of the wave-plate.

3. Measure the phase differences of 1st, 1st-hold, 2nd, and 3rd clutch wave-plates.

   -1 Rotate the clutch wave-plate a bout 60-degrees while holding the wave-plate by its circumference. The dial indicator should be at the top of a phase difference. Do not rotate the wave-plate while holding its surface, always rotate it by holding its circumference.

   -2 Read the dial indicator. The dial indicator reads the phase difference of the wave-plate between the bottom and top.

   Standard Phase Difference:
   1st clutch: 0.17—0.30 mm (0.007—0.012 in.)
   1st-hold clutch: 0.07—0.20 mm (0.003—0.008 in.)
   2nd clutch: 0.07—0.20 mm (0.003—0.008 in.)
   3rd clutch: 0.07—0.20 mm (0.003—0.008 in.)

   -3 Rotate the wave-plate a bout 60-degrees. The dial indicator should be at the bottom of a phase difference, and zero the dial indicator.

   -4 Measure the phase difference at the other two tops of the wave-plate by following steps -1 thru -3.

4. Measure the phase differences of 4th and 5th clutch wave-plates.

   -1 Rotate the clutch wave-plate 5-tooth or 4-tooth while holding the wave-plate by its circumference. The dial indicator should be at the top of a phase difference. Do not rotate the wave-plate while holding its surface, always rotate it by holding its circumference.

   -2 Read the dial indicator. The dial indicator reads the phase difference of the wave-plate between the bottom and top.

   Standard Phase Difference:
   4th clutch: 0.07—0.20 mm (0.003—0.008 in.)
   5th clutch: 0.07—0.20 mm (0.003—0.008 in.)

   -3 Rotate the wave-plate 5-tooth or 4-tooth. The dial indicator should be at the bottom of a phase difference, and zero the dial indicator.

   -4 Measure the phase difference at the other two tops of the wave-plate by following steps -1 thru -3.

5. If the two values of the three measurements are within the standard, the wave-plate is OK. If the two values of the three measurements are out of the standard, replace the wave-plate.

BACK

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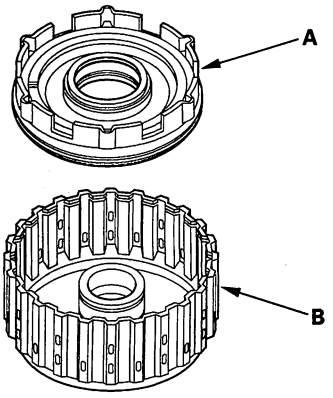
Clutch Clearance Inspection

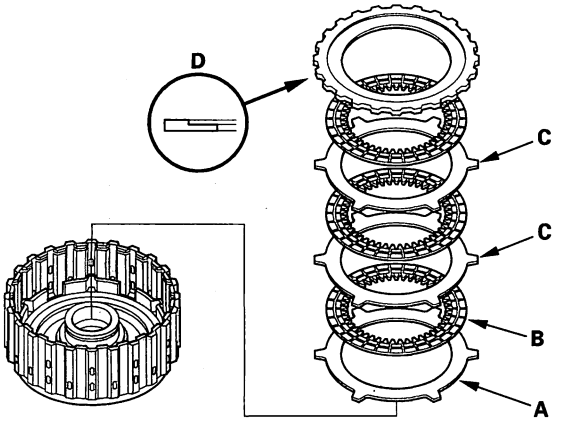
Special Tools Required
Clutch compressor attachment 07ZAE-PRP0100

1. Inspect the clutch piston, discs, plates, and end plate for wear and damage (see page 14-389), and inspect the clutch wave-plate phase difference (see page 14-390), if necessary.

2. Install the 1st-hold clutch piston in the 1st clutch piston, and install the 1st/1st-hold clutch piston (A) in the 1st/1st-hold clutch drum (B). Do not install the O-rings on the clutch pistons during inspection.

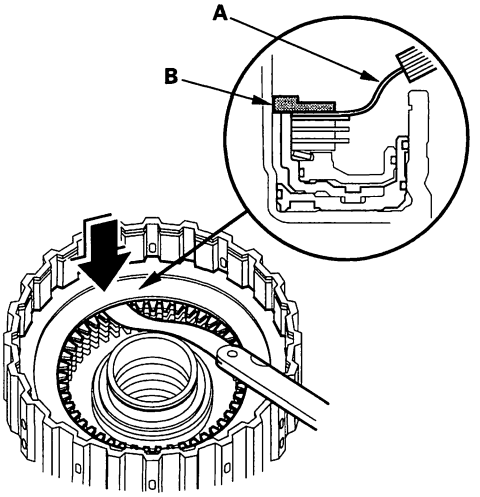


3. Install the 1st-hold clutch flat-plate (A), alternately install the clutch discs (B) (3) and the 1st-hold clutch wave-plates (C) (2), then install the 1st-hold clutch plate B (D) with the flat side down in the direction shown.



4. Measure the 1st-hold clutch plate B-to-top-disc clearance with a feeler gauge (A) while pressing the 1st-hold clutch plate B down. Take measurements in at least three places, and use the average as the actual clearance.

1st-hold Clutch Plate B-to-Top-Disc Clearance:
Service Limit: 0.6—1.0 mm (0.024—0.039 in.)



5. If the clearance is out of standard, replace the 1st-hold clutch plates and discs as a set, and recheck.

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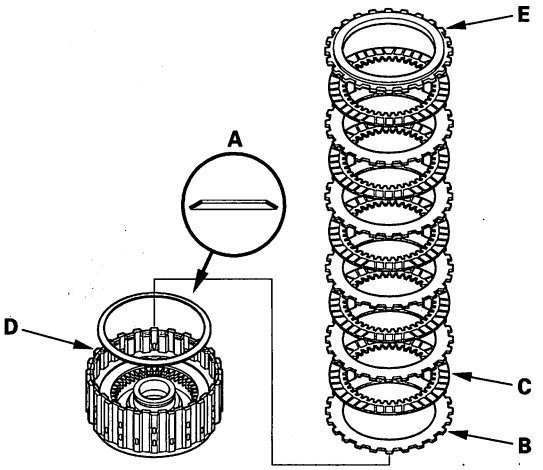
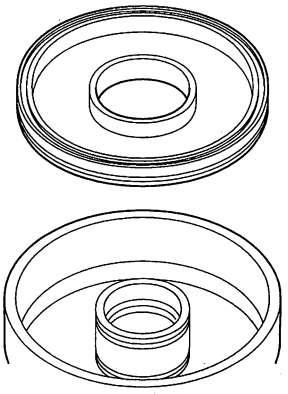
Clutch Clearance Inspection (cont'd)

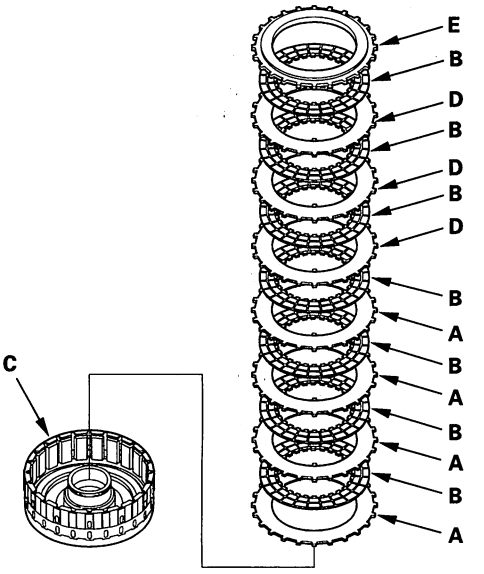
6. Install the disc spring (A) on the 1st-hold clutch plate B in the direction shown. Starting with the 1st clutch wave-plate, alternately install the wave-plates (B) (5) and discs (C) (5) in the 1st clutch drum (D), then install the clutch-end-plate (E) with the flat side down.



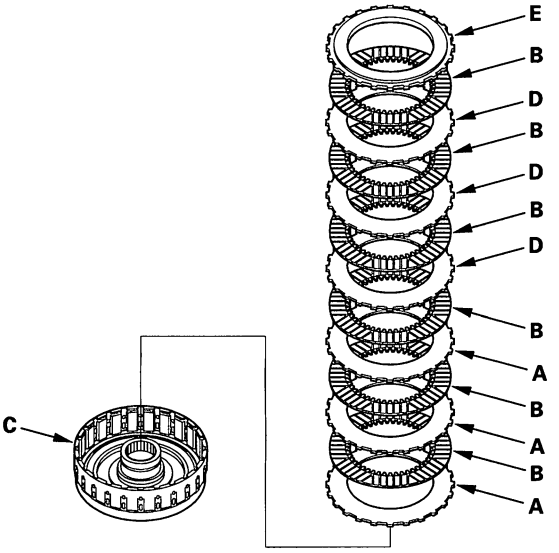
7. Install the clutch pistons in the 2nd, 3rd, 4th, and 5th clutch drums. Do not install the O-rings on the clutch pistons during inspection.



8. Starting with the 2nd clutch flat-plate, alternately install the flat-plates (A) (4) and discs (B) (4) in the 2nd clutch drum (C), and alternately install the wave-plates (D) (3) and discs (B) (3). Install the clutch-end-plate (E) with the flat side down on the top disc.



9. Starting with the 3rd clutch flat-plate, alternately install the flat-plates (A) (3) and discs (B) (3) in the 3rd clutch drim (C), and alternately install the wave-plates (D) (3) and discs (B) (3). Install the clutch-end-plate (E) with the flat side down on the top disc.



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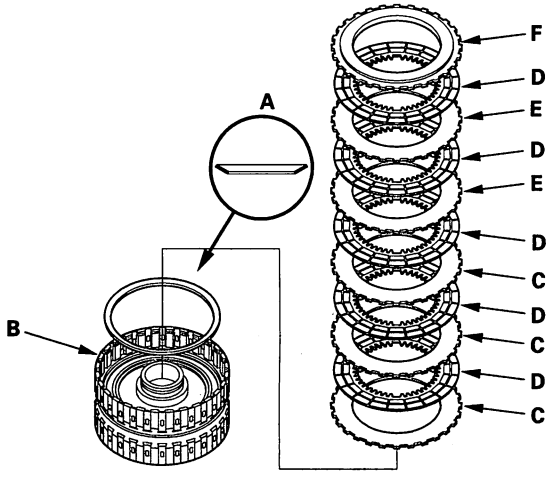
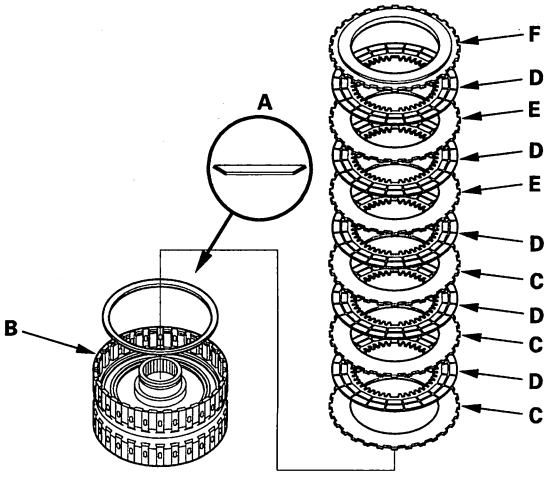
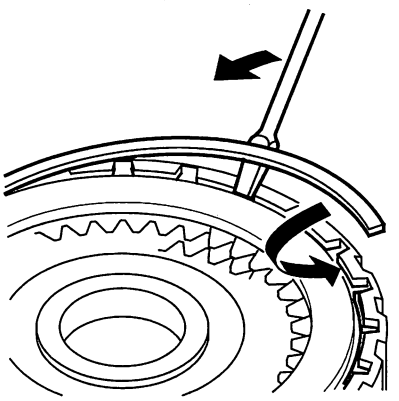
10. Install the disc spring (A) in the 4th clutch drum (B) in the direction shown. Starting with the 4th clutch flat-plate, alternately install the flat-plates (C) (3) and discs (D) (3), and alternately install the wave-plates (E) (2) and discs (D) (2). Install the clutch-end-plate (F) with the flat side down on the top disc.



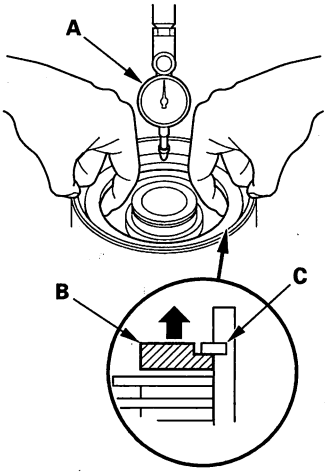
11. Install the disc spring (A) in the 5th clutch drum (B) in the direction shown. Starting with the 5th clutch flat-plate, alternately install the flat-plates (C) (3) and discs (D) (3), and alternately install the wave-plates (E) (2) and discs (D) (2). Install the clutch-end-plate (F) with the flat side down on the top disc.



12. Install the snap ring with a screwdriver to secure the clutch-end-plate.



13. Set a dial indicator (A) on the clutch-end-plate (B).



14. Zero the dial indicator with the clutch-end-plate lifted up to the snap ring (C).

(cont'd)

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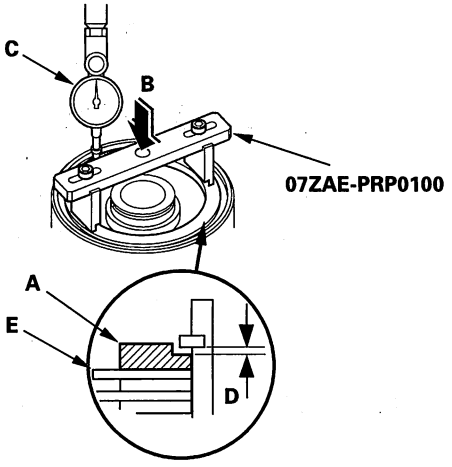
Clutch Clearance Inspection (cont'd)

15. Release the clutch-end-plate to lower the clutch-end-plate, then put the clutch compressor attachment on the end-plate (A).

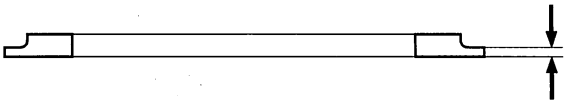


16. Press the clutch compressor attachment down with 150—160 N (15—16 kgf, 33—35 lbf) (B) using a force gauge, and read the dial indicator (C).

17. The dial indicator reads the clearance (D) between the clutch-end-plate and top disc (E). Take measurements in at least three places, and use the average as the actual clearance.

Clutch End-Plate-to-Top Disc Clearance:
Service Limit:
1st clutch: 1.15—1.35 mm (0.045—0.053 in.)
2nd clutch: 1.05—1.25 mm (0.041—0.049 in.)
3rd clutch: 0.9—1.1 mm (0.035—0.043 in.)
4th clutch: 0.75—0.95 mm (0.030—0.037 in.)
5th clutch: 0.75—0.95 mm (0.030—0.037 in.)

18. If the clearance is out of the service limit, select a new clutch-end-plate from the following table.



1ST CLUTCH END PLATES

Plate No.	Part Number	Thickness
1	22551-RDK-003	3.1 mm (0.122 in.)
2	22552-RDK-003	3.2 mm (0.126 in.)
3	22553-RDK-003	3.3 mm (0.130 in.)
4	22554-RDK-003	3.4 mm (0.134 in.)
5	22555-RDK-003	3.5 mm (0.138 in.)
6	22556-RDK-003	3.6 mm (0.142 in.)
7	22557-RDK-003	3.7 mm (0.146 in.)
8	22558-RDK-003	3.8 mm (0.150 in.)
9	22559-RDK-003	3.9 mm (0.154 in.)

2ND CLUTCH END PLATES

Plate No.	Part Number	Thickness
1	22561-RDK-003	2.1 mm (0.083 in.)
2	22562-RDK-003	2.2 mm (0.087 in.)
3	22563-RDK-003	2.3 mm (0.091 in.)
4	22564-RDK-003	2.4 mm (0.094 in.)
5	22565-RDK-003	2.5 mm (0.098 in.)
6	22566-RDK-003	2.6 mm (0.102 in.)
7	22567-RDK-003	2.7 mm (0.106 in.)
8	22568-RDK-003	2.8 mm (0.110 in.)
9	22569-RDK-003	2.9 mm (0.114 in.)

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3RD CLUTCH END PLATES

Plate No.	Part Number	Thickness
1	22591-RYF-003	2.1 mm (0.083 in.)
2	22592-RYF-003	2.2 mm (0.087 in.)
3	22593-RYF-003	2.3 mm (0.091 in.)
4	22594-RYF-003	2.4 mm (0.094 in.)
5	22595-RYF-003	2.5 mm (0.098 in.)
6	22596-RYF-003	2.6 mm (0.102 in.)
7	22597-RYF-003	2.7 mm (0.106 in.)
8	22598-RYF-003	2.8 mm (0.110 in.)
9	22599-RYF-003	2.9 mm (0.114 in.)

4TH and 5TH CLUTCH END PLATES

Plate No.	Part Number	Thickness
1	22571-RYF-003	2.1 mm (0.083 in.)
2	22572-RYF-003	2.2 mm (0.087 in.)
3	22573-RYF-003	2.3 mm (0.091 in.)
4	22574-RYF-003	2.4 mm (0.094 in.)
5	22575-RYF-003	2.5 mm (0.098 in.)
6	22576-RYF-003	2.6 mm (0.102 in.)
7	22577-RYF-003	2.7 mm (0.106 in.)
8	22578-RYF-003	2.8 mm (0.110 in.)
9	22579-RYF-003	2.9 mm (0.114 in.)

19. Install the new clutch-end-plate, and recheck the clearance. If the thickest clutch-end-plate is installed, but the clearance is still over the service limit, replace the clutch discs and plates.

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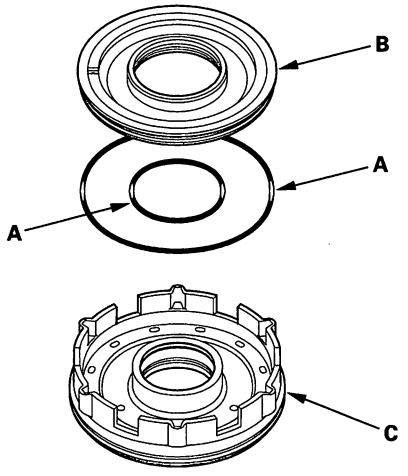
Clutch Reassembly

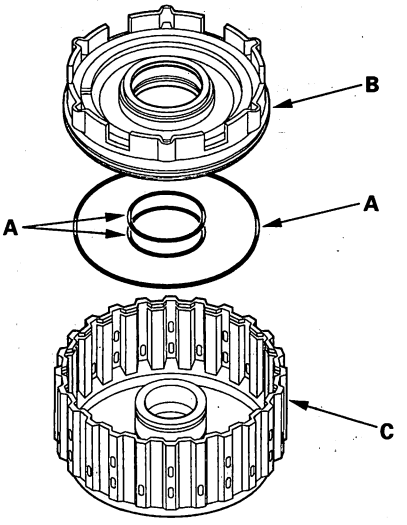
Special Tools Required
- Clutch spring compressor attachment 07LAE-PX40100 or 07HAE-PL50101
- Clutch spring compressor bolt assembly 07GAE-PG40200 or 07GAE-PG4020A

1. Soak the clutch discs thoroughly in ATF for a minimum of 30 minutes.

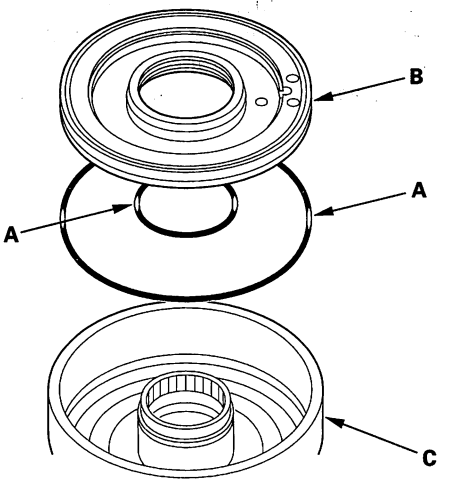
2. Install the new O-rings (A) on the 1st-hold clutch piston (B), and install the 1st-hold clutch piston in the 1st clutch piston (C).



3. Install the new O-rings (A) on the 1st clutch piston (B), and install the 1st/1st-hold clutch piston in the 1st/1st-hold clutch drum (C) while applying pressure and rotating to ensure proper seating. Do not pinch the O-ring.



4. Install the O-rings (A) on the 2nd, 3rd, 4th and 5th clutch piston (B).



5. Install the clutch pistons in the clutch drums (C) while applying pressure and rotating to ensure proper seating. Do not pinch the O-ring.

BACK

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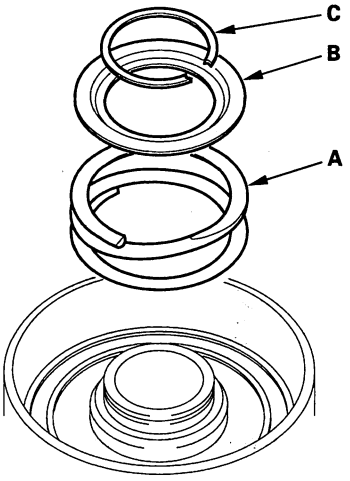
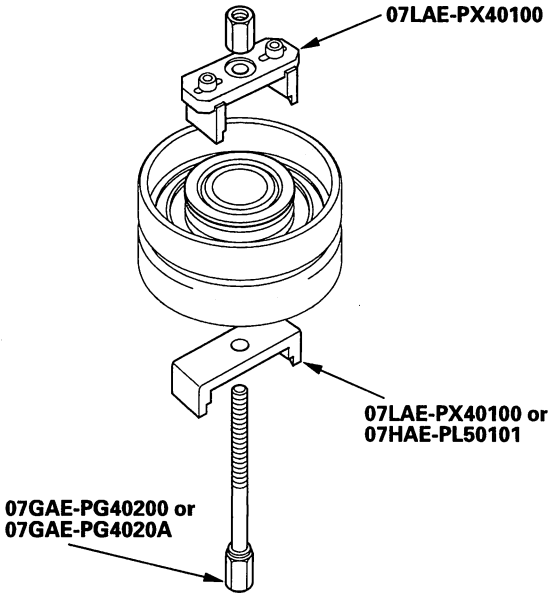
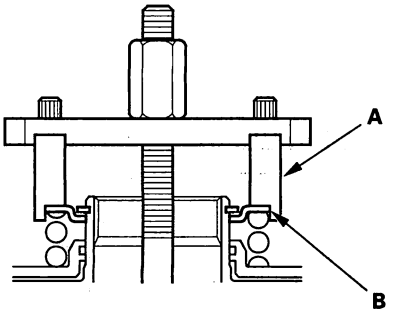
6. Install the return spring (A) and spring retainer (B), and position the snap ring (C) on the spring retainer.



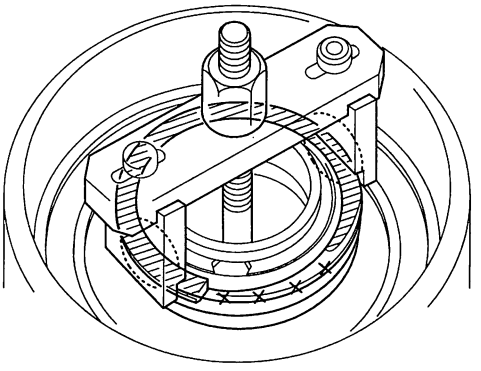
7. Install the clutch spring compressor attachments and the clutch spring compressor bolt assembly.



8. Be sure the clutch spring compressor attachment (A) is adjusted to have full contact with the spring retainer (B) on the 1st, 2nd, and 4th clutches.



9. If either end of the clutch spring compressor attachment is set over an area of the spring retainer that is unsupported by the return spring, the retainer may be damaged.



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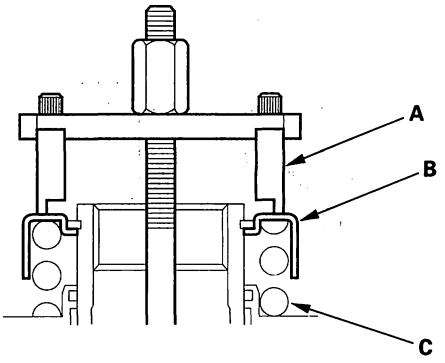
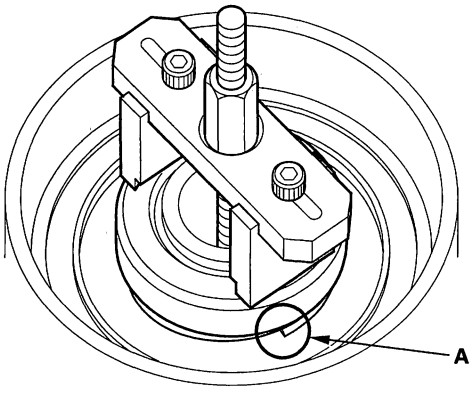
Clutch Reassembly (cont'd)

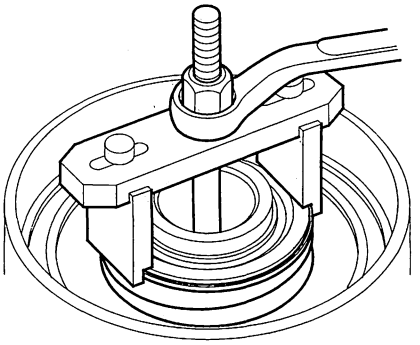
10. Set the clutch spring compressor attachment (A) on the spring retainer (B) of the 3rd and 5th clutches so the clutch spring compressor attachment works on the clutch return spring (C).



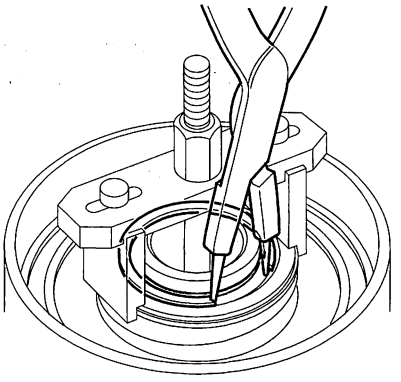
11. If either end of the clutch spring compressor attachment is not set over the clutch return spring end (A), the retainer may be damaged.



12. Compress the return spring until the snap ring can be installed.



13. Install the snap ring with the snap ring pliers.



14. Remove the clutch spring compressor attachments and the clutch spring compressor bolt assembly.

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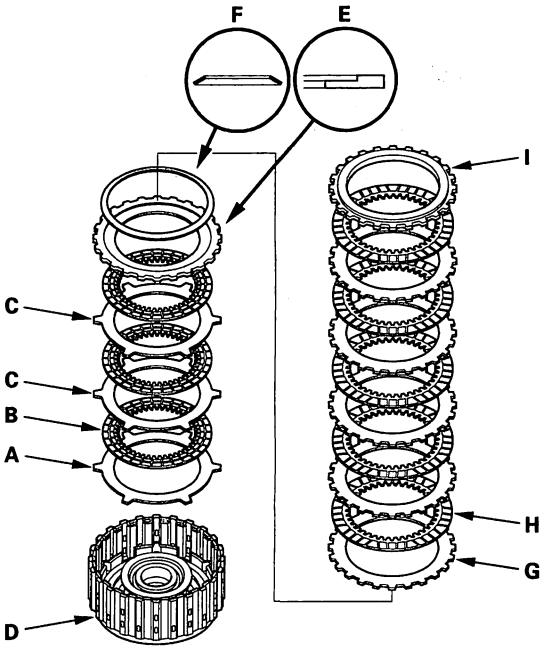
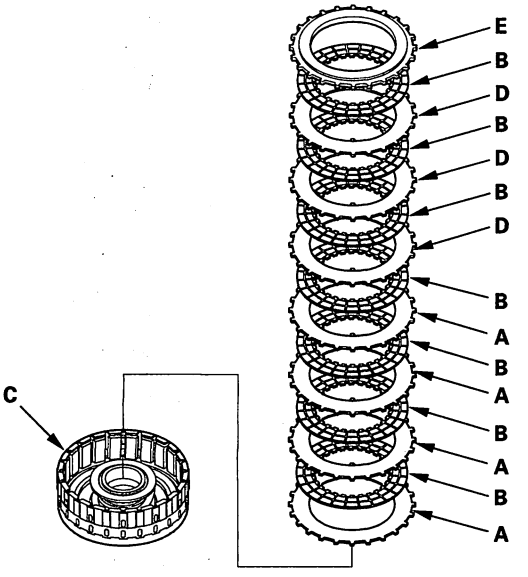
15. Install the 1st-hold clutch flat-plate (A), alternately install the clutch discs (B) (3) and the 1st-hold clutch wave-plates (C) (2) in the 1st/1st-hold clutch drum (D), then install the 1st-hold clutch plate B (E) with the flat side down in the direction shown.

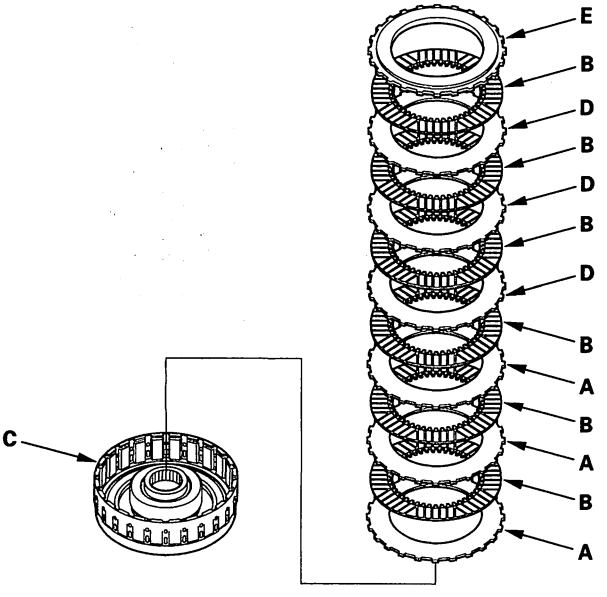


16. Install the disc spring (F) on the 1st-hold clutch plate B in the direction shown. Starting with the 1st clutch wave-plate, alternately install the wave-plates (G) (5) and discs (H) (5), then install the clutch-end-plate (I) with the flat side down on the top disc.

17. Starting with the 2nd clutch flat-plate, alternately install the flat-plates (A) (4) and discs (B) (4) in the 2nd clutch drum (C), and alternately install the wave-plates (D) (3) and discs (B) (3). Install the clutch-end-plate (E) with the flat side down on the top disc.



18. Starting with the 3rd clutch flat-plate, alternately install the flat-plates (A) (3) and discs (B) (3) in the 3rd clutch drum (C), and alternately install the wave-plates (D) (3) and discs (B) (3). Install the clutch-end-plate (E) with the flat side down on the top disc.



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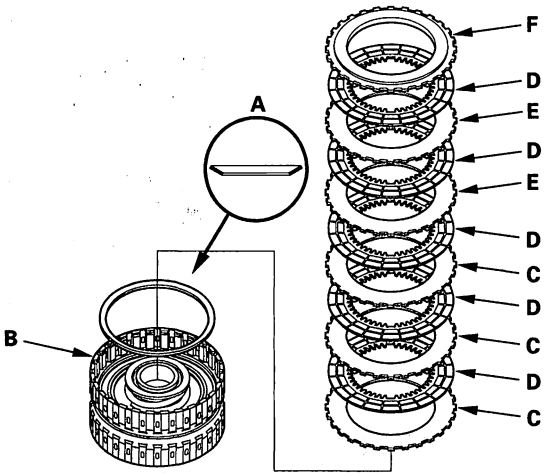
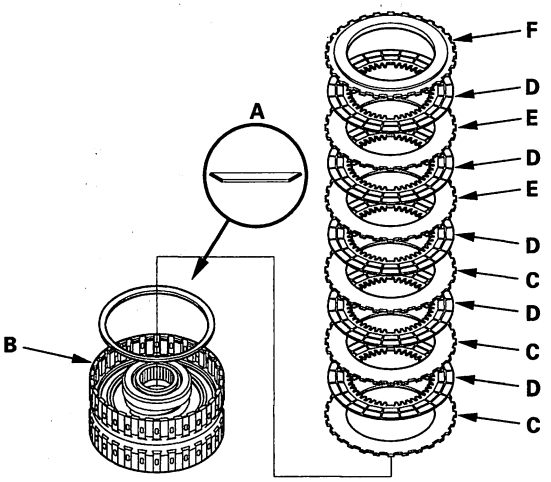
Clutch Reassembly (cont'd)

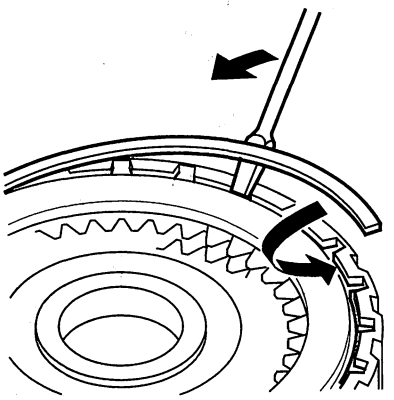
19. Install the disc spring (A) in the 4th clutch drum (B) in the direction shown. Starting with the 4th clutch flat-plate, alternately install the flat-plates (C) (3) and discs (D) (3), and alternately install the wave-plates (E) (2) and discs (D) (2). Install the clutch-end-plate (F) with the flat side down on the top disc.



20. Install the disc spring (A) in the 5th clutch drum (B) in the direction shown. Starting with the 5th clutch flat-plate, alternately install the flat-plates (C) (3) and discs (D) (3), and alternately install the wave-plates (E) (2) and discs (D) (2). Install the clutch-end-plate (F) with the flat side down on the top disc.



21. Install the snap ring with a screwdriver to secure the clutch-end-plate.



BACK

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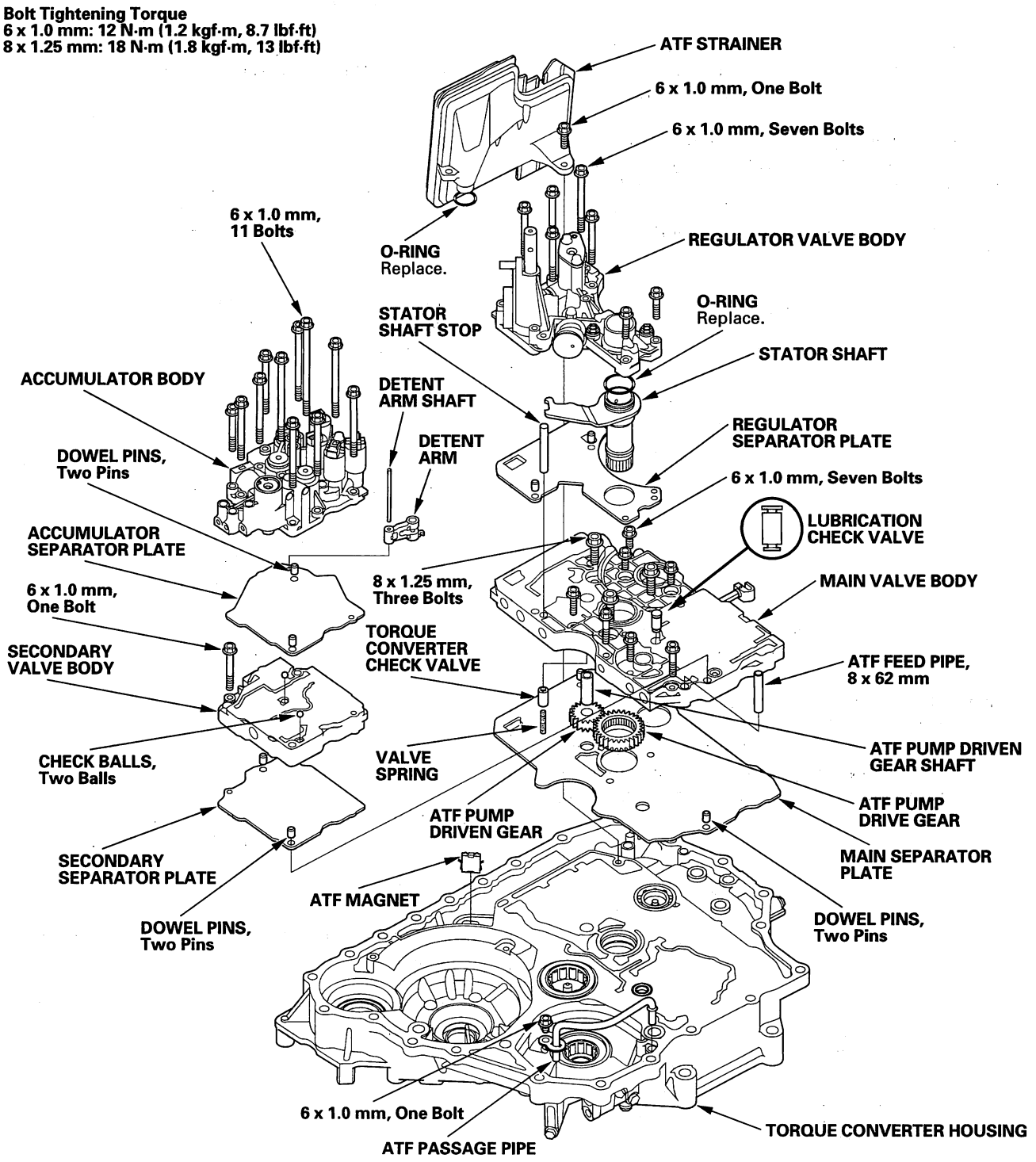
Transmission Reassembly

Exploded View



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BACK

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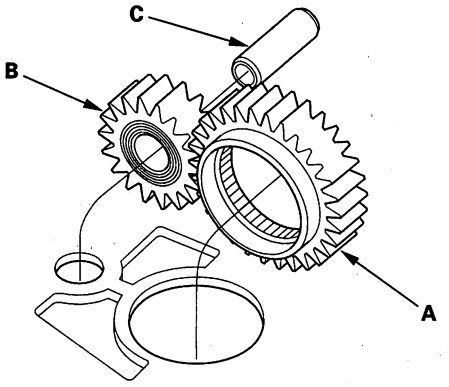
Transmission Reassembly (cont'd)

Special Tool Required
Mainshaft holder 07GAB-PF50101

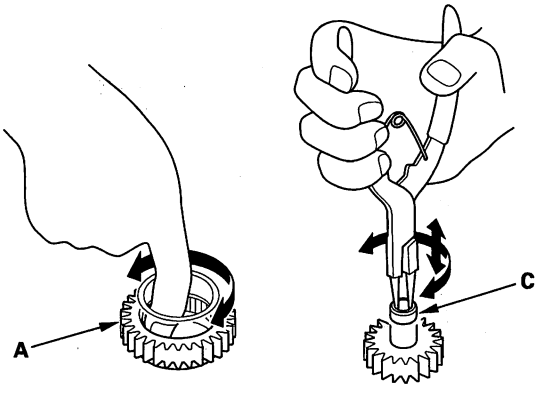
1. Make sure that the ATF magnet is cleaned and installed in the torque converter housing. Clean and install the ATF magnet, if necessary.

2. Install the main separator plate and the two dowel pins on the torque converter housing. Then install the ATF pump drive gear (A), driven gear (B), and ATF pump driven gear shaft (C). Install the ATF pump driven gear with its grooved and chamfered side facing down.



3. Install the torque converter check valve spring and valve in the torque converter housing.

4. Install the main valve body (seven 6 mm bolts and three 8 mm bolts). Make sure the ATF pump drive gear (A) rotates smoothly in the normal operating direction, and the ATF pump driven gear shaft (C) moves smoothly in the axial and normal operating direction.



5. If the ATF pump drive gear and ATF pump driven gear shaft do not move smoothly, loosen the main valve body bolts. Realign the ATF pump driven gear shaft, and retighten the bolts to the specified torques, then recheck. Failure to align the ATF pump driven gear shaft correctly will result in a seized ATF pump drive gear or ATF pump driven gear shaft.

6. Install the lubrication check valve, cooler check valve and cooler check valve spring in the main valve body. Install the lubrication check valve in the direction shown in the exploded view.

7. Install the secondary separator plate and the two dowel pins on the main valve body, and install the secondary valve body (one bolt).

8. Install the two check balls in the secondary valve body.

9. Install the accumulator separator plate and the two dowel pins on the secondary valve body.

10. Position the detent arm on the accumulator separator plate, and install the detent arm shaft into the detent arm through the separator plates to the main valve body.

11. Install the 8 x 62 mm ATF feed pipes in the main valve body, and install the accumulator body (11 bolts).

12. Install the regulator separator plate and the two dowel pins on the main valve body.

13. Install the stator shaft with the new O-ring, and install the regulator valve body (eight bolts).

14. Install the stator shaft stop in the main valve body.

15. Install the ATF strainer with the new O-ring (two bolts).

16. Install the ATF passage pipe (one bolt) in the torque converter housing.

BACK

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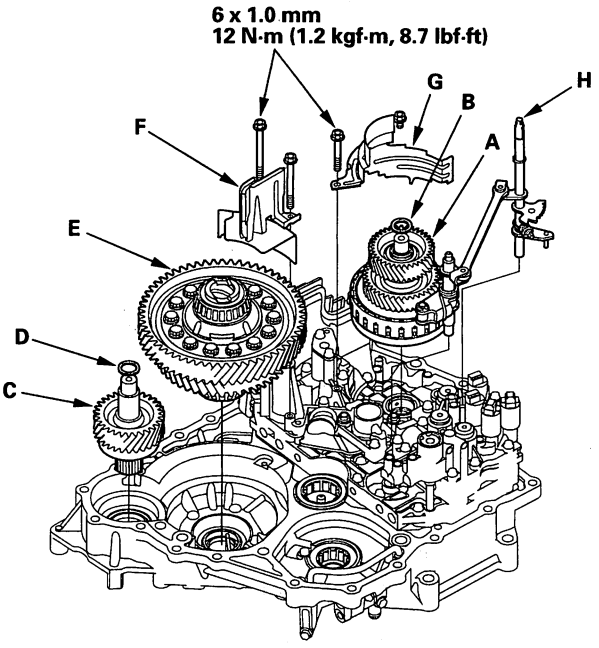
17. Install the intermediary shaft (A) into the main valve body, and install the 26.5 mm washer (B) on the top of the intermediary shaft.



18. Install the transfer output shaft (C) in the torque converter housing, and install the thrust shim (D) on the top of the transfer output shaft.

19. Install the differential assembly (E) in the torque converter housing.

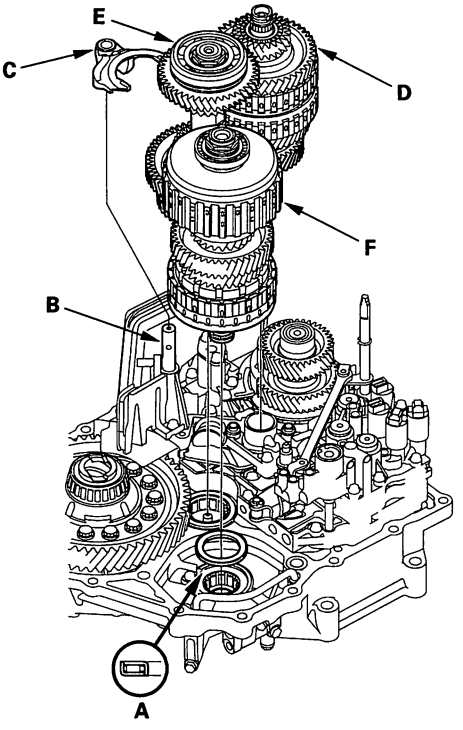
20. Install the baffle plate (F), and make sure the differential is clear of the baffle plate.

21. Install the baffle plate (G), and make sure the intermediary shaft is clear of the baffle plate.

22. Install the selector control shaft and the park lever link (H).

23. Assemble the mainshaft, countershaft, and secondary shaft.

24. Install the needle bearing (A) on the secondary shaft roller bearing in the torque converter housing.



25. Turn the shift fork shaft (B) so the large chamfered hole is facing the fork bolt hole of the shift fork.

26. Engage the shift fork (C) with the reverse selector on the countershaft, and join the mainshaft (D), countershaft (E), and secondary shaft (F), then install them in the torque converter housing and shift fork on the shift fork shaft.

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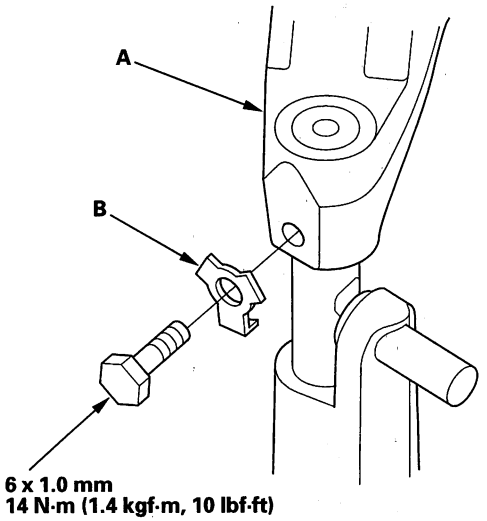
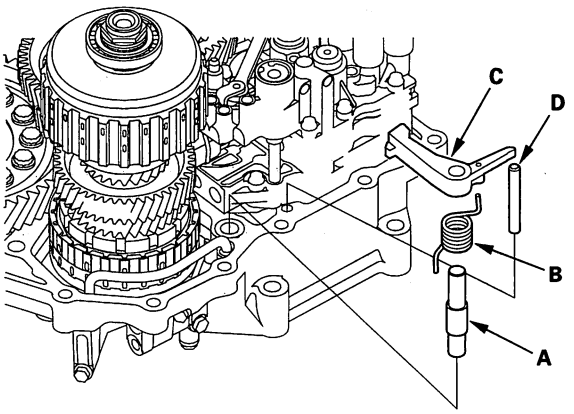
Transmission Reassembly (cont'd)

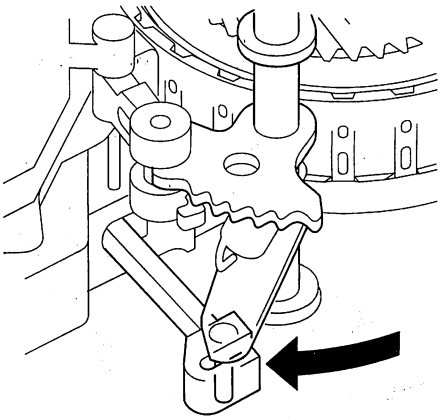
27. Secure the shift fork (A) to the shift fork shaft with the lock bolt and the new lock washer (B), then bend the lock tab of the lock washer against the bolt head.



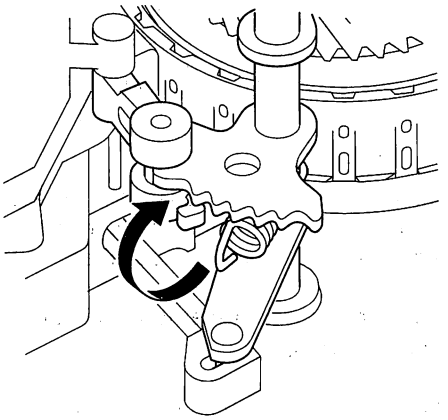
28. Install the park pawl shaft (A), pawl spring (B), park pawl (C), and park pawl stop (D).



29. Align the control lever pin with the manual valve guide.



30. Hook the detent arm spring to the detent arm.



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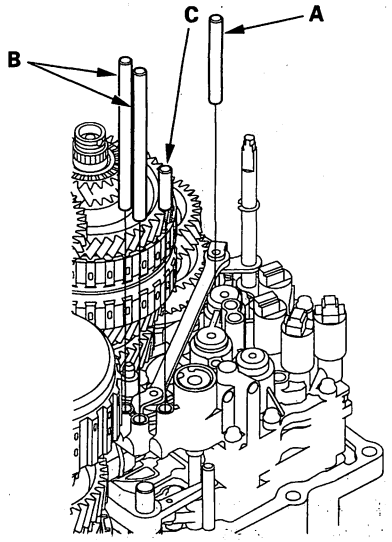
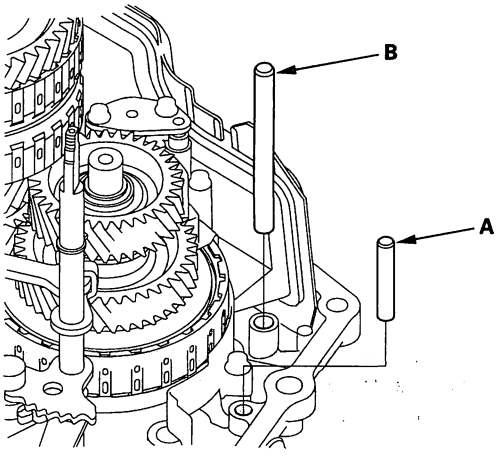
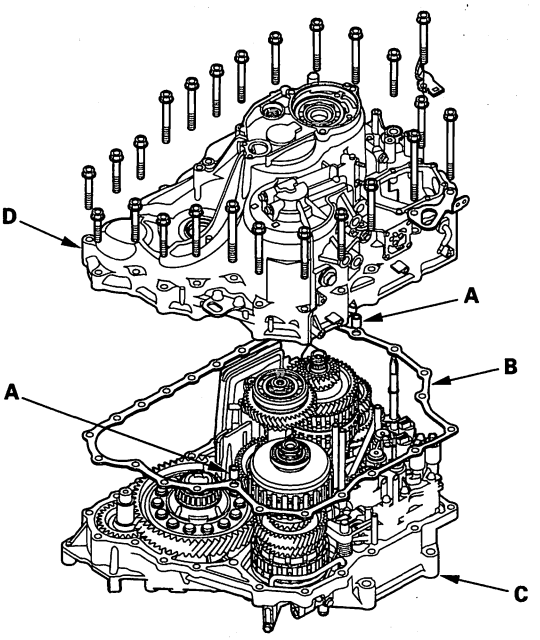
31. Install the 8 x 85 mm ATF feed pipe (A), the 8 x 151.5 mm pipes (B), and the 8 x 40 mm pipe (C) in the accumulator body.



32. Install the 8 x 57.5 mm ATF feed pipe (A) and the 10 x 123 mm pipe (B) in the torque converter housing.

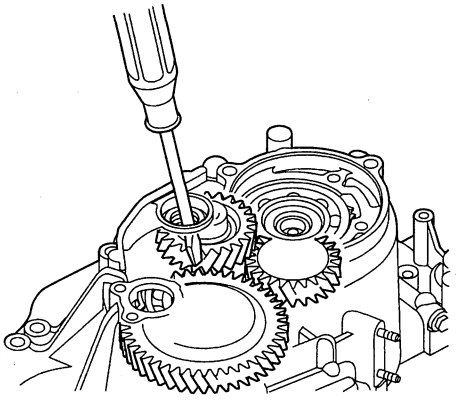


33. Install the two dowel pins (A) and the new gasket (B) on the torque converter housing (C).



34. Place the transmission housing (D) on the torque converter housing.

35. Wrap a screwdriver tip with tape to prevent damage to the reverse idler gear teeth. Engage the reverse idler gear with reverse gears by rotating the idler gear using the screwdriver.



(cont'd)

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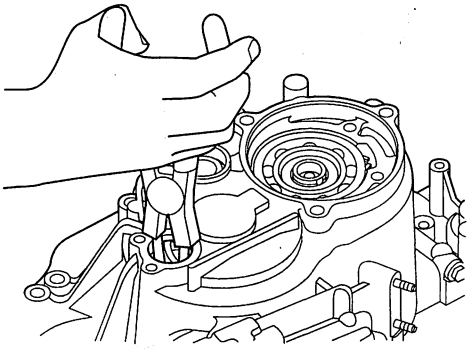
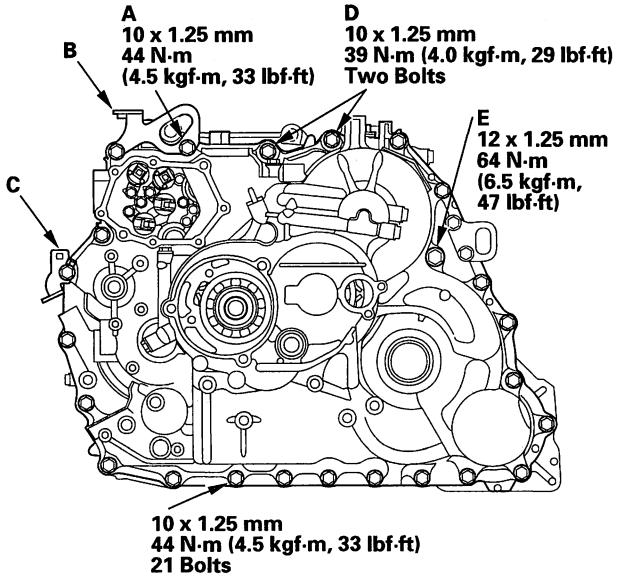
Transmission Reassembly (cont'd)

36. While expanding the snap ring of the countershaft bearing using snap ring pliers, install the transmission housing onto the bearing part-way. Then release the snap ring pliers, and push down on the housing until it bottoms and the snap ring snaps into place in the transmission housing snap ring groove.



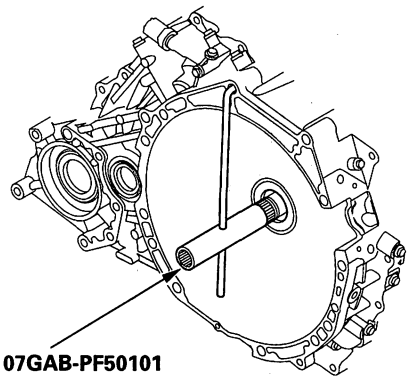
37. Install the transmission housing mounting bolts (21 bolts) and the bolt (A) along with the transmission hanger (B) and the transmission ground terminal bracket (C), and tighten the bolts in two or more steps in a criss-cross pattern to 44 N·m (4.5 kgf·m, 33 lbf·ft).



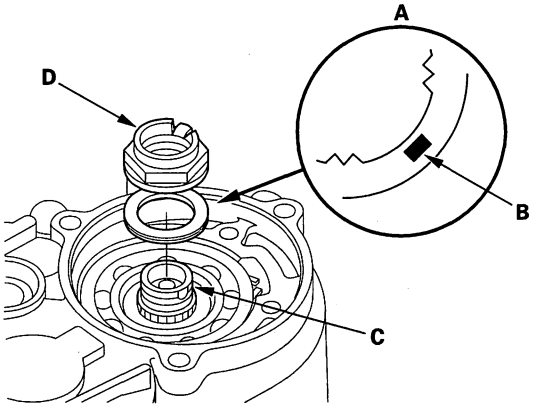
38. Install and tighten the two mounting bolts (D) to 39 N·m (4.0 kgf·m, 29 lbf·ft). Keep the mounting bolts free of grease or oil.

39. Install and tighten the special bolt (E) to 64 N·m (6.5 kgf·m, 47 lbf·ft).

40. Install the mainshaft holder onto the mainshaft.



41. Install the new lock washer (A) with the marked side (B) up over the mainshaft (C), and apply ATF to surfaces of the lock washer and old locknut (D).



42. Install the old locknut, and tighten it to seat the lock washer to 178 N·m (18.2 kgf·m, 132 lbf·ft), then remove the old locknut.

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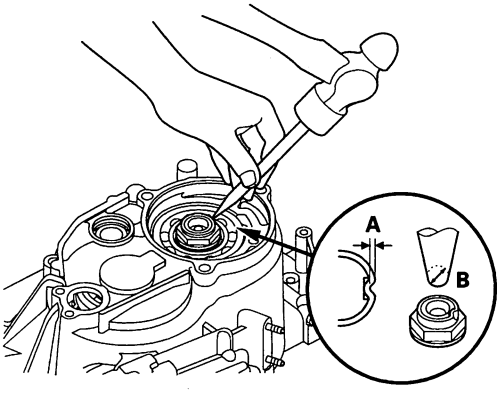
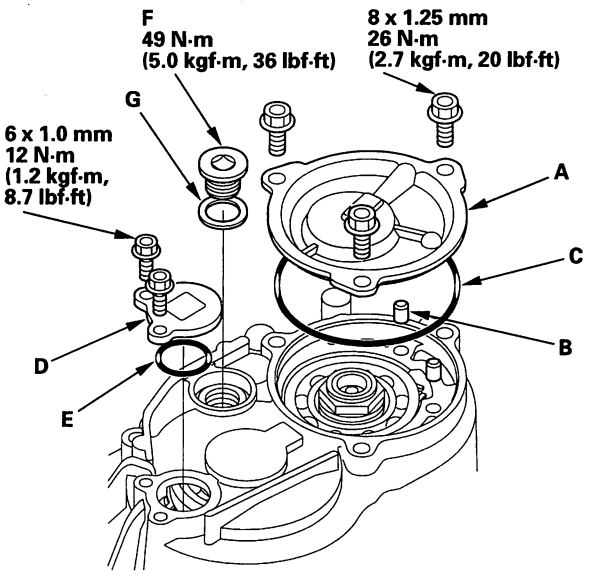
43. Install the new locknut and tighten it to 176 N·m (18.2 kgf·m, 132 lbf·ft), then stake the locknut to a depth (A) of 0.7—1.3 mm (0.03—0.05 in.) using a 3.5 mm punch (B).



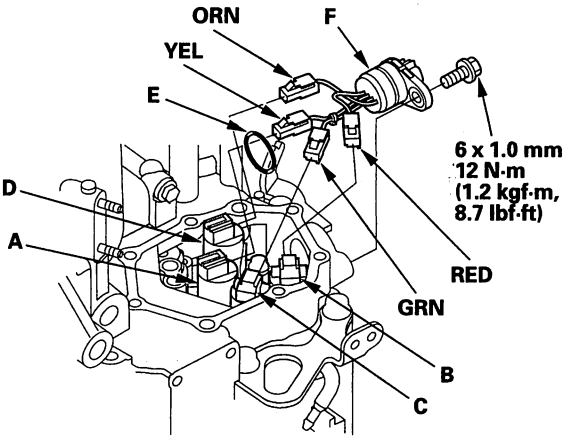
44. Install the end cover (A), dowel pin (B), and new O-ring (C).



45. Install the snap ring cap (D) with the new O-ring (E).

46. Apply thread lock sealant to the threads of the sealing plug (F), and install the sealing plug and the new sealing washer (G).

47. Install the new O-ring (E) on the solenoid harness connector (F).



48. Route the solenoid harness through the transmission housing, and install the solenoid harness connector.

49. Connect the harness terminals to the solenoids:

- YEL wire connector to shift solenoid valve A.
- GRN wire connector to shift solenoid valve C.
- RED wire connector to shift solenoid valve B.
- ORN wire connector to shift solenoid valve D.

50. Secure the solenoid harness connector with the bolt on the transmission housing.

(cont'd)

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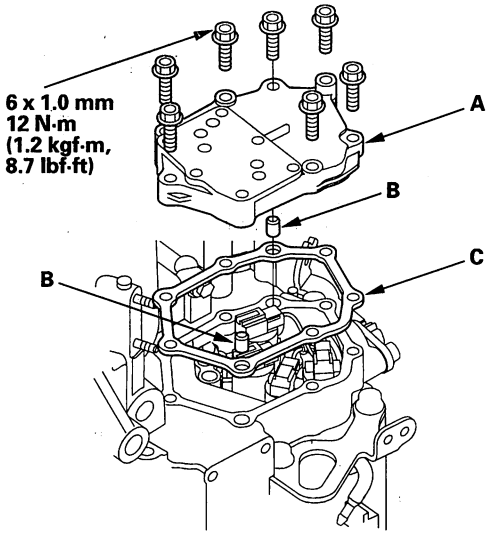
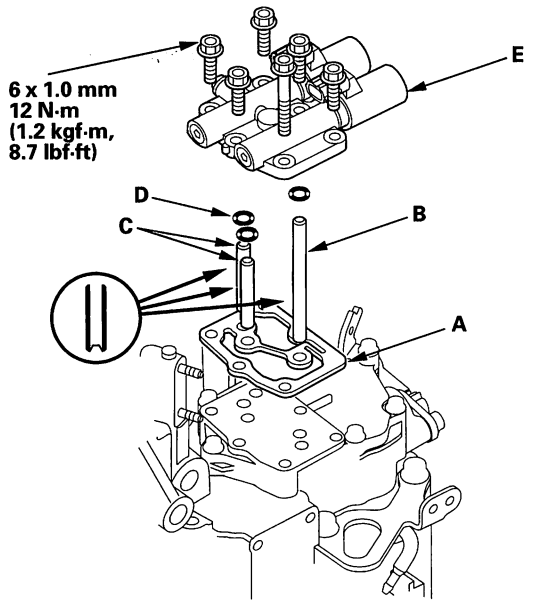
Transmission Reassembly (cont'd)

51. Install the solenoid valve cover (A) with the two dowel pins (B) and the new gasket (C), and secure it with the seven bolts.

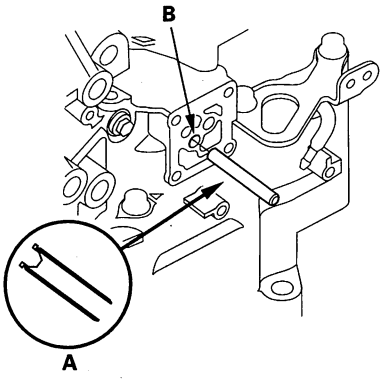


52. Place the new gasket (A) on the solenoid valve cover, then install the 8 x 105.8 mm ATF feed pipes (B) and the 8 x 58.3 mm pipes (C) with their filter side into the transmission housing.

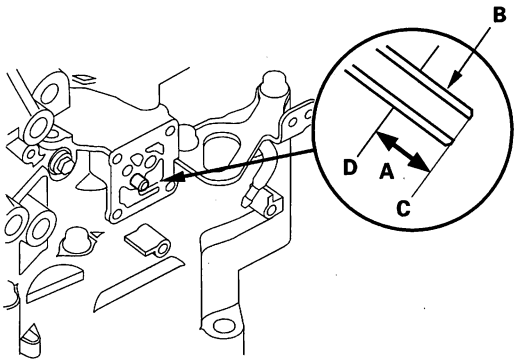


53. Install the new O-rings (D) over the ATF feed pipes, and install the A/T clutch pressure control solenoid valves A and B (E).

54. Install the 8 x 53 mm ATF joint pipe (A) with the filter side into its mounting hole (B).



55. Check the height (A) of the 8 x 53 mm ATF joint pipe (B) between the top (C) of the pipe and the solenoid valve body mounting surface (D). The height is about 7 mm (0.3 in.) If the height is over 7 mm (0.3 in.), install the pipe securely until it stops the accumulator body.



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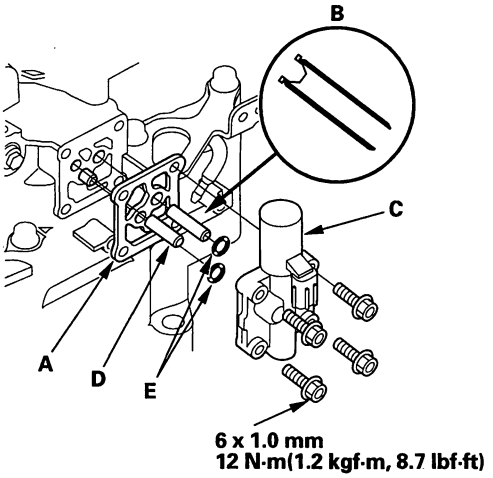
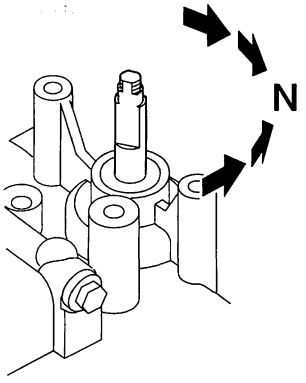
56. Install the new gasket (A) on the transmission housing. Install the 8 x 34.5 mm ATF pipe (B) with the filter end in the transmission housing, and install the 8 x 25.5 mm ATF pipe (D).



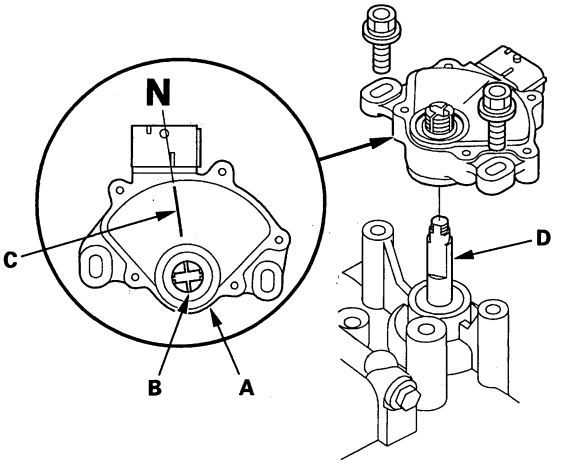
57. Install new O-rings (E) over the ATF joint pipes.

58. Install the A/T clutch pressure control solenoid valve C.

59. Set the control shaft to the N position by turning the selector control shaft with a 6.0 mm wrench.

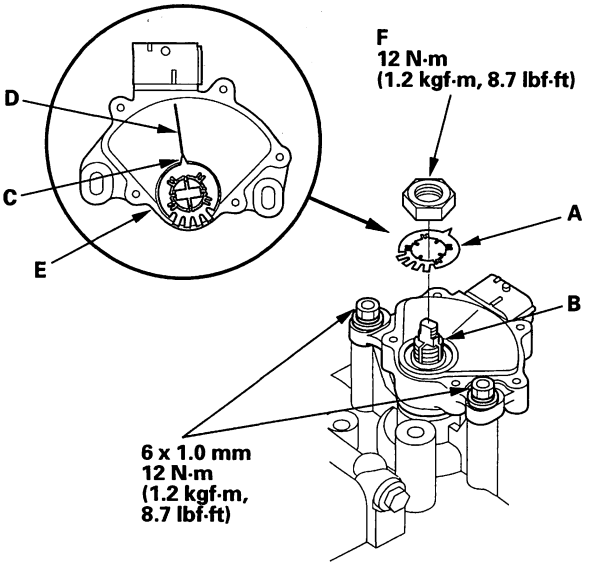


60. Set the transmission range switch (A) to the N position. The transmission range switch clicks in the N position, and the selector control shaft hole (B) aligns with the N positioning line (C).



61. Install the transmission range switch gently over the selector control shaft (D), and install the bolts loosely.

62. Install the new lock washer (A) over the selector control shaft (B) by aligning the projection (C) of the lock washer with the N positioning line (D) on the transmission range switch (E), and install the locknut (F).



(cont'd)

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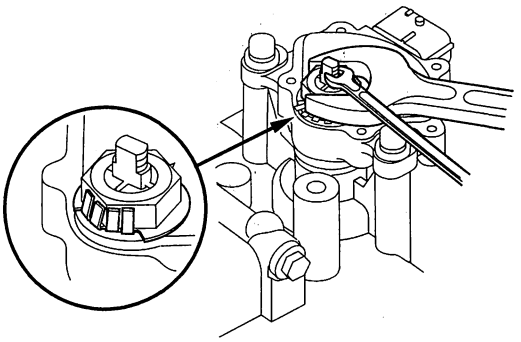
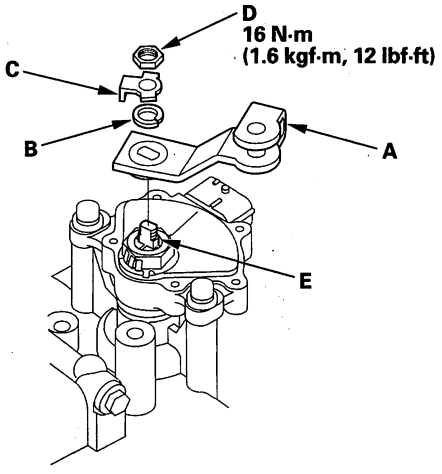
Transmission Reassembly (cont'd)

63. Push the locknut against the transmission housing to seat the range switch into the selector control shaft, and tighten the locknut to 12 N·m (1.2 kgf·m, 8.7 lbf·ft) while holding the selector control shaft with a 6 mm wrench, then bend the lock tabs against the locknut.

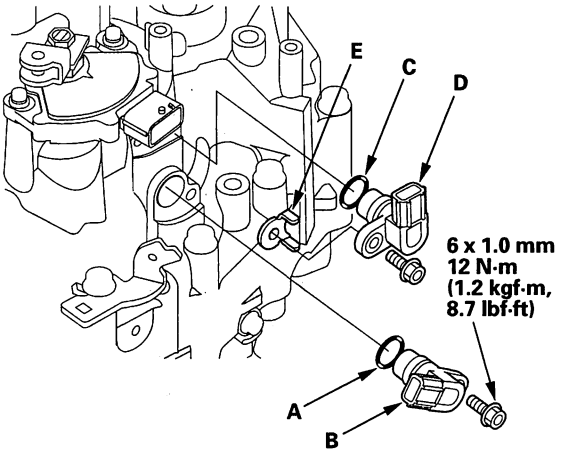


64. Tighten the range switch mounting bolts to 12 N·m (1.2 kgf·m, 8.7 lbf·ft).

65. Install the control lever (A), spring washer (B), lock washer (C), and locknut (D) on the selector control shaft (E).

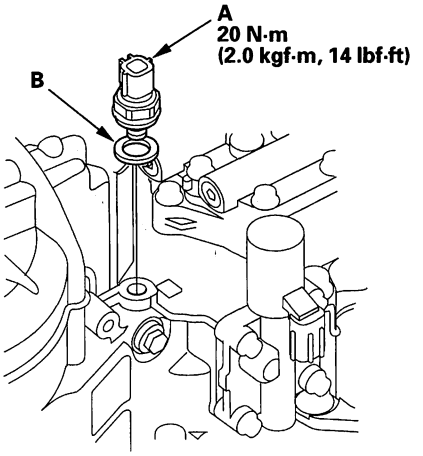


66. Install the new O-ring (A) on the input shaft (mainshaft) speed sensor (B), and install the input shaft (mainshaft) speed sensor.



67. Install the new O-ring (C) on the output shaft (countershaft) speed sensor (D), and install the output shaft (countershaft) speed sensor and the sensor washer (E).

68. Install the 4th clutch transmission fluid pressure switch (A) with the new sealing washer (B). Tighten the switch with the metal part.



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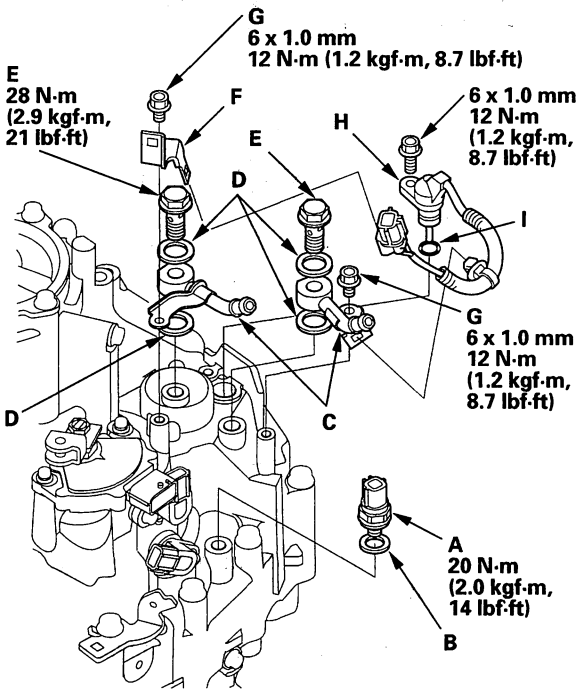
69. Install the 3rd clutch transmission fluid pressure switch (A) with the new sealing washer (B). Tighten the switch with the metal part.

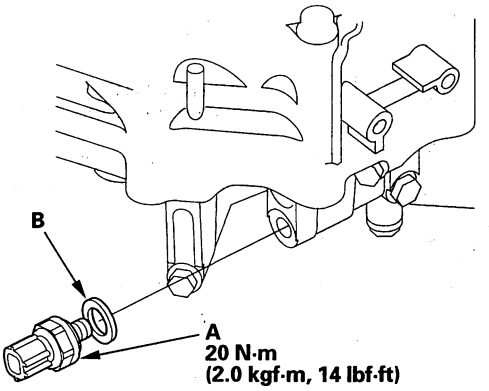


70. Install the ATF cooler lines (C) with the new sealing washers (D) and the line bolts (E).

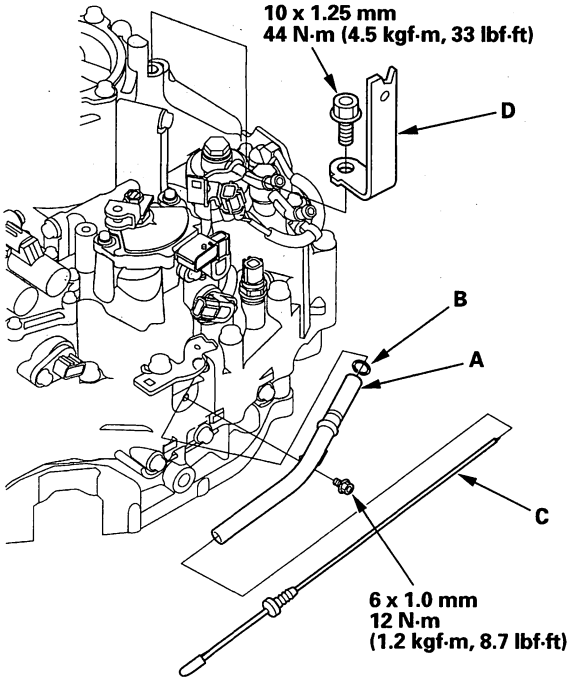
71. Install the connector bracket (F), and secure the ATF lines with the 6.0 mm bolts (G) on the transmission housing.

72. Install the ATF temperature sensor (H) with the new O-ring (I). Install the connector on the connector bracket and the harness clamp on the bracket.

73. Install the 2nd clutch transmission fluid pressure switch (A) with the new sealing washer (B). Tighten the switch by the metal part.



74. Install the ATF dipstick tube (A) with the new O-ring (B).



75. Install the ATF dipstick (C) in its tube.

76. Install the transmission ground terminal (D).

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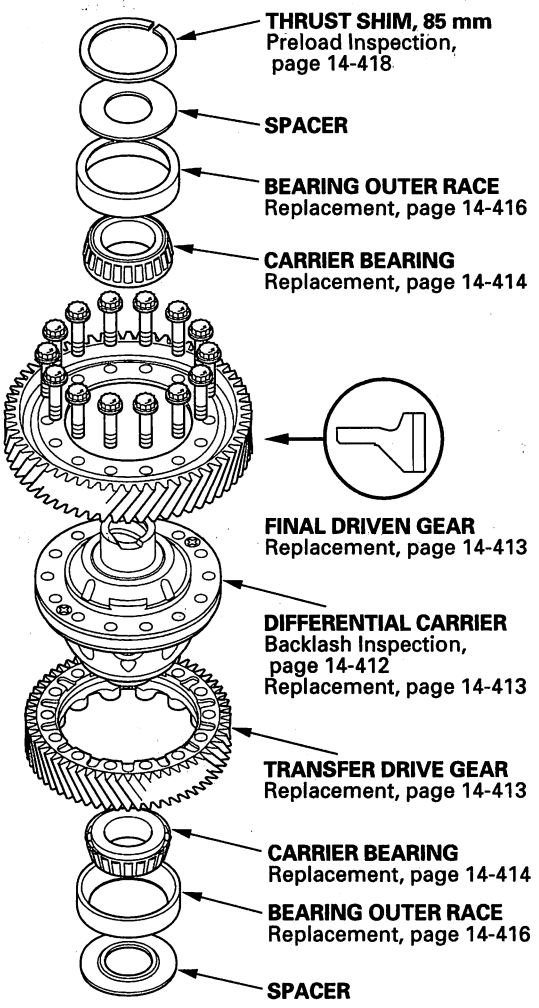
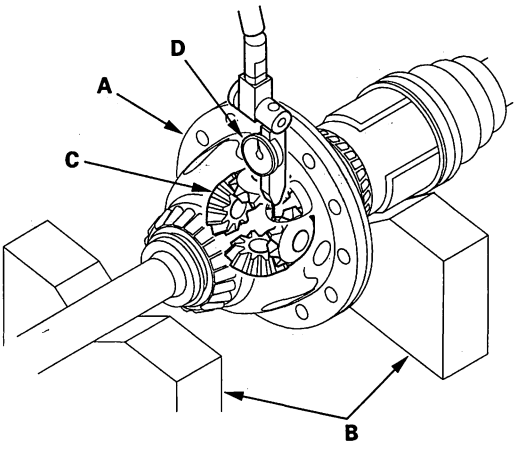
A/T Differential

Component Location Index



Backlash Inspection

1. Remove the final driven gear and transfer drive gear from the differential carrier.
2. Install both axles into the differential assembly (A) and place the axles on V-blocks (B).



3. Measure the backlash of the pinion gears (C) with a dial indicator (D).

   Standard (New): 0.05—0.15 mm (0.002—0.006 in.)

4. If the backlash is out of standard, replace the differential carrier.
5. Install the final driven gear and transfer drive gear on the differential carrier (see page 14-413).

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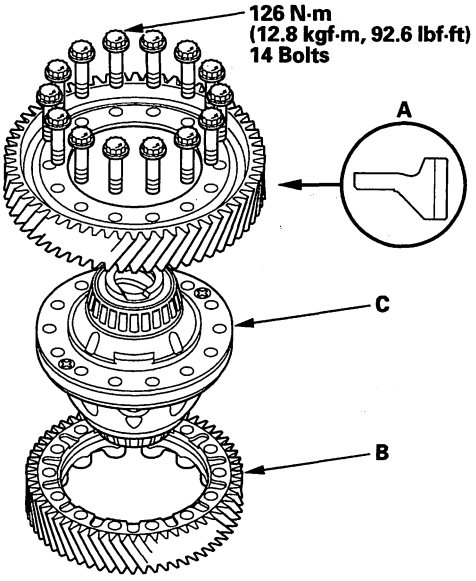
Differential Carrier, Final Driven Gear, and Transfer Drive Gear Replacement

NOTE: Inspect and adjust the bearing preload whenever the carrier is replaced.

1. Remove the final driven gear (A) and transfer drive gear (B) from the differential carrier (C).

   NOTE: The final driven gear bolts have left-hand threads.



2. Install the final driven gear with the chamfered side on the inner bore facing the differential carrier.
3. Install the bolts through the differential carrier to the transfer drive gear.
4. Tighten the bolts to the specified torque in a crisscross pattern.

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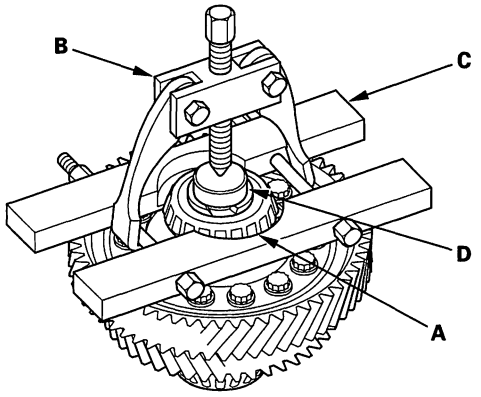
Carrier Bearing Replacement

Special Tools Required
Attachment, 45 x 55 mm 07MAD-PR90100

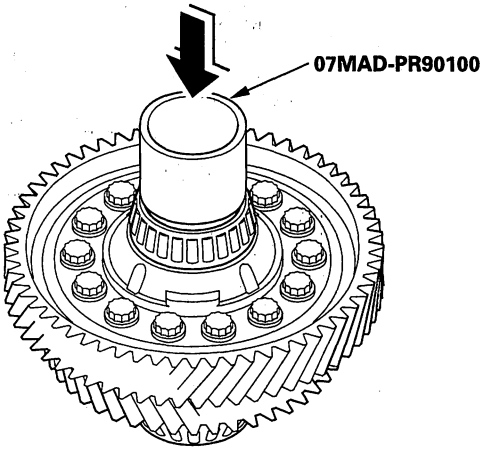
NOTE:
- The bearing and outer race should be replaced as a set.
- Inspect and adjust the bearing preload whenever the bearing is replaced.
- Check the bearing for wear and rough rotation. If the bearing is OK, removal is not necessary.

1. Remove the carrier bearing (A) with a commercially available bearing puller (B), bearing separator (C), and stepper adapter (D).



2. Install the new carrier bearing using the attachment (45 x 55 mm) and the press.

NOTE:
- Press the bearing on until it bottoms.
- Use the small end of the attachment (45 x 55 mm) to install the bearings.
- Press the bearing on securely so there is no clearance between the bearing and the differential carrier.



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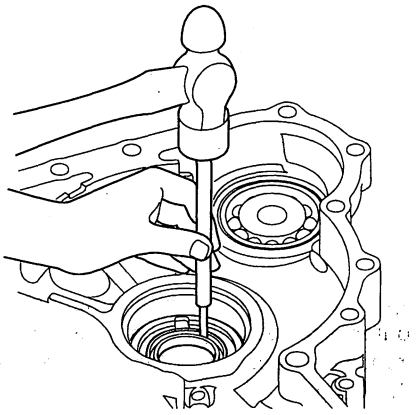
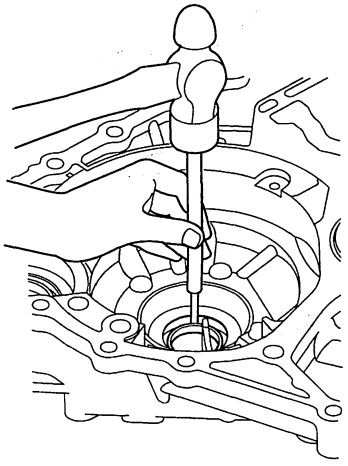
Oil Seal Replacement

Special Tools Required
- Driver 07749-0010000
- Oil seal driver attachment 07GAD-PG40100
- Oil seal driver attachment 07JAD-PH80101

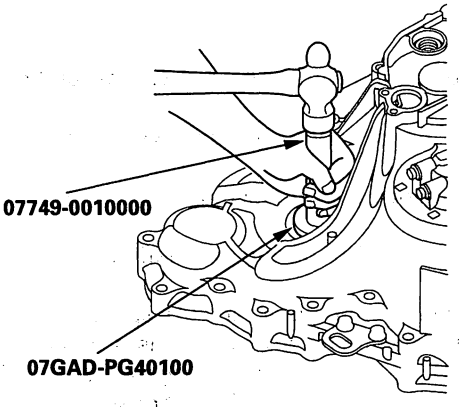
1. Remove the oil seal from the transmission housing.



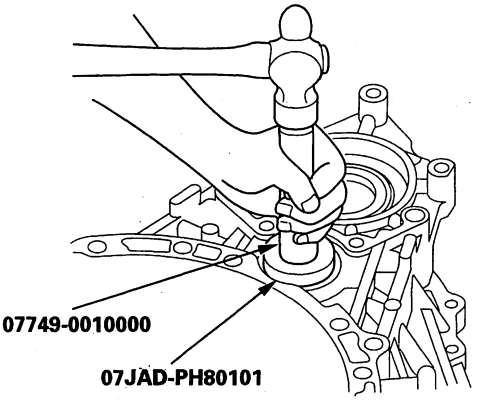
2. Remove the oil seal from the torque converter housing.



3. Install the new oil seal flush to the transmission housing using the drive and the oil seal driver attachment.



4. Install the new oil seal to the torque converter housing using the drive and the oil seal driver attachment.



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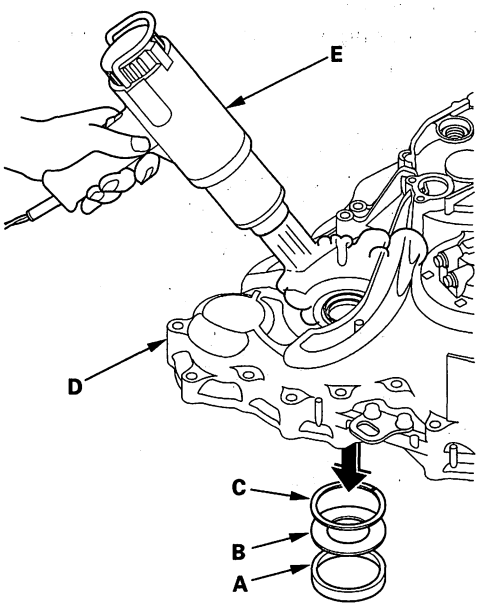
Carrier Bearing Outer Race Replacement

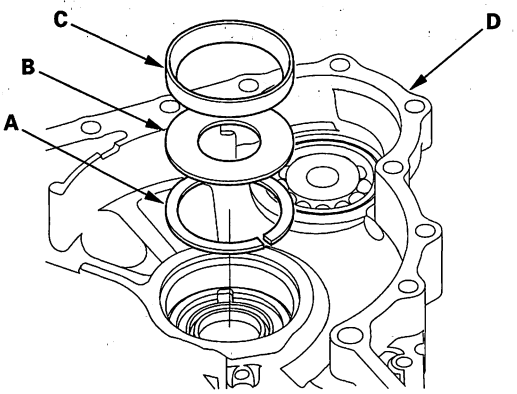
Special Tools Required
- Driver 07749-0010000
- Attachment, 83 mm 07HAD-SG00100
- Attachment, 78 x 80 mm 07NAD-PX40100

NOTE:
- Replace the bearing with a new one whenever the outer race is replaced.
- Do not use shim(s) on the torque converter housing side.
- Adjust the preload after replacing the bearing and the outer race.
- Coat all parts with ATF during installation.

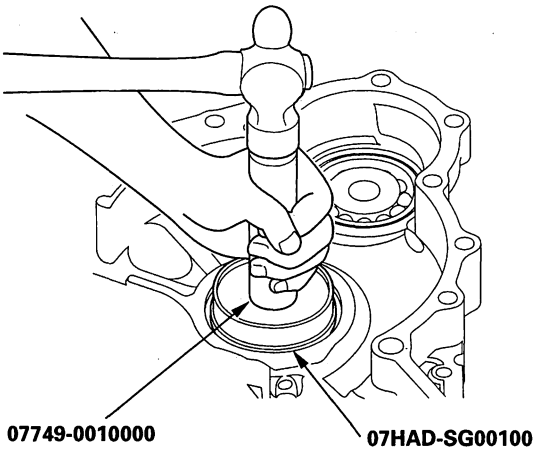
1. Remove the bearing outer race (A), spacer (B), and 85 mm thrust shim (C) from the transmission housing (D) by heating the housing to about 212 °F (100 °C) with a heat gun (E). Do not heat the housing more than 212 °F (100 °C).



2. Install the 85 mm thrust shim (A), spacer (B), and outer race (C) in the transmission housing (D).



3. Using the driver and the attachment (83 mm), drive the outer race securely in the housing so there is no clearance between the outer race, spacer, shim, and housing.



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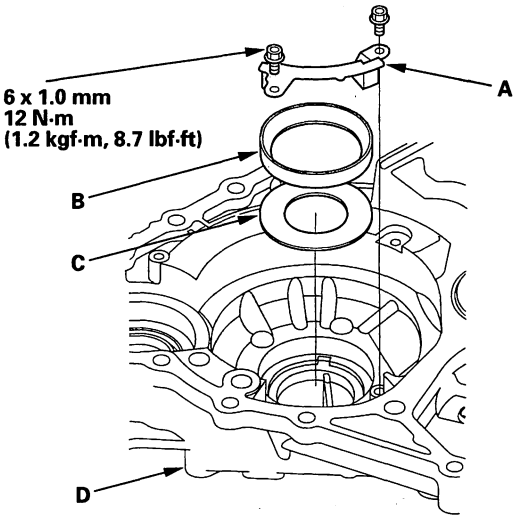
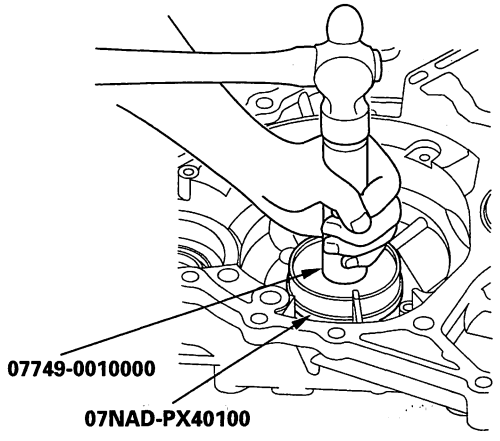
4. Remove the plate (A), and remove the bearing outer race (B) and spacer (C) from the torque converter housing (D).



5. Install the spacer and the new outer race in the torque converter housing.

6. Drive the bearing outer race securely in the housing using the driver and the attachment (78 x 80 mm).



7. Install the plate over the outer race in the torque converter housing.

BACK

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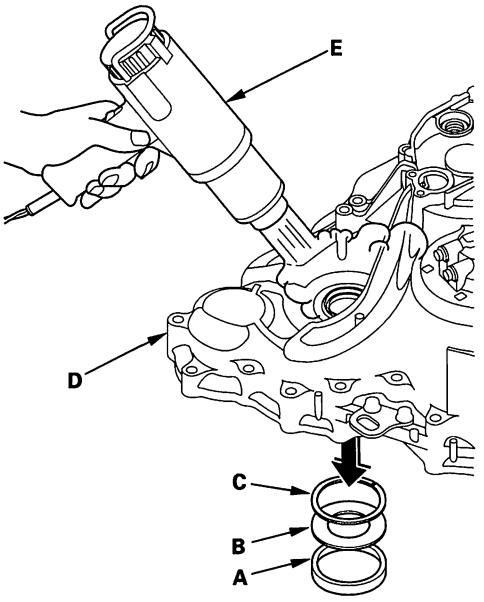
Carrier Bearing Preload Inspection

Special Tools Required
- Driver 07749-0010000
- Attachment, 83 mm 07HAD-SG00100
- Preload inspection tool 070AJ-0020101

NOTE: If the transmission housing, torque converter housing, differential carrier, tapered roller bearing, bearing outer race, or thrust shim were replaced, the bearing preload must be adjusted.

1. Remove the bearing outer race (A), spacer (B), and 85 mm thrust shim (C) from the transmission housing (D) by heating the housing to about 212 °F (100 °C) with a heat gun (E). Do not heat the housing more than 212 °F (100 °C).

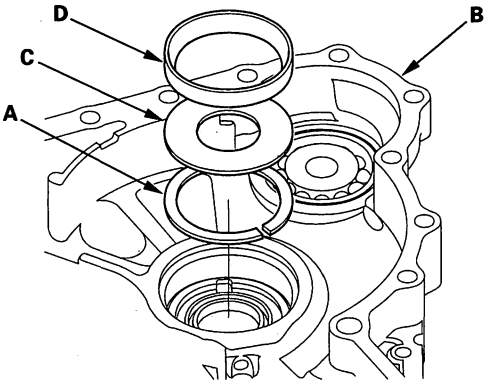
   NOTE: Let the transmission housing cool to room temperature before adjusting the bearing preload.



2. Replace the tapered roller bearing when the outer race is to be replaced.

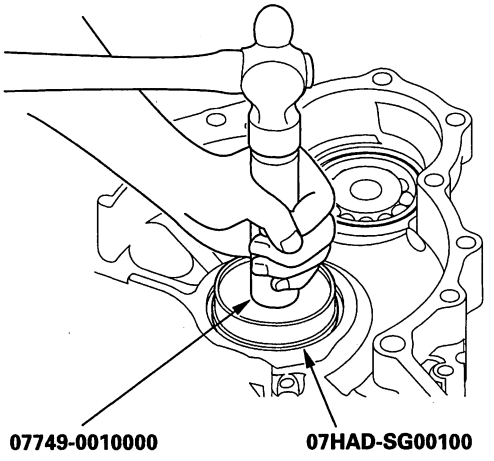
3. Do not use a shim on the torque converter housing side.

4. Install the 85 mm thrust shim (A) in the transmission housing (B). If you replace the 85 mm thrust shim with a new one, use the same thickness shim as the old one.



5. Install the spacer (C), and the bearing outer race (D) in the transmission housing.

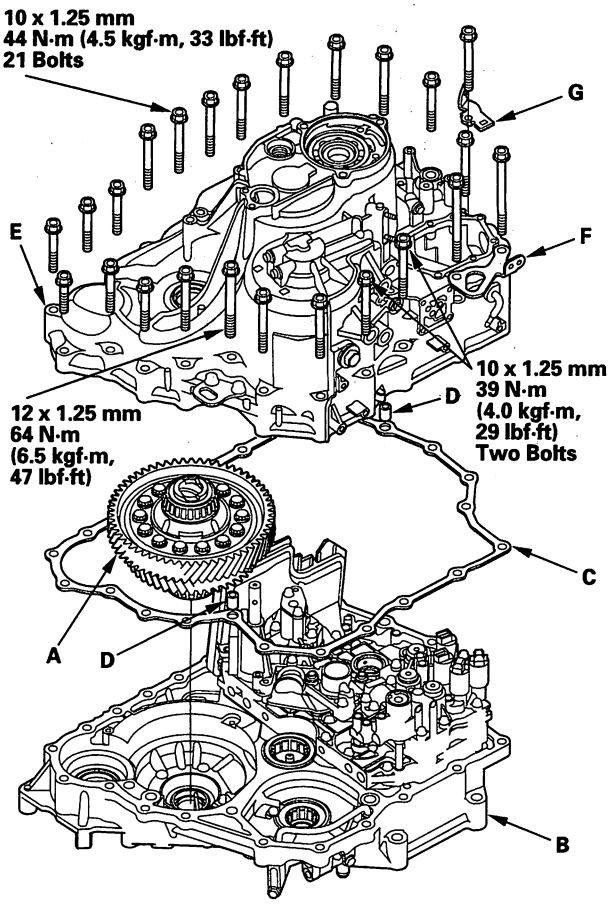
6. Drive the outer race securely in the housing using the driver and the attachment (83 mm) so there is no clearance between the outer race, spacer, shim, and housing.



BACK

Protected by AR

7. Install the differential assembly (A) in the torque converter housing (B), and install the gasket (C) and the two dowel pins (D) on the housing.

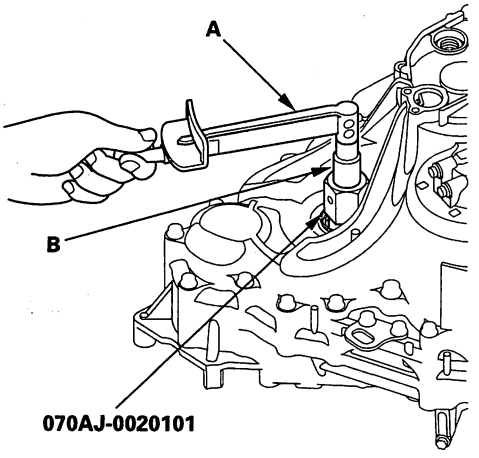


8. Install the transmission housing (E), and install the mounting bolts (24 bolts) with the transmission hangers (F) and the ground terminal bracket (G), then tighten the bolts.

9. Rotate the differential assembly in both directions to seat the bearings.

10. Measure the starting torque of the differential assembly with the preload inspection tool, a torque wrench (A), and a socket (B). Measure the starting torque at normal room temperature in both directions.

Standard
New bearings:
3.9—5.1 N·m (40—52 kgf·cm, 35—45 lbf·in.)
Reused bearings:
3.6—4.8 N·m (37—49 kgf·cm, 32—43 lbf·in.)



11. If the measurement is out of standard, remove the thrust shim and measure its thickness.

(cont'd)

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Carrier Bearing Preload Inspection (cont'd)

12. Select a new thrust shim. To increase the starting torque, increase thickness of the thrust shim. To decrease the starting torque, decrease the thickness of the thrust shim.
Changing the shim to the next size will increase or decrease the starting torque about 0.5—0.6 N·m (5—6 kgf·cm, 4—5 lbf·in.).

THRUST SHIM, 85 mm

No.	Part Number	Thickness
A	41440-RGR-000	1.350 mm (0.0531 in.)
B	41441-RGR-000	1.375 mm (0.0541 in.)
C	41442-RGR-000	1.400 mm (0.0551 in.)
D	41443-RGR-000	1.425 mm (0.0561 in.)
E	41444-RGR-000	1.450 mm (0.0571 in.)
F	41445-RGR-000	1.475 mm (0.0581 in.)
G	41446-RGR-000	1.500 mm (0.0591 in.)
H	41447-RGR-000	1.525 mm (0.0600 in.)
I	41448-RGR-000	1.550 mm (0.0610 in.)
J	41449-RGR-000	1.575 mm (0.0620 in.)
K	41450-RGR-000	1.600 mm (0.0630 in.)
L	41451-RGR-000	1.625 mm (0.0640 in.)
M	41452-RGR-000	1.650 mm (0.0650 in.)
N	41453-RGR-000	1.675 mm (0.0659 in.)
O	41454-RGR-000	1.700 mm (0.0669 in.)
P	41455-RGR-000	1.725 mm (0.0679 in.)
Q	41456-RGR-000	1.750 mm (0.0689 in.)
R	41457-RGR-000	1.775 mm (0.0699 in.)
S	41458-RGR-000	1.800 mm (0.0709 in.)
T	41459-RGR-000	1.825 mm (0.0719 in.)
U	41460-RGR-000	1.850 mm (0.0728 in.)
V	41461-RGR-000	1.875 mm (0.0738 in.)
W	41462-RGR-000	1.900 mm (0.0748 in.)
X	41463-RGR-000	1.925 mm (0.0758 in.)
Y	41464-RGR-000	1.950 mm (0.0768 in.)
Z	41465-RGR-000	1.975 mm (0.0778 in.)

THRUST SHIM, 85 mm (cont'd)

No.	Part Number	Thickness
AA	41466-RGR-000	2.000 mm (0.0787 in.)
AB	41467-RGR-000	2.025 mm (0.0797 in.)
AC	41468-RGR-000	2.050 mm (0.0807 in.)
AD	41469-RGR-000	2.075 mm (0.0817 in.)
AE	41470-RGR-000	2.100 mm (0.0827 in.)
AF	41471-RGR-000	2.125 mm (0.0837 in.)
AG	41472-RGR-000	2.150 mm (0.0846 in.)
AH	41473-RGR-000	2.175 mm (0.0856 in.)
AI	41474-RGR-000	2.200 mm (0.0866 in.)
AJ	41475-RGR-000	2.225 mm (0.0876 in.)
AK	41476-RGR-000	2.250 mm (0.0886 in.)
AL	41477-RGR-000	2.275 mm (0.0896 in.)
AM	41478-RGR-000	2.300 mm (0.0906 in.)
AN	41479-RGR-000	2.325 mm (0.0915 in.)
AO	41480-RGR-000	2.350 mm (0.0925 in.)

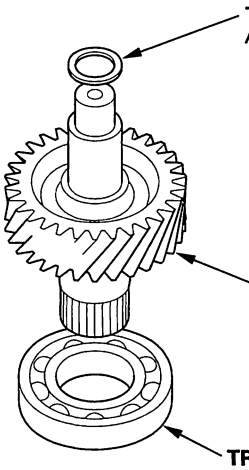
13. Install the new thrust shim, then recheck the starting torque.

BACK

Protected by AR

Transfer Output Shaft

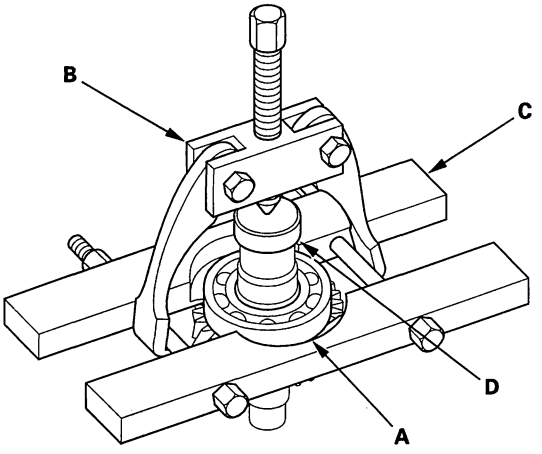
Component Location Index



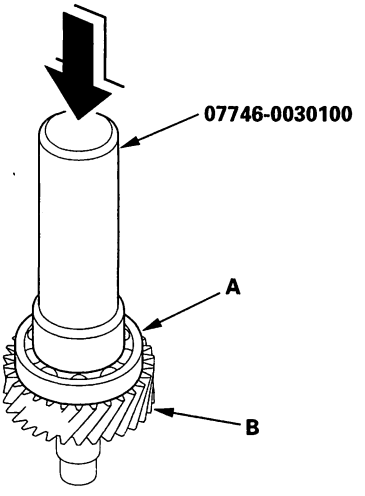
Transfer Output Shaft Bearing Replacement

Special Tools Required
Driver, 40 mm I.D. 07746-0030100

1. Remove the transfer output shaft bearing (A) with a commercially available puller (B), bearing separator (C), and shaft protector (D). Place a shaft protector between the transfer output shaft and the puller to prevent damaging the shaft.



2. Install the new bearing on the transfer output shaft with the using the driver (40 mm I.D.) and the press.



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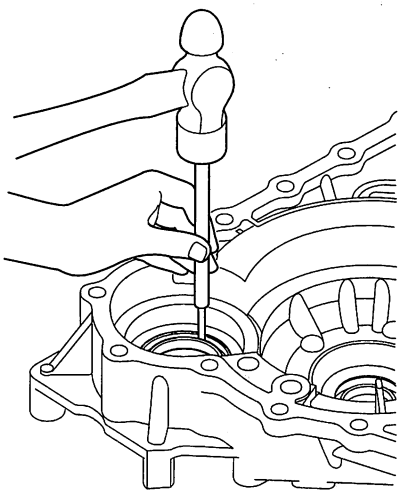
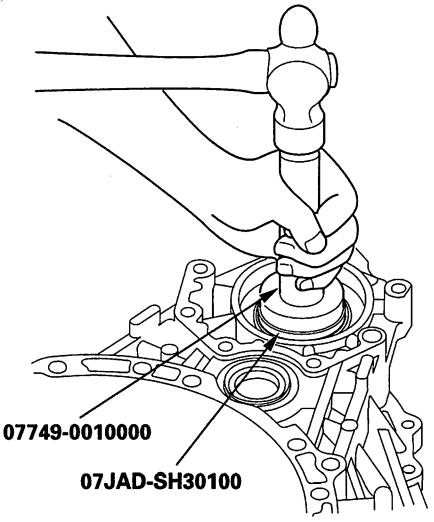
Oil Seal Replacement

Special Tools Required
- Driver 07749-0010000
- Attachment, 65 mm 07JAD-SH30100

1. Remove the oil seal from the torque converter housing.



2. Install the new oil seal flush to the torque converter housing using the driver and the attachment (65 mm).



BACK

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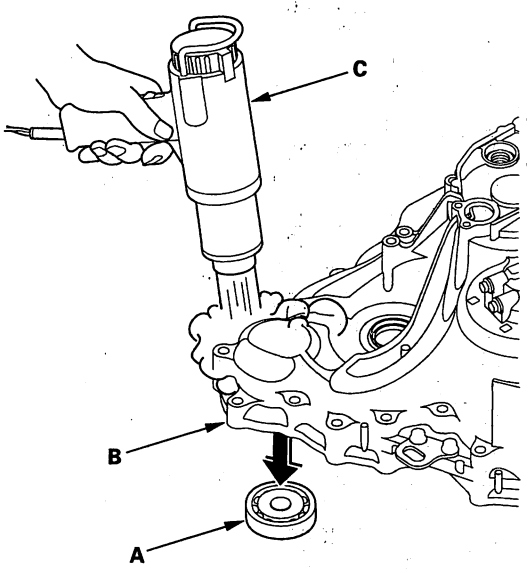
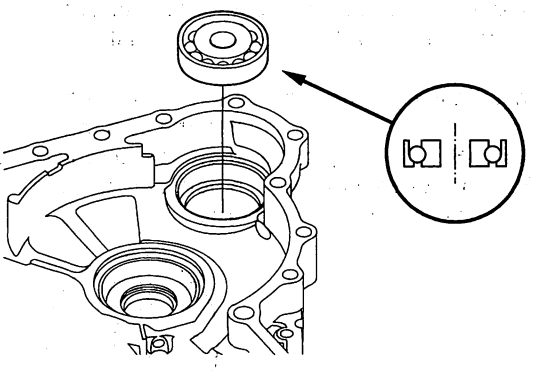
Transmission Housing Bearing Replacement

Special Tools Required
- Driver 07749-0010000
- Attachment, 72 x 75 mm 07746-0010600

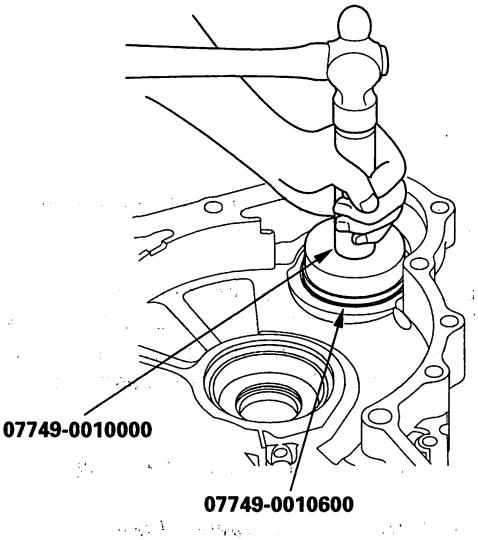
1. Remove the transfer output shaft bearing (A) from the transmission housing (B) by heating the housing to about 212 °F (100 °C) with a heat gun (C). Do not heat the housing more than 212 °F (100 °C).



2. Install the new bearing in the housing in the direction shown.



3. Drive the new bearing until it bottoms in the housing using the driver and the attachment (72 x 75 mm).



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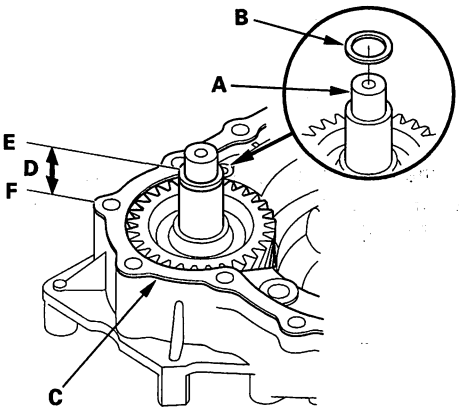
Transfer Output Shaft

Transfer Output Shaft Installation Height Inspection/Adjustment

NOTE: If the transfer output shaft, transfer output shaft bearing, transfer output shaft transmission housing bearing, transmission housing, or torque converter housing were replaced, adjust the transfer output shaft installation height with the 28.5 mm thrust shim.

1. Install the transfer output shaft (A) in the torque converter housing, and install the 28.5 mm thrust shim (B) on the top of the shaft. If you replace the 28.5 mm thrust shim with a new one, use the same thickness shim as the old one.

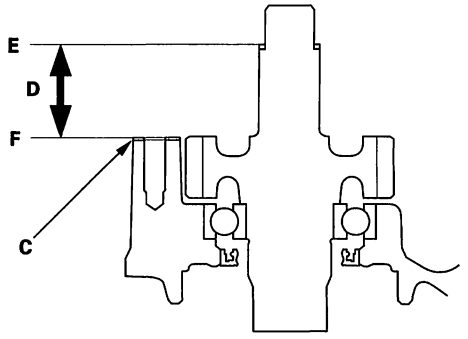


2. Install the new gasket (C) on the torque converter housing.

3. Measure the height (D) of the transfer output shaft installation between the surface (E) of the gasket and the top (F) of the 28.5 mm thrust shim in at least three places. Use the average as the actual height.

Standard: 46.31—46.35 mm (1.823—1.825 in.)

Transfer Output Shaft Cutaway View



4. If the measurement is out of standard, remove the 28.5 mm thrust shim and measure its thickness.

5. Select and install a new thrust shim, then recheck the installation height.

THRUST SHIM, 28.5 mm

No.	Part Number	Thickness
A	29031-RDK-000	1.82 mm (0.0717 in.)
B	29032-RDK-000	1.84 mm (0.0724 in.)
C	29033-RDK-000	1.86 mm (0.0732 in.)
D	29034-RDK-000	1.88 mm (0.0740 in.)
E	29035-RDK-000	1.90 mm (0.0748 in.)
F	29036-RDK-000	1.92 mm (0.0756 in.)
G	29037-RDK-000	1.94 mm (0.0764 in.)
H	29038-RDK-000	1.96 mm (0.0772 in.)
I	29039-RDK-000	1.98 mm (0.0780 in.)
J	29040-RDK-000	2.00 mm (0.0787 in.)
K	29041-RDK-000	2.02 mm (0.0795 in.)
L	29042-RDK-000	2.04 mm (0.0803 in.)
M	29043-RDK-000	2.06 mm (0.0811 in.)
N	29044-RDK-000	2.08 mm (0.0819 in.)
O	29045-RDK-000	2.10 mm (0.0827 in.)
P	29046-RDK-000	2.12 mm (0.0835 in.)
Q	29047-RDK-000	2.14 mm (0.0843 in.)
R	29048-RDK-000	2.16 mm (0.0850 in.)
S	29049-RDK-000	2.18 mm (0.0858 in.)
T	29050-RDK-000	2.20 mm (0.0866 in.)
U	29051-RDK-000	2.22 mm (0.0874 in.)
V	29052-RDK-000	2.24 mm (0.0882 in.)
W	29053-RDK-000	2.26 mm (0.0890 in.)
X	29054-RDK-000	2.28 mm (0.0898 in.)
Y	29055-RDK-000	2.30 mm (0.0906 in.)
Z	29056-RDK-000	2.32 mm (0.0913 in.)
AA	29057-RDK-000	2.34 mm (0.0921 in.)

BACK

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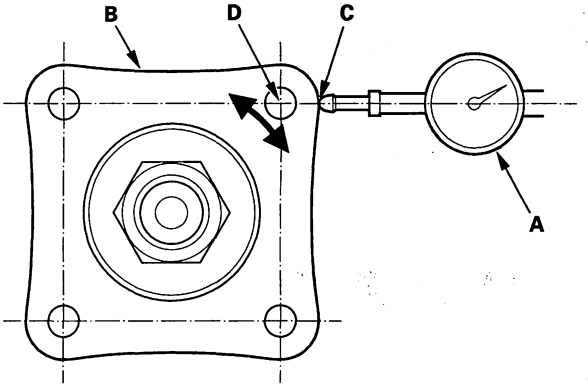
Inspection

Transfer Gear Backlash Measurement

1. Set a dial indicator (A) on the transfer companion flange (B); position dial indicator tip (C) on the direct extension of the bolt hole center (D).

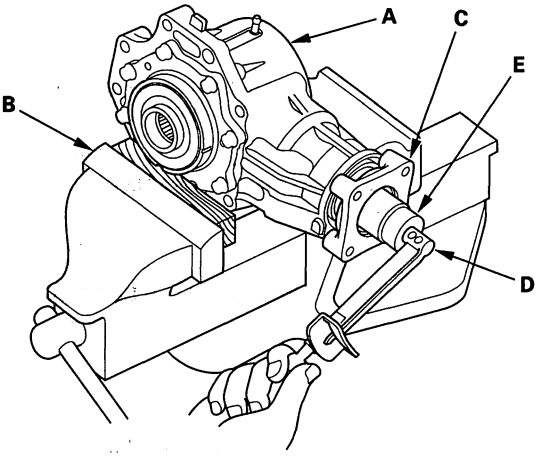


2. Measure the transfer gear backlash.

   Standard: 0.06—0.16 mm (0.02—0.06 in.)

Total Starting Torque Measurement

3. Secure the transfer housing (A) in a bench vise (B) with soft jaws. To prevent damage to the transfer housing, always use soft jaws or equivalent materials between the transfer housing and the vise.



4. Rotate the companion flange several turns to seat the tapered roller bearings.

5. Measure the starting torque at the companion flange (C) with a torque wrench (D) and a socket (E).

   Standard: 2.64—4.23 N·m
   (26.9—43.1 kgf·cm, 23.3—37.4 lbf·in.)

6. If the measurements are out of standard, disassemble the transfer assembly and repair it.

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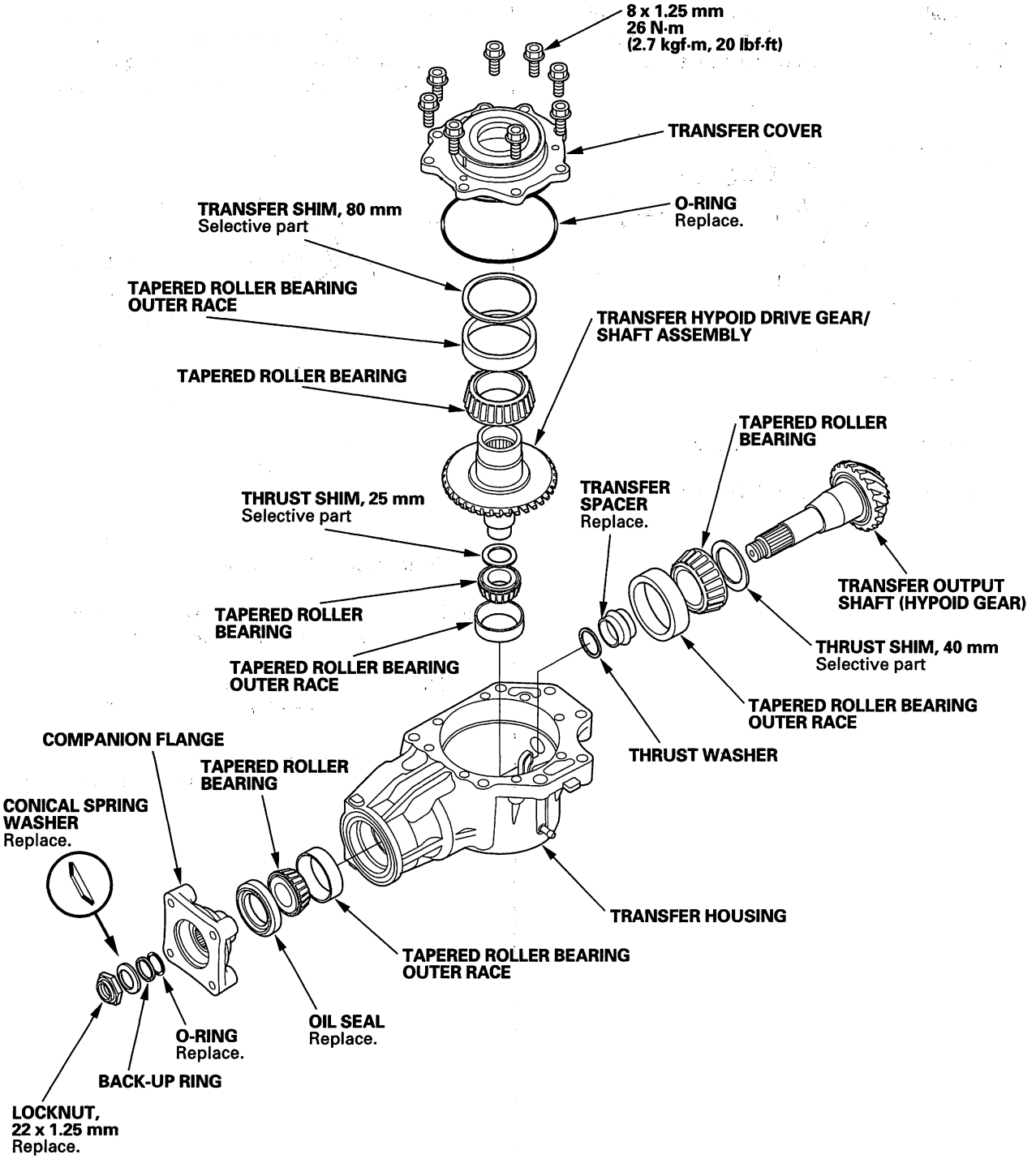
Transfer Assembly

Disassembly

Exploded View



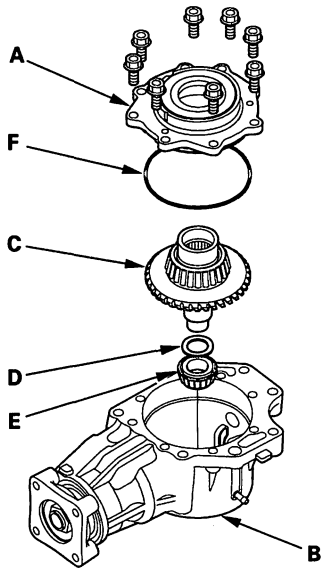
BACK

Protected by AR

Special Tools Required
Companion flange holder 07XAB-0010101

NOTE: Refer to the Exploded View as needed during the following procedure.

1. Remove the transfer cover (A) from the transfer housing (B).

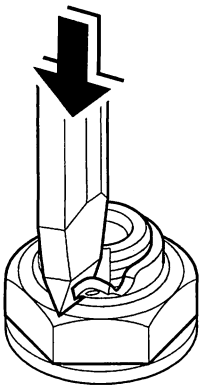


2. Remove the transfer hypoid drive gear/shaft assembly (C), 25 mm thrust shim (D), and tapered roller bearing (E).

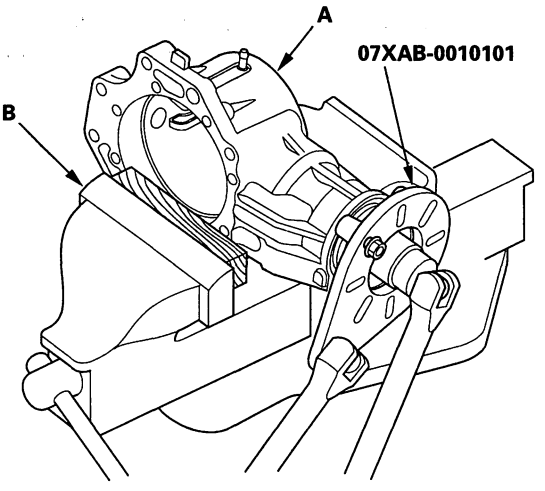
3. Remove the O-ring (F) from the cover.

4. Drain the transfer fluid (hypoid gear oil) from the transfer housing.

5. Cut the lock tab on the locknut using a chisel.



6. Secure the transfer housing (A) in a bench vise (B) with soft jaws. To prevent damage to the transfer housing, always use soft jaws or equivalent materials between the transfer housing and the vise.



7. Install the companion flange holder on the companion flange, then loose the locknut.

8. Remove the companion flange holder.

(cont'd)

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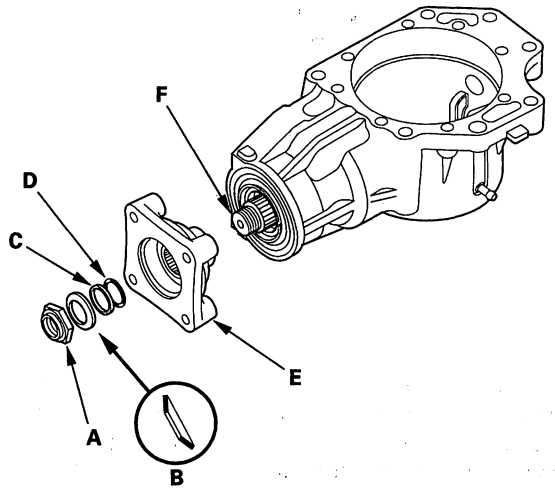
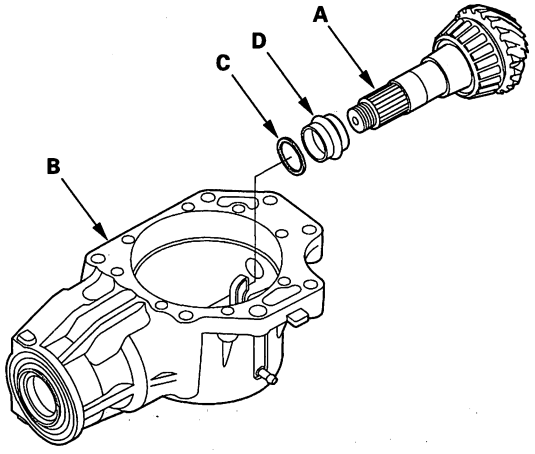
Transfer Assembly

Disassembly (cont'd)

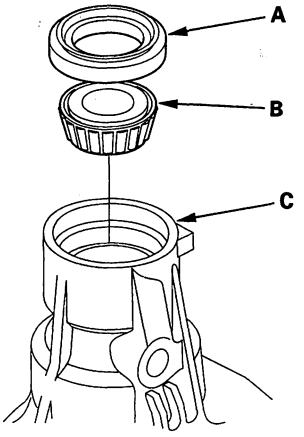
9. Remove the locknut (A), conical spring washer (B), back-up ring (C), O-ring (D), and companion flange (E) from the transfer output shaft (hypoid gear) (F).



10. Remove the transfer output shaft (hypoid gear) (A) from the transfer housing (B), then remove the thrust washer (C) and transfer spacer (D) from the transfer output shaft (hypoid gear).



11. Remove the oil seal (A) and tapered roller bearing (B) from the transfer housing (C).



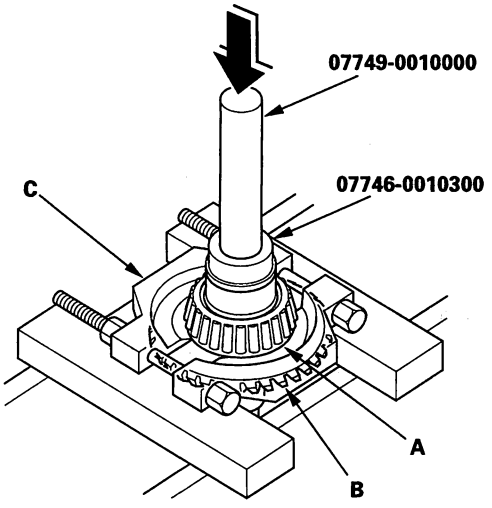
BACK

Protected by AR

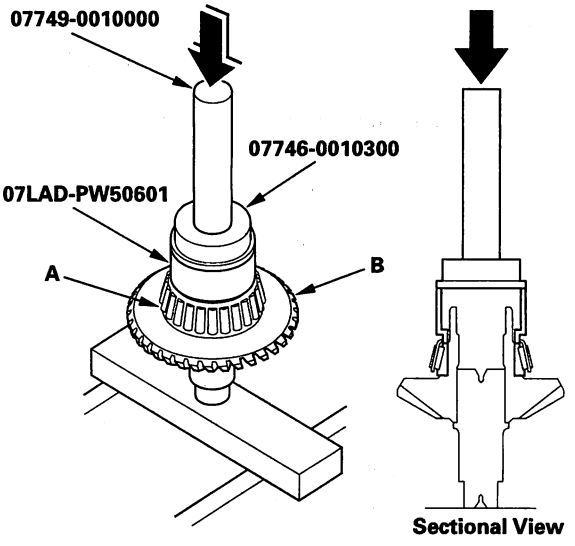
Transfer Hypoid Drive Gear Bearing Replacement

Special Tools Required
- Driver 07749-0010000
- Attachment, 42 x 47 mm 07746-0010300
- Attachment, 40 x 50 mm 07LAD-PW50601

1. Remove the tapered roller bearing (A) from the transfer hypoid drive gear (B) using the driver, the attachment (42 x 47 mm), bearing separator (C) and the press.



2. Install the new tapered roller bearing (A) on the transfer hypoid drive gear (B) using the driver, the attachment (42 x 47 mm), the attachment (40 x 50 mm), and the press.

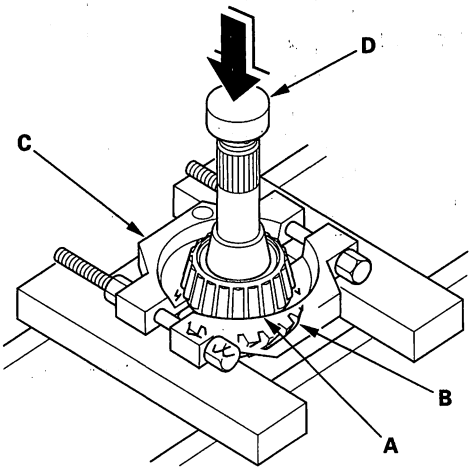


Protected by AR

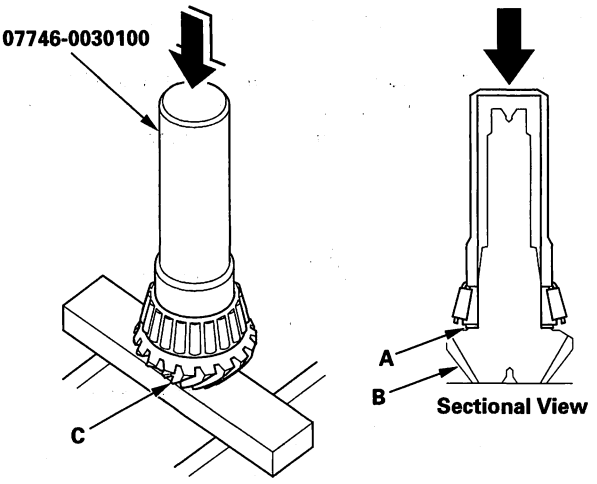
Transfer Output Shaft (Hypoid Gear) Bearing Removal/Installation

Special Tools Required
Driver, 40 mm I.D. 07746-0030100

1. Remove the tapered roller bearing (A) from the transfer output shaft (hypoid gear) (B) with a bearing separator (C) and the press. Place a shaft protector (D) between the transfer output shaft (hypoid gear) and the press to prevent damaging the transfer output shaft (hypoid gear).



2. Install the 40 mm thrust shim (A) over the transfer output shaft (hypoid gear) (B).



3. Install the tapered roller bearing (C) over the transfer output shaft (hypoid gear) using the driver (40 mm I. D.) and the press.

BACK

Protected by AR

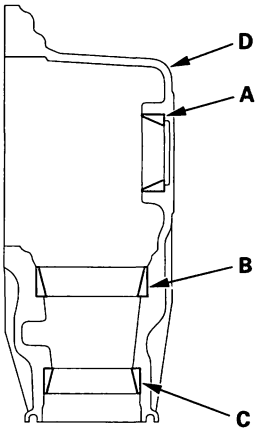
Transfer Housing Tapered Roller Bearing Outer Race Replacement

Special Tools Required
- Driver 07749-0010000
- Attachment, 52 x 55 mm 07746-0010400
- Attachment, 65 mm 07JAD-SH30100
- Tapered bearing race installer A 07MAF-SP0011A
- Installer shaft 07MAF-SP0013A

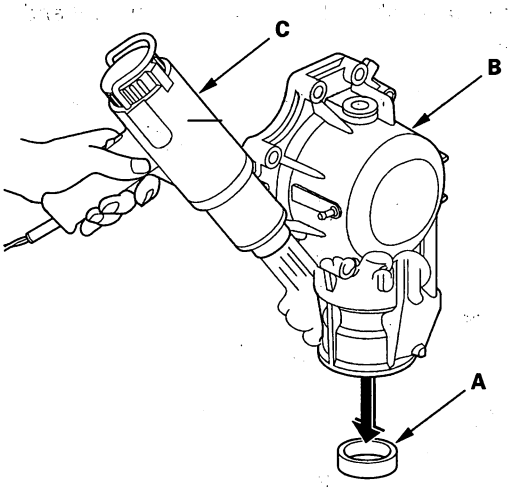
NOTE: Replace the bearing with a new one whenever the outer race is replaced.

1. Remove the 52 mm bearing outer race (A), 75 mm outer race (B), and 65 mm outer race (C) from the transfer housing (D).

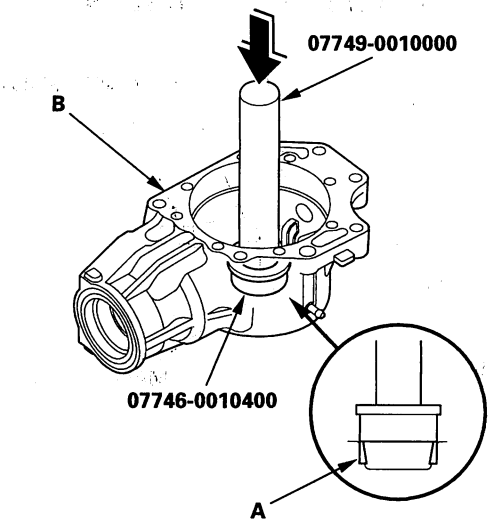
   NOTE: Some bearing outer races (52 mm, 65 mm, and 75 mm) are press-fitted in the housing and must be removed by heating the housing.



2. Remove the press-fitted bearing outer race (A) from the transfer housing (B) by heating the housing to about 212 °F (100 °C) with a heat gun (C). Do not heat the housing more than 212 °F (100 °C).



3. Install the 52 mm bearing outer race (A) until it bottoms in the transfer housing (B) using the driver and the attachment (52 x 55 mm).



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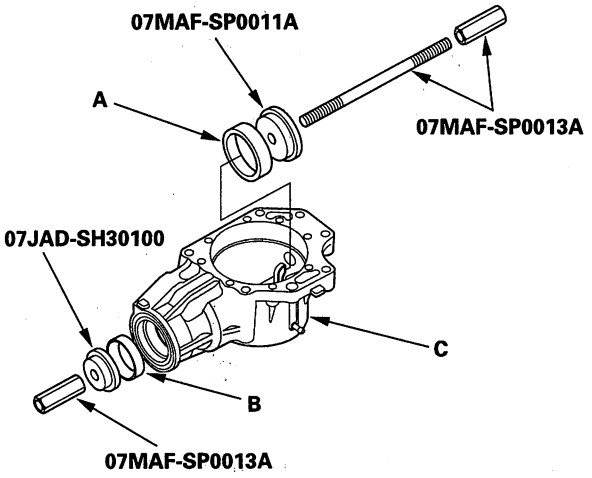
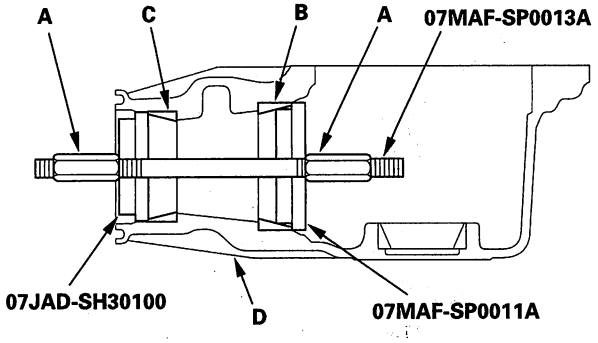
Transfer Housing Tapered Roller Bearing Outer Race Replacement (cont'd)

4. Install the 75 mm bearing outer race (A) and 65 mm bearing outer race (B) in the transfer housing (C), set the attachment (65 mm) and the tapered bearing race installer A over the races, and install the installer shaft through the attachment and installer.



5. Tighten the installer shaft nut (A) to install the races (B) (C) into the transfer housing (D) securely.



BACK

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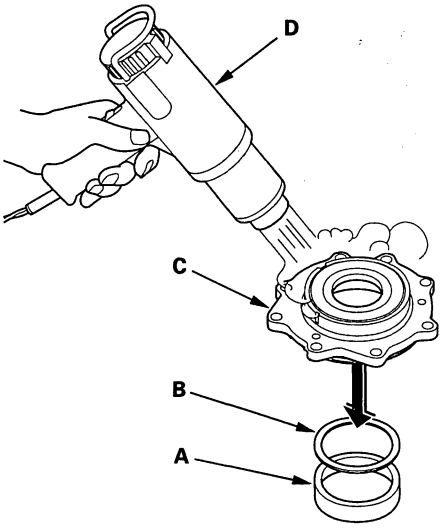
Transfer Cover Tapered Roller Bearing Outer Race Removal/Installation

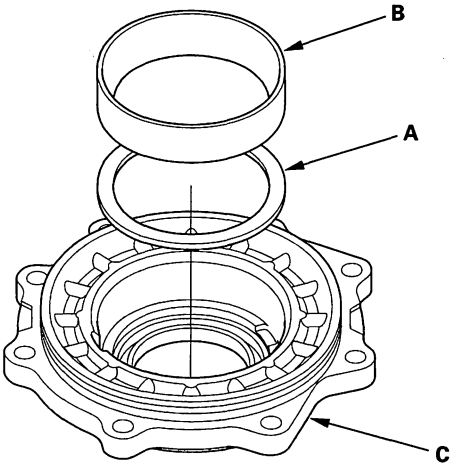
Special Tools Required
- Driver 07749-0010000
- Attachment, 78 x 80 mm 07NAD-PX40100

NOTE: Replace the bearing with a new one whenever the outer race is replaced.

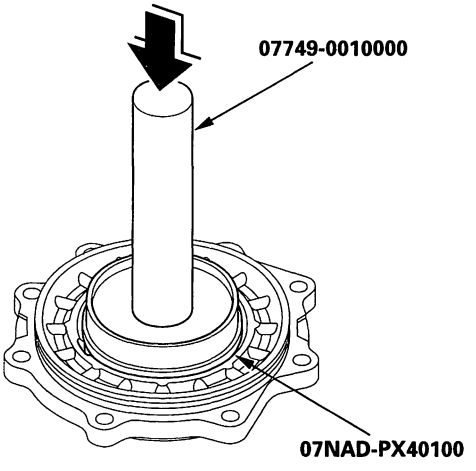
1. Remove the bearing outer race (A) and 80 mm thrust shim (B) from the transfer cover (C). If the bearing outer race is press-fitted, remove the outer race by heating the cover to about 212 °F (100 °C) with a heat gun (D). Do not heat the housing more than 212 °F (100 °C).



2. Install the 80 mm thrust shim (A) and bearing outer race (B) in the transfer cover (C).



3. Drive the outer race securely in the cover using the driver and the attachment (78 x 80 mm) so there is no clearance between the outer race, thrust shim, and cover.

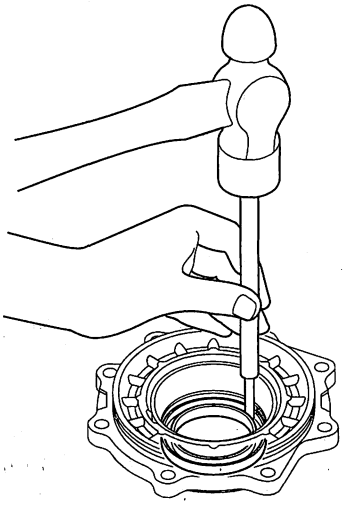


Protected by AR

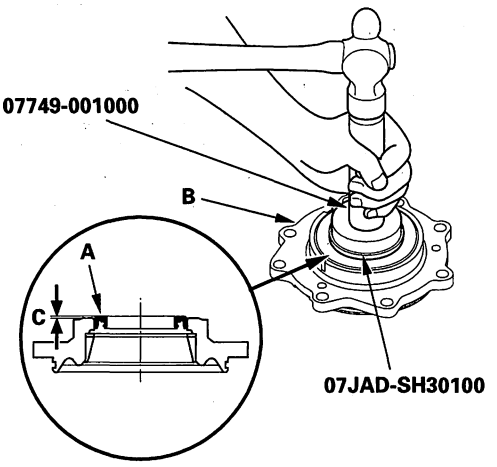
Transfer Cover Oil Seal Replacement

Special Tools Required
- Driver 07749-0010000
- Attachment, 65 mm 07JAD-SH30100

1. Remove the oil seal from the transfer cover.



2. Install the new oil seal (A) in the transfer cover (B) in height (C) of 0—1 mm (0—0.04 in.) above the cover surface using the driver and attachment (65 mm).



BACK

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Reassembly

Special Tools Required
- Driver, 40 mm I.D. 07746-0030100
- Driver 07749-0010000
- Attachment, 65 mm 07JAD-SH30100
- Companion flange holder 07XAB-0010101
- Attachment, 78 x 80 mm 07NAD-PX40100

NOTE:
- While reassembling the transfer assembly:
  - Check and adjust the transfer gear tooth contact.
  - Measure and adjust the transfer gear backlash.
  - Check and adjust the tapered roller bearing starting torque.
- Coat all parts with transfer fluid (hypoid gear oil) during reassembly.
- Replace the tapered roller bearing and the bearing outer race as a set if either part is replaced.
- Replace the transfer hypoid drive gear and the transfer output shaft (hypoid gear) as a set if either part is replaced.

1. Select the 40 mm thrust shim if the transfer output shaft (hypoid gear) is replaced. Calculate the thickness of the 40 mm thrust shim using the formula below, and select the shim from the following table.

   FORMULA: A/100−B/100+C = X

   A: Number on the existing transfer output shaft (hypoid gear)

   B: Number on the replacement transfer output shaft (hypoid gear)

   C: Thickness of the existing 40 mm thrust shim

   X: Thickness needed for the replacement 40 mm thrust shim

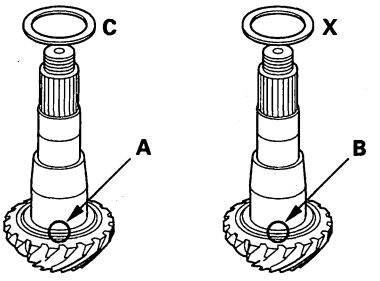
   NOTE: The number on the transfer output shaft (hypoid gear) is shown in 1/100 mm.

EXAMPLE

A: Existing transfer output shaft (hypoid gear) Number = +2
B: Replacement transfer output shaft (hypoid gear) Number = −1
C: Existing 40 mm thrust shim thickness = 1.05 mm
X: Replacement 40 mm thrust shim thickness

X = A/100−B/100+C
= 2/100−(−1)/100+1.05
= 0.02+0.01+1.05 = 1.08 (mm)

Select No. M 40 mm thrust shim of 1.08 mm (0.043 in.)



THRUST SHIM, 40 mm

Shim No.	Part Number	Thickness
A	29361-RDK-000	0.72 mm (0.028 in.)
B	29362-RDK-000	0.75 mm (0.030 in.)
C	29363-RDK-000	0.78 mm (0.031 in.)
D	29364-RDK-000	0.81 mm (0.032 in.)
E	29365-RDK-000	0.84 mm (0.033 in.)
F	29366-RDK-000	0.87 mm (0.034 in.)
G	29367-RDK-000	0.90 mm (0.035 in.)
H	29368-RDK-000	0.93 mm (0.037 in.)
I	29369-RDK-000	0.96 mm (0.038 in.)
J	29370-RDK-000	0.99 mm (0.039 in.)
K	29371-RDK-000	1.02 mm (0.040 in.)
L	29372-RDK-000	1.05 mm (0.041 in.)
M	29373-RDK-000	1.08 mm (0.043 in.)
N	29374-RDK-000	1.11 mm (0.044 in.)
O	29375-RDK-000	1.14 mm (0.045 in.)

2. Select the 40 mm thrust shim if the tapered roller bearing on the transfer output shaft (hypoid gear) is replaced. Measure the thickness of the replacement bearing and the existing bearing, and calculate the difference of the bearing thickness. Adjust the thickness of the existing 40 mm thrust shim by the amount of difference in bearing thickness, and select the replacement 40 mm thrust shim.

(cont'd)

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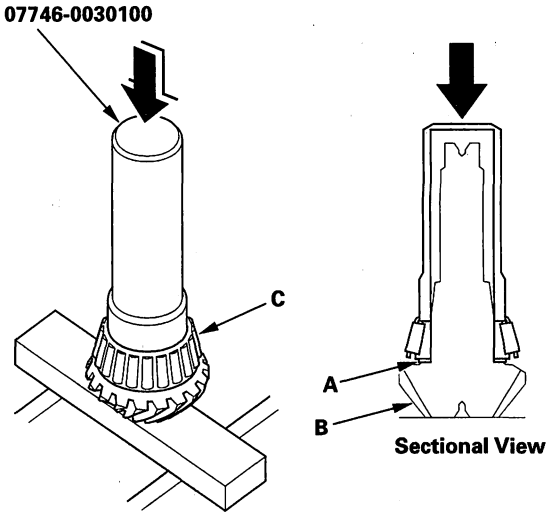
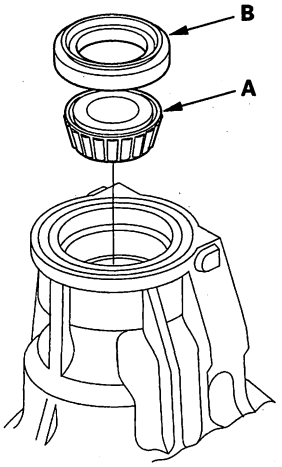
Transfer Assembly

Reassembly (cont'd)

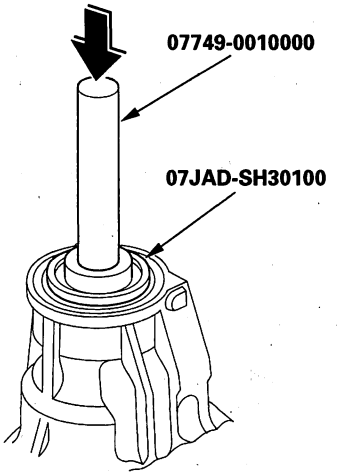
3. Install the 40 mm thrust shim (A) on the transfer output shaft (hypoid gear) (B), then install the tapered roller bearing (C) using the driver (40 mm I.D.) and the press.



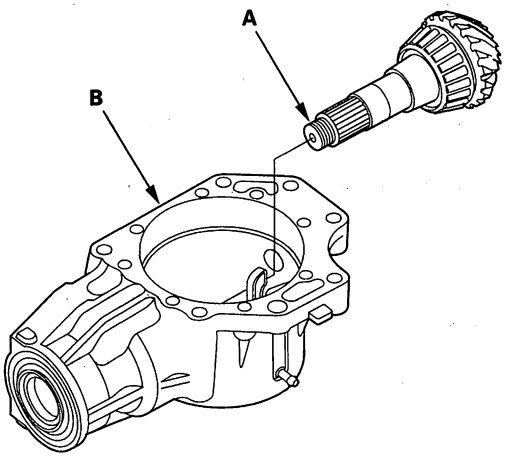
4. Place the tapered roller bearing (A) on the bearing outer race of the companion flange side of the transfer housing, and install the new oil seal (B).



5. Drive the oil seal securely in the transfer housing using the driver and the attachment (65 mm).



6. Install the transfer output shaft (hypoid gear) (A) in the transfer housing (B). Do not install the transfer spacer and thrust washer on the transfer output shaft (hypoid gear).



BACK

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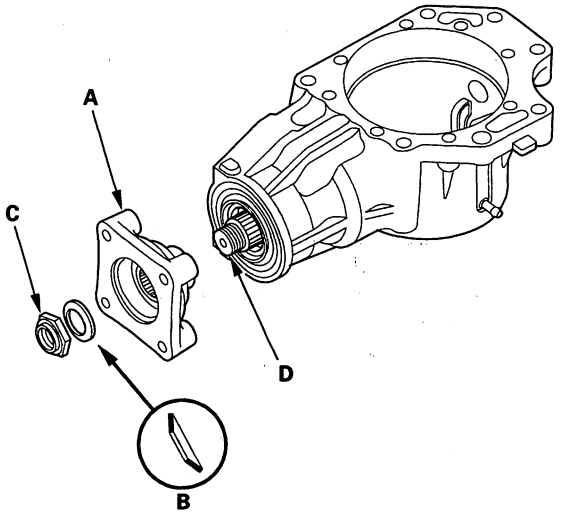
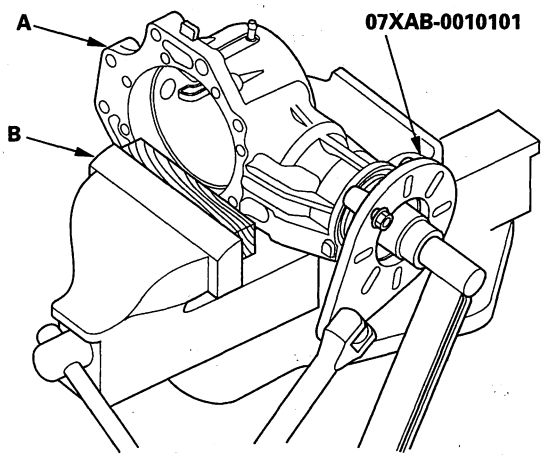
7. Install the companion flange (A), conical spring washer (B) in the direction shown, and locknut (C) on the transfer output shaft (hypoid gear) (D). Do not install the O-ring and back-up ring.



8. Secure the transfer housing (A) in a bench vise (B) with soft jaws. To prevent damage to the transfer housing, always use soft jaws or equivalent materials between the transfer housing and the vise.



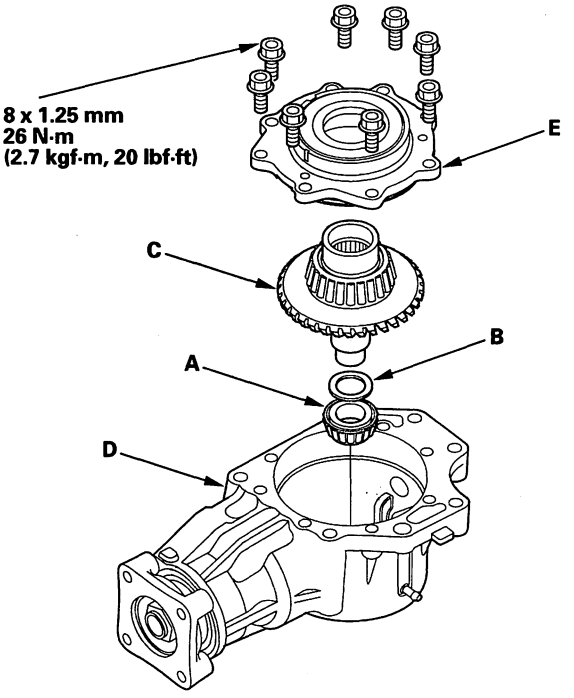
9. Install the companion flange holder on the companion flange.

10. Tighten the locknut while measuring the starting torque of the transfer output shaft (hypoid gear) so the starting torque is within 1.15—1.71 N·m (11.7—17.4 kgf·cm, 10.2—15.1 lbf·in.). Do not stake the locknut in this step.

11. Remove the companion flange holder.

12. Apply Prussian Blue to both sides of the transfer hypoid drive gear teeth lightly and evenly.

13. Install the tapered roller bearing (A), 25 mm thrust shim (B), and transfer drive gear/shaft assembly (C) in the transfer housing (D).



14. Install the transfer cover (E) and secure the cover with the bolts. Do not install the O-ring on the transfer cover.

15. Rotate the companion flange in both directions until the transfer gears rotate one full turn in both directions.

(cont'd)

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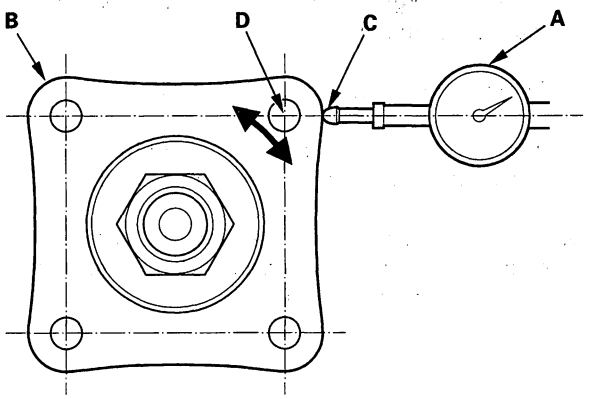
Reassembly (cont'd)

16. Set a dial indicator (A) on the transfer companion flange (B); position dial indicator tip (C) on the direct extension of the bolt hole center (D).

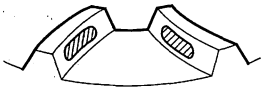


17. Measure the transfer gear backlash.

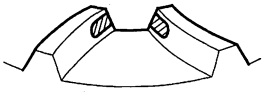
    Standard: 0.06—0.16 mm (0.02—0.06 in.)

18. Remove the transfer cover, transfer hypoid drive gear/shaft assembly, and check the transfer hypoid drive gear tooth contact pattern.

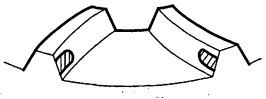
CORRECT TOOTH CONTACT PATTERN



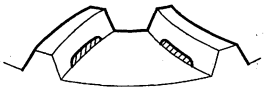
INCORRECT TOOTH CONTACT PATTERN



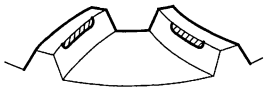
TOE CONTACT



HEEL CONTACT



FLANK CONTACT



FACE CONTACT

19. If the backlash measurement is out of standard, adjust the backlash with the 40 mm thrust shim and recheck. Do not use more than two 40 mm thrust shims to adjust the backlash.

20. If the transfer gear tooth contact is incorrect, adjust the tooth contact with the 25 mm, 40 mm, or 80 mm thrust shim. Do not use more than two of each thrust shim to adjust the tooth contact.

- Toe Contact
  Use a thicker 40 mm thrust shim to move the transfer output shaft (hypoid gear) away from the transfer hypoid drive gear. Because this movement causes the transfer gear backlash to change, move the transfer hypoid drive gear toward the transfer output shaft (hypoid gear) to adjust the transfer gear backlash as follows:
  – Reduce the thickness of the 25 mm thrust shim.
  – Increase the thickness of the 80 mm thrust shim by the amount you reduced the thickness of the 25 mm thrust shim.

- Heel Contact
  Use a thicker 40 mm thrust shim to move the transfer output shaft (hypoid gear) toward the transfer hypoid drive gear. Because this movement causes the transfer gear backlash to change, move the transfer hypoid drive gear away from the transfer output shaft (hypoid gear) to adjust the transfer gear backlash as follows:
  – Increase the thickness of the 25 mm thrust shim.
  – Reduce the thickness of the 80 mm thrust shim by the amount you increased the thickness of the 25 mm thrust shim.

- Flank Contact
  Use a thicker 25 mm thrust shim to move the transfer hypoid drive gear away from the transfer output shaft (hypoid gear). Flank contact must be adjusted within the limits of the transfer gear backlash. If the backlash exceeds the limits, adjust as described under Heel Contact.

- Face Contact
  Use a thinner 25 mm thrust shim to move the transfer hypoid drive gear toward the transfer output shaft (hypoid gear). Face contact must be adjusted within the limits of the transfer gear backlash. If the backlash exceeds the limits, adjust as described under Toe Contact.

BACK

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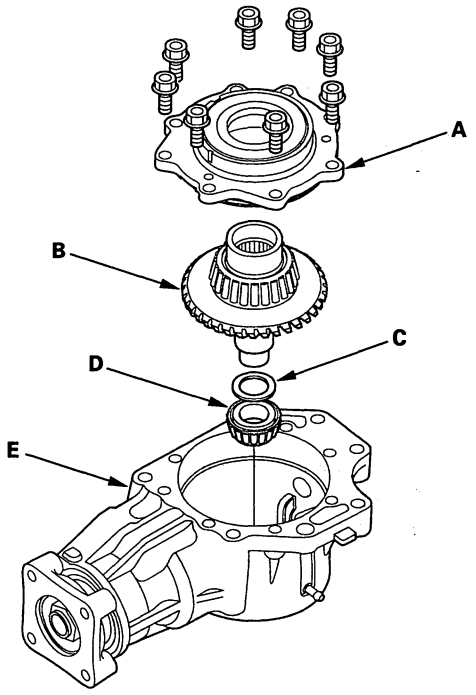
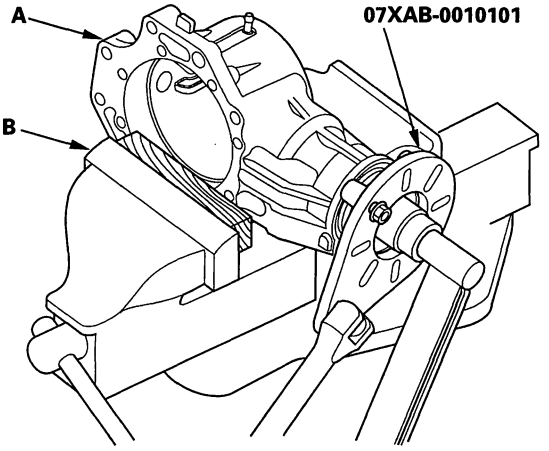
THRUST SHIM, 25 mm

Shim No.	Part Number	Thickness
1.70	29411-P1C-000	1.70 mm (0.067 in.)
1.73	29412-P1C-000	1.73 mm (0.068 in.)
1.76	29413-P1C-000	1.76 mm (0.069 in.)
1.79	29414-P1C-000	1.79 mm (0.070 in.)
1.82	29415-P1C-000	1.82 mm (0.072 in.)
1.85	29416-P1C-000	1.85 mm (0.073 in.)
1.88	29417-P1C-000	1.88 mm (0.074 in.)
1.91	29418-P1C-000	1.91 mm (0.075 in.)
1.94	29419-P1C-000	1.94 mm (0.076 in.)
1.97	29420-P1C-000	1.97 mm (0.078 in.)
2.00	29421-P1C-000	2.00 mm (0.079 in.)
2.03	29422-P1C-000	2.03 mm (0.080 in.)
2.06	29423-P1C-000	2.06 mm (0.081 in.)
2.09	29424-P1C-000	2.09 mm (0.082 in.)
2.12	29425-P1C-000	2.12 mm (0.083 in.)
2.15	29426-P1C-000	2.15 mm (0.085 in.)
2.18	29427-P1C-000	2.18 mm (0.086 in.)
2.21	29428-P1C-000	2.21 mm (0.087 in.)
2.24	29429-P1C-000	2.24 mm (0.088 in.)

21. Remove the transfer cover (A), transfer hypoid drive gear/shaft assembly (B), 25 mm thrust shim (C), and tapered roller bearing (D) from the transfer housing (E) after adjusting the transfer gear backlash or transfer gear tooth contact.



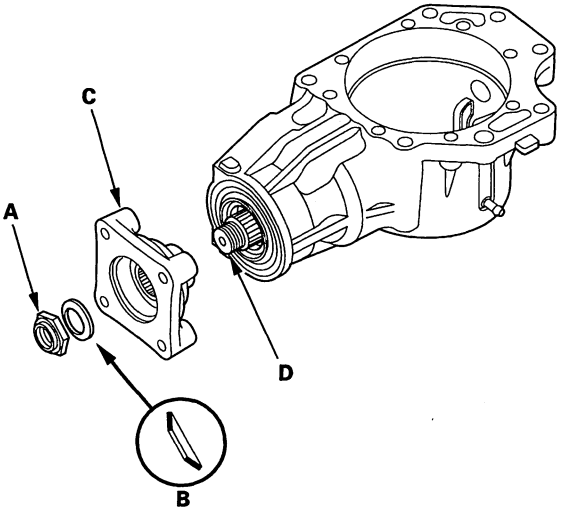
22. Secure the transfer housing (A) in a bench vise (B) with soft jaws. To prevent damage to the transfer housing, always use soft jaws or equivalent materials between the transfer housing and the vise.



23. Install the companion flange holder on the companion flange, then loose the locknut.

24. Remove the companion flange holder.

25. Remove the locknut (A), conical spring washer (B), and companion flange (C) from the transfer output shaft (hypoid gear) (D).



26. Remove the transfer output shaft (hypoid gear) from the transfer housing.

(cont'd)

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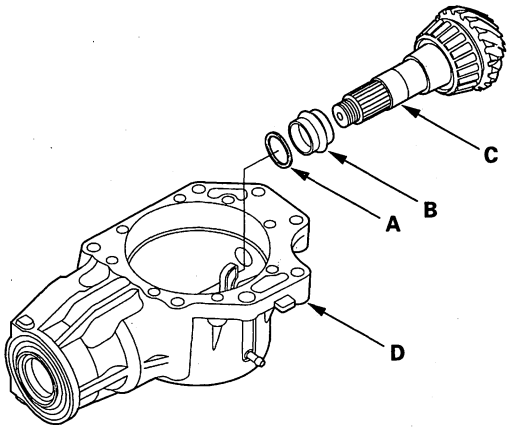
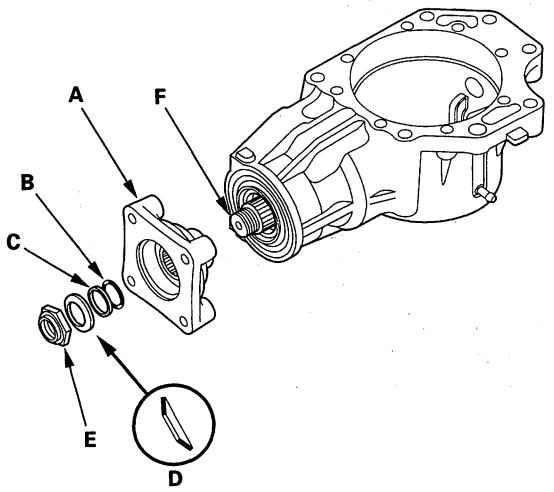
Reassembly (cont'd)

27. Install the thrust washer (A) and the new transfer spacer (B) on the transfer output shaft (hypoid gear) (C) in the direction shown, and install them in the transfer housing (D).

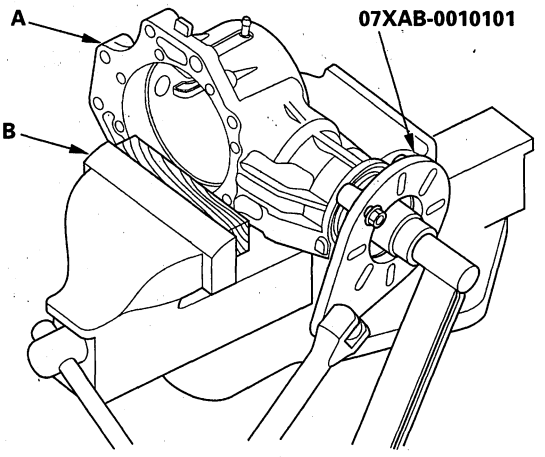


28. Coat the threads of the locknut and transfer output shaft (hypoid gear) with transfer fluid (hypoid gear oil).

29. Install the companion flange (A), new O-ring (B), back-up ring (C), new conical spring washer (D), and new locknut (E) on the transfer output shaft (hypoid gear) (F). Install the conical spring washer in the direction shown.



30. Secure the transfer housing (A) in a bench vise (B) with soft jaws. To prevent damage to the transfer housing, always use soft jaws or equivalent materials between the transfer housing and the vise.



31. Install the companion flange holder on the companion flange.

32. Tighten the locknut while measuring the starting torque of the transfer output shaft (hypoid gear) so the starting torque is within 1.15—1.71 N·m (11.7—17.4 kgf·cm, 10.2—15.1 lbf·in.).

Tightening Torque:
108—294 N·m
(11.0—30.0 kgf·m, 79.6—217 lbf·ft)
Starting Torque:
1.15—1.71 N·m
(11.7—17.4 kgf·cm, 10.2—15.1 lbf·in.)

NOTE:
- Rotate the companion flange several turns to seat the tapered roller bearings, then measure the starting torque.
- If the starting torque exceeds 1.71 N·m (17.4 kgf·cm, 15.1 lbf·in), replace the transfer spacer and reassemble the parts. Do not adjust the torque with the locknut loose.
- If the tightening torque exceeds 294 N·m (30.0 kgf·m, 217 lbf·ft), replace the transfer spacer and reassemble the parts.

33. Remove the companion flange holder.

BACK

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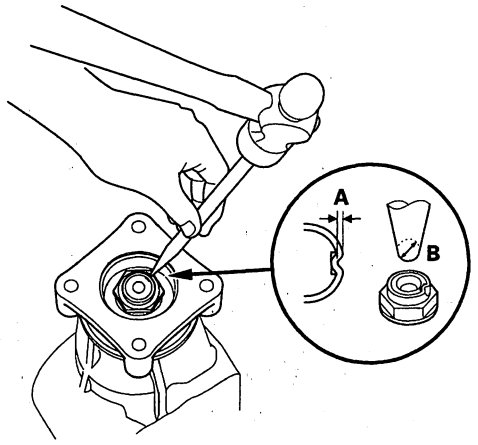
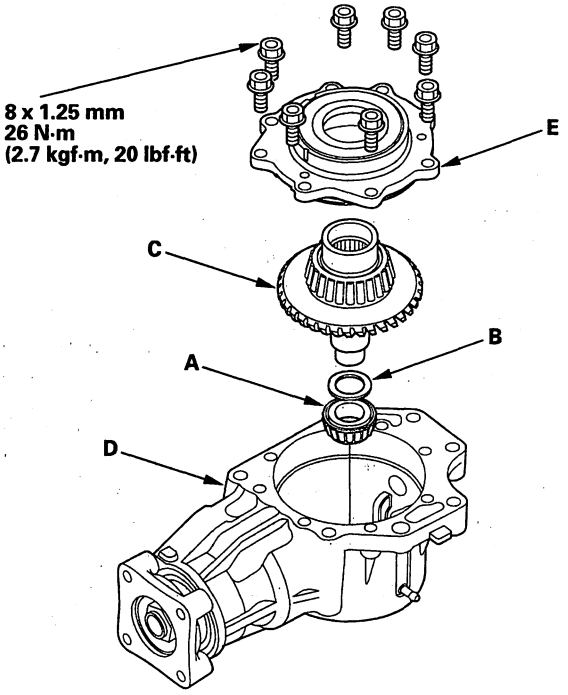
34. Stake the locknut into the transfer output shaft (hypoid gear) in depth (A) of 0.7—1.2 mm (0.03—0.05 in.) using a 3.5 mm punch (B).

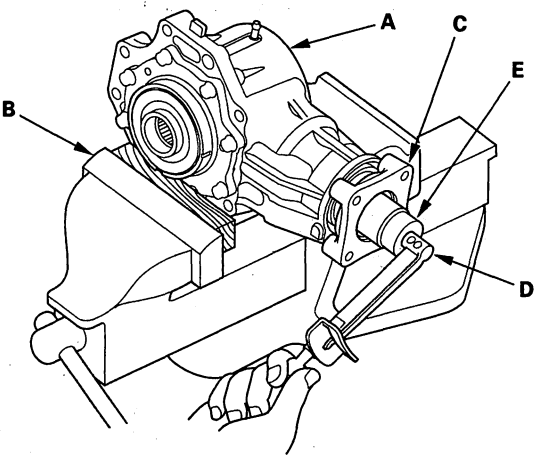


35. Install the tapered roller bearing (A), 25 mm thrust shim (B), and transfer hypoid drive gear/shaft assembly (C) in the transfer housing (D).



36. Temporarily install the transfer cover (E) without the O-ring, and secure the cover with the bolts.

37. Secure the transfer housing (A) in a bench vise (B) with soft jaws. To prevent damage to the transfer housing, always use soft jaws or equivalent materials between the transfer housing and the vise.



38. Rotate the companion flange several turns to seat the tapered roller bearings.

39. Measure the starting torque at the companion flange (C) with a torque wrench (D) and a socket (E).

Standard: 2.64—4.23 N·m
(26.9—43.1 kgf·cm, 23.3—37.4 lbf·in.)

40. Remove the transfer cover from the transfer housing.

41. If the measurement is within the standard, go to step 47.

(cont'd)

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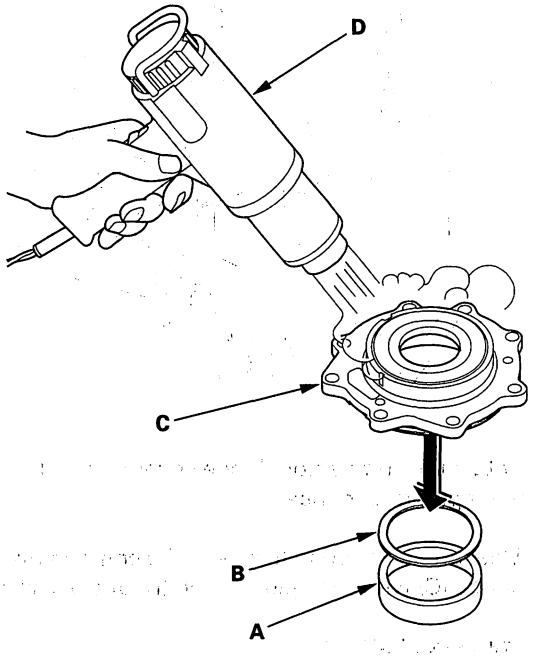
Reassembly (cont'd)

42. If the measurement is out of standard, remove the bearing outer race (A) and 80 mm thrust shim (B) from the transfer cover (C). If the bearing outer race is press-fitted, remove the outer race by heating the cover to about 212 °F (100 °C) with a heat gun (D). Do not heat the housing more than 212 °F (100 °C).



43. Measure the thickness of the 75 mm thrust shim, and select the new 75 mm thrust shim.

THRUST SHIM, 80 mm

Shim No.	Part Number	Thickness
A	41401-RDK-000	1.52 mm (0.060 in.)
B	41402-RDK-000	1.55 mm (0.061 in.)
C	41403-RDK-000	1.58 mm (0.062 in.)
D	41404-RDK-000	1.61 mm (0.063 in.)
E	41405-RDK-000	1.64 mm (0.065 in.)
F	41406-RDK-000	1.67 mm (0.066 in.)
G	41407-RDK-000	1.70 mm (0.067 in.)
H	41408-RDK-000	1.73 mm (0.068 in.)
I	41409-RDK-000	1.76 mm (0.069 in.)
J	41410-RDK-000	1.79 mm (0.070 in.)
K	41411-RDK-000	1.82 mm (0.072 in.)
L	41412-RDK-000	1.85 mm (0.073 in.)
M	41413-RDK-000	1.88 mm (0.074 in.)
N	41414-RDK-000	1.91 mm (0.075 in.)
O	41415-RDK-000	1.94 mm (0.076 in.)
P	41416-RDK-000	1.97 mm (0.078 in.)
Q	41417-RDK-000	2.00 mm (0.079 in.)
R	41418-RDK-000	2.03 mm (0.080 in.)
S	41419-RDK-000	2.06 mm (0.081 in.)
T	41420-RDK-000	2.09 mm (0.082 in.)
U	41421-RDK-000	2.12 mm (0.083 in.)
V	41422-RDK-000	2.15 mm (0.085 in.)
W	41423-RDK-000	2.18 mm (0.086 in.)
X	41424-RDK-000	2.21 mm (0.087 in.)
Y	41425-RDK-000	2.24 mm (0.088 in.)
Z	41426-RDK-000	2.27 mm (0.089 in.)
AA	41427-RDK-000	2.30 mm (0.091 in.)
AB	41428-RDK-000	2.33 mm (0.092 in.)
AC	41429-RDK-000	2.36 mm (0.093 in.)
AD	41430-RDK-000	2.39 mm (0.094 in.)
AE	41431-RDK-000	2.42 mm (0.095 in.)
AF	41432-RDK-000	2.45 mm (0.096 in.)
AG	41433-RDK-000	2.48 mm (0.098 in.)
AH	41434-RDK-000	2.51 mm (0.099 in.)
AI	41435-RDK-000	2.54 mm (0.100 in.)
AJ	41436-RDK-000	2.57 mm (0.101 in.)
AK	41437-RDK-000	2.60 mm (0.102 in.)
AL	41438-RDK-000	2.63 mm (0.104 in.)
AM	41439-RDK-000	2.66 mm (0.105 in.)

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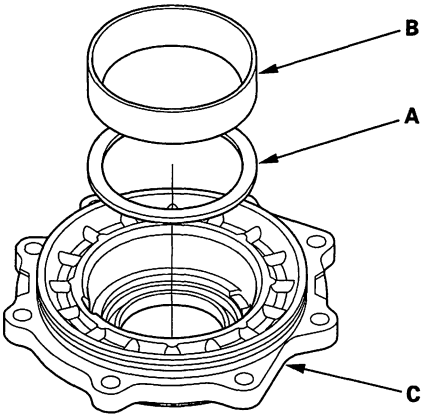
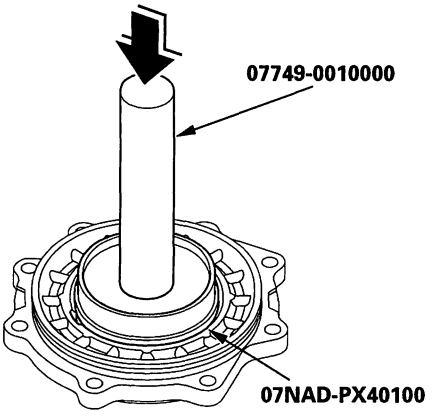
44. Install the 80 mm thrust shim (A) and bearing outer race (B) in the transfer cover (C). If you heated the cover, let it cool to room temperature before installing the thrust shim.

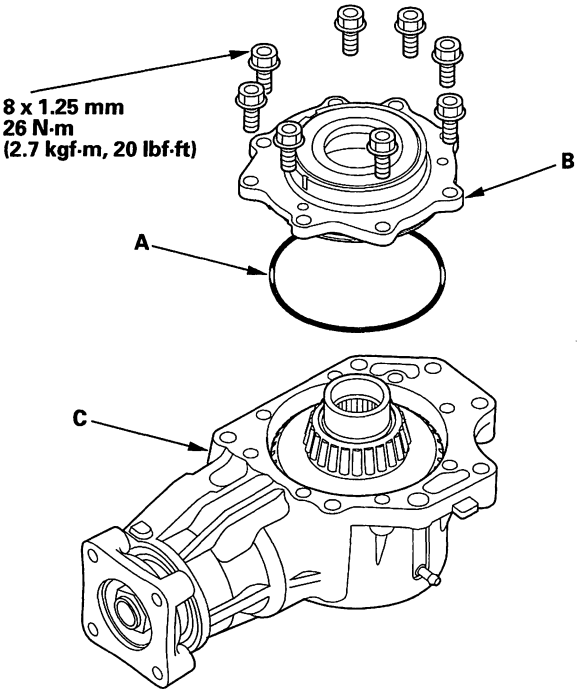


45. Drive the outer race securely in the cover using the driver and the attachment (78 x 80 mm) so there is no clearance between the outer race, thrust shim, and cover.



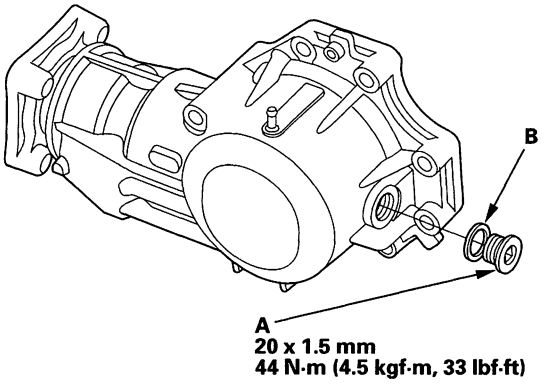
46. After replacing the 80 mm thrust shim, recheck and make sure that the total staring torque is within the specification.

47. Install the new O-ring (A) on the transfer cover (B), then install the transfer cover on the transfer housing (C).



48. Remove the filler plug (A), then refill the transfer assembly with transfer fluid (hypoid gear oil). Use a SAE 90 or SAE 80W-90 viscosity hypoid gear oil, API classified GL4 or GL5 only.

Viscosity:
SAE 90: Above 0 °F (−18 °C)
SAE 80W-90: Below 0 °F (−18 °C)
Hypoid Gear Oil Capacity: 0.45 L (0.48 US qt)



49. Install the filler plug with the new sealing washer (B).

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Rear Differential

Rear Differential

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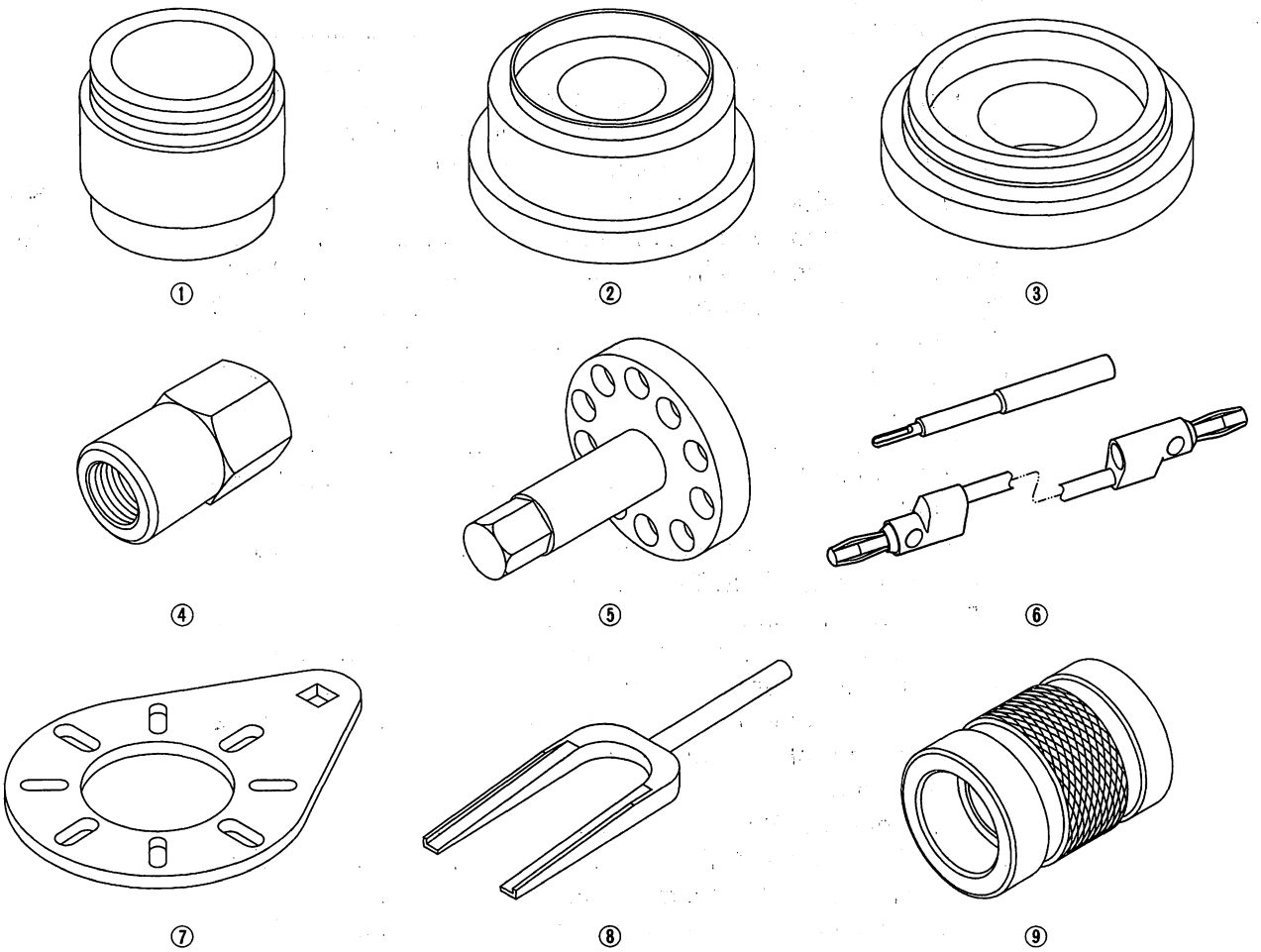
Rear Differential

Special Tools

Ref. No.	Tool Number	Description	Qty
①	070AD-STK0110	Oil Seal Driver A	1
②	070AD-STK0120	Oil Seal Driver B	1
③	070AD-STK0130	Oil Seal Driver C	1
④	070AJ-SJAA130*	Nut, 14 x 1.5 mm	5
⑤	070AJ-SJAA112*	Adapter, Torque Wrench	1
⑥	07SAZ-001000A	Backprove set	2
⑦	07XAB-001A101	Companion Flange Holder	1
⑧	07AAD-S3VA100	Driveshaft remover	1
⑨	07747-0010100	Fork Seal Driver Weight	1

* Part of Adapter, Torque Wrench Set, 070AJ-SJAA102



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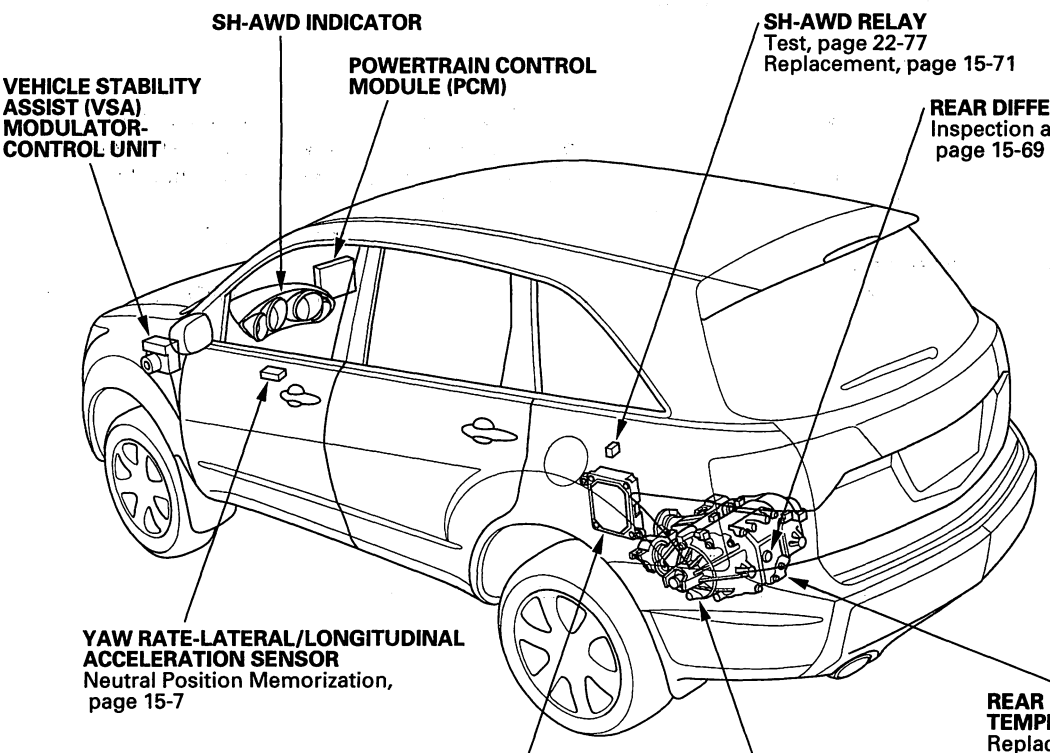
Component Location Index



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General Troubleshooting Information

SH-AWD Indicator

The SH-AWD indicator comes on under certain conditions even if the AWD system is working normally. Here are some examples:

- When you use high-powered wireless equipment such as a CB or Ham radio in the vehicle.
- When you keep spinning the rear wheels while the vehicle is stuck in sand, mud, snow, etc.
- When the battery voltage suddenly drops below 10 volt.

After the SH-AWD indicator comes on, it stays on until you turn the ignition switch off.

Diagnostic Trouble Code (DTC)

- The SH-AWD control unit can memorize up to eight different DTCs. The system displays the DTCs by blinking the SH-AWD indicator. Multiple DTCs are displayed in the order they occurred, beginning with the most recent.
- If the same DTC is detected more than once, the most recent DTC is written over the earlier one. Therefore, when the same problem is detected more than once, it is memorized as a single DTC.
- The DTCs are memorized in the EEPROM (non-volatile memory). Therefore, the memorized DTCs are not cleared when the battery is disconnected or the SH-AWD control unit is disconnected.
- If there is a problem in the central processing unit (CPU) of the SH-AWD control unit, the SH-AWD indicator comes on, but no DTC is memorized.

Self-diagnosis

When a problem is detected by self-diagnosis, the system does the following:

- Turns the SH-AWD indicator on.
- Memorizes the DTC.
- Stops AWD control and puts the vehicle back in FWD.
- Reduces engine torque to suit the driving conditions when the abnormality was detected.

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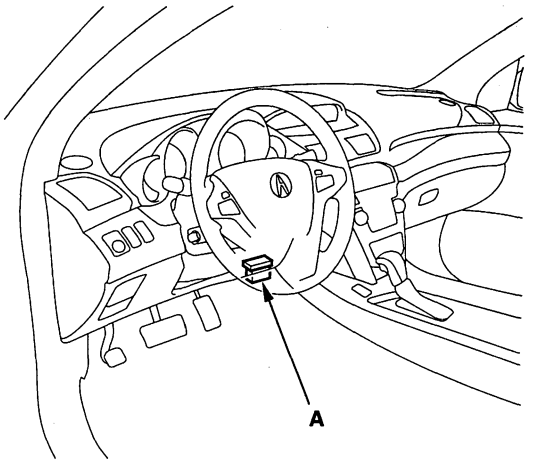
How to Check for Diagnostic Trouble Codes (DTCs)

When the SH-AWD control unit senses an abnormality in the input or output systems, the SH-AWD indicator in the gauge assembly will usually come on, and the malfunction indicator lamp (MIL), the D5 indicator, and/or the ABS indicator may also come on.

1. With the ignition switch OFF, connect the HDS to the data link connector (DLC) (A) behind the driver's dashboard lower cover.



2. Turn the ignition switch ON (II), and follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC(s), refer to the DTC Troubleshooting.

   NOTE: See the HDS help menu for specific instruction.

3. If there are fuel and emission DTCs, A/T DTCs, and VSA system DTC's at the same time, troubleshoot the fuel and emission DTCs first.

4. After recording the DTCs, clear all DTCs.

5. Test-drive the vehicle for several minutes in AWD mode, and check for DTCs. If the DTC returns, refer to the DTC Troubleshooting. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all connectors and terminals in the circuit are tight.

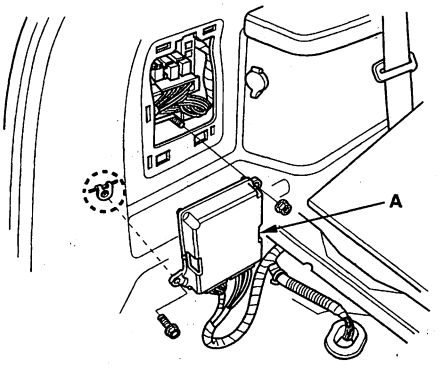
How to Troubleshoot Circuits at the SH-AWD Control Unit

Special Tools Required
Backprobe set 07SAZ-001000A (two required)

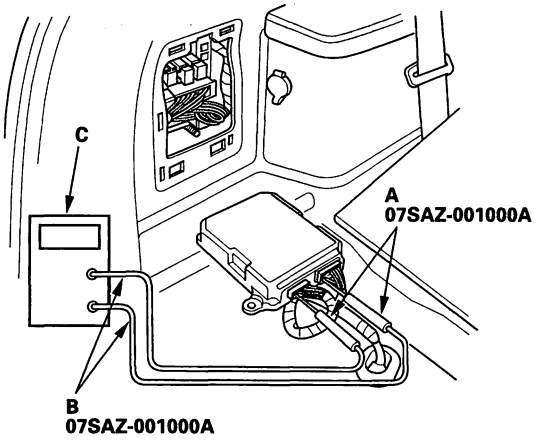
1. Remove the left side trim panel cover (see page 20-92).

2. Remove the cargo floor lid and the cargo box (see page 20-90).

3. Remove the SH-AWD control unit (A).



4. Inspect the circuit on the SH-AWD control unit according to the DTC Troubleshooting using the special tools and a digital multimeter or an analog circuit tester.



5. Connect the backprobe adapters (A) to the stacking patch cords (B), and connect the cords to the multimeter or an analog circuit tester (C). Using the wire insulator as a guide for the contoured-tip of the backprobe adapter, gently slide the tip into the connector from the wire side until it comes in contact with the terminal end of the wires.

(cont'd)

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General Troubleshooting Information (cont'd)

Updating the SH-AWD Control Unit

Special Tools Required
- Honda diagnostic system (HDS)
- Honda interface module (HIM)
- HDS pocket tester

NOTE:
- Use this procedure when you need to update the SH-AWD control unit in a troubleshooting procedure.
- Make sure the HDS/HIM has the latest software version.
- Before you update the SH-AWD control unit, make sure the battery in the vehicle is fully charged.
- Never turn the ignition switch OFF during the update. If there is a problem with the update, leave the ignition switch ON.
- To prevent SH-AWD control unit damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, moonroof, door locks, etc.) during the update.
- To ensure the latest program is installed, do an SH-AWD control unit update whenever the SH-AWD control unit is substituted or replaced.
- You cannot update an SH-AWD control unit with a program it already has. It will only accept a new program.
- If you need to diagnose the Honda interface module (HIM) because the HIM's red (#3) lamp came on or was flashed during the update, leave the ignition switch in the ON (II) position when you disconnect the HIM from the data link connector (DLC). This will prevent SH-AWD control unit damage.

1. Select the update program, and follow the screen prompts to update the SH-AWD control unit.
2. If the software in the SH-AWD control unit is the latest, disconnect the HDS/HIM from the DLC, and go back to the procedure that you were doing. If the software in the SH-AWD control unit is not the latest, follow the instructions on the screen.
3. Do the SH-AWD control unit initialization (see page 15-8).
4. Do the SH-AWD differential clutch torque memorization (see page 15-7).
5. Do the yaw rate - lateral/longitudinal acceleration neutral position memorization (see page 15-7).

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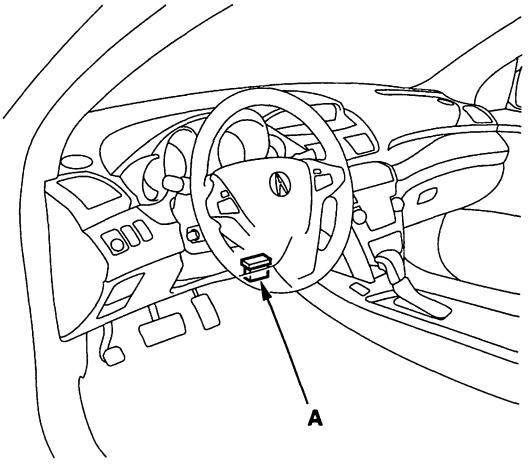
SH-AWD Differential Clutch Torque Memorization

Whenever the side clutch set is replaced, the differential clutch torque memorization must be done.

1. With the ignition switch OFF, connect the HDS to the 16P DLC (A) behind the driver's dashboard lower cover.



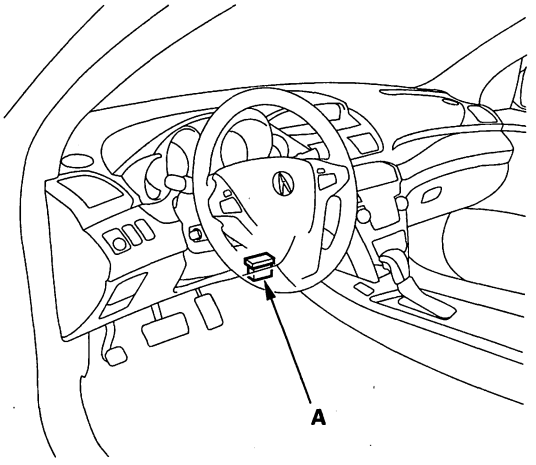
2. Turn the ignition switch ON (II), go to the miscellaneous test menu/neutral menu/differential torque and follow the prompts on the HDS screen.

   NOTE: See the HDS help menu for specific instructions.

Yaw Rate-Lateral/Longitudinal Acceleration Neutral Position Memorization

Whenever the yaw rate sensor or the lateral acceleration sensor is replaced, its neutral position memorization must be done.

1. With the ignition switch OFF, connect the HDS to the 16P DLC (A) behind the driver's dashboard lower cover.



2. Turn the ignition switch ON (II), go to the miscellaneous test menu/neutral menu/all sensor and follow the prompts on the HDS screen.

   NOTE: See the HDS help menu for specific instructions.

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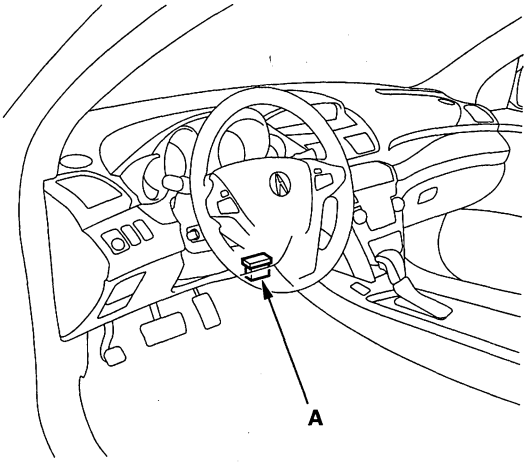
SH-AWD Control Unit Initialization

Whenever the SH-AWD control unit is replaced, it must initialized.

1. With the ignition switch OFF, connect the HDS to the 16P DLC (A) behind the driver's dashboard lower cover.



2. Turn the ignition switch ON (II), go to the miscellaneous test menu/neutral menu/all sensor and follow the prompts on the HDS screen.

   NOTE: See the HDS help menu for specific instructions.

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DTC Troubleshooting Index

DTC*	SH-AWD Indicator Light	Detection Item	Page
12-1	ON	Lateral Acceleration Sensor Malfunction	(see page 15-22)
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15-1	ON	Longitudinal Acceleration Sensor Malfunction	(see page 15-22)
16-3	ON	Steering Angle Sensor Neutral Position Incorrect	(see page 15-23)
33-2	ON	Yaw Rate Sensor Malfunction	(see page 15-24)
33-3	ON	Yaw Rate Sensor Malfunction	(see page 15-24)
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41-2	ON	Lost of Communication with VSA	(see page 15-26)
41-4	ON	Lost of Communication with A/T Control Unit	(see page 15-27)
41-5	ON	Lost of Communication with Yaw Rate-Lateral/Longitudinal Acceleration Sensor	(see page 15-29)
41-6	ON	Lost of Communication with Steering Angle Sensor	(see page 15-30)
42-1	ON	Differential Fluid Temperature Sensor (Short to power)	(see page 15-31)
42-2	ON	Differential Fluid Temperature Sensor (Open/GND Short)	(see page 15-32)
43-1	ON	Differential Fluid Temperature Sensor Circuit Malfunction	(see page 15-35)
44-11	ON	SH-AWD Control Unit	(see page 15-36)
44-12	ON	SH-AWD Relay Stuck ON	(see page 15-37)
44-32	ON	SH-AWD Control Unit Power Supply Stuck ON	(see page 15-38)
44-41	ON	SH-AWD Control Unit Power Supply Stuck OFF	(see page 15-38)
44-50	ON	SH-AWD Control Unit Power Supply Stuck Voltage Low	(see page 15-39)
49-1	ON	SH-AWD Control Unit (PG Line Open)	(see page 15-41)
52-3	ON	Left Clutch Electromagnetic Coil Current Malfunction	(see page 15-42)
53-1	ON	Left Clutch Electromagnetic Coil Malfunction	(see page 15-45)
53-2	ON	Left Clutch Electromagnetic Coil (Short)	(see page 15-47)
53-3	ON	Left Clutch Electromagnetic Coil Malfunction	(see page 15-45)
56-3	ON	Right Clutch Electromagnetic Coil Current Malfunction	(see page 15-49)
57-1	ON	Right Clutch Electromagnetic Coil Malfunction	(see page 15-52)
57-2	ON	Right Clutch Electromagnetic Coil (Short)	(see page 15-54)
57-3	ON	Right Clutch Electromagnetic Coil Malfunction	(see page 15-52)
76-1	ON	Rear Differential Fluid Overheats	(see page 15-56)
77-1	ON	Communication Error with the Power Control Module (PCM)	(see page 15-57)
77-2	ON	Communication Error with the VSA Modulator-Control Unit	(see page 15-57)
77-4	ON	Communication Error with the Automatic-Transmission Control Unit	(see page 15-58)
77-5	ON	Yaw Rate-Lateral/Longitudinal Acceleration Sensor Malfunction	(see page 15-59)
77-6	ON	Steering Angle Sensor Malfunction	(see page 15-59)
78-xx	ON	SH-AWD Control Unit Self-diagnostic Malfunction	(see page 15-60)
81-1	ON	Left Search Coil Sensor Malfunction	(see page 15-60)
82-1	ON	Right Search Coil Sensor Malfunction	(see page 15-63)
91-1	ON	SH-AWD Control Unit Programming Error	(see page 15-65)

*: DTCs are indicated by the SH-AWD indicator when the 16P data link connector (DLC) is connected to the HDS.

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Symptom Troubleshooting Index

NOTE: Most problems in the unit are to be diagnosed by identifying noises from the gears or bearings. Care should be taken during diagnosis not to confuse differential noises with those from other drivetrain components.

Symptom	Diagnostic Procedure	Also check for
The SH-AWD indicator does not go off, and no DTCs are stored	Symptom troubleshooting (see page 15-66).	
The SH-AWD indicator does not come on	Symptom troubleshooting (see page 15-67).	
Gear or bearing noises	• Fluid level too low. • Incorrect or worn out fluid • Damaged or chipped gears. • Side case clearance incorrect. • Incorrect tire size (rolling circumference).	• Add fluid • Drain and fill the differential • Replace the differential carrier assembly • Side case clearance adjustment
Rear differential overheats	• Fluid level too low. • Incorrect fluid type.	• Add fluid • Drain and fill the differential
Rear differential leaks fluid	• Fluid level too high. • Clogged breather hose. • Worn or damaged oil seal. • Damaged sealing washer. • Loose mounting bolts or inadequate sealing.	• Lower to proper level • Clean or replace • Replace the sealing washer • Replace the oil seal • Recheck torque or apply sealant
Rear differential screeches, whines, moans, or squeaks	• Fluid level too low. • Incorrect or worn out fluid • Incorrect tire rolling circumference. • Damaged oil pump.	• Add fluid • Drain and fill the differential • Adjust tire pressure or replace tires • Replace the differential carrier assembly
Noise during acceleration, or when accelerating from a full stop	• Incorrect of side case clearance. • Incorrect of pre-load. • Incorrect of backlash of hypoid gear. • Damaged or chipped gears. • Incorrect tire size (rolling circumference).	• Pre-load adjustment. • Side case clearance adjustment • Replace the differential carrier assembly
HDS does not communicate with the SH-AWD control unit or the vehicle	Troubleshooting DLC circuit (see page 11-223).	

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System Description

SH-AWD System

Outline

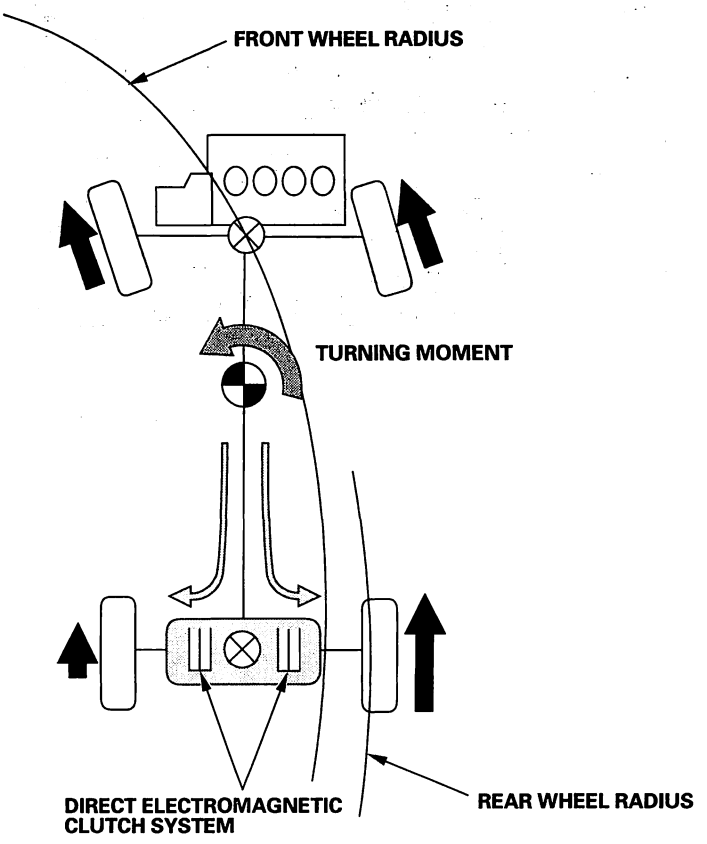
This vehicle is equipped with a Super Handling All-wheel Drive (SH-AWD) rear differential system. This system uses electromagnetic clutches and the SH-AWD control unit to control front to rear torque distribution and independent left to right rear torque distribution. This allows the system to function as a limited slip differential and as a torque distribution system to improve standing start performance, straight-line stability, climbing, and cornering ability.

SH-AWD features include

- Independent torque distribution to the front and rear wheels, and to the left and right wheels for neutral handling when cornering.
- Controls differential (inside/outside) wheel speed in a turn to increase cornering stability.
- Limited slip differential function for better acceleration.

Operation

When driving in a straight line, the front and rear wheels are traveling at the same speed. In a normal turn, the distance traveled by the front wheels is longer than that of the rear wheels. The SH-AWD system monitors the speed of the front wheels, and increases torque to the outside rear wheel proportionally. This improves stability and steering response, and on slippery surfaces it provides improved traction of the 4-wheel drive system.



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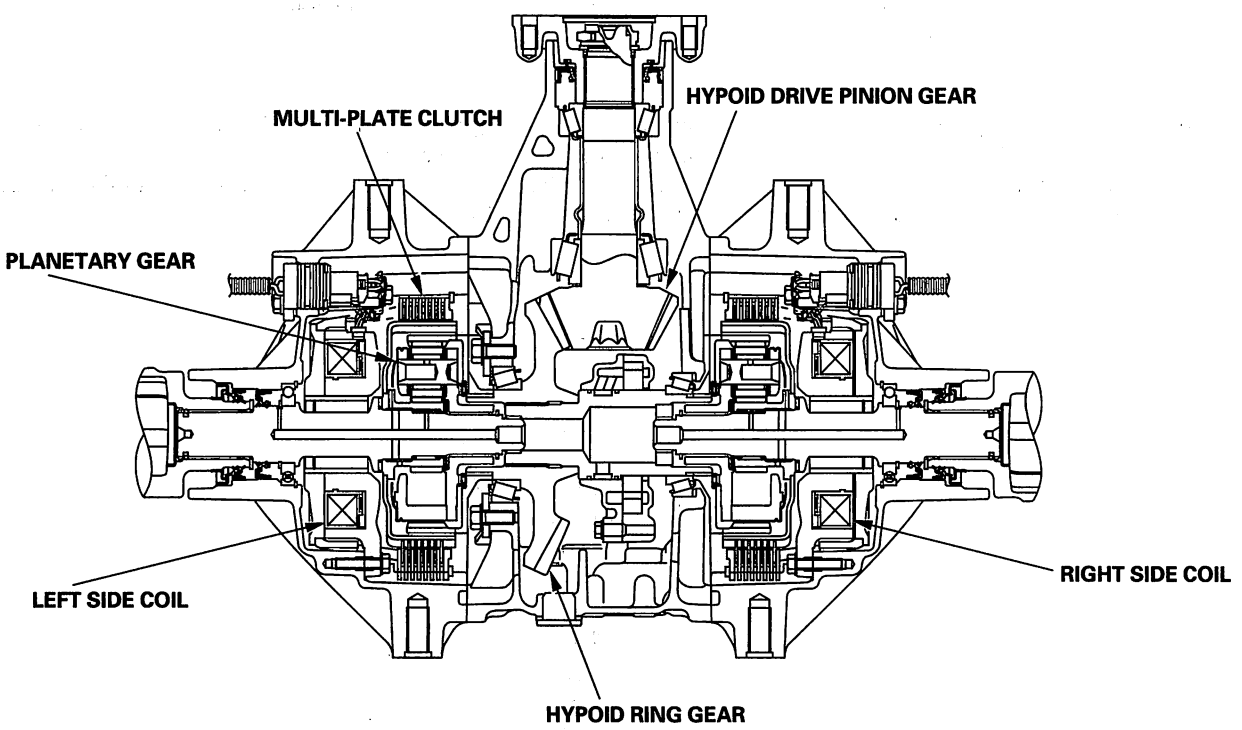
System Description (cont'd)

Construction

1. The differential assembly has a conventional hypoid ring and pinion gear set.
2. The direct electromagnetic clutch system consists of the coils, the planetary gear sets, and the multi-plate clutches that are installed in the side cases on either side of the differential carrier. When driving straight ahead, both rear wheels rotate at the same speed. When turning, current is applied to the appropriate outside wheel main coil to engage the clutch. The amount of current passed through the electromagnetic clutch controls the amount of driving force to the outside wheel.



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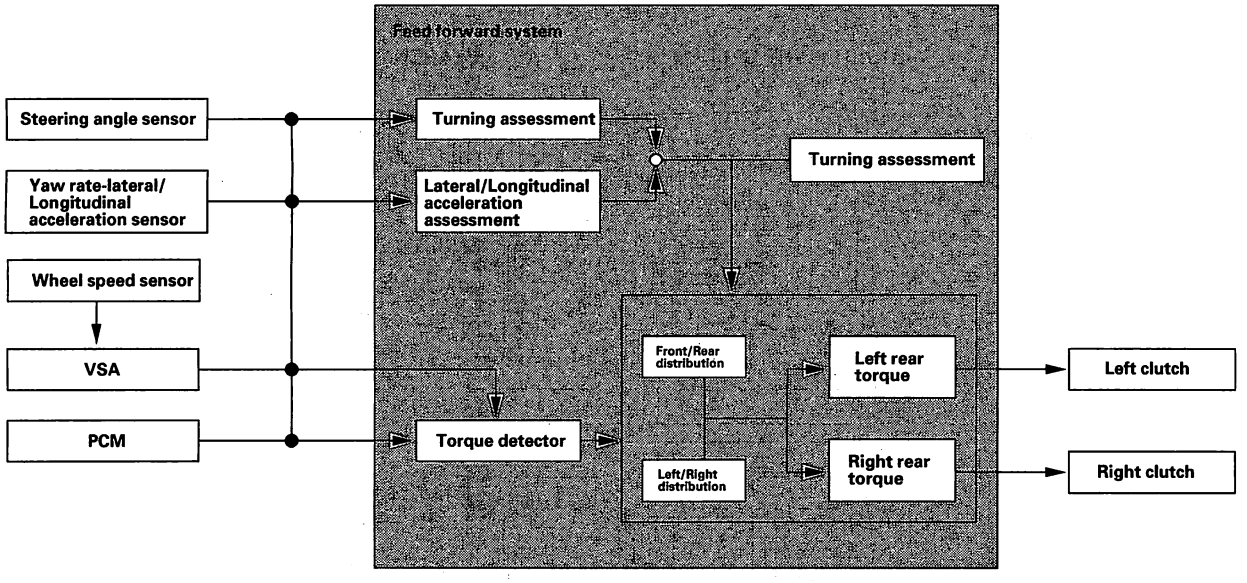
SH-AWD 4WD Control System

Control System

The SH-AWD control system consists of a SH-AWD control unit, the PCM, the VSA modulator-control unit, along with various sensors and switches that detect the steering angle, the lateral G force, the yaw, and the vehicle speed. A fluid temperature sensor is located on in the rear differential. The control units exchange information via the F-CAN communication lines. The SH-AWD control unit has a self-diagnostic function. If a malfunction is detected, the SH-AWD control unit turns on the SH-AWD indicator in the gauge assembly and the system goes into fail-safe mode. When in fail-safe mode, the vehicle disables the SH-AWD differential. The vehicle defaults to front wheel drive, reduces engine torque to suit the driving conditions.

Driving Force Control

The driving force control distributes the power based on the driver's inputs. It distributes torque to the front and rear wheels based on the throttle opening and the available engine torque output. When turning, torque is applied to the rear wheels independently based on the lateral G input and the direction of the turn. This generates an inward yaw movement to help steer the vehicle around the turn.



(cont'd)

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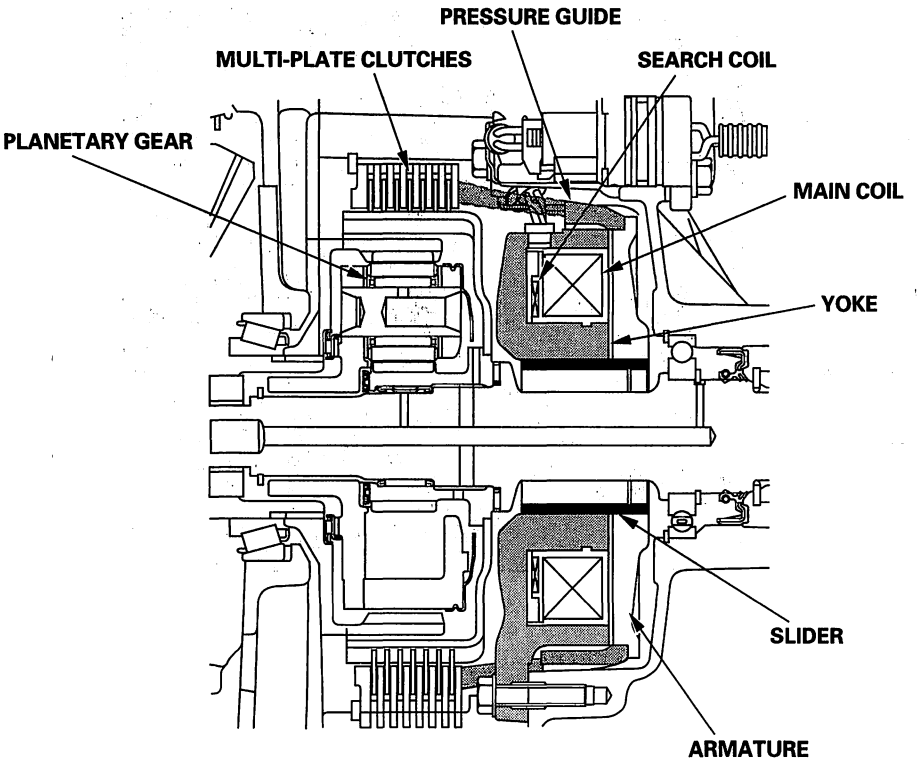
System Description (cont'd)

Electromagnetic Clutch System

Construction

The electromagnetic clutch system is incorporated into the side case assemblies on both sides of the differential case. The system consists of the multi-plate clutches, the planetary gears, the pressure guides, the solenoid coil assembly (the search coil and the main coil), the armature assembly (the slider and the armature), and the yoke.

Components	Purpose
Multi-plate clutches	Convert thrust into torque, absorb wheel speed differences
Planetary gears	Magnify and convey clutch torque
Pressure guides	Reduce fluctuations in pressure
Search coils	Detect magnetic flux
Main coils	Generates magnetic fields
Slider	Centers the armature
Armature	Generates magnetic flux to generate thrust
Yoke	Generates magnetic flux to clamping force



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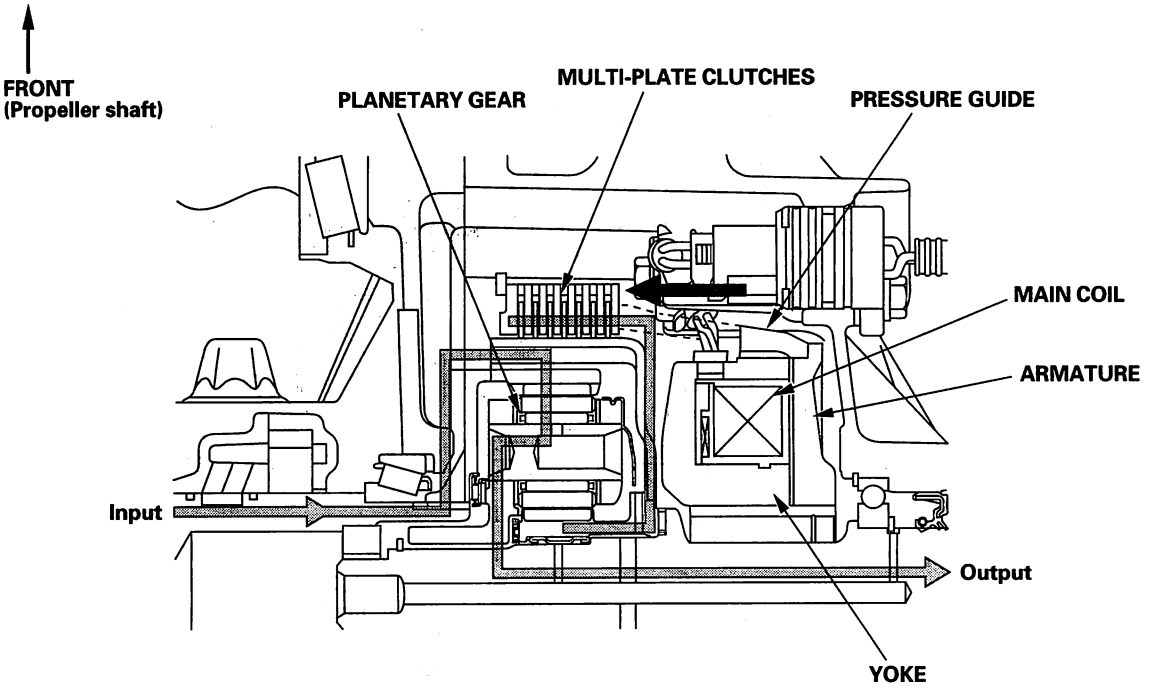
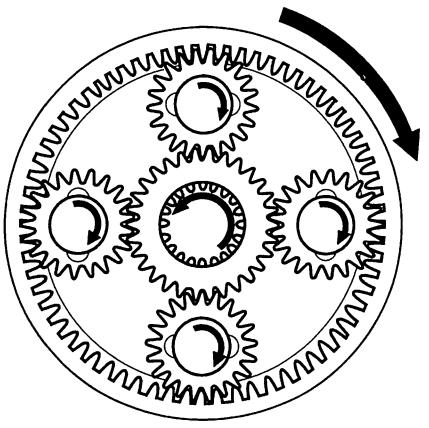
Operation

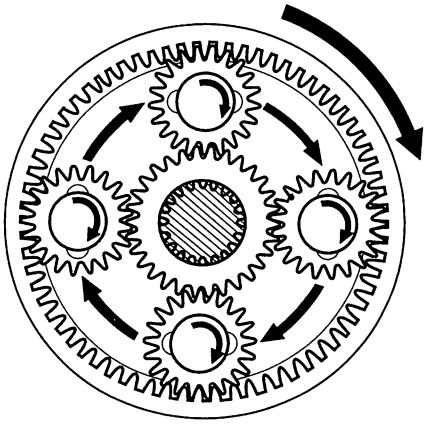
The SH-AWD control unit receives inputs from the PCM and the VSA modulator-control unit on the driving conditions via the F-CAN. The SH-AWD control unit sends signals to the main coils, which engage the electromagnetic clutches that connect the planetary gear set. This increases the torque applied to the rear wheels. The amount of current sent to the clutch is continuously varied as driving conditions change.



WHEN THERE IS NO THRUST



WHEN THRUST IS GENERATED



(cont'd)

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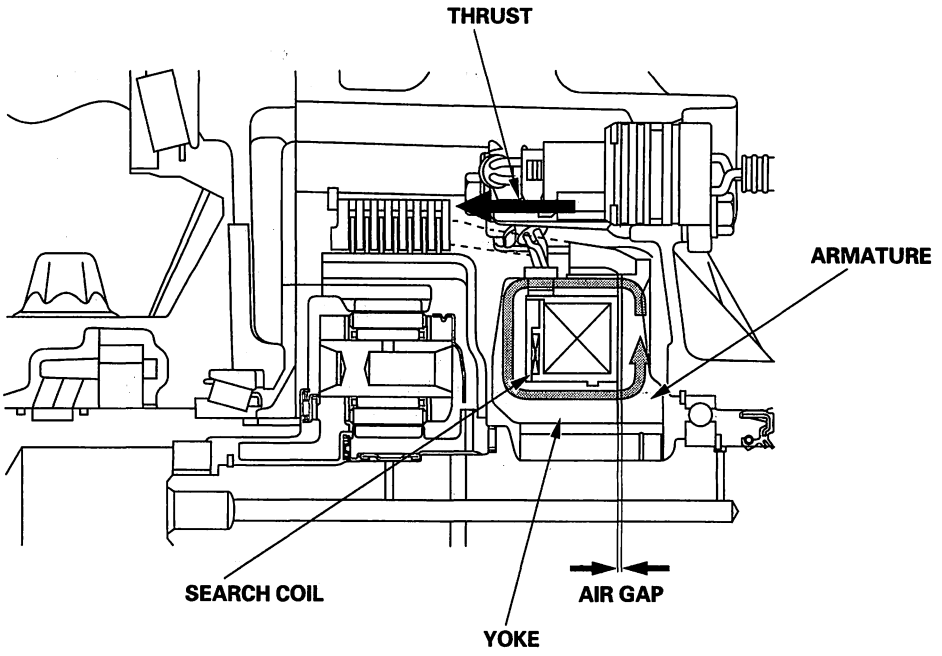
System Description (cont'd)

Search Coil Detection System

As the clutch discs wear, the air gap between the pressure guides and the multi-plate clutches increases. The increase in air gap changes the magnetic field generated by the main coil and the yoke. The search coil detects these changes in the magnetic field. The SH-AWD control unit uses predetermined maps to compensate for the changes to maintain precise control and smooth clutch engagement.



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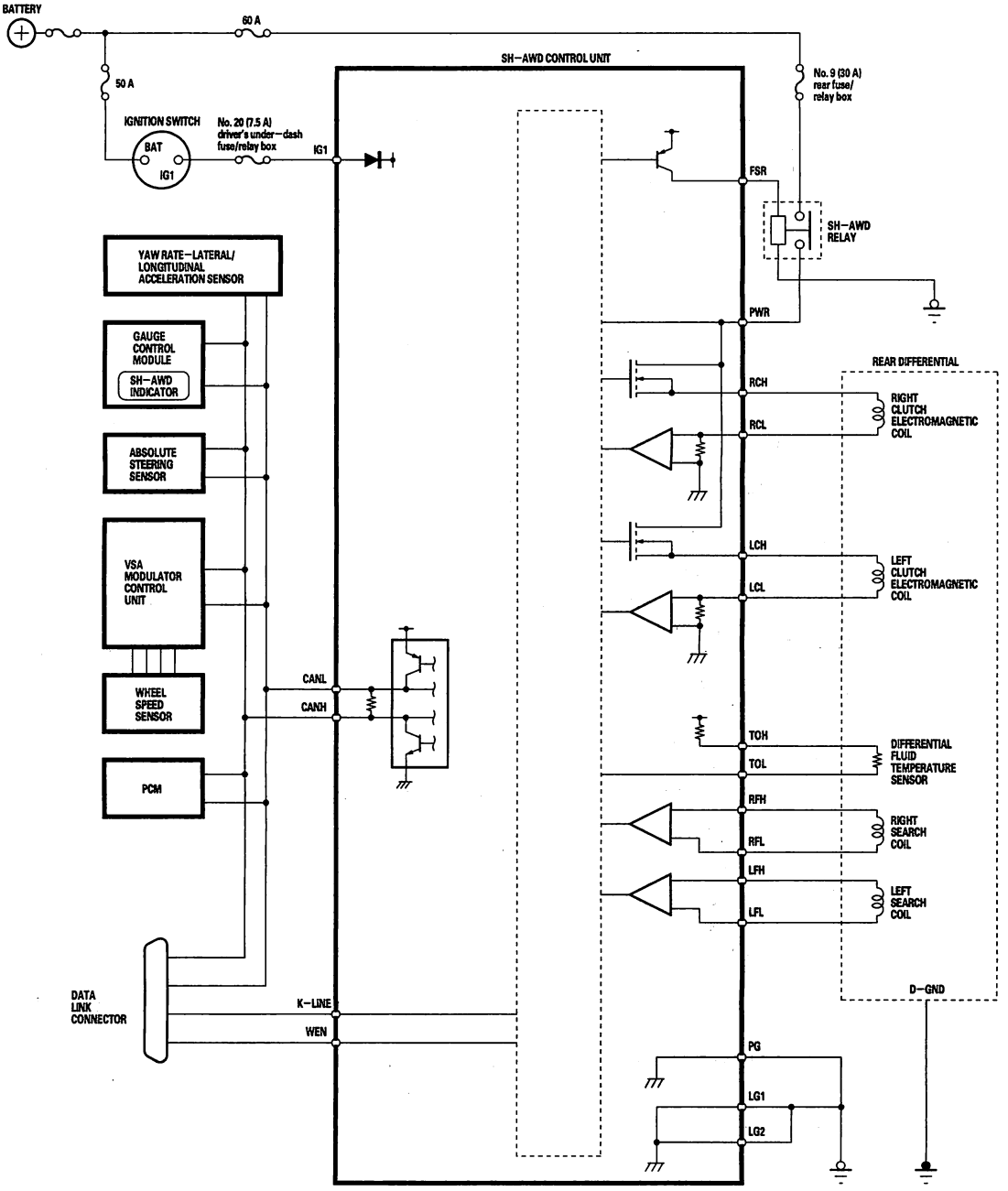
Electric Control System

SH-AWD Control Unit Electrical Connections



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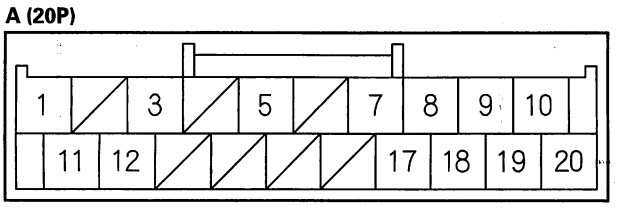
System Description (cont'd)

SH-AWD Control Unit Inputs and Outputs

The SH-AWD control unit terminal voltages and the measuring conditions for the SH-AWD control system. Do the SH-AWD inputs and outputs test with the SH-AWD connectors connected.

SH-AWD Control Unit Connector Terminal Locations



Terminal side of male terminals

Terminal number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
A1	BLK	LFH	Detects left search coil signal (positive)	With ignition switch ON (II): about 2.5 V
A3	BLU	RFH	Detects right search coil signal (positive)	With ignition switch ON (II): about 2.5 V
A5	LT BLU	K-LINE	Communication line SH-AWD control unit-to-DLC	With ignition switch ON (II): 0 V or battery voltage
A7	GRN	IG1	Power supply for SH-AWD control unit	With ignition switch ON (II): battery voltage
A8	GRN	TOL	Detects differential fluid temperature sensor (negative)	With ignition switch ON (II): about 0.2 V to 4.7 V (Depending on ATF temperature)
A9	BLK	LG1	Unit ground	With ignition switch ON (II):0 V
A10	WHT	CANH	F-CAN communication signal	With ignition switch ON (II): about 2.5 V or 3.5 V
A11	RED	LFL	Detects left search coil signal (negative)	With ignition switch ON (II): about 2.5 V
A12	RED	RFL	Detects right search coil signal (negative)	With ignition switch ON (II): about 2.5 V
A17	ORN	FSR	Drives SH-AWD relay	With ignition switch ON (II): 0 V or battery voltage
A18	WHT	TOH	Power supply for differential fluid temperature sensor	With ignition switch ON (II): about 4.7 V to 5 V
A19	GRY	WEN	Detects write enable signal	With ignition switch ON (II): about 0 V
A20	RED	CANL	F-CAN Communication signal	With ignition switch ON (II): about 2.5 V or 1.5 V

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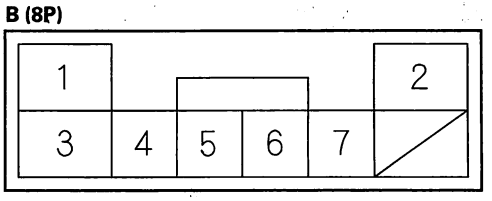
SH-AWD Control Unit Inputs and Outputs

The SH-AWD control unit terminal voltages and the measuring conditions for the SH-AWD control system. Do the SH-AWD inputs and outputs test with the SH-AWD connectors connected.

SH-AWD Control Unit Connector Terminal Locations



Terminal side of male terminals

Terminal number	Wire color	Signal	Description	Measuring Conditions/Terminal Voltage
B1	WHT	PWR	Power supply for SH-AWD actuator	With engine running: battery voltage
B2	BLK	PG	Actuator ground	With ignition switch ON (II): 0 V
B3	BLK	LG2	Unit ground	With ignition switch ON (II): 0 V
B4	RED	LCH	Drives left clutch electromagnetic coil (positive)	With clutch off: 0 V With clutch on: battery voltage
B5	BLU	LCL	Drives left clutch electromagnetic coil (negative)	With ignition switch ON (II): 0 V
B6	ORN	RCH	Drives right clutch electromagnetic coil (positive)	With clutch off: 0 V With clutch on: battery voltage
B7	GRY	RCL	Drives right clutch electromagnetic coil (negative)	With ignition switch ON (II): 0 V

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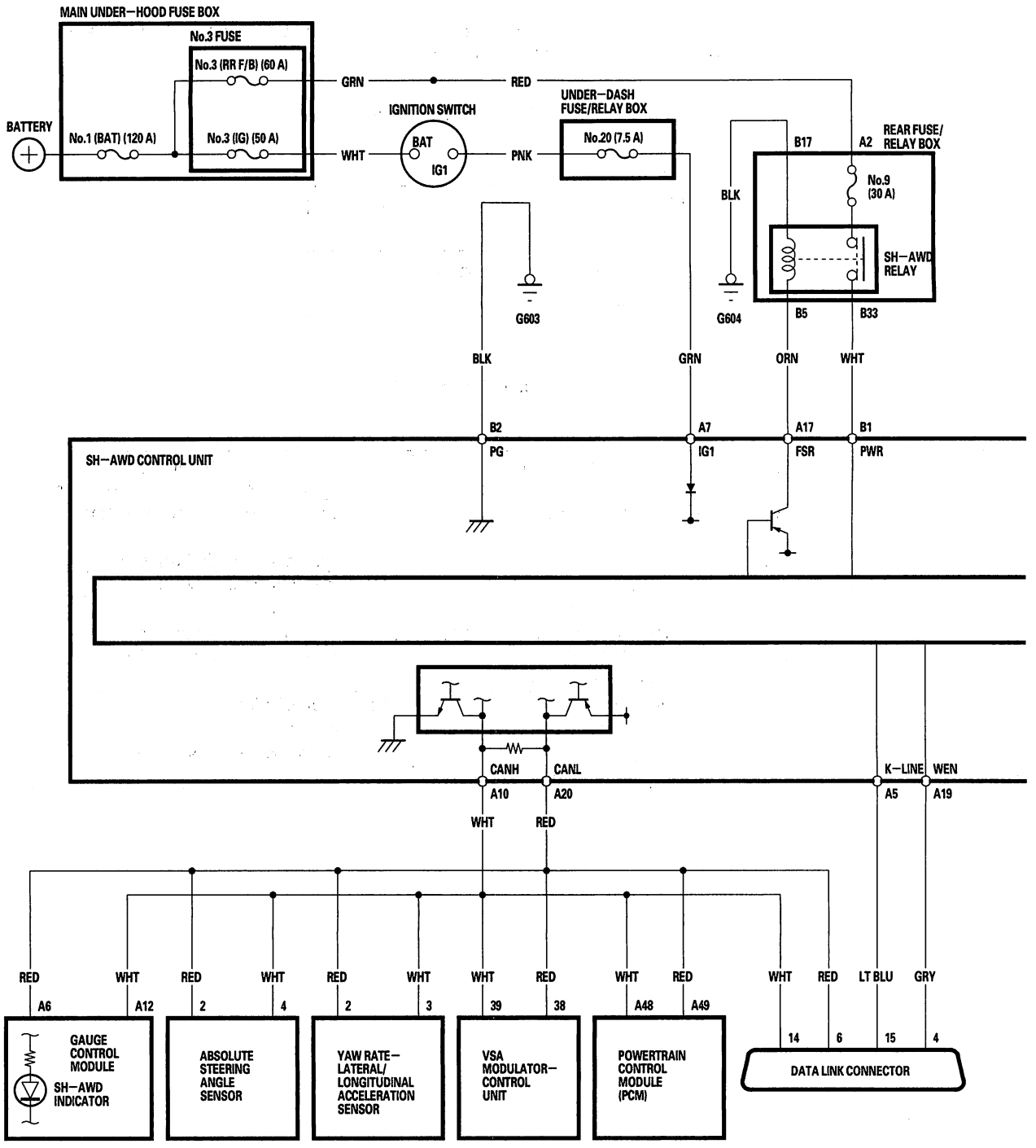
Circuit Diagram



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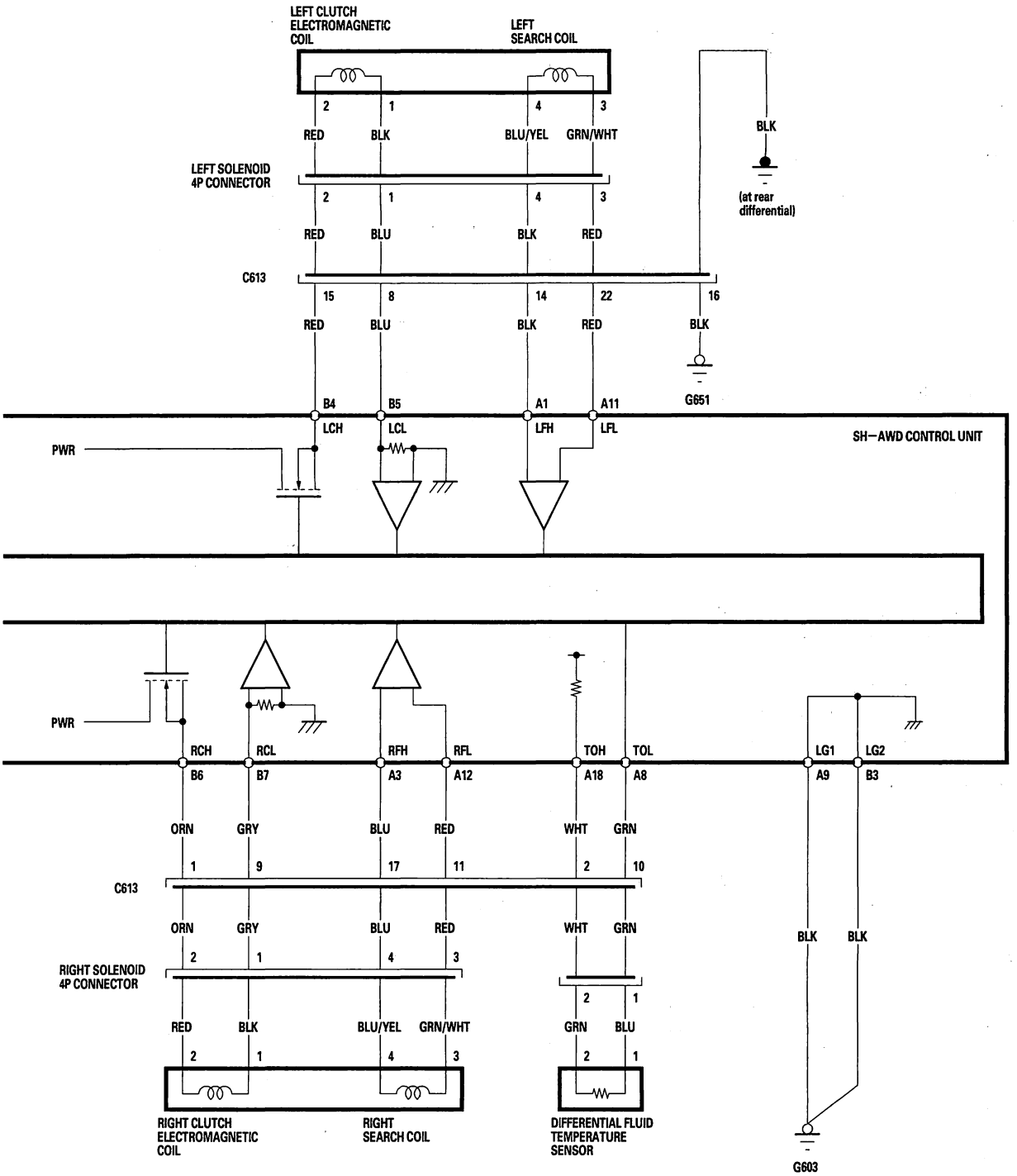

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DTC Troubleshooting

DTC 12-1, 12-2, 12-3: Lateral Acceleration Sensor Malfunction

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Check for DTCs in the VSA system with the HDS.

   Are any Lateral acceleration sensor DTCs indicated?

   YES—Go to the indicated DTC's troubleshooting. ■

   NO—Go to step 3.
3. Test-drive the vehicle with an assistant. Drive in a left and right zig-zag pattern at about 13 mph (20 km/h) and check the LATERAL ACCELERATION SENSOR in the DATA LIST with the HDS.

   Does the sensor value change when turning?

   YES—Go to step 4.

   NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■
4. Park the vehicle on a level surface.
5. Check the LATERAL ACCELERATION SENSOR in the DATA LIST with the HDS.

   Is there 0.1G or less?

   YES—Intermittent failure, the system is OK at this time. If the DTC returns, replace the SH-AWD control unit (see page 15-71). ■

   NO—Do the yaw rate-lateral/longitudinal acceleration neutral position memorization (see page 15-7). If the DTC returns, replace the SH-AWD control unit (see page 15-71). ■

DTC 15-1: Longitudinal Acceleration Sensor Malfunction

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle with an assistant. When accelerating, check the LONGITUDINAL ACCELERATION SENSOR in the DATA LIST with the HDS.

   Does the sensor value change when acceleration?

   YES—Go to step 4.

   NO—Replace the yaw rate-lateral/longitudinal acceleration sensor (see page 19-100). ■
4. Park the vehicle on a level surface.
5. Check the LONGITUDINAL ACCELERATION SENSOR in the DATA LIST with the HDS.

   Is there 0.1 G or less?

   YES—Go to step 6.

   NO—Do the yaw rate-lateral/longitudinal acceleration neutral position memorization (see page 15-7). If the DTC returns, replace the SH-AWD control unit (see page 15-71). ■
6. Test-drive the vehicle for 2 minutes in a vehicle speed is kept constant at 19 mph (30 km/h).
7. Check for DTCs with the HDS.

   Is DTC 15-1 indicated?

   YES—Replace the yaw rate-lateral/longitudinal acceleration sensor (see page 19-100). ■

   NO—Intermittent failure, the system is OK at this time. If the DTC returns, replace the SH-AWD control unit (see page 15-71). ■

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DTC 16-3: Steering Angle Sensor Neutral Position Incorrect

NOTE:
- Before you troubleshoot, review the general troubleshooting information (see page 15-4).
- Check the wheel alignment (see page 18-5).
- Check for installation of the steering angle sensor.

1. Turn the ignition switch ON (II).
2. Check for DTCs in the VSA system with the HDS.

   Are any steering angle sensor DTCs indicated?

   YES—Go to the indicated DTC's troubleshooting. ■

   NO—Go to step 3.
3. Start the engine.
4. Check the STEERING ANGLE SENSOR in the DATA LIST with the HDS.

   When the steering wheels is turned slowly, does the value change?

   YES—Go to step 5.

   NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■
5. Test-drive the vehicle in a straight line at 19 mph (30 km/h) or more.
6. Park the vehicle on a level surface, and center the steering wheel.
7. Check the STEERING ANGLE SENSOR in the DATA LIST with the HDS.

   It is Within ±25 deg of center?

   YES—Intermittent failure, the system is OK at this time. If the DTC returns, replace the SH-AWD control unit (see page 15-71). ■

   NO—Do the steering angle sensor center point writing (see page 19-100). If the DTC returns, replace the SH-AWD control unit (see page 15-71). ■

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DTC Troubleshooting (cont'd)

DTC 33-2, 33-3: Yaw Rate Sensor Malfunction

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Check for DTCs in the VSA system with the HDS.

   Are any yaw rate sensor DTCs indicated?

   YES—Go to the indicated DTC's troubleshooting. ■

   NO—Go to step 3.
3. Test-drive the vehicle with an assistant. Drive in a left and right zig-zag pattern at about 13 mph (20 km/h) and check the YAW RATE SENSOR in the DATA LIST with the HDS.

   Does the sensor value change when turning?

   YES—Go to step 4.

   NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■
4. Park the vehicle on a level surface.
5. Check the YAW RATE SENSOR in the DATA LIST with the HDS.

   Is there 3.5 degls or less?

   YES—Intermittent failure, the system is OK at this time. If the DTC returns, replace the SH-AWD control unit (see page 15-71). ■

   NO—Do the yaw rate-lateral/longitudinal acceleration neutral position memorization (see page 15-7). If the DTC returns, replace the SH-AWD control unit (see page 15-71). ■

DTC 41-1: F-CAN Malfunction (Lost Communication With Power Control Module (PCM))

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Check for DTCs in the PGM-FI system with the HDS.

   Are there any PGM-FI DTC's indicated?

   YES—Go to the indicated DTC's troubleshooting. ■

   NO—Go to step 3.
3. Clear the DTC with the HDS.
4. Start the engine.
5. Check for DTCs with the HDS.

   Is DTC 41-1 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for intermittent open between the SH-AWD control unit connector terminals A10 and A20 and the PCM connector terminals A48 and A49. ■
6. Turn the ignition switch OFF.

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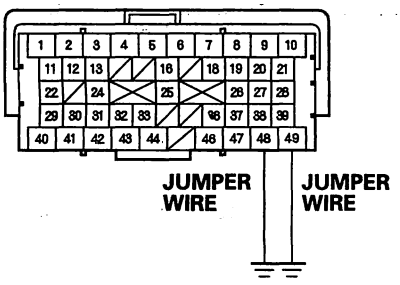
7. Jump the SCS line with the HDS.

   NOTE: This step must be done to prevent PCM damage.

8. Disconnect PCM connector A (49P).

9. Connect PCM connector terminals A 48 and A 49 to body ground with jumper wires.

PCM CONNECTOR A (49P)

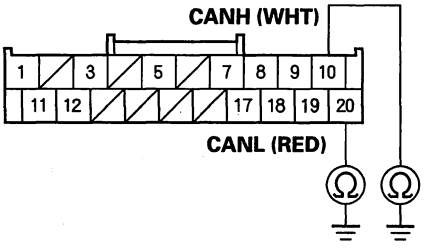


Terminal side of female terminals

10. Disconnect SH-AWD control unit connector A (20P).

11. Check for continuity between SH-AWD control unit connector terminals A10 and A20 to body ground.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■

NO—Repair open in the wires between the SH-AWD control unit and the PCM. ■

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DTC Troubleshooting (cont'd)

DTC 41-2: F-CAN Malfunction (Lost Communication with VSA)

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Check for PGM-FI DTC's with the HDS.

   Are there any PGM-FI DTCs indicated?

   YES—Go to the indicated DTC's troubleshooting. ■

   NO—Go to step 3.
3. Clear the DTC with the HDS.
4. Start the engine.
5. Check for DTCs with the HDS.

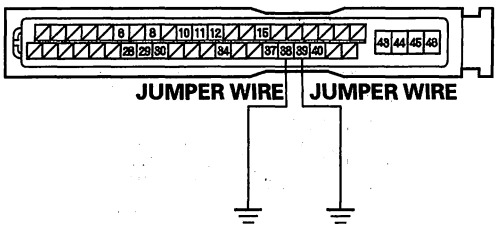
   Is DTC 41-2 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for intermittent open between SH-AWD control unit connector terminals A10 and A20 and VSA modulator-control unit 46P connector terminals No. 38 and No. 39. ■
6. Turn the ignition switch OFF.
7. Jump the SCS line with the HDS.

   NOTE: This step must be done to prevent PCM damage.
8. Disconnect the VSA modulator-control unit 46P connector.
9. Connect VSA modulator-control unit 46P connector terminals No. 38 and No. 39 to body ground with jumper wires.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

10. Disconnect SH-AWD control unit connector A (20P).

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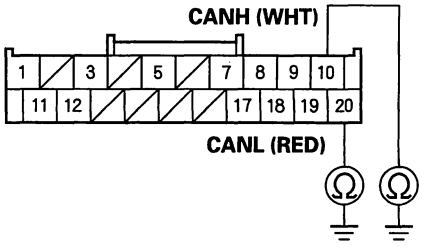
11. Check for continuity between SH-AWD control unit connector terminals A10 and A20 to body ground.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■

NO—Repair an open in the wires between the SH-AWD control unit and the VSA modulator-control unit. ■

DTC 41-4: F-CAN Malfunction (Lost Communication With A/T Control Unit)

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Check for DTCs in the PGM-FI system with the HDS.

   Are there any PGM-FI DTC's indicated?

   YES—Go to the indicated DTC troubleshooting. ■

   NO—Go to step 3.
3. Clear the DTC with the HDS.
4. Start the engine.
5. Check for DTCs with the HDS.

   Is DTC 41-4 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for intermittent open between the SH-AWD control unit connector terminals No. A10 and A20 and the PCM (49P) connector terminals No. A48 and A49.
6. Turn the ignition switch OFF.

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DTC Troubleshooting (cont'd)

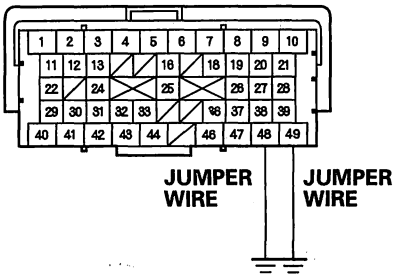
7. Jump the SCS line with the HDS.

   NOTE: This step must be done to prevent PCM damage.

8. Disconnect the PCM connector A (49P).

9. Connect PCM connector terminals A 48 and A 49 to body ground with a jumper wires.

PCM CONNECTOR A (49P)

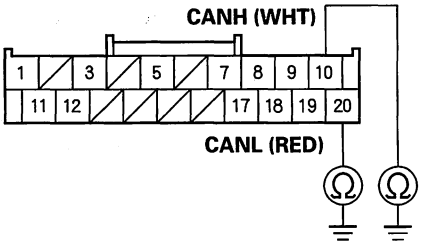


Terminal side of female terminals

10. Disconnect the SH-AWD control unit connector A (20P).

11. Check for continuity between SH-AWD control unit connector terminals A10 and A20 to body ground.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

NO—Repair an open in the wires between the SH-AWD control unit and PCM.■

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DTC 41-5: F-CAN Malfunction (Lost Communication With Yaw Rate-Lateral/ Longitudinal Acceleration Sensor)

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Check for DTCs in the VSA system with the HDS.

   Are any yaw rate rate-lateral/longitudinal acceleration sensor DTCs or F-CAN indicated?

   YES—Go to the indicated DTC's troubleshooting. ■

   NO—Go to step 3.
3. Clear the DTC with the HDS.
4. Start the engine.
5. Check for DTCs with the HDS.

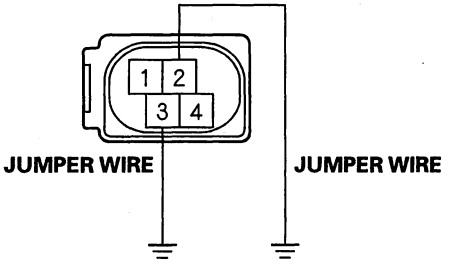
   Is DTC 41-5 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for intermittent open between the SH-AWD control unit connector terminals A10 and A20 and the yaw rate-lateral/longitudinal acceleration sensor (4P) connector terminals No. 3 and No. 2. ■
6. Turn the ignition switch OFF.
7. Jump the SCS line with the HDS.

   NOTE: This step must be done to prevent PCM damage.
8. Disconnect the yaw rate-lateral/longitudinal acceleration sensor 4P connector.
9. Connect yaw rate-lateral/longitudinal acceleration sensor 4P connector terminals No. 3 and No. 2 to body ground with jumper wires.

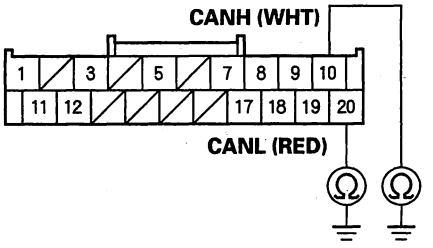
YAW RATE-LATERAL/LONGITUDINAL ACCELERATION SENSOR 4P CONNECTOR



Wire side of female terminals

10. Disconnect the SH-AWD control unit connector A (20P).
11. Check for continuity between SH-AWD control unit connector terminals A10 and A20 to body ground.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/ indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■

NO—Repair an open in the wire between the SH-AWD control unit and the yaw rate-lateral/ longitudinal acceleration sensor. ■

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DTC Troubleshooting (cont'd)

DTC 41-6: F-CAN Malfunction (Lost Communication with Steering Angle Sensor)

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Check for DTCs in the VSA system with the HDS.

   Are any steering angle sensor DTCs of F-CAN indicated?

   YES—Go to the indicated DTC's troubleshooting. ■

   NO—Go to step 3.
3. Clear the DTC with the HDS.
4. Start the engine.
5. Check for DTCs with the HDS.

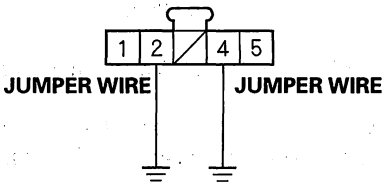
   Is DTC 41-6 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. ■
6. Turn the ignition switch OFF.
7. Jump the SCS line with the HDS.

   NOTE: This step must be done to prevent PCM damage.
8. Disconnect the steering angle sensor 5P connector.
9. Connect steering angle sensor 5P connector terminals No. 4 and No. 2 to body ground with a jumper wires.

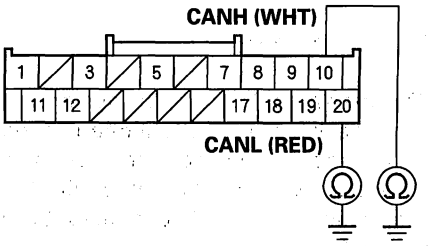
STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

10. Disconnect SH-AWD control unit connector A (20P).
11. Check for continuity between SH-AWD control unit connector terminals A10 and A20 to body ground.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■

NO—Repair open in the wires between the SH-AWD control unit and the steering angle sensor. ■

BACK

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DTC 42-1: Differential Fluid Temperature Sensor (Short to Power)

NOTE:
- Before you troubleshoot, review the general troubleshooting information (see page 15-4).
- If the vehicle has been driven, allow the rear differential to cool for about an hour or more before doing this troubleshooting procedure.

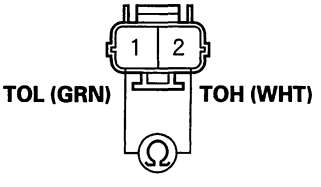
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for DTCs with the HDS.

   Is DTC 42-1 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. ■
4. Turn the ignition switch OFF.
5. Disconnect the rear differential fluid temperature sensor 2P connector and SH-AWD control unit connector A (20P).
6. Check for continuity between rear differential fluid temperature sensor 2P connector terminals No. 1 and No. 2.

REAR DIFFERENTIAL FLUID TEMPERATURE SENSOR 2P CONNECTOR



Wire side of male terminals

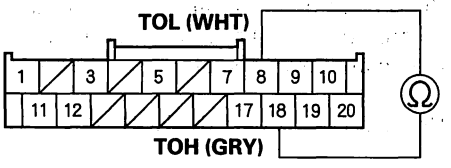
Is there continuity?

YES—Repair short in the wire between rear differential fluid temperature sensor 2P connector terminals No. 1 and No. 2.

NO—Go to step 7.

7. Connect the rear differential fluid temperature sensor 2P connector.
8. Measure the differential housing temperature with an infrared temperature gauge near the mounting location of the rear differential fluid temperature sensor. The temperature should be below 176 °F (80°C) before proceeding to the next step.
9. Measure resistance between SH-AWD control unit connector terminals and A8 and A18.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there 260 Ω or more?

YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■

NO—Replace the rear differential temperature sensor (see page 15-70). ■

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DTC Troubleshooting (cont'd)

DTC 42-2: Differential Fluid Temperature Sensor (Open/GND Short)

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

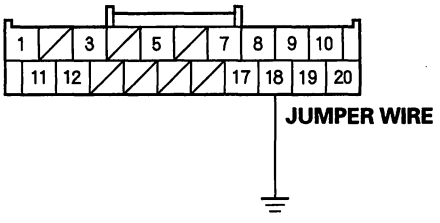
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Raise the vehicle, make sure it is securely supported, and allow all four wheels to rotate freely.
4. Start the engine and turn the VSA off (the light on the VSA OFF switch comes on). Run the engine in the D position until the vehicle speed reaches 35 mph (56 km/h) and keep running for 10 minutes, then slow down and stop the wheels.
5. Check for DTCs with the HDS.

   Is DTC 42-2 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. ■
6. Turn the ignition switch OFF.
7. Disconnect SH-AWD control unit connector A (20P).
8. Connect SH-AWD control unit connector terminal A18 to body ground with jumper wire.

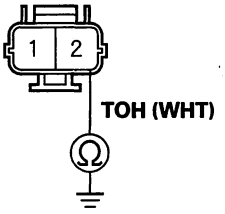
SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

9. Disconnect the rear differential fluid temperature sensor 2P connector.
10. Check for continuity between rear differential fluid temperature sensor 2P connector terminal No. 2 to body ground.

REAR DIFFERENTIAL FLUID TEMPERATURE SENSOR 2P CONNECTOR



Wire side of male terminals

Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between SH-AWD control unit connector A and the rear differential fluid temperature sensor connector. ■

BACK

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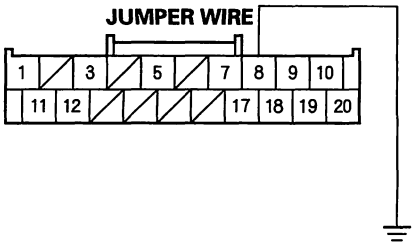
11. Connect SH-AWD control unit connector terminal A8 to body ground with jumper wire.

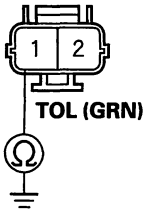
SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

12. Check for continuity between rear differential fluid temperature sensor 2P connector No. 1 to body ground.

REAR DIFFERENTIAL FLUID TEMPERATURE SENSOR 2P CONNECTOR



Wire side of male terminals

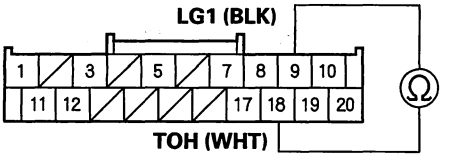
Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between SH-AWD control unit connector A and the rear differential fluid temperature sensor connector.■

13. Check for continuity between SH-AWD control unit connector terminals A9 and A18.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

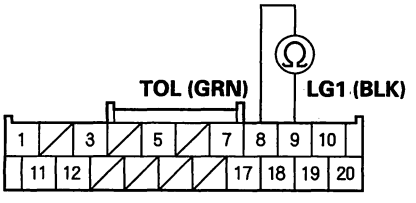
Is there continuity?

YES—Repair short in the wire between SH-AWD control unit connector A and the rear differential fluid temperature sensor connector.■

NO—Go to step 14.

14. Check for continuity between SH-AWD control unit connector terminals A8 and A9.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between SH-AWD control unit connector A and the rear differential fluid temperature sensor connector.■

NO—Go to step 15.

(cont'd)

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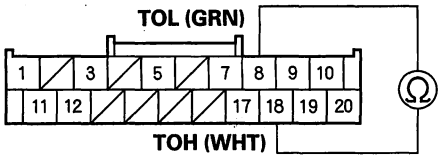
DTC Troubleshooting (cont'd)

15. Reconnect the rear differential fluid temperature sensor 2P connector and SH-AWD control unit connector A (20P).

16. Measure resistance between SH-AWD control unit connector terminals A8 and A18.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there 12.67 kΩ or less?

YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

NO—Replace the rear differential fluid temperature sensor (see page 15-70).■

BACK

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DTC 43-1: Differential Fluid Temperature Sensor Circuit Malfunction

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Check for DTCs with the HDS.

   Is DTC 42-1 or 42-2 indicated?

   YES—Go to the indicated DTC's troubleshooting. ■

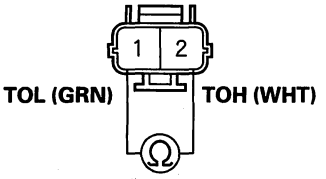
   NO—Go to step 3.
3. Clear the DTC with the HDS.
4. Start the engine.
5. Let the engine idle 1 minutes.
6. Test-drive the vehicle for 5 minute.
7. Check for DTCs with the HDS.

   Is DTC 43-1 indicated?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. ■
8. Turn the ignition switch OFF.
9. Disconnect SH-AWD control unit connector A (20P).
10. Disconnect the rear differential fluid temperature sensor 2P connector.
11. Check for continuity between rear differential fluid temperature sensor 2P connector terminals No. 1 and No. 2.

REAR DIFFERENTIAL FLUID TEMPERATURE SENSOR 2P CONNECTOR



Wire side of male terminals

Is there continuity?

YES—Repair short in the wire between rear differential fluid temperature sensor 2P connector terminals No. 1 and No. 2. ■

NO—Go to step 12.

12. Reconnect all connectors.
13. Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit (see page 15-71).
14. Start the engine.
15. Let the engine idle 1.
16. Check for DTCs with the HDS.

    Is DTC 43-1 indicated?

    YES—Replace the rear differential fluid temperature sensor (see page 15-70). ■

    NO—Replace the original SH-AWD control unit (see page 15-71). ■

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DTC Troubleshooting (cont'd)

DTC 44-11: SH-AWD Control Unit

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for DTCs with the HDS.

   Is DTC 44-11 indicated?

   YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

   NO—Intermittent failure, the system is OK at this time.■

BACK

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DTC 44-12: SH-AWD Relay Stuck ON

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for DTCs with the HDS.

   Is DTC 44-12 indicated?

   YES—Go to step 5.

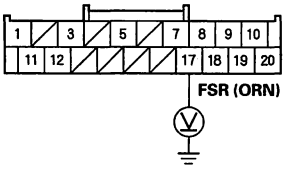
   NO—Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch OFF.
6. Remove the SH-AWD relay (see page 15-71), then test the SH-AWD relay (see page 22-77).■

   Is the SH-AWD relay OK?

   YES—Go to step 7.

   NO—Replace the SH-AWD relay (see page 15-71).■
7. Disconnect SH-AWD control unit connector A (20P).
8. Turn the ignition switch ON (II).
9. Measure voltage between SH-AWD control unit connector terminal A17 and body ground.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

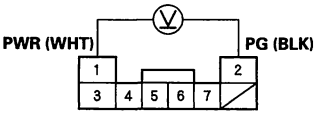
Is there battery voltage?

YES—Repair short to power in the wire between the SH-AWD control unit and SH-AWD relay (FSR line).■

NO—Go to step 10.

10. Disconnect SH-AWD control unit connector B (8P).
11. Measure voltage between SH-AWD control unit connector terminals B1 and B2.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the SH-AWD control unit and SH-AWD relay (PWR line).■

NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

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DTC Troubleshooting (cont'd)

DTC 44-32: SH-AWD Control Unit Power Supply Stuck ON

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for DTCs with the HDS.

Is DTC 44-32 indicated?

YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

NO—Intermittent failure, the system is OK at this time.■

DTC 44-41: SH-AWD Control Unit Power Supply Stuck OFF

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for DTCs with the HDS.

Is DTC 44-41 indicated?

YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

NO—Intermittent failure, the system is OK at this time.■

BACK

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DTC 44-50: SH-AWD Control Unit Power Supply Voltage Low

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Make sure the battery is fully changed and the charging system is working properly.
2. Turn the ignition switch OFF.
3. Check these fuse:
   - No. 3 (RR F/B) (60 A) fuse in the main under-hood fuse/relay box.
   - No. 9 (30 A) fuse in the rear fuse/relay box.

   Are the fuses OK?

   YES—Go to step 4.

   NO—Replace the blown fuses and recheck. If the No. 3 (60 A) and No. 9 (30 A) fuses blows again, repair short to ground in the wire between the fuse and the SH-AWD relay, then replace the fuse and recheck.■
4. Clear the DTC with the HDS.
5. Start the engine.
6. Check for DTCs with the HDS.

   Is DTC 44-50 indicated?

   YES—Go to step 7.

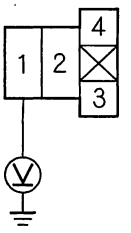
   NO—Intermittent failure, the system is OK at this time.■
7. Turn the ignition switch OFF.
8. Remove the SH-AWD relay (see page 15-71), then test the SH-AWD relay (see page 22-77).■

   Is the SH-AWD relay OK?

   YES—Go to step 9.

   NO—Replace the SH-AWD relay (see page 15-71).■
9. Measure voltage between SH-AWD relay 4P connector terminal No. 1 and body ground.

SH-AWD RELAY 4P CONNECTOR



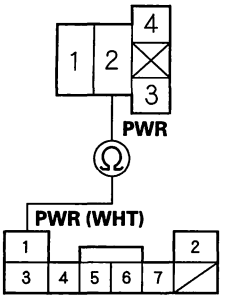
Wire side of female terminals

Is there battery voltage?

YES—Go to step 10.

NO—Repair open in the wire between the No. 1 fuse in the under-hood fuse relay box and the SH-AWD relay.■
10. Disconnect SH-AWD control unit connector A (20P) and connector B (8P).
11. Check for continuity between SH-AWD control unit connector terminal B1 and SH-AWD relay 4P connector terminal No. 2.

SH-AWD RELAY 4P CONNECTOR
Wire side of female terminals



SH-AWD CONTROL UNIT CONNECTOR B (8P)
Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between SH-AWD control unit connector B and the SH-AWD relay connector.■

(cont'd)

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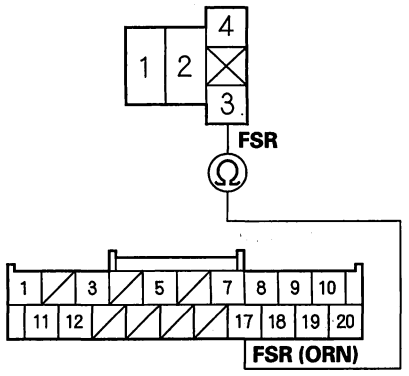
DTC Troubleshooting (cont'd)

12. Check for continuity between SH-AWD control unit connector terminal A17 and SH-AWD relay 4P connector terminal No. 3.

SH-AWD RELAY 4P CONNECTOR
Wire side of female terminals



SH-AWD CONTROL UNIT CONNECTOR A (20P)
Wire side of female terminals

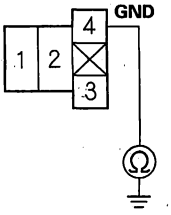
Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between SH-AWD control unit connector A and the SH-AWD relay connector.■

13. Check for continuity between SH-AWD relay 4P connector terminal No. 4 and body ground.

SH-AWD RELAY 4P CONNECTOR



Wire side of female terminals

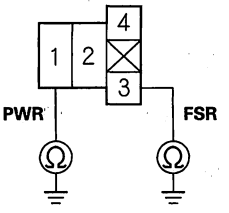
Is there continuity?

YES—Go to step 14.

NO—Repair open in the wire between the SH-AWD relay and body ground.■

14. Check for continuity between SH-AWD relay 4P connector terminals No. 1 and No. 3 to body ground (G604).

SH-AWD RELAY 4P CONNECTOR



Wire side of female terminals

Is there battery continuity?

YES—Repair short in the wire between SH-AWD relay and body ground.■

NO—Check for loose connector terminals at the SH-AWD control unit. If the connections are OK, update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

BACK

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DTC 49-1: SH-AWD Control Unit (PG Line Open)

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for DTCs with the HDS.

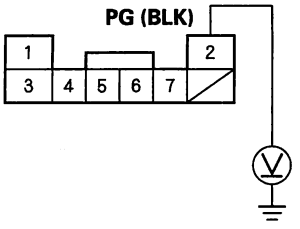
   Is DTC 49-1 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time.■

4. Check for voltage between SH-AWD control unit connector terminal B2 and body ground.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

Is there less than 0.5 V?

YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

NO—Repair open in the wire between SH-AWD control unit connector B and body ground or poor ground (G603).■

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DTC Troubleshooting (cont'd)

DTC 52-3: Left Clutch Electromagnetic Coil Current Malfunction

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

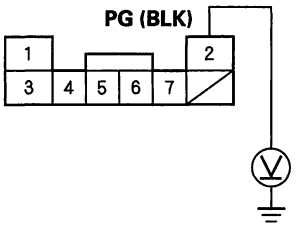
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the clutch function test with the HDS (see page 15-68).
4. Check for DTCs with the HDS.

   Is DTC 52-3 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. ■
5. Check for voltage between SH-AWD control unit connector terminal B2 and body ground.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

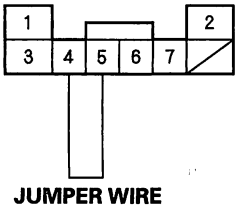
Is there less than 0.5 V?

YES—Go to step 6.

NO—Repair open in the wire between SH-AWD control unit connector B and body ground or poor ground (G603). ■

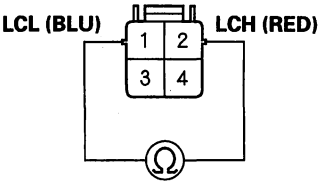
6. Turn the ignition switch OFF.
7. Disconnect SH-AWD control unit connector B (8P).
8. Connect a jumper wire between SH-AWD control unit connector terminals B4 and B5. Disconnect the left solenoid 4P connector, then check for continuity between left solenoid 4P connector terminals No. 1 and No. 2.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

LEFT SOLENOID 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 9.

NO—Repair open in the wires between the SH-AWD control unit and the left clutch electromagnetic coil. ■

9. Remove the jumper wire from the SH-AWD control unit connector terminals B4 and B5.

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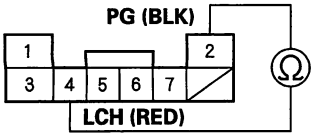
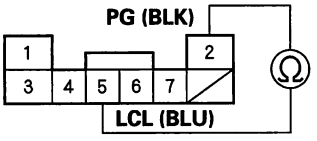
10. Check for continuity between SH-AWD control unit connector terminals B2 and B4, then check for continuity between SH-AWD control unit connector terminals B2 and B5.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

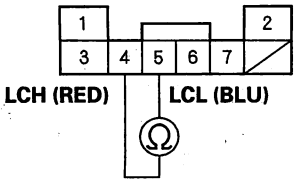
Is there continuity?

YES—Repair short to ground or short to the ground wire between the SH-AWD control unit and the left clutch electromagnetic coil. ■

NO—Go to step 12.

11. Check for continuity between SH-AWD control unit connector terminals B4 and B5.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

Is there continuity?

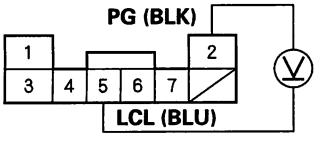
YES—Repair short in the wires between the SH-AWD control unit and the left clutch electromagnetic. ■

NO—Go to step 12.

12. Turn the ignition switch ON (II).

13. Measure voltage between SH-AWD control unit connector terminals B2 and B5.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

Is there more than 0.5 V?

YES—Repair short to power in the wires between the SH-AWD control unit and the left clutch electromagnetic. ■

NO—Go to step 14.

(cont'd)

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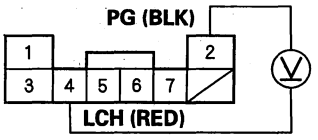
DTC Troubleshooting (cont'd)

14. Measure voltage between SH-AWD control unit connector terminals B2 and B4.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

Is there more than 0.5 V?

YES—Repair short to power in the wire between the SH-AWD control unit connector terminal B4 and left clutch electromagnetic coil. ■

NO—Substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, replace the rear differential left side case. ■

BACK

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DTC 53-1, 53-3: Left Clutch Electromagnetic Coil Malfunction

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

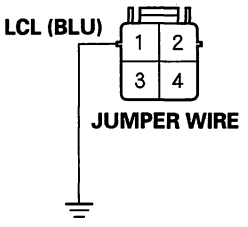
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the clutch function test with the HDS (see page 15-68).
4. Check for DTCs with the HDS.

   Is DTC 53-1 or 53-3 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch OFF.
6. Disconnect SH-AWD control unit connector B (8P) and the left solenoid 4P connector.
7. Connect a jumper wire between left solenoid 4P connector terminal No. 1.

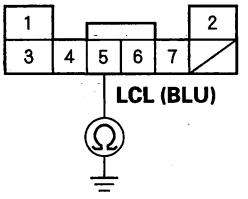
LEFT SOLENOID 4P CONNECTOR



Wire side of female terminals

8. Check for continuity between SH-AWD control unit connector terminal B5 and body ground.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

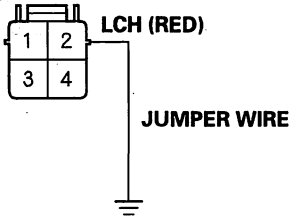
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wires between the SH-AWD control unit and the left clutch electromagnetic coil.■

9. Remove the jumper wire from the left solenoid 4P connector terminal No. 1.
10. Connect a jumper wire between left solenoid 4P connector terminal No. 2.

LEFT SOLENOID 4P CONNECTOR



Wire side of female terminals

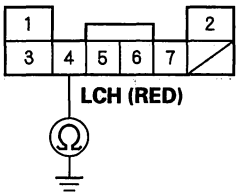
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

11. Check for continuity between SH-AWD control unit connector terminal B4 and body ground.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair open in the wires between the SH-AWD control unit and the left clutch electromagnetic coil. ■

12. Remove the jumper wire from the left solenoid 4P connector terminal No. 1.

13. Reconnect all connectors.

14. Turn the ignition switch ON (II).

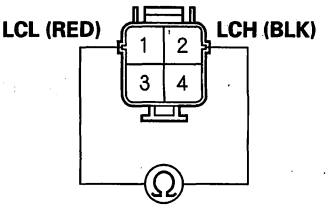
15. Check the REAR DIFFERENTIAL FLUID TEMPERATURE in the DATA LIST is above 68 °F (20 °C) with the HDS before proceeding to the next step. If the temperature is below 68 °F (20 °C), drive the vehicle to warm up the rear differential until the fluid temperature becomes above 68 °F (20 °C).

16. Turn the ignition switch OFF.

17. Disconnect the left solenoid 4P connector.

18. Measure the resistance between left solenoid 4P connector terminals No. 1 and No. 2.

LEFT SOLENOID 4P CONNECTOR



Wire side of male terminals

Is there 1.8 Ω or more?

YES—Replace the rear differential left side case (see page 15-89). ■

NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■

BACK

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DTC 53-2: Left Clutch Electromagnetic Coil (Short)

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the clutch function test with the HDS (see page 15-68).
4. Check for DTCs with the HDS.

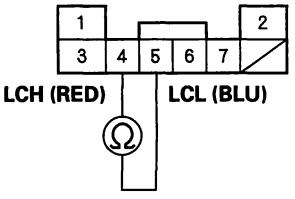
   Is DTC 53-2 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■

5. Turn the ignition switch OFF.
6. Disconnect SH-AWD control unit connector B (8P) and the left solenoid 4P connector.
7. Check for continuity between SH-AWD control unit connector terminals B4 and B5.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

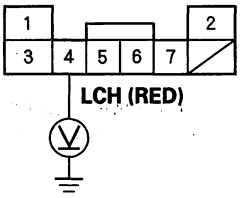
Is there continuity?

YES—Repair short in the wires between SH-AWD control unit connector terminals B4 and B5.■

NO—Go to step 8.

8. Turn the ignition switch ON (II).
9. Measure voltage between SH-AWD control unit connector terminal B4 and body ground.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

Is there more than 0.5 V?

YES—Repair short to power in the wires between SH-AWD control unit connector terminal B4 and left clutch electromagnetic coil.■

NO—Go to step 10.

10. Turn the ignition switch OFF.
11. Reconnect all connectors.
12. Turn the ignition switch ON (II).

(cont'd)

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DTC Troubleshooting (cont'd)

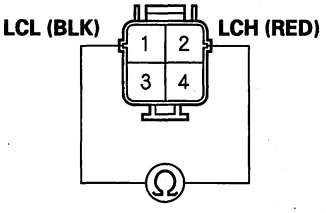
13. Check the REAR DIFFERENTIAL FLUID TEMPERATURE in the DATA LIST is above 68 ℉ (20 ℃) with the HDS before proceeding to the next step. If the temperature is below 68 ℉ (20 ℃), drive the vehicle to warm up the rear differential until the fluid temperature becomes above 68 ℉ (20 ℃).

14. Turn the ignition switch OFF.

15. Disconnect the left solenoid 4P connector.

16. Measure resistance between left solenoid 4P connector terminals No. 1 and No. 2.

LEFT SOLENOID 4P CONNECTOR



Wire side of male terminals

Is there 0.45 Ω or less?

YES—Replace the rear differential left side case (see page 15-89). ■

NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■

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DTC 56-3: Right Clutch Electromagnetic Coil Current Malfunction

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

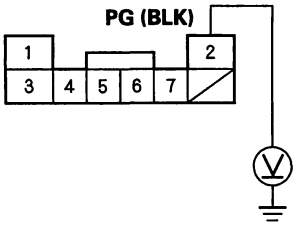
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the clutch function test with the HDS (see page 15-68).
4. Check for DTCs with the HDS.

   Is DTC 56-3 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Check for voltage between SH-AWD control unit connector terminals B2 and body ground.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

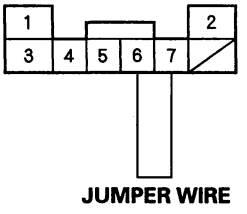
Is there less than 0.5 V?

YES—Go to step 6.

NO—Repair open in the wire between SH-AWD control unit connector B and body ground or poor ground (G603).■

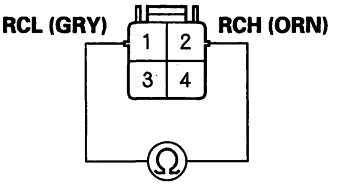
6. Turn the ignition switch OFF.
7. Disconnect SH-AWD control unit connector B (8P).
8. Connect a jumper wire between SH-AWD control unit connector terminals B6 and B7. Disconnect the right solenoid 4P connector, then check for continuity between right solenoid 4P connector terminals No. 1 and No. 2.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

RIGHT SOLENOID 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the SH-AWD control unit and the right clutch electromagnetic coil.■

9. Remove the jumper wire from SH-AWD control unit connector terminals B6 and B7.

(cont'd)

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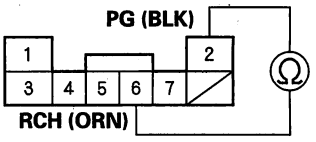
DTC Troubleshooting (cont'd)

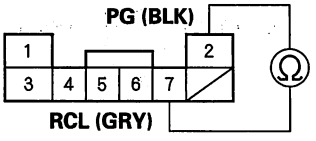
10. Check for continuity between SH-AWD control unit connector terminals B2 and B6, then check for continuity between SH-AWD control unit connector terminals B2 and B7.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

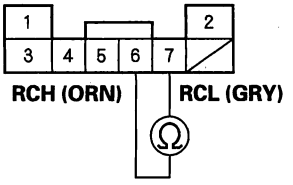
Is there continuity?

YES—Repair short to ground or short to the ground wire between the SH-AWD control unit and the right clutch electromagnetic coil. ■

NO—Go to step 11.

11. Check for continuity between SH-AWD control unit connector terminals B6 and B7.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the SH-AWD control unit and the right clutch electromagnetic coil. ■

NO—Go to step 12.

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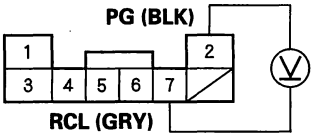
12. Turn the ignition switch ON (II).

13. Measure voltage between SH-AWD control unit connector terminals B2 and B7.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

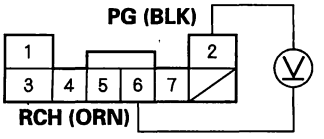
Is there more than 0.5 V?

YES—Repair short to power in the wire between SH-AWD control unit and the right clutch electromagnetic coil. ■

NO—Go to step 14.

14. Measure voltage between SH-AWD control unit connector terminals B2 and B6.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

Is there more than 0.5 V?

YES—Repair short to power in the wire between the SH-AWD control unit connector terminal B6 and right clutch electromagnetic coil. ■

NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■

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DTC Troubleshooting (cont'd)

DTC 57-1, 57-3: Right Clutch Electromagnetic Coil Malfunction

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

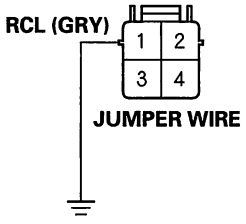
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the clutch function test with the HDS (see page 15-68).
4. Check for DTCs with the HDS.

   Is DTC 57-1 or 57-3 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch OFF.
6. Disconnect SH-AWD control unit connector B (8P) and the right solenoid 4P connector.
7. Connect a jumper wire between right solenoid 4P connector terminal No. 1.

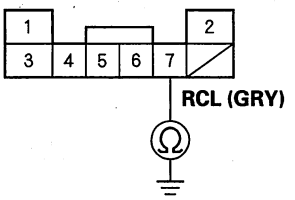
RIGHT SOLENOID 4P CONNECTOR



Wire side of female terminals

8. Check for continuity between SH-AWD control unit connector terminal B7 and body ground.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

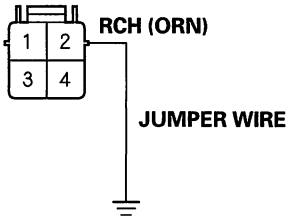
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wires between the SH-AWD control unit and the right clutch electromagnetic coil.■

9. Remove the jumper wire from the right solenoid 4P connector terminal No. 1.
10. Connect a jumper wire between right solenoid 4P connector terminal No. 2.

RIGHT SOLENOID 4P CONNECTOR



Wire side of female terminals

BACK

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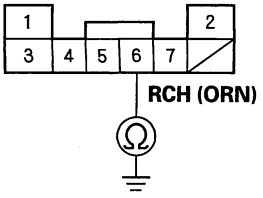
11. Check for continuity between SH-AWD control unit connector terminal B6 and body ground.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair open in the wires between the SH-AWD control unit and the right clutch electromagnetic coil. ■

12. Remove the jumper wire from the right solenoid 4P connector terminal No. 1.

13. Reconnect all connectors.

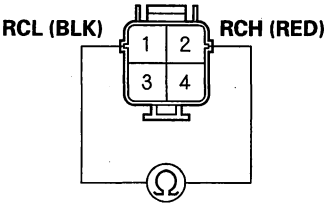
14. Turn the ignition switch ON (II).

15. Check the REAR DIFFERENTIAL FLUID TEMPERATURE in the DATA LIST is above 68 °F (20 °C) with the HDS before proceeding to the next step. If the temperature is below 68 °F (20 °C), drive the vehicle to warm up the rear differential until the fluid temperature becomes above 68 °F (20 °C).

16. Disconnect the right solenoid 4P connector.

17. Measure resistance between right solenoid 4P connector terminals No. 1 and No. 2.

RIGHT SOLENOID 4P CONNECTOR



Wire side of male terminals

Is there 1.8 Ω or more?

YES—Replace the rear differential right side case (see page 15-89). ■

NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■

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DTC Troubleshooting (cont'd)

DTC 57-2: Right Clutch Electromagnetic Coil (Short)

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

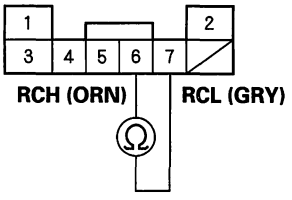
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the clutch function test with the HDS (see page 15-68).
4. Check for DTCs with the HDS.

   Is DTC 57-2 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch OFF.
6. Disconnect SH-AWD control unit connector B (8P) and the right solenoid 4P connector.
7. Check for continuity between SH-AWD control unit connector terminals B6 and B7.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

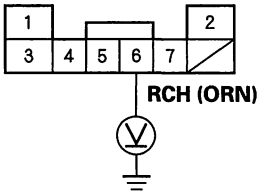
Is there continuity?

YES—Repair short in the wires between SH-AWD control unit connector terminals B6 and B7.■

NO—Go to step 8.

8. Turn the ignition switch ON (II).
9. Measure voltage between SH-AWD control unit connector terminal B6 and body ground.

SH-AWD CONTROL UNIT CONNECTOR B (8P)



Wire side of female terminals

Is there more than 0.5 V?

YES—Repair short to power in the wires between the SH-AWD control unit connector terminal B6 and right clutch electromagnetic coil.■

NO—Go to step 10.

10. Turn the ignition switch OFF.
11. Reconnect all connectors.
12. Turn the ignition switch ON (II).

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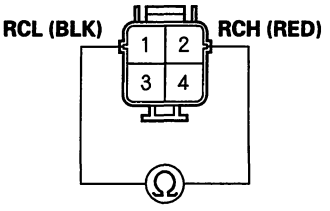
13. Check the REAR DIFFERENTIAL FLUID TEMPERATURE in the DATA LIST is above 68 °F (20 °C) with the HDS before proceeding to the next step. If the temperature is below 68 °F (20 °C), drive the vehicle to warm up the rear differential until the fluid temperature becomes above 68 °F (20 °C).

14. Turn the ignition switch OFF.

15. Disconnect the right solenoid 4P connector.

16. Measure resistance between right solenoid 4P connector terminals No. 1 and No. 2.

RIGHT SOLENOID 4P CONNECTOR



Wire side of male terminals

Is there 0.45 Ω or less?

YES—Replace the rear differential right side case (see page 15-89). ■

NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■

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DTC Troubleshooting (cont'd)

DTC 76-1: Rear Differential Fluid Overheats

NOTE:
- Before you troubleshoot, review the general troubleshooting information (see page 15-4).
- When the temperature of the rear differential fluid is abnormally high, the SH-AWD indicator comes on. This is not necessarily a problem, but DTC 76-1 will be stored.
- Check the rear differential fluid level (see page 15-69). If it's low, refill it, clear the DTC, and recheck.

1. Turn the ignition switch ON (II).
2. Check for DTCs in the VSA system with the HDS.

   Are any VSA System DTCs indicated?

   YES—Go to the indicated DTC's troubleshooting.■

   NO—Go to step 3.
3. Clear the DTC with the HDS.
4. Start the engine.
5. Test-drive the vehicle at 10 mph (15 km/h).
6. Check for WHEEL SPEED in the DATA LIST with the HDS.

   Are all wheel speed the same?

   YES—Intermittent failure, the system is OK at this time.■

   NO—Go to step 7.
7. Turn the ignition switch OFF.
8. Check for rear brake drag.

   Are the rear brakes OK?

   YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

   NO—Repair the rear brakes (see page 19-4).■

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DTC 77-1: Communication Error with the Power Control Module (PCM)

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for DTCs with the HDS.

   Is DTC 77-1 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Check for DTCs in the PGM-FI system with the HDS.

   Are any PGM-F I system DTCs indicated?

   YES—Go to the indicated DTC's troubleshooting.■

   NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

DTC 77-2: Communication Error with the VSA Modulator-Control Unit

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for DTCs with the HDS.

   Is DTC 77-2 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Check for DTCs in the VSA system with the HDS.

   Are any VSA system DTCs indicated?

   YES—Go to the indicated DTC's troubleshooting.■

   NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

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DTC Troubleshooting (cont'd)

77-4: Communication Error with the Automatic-Transmission Control Unit

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for DTCs with the HDS.

   Is DTC 77-4 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Check for DTCs in the A/T system with the HDS.

   Are any A/T system DTCs indicated?

   YES—Go to the indicated DTC's troubleshooting.■

   NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

BACK

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DTC 77-5: Yaw Rate-Lateral/Longitudinal Acceleration Sensor Malfunction

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for DTCs with the HDS.

   Is DTC 77-5 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Check for DTCs in the VSA system with the HDS.

   Are any yaw rate-lateral acceleration sensor DTCs indicated?

   YES—Go to the indicated DTC's troubleshooting.■

   NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

DTC 77-6: Steering Angle Sensor Malfunction

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for DTCs with the HDS.

   Is DTC 77-6 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Check for DTCs in the VSA system with the HDS.

   Are any steering angle sensor DTCs indicated?

   YES—Go to the indicated DTC's troubleshooting.■

   NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

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DTC Troubleshooting (cont'd)

DTC 78-xx: SH-AWD Control Unit Self-Diagnostic Malfunction

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Clear the DTC with the HDS.
2. Turn the ignition switch ON (II).
3. Check for DTCs with the HDS.

Is DTC 78-xx indicated?

YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

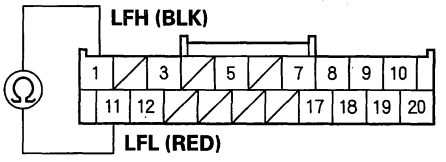
NO—Intermittent failure, the system is OK at this time.■

DTC 81-1: Left Search Coil Sensor Malfunction

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Disconnect SH-AWD control unit connector A (20P).
2. Check for continuity between SH-AWD control unit connector terminals A1 and A11.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Go to step 3.

NO—Go to step 6.

3. Check the REAR DIFFERENTIAL FLUID TEMPERATURE in the DATA LIST is above 68 °F (20 °C) with the HDS before proceeding to the next step. If the temperature is below 68 °F (20 °C), drive the vehicle to warm up the rear differential until the fluid temperature becomes above 68 °F (20 °C).

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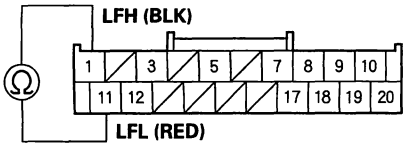
4. Measure resistance between SH-AWD control unit connector terminals A1 and A11.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

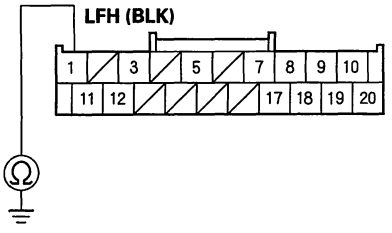
Is there 2.0 Ω or more?

YES—Go to step 5.

NO—Go to step 7.

5. Check for continuity between SH-AWD control unit connector terminal A1 and body ground.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

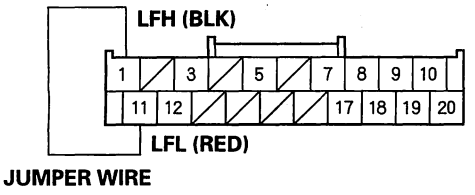
Is there continuity?

YES—Repair short in the wire between SH-AWD control unit connector terminal A1 and body ground.■

NO—Check for loose connector terminals at the SH-AWD control unit and repair if necessary. If the connections are OK, update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

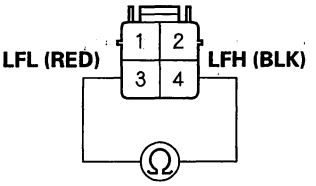
6. Connect a jumper wire between SH-AWD control unit connector terminals A1 and A11. Disconnect the left solenoid 4P connector, then check for continuity between left solenoid 4P connector terminals No. 3 and No. 4.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

LEFT SOLENOID 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the rear differential left side case (see page 15-89).■

NO—Repair open in the wire between left solenoid 4P connector terminals No. 3 and No. 4.■

(cont'd)

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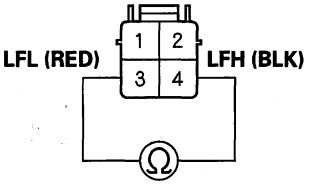
DTC Troubleshooting (cont'd)

7. Disconnect the left solenoid 4P connector.

8. Check for continuity between left solenoid 4P connector terminals No. 3 and No. 4.

LEFT SOLENOID 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between SH-AWD control unit connector A and the left search coil connector. ■

NO—Replace the rear differential left side case (see page 15-89). ■

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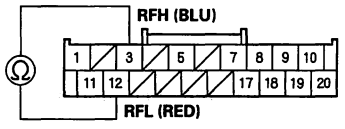
DTC 82-1: Right Search Coil Sensor Malfunction

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Disconnect SH-AWD control unit connector A (20P).
2. Check for continuity between SH-AWD control unit connector terminals A3 and A12.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

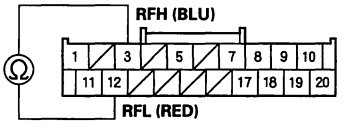
Is there continuity?

YES—Go to step 3.

NO—Go to step 6.

3. Check the REAR DIFFERENTIAL FLUID TEMPERATURE in the DATA LIST is above 68 °F (20 °C) with the HDS before proceeding to the next step. If the temperature is below 68 °F (20 °C), drive the vehicle to warm up the rear differential until the fluid temperature becomes above 68 °F (20 °C).
4. Measure resistance between SH-AWD control unit connector terminals A3 and A12.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

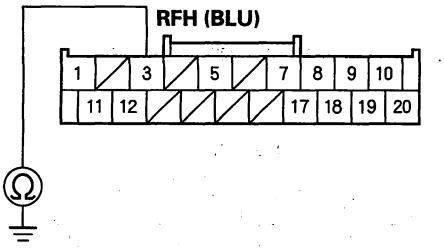
Is there 2.0 Ω or more?

YES—Go to step 5.

NO—Go to step 7.

5. Check for continuity between SH-AWD control unit connector terminal A3 and body ground.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between SH-AWD control unit connector terminal A3 and body ground. ■

NO—Check for loose connector terminals at the SH-AWD control unit and repair if necessary. If the connections are OK, update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■

(cont'd)

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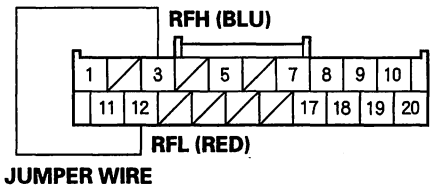
DTC Troubleshooting (cont'd)

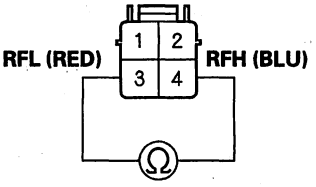
6. Connect a jumper wire between SH-AWD control unit connector terminals A3 and A12. Disconnect the right solenoid 4P connector, then check for continuity between right solenoid 4P connector terminals No. 3 and No. 4.

SH-AWD CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

RIGHT SOLENOID 4P CONNECTOR



Wire side of female terminals

Is there continuity?

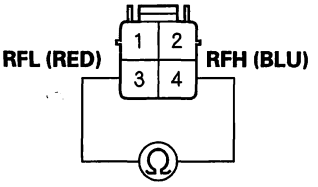
YES—Replace the rear differential right side case (see page 15-89). ■

NO—Repair open in the wires between right solenoid 4P connector terminals No. 3 and No. 4. ■

7. Disconnect the right solenoid 4P connector.

8. Check for continuity between right solenoid 4P connector terminals No. 3 and No. 4.

RIGHT SOLENOID 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wires between SH-AWD control unit connector A and the right search coil sensor connector. ■

NO—Replace the rear differential right side case (see page 15-89). ■

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DTC 91-1: SH-AWD Control Unit Programming Error

NOTE:
- Before you troubleshoot, review the general troubleshooting information (see page 15-4).
- DTC 91-1 is stored when the SH-AWD system update is not completed.
- Do not turn the ignition switch OFF while updating the SH-AWD system. If you turn the ignition switch OFF before completion, the SH-AWD system can be damaged.

1. Do the SH-AWD system update procedure (see page 15-6).

2. Check for DTCs with the HDS.

   Is DTC 91-1 indicated?

   YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71). ■

   NO—Update is complete.

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Symptom Troubleshooting

The SH-AWD indicator does not go off, and no DTCs are stored

NOTE:
- Before you troubleshoot, review the general troubleshooting information (see page 15-4).
- Make sure the No. 3 (RR F/B) (60A) fuse in the main under-hood fuse box is OK.
- Make sure the No. 9 (30A) fuse in the rear fuse/relay box is OK.
- Make sure there are on loose connector terminals at the SH-AWD control unit.
- Make sure charging system is OK.
- Make sure the PGM-FI system and the A/T system is not in the middle of updating.

1. Test the battery (see page 22-76). Charge or replace the battery if necessary.

2. Check the COMPLETE MEMORIZATION in the DATA LIST with the HDS.

   Does the data list show ''complete''?

   YES—Go to step 3.

   NO—Do the SH-AWD system memorization procedure (see page 15-7), then go to step 3.

3. Check for DTCs in the VSA system with the HDS.

   Are any steering angle sensor DTCs indicated?

   YES—Go to the indicated DTC's troubleshooting.■

   NO—Go to step 4.

4. Start the engine.

5. Check the SH-AWD indicator value with the HDS.

   Is the SH-AWD indicator value OFF?

   YES—Go to the gauge control system DTC troubleshooting (see page 22-322).■

   NO—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

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The SH-AWD indicator does not come on

NOTE: Before you troubleshoot, review the general troubleshooting information (see page 15-4).

1. Turn the ignition switch ON (II).
2. Check the SH-AWD indicator.

   Does the SH-AWD indicator come on and go off?

   YES—Intermittent failure, the system is OK at this time.■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect SH-AWD control unit connector A (20P) and B (8P).
5. Turn the ignition switch ON (II).
6. Check the SH-AWD indicator.

   Does the SH-AWD indicator come on?

   YES—Update the SH-AWD control unit if it does not have the latest software (see page 15-6), or substitute a known-good SH-AWD control unit and recheck (see page 15-71). If the symptom/indication goes away with the updated SH-AWD control unit, troubleshooting is complete. If the symptom/indication goes away with a known-good SH-AWD control unit, replace the original SH-AWD control unit (see page 15-71).■

   NO—Go to the gauge control system troubleshooting (see page 22-322).■

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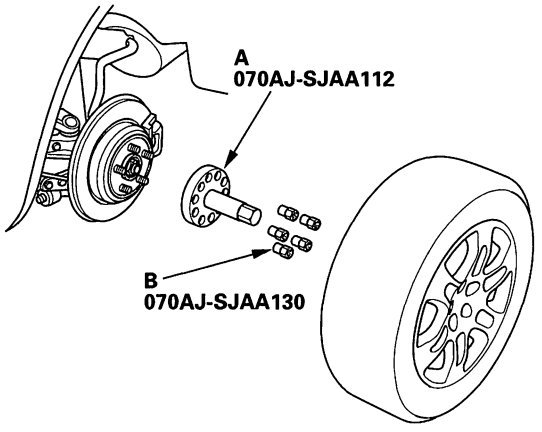
SH-AWD Function Test

Special Tools Required
- Adapter, torque wrench 070AJ-SJAA112
- Nut, 14 x 1.5 mm 070AJ-SJAA130

Direct Electromagnetic Clutch Test

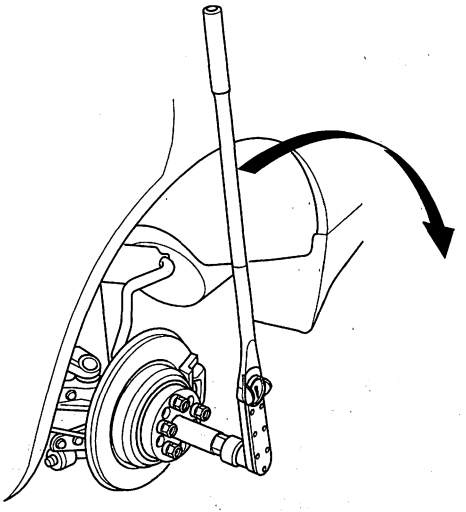
NOTE:
- No DTC was detected.
- The shift lever is in N.
- The SH-AWD control unit had been initialized.
- The tire pressures are at the specified value.
- Tire size and were are the same between the left and right tires.

1. Connect the HDS to the DLC.
2. Check that the differential fluid temperature is over 68 °F (20 °C) with the HDS. If it is below 68 °F (20 °C), raise the temperature by driving the vehicle in circles or by constantly turning.
3. Raise the vehicle, and make sure it is securely supported.
4. Remove the rear wheels.
5. Install the adapter, torque wrench (A) and the nut (B) on the rear wheel hub.



6. Do the direct electromagnetic clutch test with the HDS. Go to Miscellaneous test menu/functional, select tests/direct electromagnetic clutch test, then follow the screen prompts.
7. Install a torque wrench on the special tool as shown on the HDS. Write down the torque value while slowly rotating the rear hub with the torque wrench as shown. (Turn the hub no more than 90 degrees in 7 to 10 seconds).

   NOTE: Use a torque wrench capable of measuring up to 80 kg·m (580 lbf·ft) such as a commercially available Snap-on torque wrench TE352FUE.



8. Enter the torque value into the HDS, and wait for the test to finish.

   - If the result shows the clutch driving force is normal, the clutch assembly is OK.
   - If the result shows the clutch driving force is abnormal, replace the differential fluid, and retest. If the result still shows the clutch driving force is abnormal, replace the right and left differential side case (see page 15-89).

BACK

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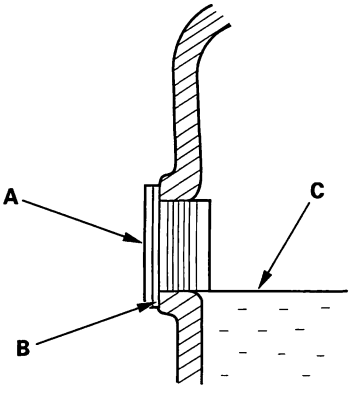
Rear Differential Fluid Inspection and Replacement

Inspection

1. Park the vehicle on level ground, and turn the ignition switch to LOCK (0).
2. Use solvent and a brush to wash any oil and dirt off the differential fluid inspection oil filter plugs.
3. Remove the filler plug (A) and the sealing washer (B), then check the condition of the fluid, and make sure the fluid is at the proper level (C).



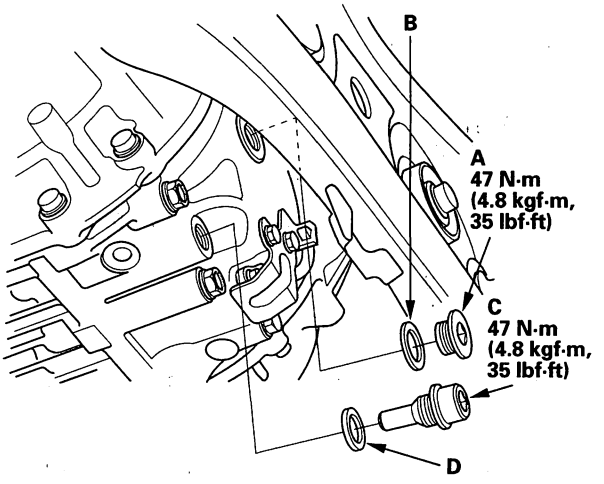
4. The fluid level must reach up the bottom of the filler plug hole. If it is below the hole, add the recommended fluid until it runs out, then reinstall the filler plug with a new sealing washer.

Replacement

1. Park the vehicle on level ground, and turn the ignition switch to LOCK (0).
2. Remove the filler plug (A) and the sealing washer (B).

Fluid Capacity
2.53 L (2.67 US qt) at fluid change
2.77 L (2.93 US qt) at overhaul

Recommended fluid: Honda ATF-Z1



3. Remove the drain plug (C) and the sealing washer (D), and drain the fluid.
4. Reinstall the drain plug with a new sealing washer (D).
5. Add fluid until it reaches the bottom of the filler plug hole.
6. Reinstall the filler plug with a new sealing washer.

BACK

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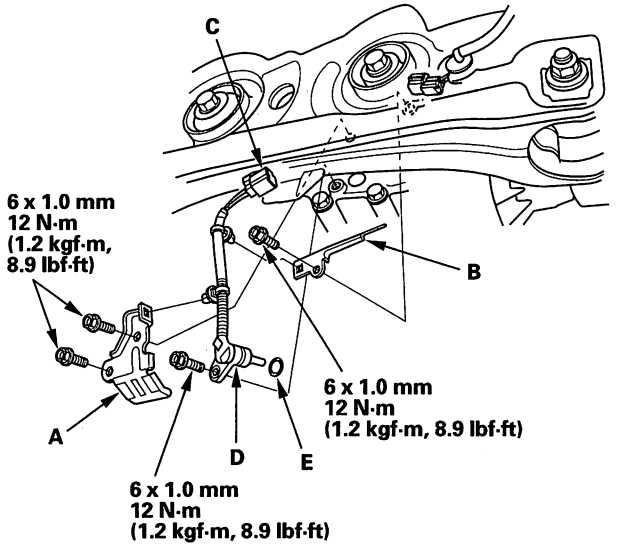
Rear Differential Fluid Temperature Sensor Replacement

1. Drain the differential fluid (see page 15-69).

2. Remove the differential fluid temperature sensor cover (A) and the differential fluid temperature sensor harness stay (B), then disconnect the differential fluid temperature sensor connector (C).



3. Remove the differential fluid temperature sensor (D).

4. Install the differential fluid temperature sensor with a new O-ring (E) in the reverse order of removal.

5. Refill the differential fluid (see page 15-69).

BACK

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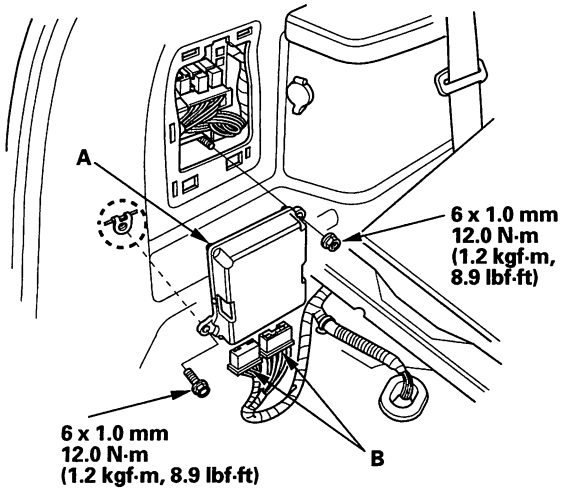
SH-AWD Control Unit Replacement

NOTE: The SH-AWD control unit must be initialized (see page 15-8). after replacement, other wise the SH-AWD system will not function.

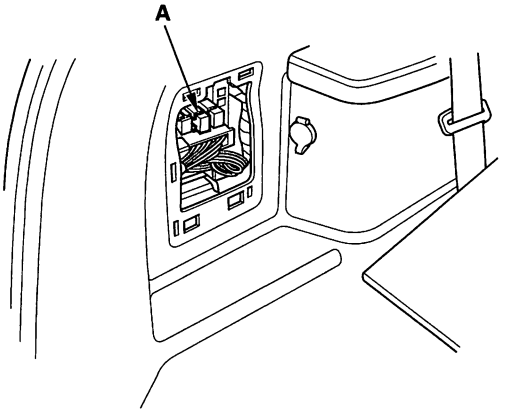
1. Remove the rear left side trim panel cover (see page 20-92).
2. Remove the cargo floor lid and the cargo box (see page 20-90).
3. Remove the SH-AWD control unit (A).



4. Disconnect the SH-AWD control unit connectors (B).
5. Install the SH-AWD control unit in the reverse order of removal.

SH-AWD Relay Replacement

1. Remove the rear left side trim panel cover (see page 20-92).
2. Remove the SH-AWD relay (A).



3. Install the SH-AWD relay in the reverse order of removal.

BACK

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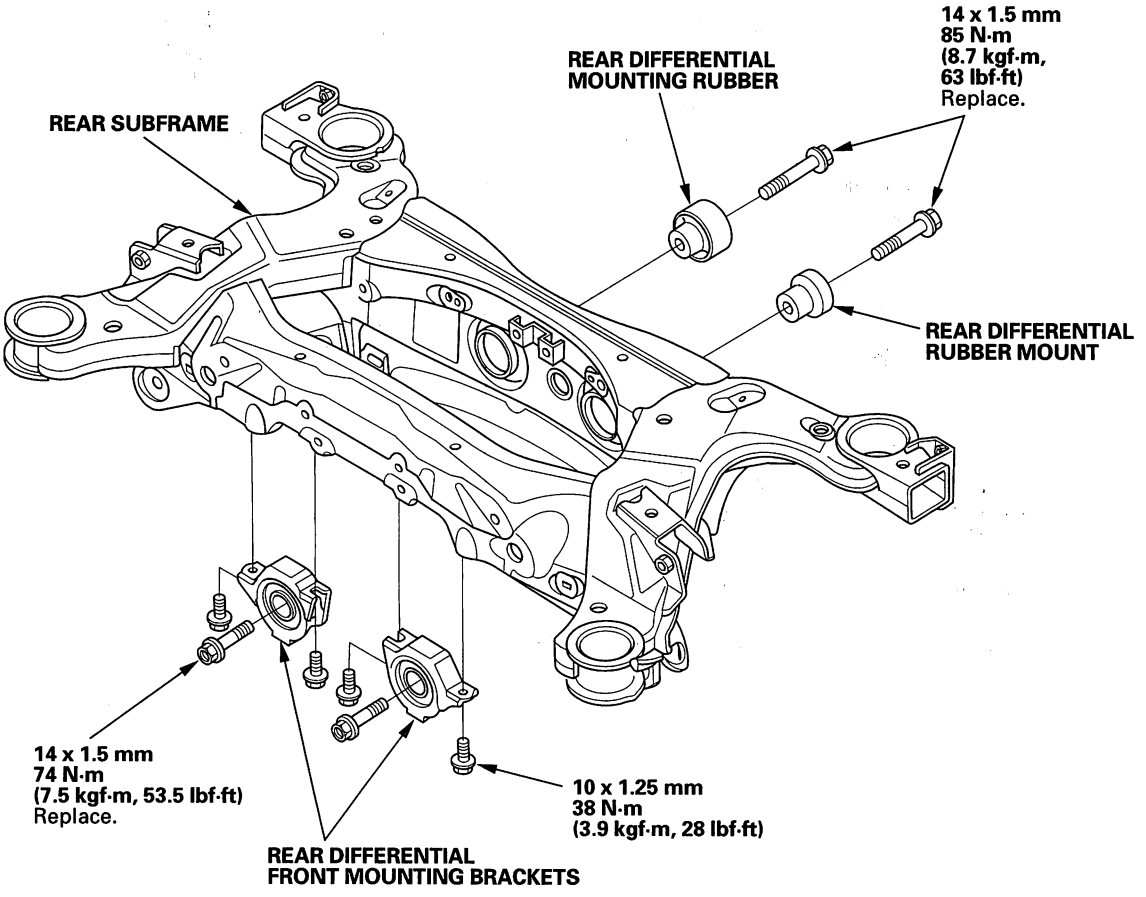
Rear Differential

Rear Differential Mount Replacement



BACK

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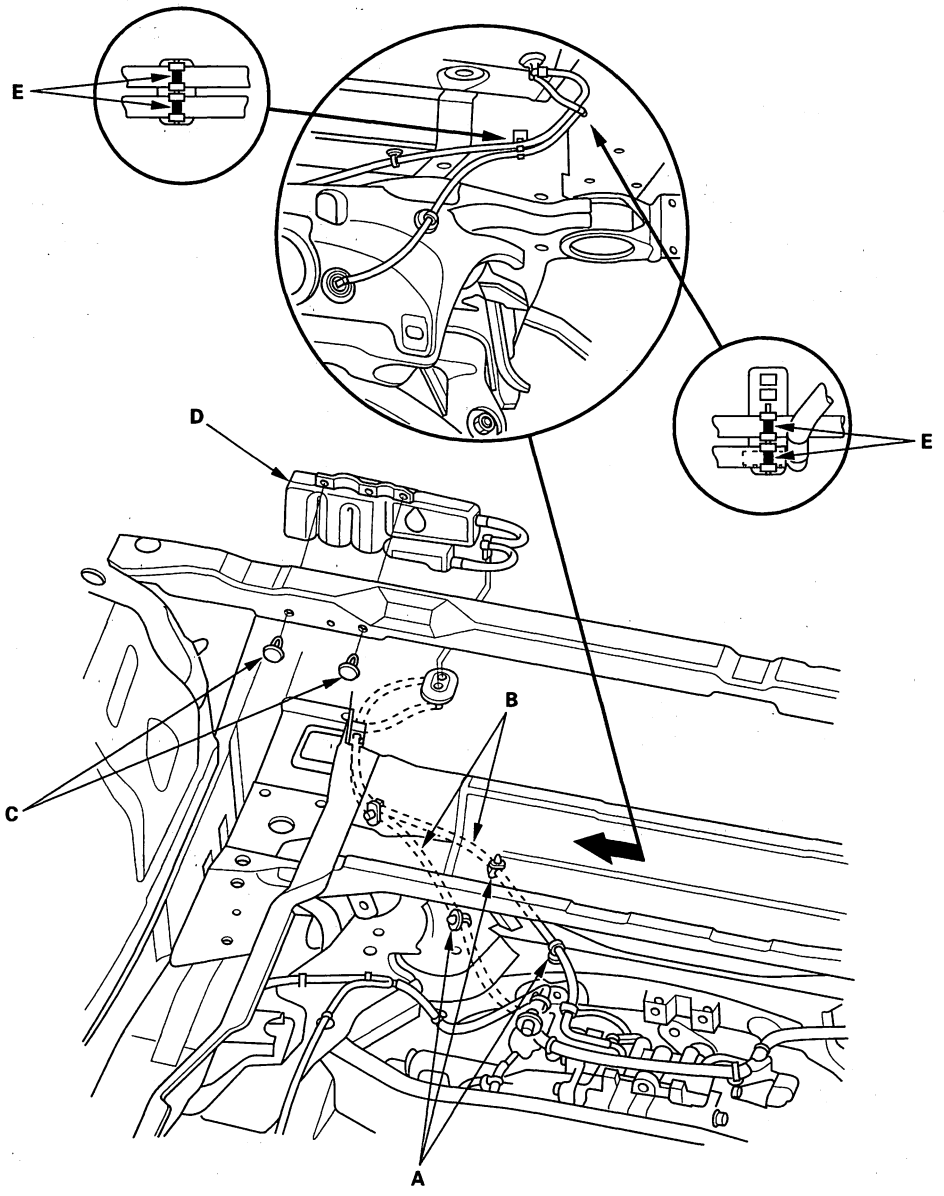
Rear Differential Breather Box and Hose Replacement

1. Remove the cargo floor lid and the cargo box (see page 20-90).
2. Remove the breather hose clips (A), then disconnect the breather hose (B).



3. Remove the breather box clips (C) and the breather box (D).
4. Install the breather box then connect the breather hose and the breather hose clips.
5. Align the point mark (E) on the breather hose as shown.
6. Make sure that all the hoses are properly routed, clipped into place, and not pinched.
7. Install the cargo floor lid and the cargo box (see page 20-90).

BACK

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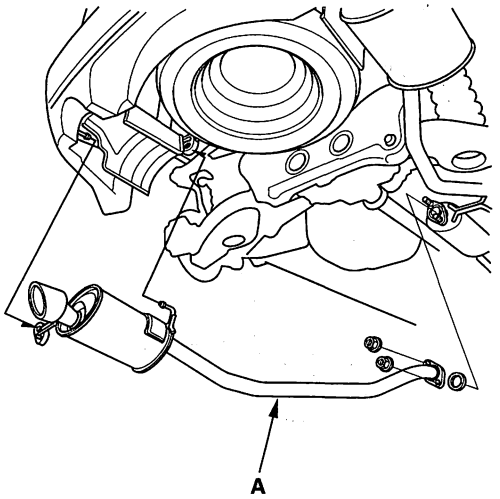
Rear Differential

Rear Differential Removal

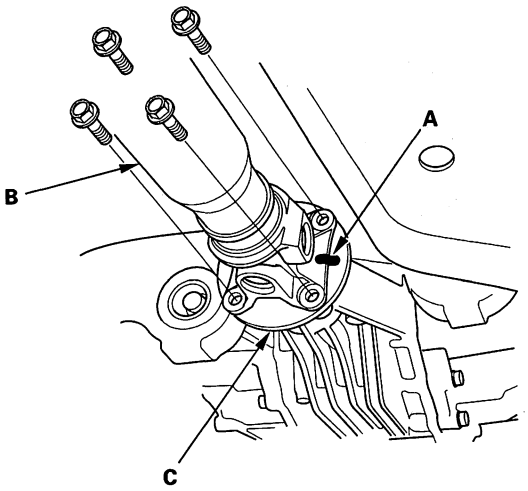
Special Tools Required
Driveshaft remover 07AAD-S3VA000

1. Drain the differential fluid (see page 15-69).
2. Remove the exhaust pipe (A).

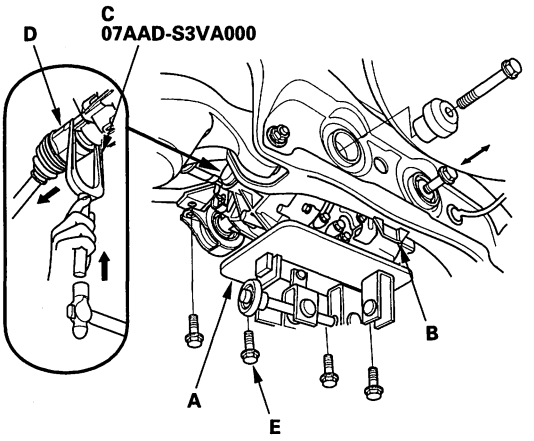


3. Remove the right rear driveshaft (see page 16-26).
4. Make a reference mark (A) across the propeller shaft (B) and rear differential companion flange (C). Separate the propeller shaft from the rear differential.

   NOTE: Suspend the propeller shaft with an appropriate size wire.



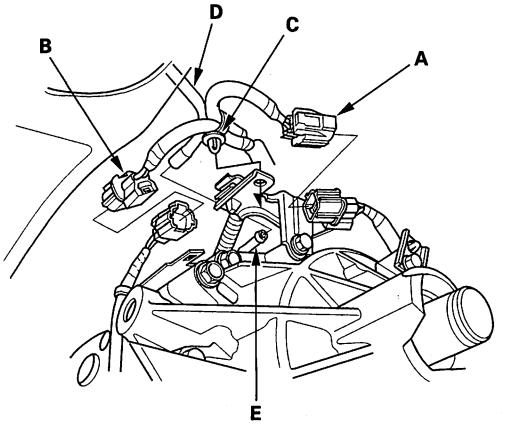
5. Place the transmission jack (A) under the rear differential (B).
6. Using the driveshaft remover (C) and the hammer, and disconnect the left rear inboard joint (D) from the rear differential.



7. Remove the rear differential mounting bolts (E).
8. Lower the rear differential a little on the transmission jack, then remove the left rear driveshaft inboard joint from the rear differential.

   NOTE: Make sure not to over extend the harness and the tube.

9. Disconnect the right clutch solenoid 4P connector (A) and the rear differential fluid temperature sensor 2P connector (B), then remove the harness clip (C).



10. Disconnect the breather tube (D) from the breather pipe (E).

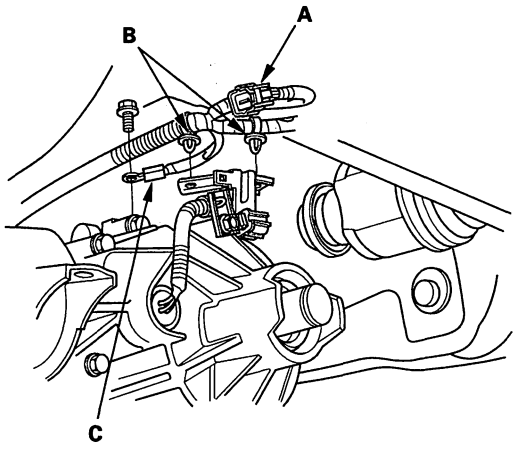
BACK

Protected by AR

11. Slowly lower the rear differential a little on the transmission jack.

    NOTE: Make sure not to over extend the harness.

12. Disconnect the left clutch solenoid 4P connector (A), then remove the harness clips (B).



13. Disconnect the ground cable (C) from the rear differential.

14. Lower the rear differential on the transmission jack.

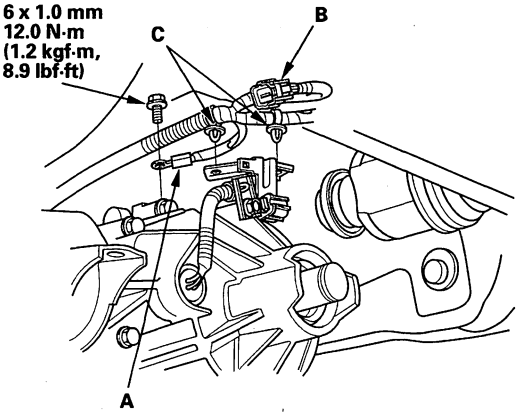
Rear Differential Installation

1. Raise the rear differential with the transmission jack.

2. If the original differential is being reinstalled, replace the set rings.

3. Raise the rear differential a little on the transmission jack.

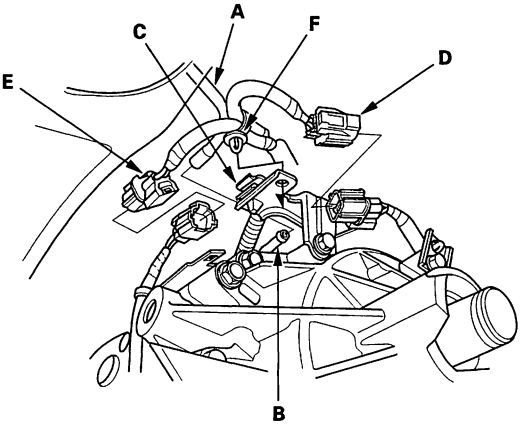
4. Connect the ground cable (A) to the rear differential.



5. Connect the left clutch solenoid 4P connector (B), then install the harness clips (C).

6. Raise the rear differential a little on the transmission jack.

7. Connect the breather tube (A) to the breather pipe (B) and the clip (C).



8. Connect the right clutch solenoid 4P connector (D) and the rear differential fluid temperature sensor 2P connector (E), then install the harness clip (F).

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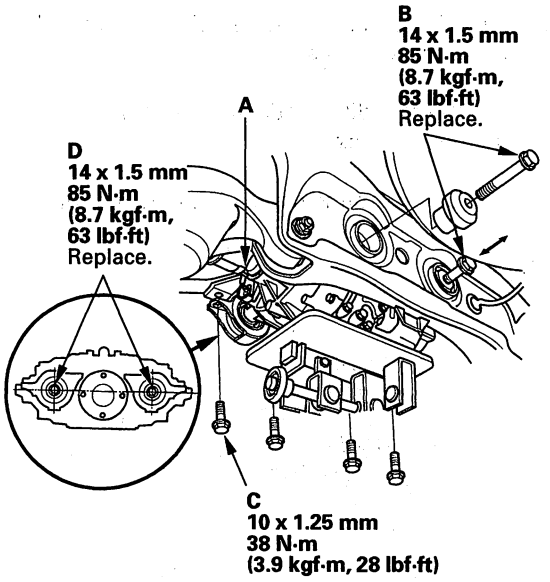
Rear Differential Installation (cont'd)

9. Install the left rear driveshaft inboard joint (A) to the rear differential.



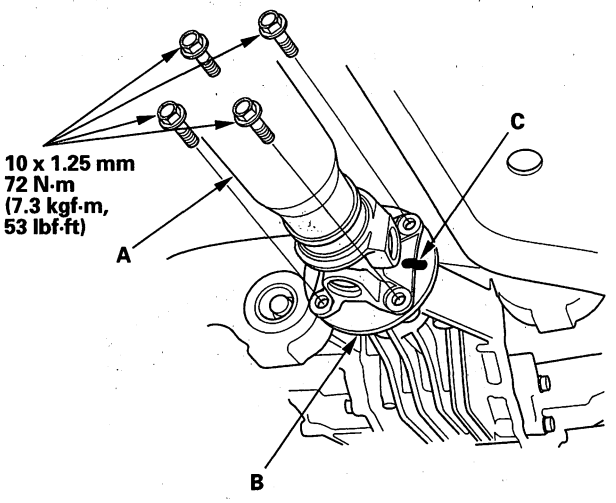
10. Raise the rear differential to the mounting level, then hand tighten the new rear differential rear mounting bolts (B) and rear differential front mounting bracket bolts (C).

11. Loosen the differential front mounting bolts (D).

12. Tighten the new rear differential rear mounting bolt then tighten the rear differential front mounting bracket bolts.

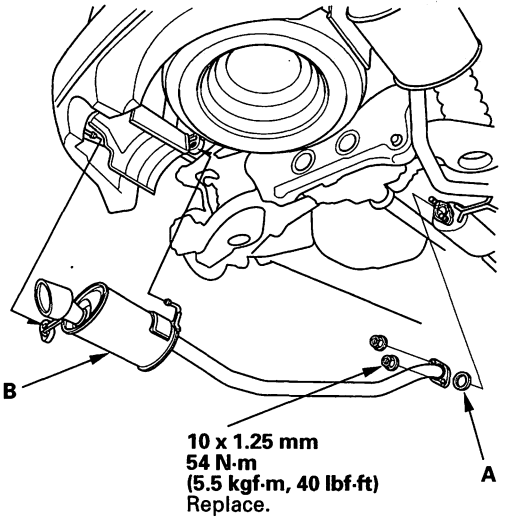
13. Tighten the rear differential front mounting bolts.

14. Attach the propeller shaft (A) to the rear differential (B) by aligning the reference marks (C) you made during the removal procedure.



15. Install the right rear driveshaft (see page 16-26).

16. Install the new exhaust pipe gasket (A) and exhaust pipe (B).



17. Refill the differential fluid (see page 15-69).

18. Check the wheel alignment, and adjust it if necessary (see page 18-5).

BACK

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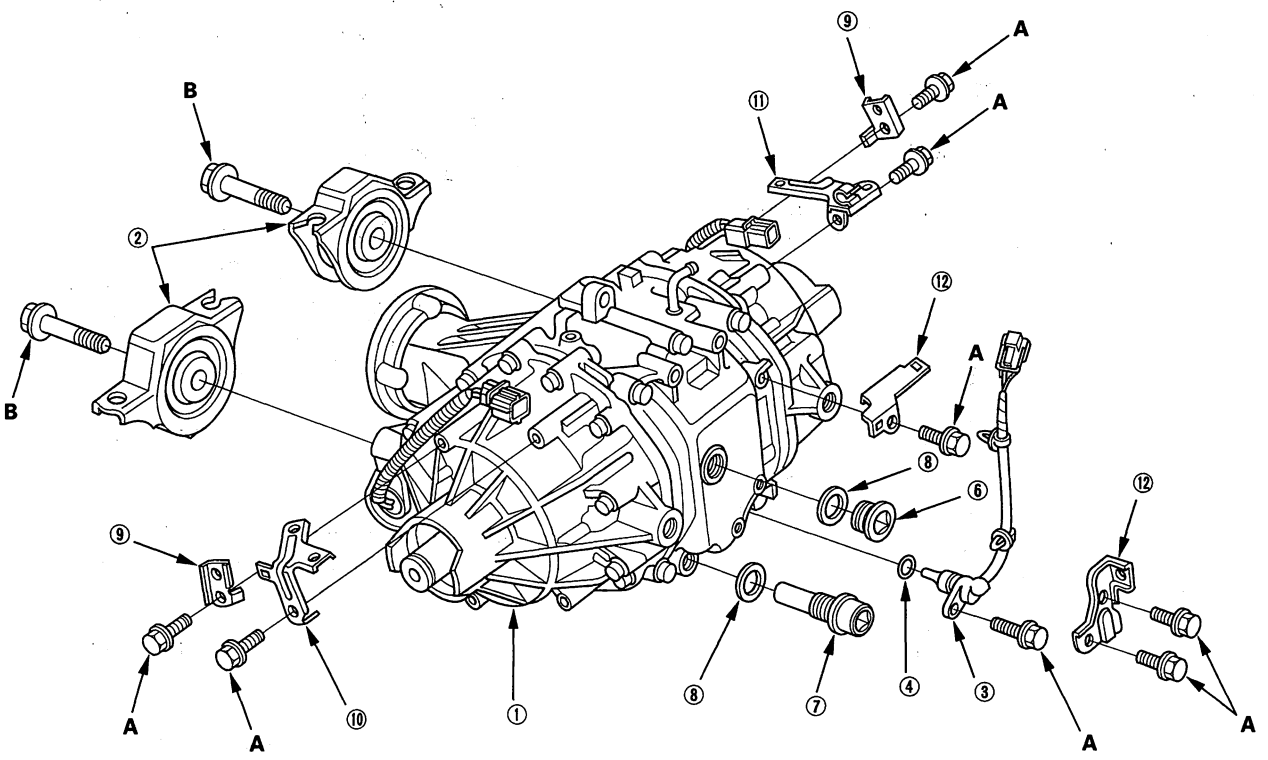
Rear Differential Disassembly/Reassembly



① REAR DIFFERENTIAL CARRIER ASSEMBLY
② REAR DIFFERENTIAL FRONT MOUNTING BRACKETS
③ DIFFERENTIAL FLUID TEMPERATURE SENSOR
④ O-RING
Replace.
⑤ DIFFERENTIAL FLUID TEMPERATURE SENSOR COVER
⑥ FILLER PLUG
47 N·m (4.8 kgf·m, 35 lbf·ft)
⑦ DRAIN PLUG
47 N·m (4.8 kgf·m, 35 lbf·ft)
⑧ SEALING WASHER
Replace.
⑨ REAR DIFFERENTIAL HARNESS BRACKET A
⑩ REAR DIFFERENTIAL HARNESS BRACKET B
⑪ REAR DIFFERENTIAL HARNESS BRACKET C
⑫ REAR DIFFERENTIAL HARNESS BRACKET D

A: 6 x 1.0 mm
12.0 N·m (1.2 kgf·m, 8.9 lbf·ft)
B: 14 x 1.5 mm
85 N·m (8.7 kgf·m, 63 lbf·ft)
Replace.

BACK

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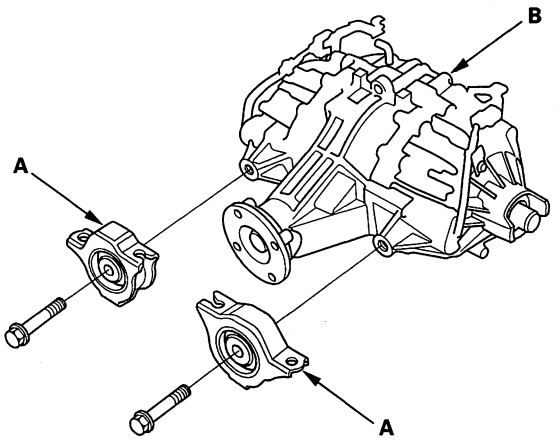
Center Case Oil Seal Replacement

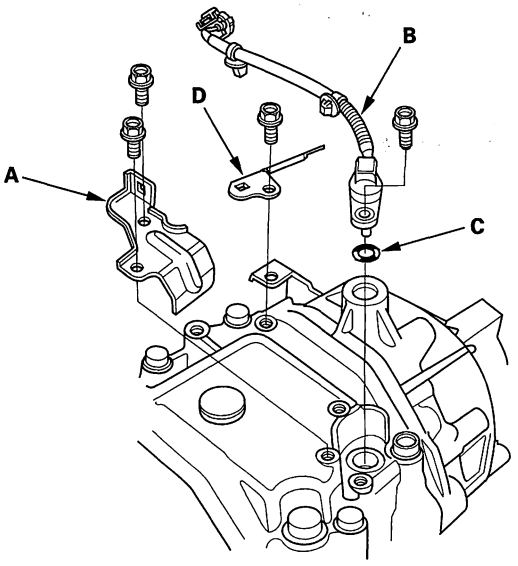
Special Tools Required
- Companion flange holder 07XAB-001A101
- Oil seal driver C 070AD-STK0130
- Fork seal driver weight 07747-0010100

1. Remove the rear differential (see page 15-74).

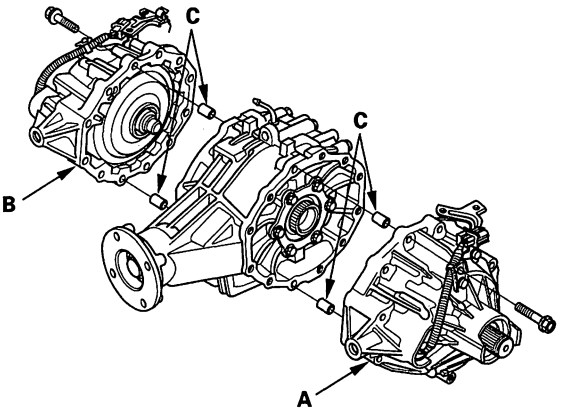
2. Remove the rear differential front mounting brackets (A) from the rear differential (B).



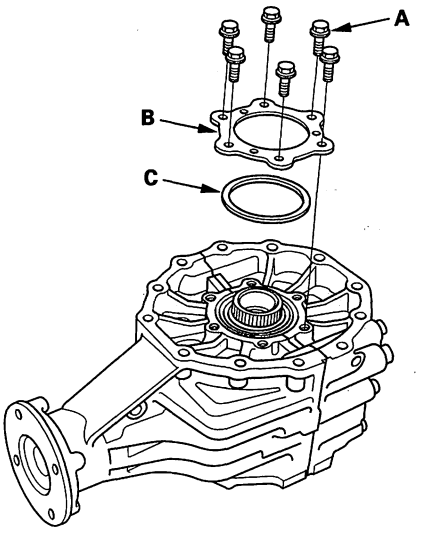
3. Remove the differential oil temperature sensor cover (A), differential fluid temperature (B), O-ring (C), and rear differential harness bracket (D).



4. Remove the left side case (A), the right side case (B), the four 10 x 12 mm dowel pins (C).



5. Remove the mounting bolts (A) in a crisscross pattern in several steps, then remove the bearing set plate (B) and the 83 mm shim (C).



BACK

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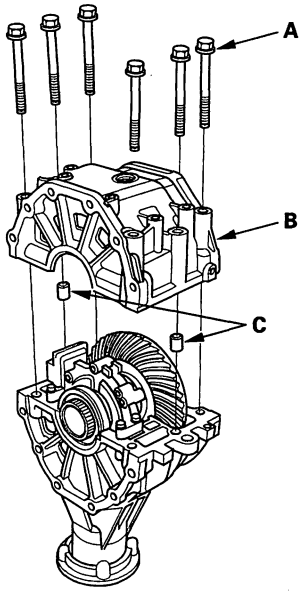
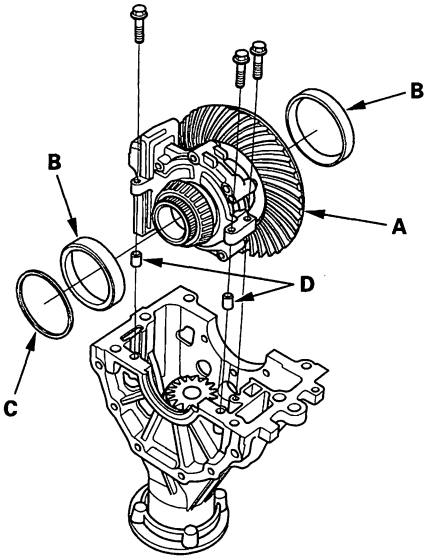
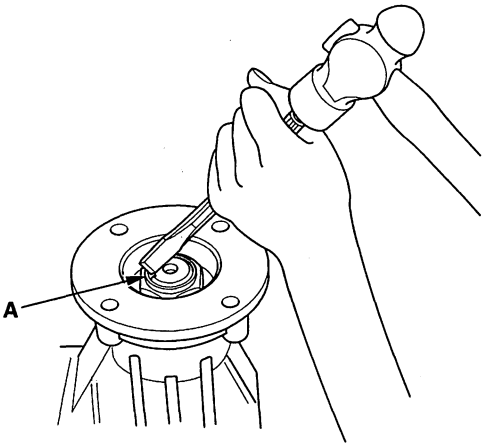
6. Remove the six mounting bolts (A) in a crisscross pattern in several steps, then remove the differential housing assembly (B) and dowel pins (C).



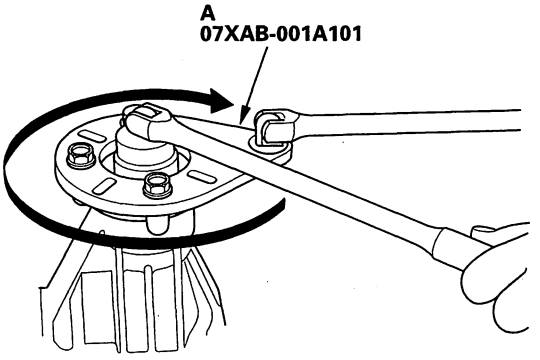
7. Remove the ring gear assembly (A), bearing outer races (B), 75 mm shim (C), and the 8 x 14 mm dowel pins (D).



8. Raise the locknut tab (A) from the groove of the input shaft, making sure that the tab completely clears the groove to prevent damaging the input shaft.



9. Install the companion flange holder (A) on the companion flange. Loosen the 27 mm locknut (left-hand threads).



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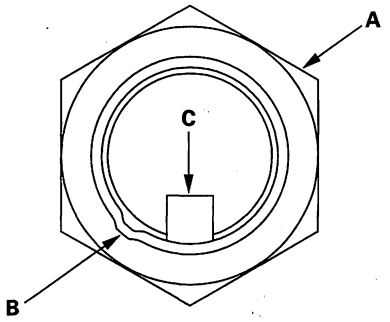
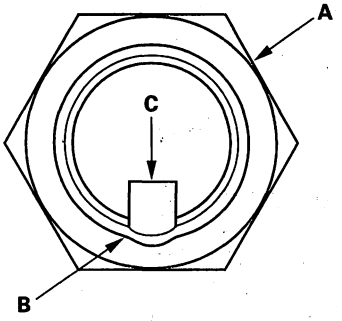
Center Case Oil Seal Replacement (cont'd)

10. Loosen the locknut (A) clockwise so that its tab (B) comes out from the groove (C) in the input shaft.

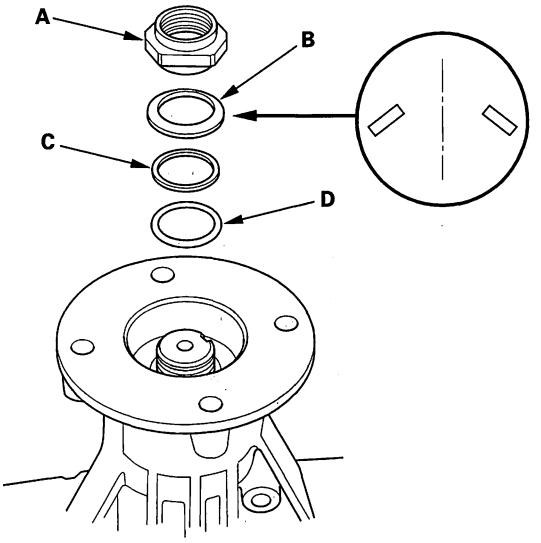


11. Tighten the locknut (A) until its tab (B) aligns with the groove (C).

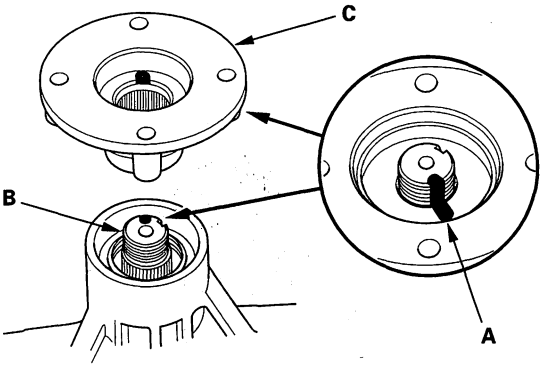


12. Remove any dirt from inside of the groove in the input shaft, then loosen the locknut.

13. Remove the 27 mm locknut (A), the 27 mm spring washer (B), the 28 mm back-up ring (C), and the 28 mm O-ring (D).



14. Make a reference mark (A) across the input shaft (B) and companion flange (C), then remove the companion flange.



BACK

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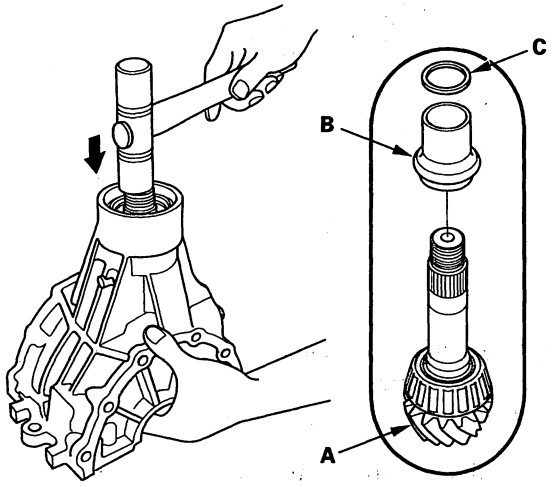
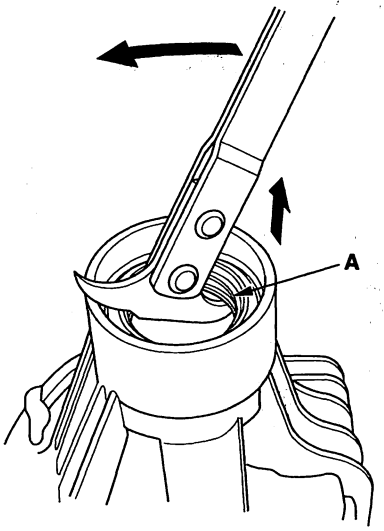
15. Remove the drive pinion (A), pinion spacer (B) and the thrust washer (C) by tapping on the drive pinion with a plastic hammer.

    NOTE: Support it by hand not to damage the drive pinion.

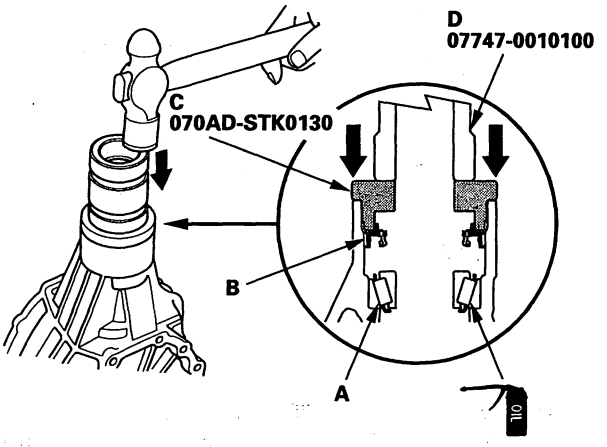


16. Remove the front case oil seal (A) with a commercially available tool.

    NOTE: Remove the oil seal with care so you do not damage the inside surface of the differential carrier seal surface.

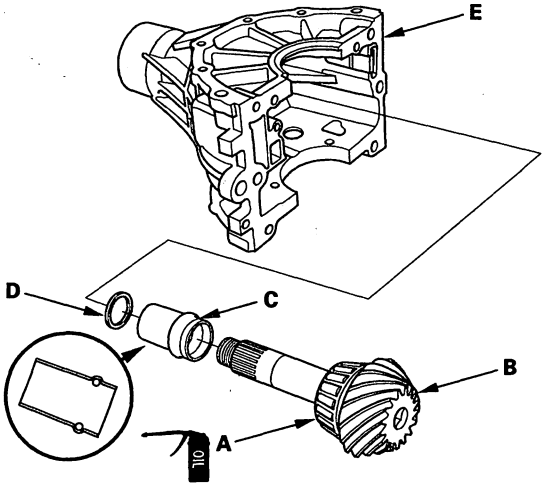


17. Apply ATF to the tapered roller bearing (A), then install the new front case oil seal (B) with the oil seal driver C and fork seal driver weight (D).



18. Apply ATF to the tapered roller bearing (A), then install the drive pinion (B), pinion spacer (C) and the thrust washer (D) into the differential carrier (E).

    NOTE: Be sure to install the pinion spacer in the direction shown.



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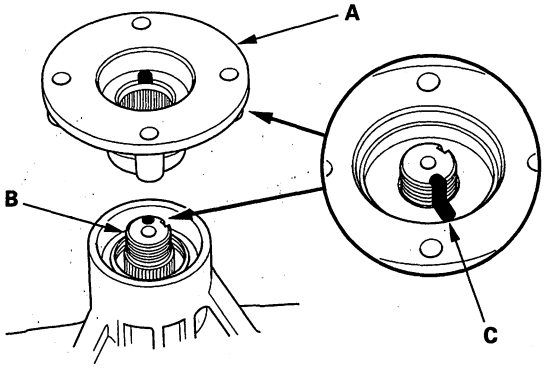
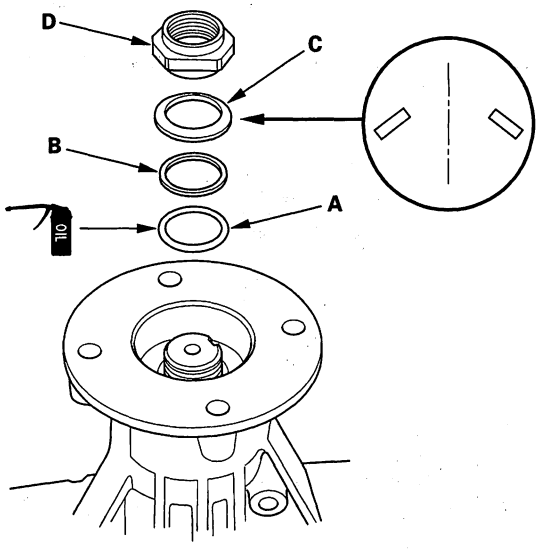
Center Case Oil Seal Replacement (cont'd)

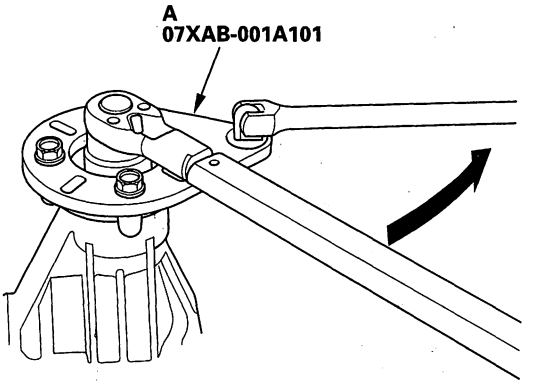
19. Install the companion flange (A) on the input shaft (B) by aligning the reference mark (C).



20. Apply ATF to the new 28 mm O-ring (A), then install the new 28 mm O-ring, the 28 mm backup ring (B), the 27 mm spring washer (C), and the new 27 mm locknut (D).



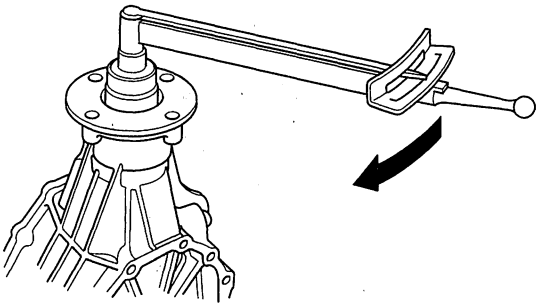
21. Install the companion flange holder (A) to the companion flange, then tighten the locknut (left-hand threads).



22. Rotate the drive pinion several times to assure proper tapered roller bearing contact. Measure the drive pinion turning torque.

- If the drive pinion turning torque exceeds the standard, replace the pinion spacer.
- If the drive pinion turning torque is less than the standard, adjust by tightening the locknut a little at a time, but keep the torque within 186—353 N·m (19.0—36.0 kgf·m, 137—260 lbf·ft). If this is not possible, replace the pinion spacer.

Turning Torque:
93.2—181.4 N·m
(9.5—18.5 kgf·cm, 69.0—134.0 lbf·in)



BACK

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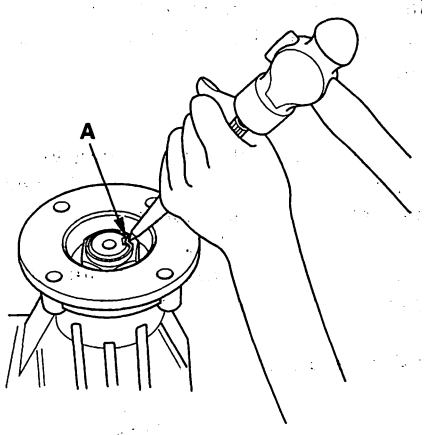
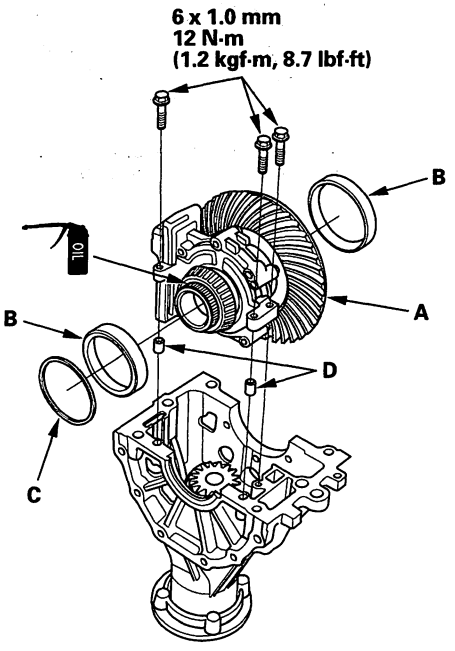
23. Stake the locknut tab (A) into the groove in the input shaft.

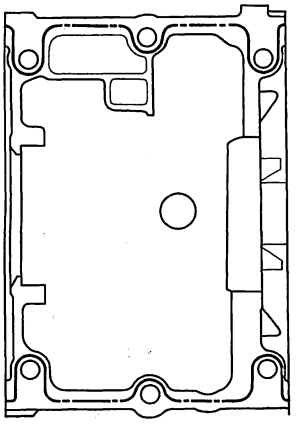


24. Apply ATF to the tapered roller bearings, then Install the ring gear assembly (A), bearing outer races (B), 75 mm shim (C) and the 8 x 14 mm dowel pins (D).



25. Remove the dirt and oil from the sealing surfaces. Apply liquid gasket (P/N08718-0001) to the sealing surface. Make sure you seal the entire circumference of the bolt holes to prevent oil leakage.

NOTE:
- You must assemble the housings within do in 5 minutes after applying the liquid gasket. If not, the sealing surface must be cleaned, and the liquid gasket reapplied.
- Allow it to cure at least 30 minutes after assembly before filling the differential with fluid.
- Remove the overflowing liquid gasket, when joining side case.



——·——·—— Apply liquid gasket along the broken line and around all bolt holes.

(cont'd)

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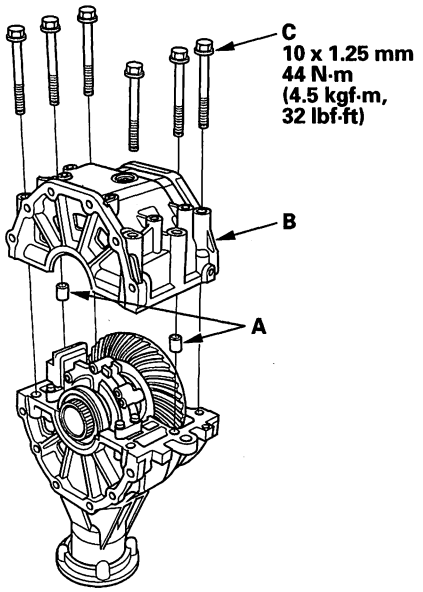
Center Case Oil Seal Replacement (cont'd)

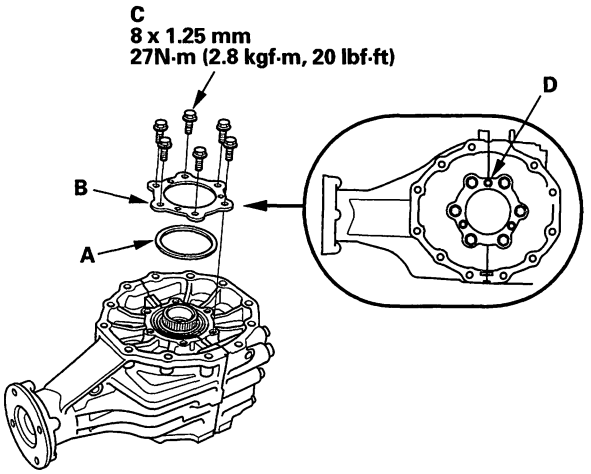
26. Install the dowel pins (A), the differential housing assembly (B) and the six mounting bolts (C).



27. Tighten the six mounting bolts in a crisscross pattern in several steps.

28. Install the 83 mm shim (A), the bearing set plate (B) and the six mounting bolts (C).

    NOTE: Install the bearing set plate, check to identification marks (D).

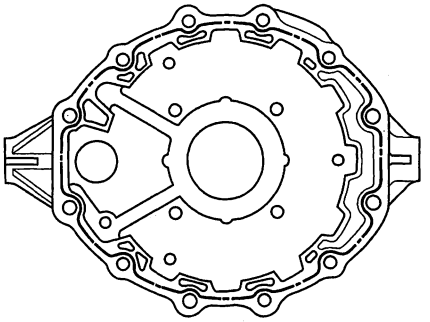


29. Tighten the six mounting bolts in a crisscross pattern in several steps.

30. Remove the dirt and oil from the sealing surfaces. Apply liquid gasket (P/N 08718-0001) to the sealing surface. Make sure you seal the entire circumference of the bolt holes to prevent oil leakage.

    NOTE:
    - You must assemble the housings with you do in 5 minutes after applying the liquid gasket. If not, the sealing surface must be cleaned, and the liquid gasket reapplied.
    - Allow it to cure at least 30 minutes after assembly before filling the differential with fluid.

Left side case/right side case



—·—·—·— Apply liquid gasket along the broken line and around all bolt holes.

BACK

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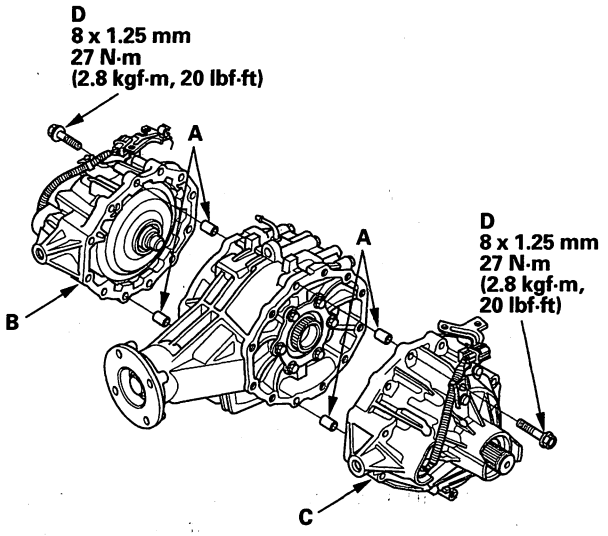
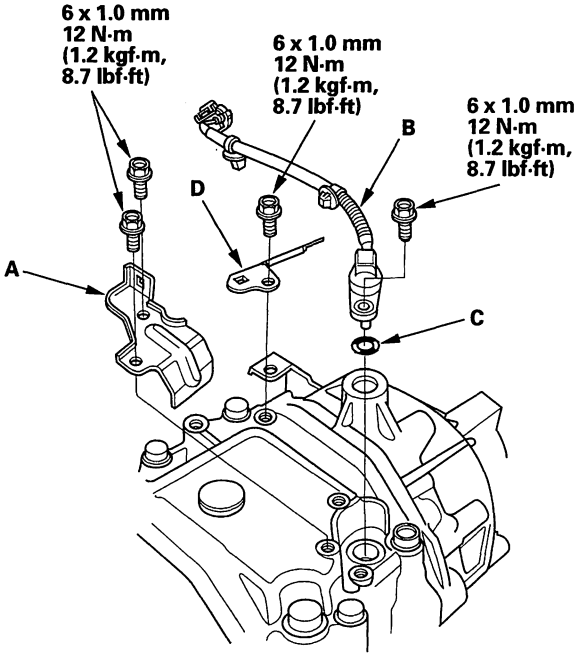
31. Install the 8 x 12 mm dowel pins (A), the rear differential right side case (B), the rear differential left side case (C) and the mounting bolts (D).



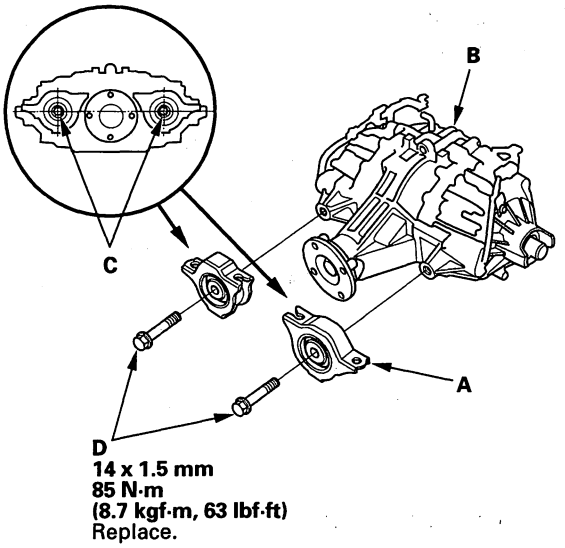
32. Tighten the mounting bolts in a crisscross pattern in several steps.

33. Install the differential fluid temperature sensor cover (A), rear differential fluid temperature sensor (B), new O-ring (C), and rear differential harness bracket (D).



34. Install the rear differential front mounting brackets (A) from the rear differential (B).

NOTE: Install a lower surface of the guide (C) horizontally as shown, then tighten the rear differential front mounting bracket bolts (D).



35. Install the rear differential (see page 15-75).

36. Refill the differential fluid (see page 15-69).

BACK

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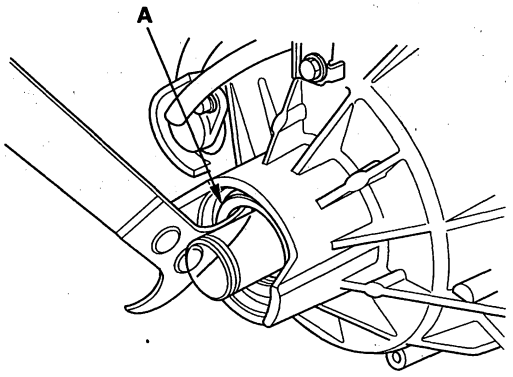
Side Case Oil Seal Replacement

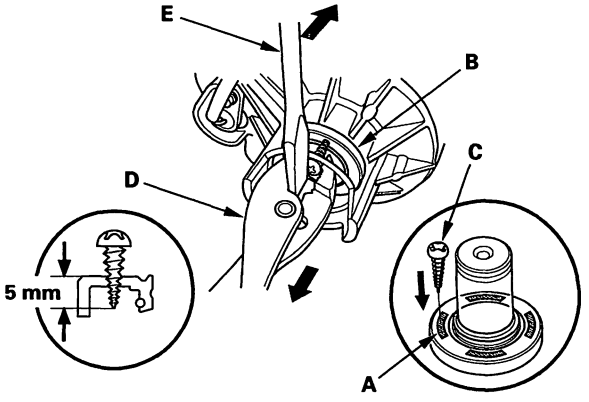
Special Tools Required
- Oil seal driver A 070AD-STK0110
- Oil seal driver B 070AD-STK0120
- Fork seal driver weight 07747-0010100

1. Remove the rear differential (see page 15-74).
2. Remove the 40 x 55 x 7.5 mm dust seal (A) with a commercially available tool.

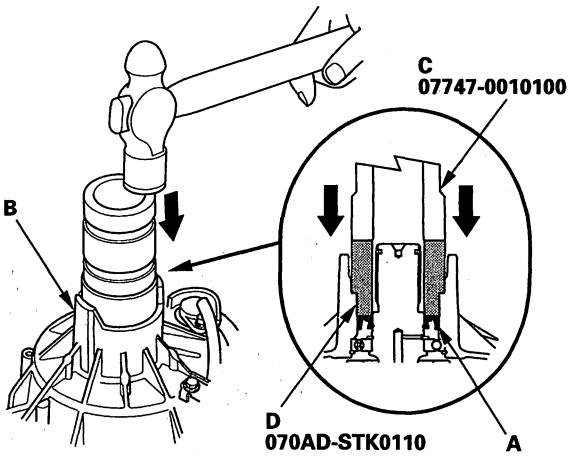


3. Remove the thrust washer.
4. Cut a slit at each position (4 place, 90 degrees apart) (A) on the 34.7 x 54 x 9 mm oil seal (B), then install 6 mm screw (C) (P/N 93901-16580) into the oil seal at each location. Remove the oil seal with pliers (D) and screw driver (E) as shown.

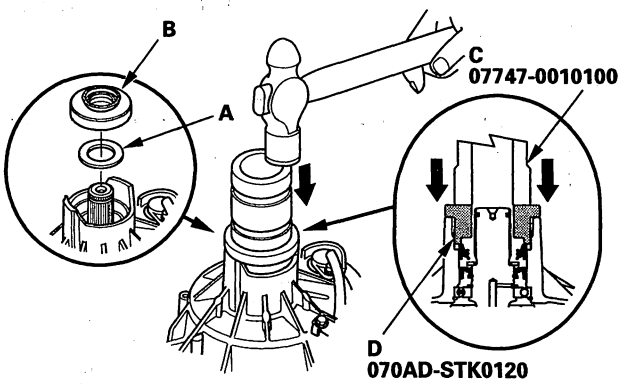
   NOTE: Do not thread the 6 mm screws into the oil seal more than 5 mm (0.197 in.)



5. Install the new 34.7 x 54 x 9 mm oil seal (A) into the rear differential side case (B) with the fork seal driver weight (C) and oil seal driver A (D).



6. Install the thrust washer (A), then install the new 40 x 55 x 7.5 mm dust seal (B) with the fork seal driver weight (C) and oil seal driver B (D).



7. Install the rear differential (see page 15-75).

BACK

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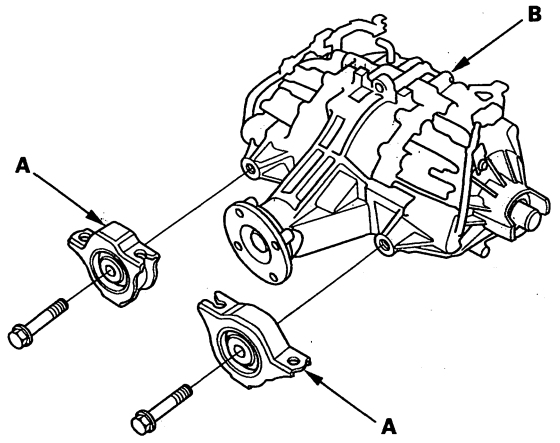
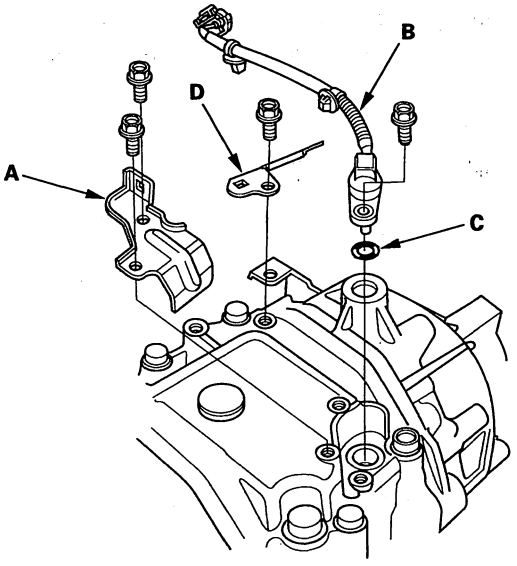
Center Case Replacement

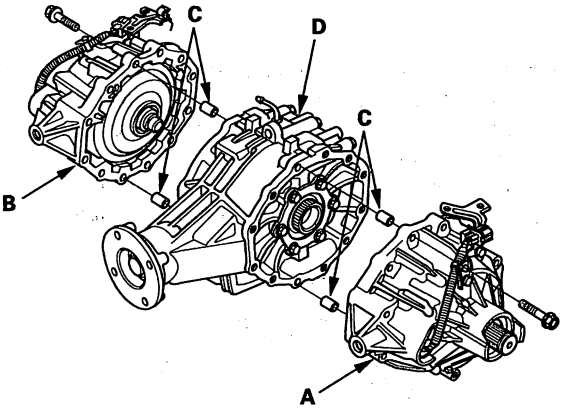
1. Remove the rear differential (see page 15-74).
2. Remove the rear differential front mounting brackets (A) from the rear differential (B).



3. Remove the differential fluid temperature sensor cover (A), rear differential fluid temperature sensor (B), O-ring (C), and rear differential harness bracket (D).



4. Remove the rear differential left side case (A), the rear differential right side case (B), the 10 x 12 mm dowel pins (C) from the rear differential center case (D).



5. Replace the rear differential center case.

(cont'd)

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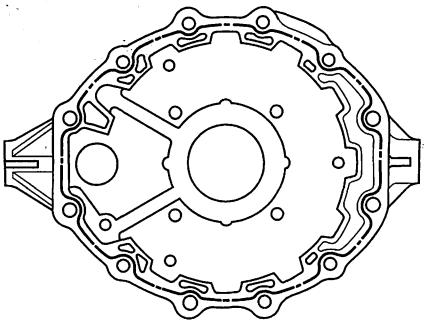
Center Case Replacement (cont'd)

6. Remove the dirt and oil from the sealing surfaces. Apply liquid gasket (P/N08718-0001) to the sealing surface. Make sure you seal the entire circumference of the bolt holes to prevent oil leakage.

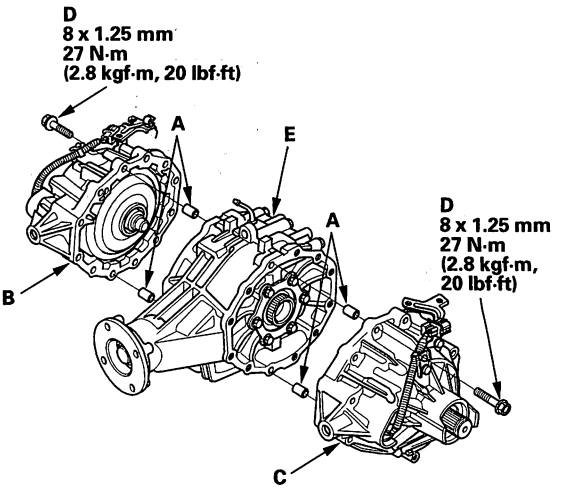
   NOTE:
   - You must assemble the housings with you do in 5 minutes after applying the liquid gasket. If not, the sealing surface must be cleaned, and the liquid gasket reapplied.
   - Allow it to cure at least 30 minutes after assembly before filling the differential with fluid.

Left side case/right side case



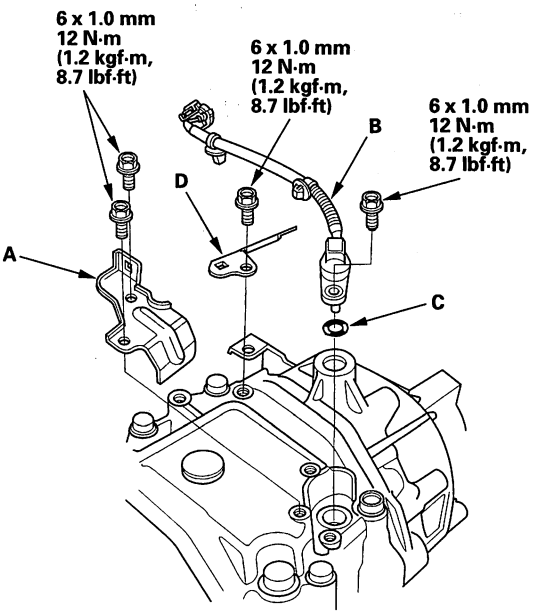
—·—·—·— Apply liquid gasket along the broken line and around all bolt holes.

7. Install the 8 x 12 mm dowel pins (A), the rear differential right side case (B), the rear differential left side case (C) and the mounting bolts (D) on to the rear differential center case (E).



8. Tighten the mounting bolts in a crisscross pattern in several steps.

9. Install the differential fluid temperature sensor cover (A), rear differential fluid temperature sensor (B), new O-ring (C), and rear differential harness bracket (D).



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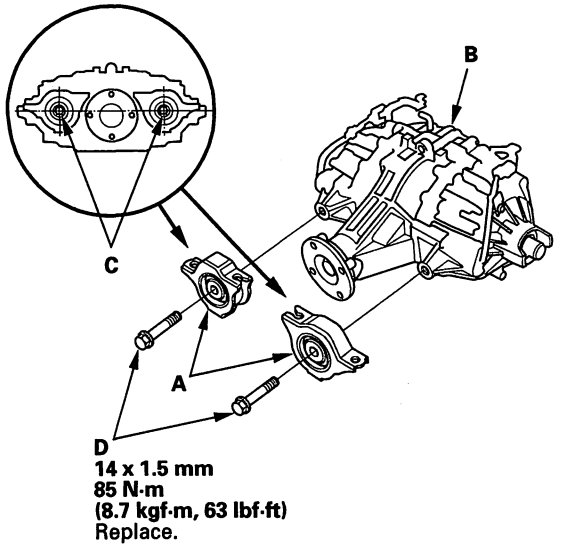
10. Install the rear differential front mounting brackets (A) from the rear differential (B).

    NOTE: Install a lower surface of the guide (C) horizontally as shown, then tighten the rear differential front mounting bracket bolts (D).



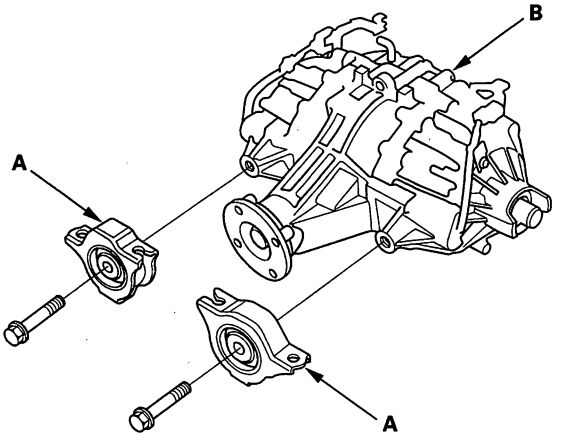
11. Install the rear differential (see page 15-75).

12. Refill the differential fluid (see page 15-69).

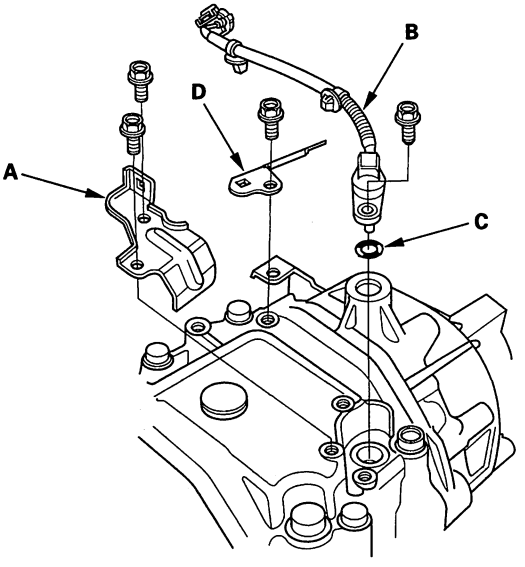
Side Case Replacement

1. Remove the rear differential (see page 15-74).

2. Remove the rear differential front mounting brackets (A) from the rear differential (B).



3. Remove the differential fluid temperature sensor cover (A), rear differential fluid temperature sensor (B), O-ring (C), and rear differential harness bracket (D).



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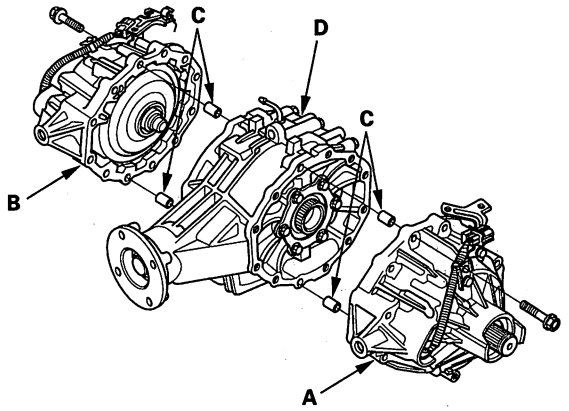
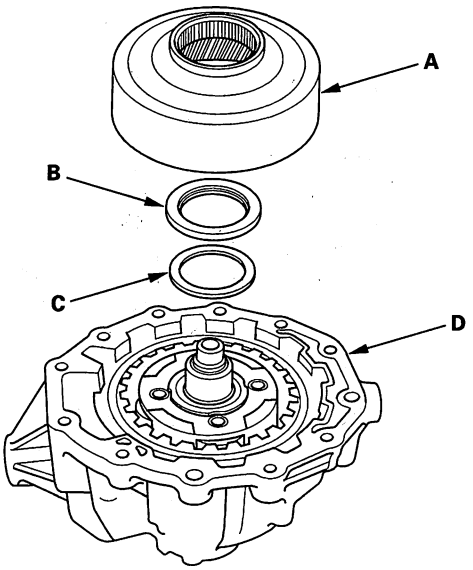
Side Case Replacement (cont'd)

4. Remove the rear differential left side case (A) or the rear differential right side case (B), the 10 x 12 mm dowel pins (C) from the rear differential center case (D).



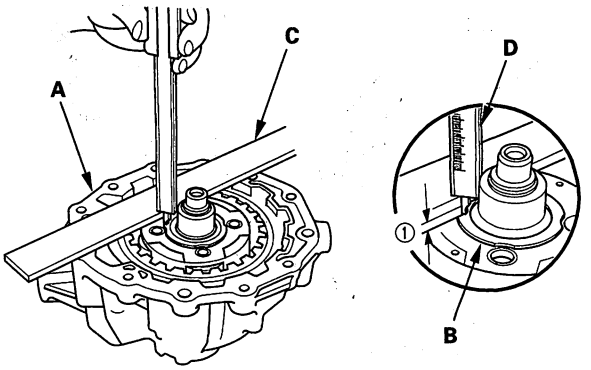
5. Replace the rear differential left side case or the differential right side case.

6. Remove the ring gear (A), needle bearing (B), and the 60.2 mm shim (C) from the rear differential side case (D).



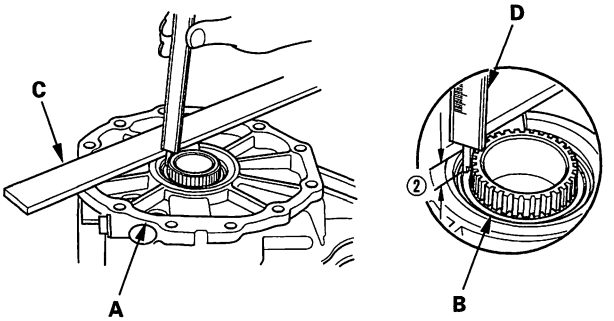
7. Measure distance ① between the end of the rear differential side case (A) and 60.2 mm shim contact area of planetary gear (B) with a straight edge (C) and depth gauge (D). Measure at three locations, and average the reading.

NOTE:
- Carry out the measurement at normal room temperature.
- Clean all the parts thoroughly before measure.



8. Measure distance ② between the end of the rear differential center case (A) and ring gear contact area of taper roller bearing (B) with a straight edge (C) and depth gauge (D). Measure at three locations, and average the reading.

NOTE:
- Carry out the measurement at normal room temperature.
- Clean all the parts thoroughly before measure.



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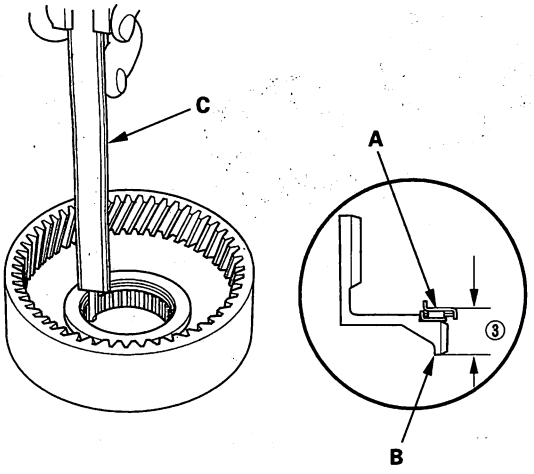
9. Measure the distance ③ between the needle bearing (A) and tapper roller bearing contact area of ring gear (B) with a depth gauge (C). Measure at three locations, and average the reading.

   NOTE:
   - Carry out the measurement at normal room temperature.
   - Clean all the parts thoroughly before measure.



Shim Selection Formula

10. Select the proper 60.2 mm shim from the table. Follow the example below, and use the measurements you made in steps 7 to 9.

    (Basic Formula)
    ①+②−(③+0.19) = shim thickness

    0.19 mm (0.007 in.):
    middle of the clearance standard.

    Clearance Standard:
    0.14−0.24 mm (0.006−0.009 in.)

(For example)
① = 6.12 mm (0.241 in.)
② = 15.3 mm (0.602 in.)
③ = 19.5 mm (0.770 in.)

6.12+15.3−(19.5+0.19) = 1.73 mm

Select the 1.70 mm shim from the table.

60.2 mm Shim

	Part Number	Thickness
A	48701-RWG-000	1.10 mm (0.043 in.)
B	48702-RWG-000	1.20 mm (0.047 in.)
C	48703-RWG-000	1.30 mm (0.051 in.)
D	48704-RWG-000	1.40 mm (0.055 in.)
E	48705-RWG-000	1.50 mm (0.059 in.)
F	48706-RWG-000	1.60 mm (0.063 in.)
G	48707-RWG-000	1.70 mm (0.067 in.)
H	48708-RWG-000	1.80 mm (0.071 in.)
I	48709-RWG-000	1.90 mm (0.075 in.)
J	48710-RWG-000	2.00 mm (0.079 in.)
K	48711-RWG-000	2.10 mm (0.083 in.)
L	48712-RWG-000	2.20 mm (0.087 in.)

(cont'd)

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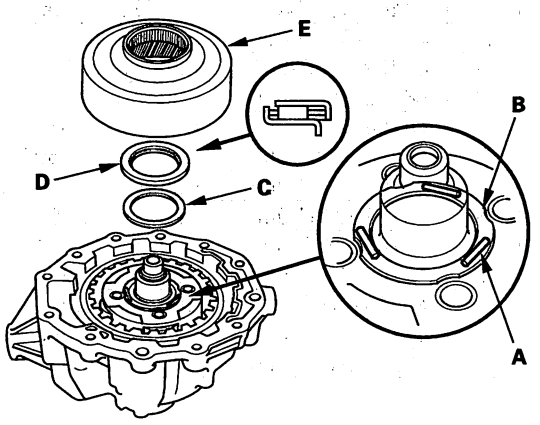
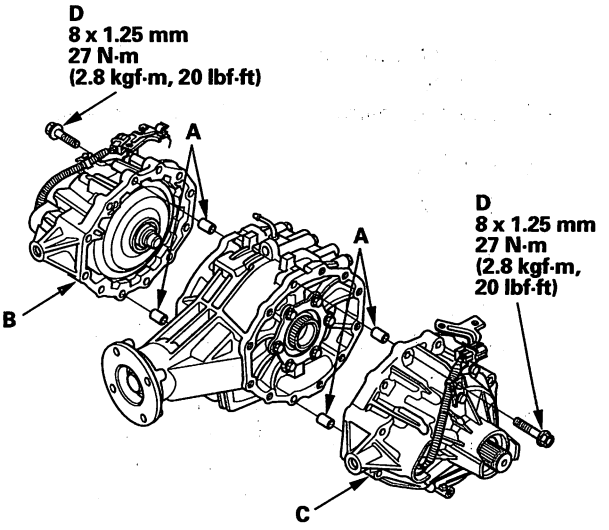
Side Case Replacement (cont'd)

11. Place one strip of plastigage (A) on 60.2 mm shim contact area of planetary gear (B). Install the 60.2 mm shim (C), needle bearing (D) and the ring gear (E). Measure at three locations, and average the reading.

    NOTE:
    - Carry out the measurement at normal room temperature.
    - Clean all the parts thoroughly before measure.

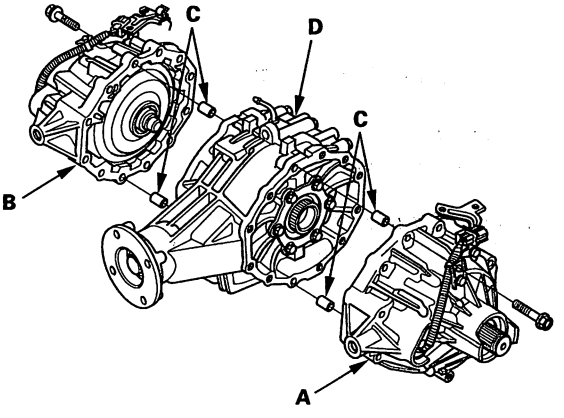


12. Install the 8 x 12 mm dowel pins (A), the rear differential right side case (B) or the rear differential left side case (C) and the mounting bolts (D).



13. Tighten the mounting bolts in a crisscross pattern in several steps.

14. Remove the rear differential left side case (A) or the rear differential right side case (B), the 10 x 12 mm dowel pins (C) from the rear differential center case (D).



BACK

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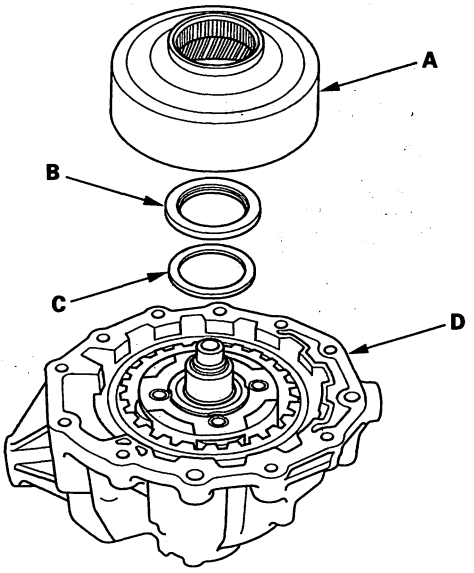
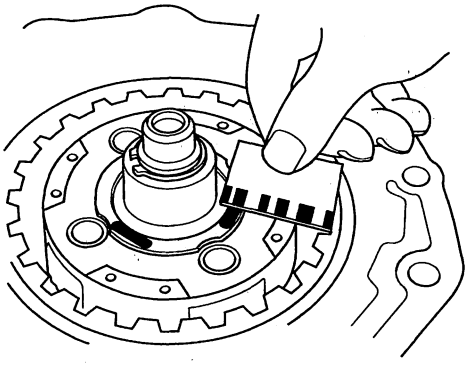
15. Remove the ring gear (A), needle bearing (B), and the 60.2 mm shim (C) from the rear differential side case (D).



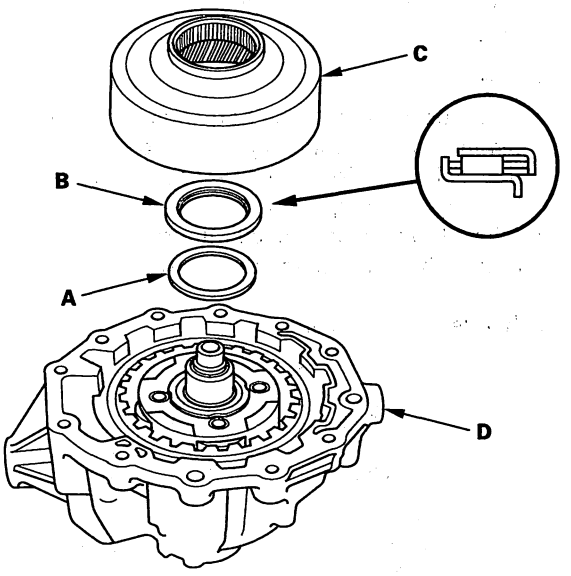
16. Measure the widest part of the plastigage.

Clearance Standard:
0.14—0.24 mm (0.006—0.009 in.)



17. If the clearance is more than the standard, go to step 7. If the clearance measured in step 16 is within the standard, go to step 18.

18. Install the 60.2 mm shim (A), needle bearing (B) and the ring gear (C) onto the rear differential side case (D).



(cont'd)

BACK

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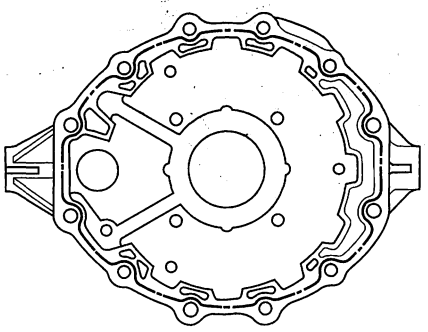
Side Case Replacement (cont'd)

19. Remove the dirt and oil from the sealing surfaces. Apply liquid gasket (P/N 08718-0001) to the sealing surface. Make sure you seal the entire circumference of the bolt holes to prevent oil leakage.

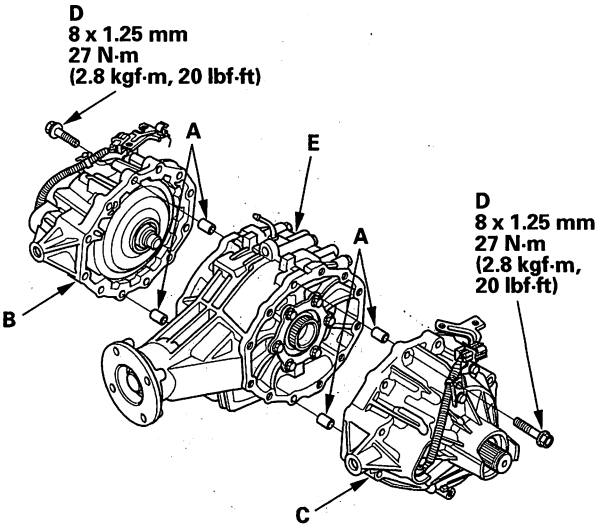
    NOTE:
    - You must assemble the housings within do in 5 minutes after applying the liquid gasket. If not, the sealing surface must be cleaned, and the liquid gasket reapplied.
    - Allow it to cure at least 30 minutes after assembly before filling the differential with fluid.

Left side case/right side case



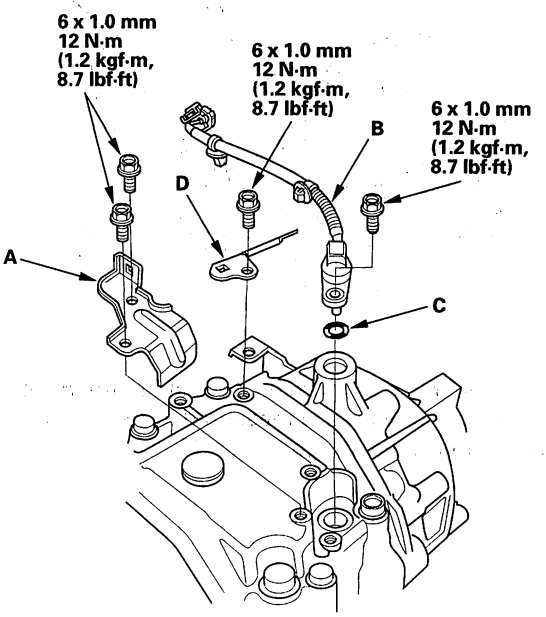
——·——·—— Apply liquid gasket along the broken line and around all bolt holes.

20. Install the 8 x 12 mm dowel pins (A), the rear differential right side case (B) or the rear differential left side case (C) and the mounting bolts (D) onto the rear differential center case (E).



21. Tighten the mounting bolts in a crisscross pattern in several steps.

22. Install the differential fluid temperature sensor cover (A), rear differential fluid temperature sensor (B), new O-ring (C), and rear differential harness bracket (D).



BACK

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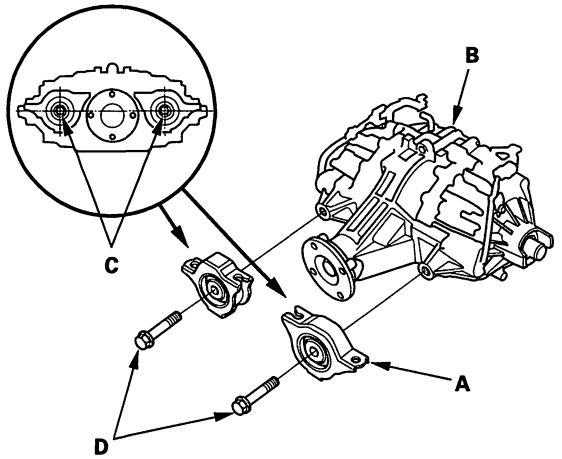
23. Install the rear differential front mounting brackets (A) from the rear differential (B).

    NOTE: Install a lower surface of the guide (C) horizontally as shown, then tighten the rear differential front mounting bracket bolts (D).



24. Install the rear differential (see page 15-75).

25. Refill the differential fluid (see page 15-69).

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Driveline/Axle

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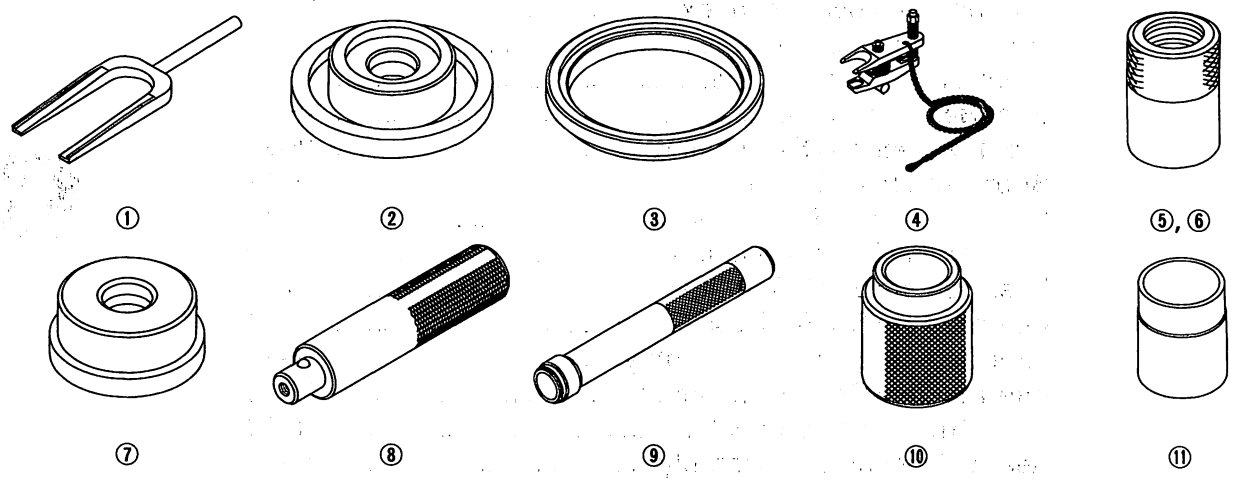
Special Tools

Ref. No.	Tool Number	Description	Qty
①	07AAD-S3VA000	Driveshaft Remover	1
②	07JAD-PH80101	Oil Seal Driver Attachment	1
③	07LAF-SM40300	Support Base Attachment	1
④	07MAC-SL0A202	Ball Joint Remover, 28 mm	1
⑤	07XAC-001020A	Threaded Adapter, 24 x 1.5 mm	1
⑥	07XAC-001030A	Threaded Adapter, 26 x 1.5 mm	1
⑦	07746-0010300	Attachment, 42 x 47 mm	1
⑧	07749-0010000	Driver	1
⑨	07946-MB00000	Inner Handle, 30 mm	1
⑩	07947-4630100	Fork Seal Driver, 39.2 x 49.5 x 15 mm	1
⑪	07965-SD90100	Support Base	1



BACK

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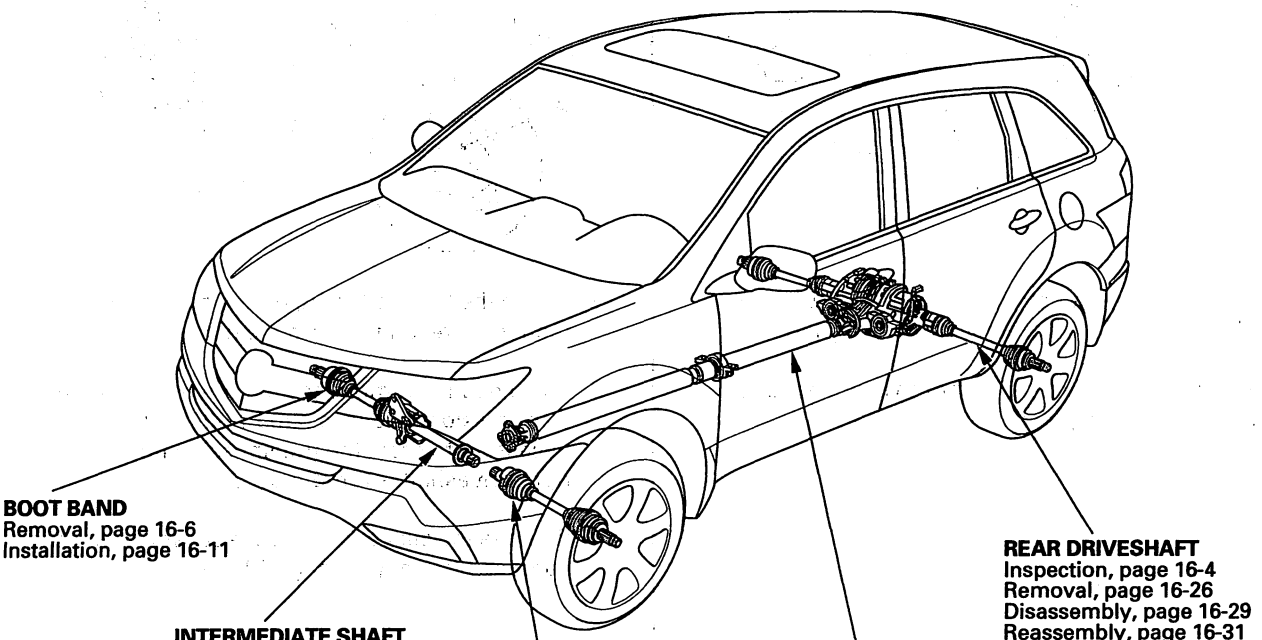
Component Location Index



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REAR DRIVESHAFT
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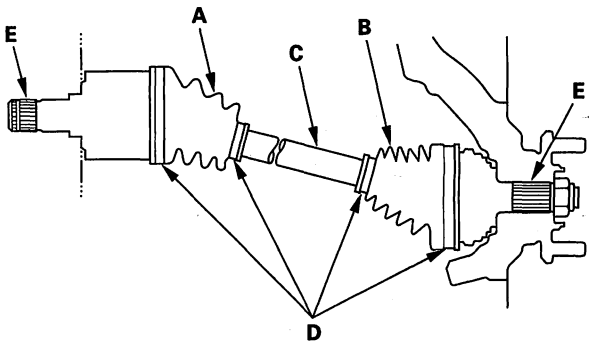
Driveshaft Inspection

1. Check the inboard boot (A) and the outboard boot (B) on the driveshaft (C) for cracks, damage, leaking grease, and loose boot bands (D). If any damage is found, replace the boot and boot bands.

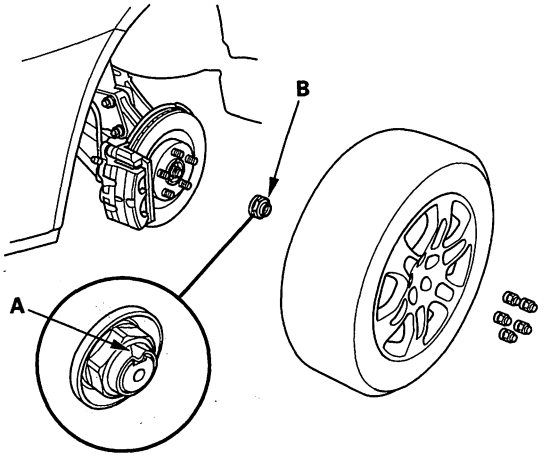


2. Turn the driveshaft by hand, and make sure the splines (E) and joint are not excessively loose.

3. Make sure the driveshaft is not twisted, bent, or cracked; if it is, replace it.

Front Driveshaft Removal

1. Raise the vehicle on a lift, and remove the front wheels (see page 1-7).



2. Lift up the locking tab (A) on the spindle nut (B), then remove, and discard the nut.

3. If you need to remove the left driveshaft, drain the transmission fluid (see page 14-266). It is not necessary to drain the transmission fluid when the right driveshaft is removed.

4. Remove the suspension stroke sensor (with active damper system) (see page 22-229).

BACK

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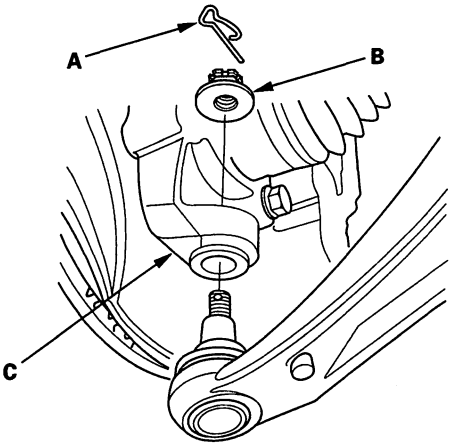
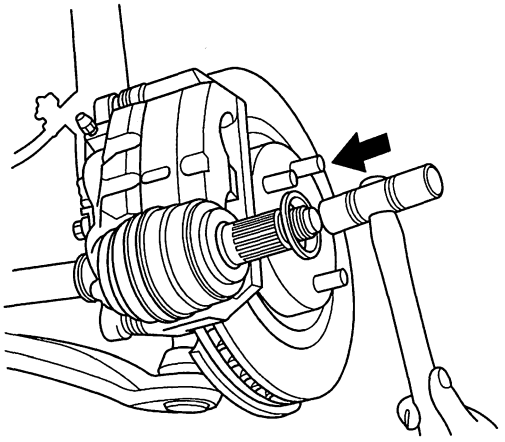
5. Remove the lock pin (A) from the lower arm ball joint castle nut (B), and remove the nut.



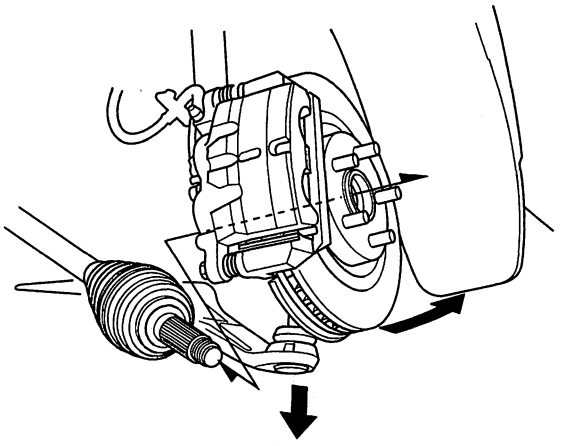
6. Separate the ball joint from the knuckle (C) with the special tool (see page 18-11).

NOTE:
- To avoid damaging the ball joint, install the ball joint thread protector onto the threads of the ball joint.
- Be careful not to damage the ball joint boot when installing the remover.

7. Disconnect the driveshaft outboard joint from the front wheel hub using a plastic hammer.



8. Pull the knuckle outward, and remove the driveshaft outboard joint from the front wheel hub.



9. Remove the splash shield (see step 31 on page 5-5).

(cont'd)

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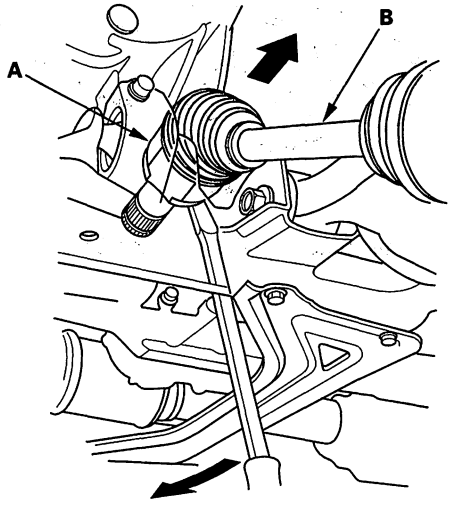
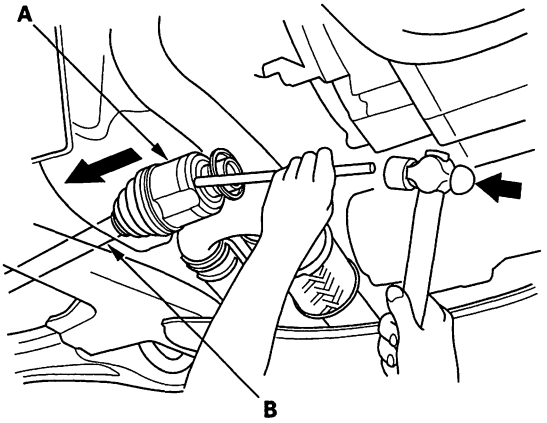
Front Driveshaft Removal (cont'd)

10. Pry (left driveshaft)/tap (right driveshaft) the inboard joint (A), and remove the driveshaft from the differential case or bearing support as an assembly. Do not pull on the driveshaft (B); the inboard joint may come apart. Pull the driveshaft straight out to avoid damaging the differential oil seal or the intermediate shaft outer seal.

Left driveshaft



Right driveshaft

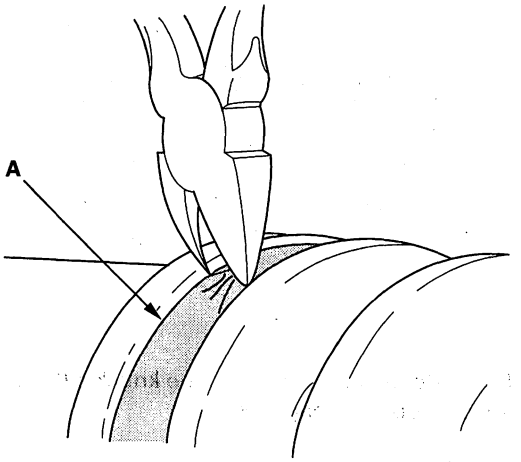


Boot Band Removal

NOTE: When removing the boot bands, be careful not to damage the boot and dynamic damper.

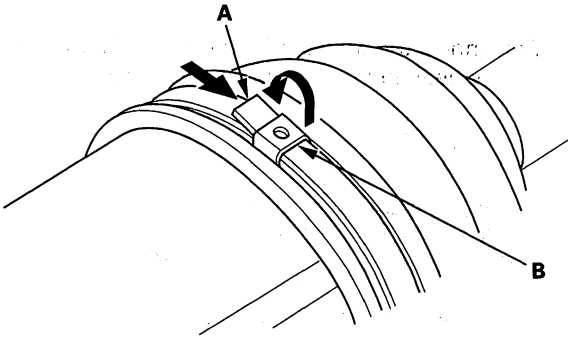
Welded Type

1. Cut the boot band (A), then remove the boot band.



Double Loop Type

1. Lift up the band end (A), then push it into the clip (B), then remove the boot band.



BACK

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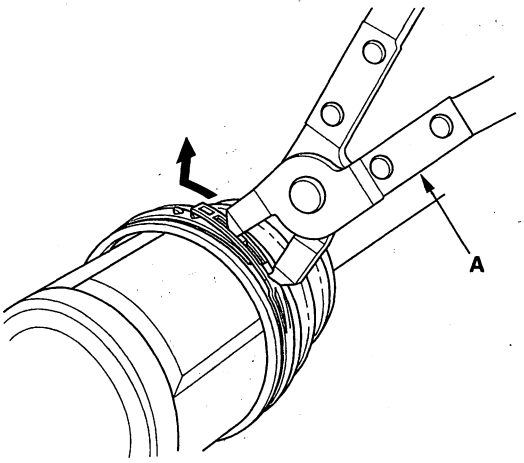
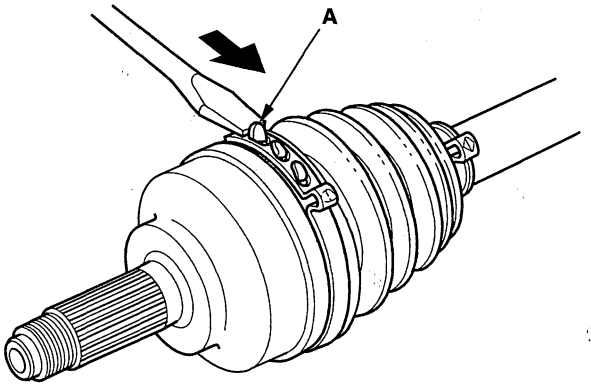
Low Profile Type

1. Pinch the boot band using a commercially available boot band pliers (A), then remove the boot band.



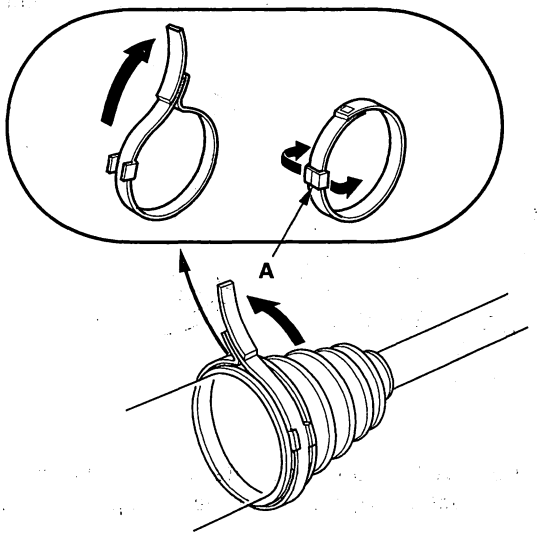
Ear Clamp Type

1. Lift up the three tabs (A) with a screwdriver, then remove the boot band.



Locking Tab Type

1. Pry up the locking tab (A) with a screwdriver, and lift up the end of the band, then remove the boot band.



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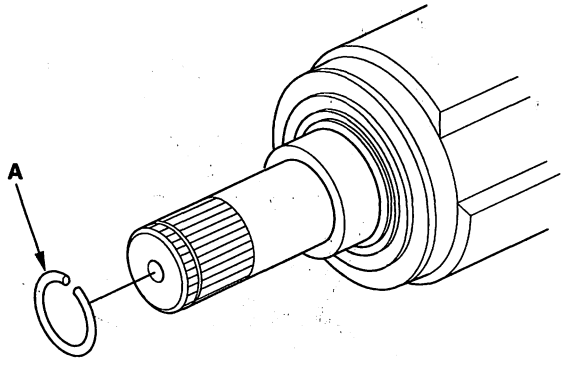
Front Driveshaft Disassembly

Special Tools Required
Threaded adapter, 26 x 1.5 mm 07XAC-001030A

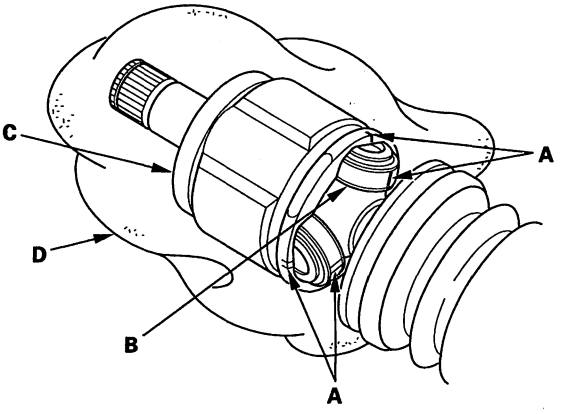
Inboard Joint Side

1. Remove the set ring (A) from the inboard joint.

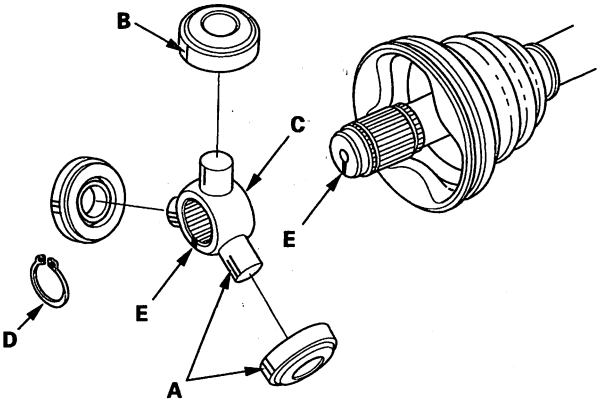


2. Remove the boot bands. Be careful not to damage the boot and dynamic damper (see page 16-6).

3. Make a mark (A) on each roller (B) and inboard joint (C) to identify the locations of rollers and grooves in the inboard joint. Then remove and place the inboard joint on a shop towel (D). Be careful not to drop the rollers when separating them from the inboard joint.



4. Make marks (A) on the rollers (B) and spider (C) to identify the locations of the rollers on the spider, then remove the rollers.



5. Remove the circlip (D).

6. Mark the spider and driveshaft (E) to identify the position of the spider on the shaft.

7. Remove the spider.

BACK

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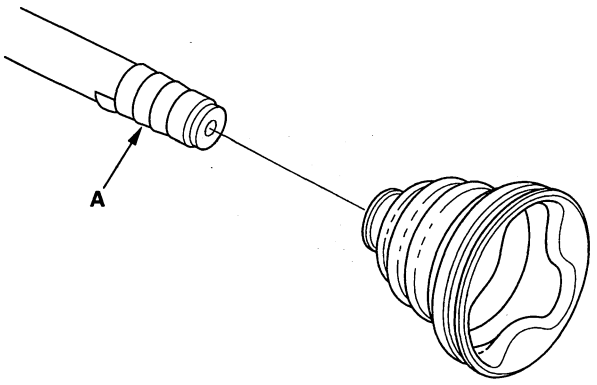
8. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damage to the boot.



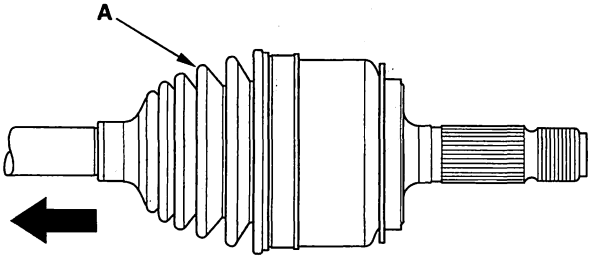
9. Remove the inboard boot. Be careful not to damage the boot.

10. Remove the vinyl tape.

Outboard Joint Side

1. Remove the boot bands. Be careful not to damage the boot and dynamic damper (see page 16-6).

2. Slide the outboard boot (A) partially to the inboard joint side. Be careful not to damage the boot.



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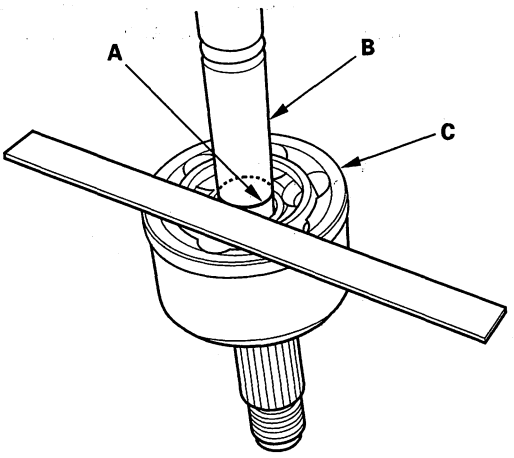
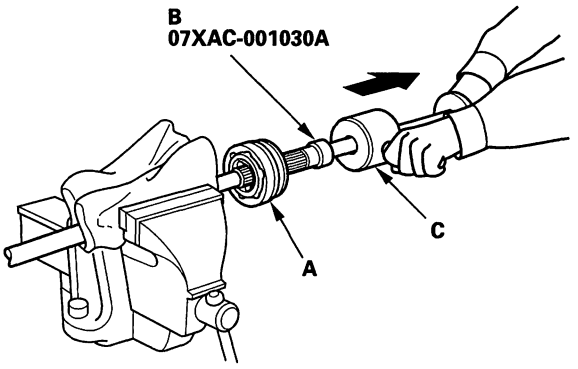
Front Driveshaft Disassembly (cont'd)

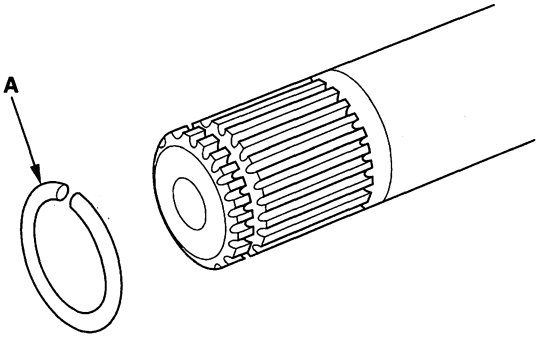
3. Wipe off the grease to expose the driveshaft and the outboard joint inner race.
4. Make a mark (A) on the driveshaft (B) at the same level as of the outboard joint rim (C).



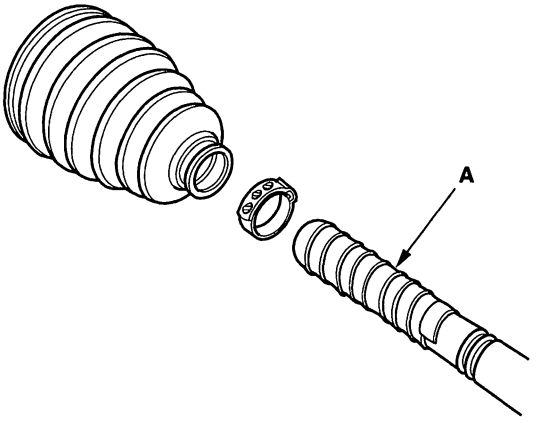
5. Securely clamp the driveshaft in a bench vise with a shop towel.
6. Remove the outboard joint (A) using the threaded adapter (B) and a commercially available 5/8"-18 UNF slide hammer (C).



7. Remove the driveshaft from the vise.
8. Remove the stop ring (A) from the driveshaft.



9. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damaging the boot.



10. Remove the outboard boot. Be careful not to damage the boot.
11. Remove the vinyl tape.

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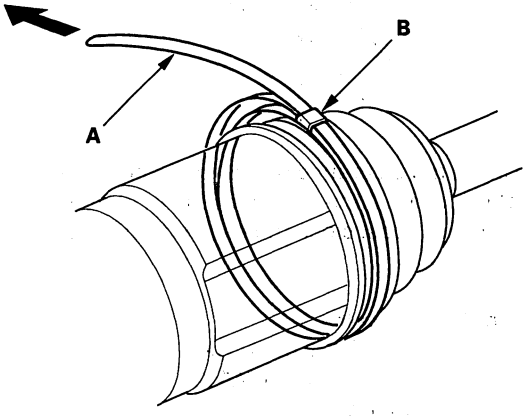
Boot Band Installation

Special Tools Required
- Boot band tool, KD-3191 or equivalent, commercially available
- Boot band pliers, Kent-Moore J-35910 or equivalent, commercially available

Double Loop Type

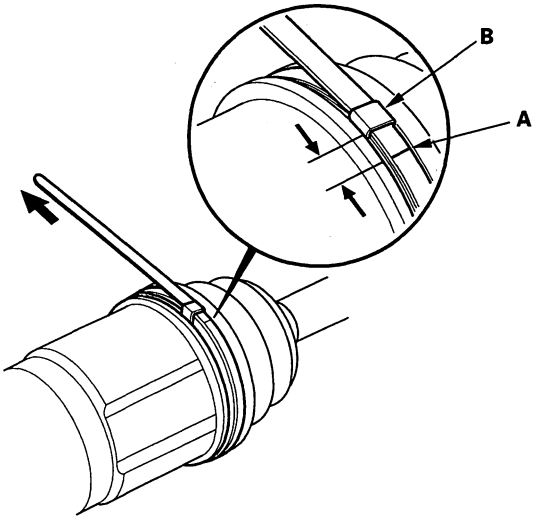
1. Fit the boot ends onto the driveshaft and the inboard joint, then install the new double loop band (A) onto the boot.

   NOTE: Pass the end of the new double loop band through the clip (B) twice. Make sure the loop faces forwards on the driveshaft, towards the front of the vehicle.

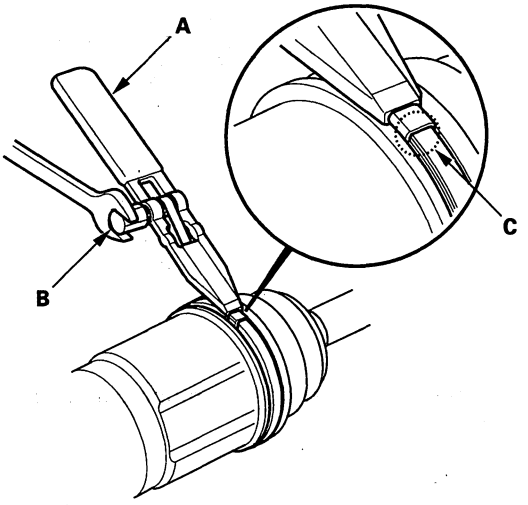


2. Pull up the slack in the band by hand.

3. Mark a position (A) on the band 10—14 mm (0.4—0.6 in.) from the clip (B).

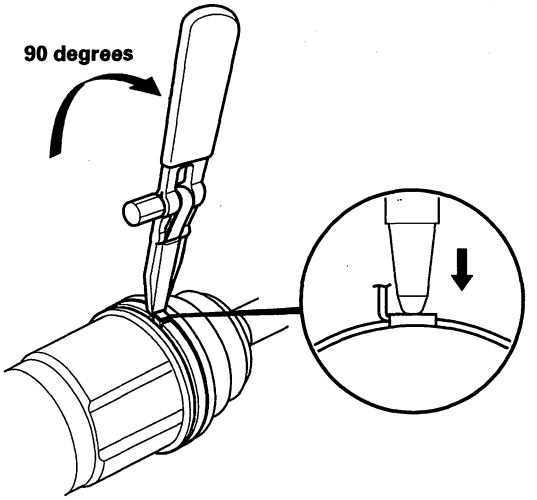


4. Thread the free end of the band through the nose section of a commercially available boot band tool KD-3191 or equivalent (A), and into the slot on the winding mandrel (B).



5. Using a wrench on the winding mandrel of the boot band tool, tighten the band until the marked spot (C) on the band meets the edge of the clip.

6. Lift up the boot band tool to bend the free end of the band 90 degrees to the clip. Center-punch the clip, then fold over the remaining tail onto the clip.



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BACK

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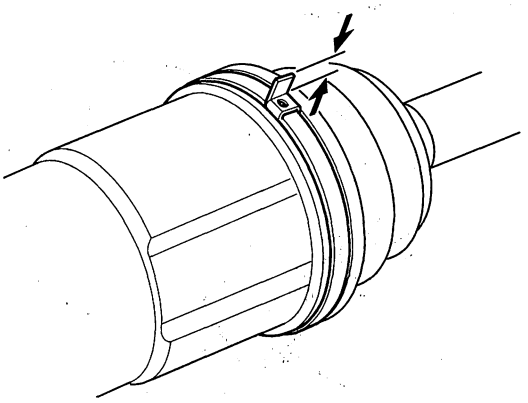
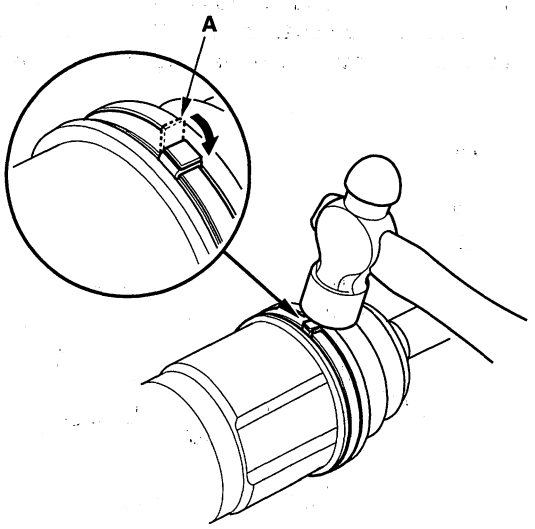
Boot Band Installation (cont'd)

7. Unwind the boot band tool, and cut off the excess free end of the band to leave a 5—10 mm (0.2—0.4 in.) tail protruding from the clip.



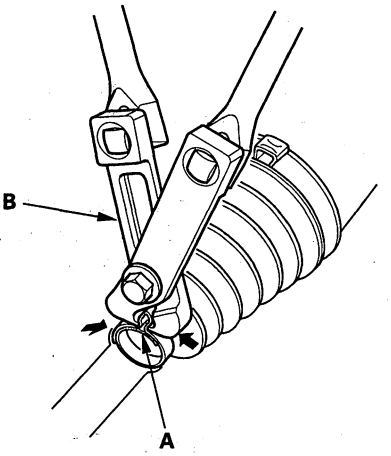
8. Bend the band end (A) by tapping it down with a hammer.

NOTE:
- Make sure the band and clip do not interfere with anything on the vehicle and that the band does not move.
- Clean any grease remaining on the surrounding surfaces.



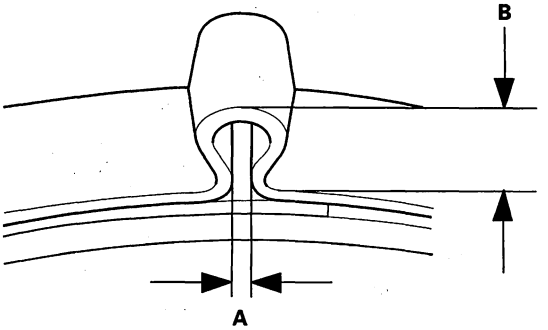
Ear Clamp Type

1. Close the ear portion (A) of the band with commercially available boot band pliers Kent-Moore J-35910 or equivalent (B).



2. Check the clearance between the closed ear portion of the band. If the clearance is not within specifications, close the ear portion of the band tighter.

Front Driveshaft
A: 3.0 mm (0.12 in.) MAX.
B: 6.0 mm (0.24 in.) MAX.
Rear Driveshaft
A: 3.0 mm (0.12 in.) MAX.
B: 6.0 mm (0.24 in.) MAX.



BACK

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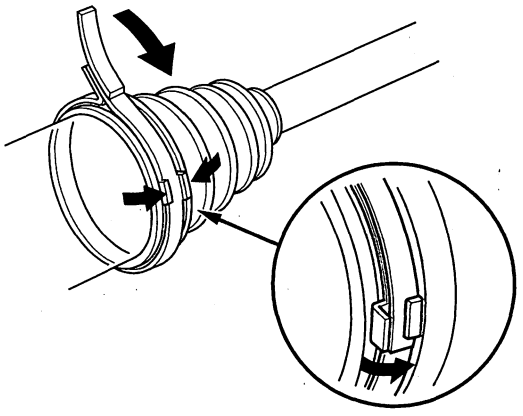
Locking Tab Type

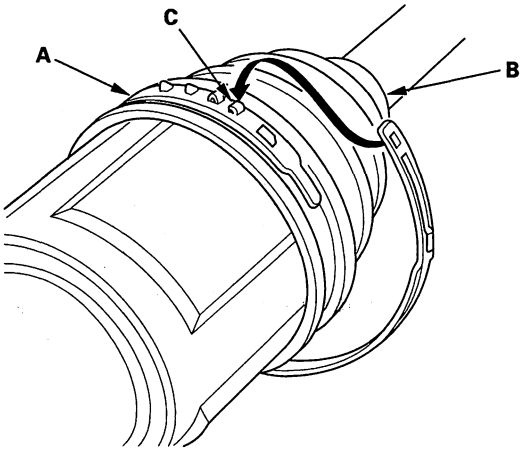
1. Install a new locking tab type boot band on the inboard joint side of the inboard boot. Fold down the locking tabs.



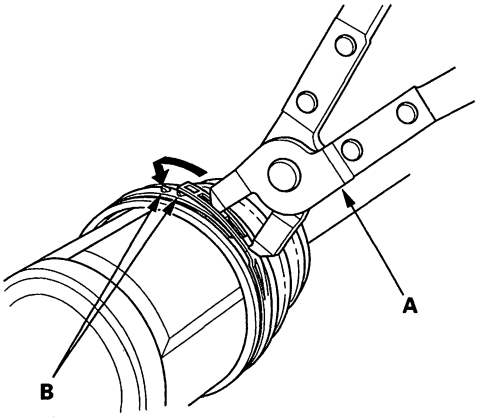
2. Lightly tap on the doubled-over portions to flatten them.

Low Profile Type

1. Install the new low profile band (A) onto the boot (B), then hook the tab portion (C) of the band.



2. Close the hook portion of the band with commercially available boot band pliers (A), then hook the tabs portion (B) of the band.



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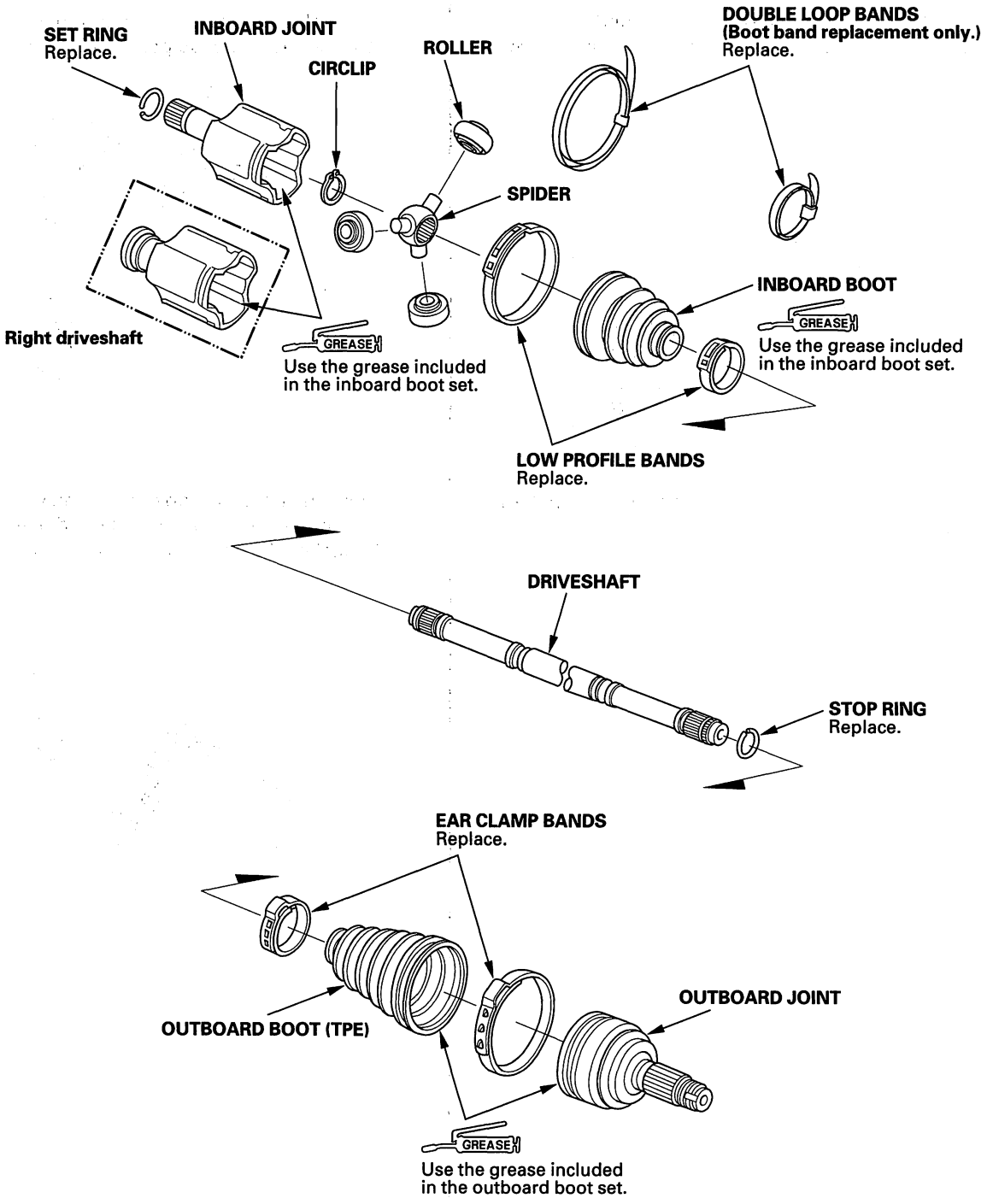
Front Driveshaft Reassembly

Exploded View



BACK

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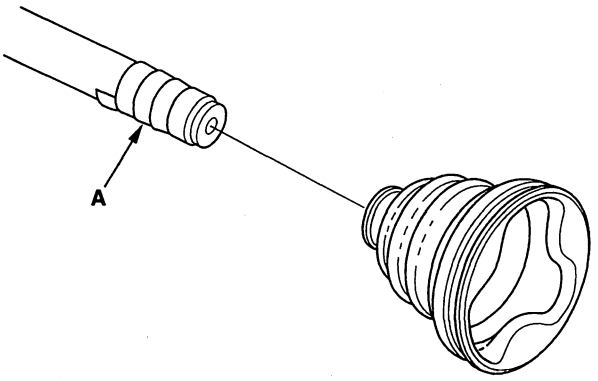
NOTE: Refer to the Exploded View as needed during this procedure.

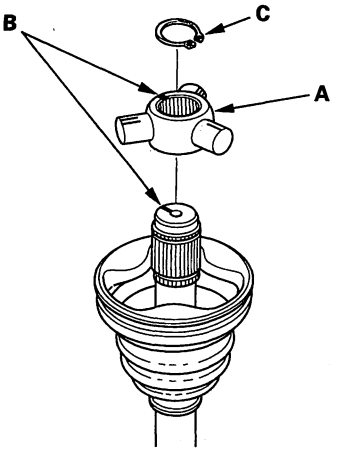
Inboard Joint Side

1. Wrap the splines with vinyl tape (A) to prevent damaging to the inboard boot.



2. Install the inboard boot onto the driveshaft, then remove the vinyl tape. Be careful not to damage the inboard boot.

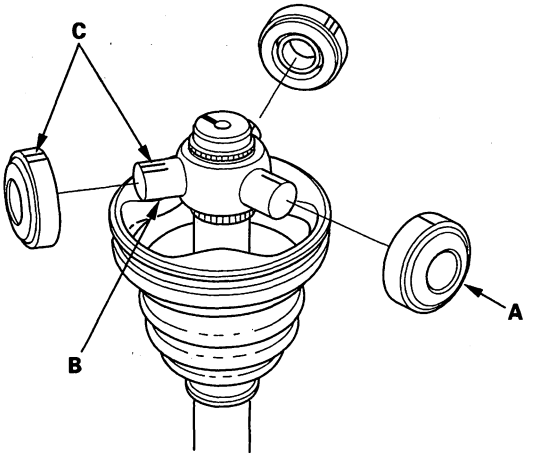
3. Install the spider (A) onto the driveshaft by aligning the marks (B) you made on the spider and the end of the driveshaft.



4. Install the circlip (C) into the driveshaft groove. Rotate the circlip in its groove to make sure it is fully seated.

5. Fit the rollers (A) onto the spider (B) with their high shoulders facing outward, and note these items:

   - Reinstall the rollers in their original positions on the spider by aligning the marks (C) you made.
   - Hold the driveshaft pointed up to prevent the rollers from falling off.



(cont'd)

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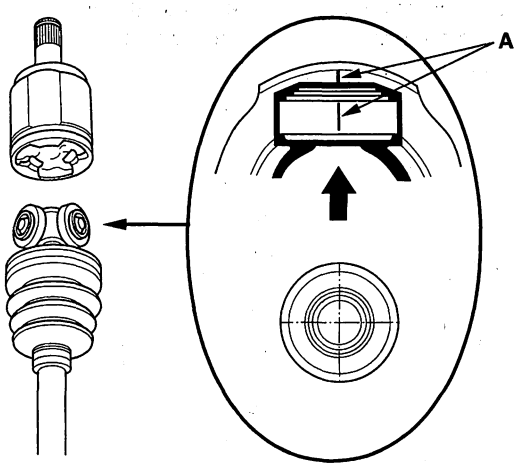
Front Driveshaft Reassembly (cont'd)

6. Pack the inboard joint with the joint grease included in the new inboard boot set.

Grease quantity
Inboard joint: 190—210 g (6.7—7.4 oz)

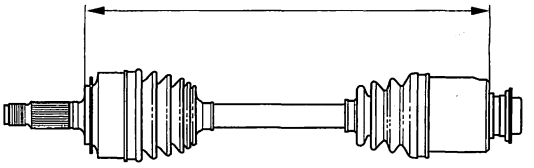
7. Fit the inboard joint onto the driveshaft, and note these items:

- Reinstall the inboard joint onto the driveshaft by aligning the marks (A) you made on the inboard joint and the rollers.
- Hold the driveshaft so the inboard joint is pointing up to prevent it from falling off.

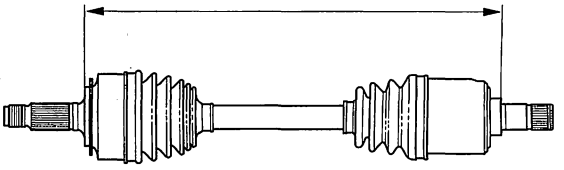


8. Adjust the inboard joint so the rollers are in the middle of the joint, bleed the excess air from the boot, then adjust the driveshaft length to the figure as shown. Doing this prevents a vacuum or too much air in the boot, preventing it from compressing or extending properly.

Right driveshaft: 570—575 mm (22.44—22.64 in.)



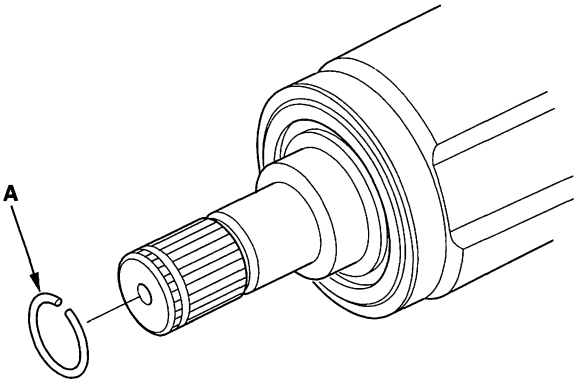
Left driveshaft: 571—576 mm (22.48—22.68 in.)



9. Fit the boot ends onto the driveshaft and the inboard joint, then install the new low profile band or the new double loop band onto the boot (see page 16-11).

10. Repeat step 9 for the band on the other end of the boot, then go to step 11.

11. Install the new set ring (A).



BACK

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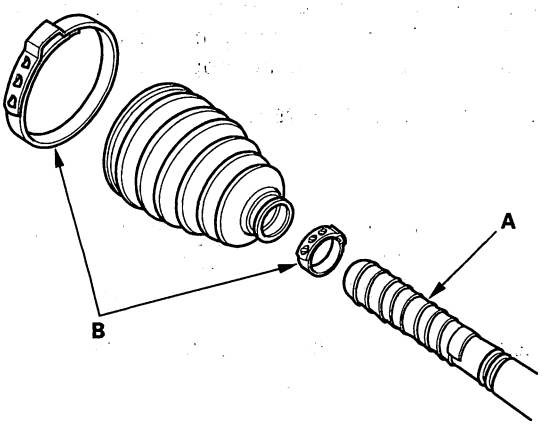
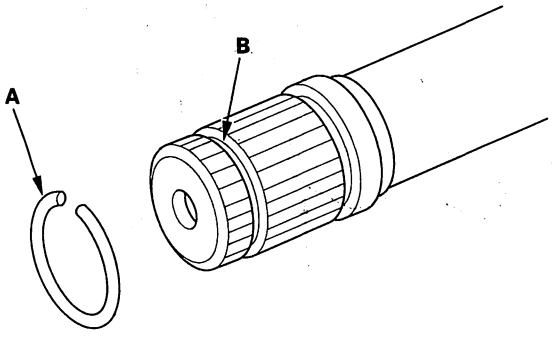
Outboard Joint Side

1. Wrap the splines with vinyl tape (A) to prevent damaging to the outboard boot.

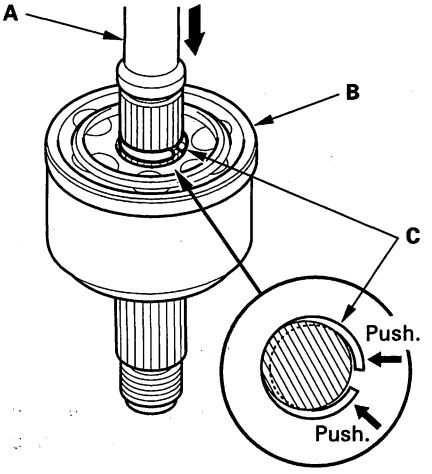


2. Install the new ear clamp bands (B) and outboard boot, then remove the vinyl tape. Be careful not to damage the outboard boot.

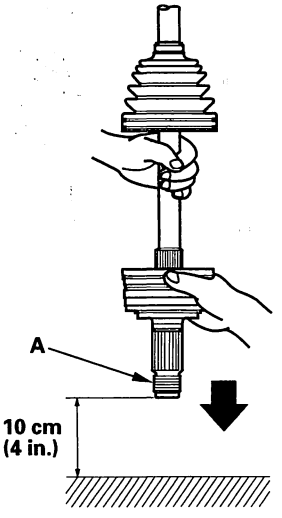
3. Install the new stop ring (A) in the driveshaft groove (B).



4. Pack about half of the grease included in the new outboard boot set into the driveshaft hole in the outboard joint. Insert the driveshaft (A) into the outboard joint (B) until the stop ring (C) is close to the joint.



5. To completely seat the outboard joint, pick up the driveshaft and joint, and tap or hit them from a height of about 10 cm (4 in.) onto a hard surface. Do not use a hammer as excessive force may damage the driveshaft. Be careful not to damage the threaded section (A) of the outboard joint.



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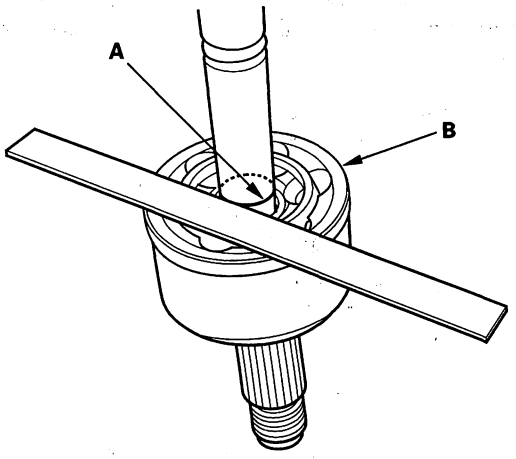
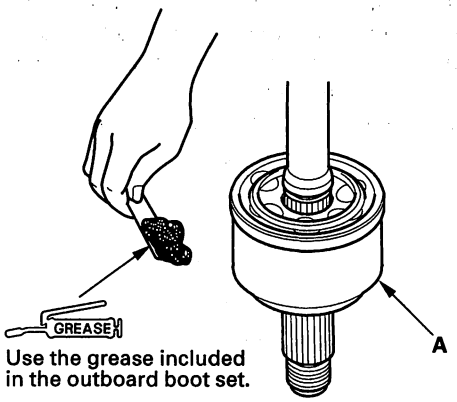
Front Driveshaft Reassembly (cont'd)

6. Check the alignment of the paint mark (A) you made with the outboard joint end (B).



7. Pack the outboard joint (A) with the remaining joint grease included in the new outboard boot set.

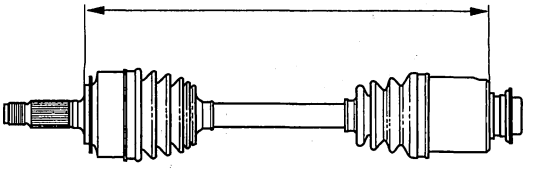
Grease quantity (total)
Outboard joint: 115—135 g (4.0—4.7 oz)



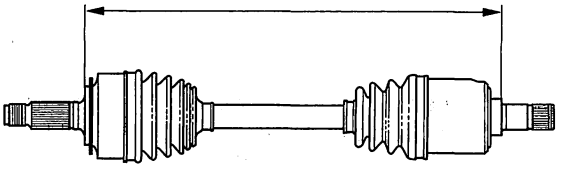
Use the grease included in the outboard boot set.

8. Adjust the length of the driveshafts to the figure below, then adjust the boots to halfway between full compression and full extension. Make sure the ends of the boots seat in the groove of the driveshaft and joint. Doing this prevents a vacuum or too much air in the boot, preventing it from compressing or extending properly.

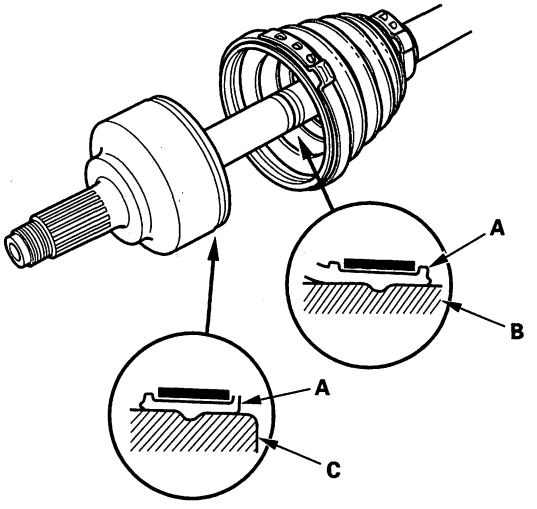
Right driveshaft: 570—575 mm (22.44—22.64 in.)



Left driveshaft: 571—576 mm (22.48—22.68 in.)



9. Fit the boot (A) ends onto the driveshaft (B) and outboard joint (C).



10. Install the new ear clamp band onto the boot (see page 16-11).

11. Repeat step 10 for the band on the other end of the boot.

BACK

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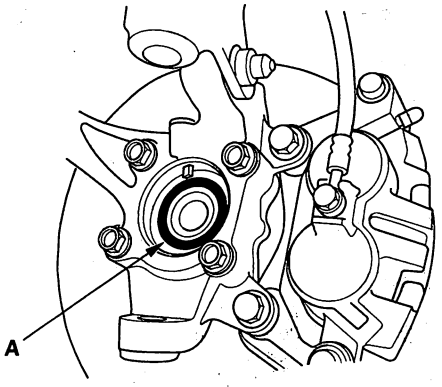
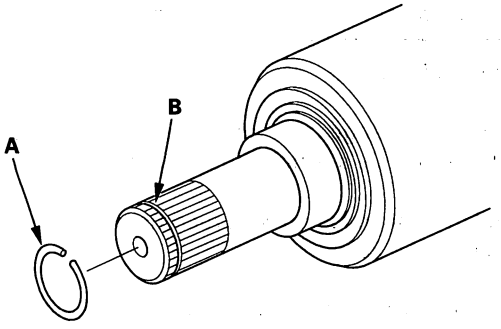
Front Driveshaft Installation

1. Apply grease to the contact area (A) of the outboard joint and front wheel bearing.

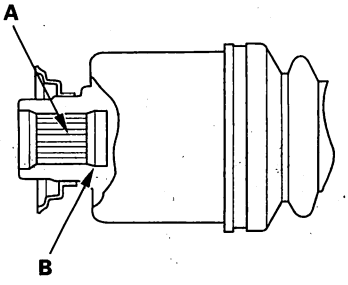
   NOTE: Failing to apply grease may cause excessive noise and vibration.



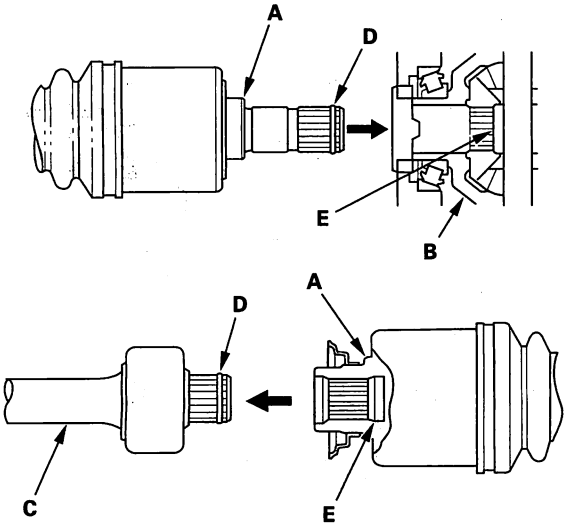
2. Install a new set ring (A) in the set ring groove (B) of the driveshaft (left driveshaft).



3. Apply 2.0—3.0 g (0.07—0.10 oz) of grease to the entire splined surface (A) of the right driveshaft. After applying grease, remove the grease from the splined grooves at intervals of 2—3 splines and from the set ring groove (B) so that air can bleed from the intermediate shaft.



4. Clean the areas where the driveshaft contacts the differential thoroughly with brake cleaner, and dry with compressed air. Do not wash the rubber parts with solvent. Insert the inboard end (A) of the driveshaft into the differential (B) or intermediate shaft (C) until the set ring (D) locks in the groove (E).



(cont'd)

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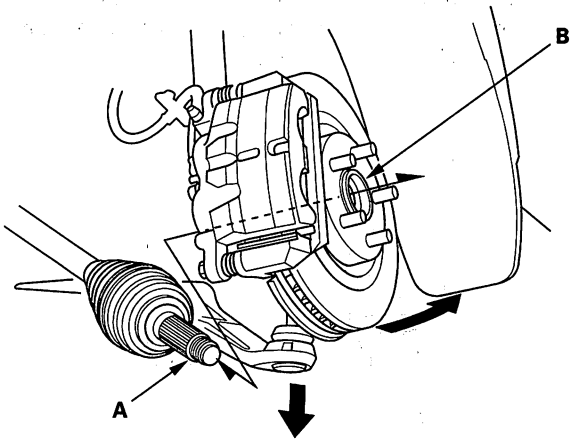
Front Driveshaft Installation (cont'd)

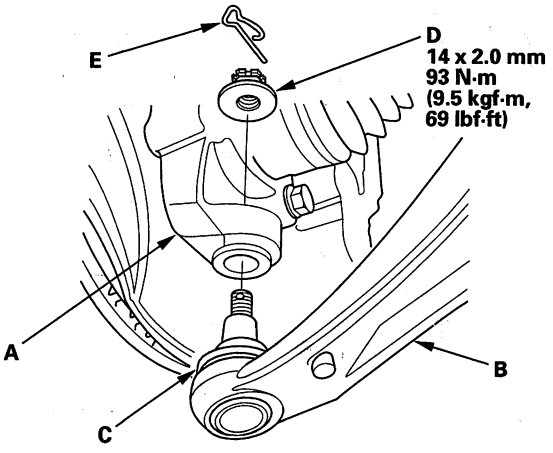
5. Install the splash shield (see step 32 on page 5-17).

6. Install the outboard joint (A) into the front hub (B).



7. Install the knuckle (A) onto the lower arm (B). Be careful not to damage the ball joint boot (C). Wipe off the grease before tightening the nut at the ball joint. Torque the new castle nut (D) to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the nut by loosening it.

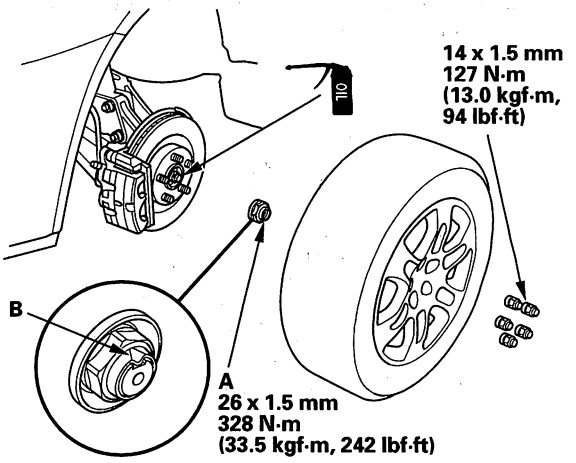
   NOTE: Make sure the ball joint boot is not damaged or cracked.



8. Install the new lock pin (E) into the pin hole as shown.

9. Install the suspension stroke sensor (with active damper system) (see page 22-229).

10. Install a new spindle nut (A), then tighten the nut. After tightening, use a drift to stake the spindle nut shoulder (B) against the driveshaft.



11. Clean the mating surfaces of the brake disc and the front wheel, then install the front wheel with the wheel nuts.

12. Turn the front wheel by hand, and make sure there is no interference between the driveshaft and surrounding parts.

13. Tighten the flange bolts and the self-locking nut with the vehicle's weight on the damper.

14. Refill the transmission with recommended fluid (see page 14-266).

15. Check the front wheel alignment, and adjust it if necessary (see page 18-5).

BACK

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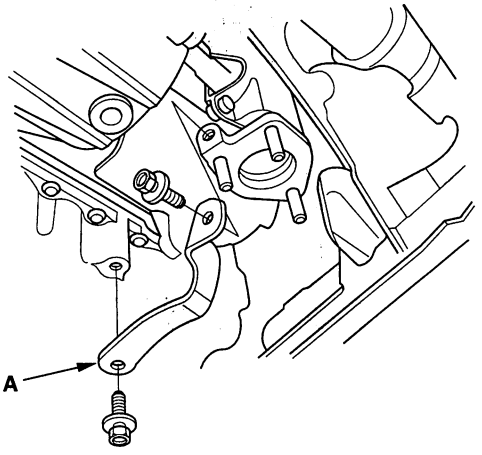
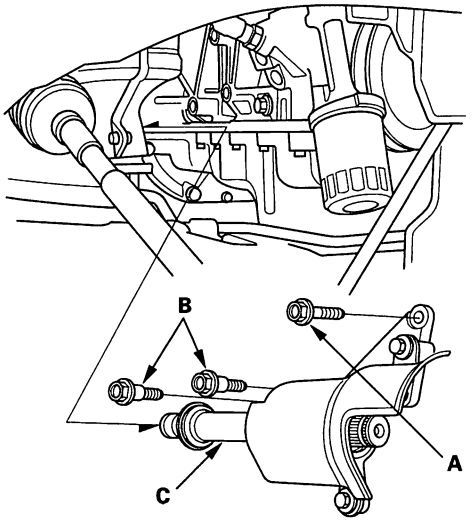
Intermediate Shaft Removal

1. Drain the transmission fluid (see page 14-266).
2. Remove the right driveshaft (see page 16-4).
3. Remove the exhaust pipe A (see step 7 on page 14-270).
4. Remove the exhaust pipe bracket (A).



5. Remove the flange bolt (A), and two dowel bolts (B).

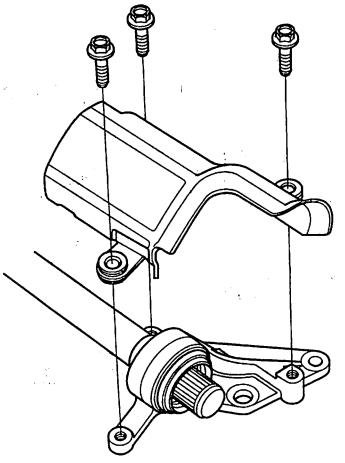


6. Remove the intermediate shaft (C) from the differential. Hold the intermediate shaft horizontally until it is clear of the differential to prevent damaging to the differential oil seal.

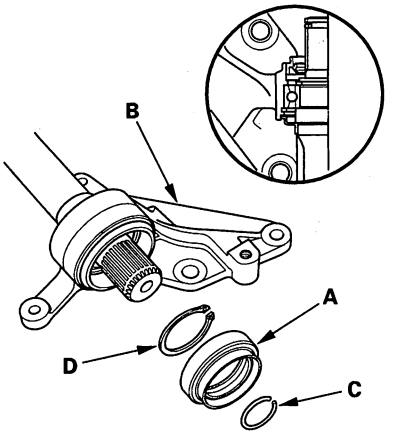
Intermediate Shaft Disassembly

Special Tools Required
- Driver 07749-0010000
- Support base attachment 07LAF-SM40300
- Support base 07965-SD90100
- Attachment, 42 x 47 mm 07746-0010300

1. Remove the heat shield.



2. Remove the intermediate shaft outer seal (A) from the bearing support (B).



3. Remove the set ring (C) and external snap ring (D).

(cont'd)

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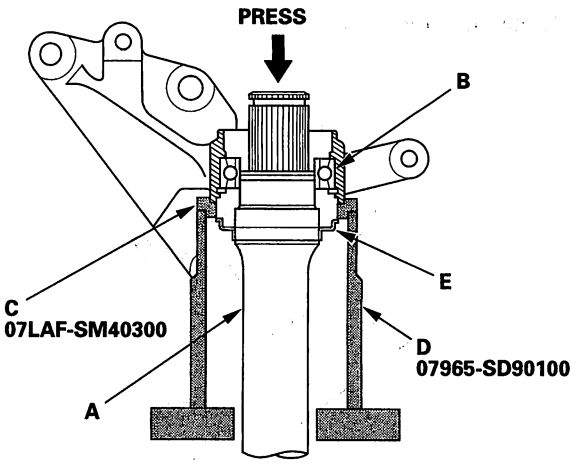
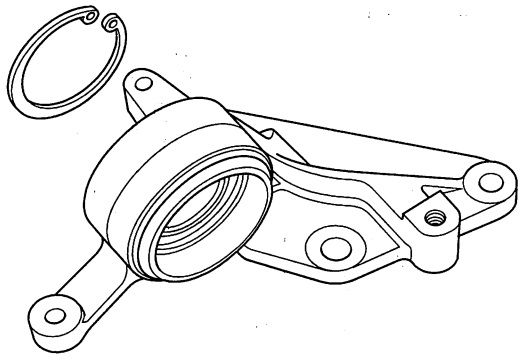
Intermediate Shaft Disassembly (cont'd)

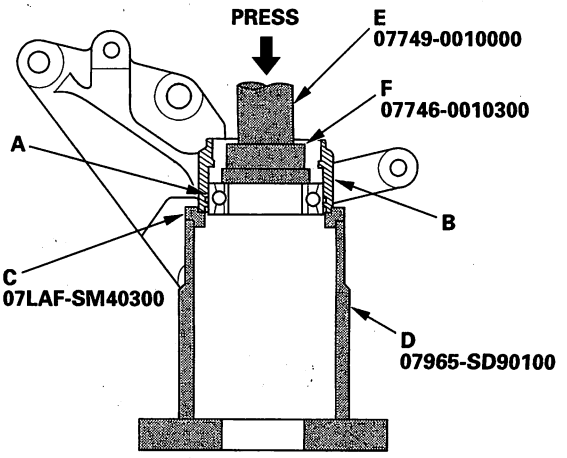
4. Press the intermediate shaft (A) out of the intermediate shaft bearing (B) using the support base attachment (C), support base (D) and a press. Be careful not to damage the bearing support ring (E) on the intermediate shaft during disassembly.



5. Remove the internal snap ring.



6. Press the intermediate shaft bearing (A) out of the bearing support (B) using the support base attachment (C), support base (D), driver (E), attachment (F) and a press.



BACK

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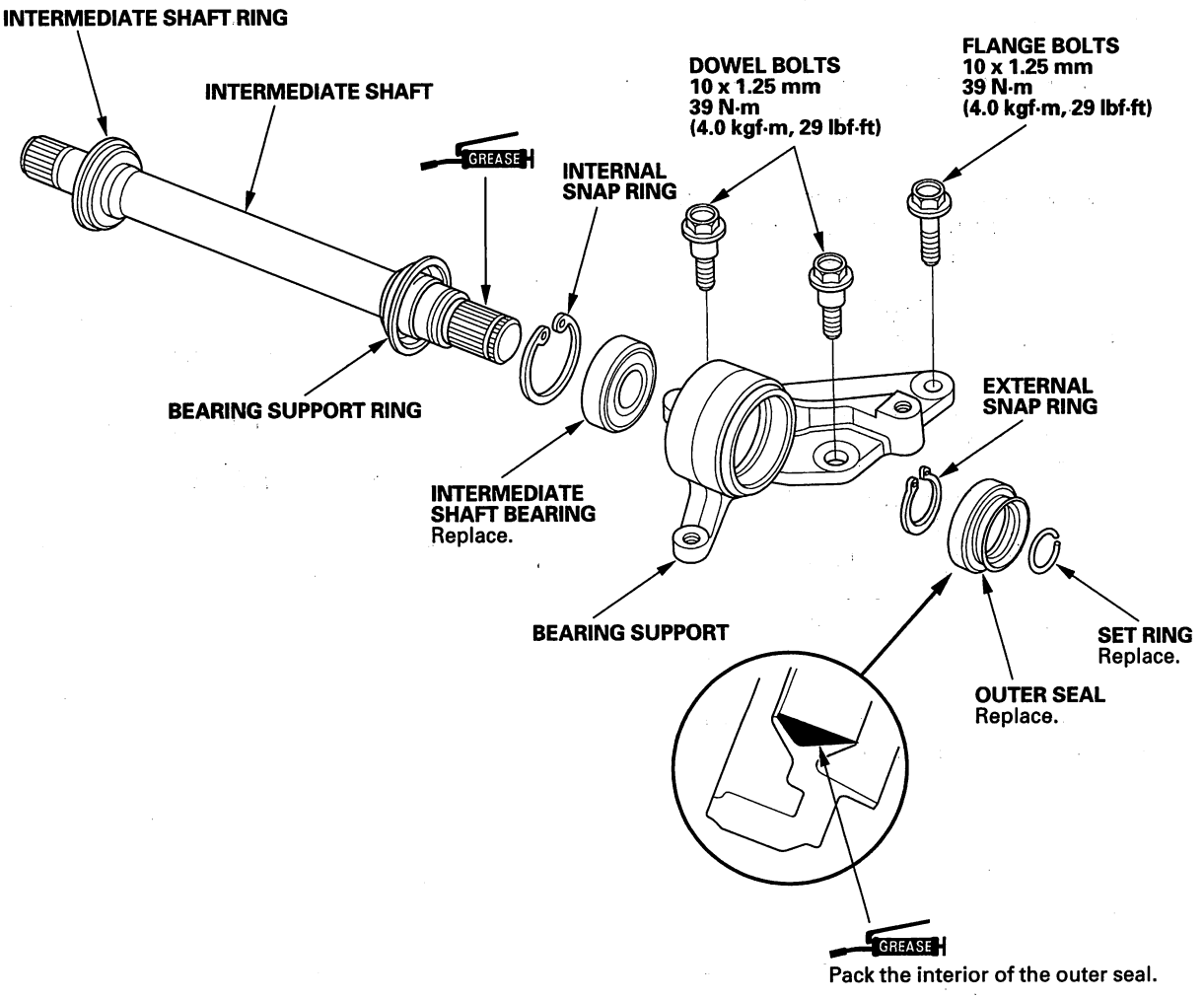
Intermediate Shaft Reassembly

Exploded View



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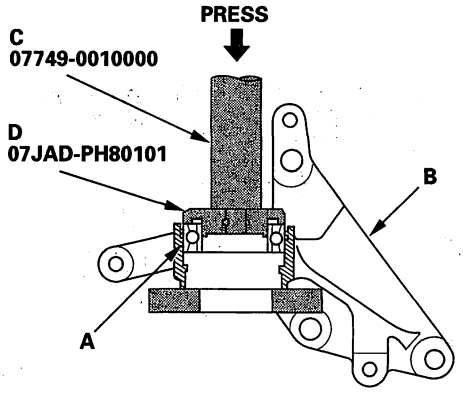
Intermediate Shaft Reassembly (cont'd)

Special Tools Required
- Driver 07749-0010000
- Support base attachment 07LAF-SM40300
- Support base 07965-SD90100
- Oil seal driver attachment 07JAD-PH80101
- Fork seal driver, 39.2 x 49.5 x 15 mm 07947-4630100

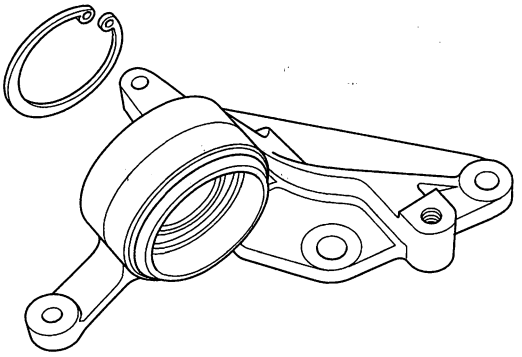
NOTE: Refer to the Exploded View as needed during this procedure.

1. Clean the disassembled parts with solvent, and dry them with compressed air. Do not wash the rubber parts with solvent.

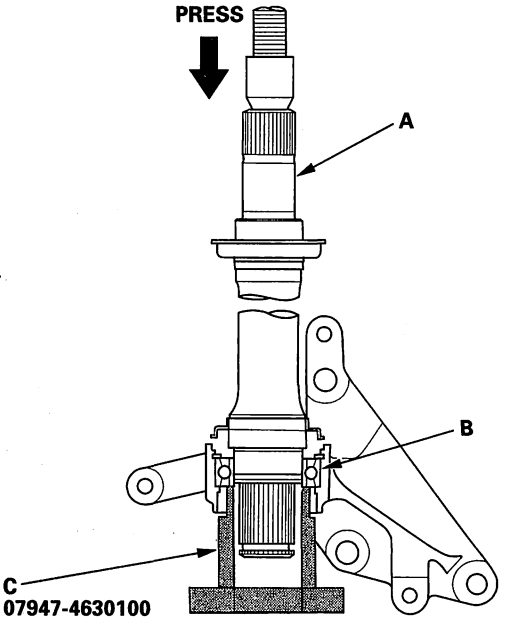
2. Press the intermediate shaft bearing (A) into the bearing support (B) using the driver (C), oil seal driver attachment (D) and a press.



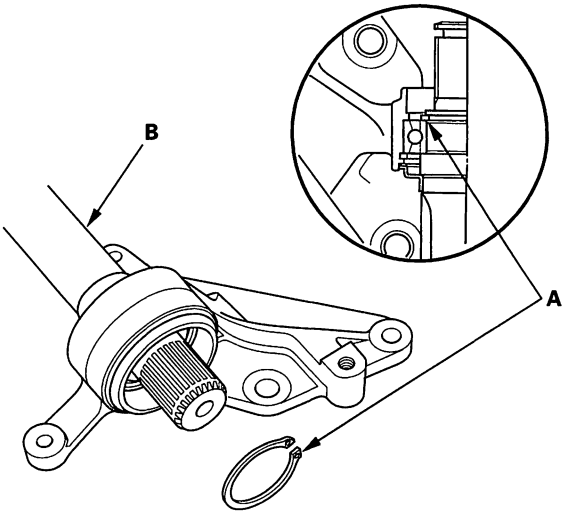
3. Install, then seat the internal snap ring in the groove of the bearing support.



4. Press the intermediate shaft (A) into the shaft bearing (B) using the fork seal driver (C) and a press.



5. Install, then seat the external snap ring (A) in the groove of the intermediate shaft (B).



BACK

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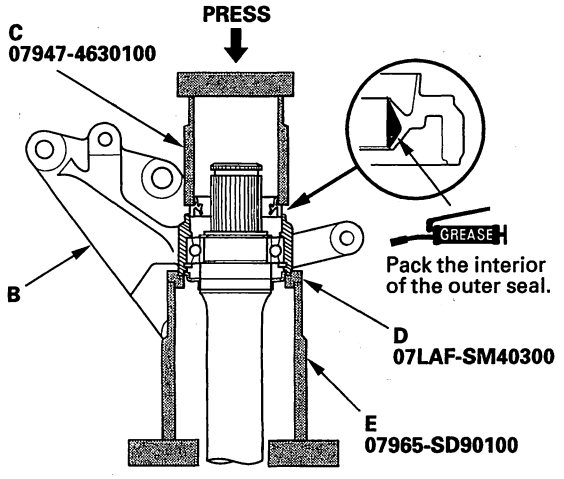
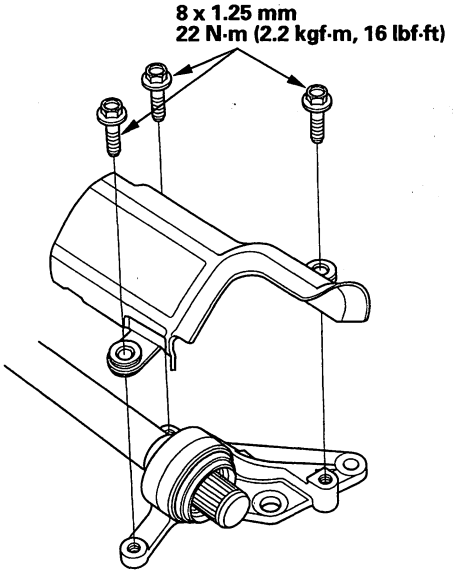
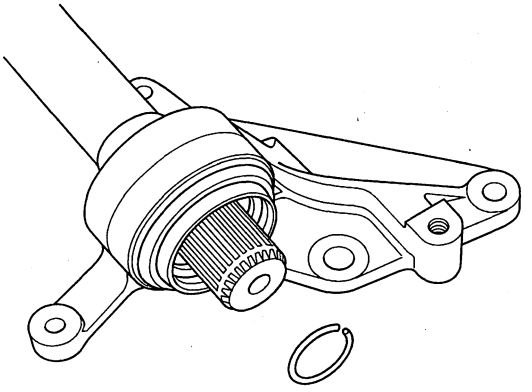
6. Install the outer seal (A) into the bearing support (B) using the fork seal driver (C), support base attachment (D), support base (E) and a press.



7. Install the heat shield onto the bearing support.



8. Install the set ring.



BACK

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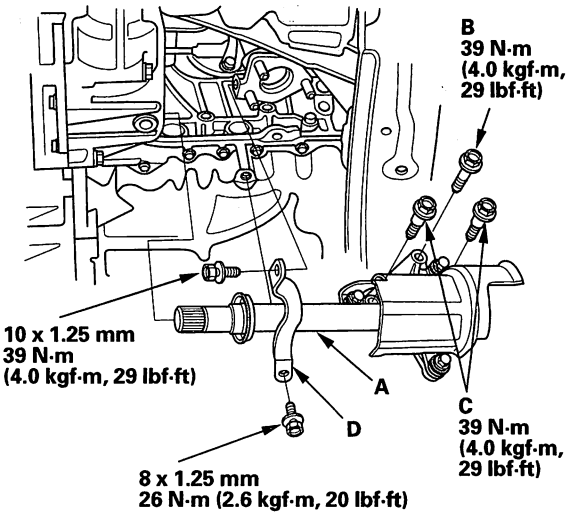
Intermediate Shaft Installation

1. Use solvent or brake cleaner to thoroughly clean the areas where the intermediate shaft (A) contacts the transmission (differential) and dry with compressed air. Insert the intermediate shaft assembly into the differential. Hold the intermediate shaft horizontally to prevent damage to the differential oil seal.

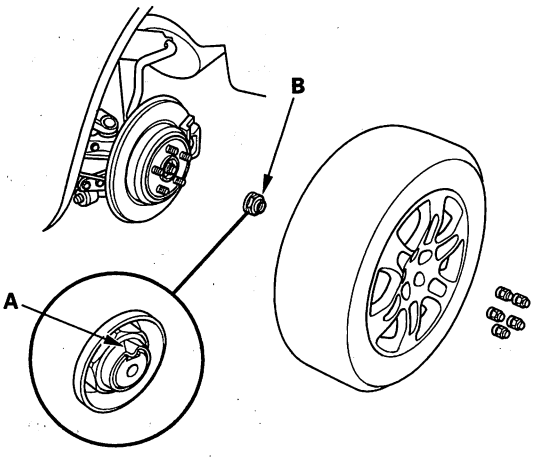


2. Install the flange bolt (B), two dowel bolts (C), and exhaust pipe bracket (D).
3. Install the exhaust pipe A (see step 5 on page 14-273).
4. Install the right driveshaft (see page 16-19).
5. Refill the transmission with recommended fluid (see page 14-266).

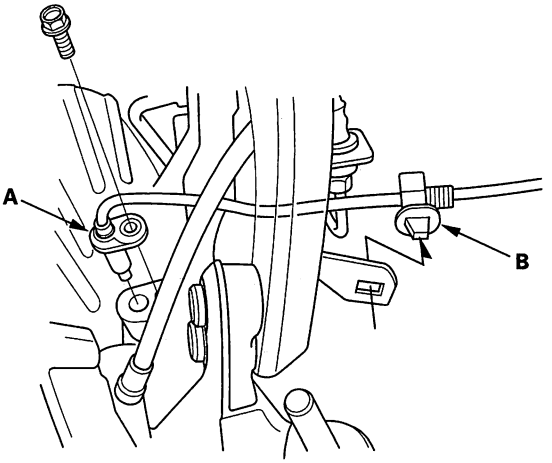
Rear Driveshaft Removal

Special Tools Required
- Driveshaft remover 07AAD-S3VA000
- Ball joint remover, 28 mm 07MAC-SL0A202

1. Raise the vehicle on a lift, and remove the rear wheels.
2. Lift up the locking tab (A) on the spindle nut (B), then remove and discard the nut.



3. Remove the VSA rear wheel sensor (A) and harness clip (B).



BACK

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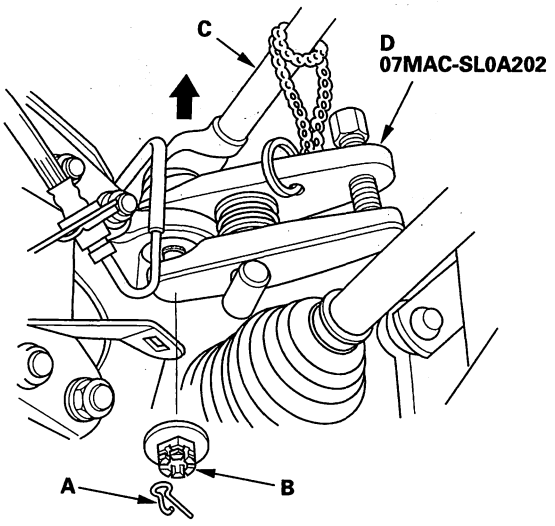
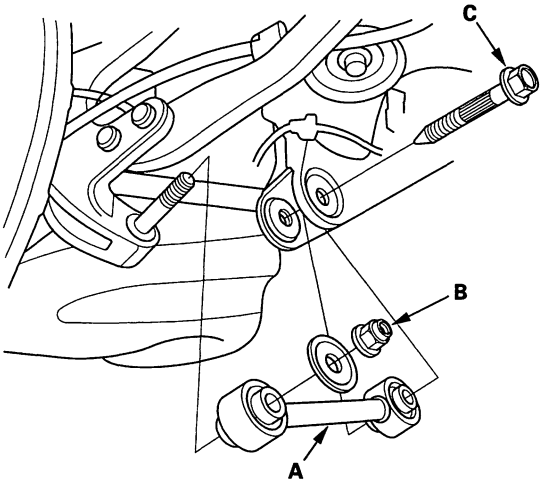
4. Remove the lock pin (A) from the upper arm ball joint castle nut (B), and remove the nut.

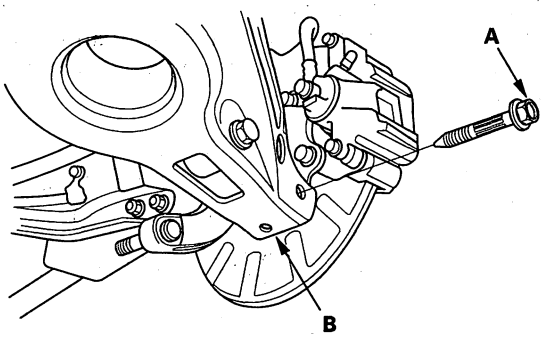


5. Separate the ball joint from the upper arm (C) with the ball joint remover (D) (see page 18-11).

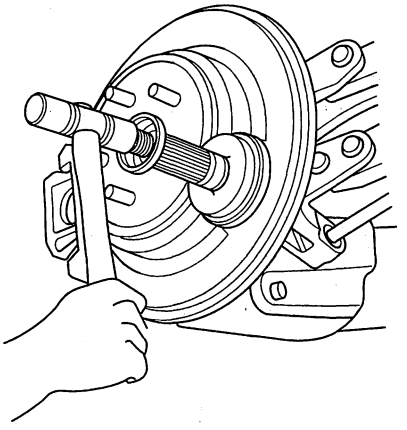
6. Remove the special self-locking nut (B), washer and flange bolt (C), then remove the lower arm A.



7. Place a transmission jack under lower arm B and remove the flange bolt (A).



8. While pulling the knuckle outward, use a plastic hammer to lightly tap on the rear driveshaft outboard joint disconnecting it from the rear wheel hub.



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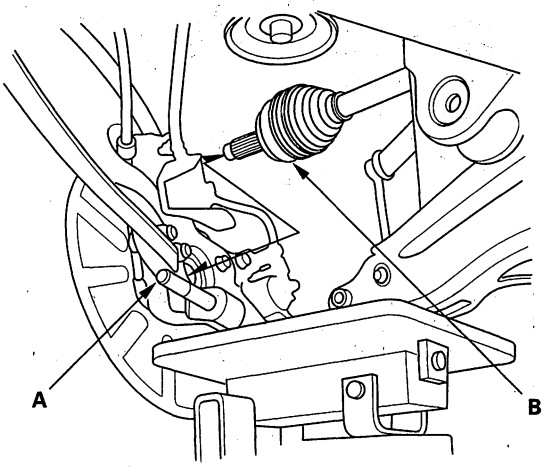
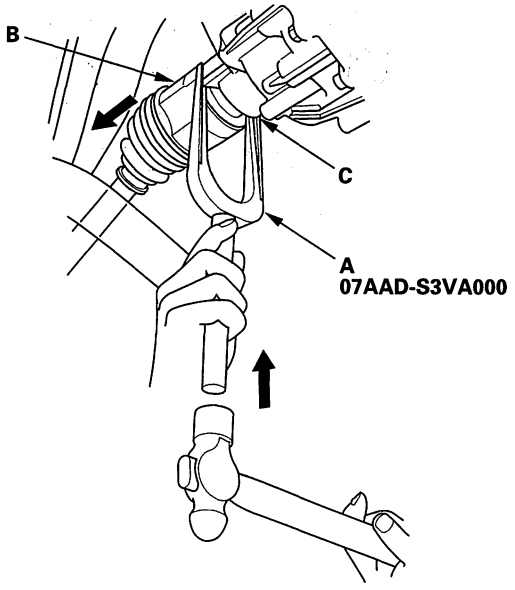
Rear Driveshaft Removal (cont'd)

9. Pull the knuckle (A) outward, then remove the rear driveshaft outboard joint (B).

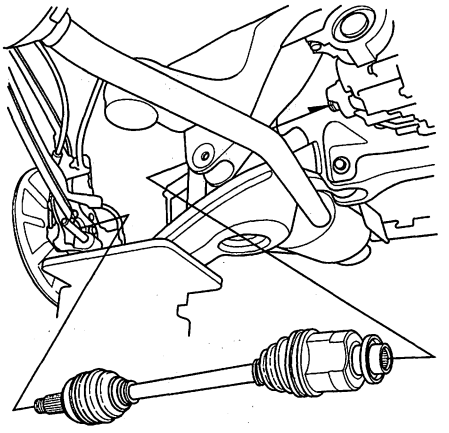
   NOTE: When removing the outboard joint, continue supporting both the knuckle and lower arm with the transmission jack. Make sure not to over extend the brake hose.



10. Using the driveshaft remover (A) and the hammer, pry out the inboard joint (B) from the rear differential (C).



11. Remove the rear driveshaft.



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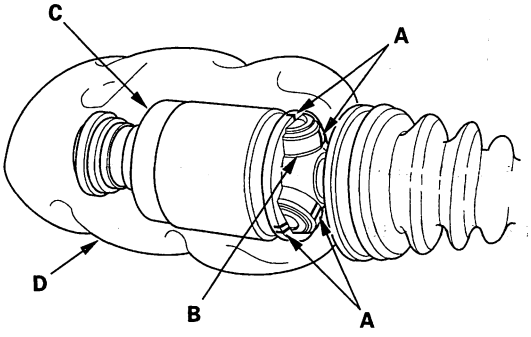
Rear Driveshaft Disassembly

Special Tools Required
Threaded adapter, 24 x 1.5 mm 07XAC-001020A

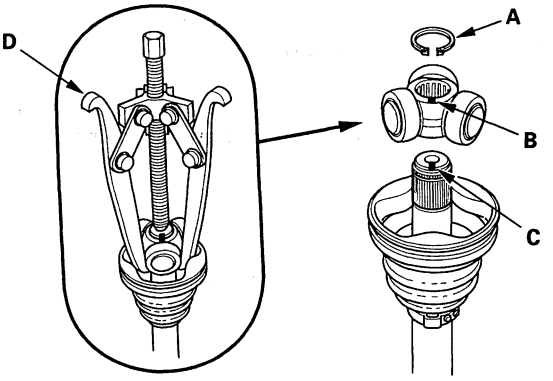
Inboard Joint Side

1. Remove the boot bands. Be careful not to damage the boot (see page 16-6).

2. Make a mark (A) on each roller (B) and inboard joint (C) to identify the locations of the rollers and the grooves in the inboard joint. Then remove the inboard joint and place it on a shop towel (D). Be careful not to drop the rollers when separating them from the inboard joint.



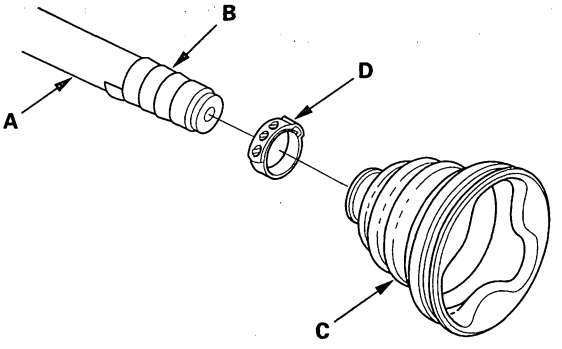
3. Remove the circlip (A).



4. Make a mark on the spider (B) and driveshaft (C) to identify the position of the spider on the shaft.

5. Remove the spider and rollers using a commercially available bearing remover (D).

6. Wrap the splines on the driveshaft (A) with vinyl tape (B) to prevent damaging to the boot.



7. Remove the inboard boot (C) and ear clamp type boot band (D). Be careful not to damage the boot (see page 16-6).

8. Remove the vinyl tape.

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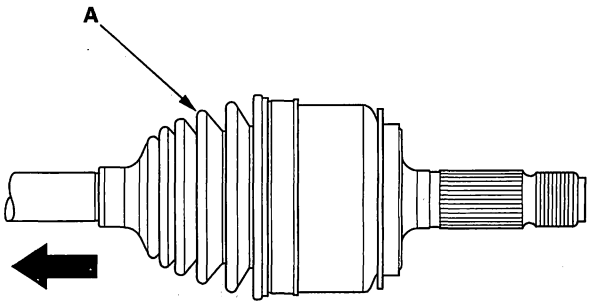
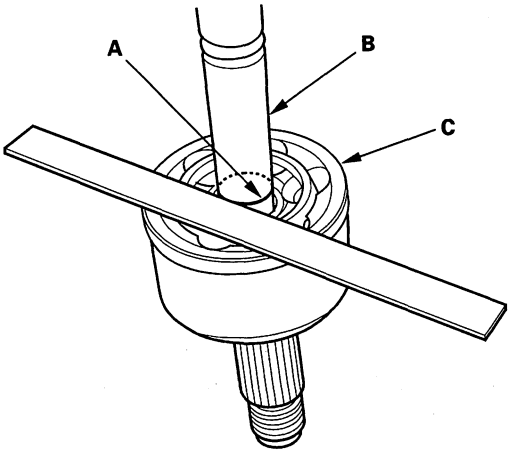
Rear Driveshaft Disassembly (cont'd)

Outboard Joint Side

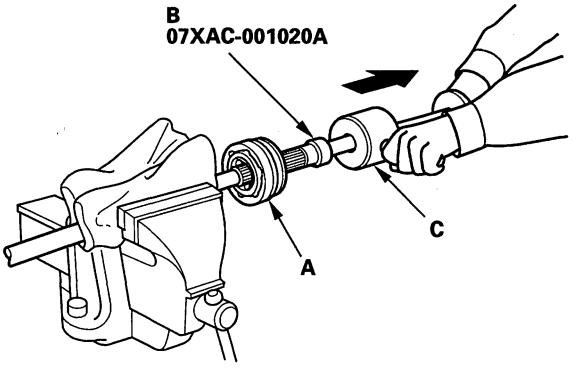
1. Remove the boot bands. Be careful not to damage the boot (see page 16-6).
2. Slide the outboard boot (A) partially to the inboard joint side. Be careful not to damage the boot.



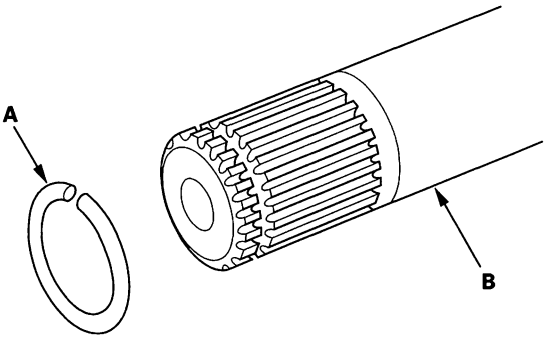
3. Wipe off the grease to expose the driveshaft and the outboard joint inner race.
4. Make a mark (A) on the driveshaft (B) at the same level as the outboard joint end (C).



5. Carefully clamp the driveshaft in a vise with a shop towel.
6. Remove the outboard joint (A) using the threaded adapter (B) and a commercially available 5/8"-18 UNF slide hammer (C).



7. Remove the driveshaft from the bench vise.
8. Remove the stop ring (A) from the driveshaft (B).



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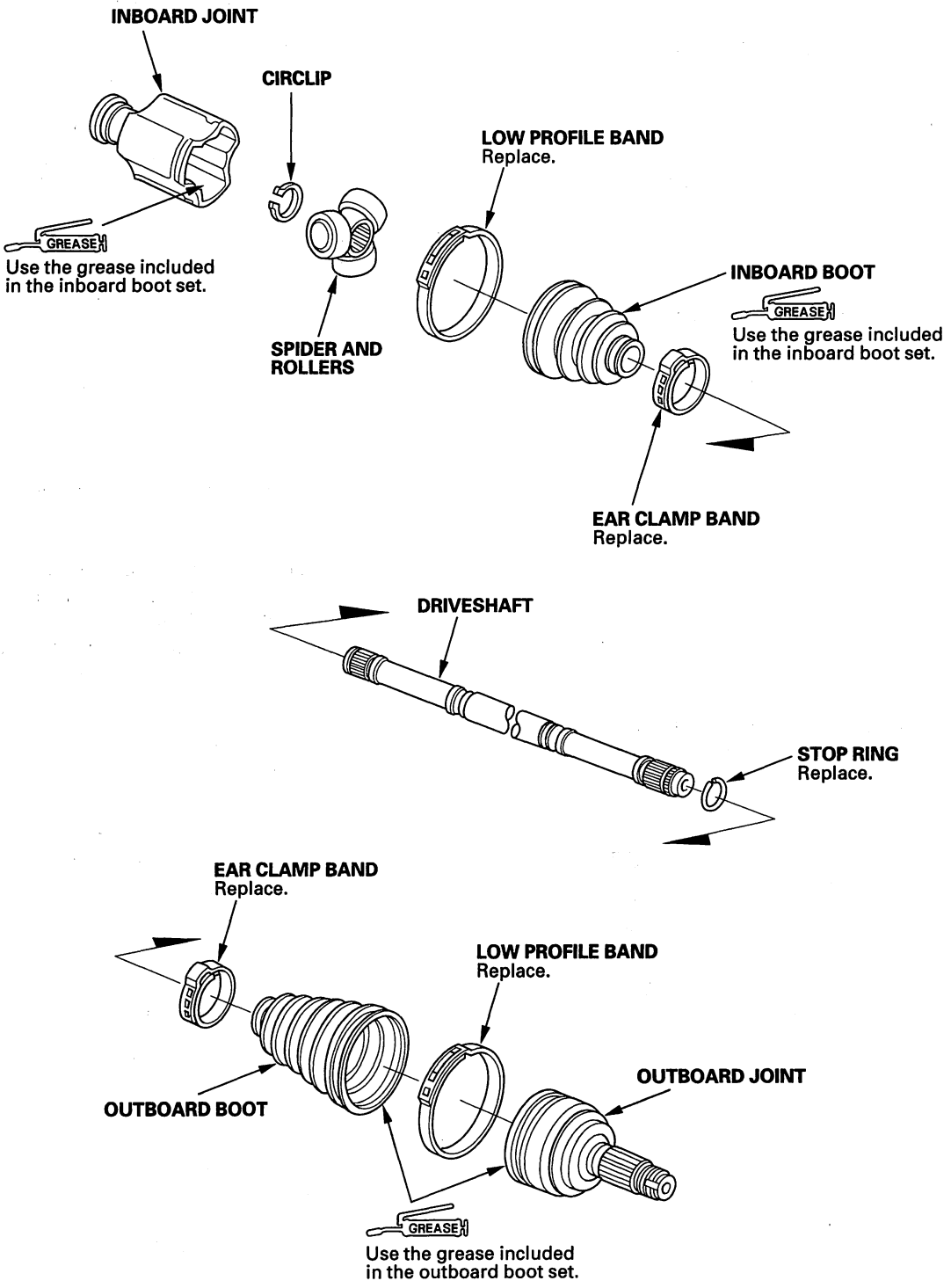
Rear Driveshaft Reassembly

Exploded View



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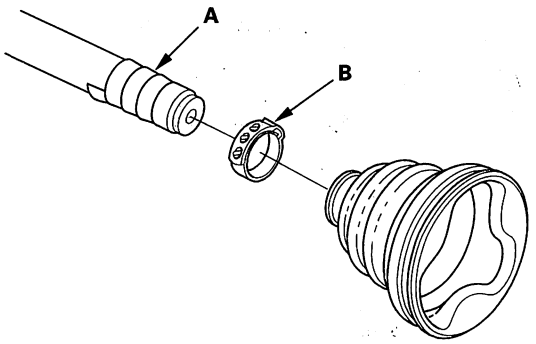
Rear Driveshaft Reassembly (cont'd)

Special Tools Required
Inner handle, 30 mm 07946-MB00000

NOTE: Refer to the Exploded View as needed during this procedure.

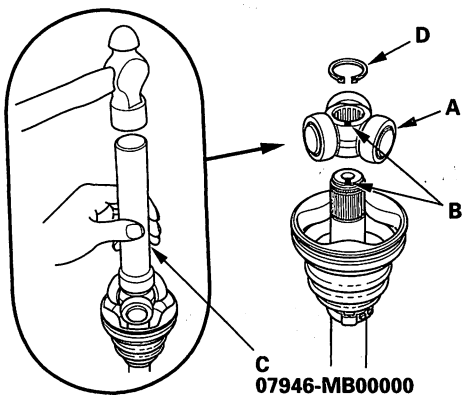
Inboard Joint Side

1. Wrap the splines with vinyl tape (A) to prevent damage to the inboard boot.



2. Install the new ear clamp bands (B) and inboard boot, then remove the vinyl tape. Be careful not to damage the inboard boot.

3. Install the spider and rollers (A) onto the driveshaft by aligning the marks (B) you made, install it using the inner handle (C).



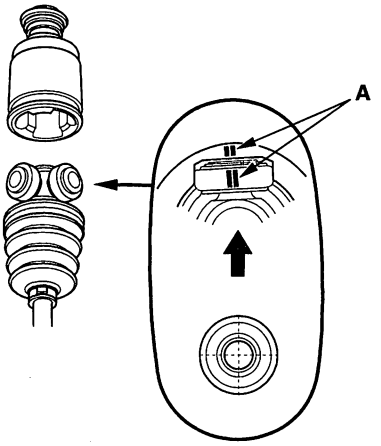
4. Install the circlip (D) into the driveshaft groove. Rotate the circlip in its groove to make sure it is fully seated.

5. Pack the inboard joint with the joint grease included in the new inboard boot set.

Grease quantity
Inboard joint: 120—140 g (4.2—4.9 oz)

6. Fit the inboard joint onto the driveshaft, and note these items:

   - Reinstall the inboard joint onto the driveshaft by aligning the marks (A) you made on the inboard joint and the rollers.
   - Hold the driveshaft so the inboard joint is pointing up to prevent it from falling off.



7. Fit the boot ends onto the driveshaft and the inboard joint, then install the new boot band onto the boot (see page 16-11).

8. Repeat step 8 for the band on the other end of the boot.

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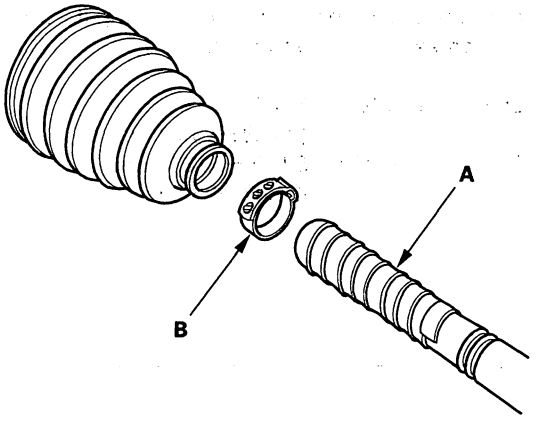
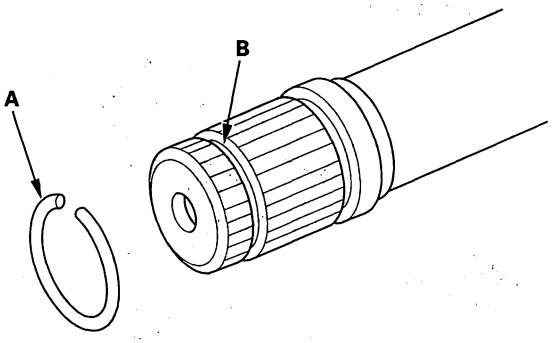
Outboard Joint Side

1. Wrap the splines with vinyl tape (A) to prevent damaging to the outboard boot.

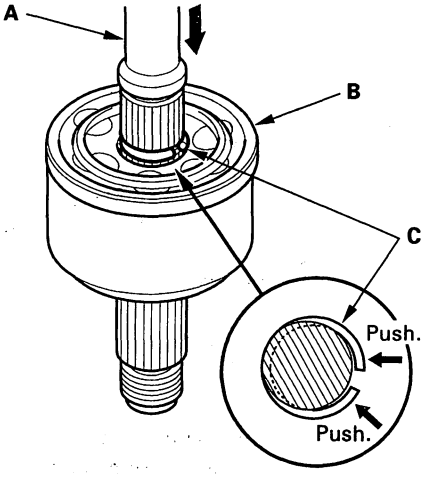


2. Install a new ear clamp band (B) and the outboard boot, then remove the vinyl tape. Be careful not to damage the outboard boot.

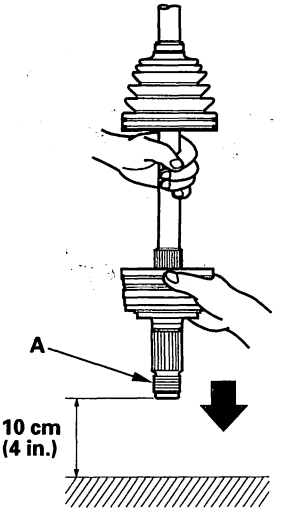
3. Install a new stop ring (A) in the driveshaft groove (B).



4. Pack about half of the grease included in the new joint boot set into the driveshaft hole in outboard joint. Insert the driveshaft (A) into the outboard joint (B) until the stop ring (C) is closed.



5. To completely seat the outboard joint, pick up the driveshaft and joint, and tap them on a hard surface. Do not use a hammer as excessive force may damage the driveshaft. Be careful not to damage the threaded section (A) of the outboard joint.



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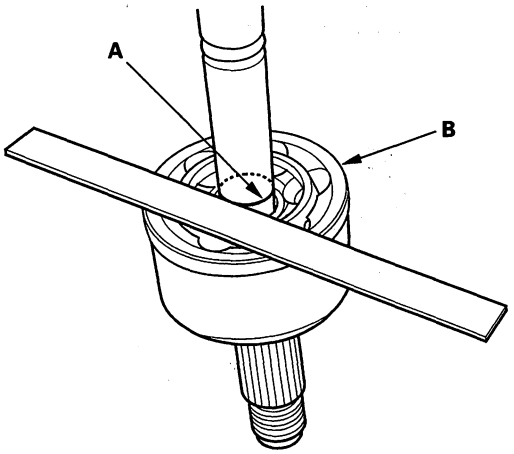
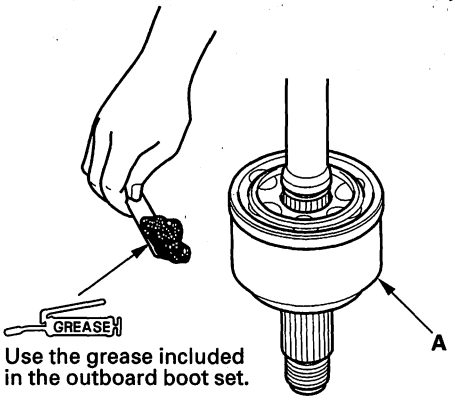
Rear Driveshaft Reassembly (cont'd)

6. Check the alignment of the paint mark (A) you made with the outboard joint end (B).



7. Pack the outboard joint (A) with the remaining joint grease included in the new outboard boot set.

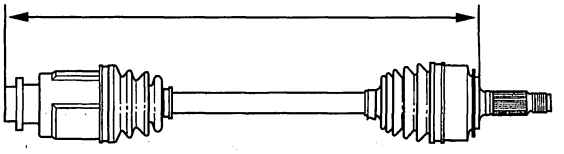
Grease quantity (total)
Outboard joint: 85—105 g (3.0—3.7 oz)



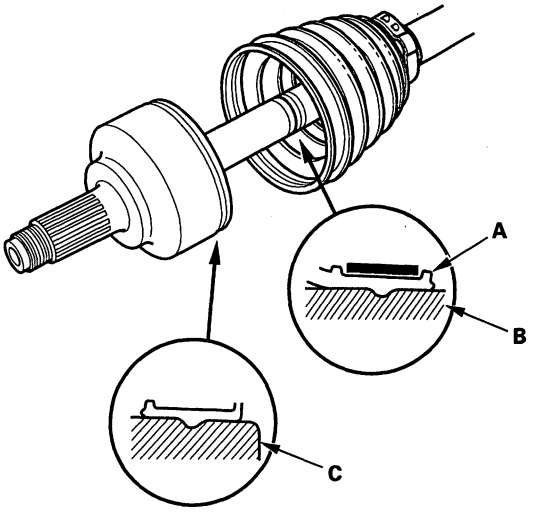
Use the grease included in the outboard boot set.

8. Adjust the length of the driveshafts to the figure as shown, then adjust the boots to halfway between full compression and full extension. Make sure the ends of the boots seat in the groove of the driveshaft and joint. Doing this prevents a vacuum or too much air in the boot, preventing it from compressing or extending properly.

Left driveshaft: 592.5—593.5 mm (23.33—23.37 in.)
Right driveshaft: 621.5—622.5 mm (24.47—24.51 in.)



9. Fit the boot (A) ends onto the driveshaft (B) and outboard joint (C).



10. Install the new low profile band and ear clamp band onto the boot (see page 16-11).

11. Install the boot band on the other end of the boot, and repeat step 10.

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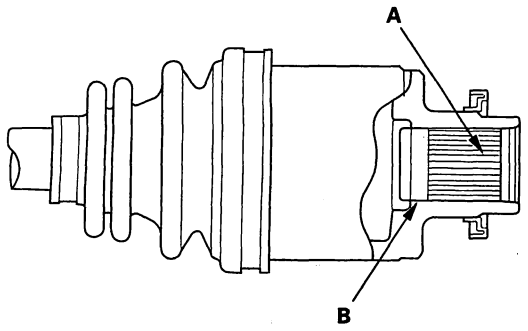
Rear Driveshaft Installation

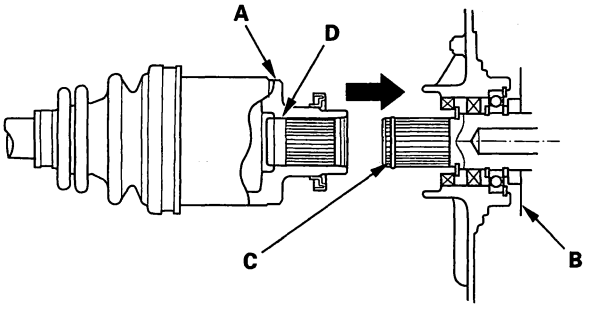
NOTE: Before starting installation, make sure the mating surfaces of the joint and the splined section are free from dirt or dust.

1. Apply 1.5—2.0 g (0.05—0.07 oz) of grease to the whole splined surface (A). After applying grease, remove the grease from the splined grooves at intervals of 2—3 splines and from the set ring groove (B) so that air can bleed from the differential.



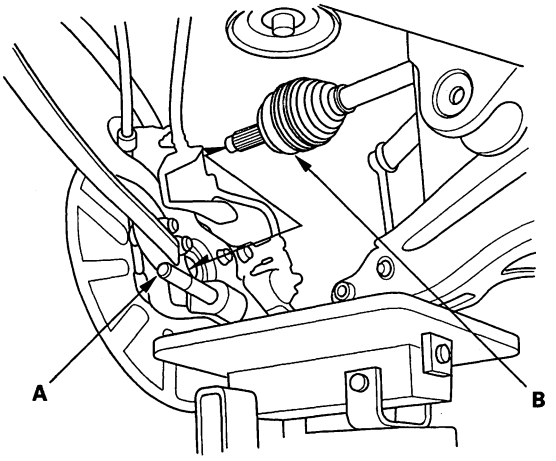
2. Seat a new set ring in the set ring groove of the differential.

3. Clean the areas where the driveshaft contacts the differential thoroughly with solvent or brake cleaner, and dry with compressed air. Insert the inboard end (A) of the driveshaft into the differential (B) until the set ring (C) locks in the groove (D).

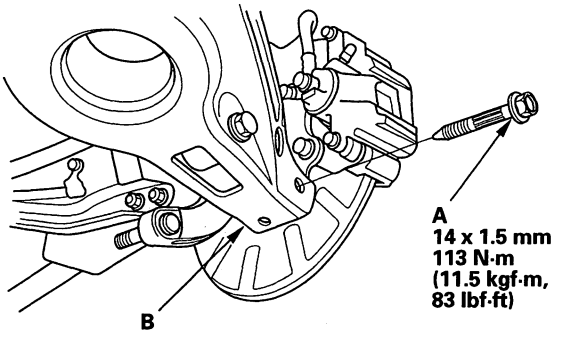


4. Pull the knuckle (A) outward, and install the rear driveshaft outboard joint (B) into the rear hub.

NOTE: When installing the outboard joint continue supporting both the knuckle and lower arm with the transmission jack. Make sure not to over extend the brake hose.



5. Install the flange bolt (A) onto lower arm (B).



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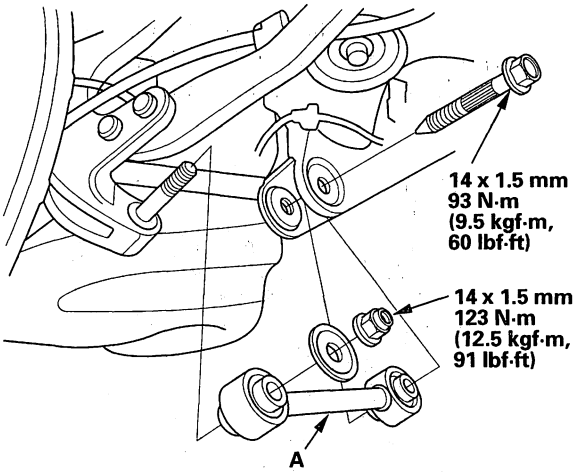
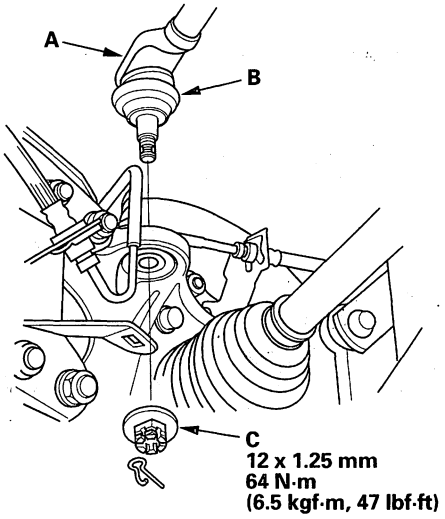
Rear Driveshaft Installation (cont'd)

6. Install the lower arm A.



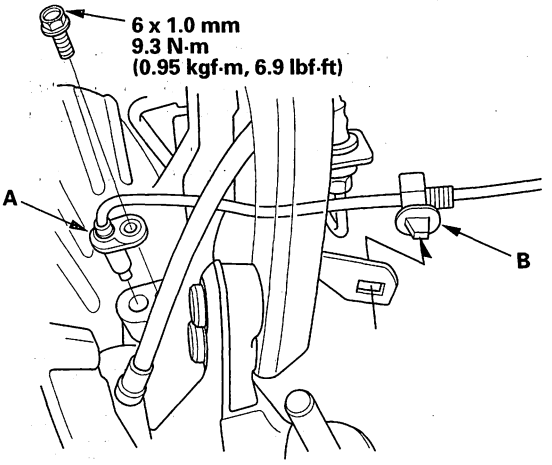
7. Install the upper arm (A). Be careful not to damage the ball joint boot (B). Wipe off the grease before tightening the nut at the ball joint.



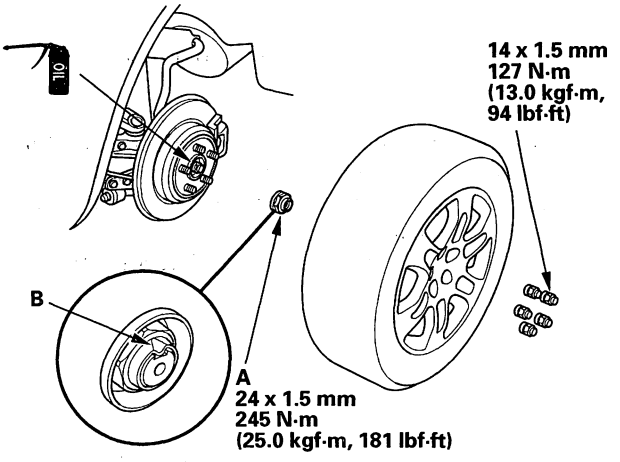
8. Torque the new castle nut (C) to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the nut by loosening it.

   NOTE: Make sure the ball joint boot is not damaged or cracked.

9. Install the VSA rear wheel sensor (A) and harness clip (B).



10. Install a new spindle nut (A), then tighten the nut. After tightening, use a drift to stake the spindle nut shoulder (B) against the driveshaft.



11. Clean the mating surfaces of the brake disc and the rear wheel, then install the rear wheel with the wheel nuts.

12. Turn the rear wheel by hand, and make sure there is no interference between the driveshaft and surrounding parts.

13. Check the rear wheel alignment, and adjust it if necessary (see page 18-5).

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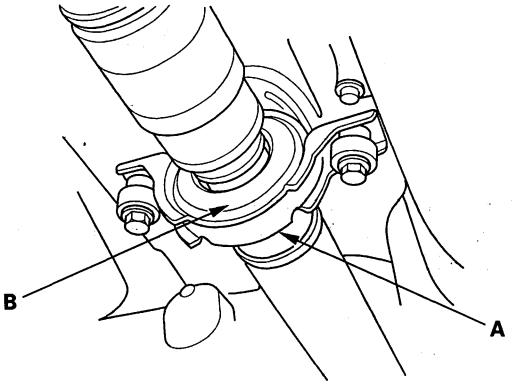
Propeller Shaft Inspection

Universal Joint and Boots

1. Shift the transmission to the N position.
2. Raise the vehicle on a lift (see page 1-7).
3. Check the center support bearing (A) for excessive play or rattle. If the center support has excessive play or rattle, replace the propeller shaft assembly.

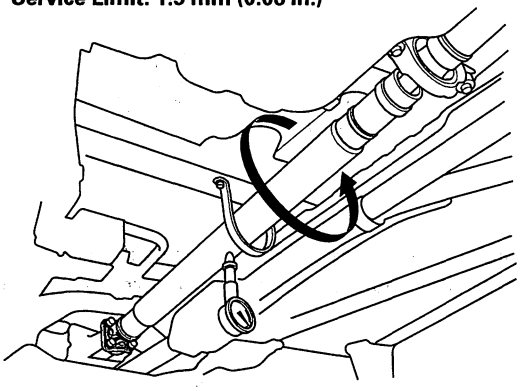


4. Check the rubber portion of the mount (B) for damage and deterioration. If the rubber portion is damaged or deteriorated, replace the propeller shaft assembly.
5. Check the universal joints for excessive play or rattle. If the universal joints have excessive play or rattle, replace the propeller shaft assembly.

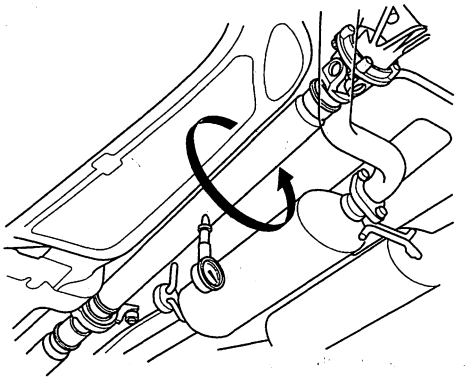
Propeller Shaft Runout

6. Install a dial indicator with its needle on the center of No. 1 propeller shaft or No. 2 propeller shaft.
7. Turn the other propeller shaft slowly and check the runout. Repeat this procedure for the other propeller shaft.

No. 1 Propeller Shaft Runout
Service Limit: 1.5 mm (0.06 in.)



No. 2 Propeller Shaft Runout
Service Limit: 1.5 mm (0.06 in.)



8. If the runout on either propeller shaft exceeds the service limit, replace the propeller shaft assembly.

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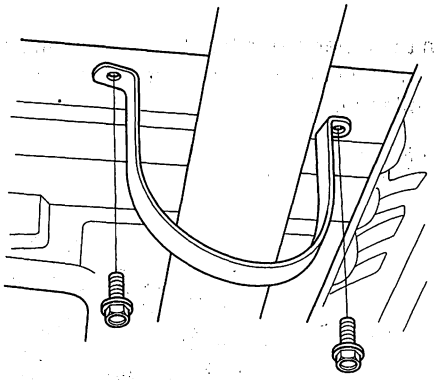
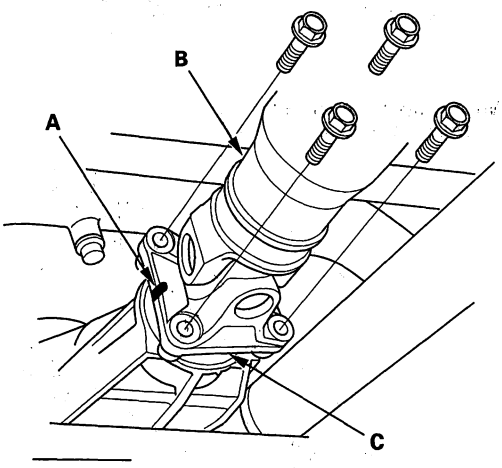
Propeller Shaft Removal

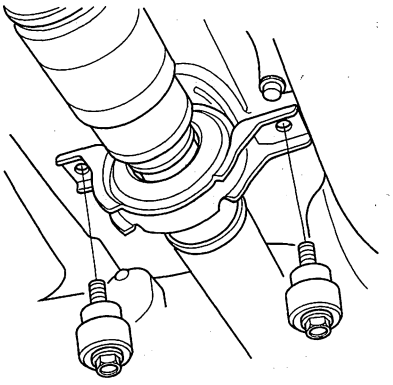
1. Raise the vehicle on a lift (see page 1-7).
2. Remove the propeller shaft protector.



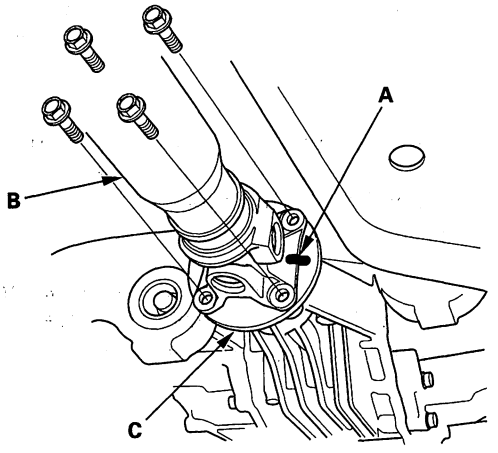
3. Make a reference mark (A) across the No. 1 propeller shaft (B) and transfer companion flange (C).



4. Separate the No. 1 propeller shaft from the transfer assembly.
5. Remove the center support bearing mounting bolts.



6. Make a reference mark (A) across the No. 2 propeller shaft (B) and rear differential companion flange (C).



7. Separate the No. 2 propeller shaft from the rear differential, then remove the propeller shaft.

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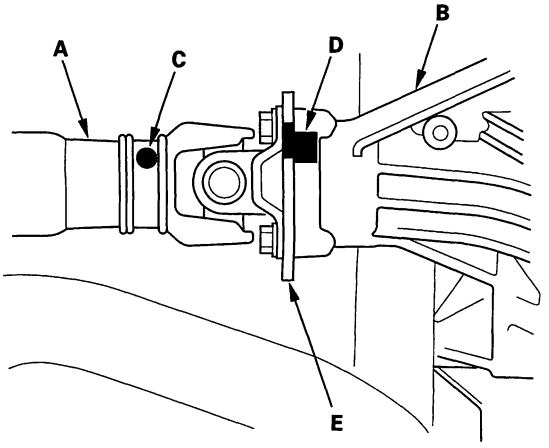
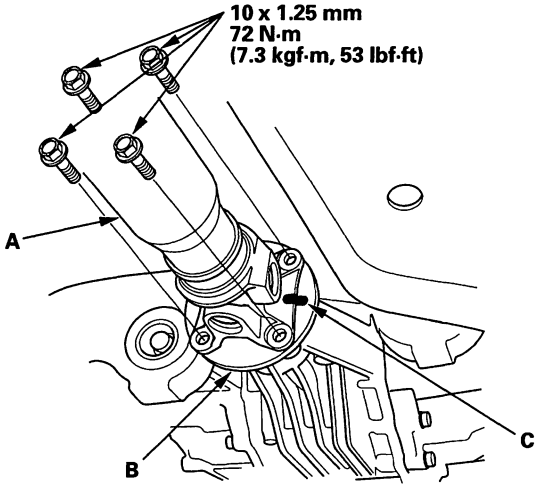
Propeller Shaft Installation

1. If you are installing a new propeller shaft, go to step 2.
   If you reinstalling the original propeller shaft, go to step 3.

2. Install the new propeller shaft (A) onto the rear differential (B), by aligning the reference mark (C) on the new propeller shaft with the factory reference mark (D) on the companion flange (E). Do not use the marks you made on the companion from the removal procedure. If there are no factory marks on the companion flange, go to step 4.

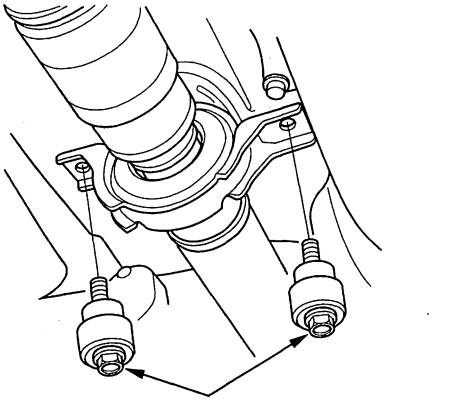


3. Reinstall the No. 2 propeller shaft (A) to the rear differential (B) by aligning the reference marks (C) you made during the removal procedure.

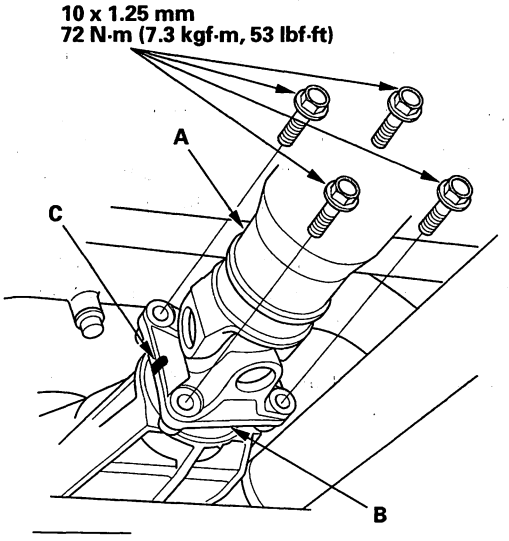


4. Attach the No. 2 propeller shaft to the rear differential with new mounting bolts. Tighten the bolt to the specified torque.

5. Install the center support bearing mounting bolts. Make sure you use new bolts.



6. Install the No. 1 propeller shaft (A) onto the transfer companion flange (B) by aligning the reference mark (C). Make sure you use new mounting bolts.



(cont'd)

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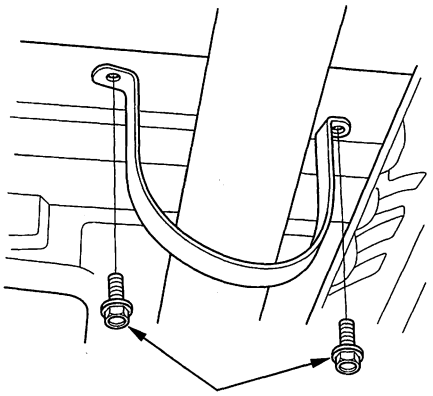
Propeller Shaft Installation (cont'd)

7. Install the propeller shaft protector.



8. If you installed a new propeller shaft, test drive the vehicle at 55 mph (88 kph) and check for noise or vibration.
   - If there is no noise or vibration, the repair is complete.
   - If there is a noise or vibration, go to step 9.
9. Remove the mounting bolts from the propeller shaft at the rear differential companion flange. Note the current alignment of the propeller shaft to rear differential companion flange.
10. Rotate the propeller shaft 180 degrees from its current alignment with the rear differential companion flange.
11. Install new mounting bolts and tighten them to the specified torque.

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Steering

Power Steering

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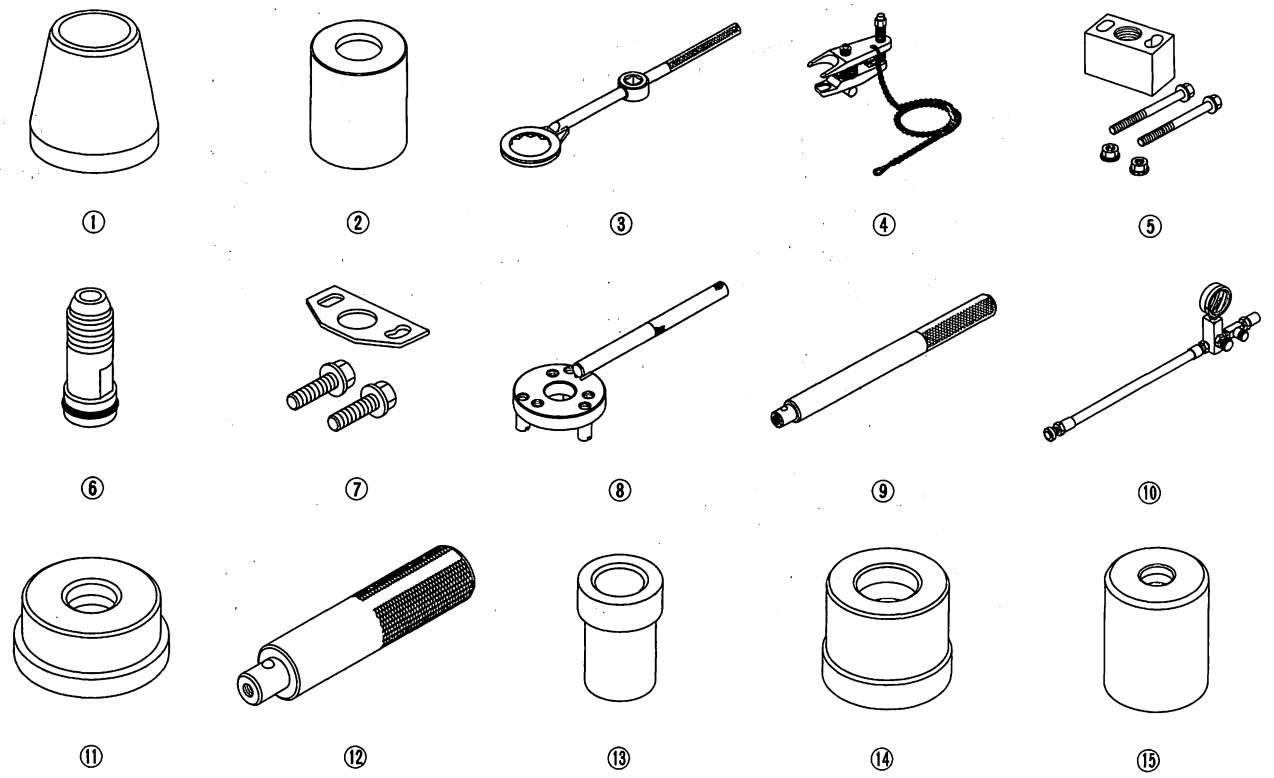
Power Steering

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07LAG-SM40100	Piston Seal Ring Guide	1
②	07LAG-SM40200	Piston Seal Ring Sizing Tool	1
③	07MAA-SL00200	Locknut Wrench, 43 mm	1
④	07MAC-SL0A202	Ball Joint Remover, 28 mm	1
⑤	07RAK-S040122	P/S Joint Adapter (Hose)	1
⑥	07VAK-P8A011A	P/S Joint Adapter (Pump)	1
⑦	07VAK-P8A012B	P/S Joint Adapter Plate (Pump)	1
⑧	07ZAB-S5A0100	Pulley Holder	1
⑨	070GD-0010100	Driver Handle, 480 mm	1
⑩	07406-0010001 or 07406-001000A or 07406-001A101	P/S Pressure Gauge	1
⑪	07746-0010300	Attachment, 42 x 47 mm	1
⑫	07749-0010000	Driver	1
⑬	07946-MJ00201	Driver Head	1
⑭	07946-1870100	Attachment, 28 x 30 mm	1
⑮	07965-SA50500	Front Hub Dis/assembly Tool	1



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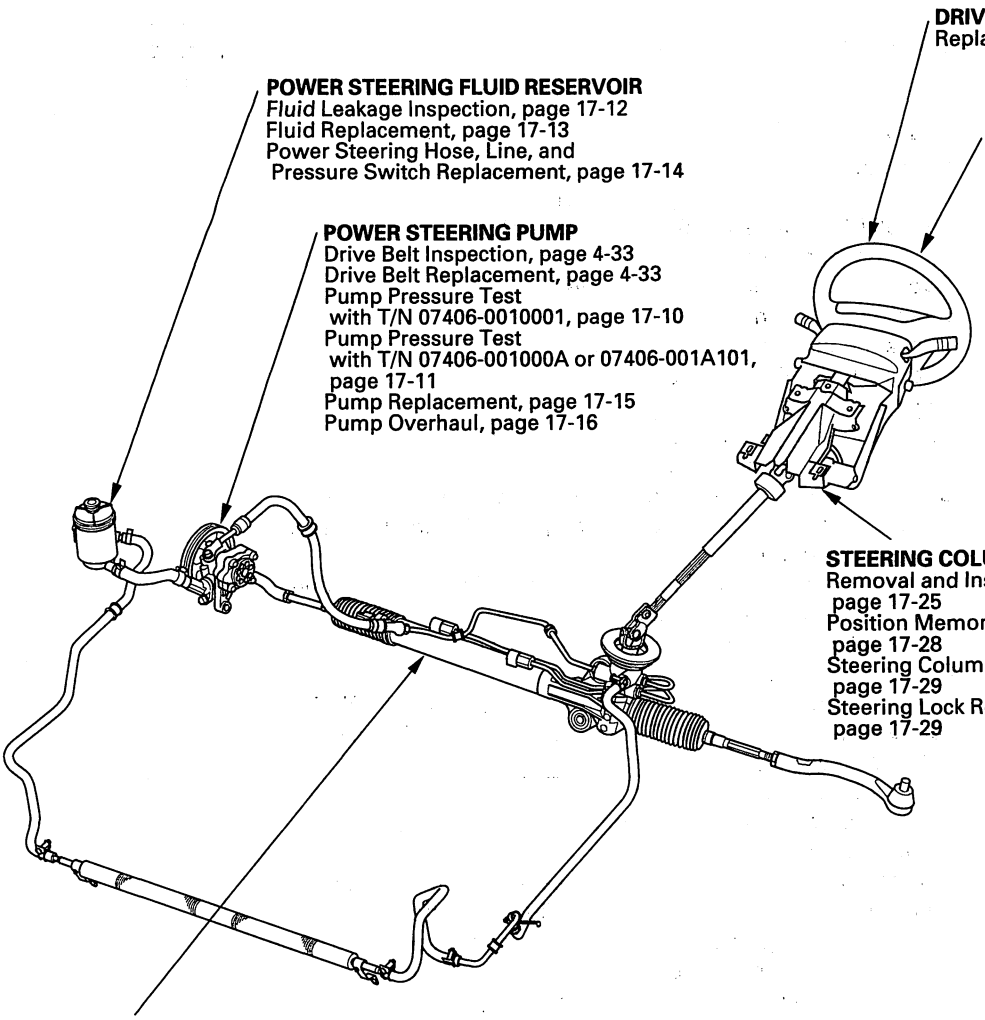
Component Location Index



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Symptom Troubleshooting Index

Find the symptom in the chart below, and do the related procedures in the order listed until you find the cause.

Symptom	Procedure(s)	Also check for
Hard steering	Troubleshoot the system (see page 17-6).	• Modified suspension • Damaged suspension • Tire sizes, tire varieties, and air pressure
Assist (excessively light steering at high speed)	Check the rack guide adjustment (see page 17-30).	Front wheel alignment (see page 18-5)
Shock or vibration when the steering wheel is turned to full lock	1. Check the rack guide adjustment (see page 17-30). 2. Check the drive belt for slippage (see page 4-33). 3. Check the power steering pump fluid pressure with T/N 07406-0010001 (see page 17-10), T/N 07406-001000A or T/N 07406-001A101 (see page 17-11). 4. Overhaul the steering gearbox (see page 17-39).	
Steering wheel will not return smoothly	1. Check cylinder lines for deformation. 2. Check the ball joints for binding. 3. Check wheel alignment (see page 18-5). 4. Overhaul the steering gearbox (see step 2 on page 17-40).	
Uneven or rough steering	1. Check the rack guide adjustment (see page 17-30). 2. Check the drive belt (see page 4-33). 3. Check for low or erratic engine idle speed (see page 11-310). 4. Check for air in the power steering system due to air entering inlet side of pump. 5. Check for low fluid level in the power steering reservoir due to possible leaks in system (see page 17-14). 6. Overhaul the steering gearbox (see step 2 on page 17-40).	
Steering wheel kicks back during wide turns	1. Check the drive belt (see page 4-33). 2. Check the power steering pump fluid pressure with T/N 07406-0010001 (see page 17-10), T/N 07406-001000A or T/N 07406-001A101 (see page 17-11).	
Humming noise from the power steering system	1. Check when the noise occurs: • If the noise is heard 2—3 minutes after starting the engine in cold weather, this is normal. • If the noise is heard when the wheel is turned with the vehicle stopped, this is normal due to the fluid pulsation. 2. Check for the high-pressure hose touching the subframe or body. 3. Check for automatic transmission converter noise. 4. Check for air bubbles in the power steering fluid, leak on inlet side of pump. 5. Check for particle contamination of fluid and restricted filter in the reservoir.	Pump pressure
Power steering rack rattle or chattering	1. Check for loose steering components (tie-rod and ball joints). Tighten or replace as necessary. 2. Check the steering column shaft for wobbling. If the steering column wobbles, replace the steering column assembly (see page 17-25). 3. Check the rack guide adjustment (see page 17-30). 4. Check the power steering pump pulley: • If the pulley is loose, tighten it (see step 33 on page 17-21). • If the pump shaft is loose, replace the pump (see page 17-15).	

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Symptom	Procedure(s)	Also check for
Hissing from the power steering system/foaming fluid	• Check the fluid level. If low, fill the reservoir to the proper level and check for leaks (see page 17-13). • Check the reservoir for leaks. • Check for crushed inlet hose or loose hose clamp allowing air into the suction side of the system (see page 17-12). • Check the power steering pump shaft oil seal for leaks.	Air in the P/S fluid
Noise from the power steering pump	• Compare the pump noise at normal operating temperature to another like vehicle (pump noise for 2—3 minutes after starting the engine in cold weather is normal). • Remove and inspect the pump for wear and damage (see page 17-15).	• P/S pump pressure • Air in the P/S fluid
Squeaking from the power steering pump	Check the drive belt (see page 4-33).	
Fluid leaks from the steering gearbox	• Fluid leaks from the top of the valve body unit. Replace the valve body unit (see page 17-39). • Fluid leaks from the driver's side boot. Replace the valve oil seal on the pinion shaft. Replace the cylinder end seal on the gearbox side. • Fluid leaks from the passenger's side boot. Replace the cylinder end seal on the cylinder side. • Fluid leaks from pinion shaft near the lower steering joint bolt. Replace the valve body unit (see page 17-39). • Fluid leaks from the steering damping valve covers on the valve body unit. Replace the valve housing.	
Fluid leaks from the power steering line	• Fluid leaks from the cylinder line connections (flare nuts). Tighten the connection and retest (see page 17-14). • Fluid leaks from a damaged cylinder lines. Replace the cylinder line (see page 17-14). • Fluid leaks from the pump outlet hose or return line fitting on the valve body unit (flare nuts). Tighten the fitting and retest. If it still leaks, replace the hose, the line, or valve body unit as necessary.	
Fluid leaks from the power steering pump	• Fluid leaks from the front oil seal. Replace the front oil seal. • Fluid leaks from the power steering pump housing. Replace the leaking O-rings or seals (see page 17-12), and if necessary replace the power steering pump (see page 17-15).	
Fluid leaks from the power steering reservoir	• Fluid leaks from around the reservoir cap because fluid level is too high. Drain the reservoir to the proper level. If the fluid is aerated check for an air leak on the inlet side of pump. • Fluid leaks from reservoir. Check for the reservoir for cracks and replace as necessary.	
Fluid leaks from the power steering pump outlet hose (high-pressure)	• Check the fitting for loose bolts. If the bolts are tight, replace the fitting O-ring. • Fluid leaks at the swagged joint. Replace the pump outlet hose.	
Fluid leaks from the power steering pump inlet hose (low-pressure)	Check the hose for damage, deterioration, or improper assembly. Replace or repair as necessary.	

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Symptom Troubleshooting

Hard Steering

1. Check the power assist (see page 17-8).

   Is the initial turning load more than 29 N (3.0 kgf, 6.6 lbf) ?

   YES—Go to step 2.

   NO—Power assist is OK. ■

2. Connect the P/S joint adapter (pump), P/S joint adapter (hose), and P/S pressure gauge T/N 07406-0010001 (see page 17-10), T/N 07406-001000A or T/N 07406-001A101 (see page 17-11) to the pump.

3. Measure steady-state fluid pressure from the pump at idle.

   Is the pressure 1,470 kPa (15 kgf/cm², 213 psi) or less?

   YES—Go to step 4.

   NO—Go to step 8.

4. Measure the pump relief pressure at idle.

   Is the pressure 8,920—9,420 kPa (91—96 kgf/cm², 1,290—1,370 psi) or more?

   YES—Go to step 5.

   NO—Go to step 9.

5. With a spring scale, measure the power assist in both directions, to the left and to the right.

   Are the two measurements within 5.0 N (0.51 kgf, 1.12 lbf) of each other?

   YES—Go to step 6.

   NO—Go to step 11.

6. Measure the fluid pressure with both pressure gauge valves open (if so equipped), while turning the steering wheel fully to the left and fully to the right.

   Is the pressure 8,920—9,420 kPa (91—96 kgf/cm², 1,290—1,370 psi) or more?

   YES—Go to step 7.

   NO—Faulty steering gearbox. ■

7. Adjust the rack guide (see page 17-30), and retest.

   Is the steering OK?

   YES—Repair is completed. ■

   NO—Faulty steering gearbox. ■

8. Check the outlet and return hoses and lines between the pump and the steering gearbox for clogging and deformation.

   Are the lines clogged or deformed?

   YES—Repair or replace the lines. ■

   NO—Faulty valve body unit. ■

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9. Disassemble the pump (see page 17-16).

10. Check the flow control valve for smooth movement and leaks (see step 13 on page 17-18).

    Is the flow control valve OK?

    YES—Faulty pump assembly. ■

    NO—Faulty flow control valve. ■

11. Check the cylinder lines for deformation (see page 17-14).

    Are any of the lines deformed?

    YES—Replace the deformed line. ■

    NO—Go to step 12.

12. Check for a bent rack shaft or misadjusted rack guide (too tight).

    Is the rack shaft bent or the rack guide adjusted too tight?

    YES—Replace the rack shaft, or readjust the rack guide. ■

    NO—Faulty valve body unit. ■

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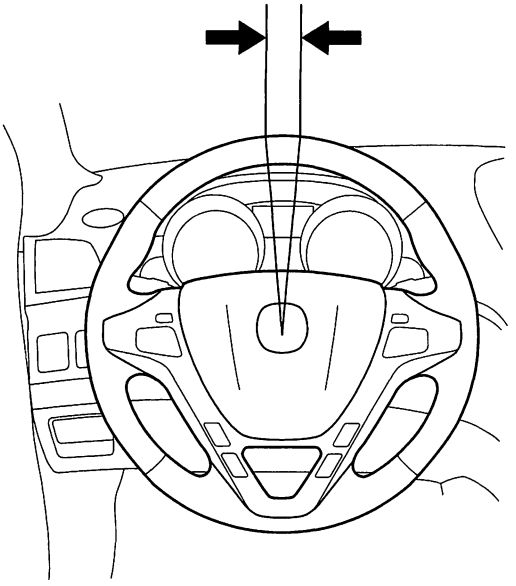
Steering Wheel Rotational Play Check

1. Turn the front wheels to the straight ahead position.
2. Measure how far you can turn the steering wheel left and right without moving the front wheels.
   - If the play is within the limit, the steering gearbox and linkages are OK.
   - If the play exceeds the limit, adjust the rack guide (see page 17-30). If the play is still excessive after rack guide adjustment, inspect the steering linkage and steering gearbox (see page 17-9).

Rotational play: 0—10 mm (0—0.39 in.)

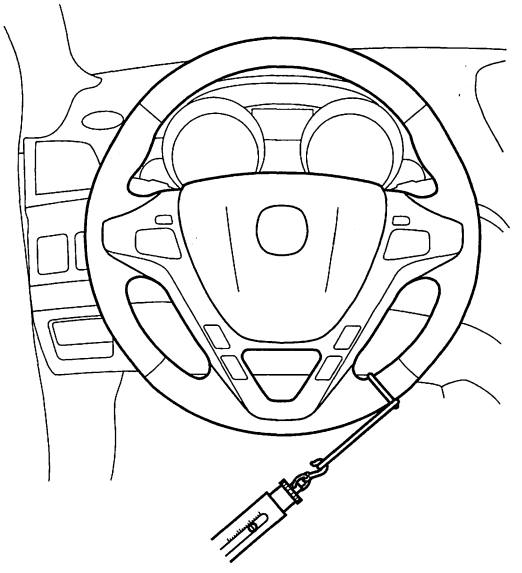


Power Assist Check

NOTE: This test should be done with original equipment tires and wheels at the correct tire pressure.

1. Check the power steering fluid level (see page 17-13).
2. Start the engine, let it idle, and turn the steering wheel from lock-to-lock several times to warm up the fluid.
3. Attach a commercially available spring scale to the steering wheel. With the engine idling and the vehicle on a clean, dry floor, pull the scale as shown and read it as soon as the tires begin to turn.
   - If the scale reads no more than the specification, the steering gearbox and pump are OK.
   - If the scale reads more than the specification, troubleshoot the steering system (see page 17-6).

Initial turning load: 29 N (3.0 kgf, 6.6 lbf)



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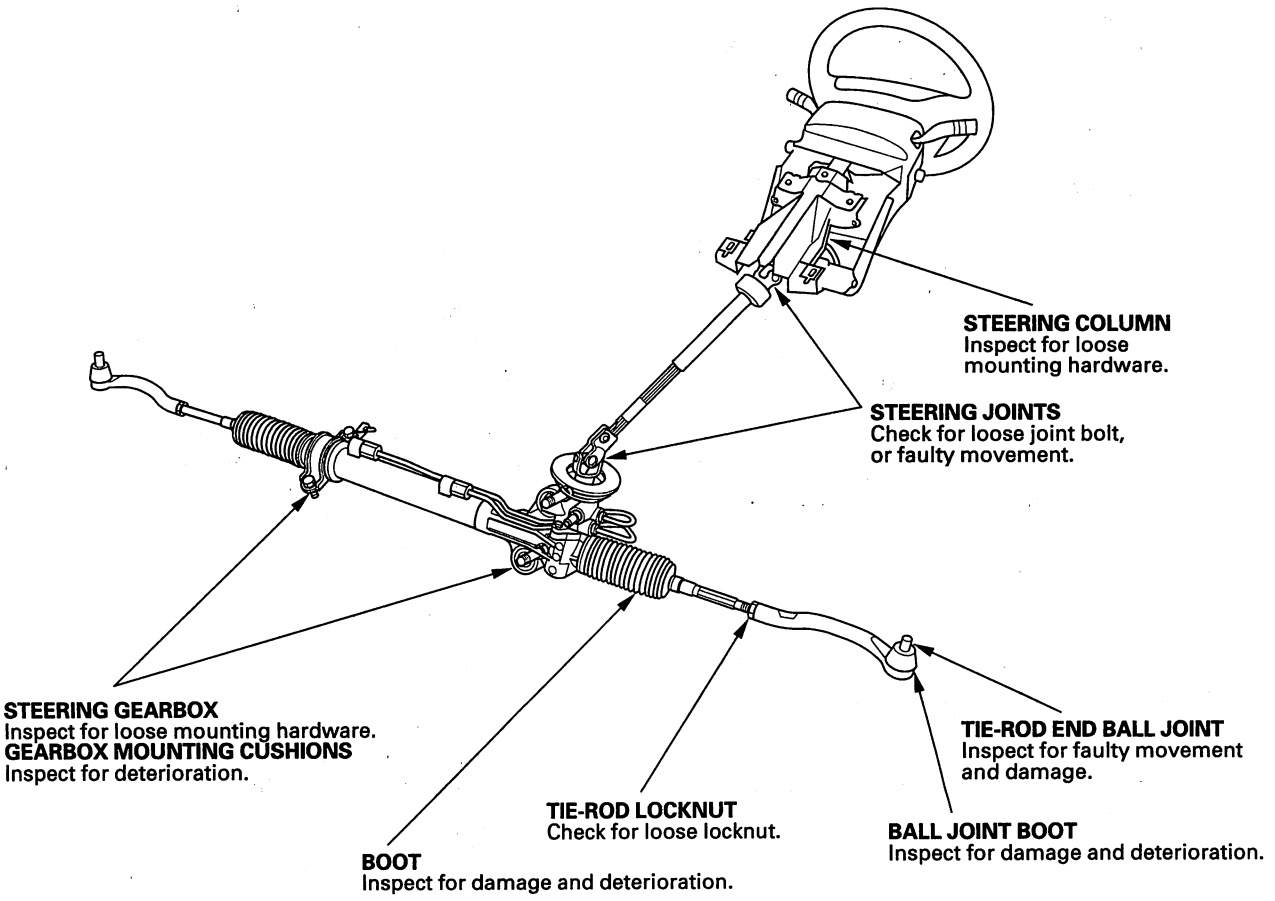
Steering Linkage and Gearbox Inspection



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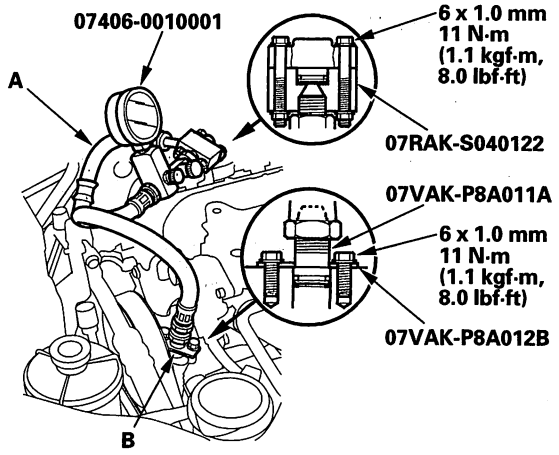
Pump Pressure Test with T/N 07406-0010001

Special Tools Required
- P/S joint adapter (pump) 07VAK-P8A011A
- P/S joint adapter plate (pump) 07VAK-P8A012B
- P/S joint adapter (hose) 07RAK-S040122
- P/S pressure gauge 07406-0010001

Check the fluid pressure as follows to determine whether the trouble is in the pump or steering gearbox.

1. Check the power steering fluid level (see page 17-13).

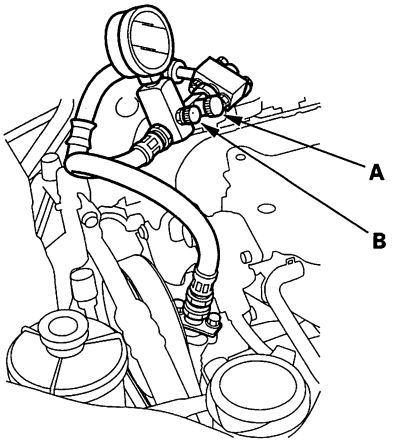
2. Disconnect the pump outlet hose (A) from the pump outlet with care so as not to spill the power steering fluid on the frame and other parts, then install the P/S joint adapter (pump) on the pump outlet (B) with the P/S joint outlet plate.



3. Connect the P/S joint adapter (hose) to the P/S pressure gauge, then connect the pump outlet hose to the P/S joint adapter (hose).

4. Install the P/S pressure gauge to the P/S joint adapter (pump).

5. Fully open the shut-off valve (A).



6. Fully open the pressure control valve (B).

7. Start the engine and let it idle.

8. Turn the steering wheel from lock-to-lock several times to warm the fluid to operating temperature at 158 °F (70 °C).

9. Measure steady-state fluid pressure while the engine is idling. If the pump is in good condition, the gauge should read no more than 1,470 kPa (15 kgf/cm², 213 psi).
   If it reads high, check for:
   - Clogged or deformed feed or return line between the pump and the steering gearbox.
   - Clogged valve body unit.

10. Close the shut-off valve, then close the pressure control valve gradually until the pressure gauge needle is stable. Read the pressure.

    NOTICE
    Do not keep the shut-off valve closed more than 5 seconds or the pump could be damaged by over-heating.

11. Immediately open the shut-off valve fully. If the pump is in good condition, the gauge should read at least 8,920—9,420 kPa (91—96 kgf/cm², 1,290—1,370 psi). A low reading means pump output is too low for full assist. Repair or replace the pump.

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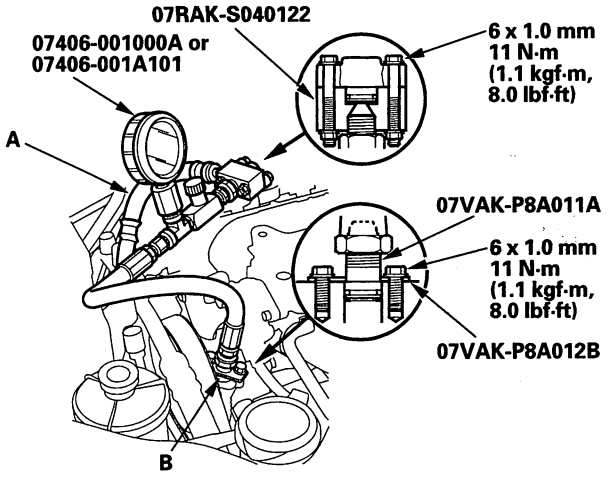
Pump Pressure Test with T/N 07406-001000A or T/N 07406-001A101

Special Tools Required
- P/S joint adapter (pump) 07VAK-P8A011A
- P/S joint adapter plate (pump) 07VAK-P8A012B
- P/S joint adapter (hose) 07RAK-S040122
- P/S pressure gauge 07406-001000A or 07406-001A101

Check the fluid pressure as follows to determine whether the trouble is in the pump or steering gearbox.

1. Check the power steering fluid level (see page 17-13).

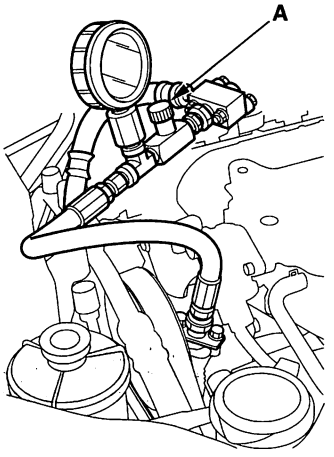
2. Disconnect the pump outlet hose (A) from the pump outlet with care so as not to spill the power steering fluid on the frame and other parts, then install the P/S joint adapter (pump) on the pump outlet (B) with the P/S joint outlet plate.



3. Connect the P/S joint adapter (hose) to the P/S pressure gauge, then connect the pump outlet hose to the P/S joint adapter (hose).

4. Install the P/S pressure gauge to the P/S joint adapter (pump).

5. Open the shut-off valve (A) fully.



6. Start the engine and let it idle.

7. Turn the steering wheel from lock-to-lock several times to warm the fluid to operating temperature at 158 °F (70 °C).

8. Measure steady-state fluid pressure while the engine is idling. If the pump is in good condition, the gauge should read no more than 1,470 kPa (15 kgf/cm², 213 psi).
If it reads high, check for:
   - Clogged or deformed feed or return line between the pump and the steering gearbox.
   - Clogged valve body unit.

9. Let the engine idle, and gradually close the shut-off valve and immediately read the pressure.

NOTICE
Do not keep the shut-off valve closed more than 5 seconds or the pump could be damaged by over-heating.

10. Immediately open the shut-off valve fully. If the pump is in good condition, the gauge should read at least 8,920—9,420 kPa (91—96 kgf/cm², 1,290—1,370 psi). A low reading means pump output is too low for full assist. Repair or replace the pump.

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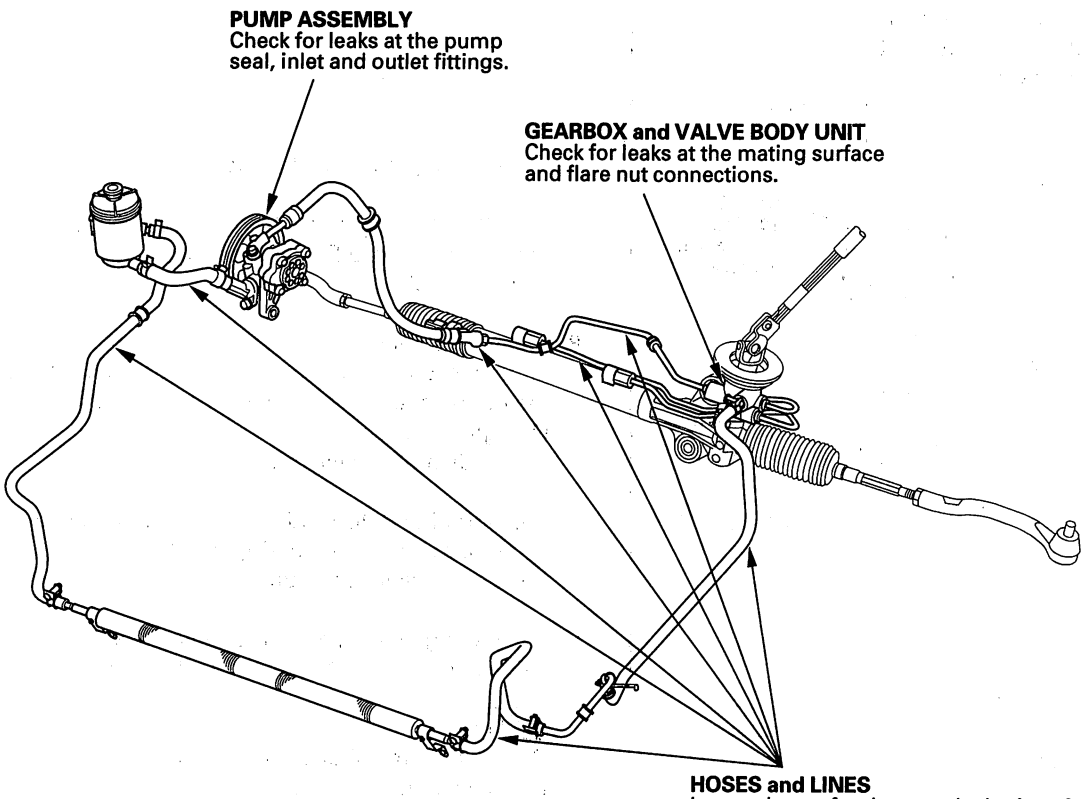
Fluid Leakage Inspection



BACK

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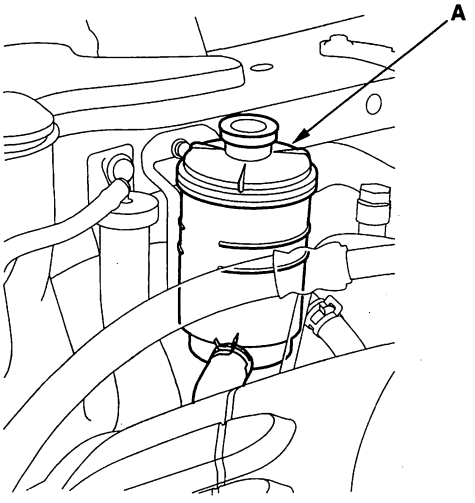
Fluid Replacement

Check the reservoir (A) at regular intervals, and add the recommended fluid as necessary. Always use Acura Power Steering Fluid. Using any other type of power steering fluid or automatic transmission fluid can cause increased wear and poor steering in cold weather.

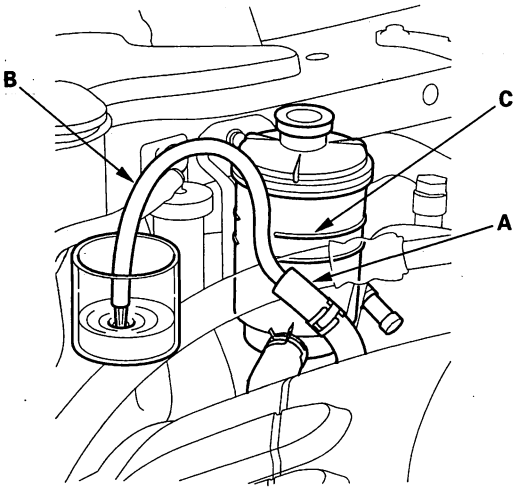
NOTE: If the fluid is contaminated, the screen in the reservoir may be partially blocked. Replace the reservoir if necessary.

System capacity:
1.03 L (1.09 US. qt) at disassembly
Reservoir capacity:
0.34 L (0.36 US. qt)



1. Remove the reservoir from its holder. Raise the reservoir, then disconnect the return hose (A) to drain the reservoir. Take care not to spill the fluid on the body and parts. Wipe off any spilled fluid at once.

   NOTE: Inspect the reservoir screen for any debris. If the reservoir screen is clogged, replace the reservoir.



2. Connect a hose (B) of suitable diameter to the disconnected return hose, and put the hose end in a suitable container.
3. Start the engine, let it run at idle, and turn the steering wheel from lock-to-lock several times. When fluid stops running out of the hose, shut off the engine. Discard the fluid.
4. Reinstall the return hose on the reservoir.
5. Fill the reservoir to the upper level line (C).
6. Start the engine and run it at fast idle, then turn the steering from lock-to-lock several times to bleed air from the system.
7. Recheck the fluid level and add some if necessary. Do not fill the reservoir beyond the upper level line.
8. If the fluid is contaminated, dark, or discolored, repeat the procedure as necessary.

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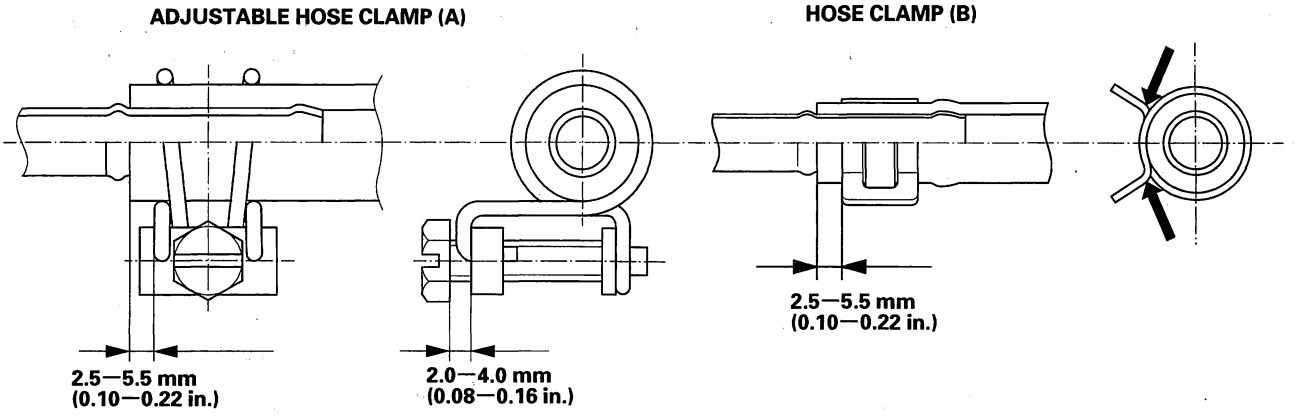
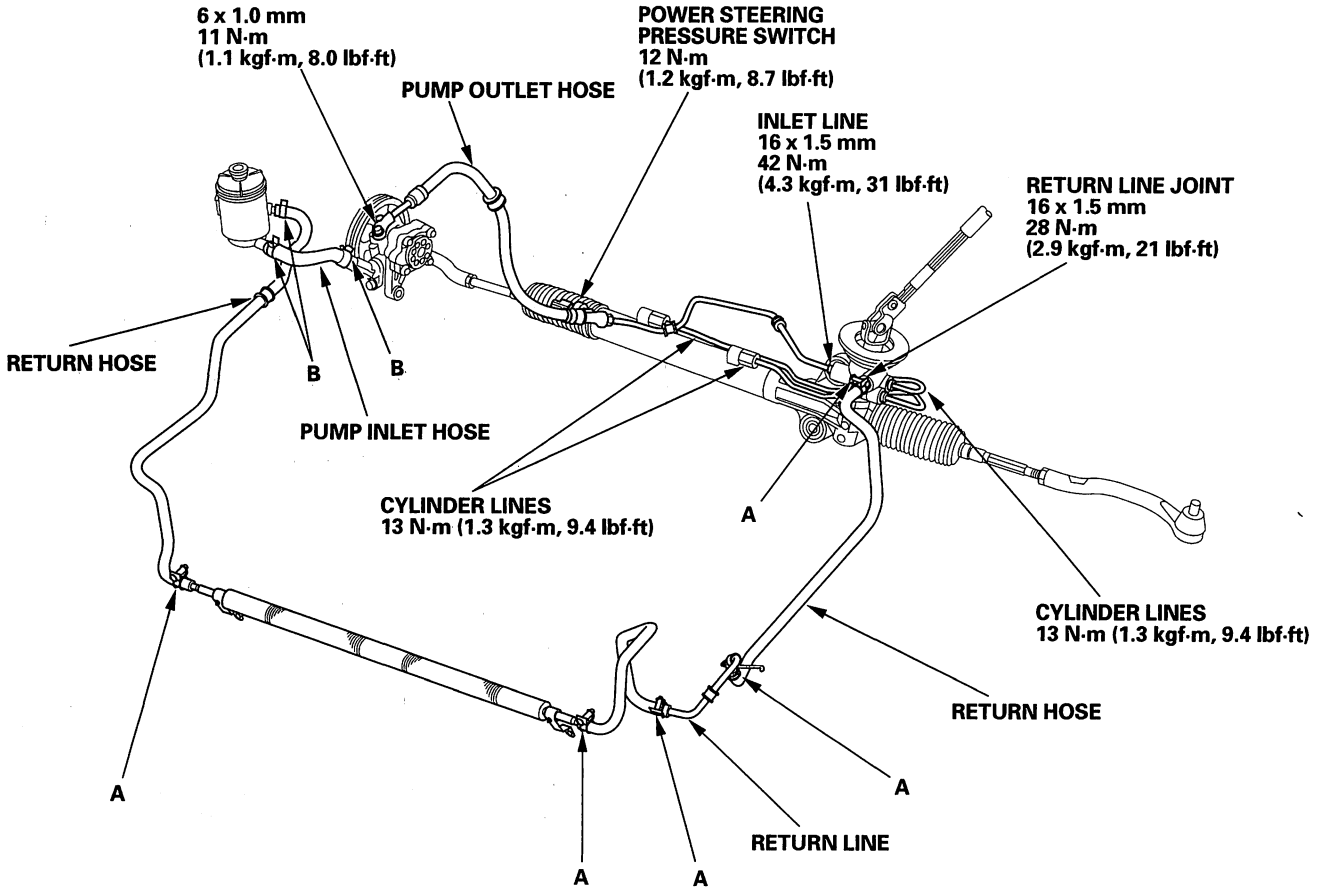
Power Steering Hose, Line, and Pressure Switch Replacement

Note these items during installation:

- Connect each hose to the corresponding line securely until it contacts the stop on the line. Install the clamp or adjustable clamp at the specified distance from the hose end as shown.
- Check all clamps for deterioration or deformation; replace the clamps with new ones if necessary.
- Add the recommended power steering fluid to the specified level on the reservoir and check for leaks.





BACK

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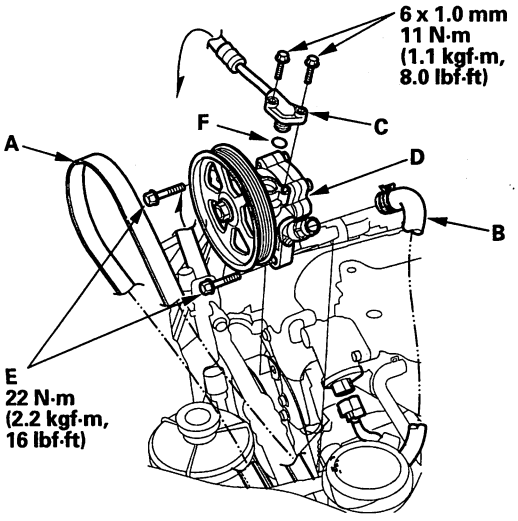
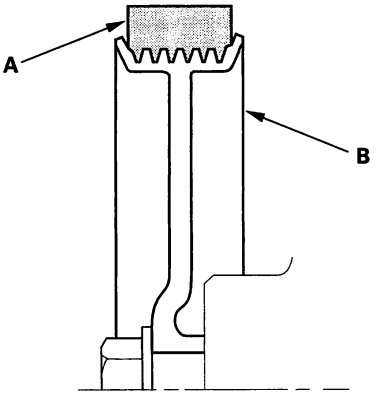
Pump Replacement

1. Place a suitable container under the vehicle.
2. Drain the power steering fluid from the reservoir (see page 17-13).
3. Remove the engine cover.
4. Remove the drive belt (A) from the pump pulley (see page 4-33).



5. Cover the auto-tensioner, alternator, and A/C compressor with several shop towels to protect them from spilled power steering fluid. Disconnect the pump inlet hose (B) and pump outlet hose (C) from the pump (D), and plug them. Take care not to spill the fluid on the body or parts. Wipe off any spilled fluid at once. Do not turn the steering wheel with the pump removed.
6. Remove the pump mounting bolts (E).
7. Cover the opening of the pump with a piece of tape to prevent foreign material from entering the pump.
8. Connect the pump inlet hose and pump outlet hose onto the new pump with a new O-ring (F).
9. Loosely install the pump in the pump bracket with the mounting bolts, then tighten the pump fittings securely.
10. Tighten the pump mounting bolts to the specified torque.
11. Install the drive belt (A).

    Note these items during belt installation:
    - Make sure that the belt is properly positioned on the pulleys (B).
    - Do not get power steering fluid or grease on the auto-tensioner, alternator, A/C compressor, and drive belt or pulley faces. Clean off any fluid or grease before installation.



12. Fill the reservoir to the upper level line (see page 17-13).

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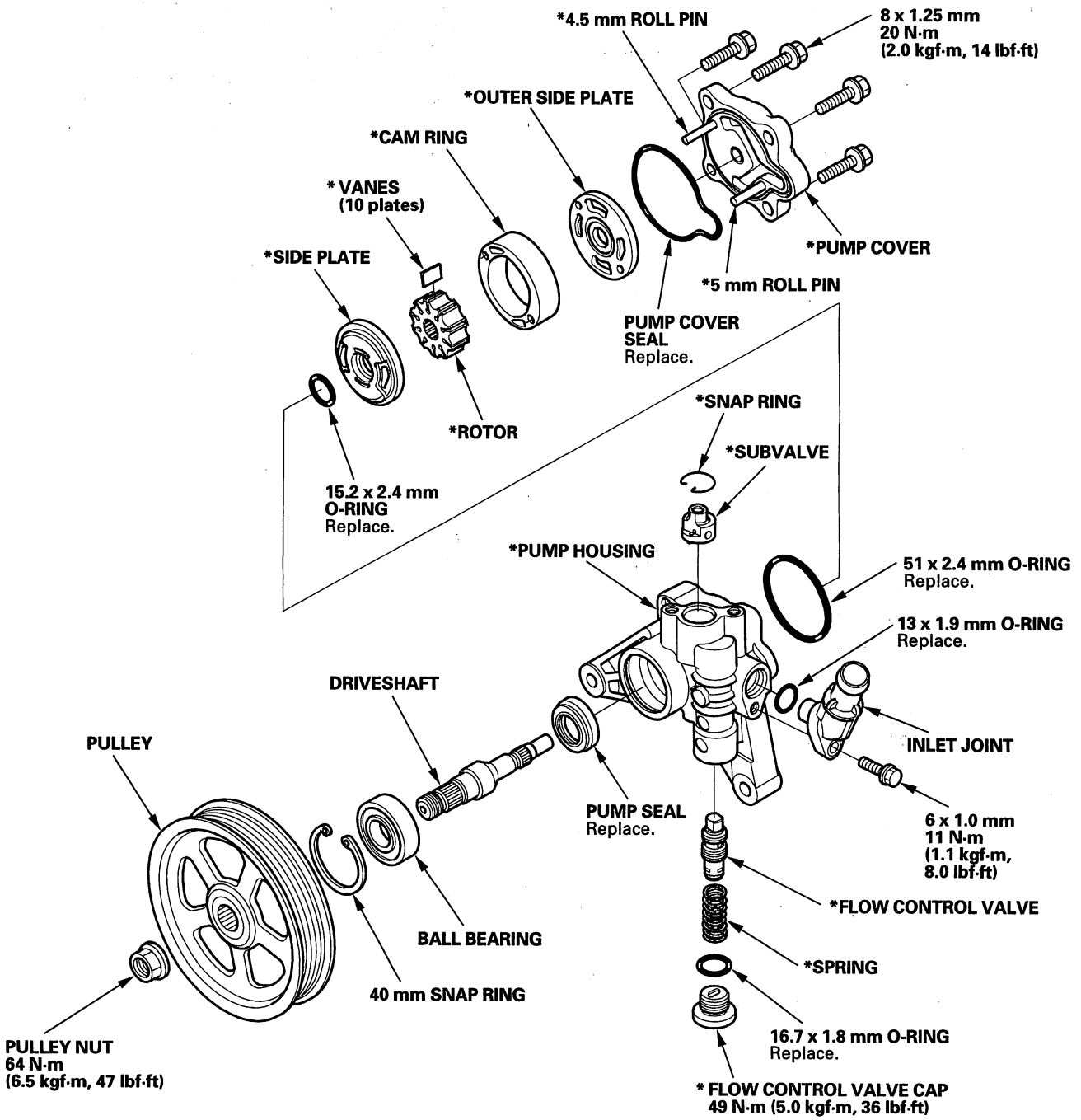
Pump Overhaul

Exploded View

Replace the pump as an assembly if the parts indicated with an asterisk (*) are worn or damaged.



BACK

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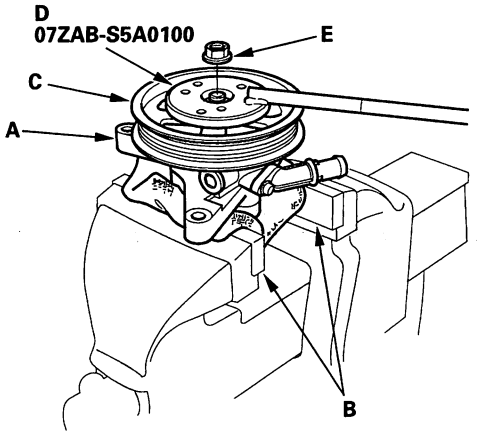
Special Tools Required
- Attachment, 28 x 30 mm 07946-1870100
- Driver 07749-0010000
- Pulley holder 07ZAB-S5A0100

Disassembly

NOTE: Refer to the Exploded View as needed during the following procedure.

1. Drain the fluid from the pump (see page 17-13).
2. Remove the power steering pump (see page 17-15).
3. Hold the power steering pump (A) in a vise with soft jaws (B), then hold the pulley (C) with the pulley holder (D), and remove the pulley nut (E) and pulley. Be careful not to damage the pump housing with the jaws of the vise.



4. Remove the inlet joint and O-ring.
5. Loosen the flow control valve cap with a hex wrench, and remove it and the O-ring, the flow control valve and spring.
6. Remove the pump cover and pump cover seal.
7. Remove the outer side plate, cam ring, rotor, vanes, side plate and O-rings.
8. Remove the snap ring, then remove the subvalve from the pump housing.
9. Remove the snap ring, then remove the pump driveshaft by tapping the shaft end with a plastic hammer.
10. Remove the pump seal from the pump housing.

(cont'd)

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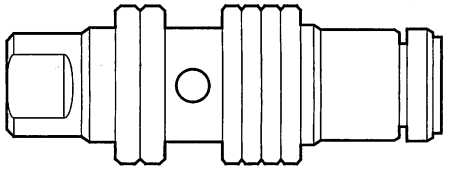
Pump Overhaul (cont'd)

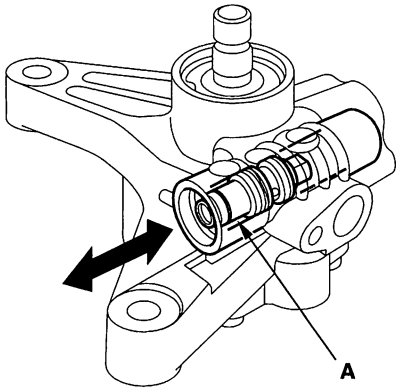
Inspection

11. Check the flow control valve for wear, burrs, and other damage to the edges of the grooves in the valve.



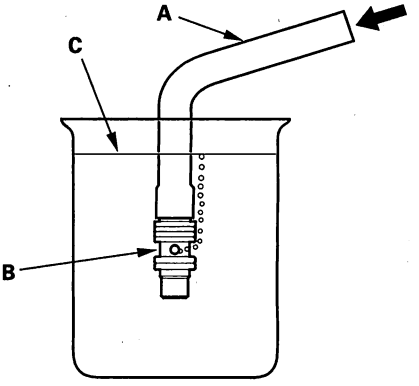
12. Inspect the bore of the flow control valve on the pump housing for scratches and wear.

13. Slip the flow control valve back in the pump housing, and check that it moves in and out smoothly. If OK, go to step 14; if not, replace the pump as an assembly. The flow control valve (A) is not available separately.

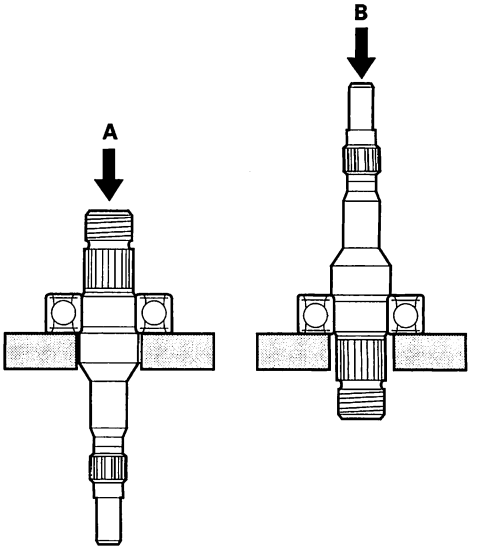


14. Attach a hose (A) to the end of the flow control valve (B) as shown. Then submerge the flow control valve in a container of power steering fluid or solvent (C), and blow in the hose.

    - If air bubbles leak through the valve at less than 98 kPa (1.0 kgf/cm², 14.2 psi), replace the pump as an assembly. The flow control valve is not available separately.
    - If the flow control valve is OK, set it aside for reassembly later.



15. Inspect the ball bearing by rotating the outer race slowly. If you feel any play (axial or radial) or roughness, remove the faulty ball bearing (A) and install a new one (B).



16. Inspect each part shown with an asterisk in the Exploded View. If any of them are worn or damaged, replace the pump as an assembly.

BACK

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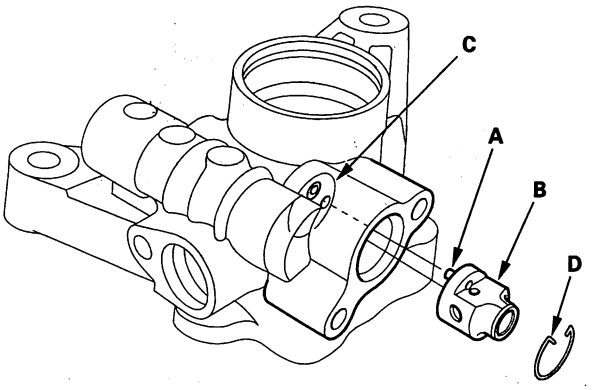
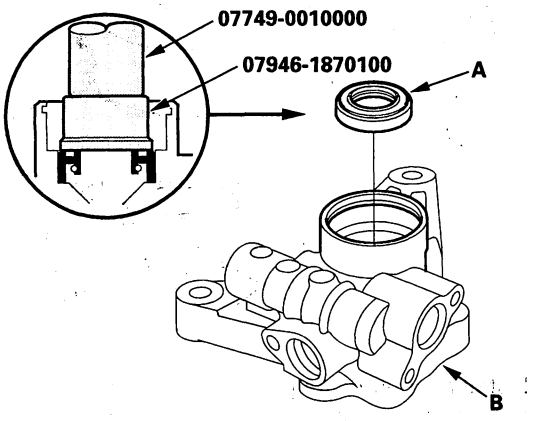
Reassembly

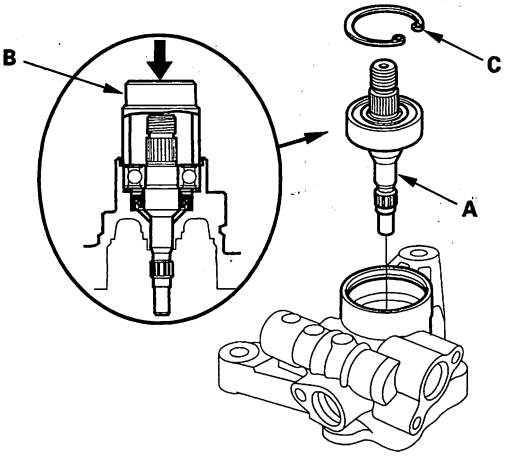
17. Align the pin (A) of the subvalve (B) with the oil passage (C) in the pump housing, and push the subvalve into place, then install the snap ring (D).



18. Install the new pump seal (A) (with its grooved side facing in) into the pump housing (B) by hand first, then drive it in using the driver and attachment until there is no step at the top of the pump seal, and the seal is fully seated in the pump housing.



19. Position the pump driveshaft (A) in the pump housing, then press it in with the appropriate size socket wrench (B) as shown.



20. Install the 40 mm snap ring (C) with its beveled edge facing out.

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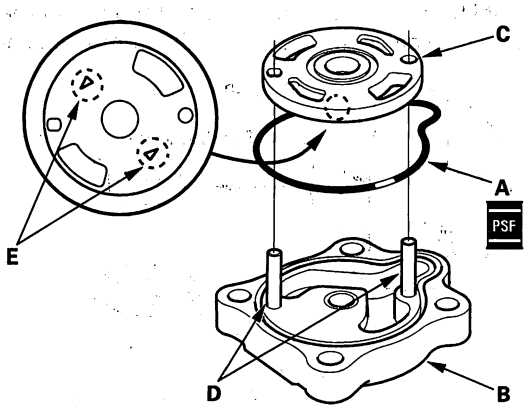
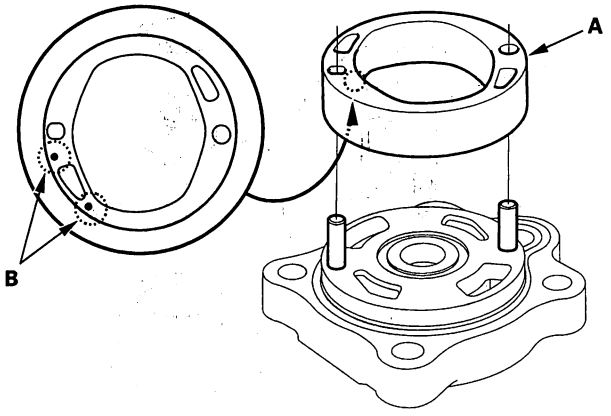
Pump Overhaul (cont'd)

21. Coat the new pump cover seal (A) with power steering fluid, and install it into the groove in the pump cover (B).

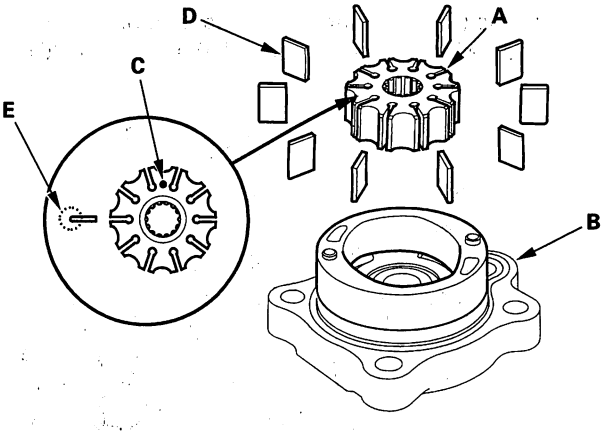


22. Install the outer side plate (C) over the two roll pins (D) with its arrow marks stamped (E) facing down.

23. Set the cam ring (A) over the two roll pins with the "•" marks (B) facing down.

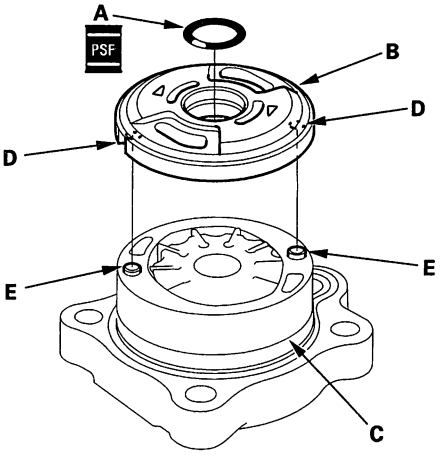


24. Install the rotor (A) to the pump cover (B) with its "•" mark (C) facing up.



25. Set the 10 vanes (D) in the grooves in the rotor. Make sure that the round ends (E) of the vanes are in contact with the sliding surface of the cam ring.

26. Coat the new 15.2 mm O-ring (A) with power steering fluid, and install it into the groove in the side plate (B).



27. Install the side plate on the cam ring (C) by aligning the roll pin set holes (D) in the side plate with the roll pins (E).

BACK

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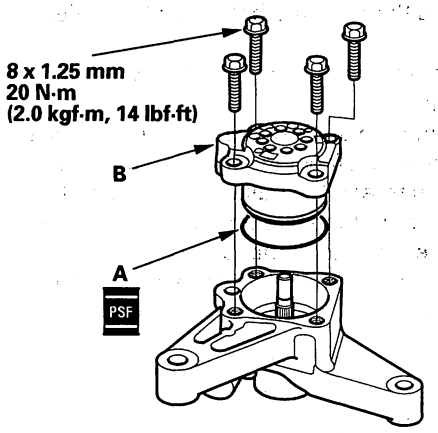
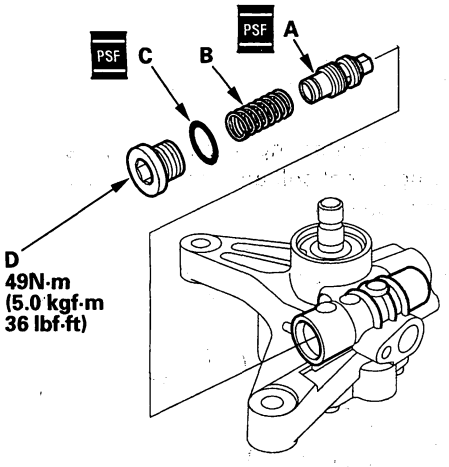
28. Coat the new 51 mm O-ring (A) with power steering fluid, and position it in the bottom of the pump housing.



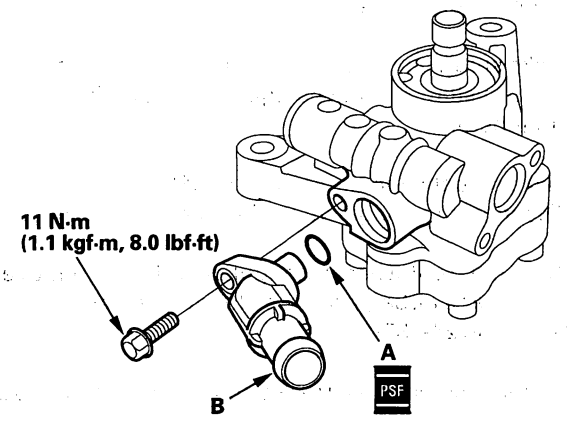
29. Install the pump cover assembly (B) in the pump housing. Tighten the bolts to the specified torque alternating in two or more steps.

30. Coat the flow control valve (A) with power steering fluid, then install it and the spring (B) in the pump housing.

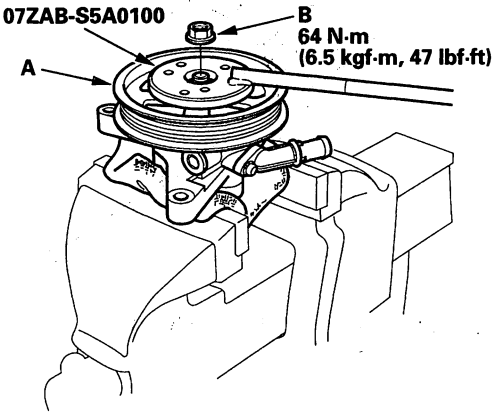


31. Coat the new 16.7 mm O-ring (C) with power steering fluid, and install it on the flow control valve cap (D), then install the cap on the pump housing. Tighten it to the specified torque.

32. Coat the new 13 mm O-ring (A) with power steering fluid, and install it on the inlet joint (B). Install the inlet joint on the pump housing.



33. Install the pulley (A), then loosely install the pulley nut (B). Hold the steering pump in a vise with soft jaws. Be careful not to damage the pump housing with the jaws of the vise.



34. Hold the pulley with the pulley holder, and tighten the pulley nut to the specified torque.

35. Check that the pump turns smoothly by turning the pulley by hand. If it turns hard, loosen the four flange bolts on the cover, then retighten them in same manner as in step 29. Turn the pump again by hand.

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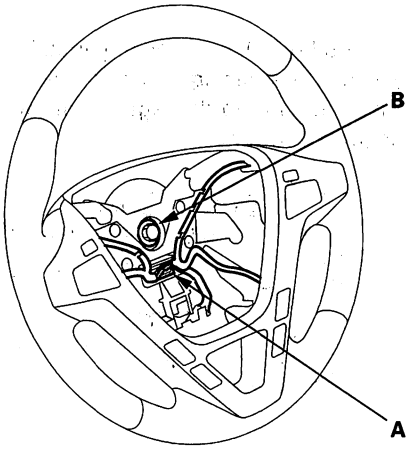
Steering Wheel Removal

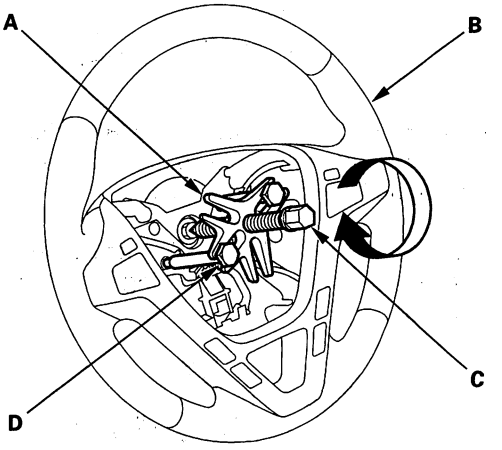
SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

1. Make sure you have the anti-theft code for the audio system and the navigation system (if equipped).
2. Make sure the ignition switch is OFF, then disconnect the negative cable from the battery.
3. Align the front wheels straight ahead, then remove the driver's airbag from the steering wheel (see page 24-137).
4. Disconnect the cable reel subharness connector (A).

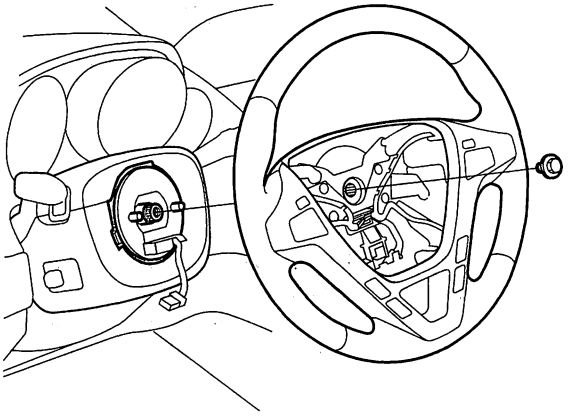


5. Loosen the steering wheel bolt (B).
6. Install a commercially available steering wheel puller (A) on the steering wheel (B). Free the steering wheel from the steering column shaft by turning the pressure bolt (C) of the puller.

   Note these items when removing the steering wheel:
   - Do not tap on the steering wheel or the steering column shaft when removing the steering wheel.
   - If you thread the puller bolts (D) into the wheel hub more than five threads, the bolts will hit the cable reel and damage it. To prevent this, install a pair of jam nuts five threads up on each puller bolt.



7. Remove the steering wheel puller, then remove the steering wheel bolt and steering wheel from the steering column.



BACK

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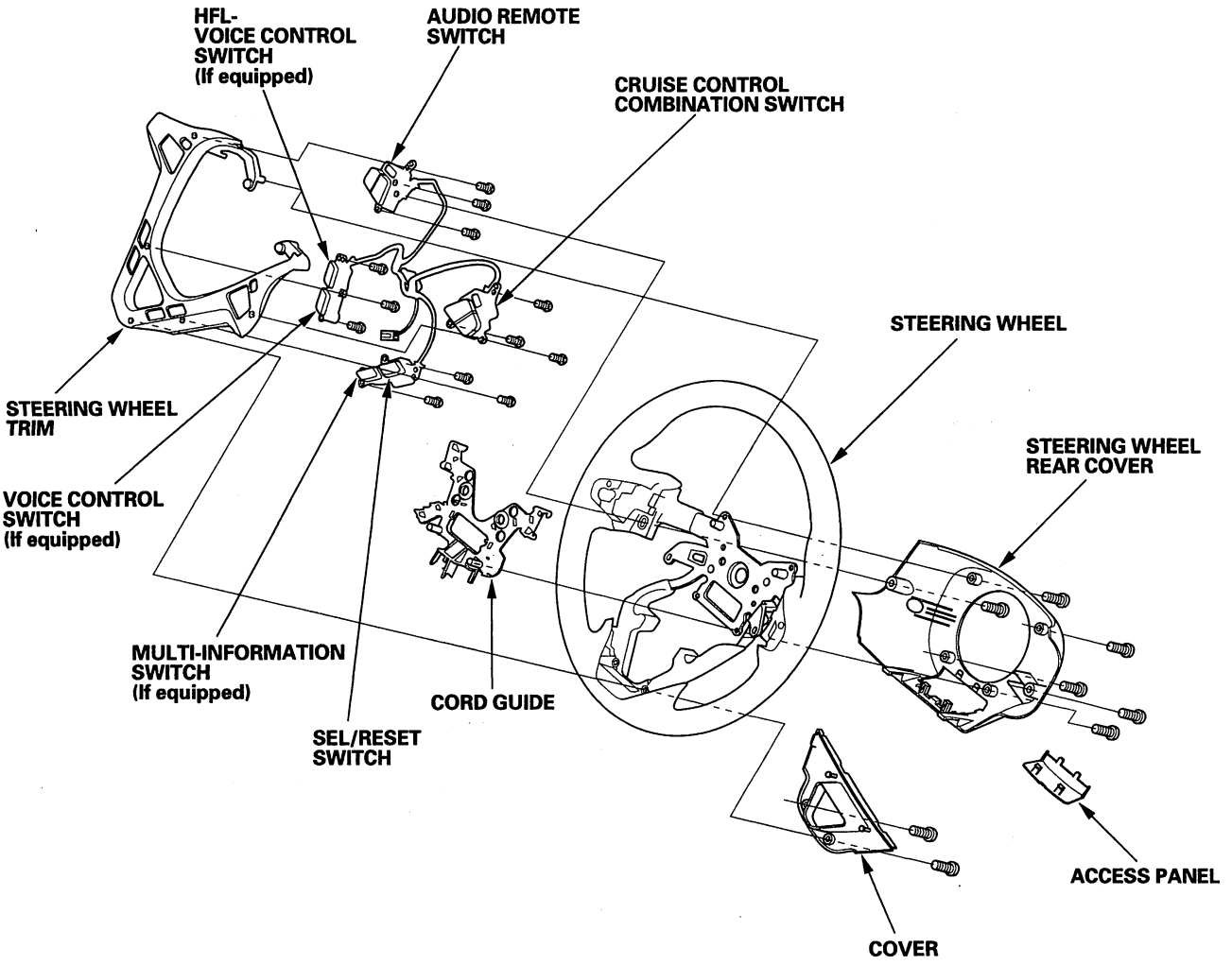
Steering Wheel Disassembly/Reassembly



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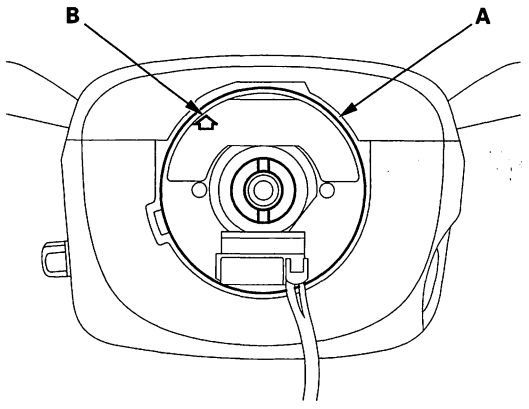
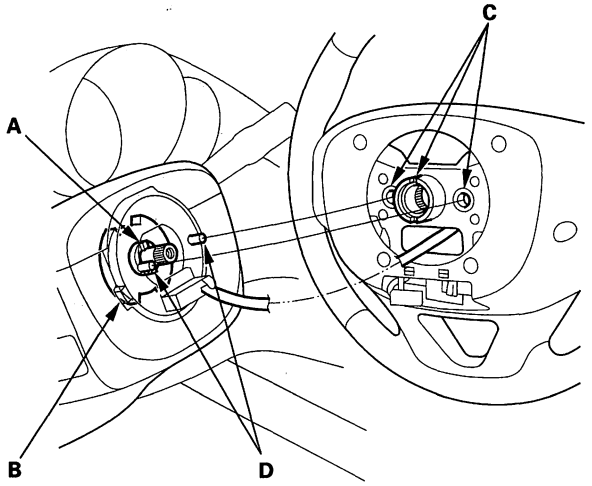
Steering Wheel Installation

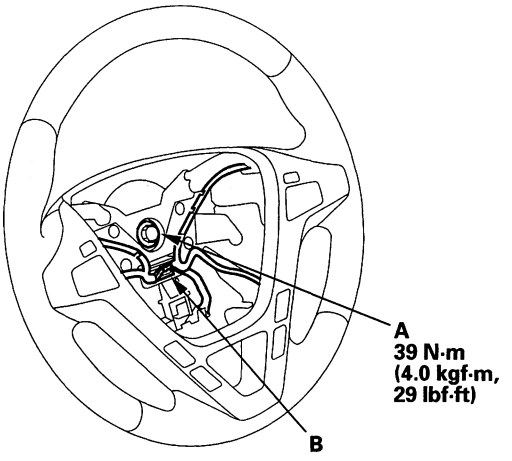
1. Before installing the steering wheel, make sure the front wheels are aligned straight ahead, then center the cable reel (A). Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise about three full turns. The arrow mark (B) on the cable reel label should point straight up.



2. Position the two tabs (A) of the turn signal cancelling sleeve (B) as shown. Install the steering wheel on to the steering column shaft, making sure the steering wheel hub (C) engages the pins (D) of the cable reel and tabs of the turn signal cancelling sleeve. Do not tap on the steering wheel or steering column shaft when installing the steering wheel.



3. Install the steering wheel bolt (A), and tighten it to the specified torque. Connect the cable reel subharness connector (B). Make sure the wire harness is routed and fastened properly.



4. Install the driver's airbag, and confirm that the system is operating properly (see page 24-137).

5. Reconnect the negative battery cable to the battery, and do these tasks:

   - Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
   - Enter the anti-theft code for the audio system and the navigation system (if equipped).
   - Make sure the horn and turn signal switches work properly.
   - Make sure the steering wheel switches work properly.
   - Make sure the steering wheel is centered.
   - Do the steering column position memorization (see page 17-28).

BACK

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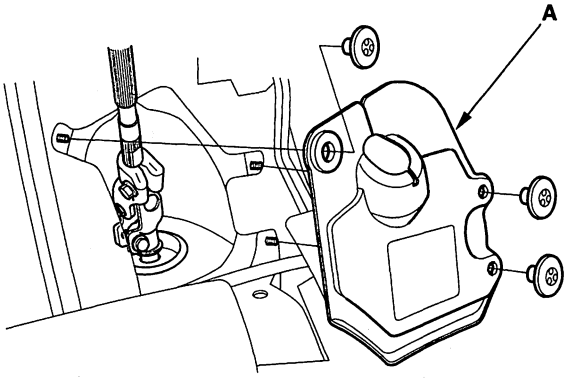
Steering Column Removal and Installation

SRS components are located in this area. Review the SRS component locations (see page 24-18), and the precautions and procedures (see page 24-20) before doing repairs or service.

Removal

1. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).
2. Adjust the steering column to full tilt down position, and to the full telescopic out position.
3. Make sure the ignition switch is OFF, then disconnect the negative cable from the battery.
4. Remove the driver's airbag assembly and the steering wheel (see page 17-22).
5. Remove the driver's dashboard undercover (see page 20-120).
6. Remove the steering joint cover (A).



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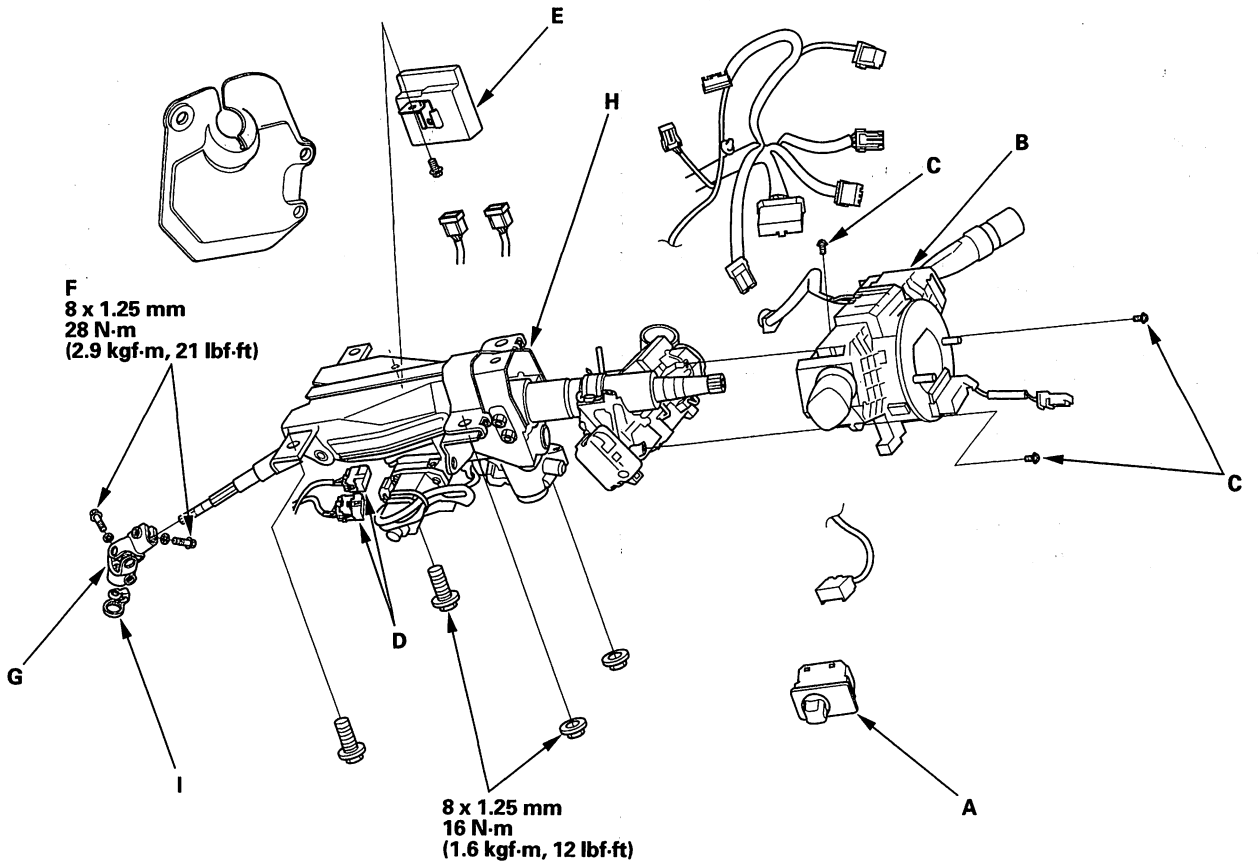
Steering Column Removal and Installation (cont'd)

7. Remove the upper column cover (see page 20-129), and disconnect the connectors from the power tilt/telescopic switch (A) (see page 22-488).



8. Disconnect the wire harness connectors from the combination switch assembly (B).
9. Remove the combination switch assembly from the steering column shaft by removing the three screws (C).
10. Disconnect the connectors from the ignition switch, and release the wire harness clips from the steering column.
11. Disconnect the connectors (D) from the tilt/telescopic motors.
12. Disconnect the connectors from the tilt/telescopic control unit (E).
13. Remove the steering joint bolts (F), then disconnect the steering joint (G) from the pinion shaft and the steering column shaft.
14. Remove the steering column (H) by removing the attaching nuts and bolts.
15. Remove the center guide (I) (if equipped) from the top of the pinion shaft, and discard it. The center guide is for factory assembly use only.

BACK

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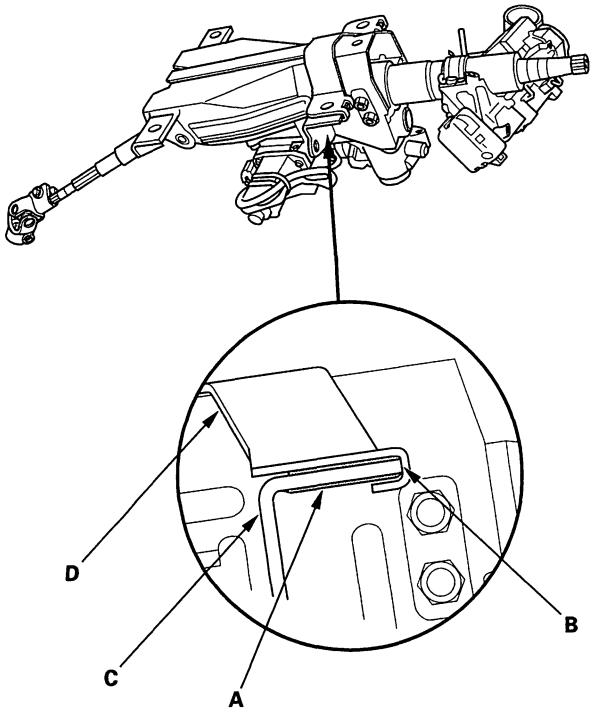
Installation

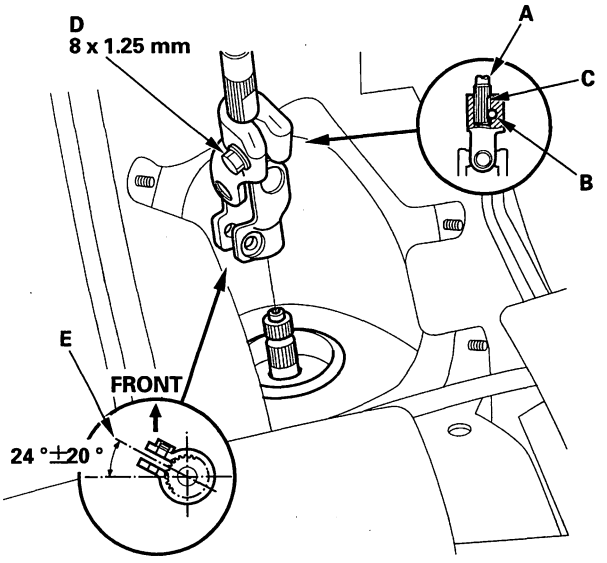
1. Install the steering column in the reverse order of removal, and note these items:

   - Take care not to let the sliding plates (A) fall out of position during column installation.
   - Make sure the wires are not caught or pinched by any parts.
   - Make sure that there is no gap (B) between bracket (C), sliding plates, and absorbing plate (D) once column is mounted in place and fixing bolts and nuts are tightened.



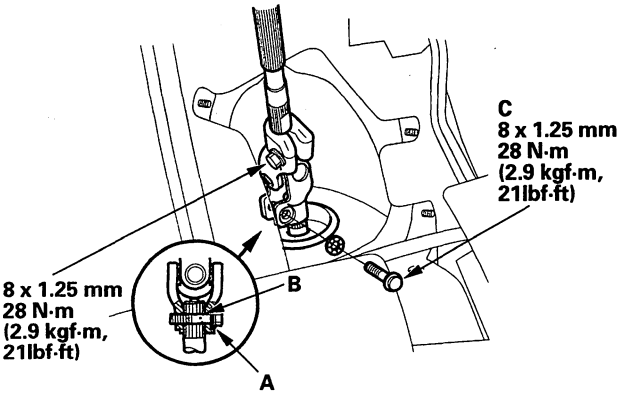
2. Center the steering rack within its stroke.

3. Insert the upper end of the steering joint onto the steering shaft (A) (line up the bolt hole (B) with the flat portion (C) on the shaft), and loosely install the upper joint bolt (D).



4. Slip the lower end of the steering joint onto the pinion shaft taking care to align the gap (E) within the angle.

5. Align the bolt hole (A) on the steering joint with the groove (B) around the pinion shaft then loosely install the lower joint bolt (C).



(cont'd)

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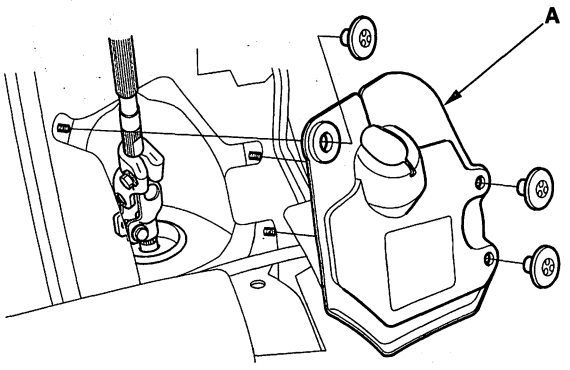
Steering Column Removal and Installation (cont'd)

6. Pull on the steering joint to make sure that the steering joint is fully seated, then tighten the lower joint bolt to the specified torque.
7. Tighten the upper joint bolt to the specified torque.
8. Install the steering joint cover (A).



9. Install the steering wheel (see page 17-24).
10. Reconnect the negative battery cable to the battery, and do these tasks:
    - Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
    - Enter the anti-theft code for the audio system and the navigation system (if equipped).
    - Make sure the horn and turn signal switches work properly.
    - Make sure the steering wheel switches work properly.
    - Make sure the steering wheel is centered.
    - Do the steering column position memorization (see page 17-28).

Steering Column Position Memorization

NOTE: If the battery is disconnected, the power tilt and telescopic steering wheel system needs to be reset when you reconnect the battery.

1. Insert the built-in key into the ignition switch, and remove it.
2. The steering wheel automatically moves fully in and up to let you know the system is reset.

BACK

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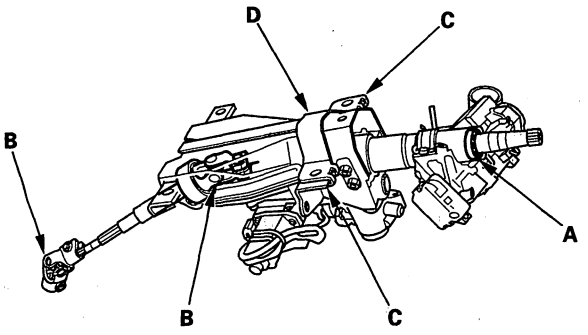
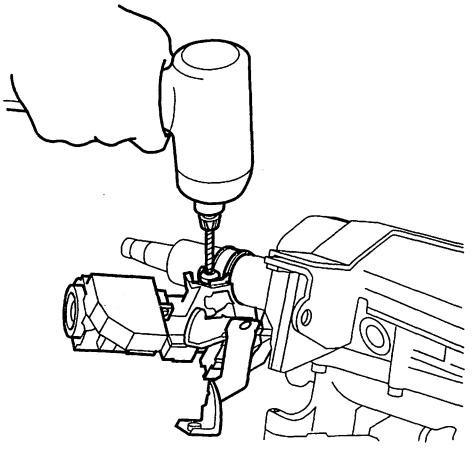
Steering Column/Tilt/Telescopic Inspection

- Check the steering column ball bearing (A) and the steering joint bearings (B) for play and proper movement. If any bearing is noisy or has excessive play, replace the steering column as an assembly.
- Check the sliding capsules (C) for distortion or breakage. If there is distortion or breakage, replace the steering column as an assembly.
- Check the tilt mechanism and telescopic mechanism for movement and damage.
- Check the absorbing plates (D) for distortion or breakage. If there is distortion or breakage, replace the steering column as an assembly.

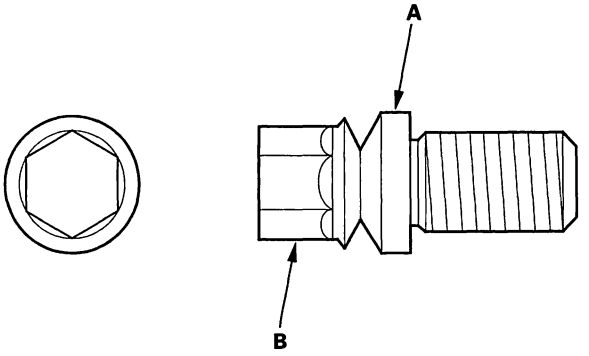


Steering Lock Replacement

1. Remove the steering column (see page 17-25).
2. Center-punch each of the two shear bolts, and drill their heads off with a 5 mm (3/16 in.) drill bit. Be careful not to damage the switch body and steering column when removing the shear bolts.



3. Remove the shear bolts from the switch body.
4. Install the switch body without the key inserted.
5. Loosely tighten the new shear bolts.
6. Insert the ignition key, and check for proper operation of the steering wheel lock and that the ignition key turns freely.
7. Tighten the shear bolts (A) until the hex heads (B) twist off.



8. Register the immobilizer-keyless control unit (see page 22-410), and make sure the immobilizer system works properly.

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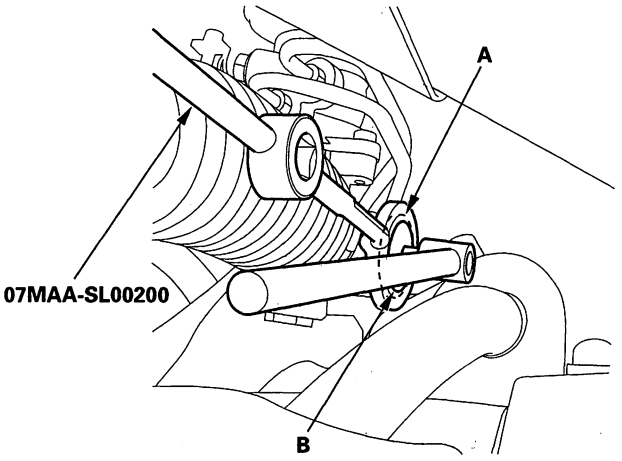
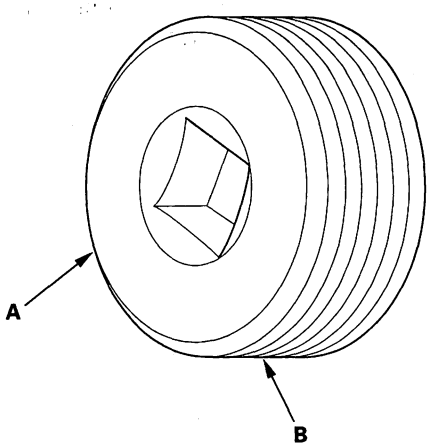
Rack Guide Adjustment

Special Tools Required
Locknut wrench, 43 mm 07MAA-SL00200

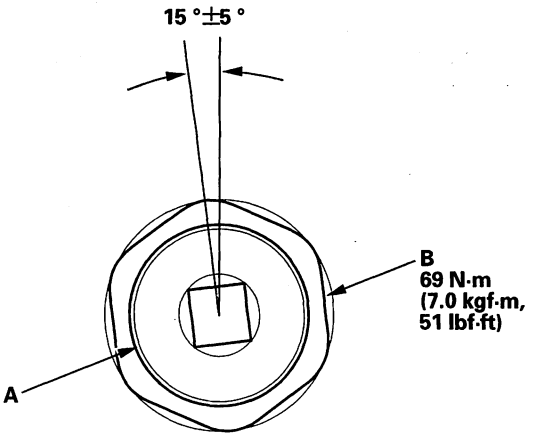
1. Set the wheels in the straight ahead position.
2. Loosen the rack guide screw locknut (A) with the locknut wrench, then remove the rack guide screw (B).



3. Remove the old sealant from the rack guide screw (A), and apply new sealant (Loctite 565) to the middle of the threads (B). Loosely install the rack guide screw on the steering gearbox.



4. Tighten the rack guide screw (A) to 25 N·m (2.5 kgf·m, 18 lbf·ft), then loosen it.



5. Retighten the rack guide screw to 3.9 N·m (0.4 kgf·m, 4 lbf·ft), then back it off to the specified angle.

   Specified return angle: 15 °±5 °

6. Hold the rack guide screw stationary with a wrench, and tighten the locknut by hand until it's fully seated.
7. Install the locknut wrench on the locknut (B), and hold the rack guide screw stationary with a wrench. Tighten the locknut to the specified torque.
8. Check for unusual steering effort through the complete turning range.
9. Check the steering wheel rotation play (see page 17-8) and the power assist (see page 17-8).

BACK

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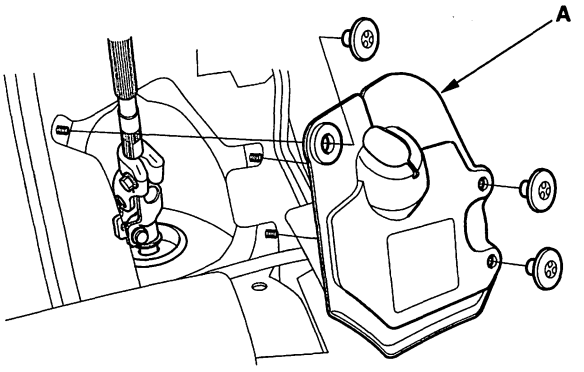
Steering Gearbox Removal

Special Tools Required
- Ball joint remover, 28 mm 07MAC-SL0A202
- Front subframe adapter EQS02BMDXSB0 *
- Front subframe adapter VSB02C000016 *
- Engine support hanger, A and Reds AAR-T-12566 *
- Engine hanger balance bar VSB02C000019 *
- Engine hanger adapter set VSB02C000031 *

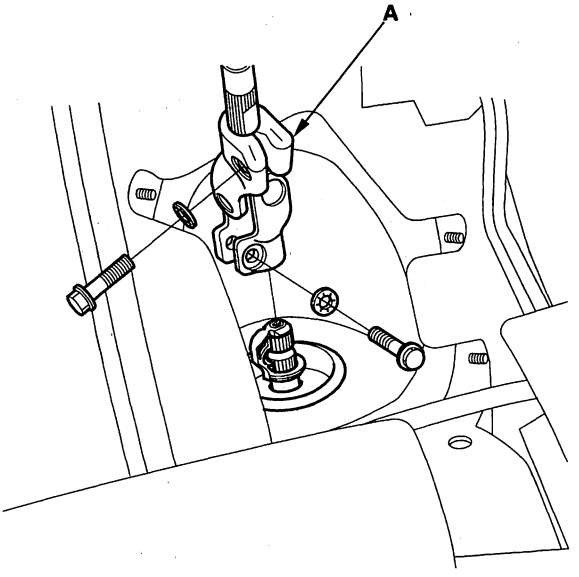
* Available through the American Honda Tool and Equipment program, 1-888-424-6857.

Note these items during removal:
- Using solvent and a brush, wash any oil and dirt off the valve body unit, it's lines, and the end of the steering gearbox. Blow dry with compressed air.
- Be sure to remove the steering wheel before disconnecting the steering joint. Damage to the cable reel can occur.
- Lower the front subframe from the body and remove the steering gearbox through the gap produced by lowering the front subframe.

1. Drain the power steering fluid (see page 17-13).
2. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).
3. Make sure the ignition switch is OFF, then disconnect the negative cable from the battery.
4. Raise the front of vehicle, and support it with safety stands in the proper locations (see page 1-7).
5. Remove the front wheels.
6. Remove the driver's dashboard undercover (see page 20-120).
7. Remove the steering wheel (see page 17-22).
8. Remove steering joint cover (A).



9. Remove the steering joint bolts, disconnect the steering joint by moving the steering joint (A) toward the column.



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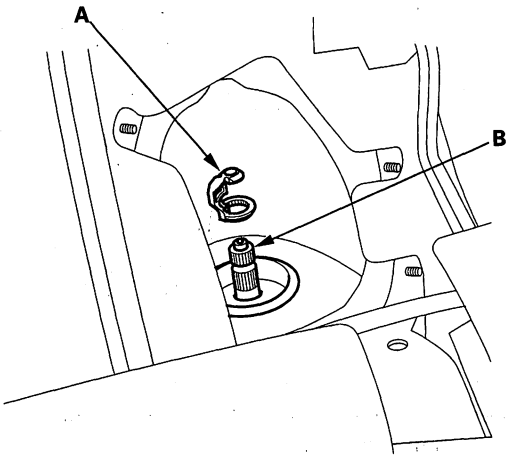
Steering Gearbox Removal (cont'd)

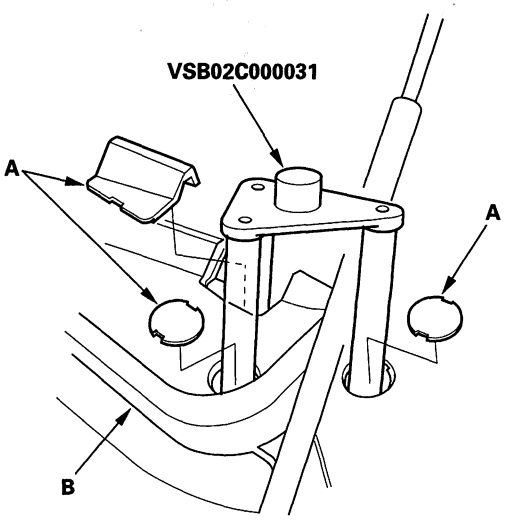
10. Remove the center guide (A) (if equipped), and discard it. The center guide is for factory assembly use only.



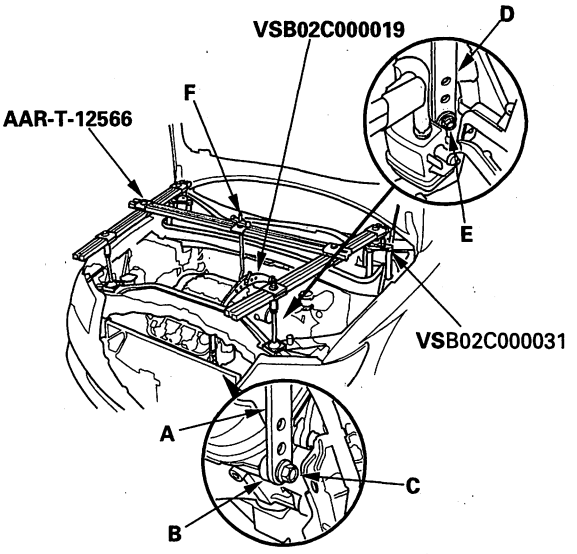
11. Apply vinyl tape to the splines on the pinion shaft (B).

12. Remove the air cleaner housing (see page 11-363).

13. Remove the service caps (A) for the front damper flange nuts from the cowl cover (B). Position the engine hanger adapters (VSB02C000031) with the "FRONT" mark facing forward over the damper flange nuts.



14. Install the engine hanger balancer bar (VSB02C 000019); attach the front arm (A) to the front cylinder head with a spacer (B) and 10 x 1.25 mm bolt (C), attach the rear arm (D) to the rear cylinder head with 8 x 1.25 mm bolt (E).



15. Install the engine support hanger (AAR-T-12566) to the vehicle, and attach the hook to the slotted hole in the engine hanger balancer bar. Tighten the wing nut (F) by hand to lift and support the engine/ transmission.

BACK

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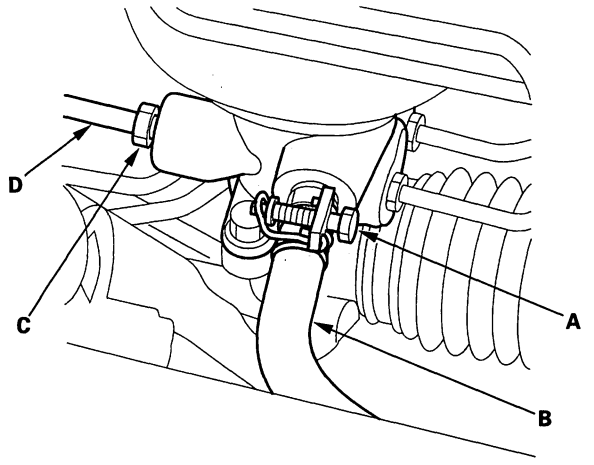
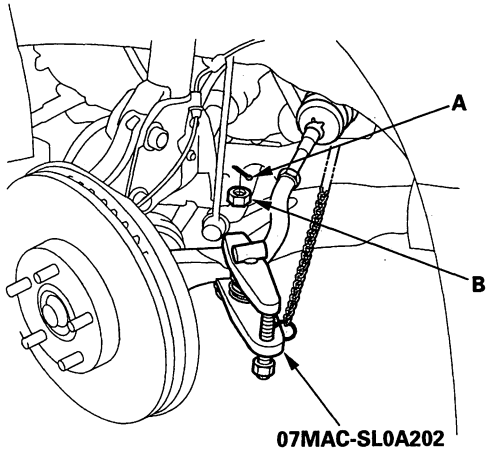
16. Loosen the adjustable hose clamp (A), and disconnect the return hose (B).



17. Loosen the 16 mm flare nut (C), and disconnect the inlet line (D).

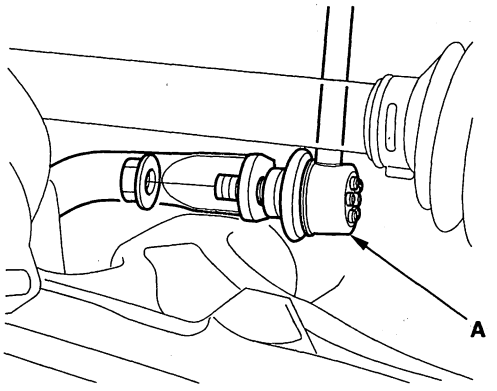
18. Remove the cotter pin (A) from the 12 mm nut (B), and loosen the nut.



19. Separate the tie-rod ball joint and knuckle using the ball joint remover (see page 18-11).

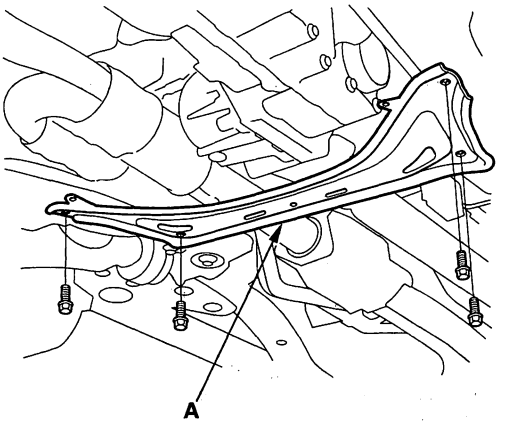
20. Disconnect the lower arm ball joints (see page 18-17).

21. Disconnect the stabilizer links (A) from the lower arm on the right and left sides (see page 18-20).



22. Remove the front undercover (see page 20-219) and the front splash shield (see page 20-218).

23. Remove the front subframe stiffener plate (A).



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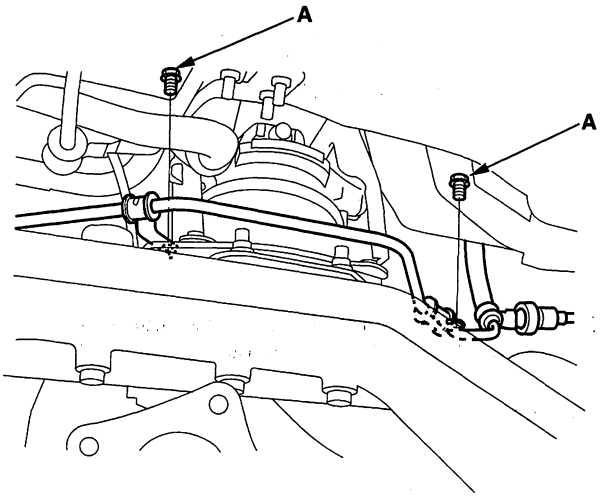
Steering Gearbox Removal (cont'd)

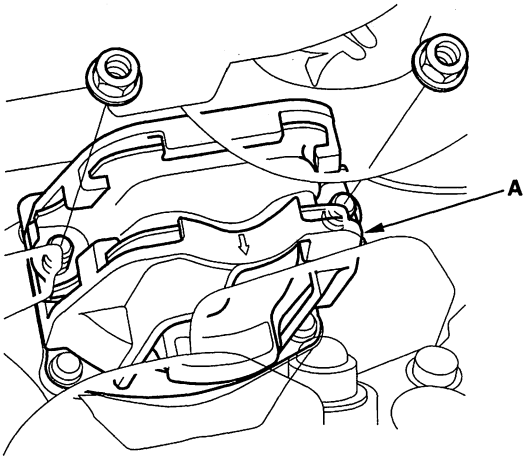
24. Remove exhaust pipe B (see page 9-9).

25. Remove the propeller shaft and propeller shaft protectors (see page 16-38).

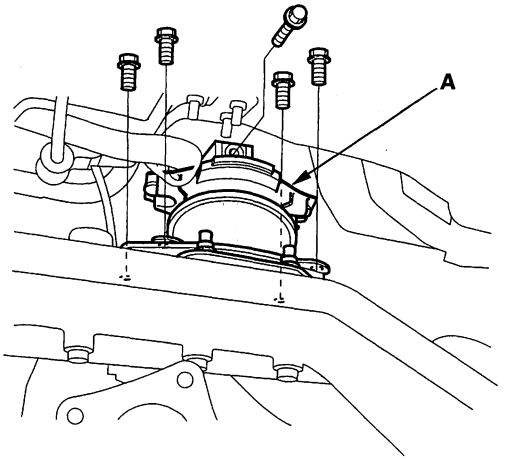
26. Remove the inlet line clamp bolts (A).



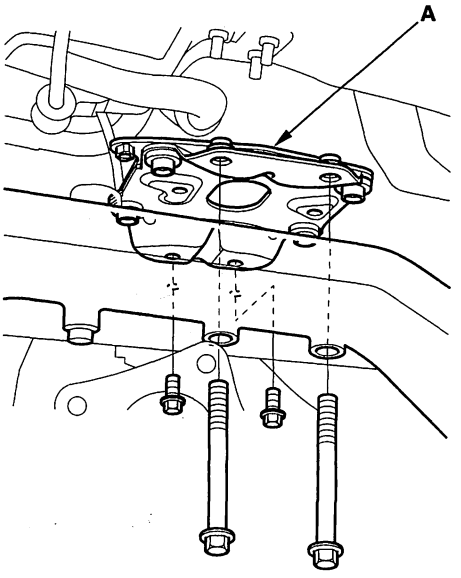
27. Remove the rear mount stop (A) from the rear engine mount.



28. Remove the rear engine mount (A) from the base bracket, and move it aside.



29. Remove the base bracket (A) from the front subframe.



BACK

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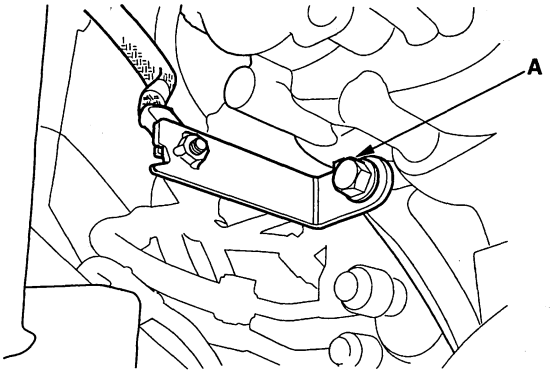
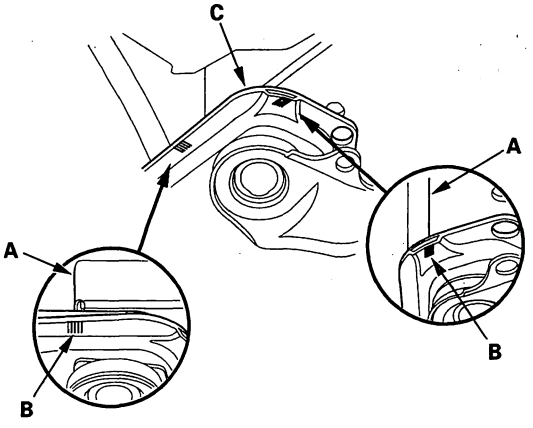
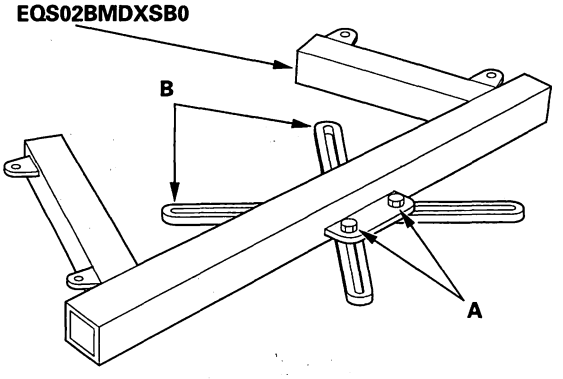
30. Remove the ground cable bolt (A) from the transmission.



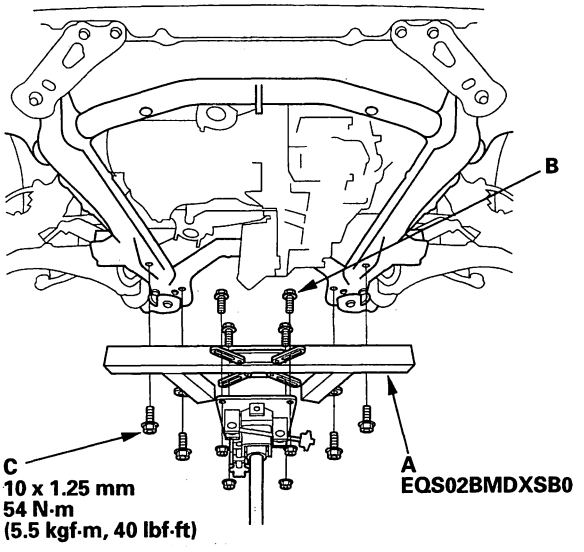
31. Make reference marks (A) on the body across the marks (B) on the edge of the front subframe (C).



32. Loosen the four bolts (A) holding the adjustable arms (B) of the front subframe adapter to its center plate.



33. Line up the slots in the arms with the bolt holes on the corner of the jack base, then attach the front subframe adapter (A) to the jack base with the bolts (B) that came with the jack. Tighten all bolts securely.



34. Raise the jack to vehicle height, then attach the front subframe adapter to the front subframe using the subframe stiffener mounting bolts (C) and bolt holes.

35. Support the front subframe securely by raising the transmission jack.

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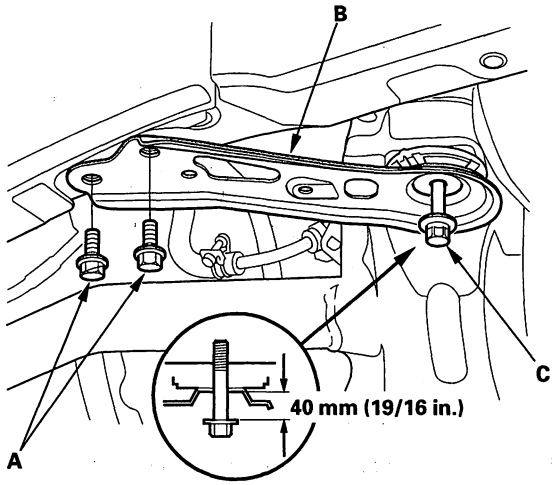
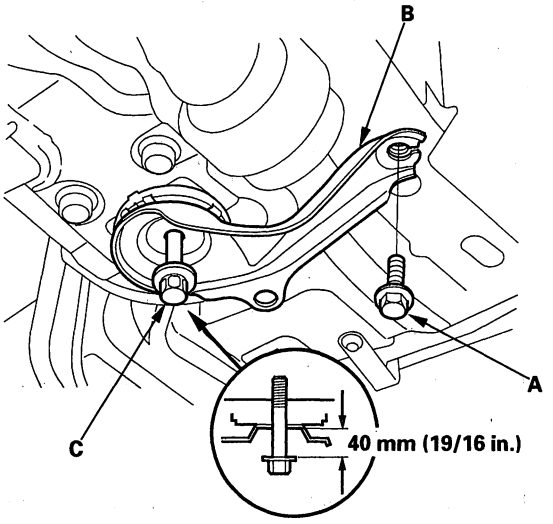
Steering Gearbox Removal (cont'd)

36. Remove the mounting bolts (A) from the front subframe front brackets (B).



37. Loosen the special bolts (C) on the front subframe front brackets so they are about 40 mm (19/16 in.) from the mounting surface. Do not loosen the special bolts more than necessary.

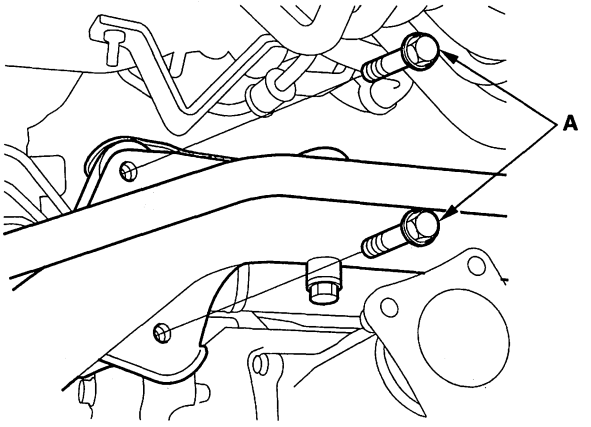
38. Remove the mounting bolts (A) from the front subframe rear brackets (B).



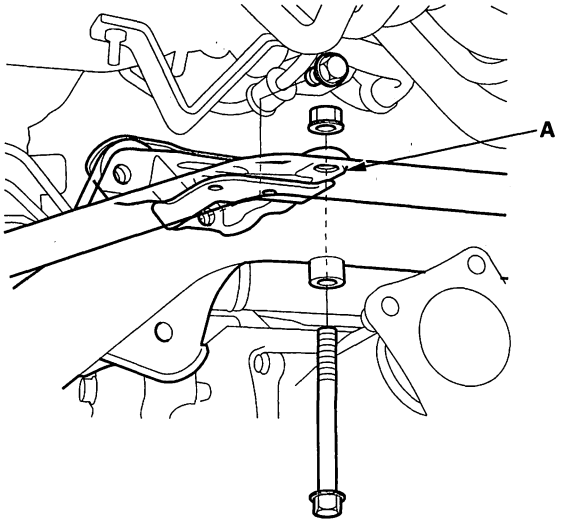
39. Loosen the special bolts (C) on the front subframe rear brackets so they are about 40 mm (19/16 in.) from the mounting surface. Do not loosen the special bolts more than necessary.

40. Lower the transmission jack slowly until the front subframe has dropped about 40 mm (19/16 in.).

41. Remove the mounting bolts (A) from the left side of the steering gearbox.



42. Remove the gearbox stiffener bracket (A) from the left side of the front subframe.



BACK

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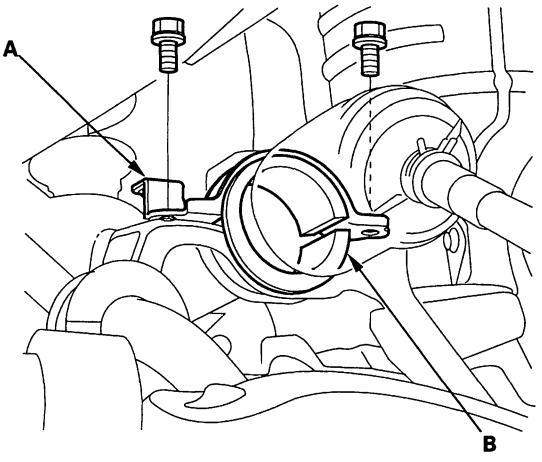
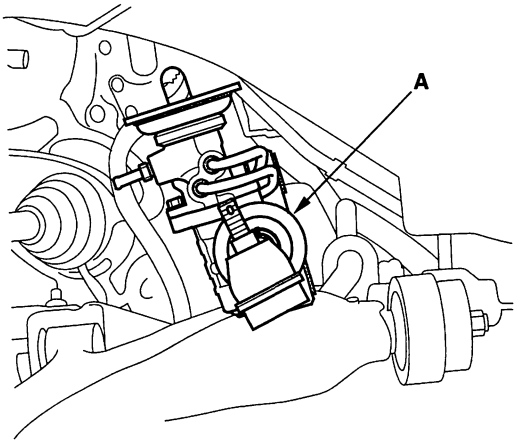
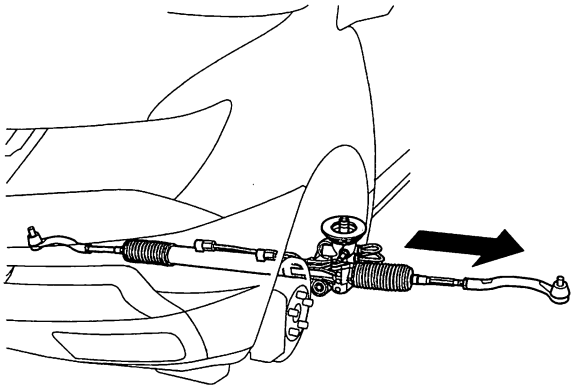
43. Remove the mounting bolts from the right side of the steering gearbox, then remove the mounting bracket (A) and cushion (B).



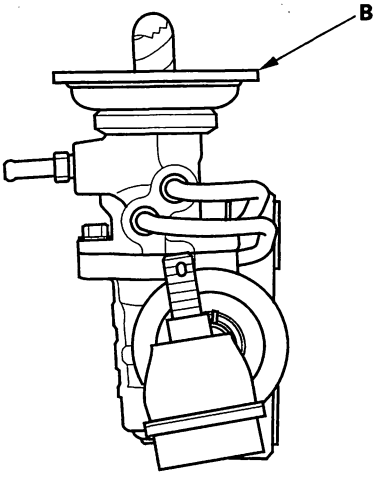
44. Carefully move the steering gearbox (A) toward the driver's side until the pinion shaft clears the wheelwell opening on the frame.



45. Remove the steering gearbox through the wheelwell opening on the driver's side.



46. Remove the pinion shaft grommet B from the top of the valve housing.



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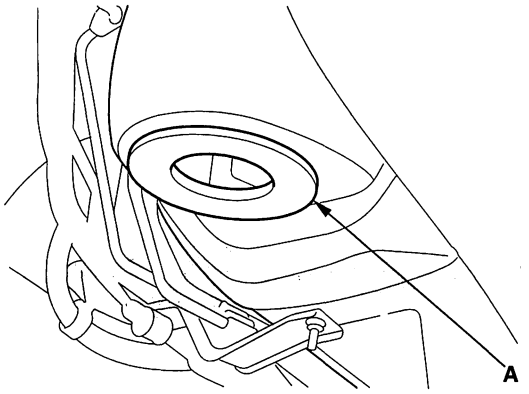
Steering Gearbox Removal (cont'd)

47. Replace the pinion shaft grommet A if necessary.



48. After removing the steering gearbox, make sure that no power steering fluid gets on the gearbox mount cushions, gearbox housing, surface of the front subframe and stiffener. Wipe off any spilled fluid at once.

BACK

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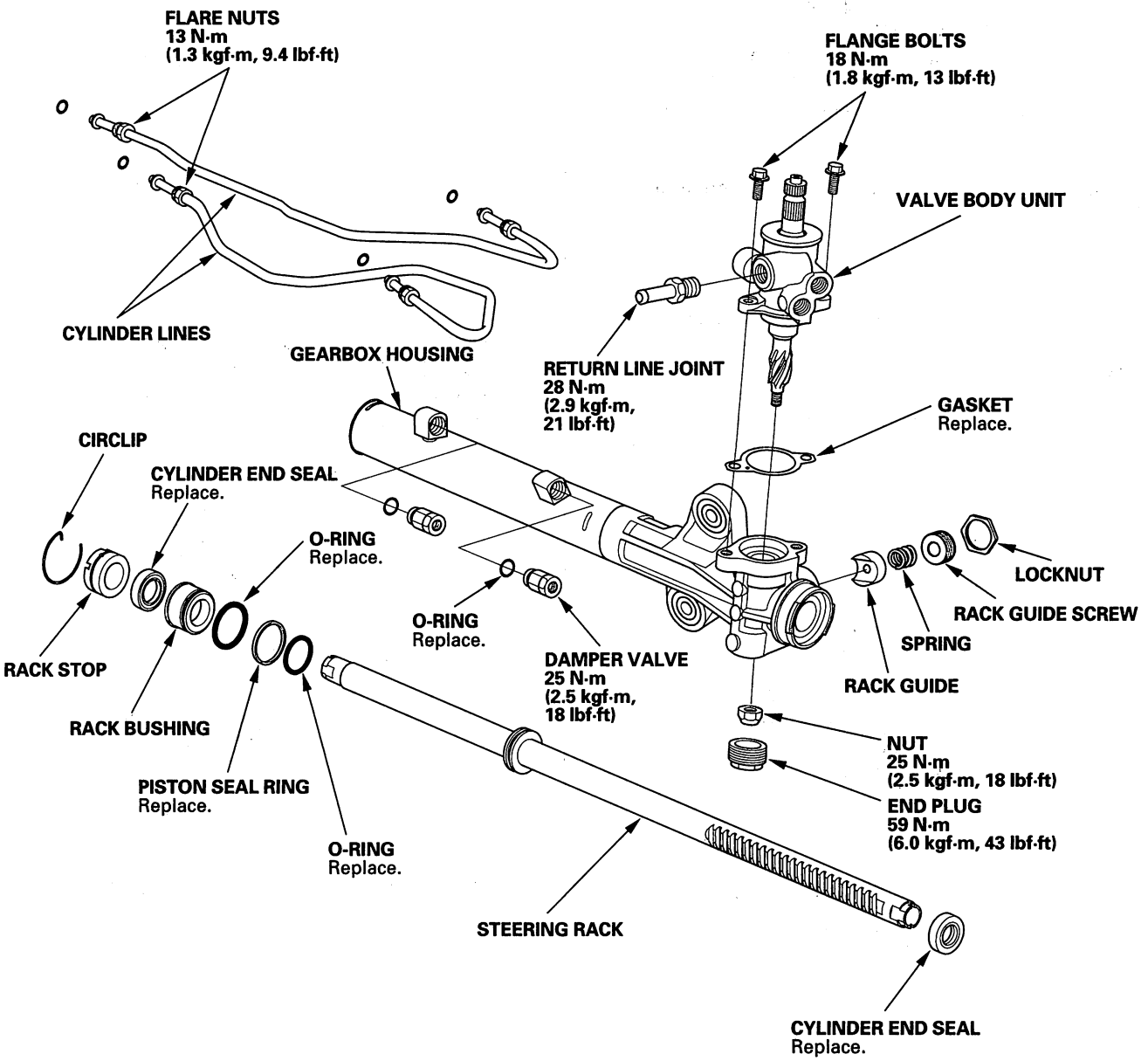
Steering Gearbox Overhaul

Exploded View



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Steering Gearbox Overhaul (cont'd)

Special Tools Required
- Driver handle, 480 mm 070GD-0010100
- Driver 07749-0010000
- Attachment, 42 x 47 mm 07746-0010300
- Driver head 07946-MJ00201
- Piston seal ring guide 07LAG-SM40100
- Piston seal ring sizing tool 07LAG-SM40200
- Pincer Oetiker 1098, or equivalent, commercially available

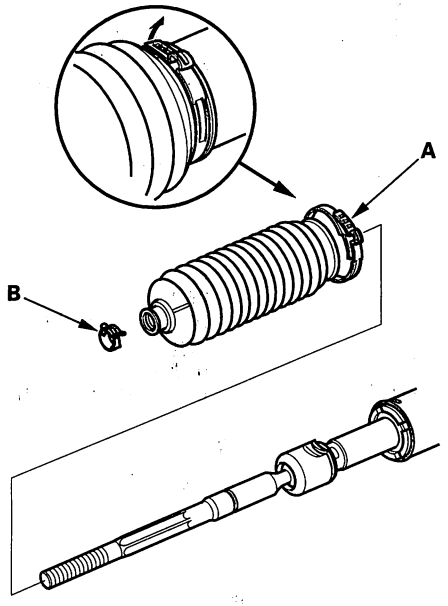
NOTE: Refer to the Exploded View as needed during the following procedure.

Removal

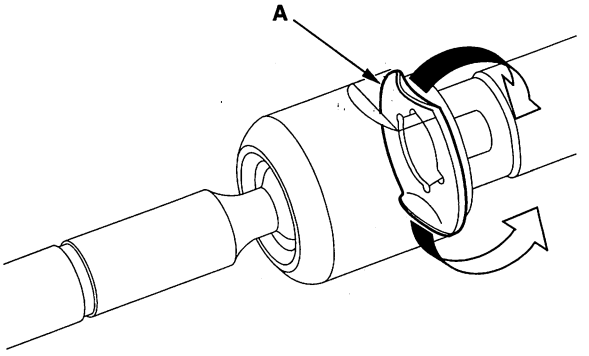
1. Remove the steering gearbox (see page 17-31).

Disassembly

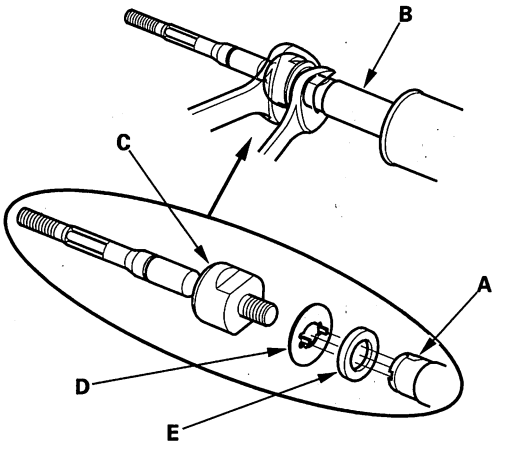
2. Remove the boot bands (A) and tie-rod clips (B). Pull the boots away from the ends of the steering gearbox.



3. Unbend the lock washer (A).



4. Hold the flat surface sections (A) of the steering rack (B) with a wrench, and unscrew both rack ends (C) with a wrench. Be careful not to damage the rack surface with the wrench.



5. Remove the lock washer (D) and stop washer (E).

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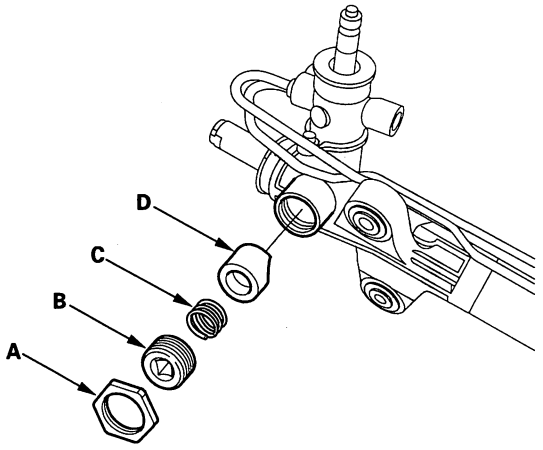
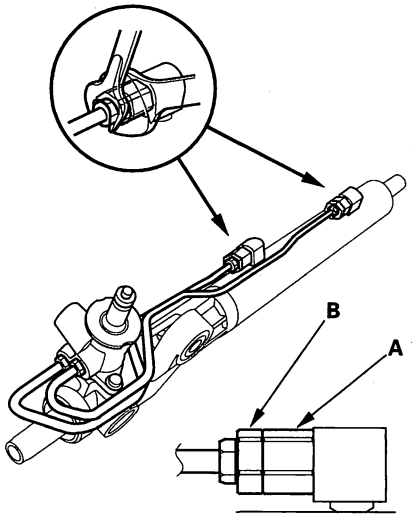
6. Loosen the locknut (A), then remove the rack guide screw (B).



7. Remove the spring (C) and the rack guide (D) from the gearbox housing.

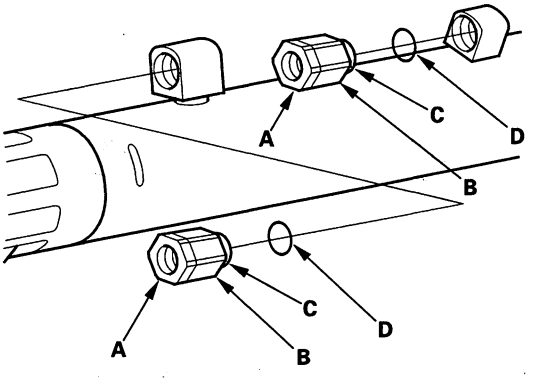
8. Remove the cylinder lines from the steering gearbox.

   NOTE: Use a second wrench when loosening the cylinder lines to avoid damage to the fittings on the steering gearbox. Do not loosen the A and B connectors.



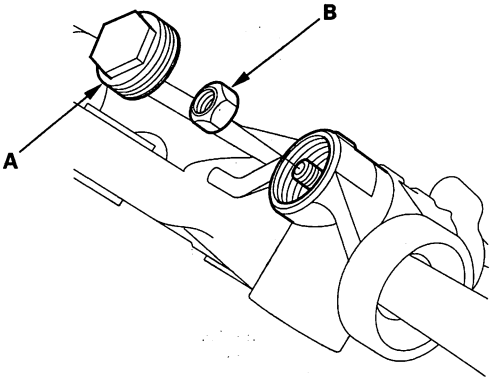
9. Remove the damper valves (C) and O-rings (D) from the steering gearbox.

   NOTE: Do not loosen the A and B connectors.



10. Drain the fluid from the cylinder fittings by slowly moving the steering rack back and forth.

11. Remove the end plug (A) from the gearbox housing, then remove the nut (B) from the pinion shaft end.



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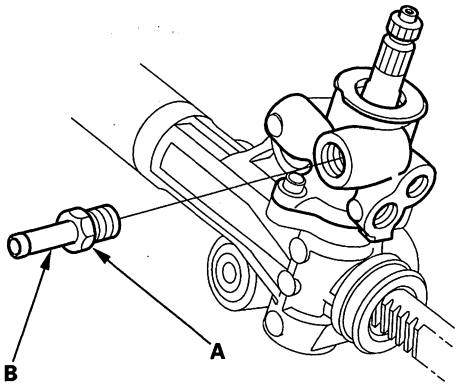
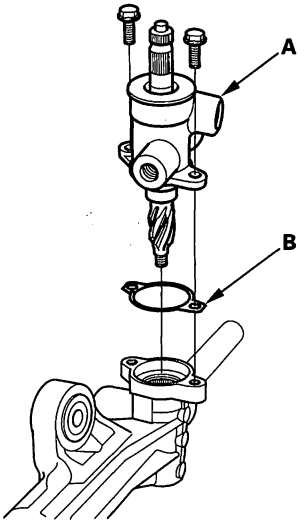
Steering Gearbox Overhaul (cont'd)

12. Loosen the 16 mm flare nut (A), and remove the return line joint (B).

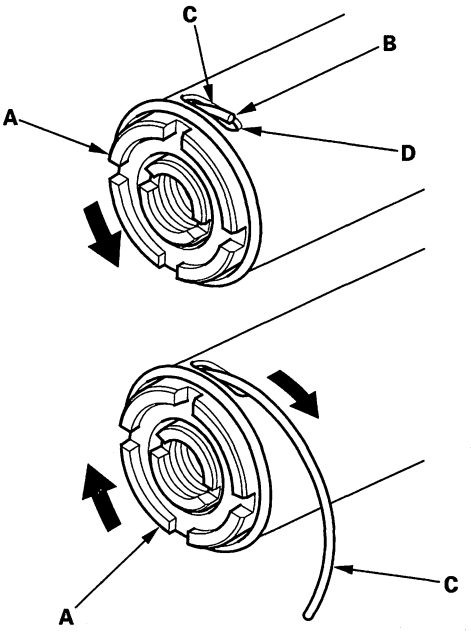


13. Remove the two flange bolts, the valve body unit (A), and gasket (B) from the steering gearbox. Check that the valve turns smoothly by turning the pinion shaft. If any play or roughness is felt, replace the valve body unit with a new part. Do not try to disassemble the valve body unit.

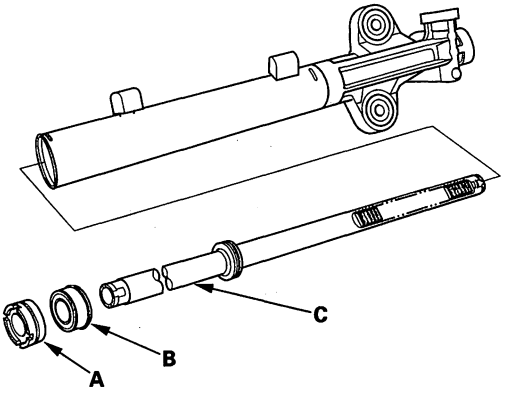


14. Slide the steering rack all the way towards the valve body end of the gearbox housing.

15. Turn the rack stop (A) counterclockwise until the end (B) of the circlip (C) sticks out from the hole (D) in the cylinder housing. Then turn it clockwise to remove the circlip.



16. Remove the rack stop (A), rack bushing (B), and steering rack (C) from the steering gearbox.



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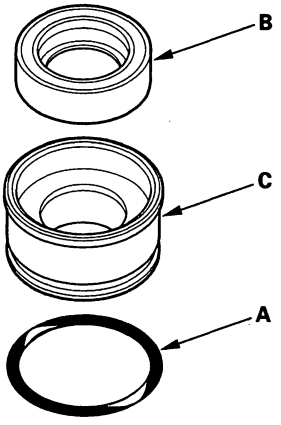
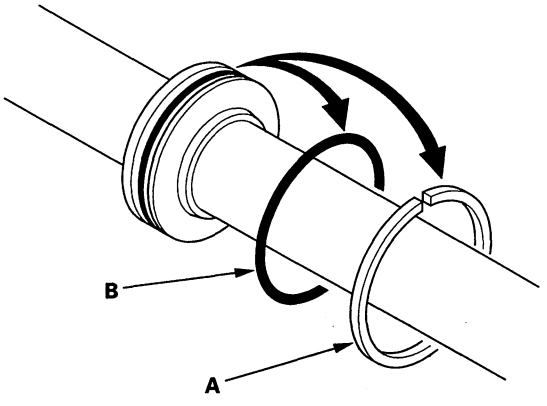
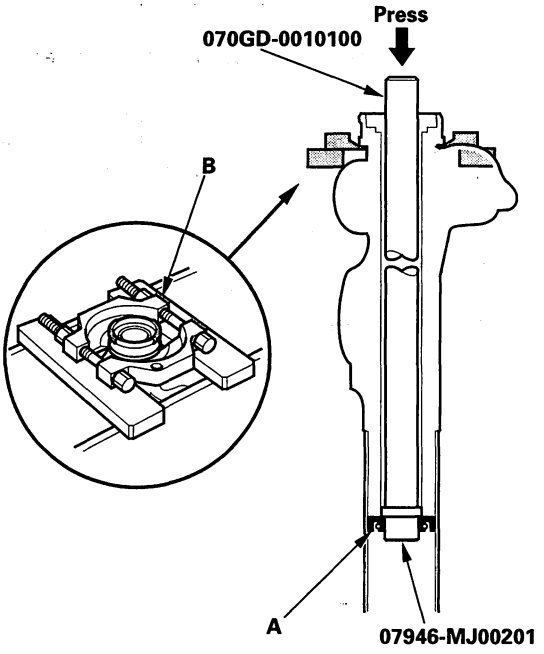
17. Remove the O-ring (A) and cylinder end seal (B) from the rack bushing (C).



18. Carefully pry the piston seal ring (A) and O-ring (B) off the rack piston. Be careful not to damage the inside of the seal ring groove and piston edges when removing the seal ring.



19. Insert the driver handle and driver head, and carefully place them on the cylinder end seal (A) as shown. Make sure that the driver head is securely positioned on the cylinder end seal.



20. Install the bearing separator (B) on the gearbox housing. Set the steering gearbox in a press so the gearbox housing points upward, then push out the cylinder end seal by pressing on the end of the driver handle and driver head.

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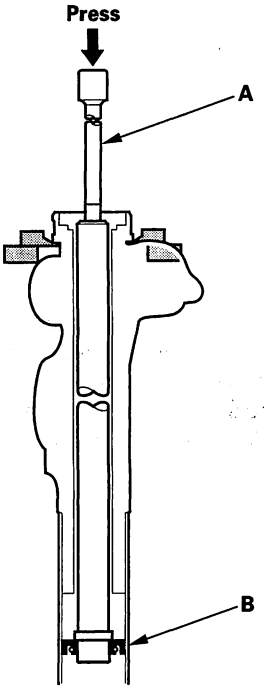
Steering Gearbox Overhaul (cont'd)

21. Remove the steering gearbox from the press, and set a driver extension (A) on the driver handle. Place the steering gearbox in a press, then remove the cylinder end seal (B) from the gearbox housing by pressing on the end of the extension.

    Note these items when pressing the cylinder end seal:
    - Keep the tool straight to avoid damaging the cylinder wall. Check the tool angle, and correct it if necessary, when removing the cylinder end seal.
    - Use a press to remove the cylinder end seal. Do not try to remove the seal by striking the tool; striking the tool would break the cylinder end seal, and the seal would remain in the gearbox.

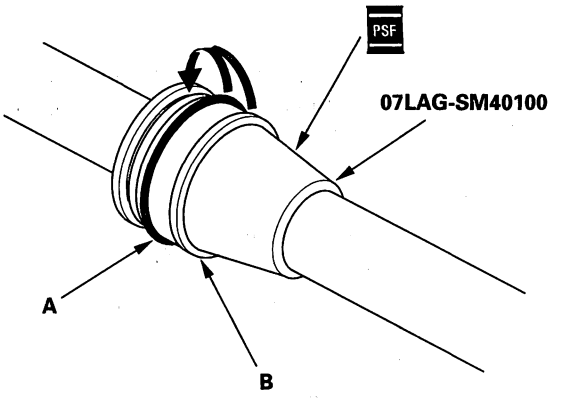


Reassembly

22. Coat the piston seal ring guide with power steering fluid, then slide it onto the rack, big end first.

23. Position the new O-ring (A) and new piston seal ring (B) on the ring guide, then slide them down toward the big end of the tool.

    Note these items during reassembly:
    - Do not over expand the resin seal rings. Install the resin seal rings with care so as not to damage them. After installation, make sure you contract the seal ring using the sizing tool.
    - Replace the piston's O-ring and seal ring as a set.



24. Pull the O-ring off into the piston groove, then pull the piston seal ring off into the piston groove on top of the O-ring.

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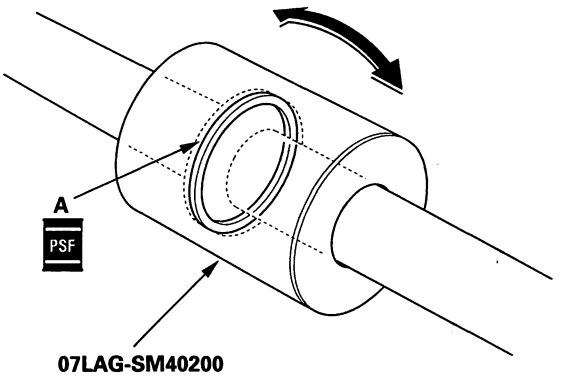
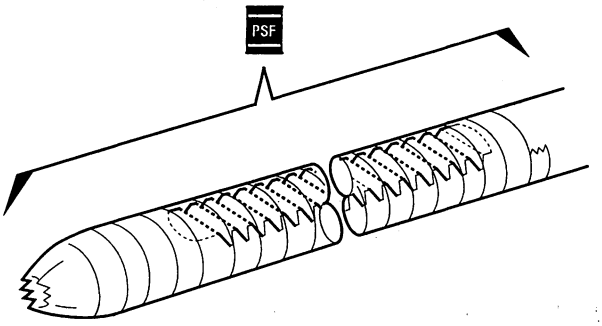
25. Coat the piston seal ring (A) and the inside of the piston seal ring sizing tool with power steering fluid, then carefully slide the tool onto the rack and over the piston seal ring.

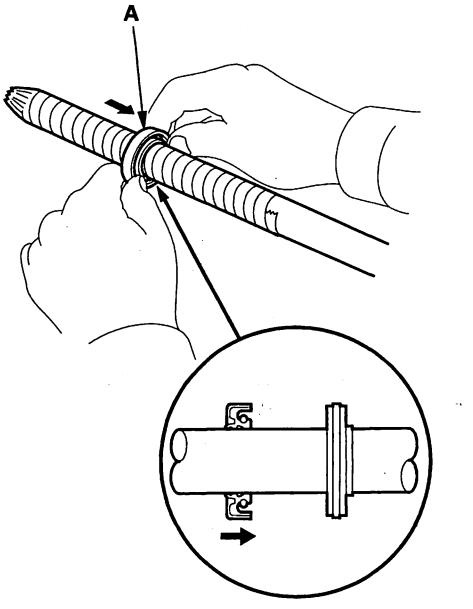


26. Move the sizing tool back and forth several times to make sure the piston seal ring fits snugly in the piston.

27. Wrap vinyl tape around the rack teeth and rack end edges, then coat the surface of the tape with power steering fluid. Make sure that the vinyl tape is wrapped carefully so that there is no stepped portion.



28. Coat the inside surface of the new cylinder end seal (A) with power steering fluid, then install it onto the steering rack with its grooved side toward the piston. When installing the cylinder end seal, be careful not to damage the lip of the seal with the edges or teeth of the steering rack.



29. Remove the vinyl tape from the steering rack, then remove any adhesive residue.

(cont'd)

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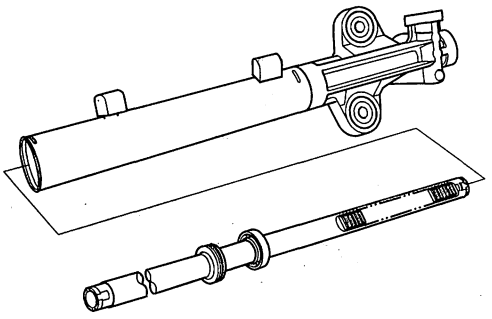
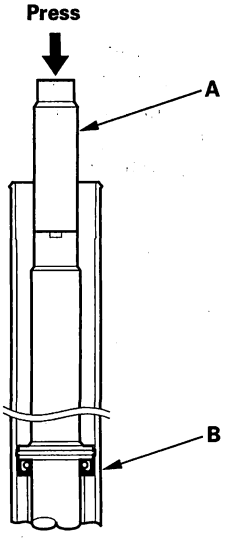
Steering Gearbox Overhaul (cont'd)

30. Apply multipurpose grease to the steering rack teeth, then insert the steering rack into the gearbox housing. Be careful not to damage the inner surface of the cylinder wall with the rack edges.



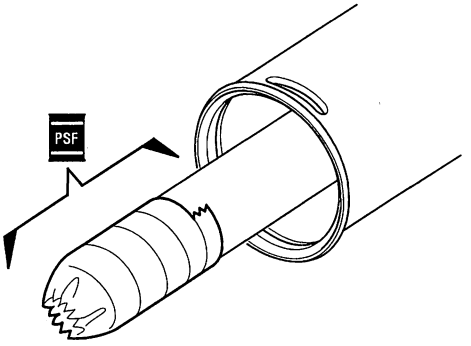
31. Insert an appropriate sized deep socket (A) onto the steering rack as shown.



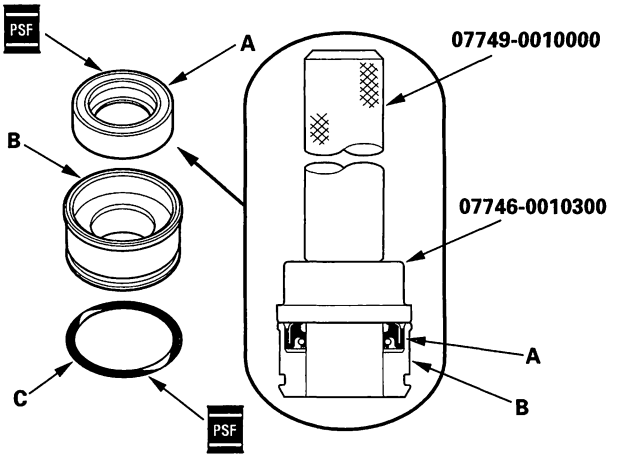
32. Install the cylinder end seal (B) into the bottom of the cylinder by pressing on the tool with a press. Do not push on the tool with excessive force as it may damage the cylinder end seal.

33. Remove the tool, and center the steering rack.

34. Wrap vinyl tape around the rack end edges, and coat the surface of the tape with power steering fluid. Make sure that the vinyl tape is wrapped carefully so that there is no stepped portion.



35. Coat the inside surface of the new cylinder end seal (A) with power steering fluid, then press it into the rack bushing (B) using the driver and attachment.



36. Coat the new O-ring (C) with power steering fluid, and carefully fit it in the groove of the rack bushing.

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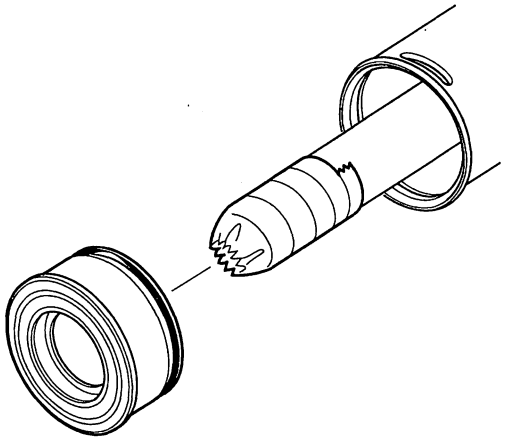
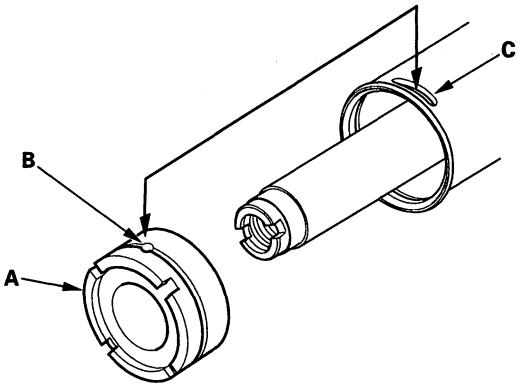
37. Install the rack bushing onto the steering rack with the cylinder end seal grooved side toward the piston. Push in the rack bushing with your finger.

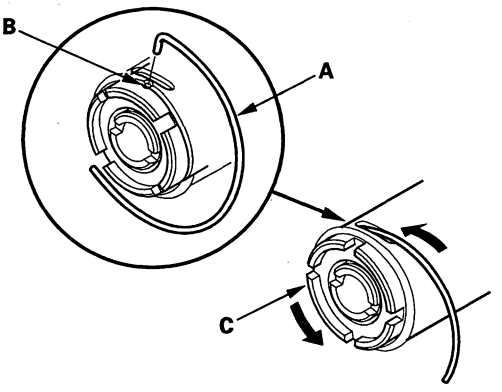


38. Remove the vinyl tape from the steering rack, then remove any adhesive residue.

39. Install the rack stop (A) onto the steering rack so the hole (B) is aligned with the slot (C) on the cylinder housing.



40. Insert the end of the circlip (A) into the hole (B) of the rack stop (C). Turn the rack stop counterclockwise until the circlip is fully seated in the rack stop.



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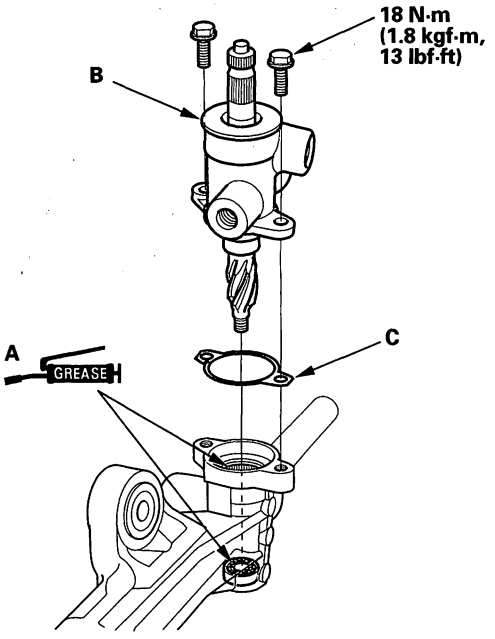
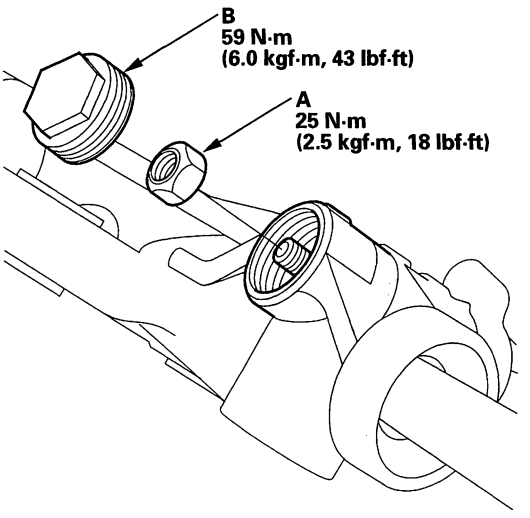
Steering Gearbox Overhaul (cont'd)

41. Apply multipurpose grease to the bearings (A) in the gearbox housing, and install the valve body unit (B) and new gasket (C) by engaging the gears. Note the valve body unit installation position (direction of line connections). Then loosely install the two flange bolts.



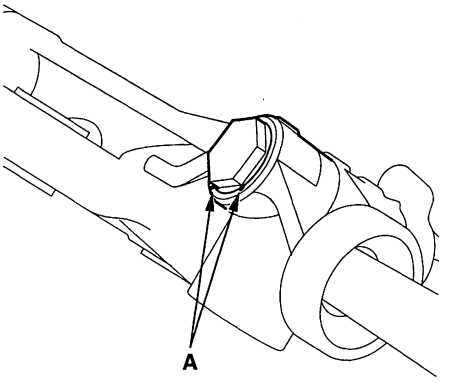
42. Install the new self-locking nut (A) onto the pinion shaft end, and tighten to the specified torque.



43. Tighten the flange bolts to the specified torque.

44. Apply new sealant (Loctite 565) all the way around the threads on the end plug (B), install the end plug onto the gearbox housing, and tighten it to the specified torque.

45. After tightening, use a drift to stake (A) the end plug shoulder against the gearbox housing.



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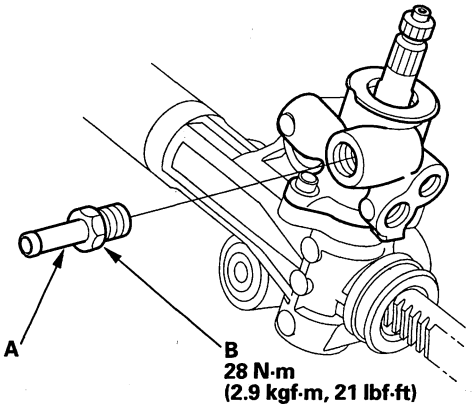
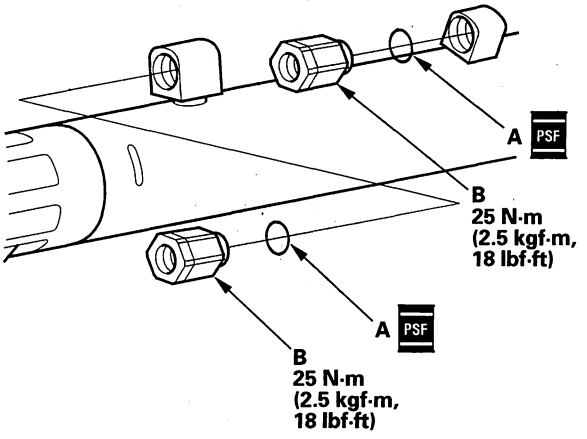
46. Install the return line joint (A), and tighten the 16 mm flare nut (B).



47. Coat the new O-rings (A) with power steering fluid, then install the damper valves (B).

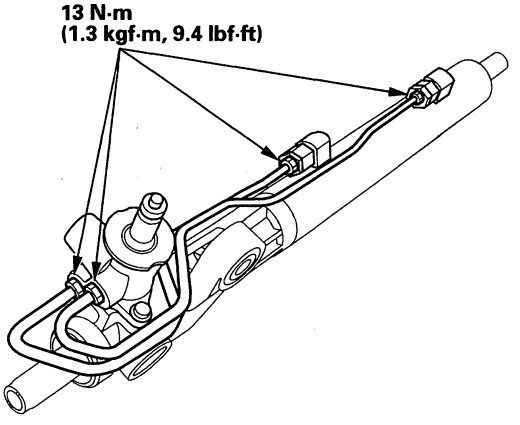


48. Install the damper valve to the steering gearbox.

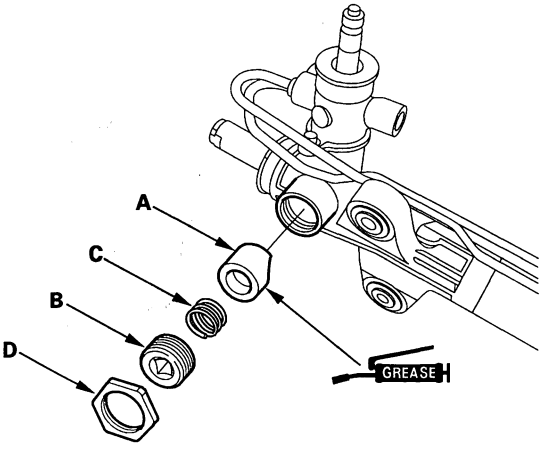
49. Before installing the cylinder lines, coat the new O-rings with power steering fluid, then install the lines.

Note these items during reassembly:
- Thoroughly clean the joints of the cylinder lines. The joints must be free of foreign material.
- Install the cylinder lines by tightening the flare nuts by hand first, then tighten the flare nuts to the specified torque.

NOTE: Use a second wrench when tightening the cylinder lines to avoid damaging the fittings on the steering gearbox.



50. Apply multipurpose grease to the sliding surface of the rack guide (A), and install it onto the gearbox housing.



51. Apply new sealant (Loctite 565) to the middle of the threads of the rack guide screw (B), then install the spring (C), rack guide screw, and locknut (D).

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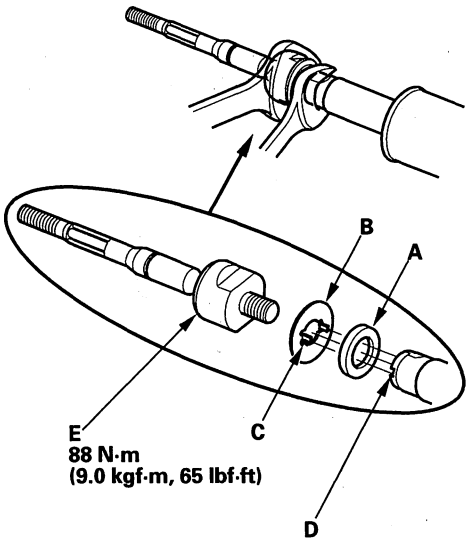
Steering Gearbox Overhaul (cont'd)

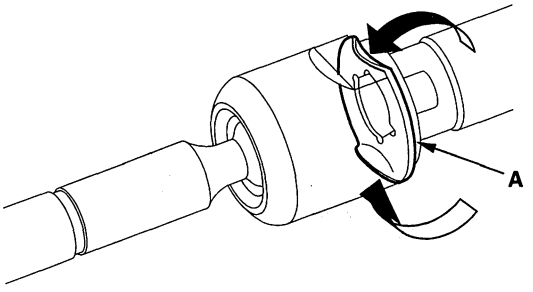
52. Adjust the rack guide screw (see page 17-30). After adjusting, check that the rack moves smoothly by sliding it right and left.

53. Install the new stop washer (A) and lock washer (B). Align the lock washer tabs (C) with the slots (D). Install the rack end (E) while holding the lock washer in place. Repeat this step for the other side of the rack.

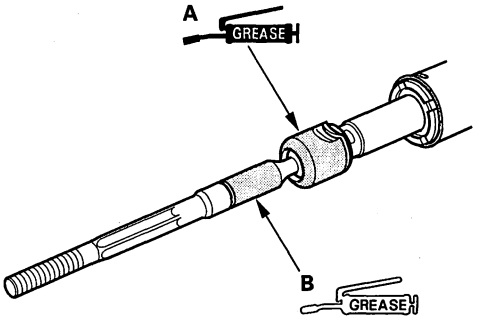


54. Hold the flat surface sections of the steering rack with a wrench, and tighten both rack ends. Be careful not to damage the rack surface with the wrench.

55. Bend the lock washer (A) back against the flat spots on the rack end joint housing.



56. Apply multipurpose grease to the circumference of the rack end joint housing (A).

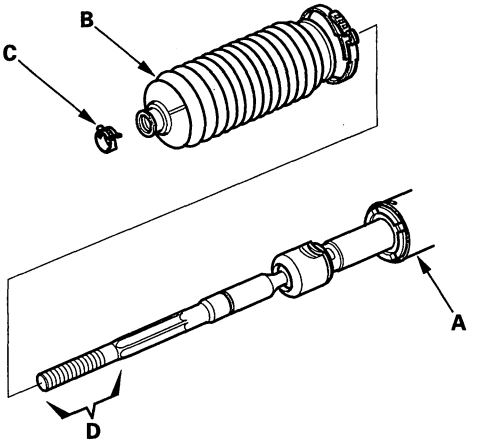


(P/N 08798-9013)

57. Apply a light coat of silicone grease to the boot grooves (B) on the rack ends.

58. Center the steering rack within its stroke.

59. Clean off any grease or contamination from the boot installation surfaces (A) on the gearbox housing. Install the boots (B) on the rack ends with the tie-rod clips (C), and fit the boot end on the housing properly.



60. After installing the boots, wipe the grease off the threaded section (D) of the rack end.

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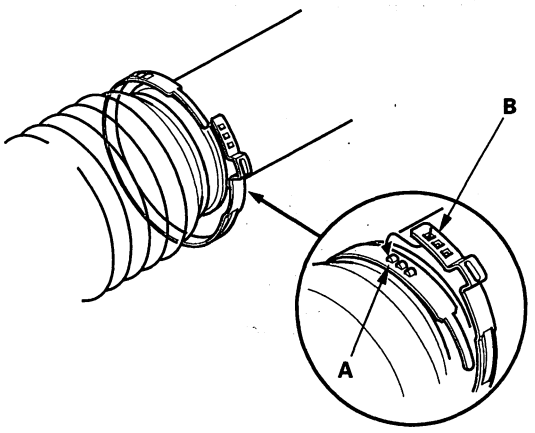
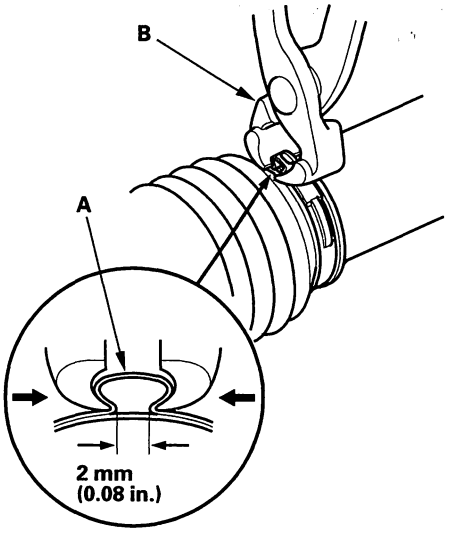
61. Install the new boot bands by aligning the tabs (A) with the holes (B) of the band.



62. Close the ear portion (A) of the band with a commercially available Oetiker 1098 pincer or equivalent (B).



63. Slide the rack right and left to be certain that the boots are not deformed or twisted.

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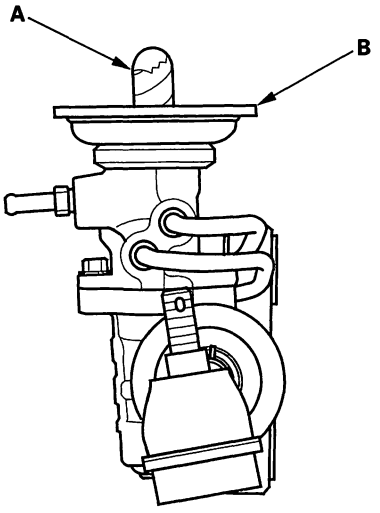
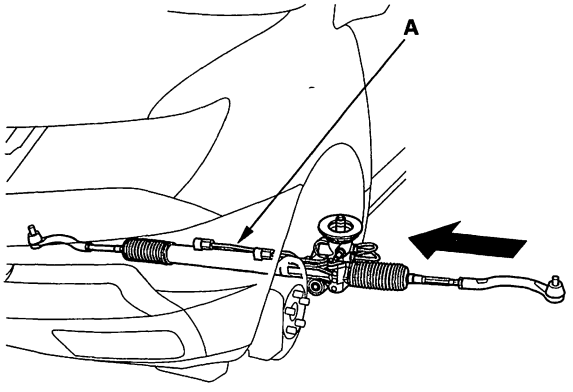
Steering Gearbox Installation

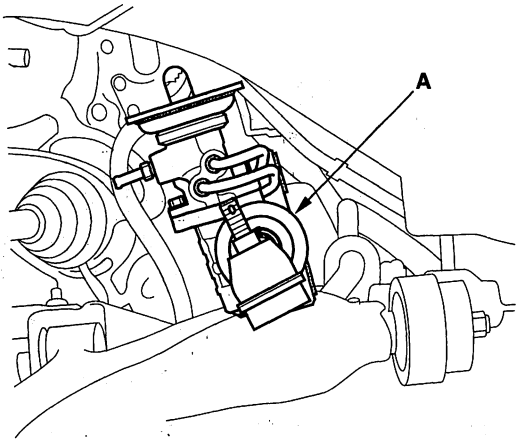
1. Before installing the steering gearbox, make sure that no power steering fluid is on the mating surface of the steering gearbox and front subframe. To prevent the gearbox mounting bolts from loosening after the installation, remove any power steering fluid from the mount cushions and bolt holes.
2. Apply vinyl tape to the splines on the pinion shaft (A).



3. Install the pinion shaft grommet B on the top of the valve housing.
4. Slide the steering gearbox (A) between the front subframe and body from the driver's side.



5. Carefully move the steering gearbox (A) toward the passenger's side until the pinion shaft clears the wheelwell opening on the body.



6. Continue moving the gearbox toward the passenger's side until the steering gearbox is in position.

BACK

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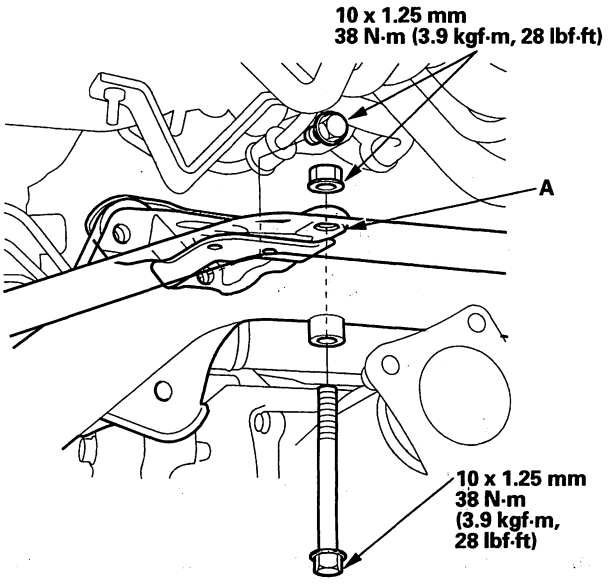
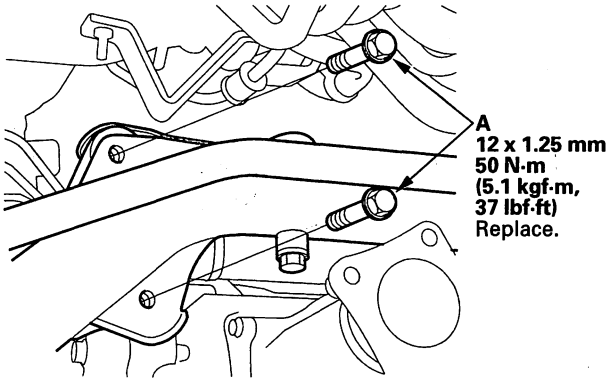
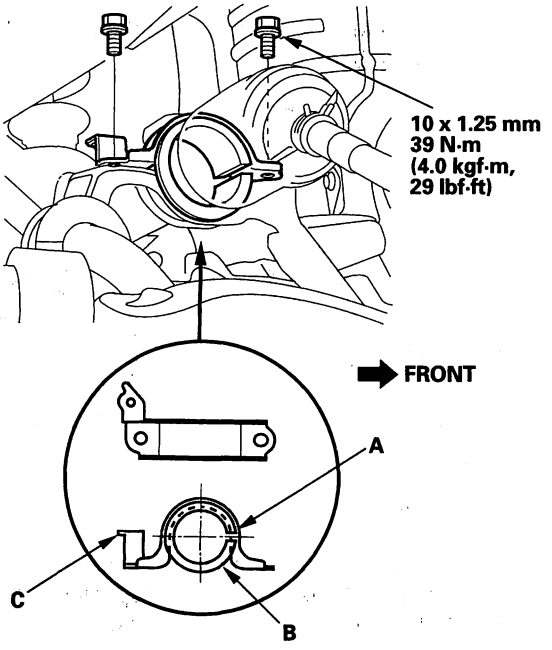
7. Install the gearbox stiffener bracket (A) on the left side of the front subframe, and tighten the bolts and nut to the specified torque.



8. Loosely install the new mounting bolts (A) on the left side of the steering gearbox.



9. Position the cutout (A) on the mounting cushion (B) as shown, and install it on the right side of the steering gearbox.



10. Install the gearbox mounting bracket (C) over the mounting cushion, and loosely install the mounting bolts.

11. Tighten the mounting bolts on the both sides of the steering gearbox to specified torque alternately in two or more steps.

(cont'd)

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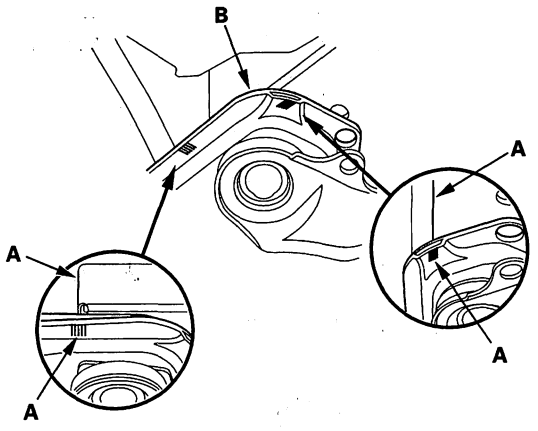
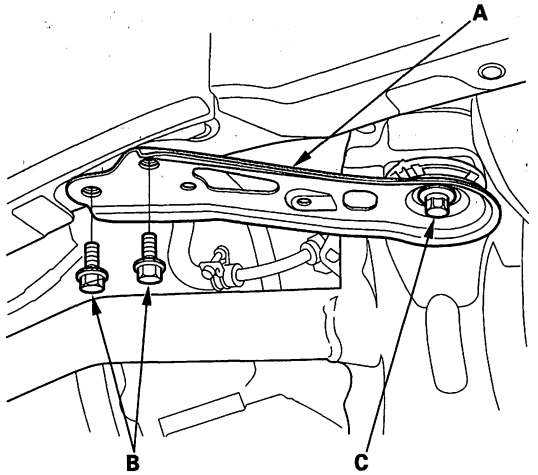
Steering Gearbox Installation (cont'd)

12. Carefully raise the front subframe with the subframe adapter and the transmission jack or the powertrain lift until the subframe is it position.

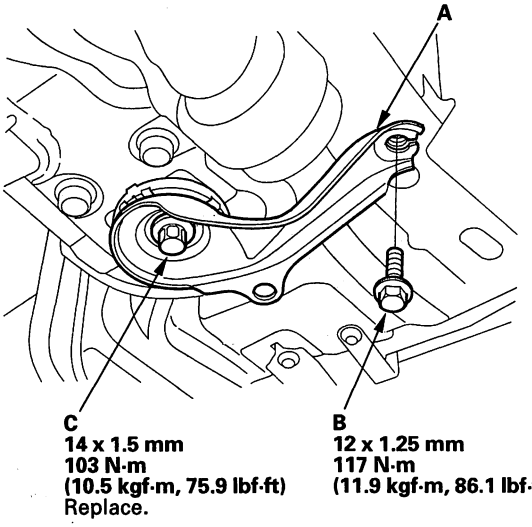
13. Align all reference marks (A) on the front subframe (B) with the body.



14. Install the front subframe front brackets (A) with mounting bolts (B) and the new special bolts (C), and tighten to the specified torque.

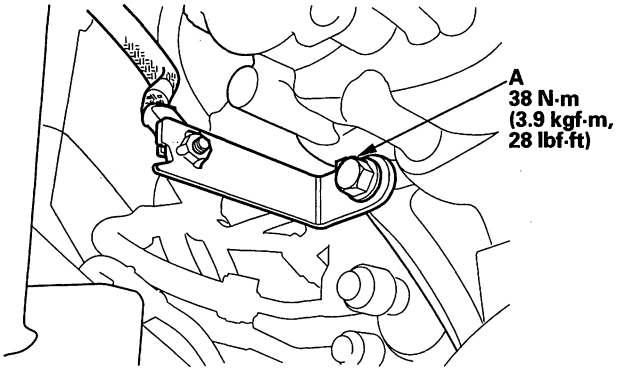


15. Install the front subframe rear brackets (A) with mounting bolts (B) and the new special bolts (C), and tighten to the specified torque.



16. Lower the transmission jack supporting the front subframe.

17. Install the ground cable bolt (A) to the transmission.



BACK

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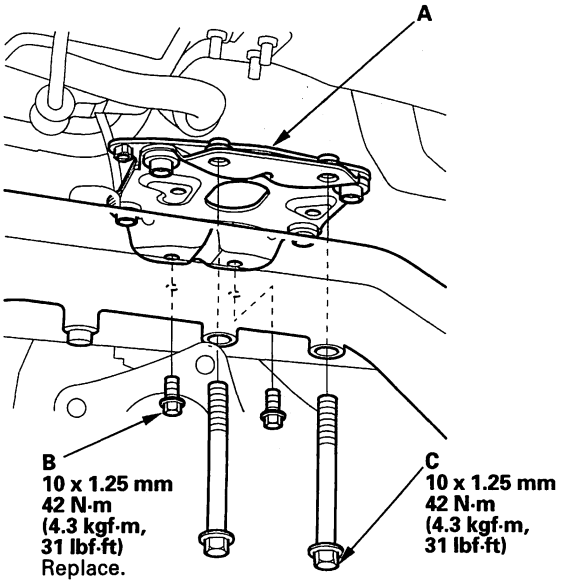
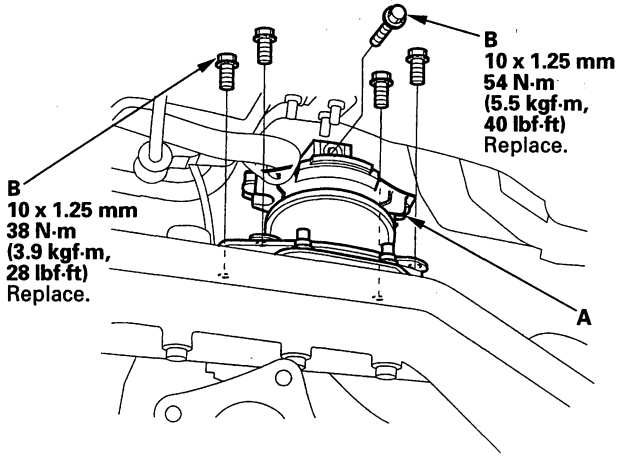
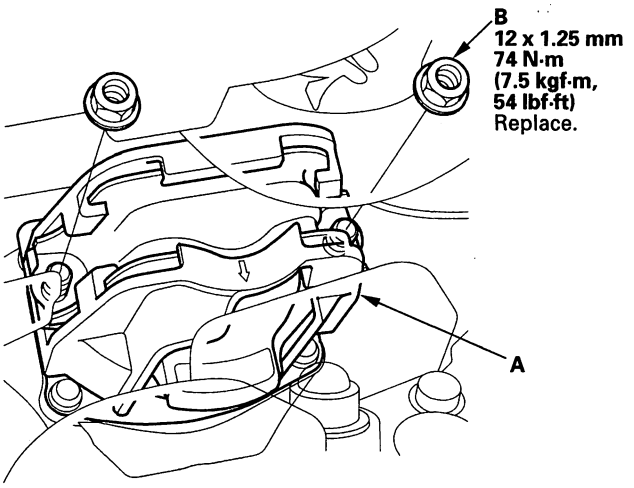
18. Install the base bracket (A) with new mounting bolts (B) and mounting bolts (C), and tighten to the specified torque.



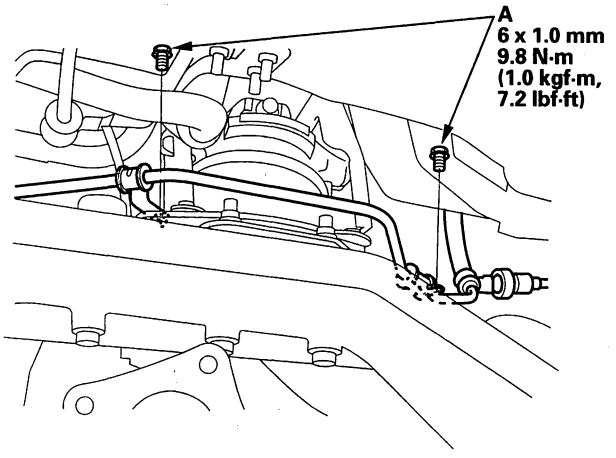
19. Install the rear engine mount (A) with new mounting bolts (B), and tighten to the specified torque.



20. Install the rear mount stop (A) with new mounting nuts (B), and tighten to the specified torque.



21. Install the inlet line clamp bolts (A), and tighten to the specified torque.



22. Install exhaust pipe B (see page 9-9).

23. Install the propeller shaft and propeller shaft protectors (see page 16-39).

(cont'd)

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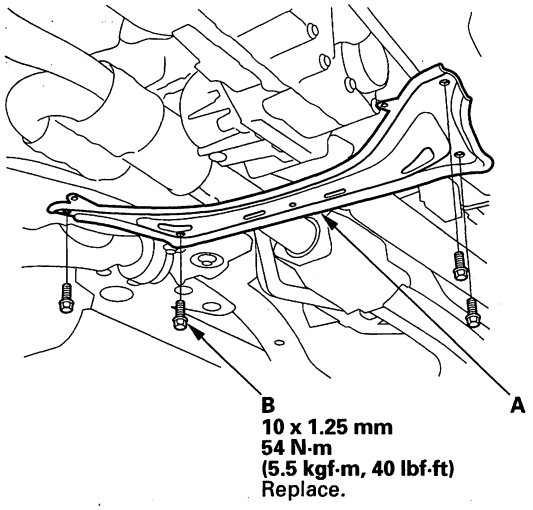
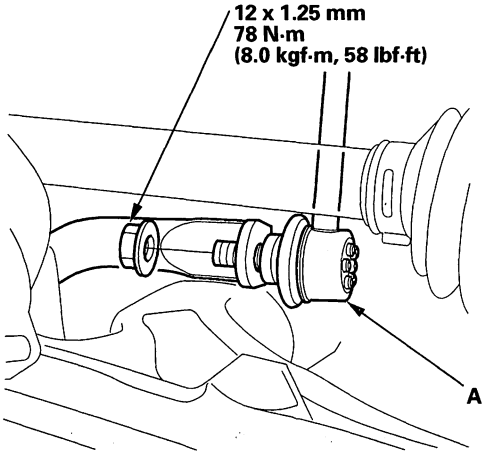
Steering Gearbox Installation (cont'd)

24. Install the front subframe stiffener plate (A) with new mounting bolts (B), and tighten to the specified torque.



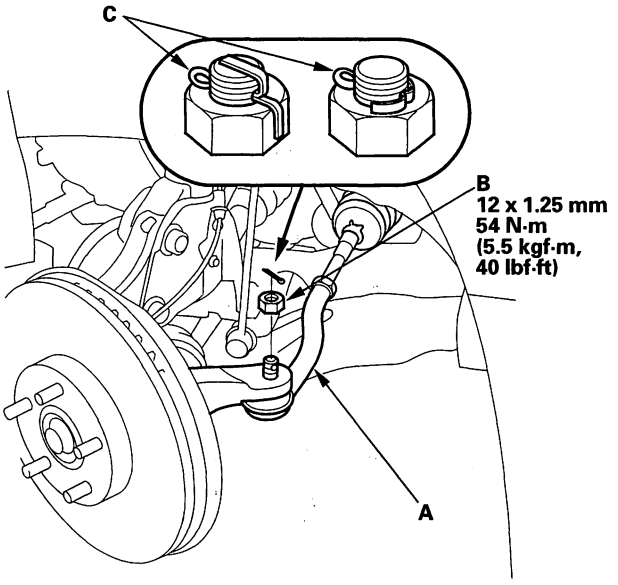
25. Install the front undercover (see page 20-219) and the front splash shield (see page 20-218).

26. Connect the stabilizer links (A) to the lower arm (see page 18-20).



27. Connect the lower arm ball joints (see page 18-17).

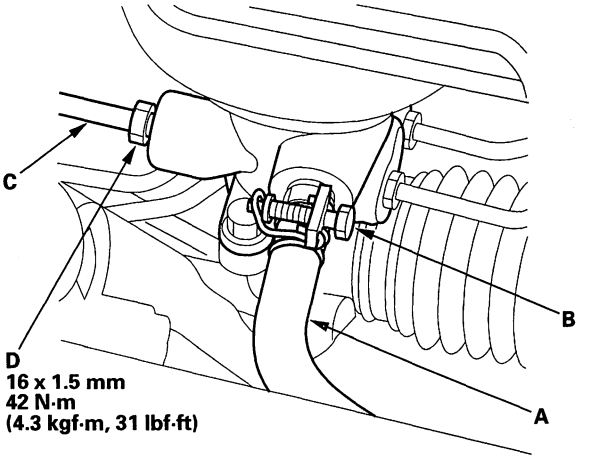
28. Wipe off any grease contamination from the ball joint tapered section and threads. Reconnect the tie-rod ends (A) to the steering knuckles. Install the 12 mm nut (B) and tighten it.



29. Install the new cotter pin (C) and bend it as shown.

30. Remove the engine support hanger, the hanger balance bar, and the hanger adapter set.

31. Connect the return hose (A) securely, and tighten the adjustable hose clamp (B) (see page 17-14).



32. Connect the inlet line (C), and tighten the 16 mm flare nut (D) to the specified torque.

BACK

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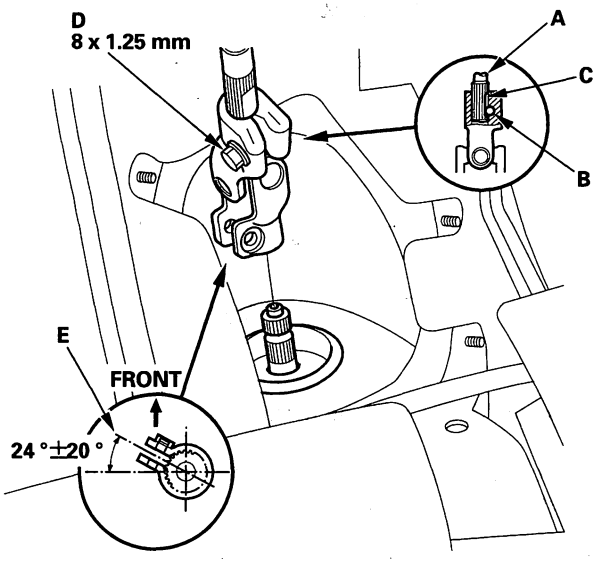
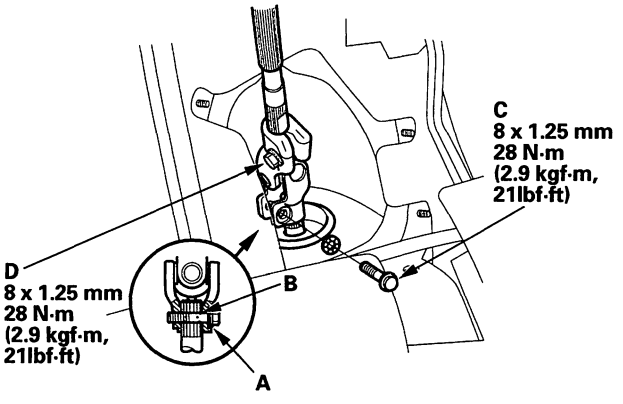
33. Center the steering rack within its stroke.

34. Insert the upper end of the steering joint onto the steering shaft (A) (line up the bolt hole (B) with the flat portion (C) on the shaft), and loosely install the upper joint bolt (D).



35. Slip the lower end of the steering joint onto the pinion shaft taking care to align the gap (E) within the angle.

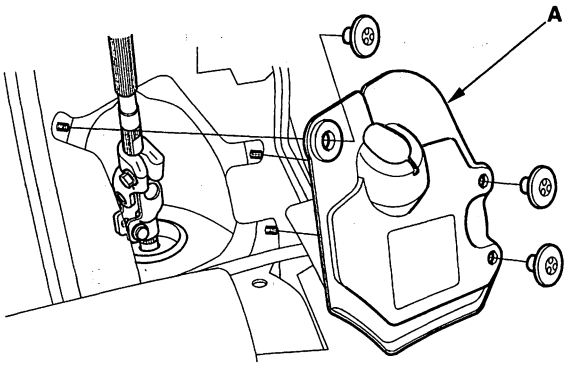
36. Align the bolt hole (A) on the steering joint with the groove (B) around the pinion shaft then loosely install the joint bolt (C).



37. Pull on the steering joint to make sure that the steering joint is fully seated, then tighten the lower joint bolt to the specified torque.

38. Tighten the upper joint bolt (D) to the specified torque.

39. Install the steering joint cover (A).



40. Install the front wheel, then set the wheels in the straight ahead position.

41. Install the steering wheel (see page 17-24).

42. Reconnect the negative battery cable to the battery, and do these tasks:

- Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
- Enter the anti-theft code for the audio system and the navigation system (if equipped).
- Make sure the horn and turn signal switches work properly.
- Make sure the steering wheel switches work properly.
- Make sure the steering wheel is centered.
- Do the steering column position memorization (see page 17-28).

43. Fill the system with power steering fluid, and bleed air from the system (see page 17-13).

44. After installation, do these checks.

- Start the engine, allow it to idle, and turn the steering wheel from lock-to-lock several times to warm up the fluid. Check the gearbox for leaks (see page 17-12).
- Do the front toe inspection (see page 18-5).
- Check the steering wheel spoke angle. If steering spoke angles to the right and left are not equal (steering wheel and rack are not centered), correct the engagement of the joint/pinion shaft serrations, then adjust the front toe by turning the tie-rod ends, if necessary.

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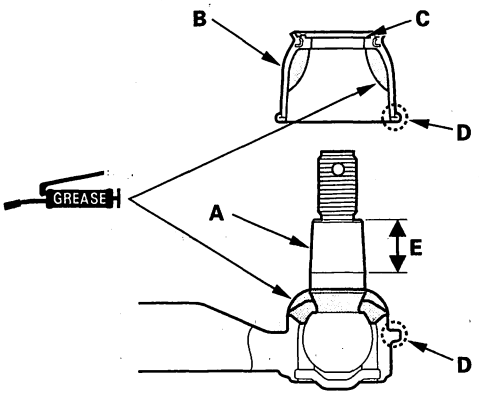
Tie-rod Ball Joint Boot Replacement

Special Tools Required
Front hub dis/assembly tool 07965-SA50500

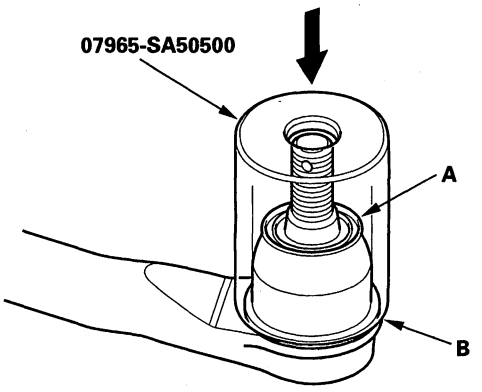
1. Disconnect the tie-rod ball joint from the knuckle (see step 18 on page 17-33).
2. Remove the tie-rod end from the rack end.
3. Remove the boot from the tie-rod end, and wipe the old grease off the ball pin.
4. Pack the lower area of the ball pin (A) with fresh multipurpose grease.



5. Pack the interior of a new boot (B) and lip (C) with fresh multipurpose grease.

   Note these items when installing new grease:
   - Keep grease off the boot mounting area (D) and the tapered section (E) of the ball pin.
   - Do not allow dust, dirt, or other foreign materials to enter the boot.

6. Install a new boot (A) using the front hub dis/assembly tool. The boot must not have a gap at the boot installation sections (B). After installing the boot, check the ball pin tapered section for grease contamination, and wipe it if necessary.



7. Install the tie-rod end to the rack end.
8. Connect the tie-rod ball joint to the knuckle (see step 28 on page 17-56).
9. Check the wheel alignment, and adjust it if necessary (see page 18-5).

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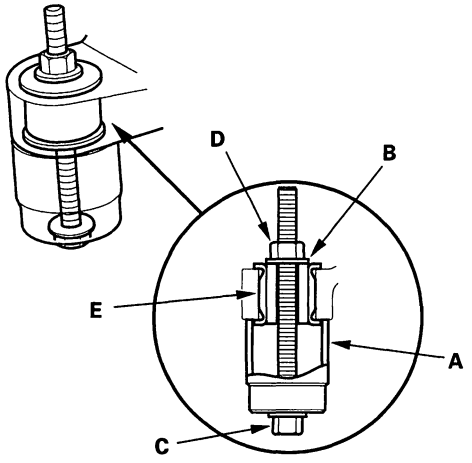
Gearbox Mount Cushion Replacement

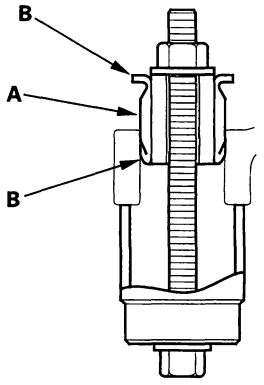
1. Remove the steering gearbox (see page 17-31).

2. Position the 34 mm socket wrench (A) on the flange part of the gearbox housing with a washer (B), a 10 x 105 mm flange bolt (C) and a 10 mm nut (D) as shown.



3. Hold the flange bolt with a wrench, and tighten the nut with a wrench. Remove the gearbox mount cushion (E).

4. Apply a mild soap and water solution to the new gearbox mount cushion surface (A), then place it on the gearbox mounting cushion hole.



5. Position the 34 mm socket wrench on the flange part of the gearbox housing with a washer, a flange bolt, and a nut as shown.

6. Install the gearbox mount cushion by tightening the nut until the mount cushion edges (B) contact the gearbox flange surface.

7. Install the steering gearbox (see page 17-52).

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BACK

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Suspension

Front and Rear Suspension

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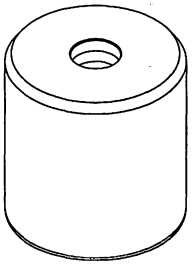
Special Tools

Ref. No.	Tool Number	Description	Qty
①	07GAF-SD40200	Hub Dis/Assembly Tool	1
②	07GAG-SD40700	Ball Joint Boot Clip Guide	1
③	07MAC-SL0A102	Ball Joint Remover, 32 mm	1
④	07MAC-SL0A202	Ball Joint Remover, 28 mm	1
⑤	071AF-S3VA000	Ball Joint Thread Protector, 14 mm	1



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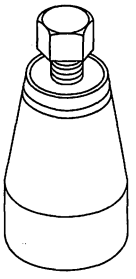

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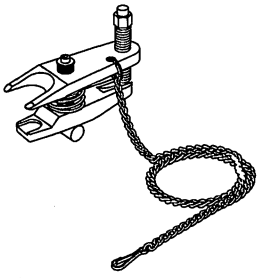

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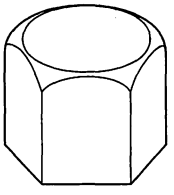

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BACK

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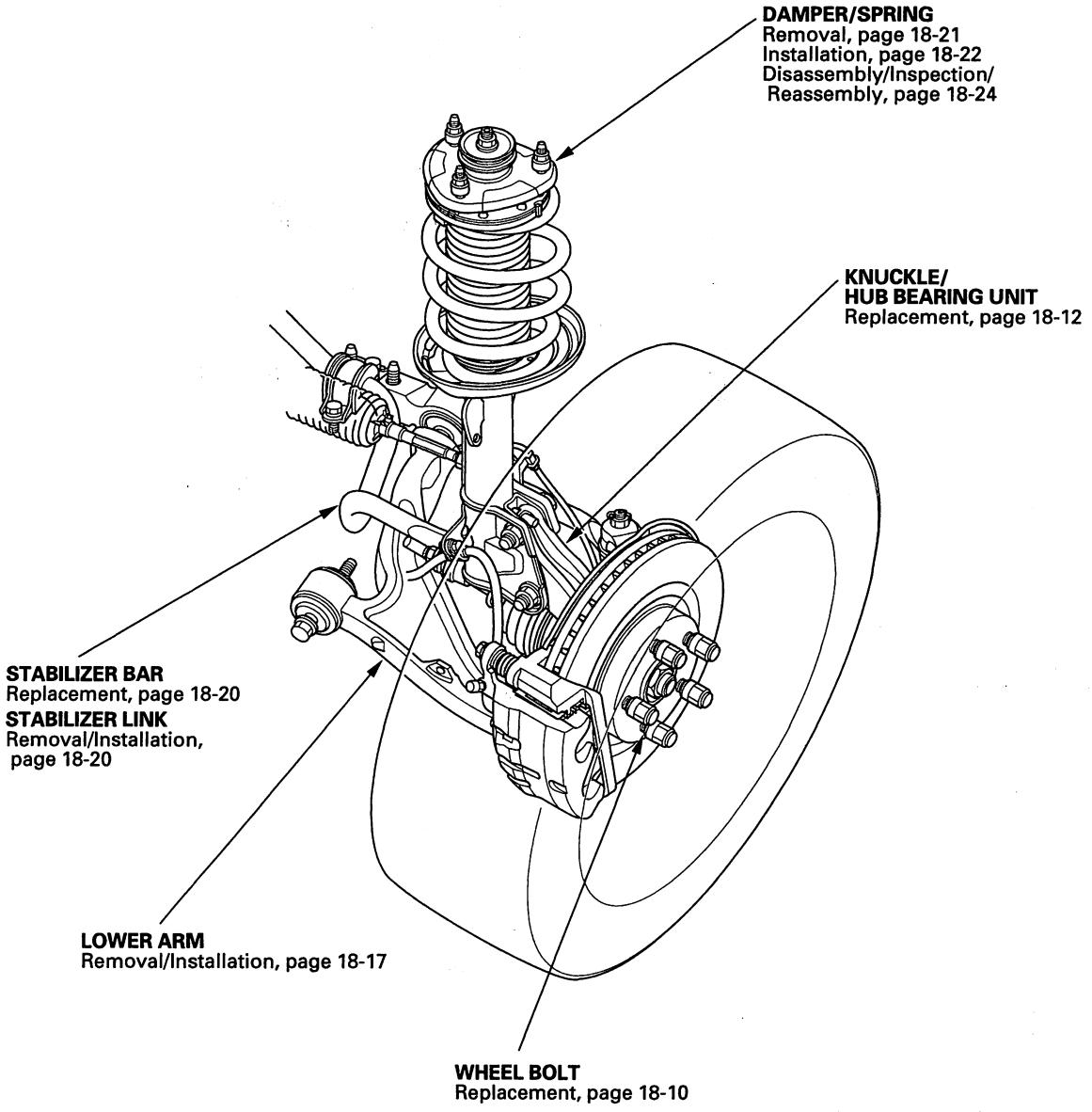
Component Location Index

Front Suspension



The illustration shows without active damper system.

(cont'd)

BACK

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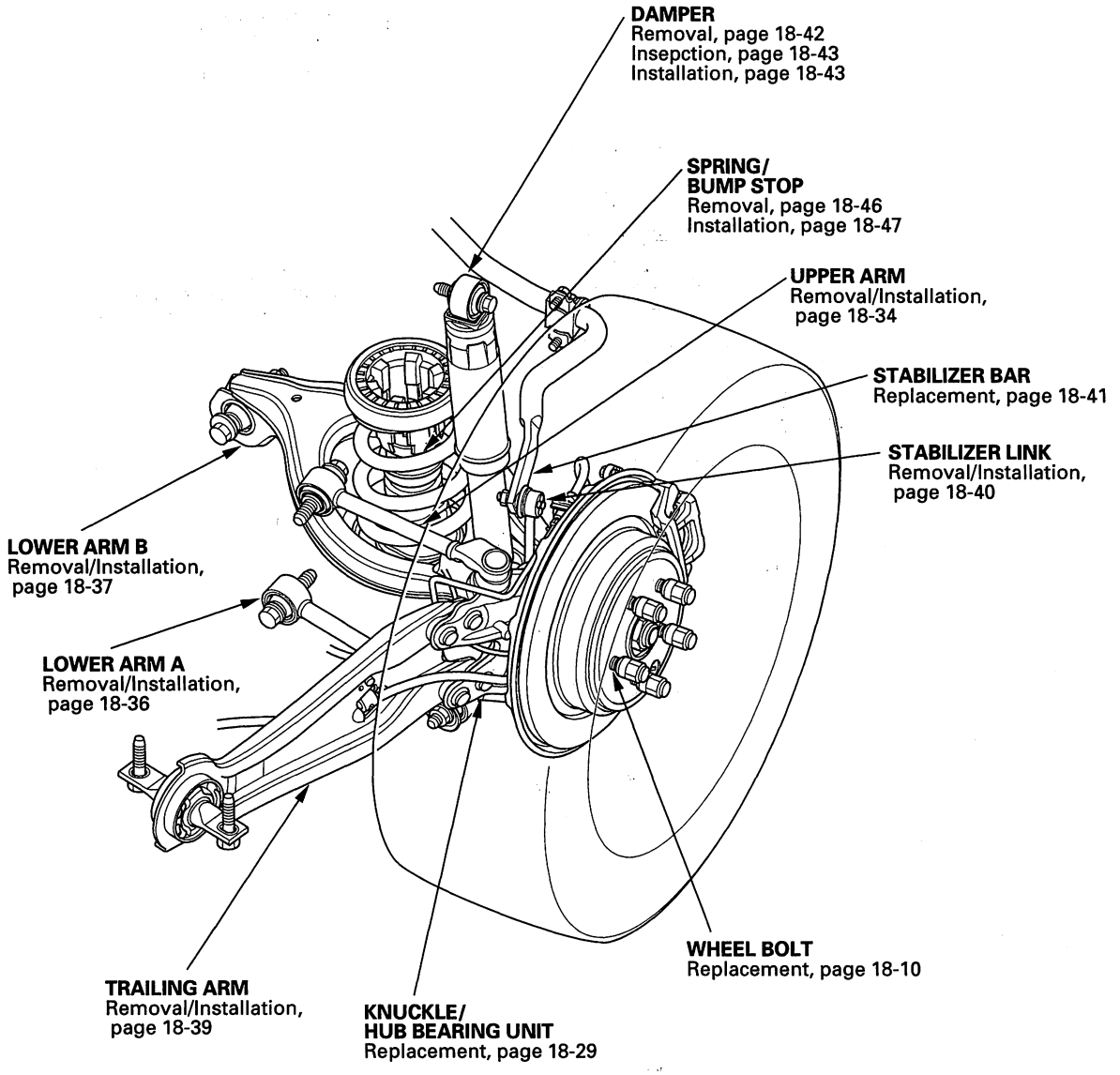
Component Location Index (cont'd)

Rear Suspension



The illustration shows without active damper system.

BACK

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Wheel Alignment

The suspension can be adjusted for front camber, front toe, and rear toe. However, each of these adjustments are related to each other. For example, when you adjust camber, the toe will change. Therefore, you must adjust the front wheel alignment whenever you adjust camber or toe.

Pre-Alignment Checks

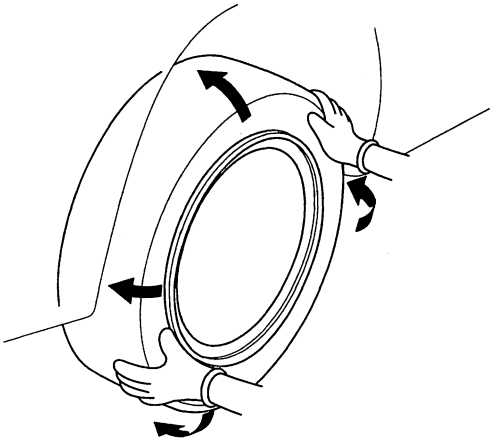
For proper inspection and adjustment of the wheel alignment, do these checks:

1. Release the parking brake to avoid an incorrect measurement.
2. Make sure the suspension is not modified.
3. Check the tire size and pressure.

   Tire size:
   Front/Rear: P255/55R18 104H

   Tire pressure:
   Front/Rear: 220 kPa (2.2 kgf/cm², 32 psi), cold

4. Check the runout of the wheels and tires (see page 18-9).
5. Check the suspension ball joints. (Hold a tire with your hands, and move it up and down and right and left to check for wobbling.)



6. Bounce the vehicle up and down several times to settle the suspension.

Caster Inspection

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

Check the caster angle.

Caster angle: 4 °12 ′±35 ′

- If the measurement is within specifications, measure the camber angle.
- If the measurement is not within specifications, check for bent or damaged suspension components.

(cont'd)

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Wheel Alignment (cont'd)

Camber Inspection

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

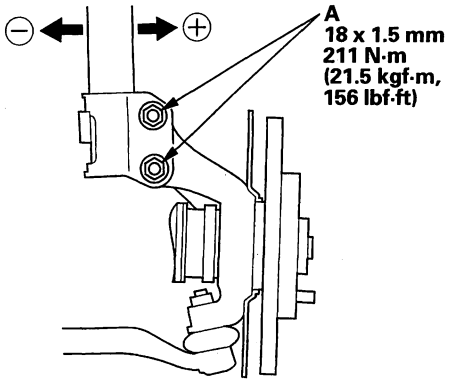
Check the camber angle.

Camber angle:
Front: −0 °30 ′±1 °
Rear: −0 °30 ′±45 ′

- If the measurement for the front camber is outside the specification, go to front camber adjustment.
- If the measurement for the rear camber is outside the specification, check for bent or damaged suspension components.

Front Camber Adjustment

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the front wheels.
3. Loosen the damper pinch bolts (A) and bolts, and adjust the camber angle by moving the bottom of the damper within the range of the damper pinch bolt free play.



4. Tighten the damper pinch bolts to the specified torque.
5. Reinstall the front wheels. Lower the front of the vehicle to the ground, and bounce the front of the vehicle up and down several times to stabilize the suspension.
6. Measure the camber angle.
   - If the measurement is within specification, measure the toe-in.
   - If the measurement is not within specification, check for bent or damaged suspension components.

BACK

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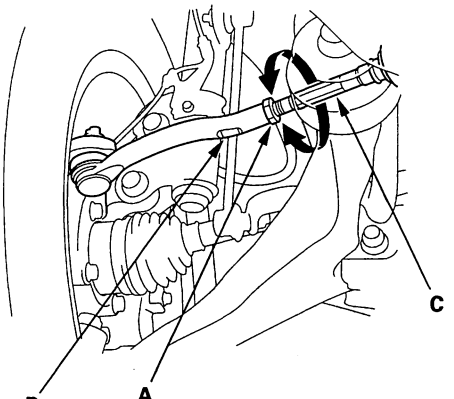
Front Toe Inspection/Adjustment

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Center the steering wheel spokes, and install a steering wheel holder tool.
2. Check the toe with the wheels pointed straight ahead.

   Front toe-in: 0±2 mm (0±0.08 in.)

   - If adjustment is required, go to step 3.
   - If no adjustment is required, go to rear toe inspection/adjustment.
3. Loosen the tie-rod locknuts (A) while holding the flat surface sections (B) of the tie-rod end with a wrench, and turn both tie-rods (C) until the front toe is within specifications.



A
14 x 1.5 mm
44 N·m (4.5 kgf·m, 33 lbf·ft)

4. After adjusting, tighten the tie-rod locknuts. Reposition the rack-end boot if it is twisted or displaced.
5. Go to rear toe inspection/adjustment.

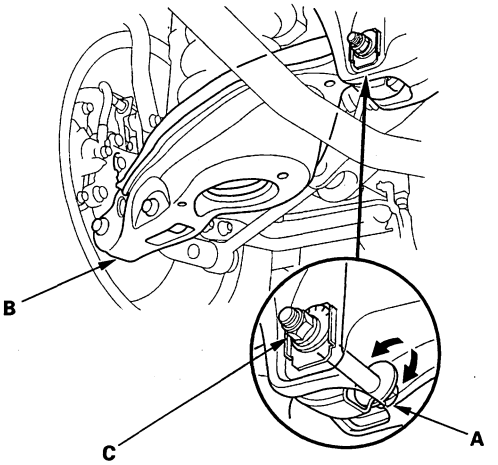
Rear Toe Inspection/Adjustment

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Release the parking brake to avoid an incorrect measurement.
2. Check the toe.

   Rear toe-in: 2±2 mm (0.08±0.08 in.)

   - If adjustment is required, go to step 3.
   - If no adjustment is required, remove the alignment equipment.
3. Hold the adjusting bolt (A) on the trailing arm (B), and remove the self-locking nut (C).



C
14 x 1.5 mm
132 N·m (13.5 kgf·m, 97.6lbf·ft)
Replace.

4. Replace the self-locking nut with a new one, and lightly tighten it.

   NOTE:
   - Always use a new self-locking nut whenever it has been loosened.
   - Reassemble the adjusting bolt and camplate with the eccentric facing up.
5. Adjust the rear toe by turning the adjusting bolt until the toe is correct.
6. Tighten the new self-locking nut while holding the adjusting bolt.

(cont'd)

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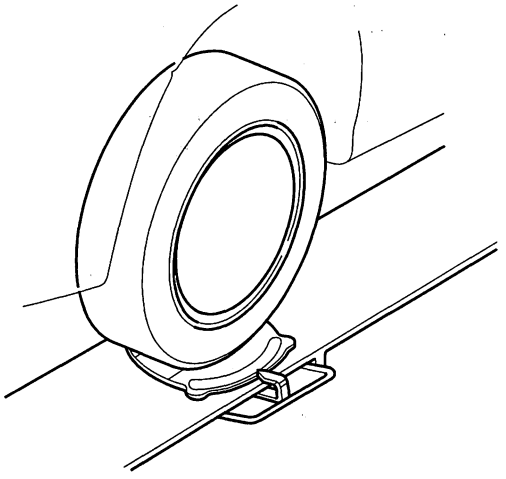
Wheel Alignment (cont'd)

Turning Angle Inspection

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Turn the wheel right and left while applying the brake, and measure the turning angle of both wheels.

   Turning angle:
   Inward wheel: 38 °12 ′ ±2 °
   Outward wheel: 31 °44 ′ (reference)



2. If the turning angle is not within the specifications, check for bent or damaged suspension components.

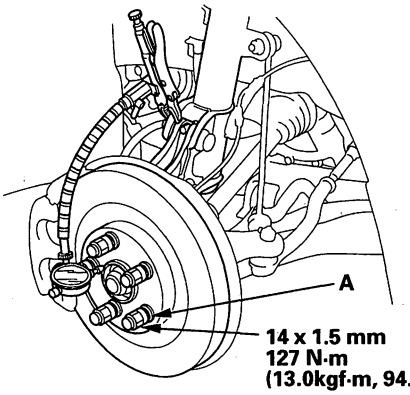
Wheel Bearing End Play Inspection

1. Raise the vehicle, and support it with safety stands in the proper locations (see page 1-7).

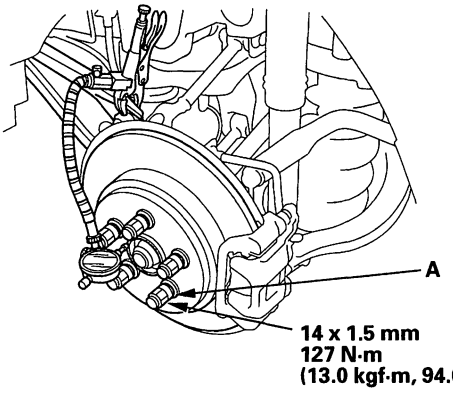
2. Remove the wheels.

3. Install suitable flat washers (A) and the wheel nuts. Tighten the nuts to the specified torque to hold the brake disc securely against the hub.

   Front



   Rear



4. Attach the dial gauge. Place the dial gauge against the hub flange.

   Front/Rear:
   Standard: 0—0.05 mm (0—0.002 in.)

5. Measure the bearing end play by moving the disc inward and outward.

6. If the bearing end play measurement is more than the standard, replace the wheel bearing.

BACK

Protected by AR

Wheel Runout Inspection

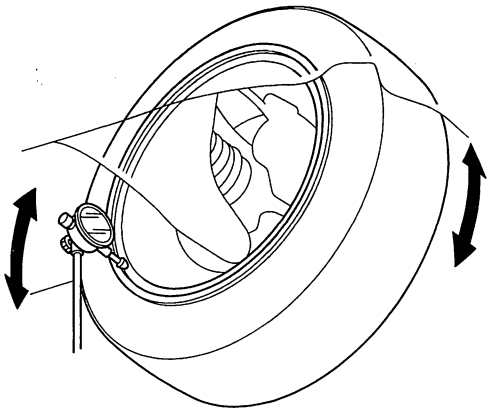
NOTE: When measuring the front wheel runout, turn the back side of the wheel slowly by hand.

1. Raise the vehicle, and support it with safety stands in the proper locations (see page 1-7).

2. Check for bent or deformed wheels.

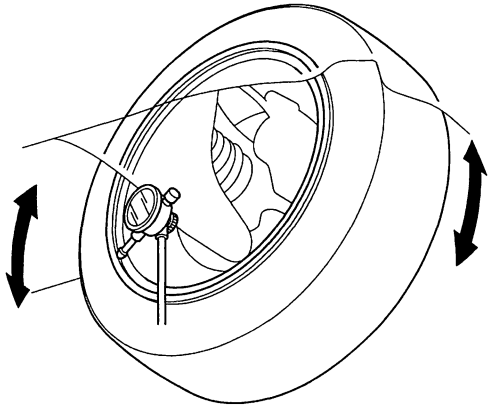
3. Set up the dial gauge as shown, and measure axial runout by turning the wheel.

   Front and rear wheel axial runout:
   Standard: 0—0.3 mm (0—0.01 in.)
   Service limit: 2.0 mm (0.08 in.)



4. Reset the dial gauge to the position shown, and measure the radial runout.

   Front and rear wheel radial runout:
   Standard: 0—0.3 mm (0—0.01 in.)
   Service limit: 1.5 mm (0.06 in.)



5. If the wheel runout is not within the specification, check the wheel bearing end play (see page 18-8), and make sure the mating surfaces on the brake disc and the inside of the wheel are clean.

6. If the bearing end play is within the specification but the wheel runout is more than the service limit, replace the wheel.

BACK

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Wheel Bolt Replacement

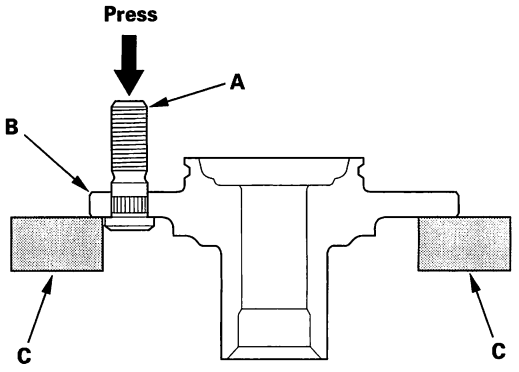
NOTICE

- Do not use a hammer or air or electric impact tools to remove and install the wheel bolts.
- Be careful not to damage the threads of the wheel bolts.

1. Remove the front or rear hub bearing unit: front (see page 18-13), rear (see page 18-30).

2. Separate the wheel bolt (A) from the hub (B) using a hydraulic press. Support the hub with hydraulic press attachments (C) or equivalent tools.

   NOTE: Before installing the new wheel bolt, clean the mating surface on the bolt and the hub.



3. Insert the new wheel bolt into the hub while aligning the splined surfaces on the hub hole with the wheel bolt.

   NOTE:
   - Degrease all around the wheel bolt and the threaded section of the nut.
   - Make sure the wheel bolt is installed vertically in relation to the hub disc surface.

4. Install the wheel bolt using a hydraulic press until the wheel bolt shoulder is fully seated.

5. Install the front or rear hub bearing unit: front (see page 18-13), rear (see page 18-30).

   NOTE: If you cannot tighten the wheel nut to the specified torque value when installing the wheel, replace the hub or hub bearing unit as an assembly.

BACK

Protected by AR

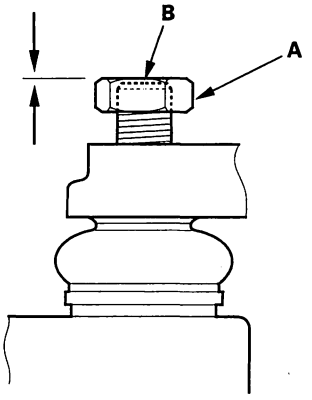
Ball Joint Removal

Special Tools Required
- Ball joint remover, 32 mm 07MAC-SL0A102
- Ball joint remover, 28 mm 07MAC-SL0A202

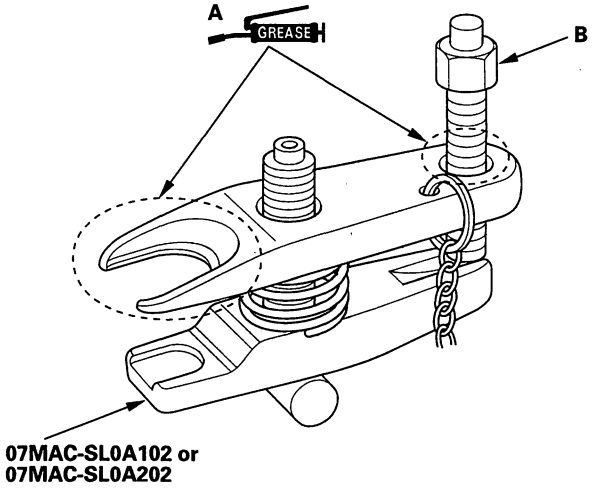
NOTICE
Always use a ball joint remover to disconnect a ball joint. Do not strike the housing or any other part of the ball joint connection to disconnect it.

07MAC-SL0A102 or 07MAC-SL0A202

1. Install a hex nut (A) onto the threads of the ball joint (B). Make sure the nut is flush with the ball joint pin end to prevent damage to the thread end of the ball joint pin.

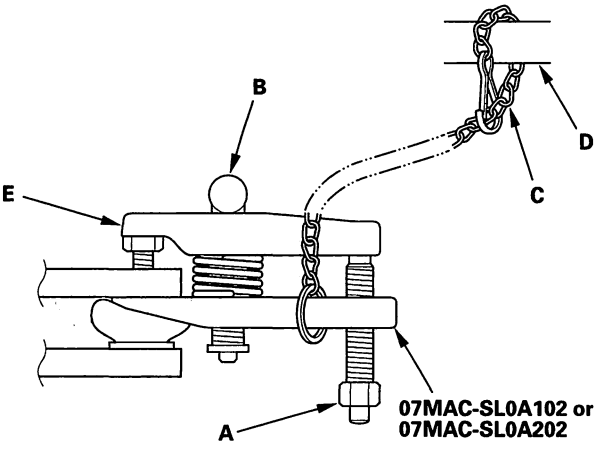


2. Apply grease to the ball joint remover on the areas shown (A). This will ease installation of the tool and prevent damage to the pressure bolt (B) threads.



3. Loosen the pressure bolt (A), and install the ball joint remover as shown. Insert the jaws carefully, making sure not to damage the ball joint boot. Adjust the jaw spacing by turning the adjusting bolt (B).

   NOTE: Fasten the safety chain (C) securely to a suspension arm or the subframe (D). Do not fasten it to a brake line or wire harness.



4. After adjusting the adjusting bolt, make sure the head of the adjusting bolt is in the position shown to allow the jaw (E) to pivot.

5. With a wrench, tighten the pressure bolt until the ball joint pin pops loose from the ball joint pin hole. If necessary, apply penetrating type lubricant to loosen the ball joint pin.

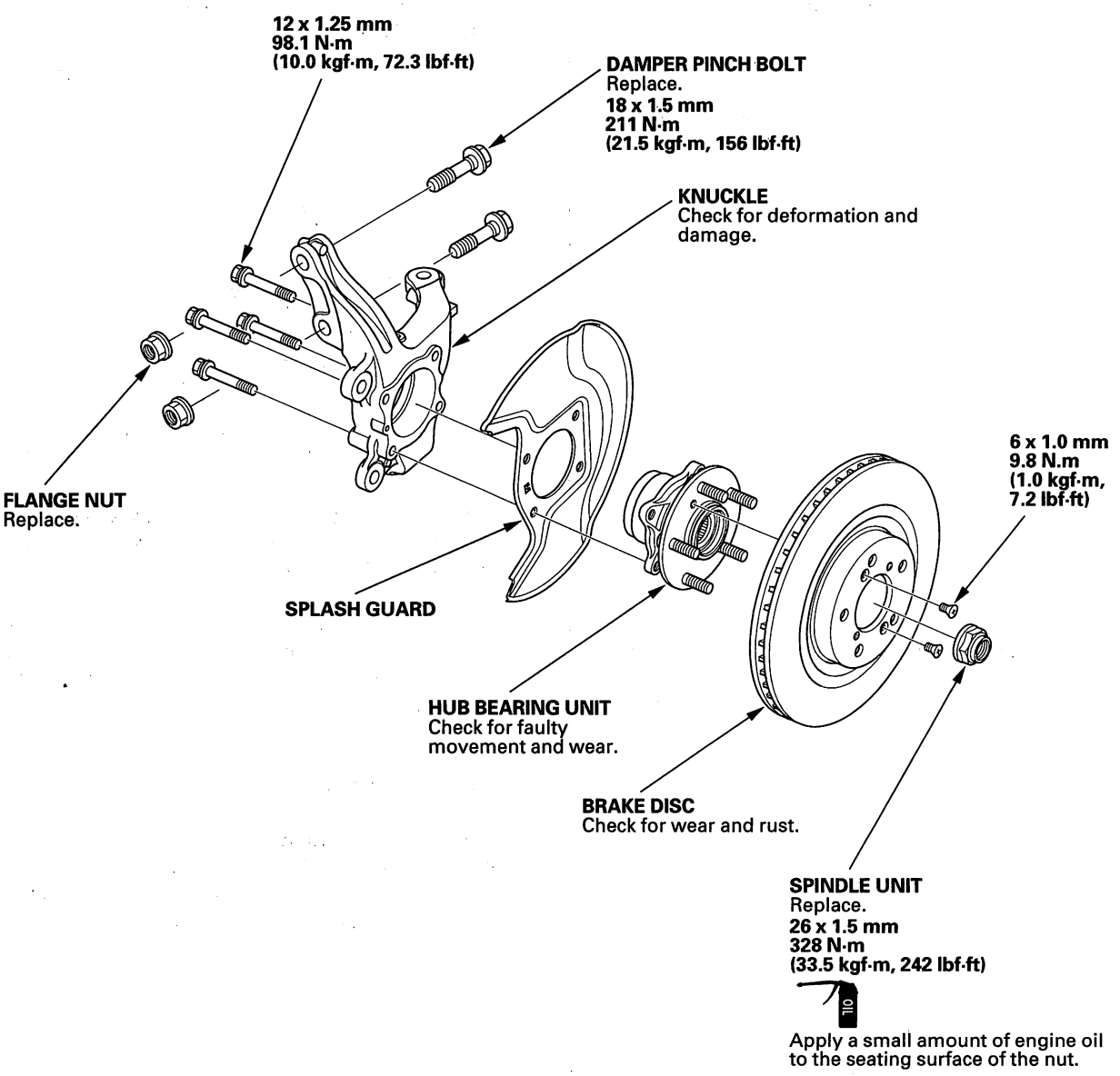
   NOTE: Do not use pneumatic or electric tools on the pressure bolt.

6. Remove the ball joint remover, then remove the nut from the end of the ball joint pin, and pull the ball joint out of the ball joint pin hole. Inspect the ball joint boot, and replace it if damaged.

Protected by AR

Knuckle/Hub Bearing Unit Replacement

Exploded View



BACK

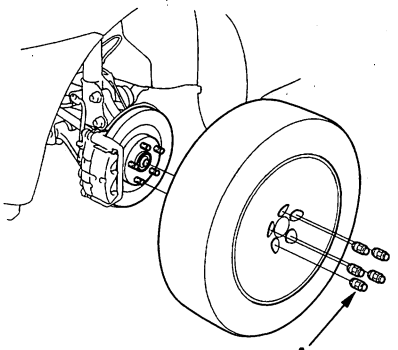
Protected by AR

Special Tools Required
- Ball joint remover, 32 mm 07MAC-SL0A102
- Ball joint remover, 28 mm 07MAC-SL0A202

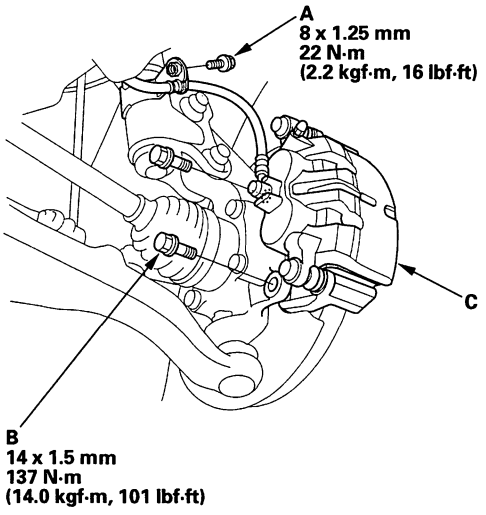
Hub Bearing Unit Replacement

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-7).

2. Remove the wheel nuts (A) and the front wheel.

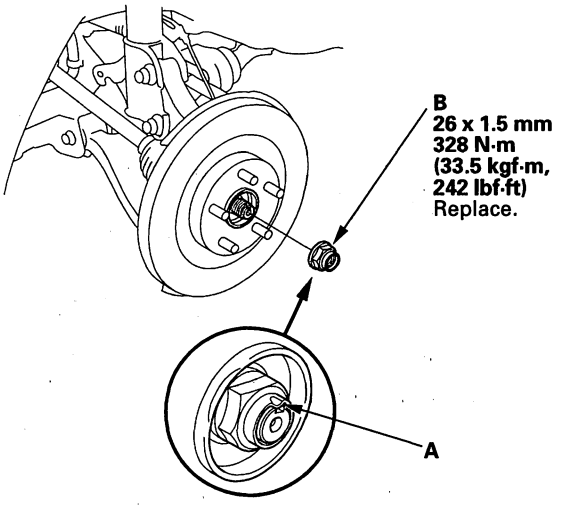


3. Remove the brake hose (A).

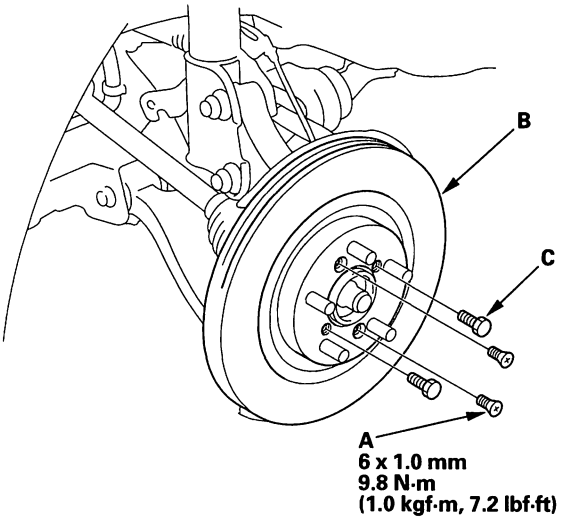


4. Remove the brake caliper bracket mounting bolts (B), and remove the caliper assembly (C) from the knuckle. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.

5. Remove the stake (A), then remove the spindle nut (B).



6. Remove the flat screws (A).



7. Release the brake disc (B) from the hub.

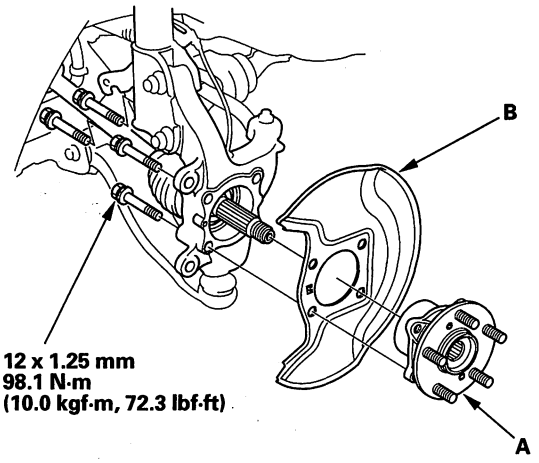
   NOTE: If the brake disc is stuck to the hub. Screw two 8 x 1.25 mm bolts (C) into the brake disc to push it away from the hub. Turn each bolt 90 degrees to prevent the brake disc from binding.

(cont'd)

Protected by AR

Knuckle/Hub Bearing Unit Replacement (cont'd)

8. Remove the hub bearing unit (A) and the splash guard (B) from the knuckle.



9. Check the hub bearing unit for damage and cracks.

10. Install the hub bearing unit in the reverse order of removal, and note these items:

- Tighten all mounting hardware to the specified torque values.
- Use a new spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the driveshaft.
- Before installing the brake disc, clean the matching surfaces of the hub bearing unit and the inside of the brake disc.
- Before installing the wheel, clean the mating surface of the brake disc and the inside of the wheel.
- Check the wheel alignment, and adjust it if necessary (see page 18-5).

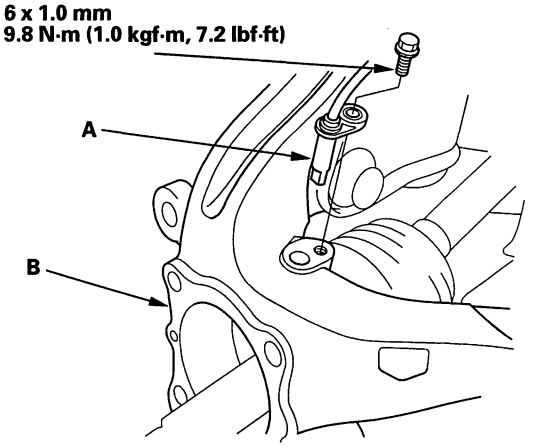
BACK

Protected by AR

Knuckle Replacement

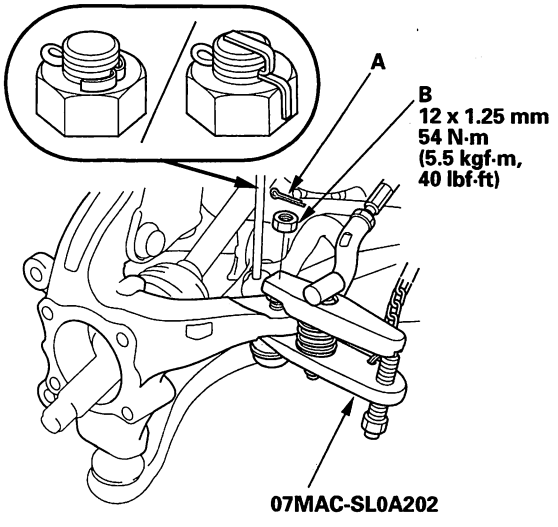
1. Remove the hub bearing unit.

2. Remove the wheel sensor (A) from the knuckle (B). Do not disconnect the wheel sensor connector.



3. Remove the cotter pin (A) from the tie-rod ball joint, then remove the nut (B).

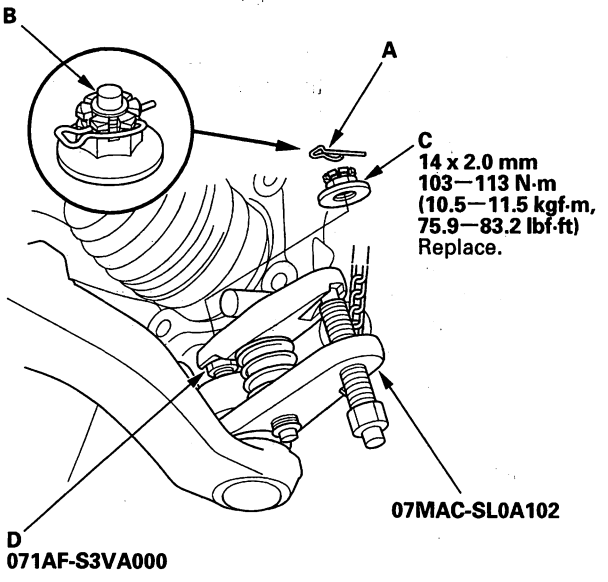
   NOTE: During installation, install the new cotter pin after tightening the nut, and bend its end as shown.



4. Disconnect the tie-rod ball joint from the knuckle using the ball joint remover (see page 18-11).

5. Remove the cotter pin (A) from the lower arm ball joint pin (B), then remove the nut (C).

   NOTE: During installation, install the lock pin after tightening new castle nut.

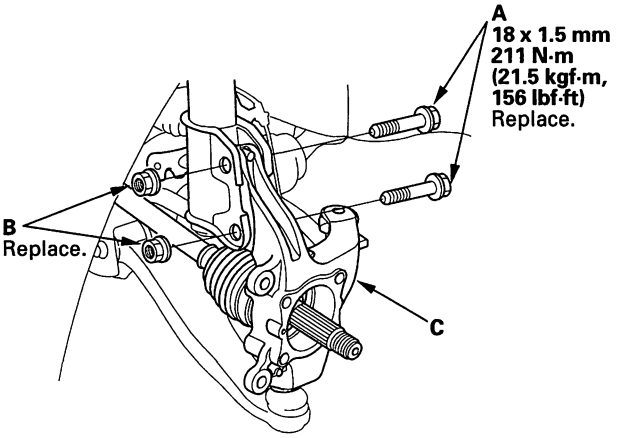


6. Install the ball joint thread protector (D).

7. Disconnect the lower arm ball joint from the knuckle using the ball joint remover (see page 18-11).

8. Remove the damper pinch bolts (A) and flange nuts (B) from the damper, then remove the knuckle (C).

   NOTE: During installation, install new damper pinch bolts and new flange nuts.



(cont'd)

Protected by AR

Knuckle/Hub Bearing Unit Replacement (cont'd)

9. Install the knuckle in the reverse order of removal, and note these items:

   - Be careful not to damage the ball joint boot when installing the knuckle.
   - Before connecting the lower ball joint to the knuckle, degrease the threaded section and tapered portion of the ball joint pin, the lower arm connecting hole, the threaded section and mating surface of the castle nut.
   - First install all the components and lightly tighten the bolts and nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque values.
   - Tighten all mounting hardware to the specified torque values.
   - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
   - Before installing the brake disc, clean the mating surface of the front hub and the inside of the brake disc.
   - Before installing the wheel, clean the mating surface of the brake disc and the inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-5).

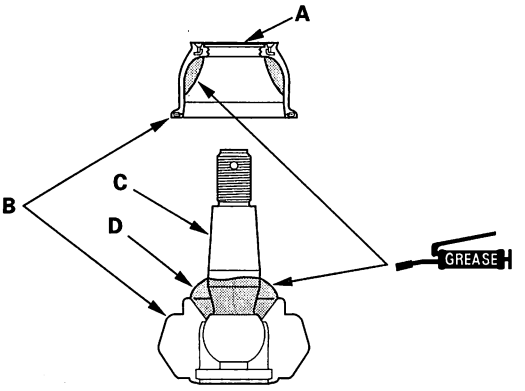
Ball Joint Boot Replacement

Special Tools Required
Hub Dis/Assembly Tool 07GAF-SD40200

1. Remove the lower arm (see page 18-17).

2. Remove the boot.

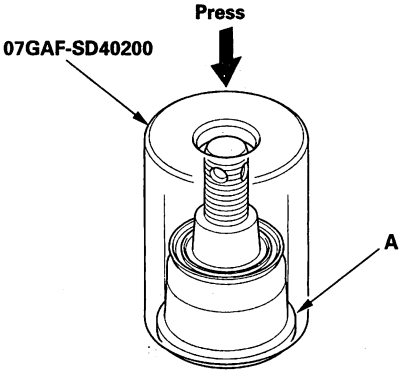
3. Pack the interior and lip (A) of a new boot with grease. Keep the grease off of the boot-to-lower arm mating surfaces (B).



4. Wipe the grease off the tapered portion of the pin (C), and pack fresh grease into the base (D). Do not let dirt or other foreign materials get into the boot.

5. Install the boot on the ball joint, then squeeze it gently to force out any air.

6. Press the boot with the hub dis/assembly tool until the bottom seats on the lower arm (A) all the way around.



7. After installing a boot, wipe any grease off the exposed portion of the ball joint pin.

8. Install the lower arm (see page 18-17).

BACK

Protected by AR

Lower Arm Removal/Installation

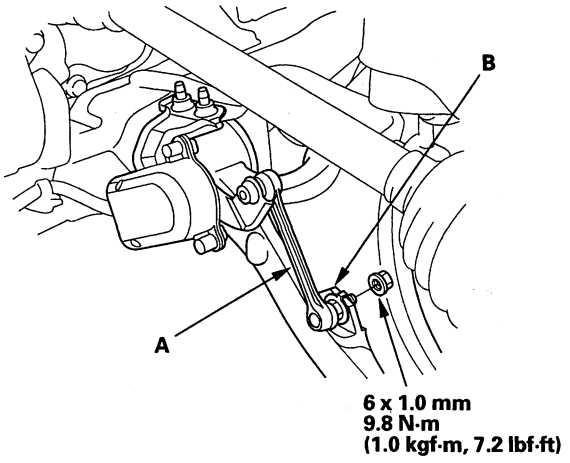
Special Tools Required
- Ball joint remover, 32 mm 07MAC-SL0A102
- Ball joint thread protector, 14 mm 071AF-S3VA000

Removal/Installation

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-7).

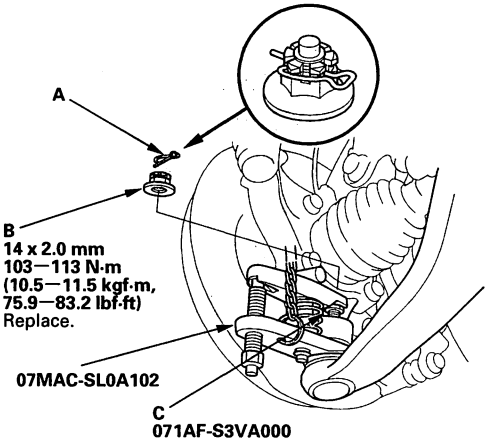
2. Remove the front wheel.

3. With active damper system: Remove the suspension stroke sensor (A) from the lower arm (B).



4. Remove the lock pin (A) from the lower arm ball joint, then remove the nut (B).

   NOTE: During installation, install the lock pin after tightening new castle nut.

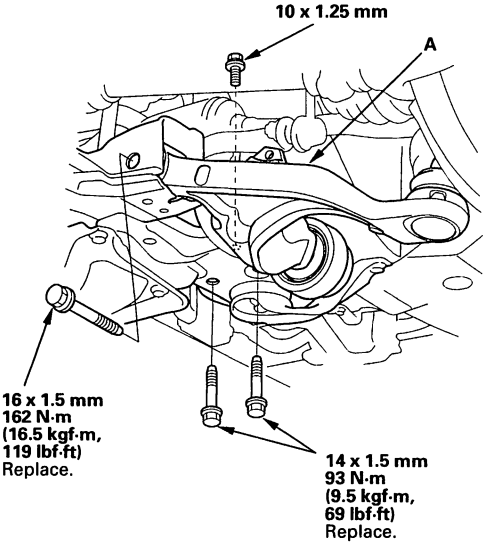


5. Install the ball joint thread protector (C).

6. Disconnect the lower ball joint from the knuckle using the ball joint remover (see page 18-11), then remove the lower ball joint.

7. Remove the lower arm mounting bolt and the 10 mm flange bolt, then remove the lower arm (A) from the front subframe.

   NOTE: Use the new mounting bolts during reassembly.



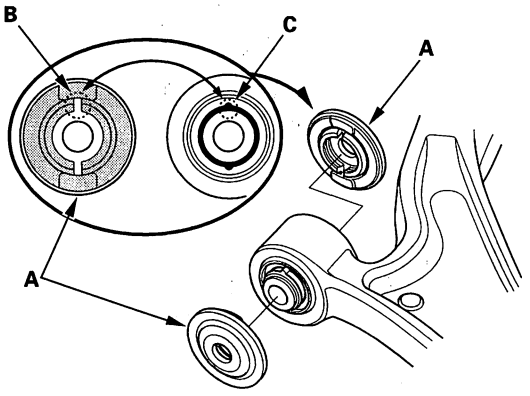
(cont'd)

Protected by AR

Lower Arm Removal/Installation (cont'd)

8. Remove the lower arm stops (A).

   NOTE: During installation, align the slot (B) on the lower arm stop with the lug portion (C) on the lower arm bushing.



9. Install the lower arm in the reverse order of removal, and note these items:

   - Be careful not to damage the ball joint boot when installing the knuckle.
   - Tighten all mounting hardware to the specified torque values.
   - Before connecting the lower ball joint to the knuckle, degrease the threaded section and tapered portion of the ball joint pin, the knuckle connecting hole, the threaded section, and mating surface of the castle nut.
   - First install all the components, and lightly tighten the bolts and nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque values.
   - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
   - Before installing the wheel, clean the mating surface of the brake disc and the inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-5).

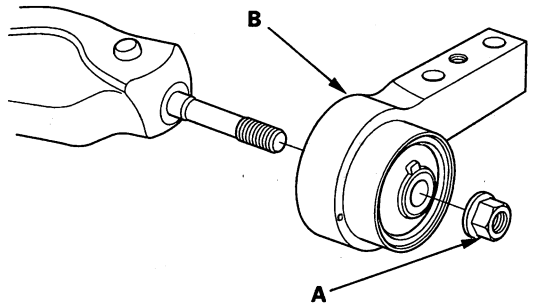
10. With active damper system/Left side: Do the headlight initial position learning procedure (see page 22-231).

BACK

Protected by AR

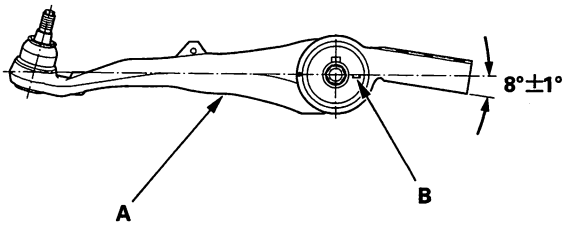
Bushing Replacement

1. Remove the self-locking nut (A), then remove the bushing with bracket (B).



A
16 x 1.5 mm
162 N·m
(16.5 kgf·m, 119 lbf·ft)
Replace.

2. Align the angle of the lower arm (A) and the tab portion (B) of the bushing.



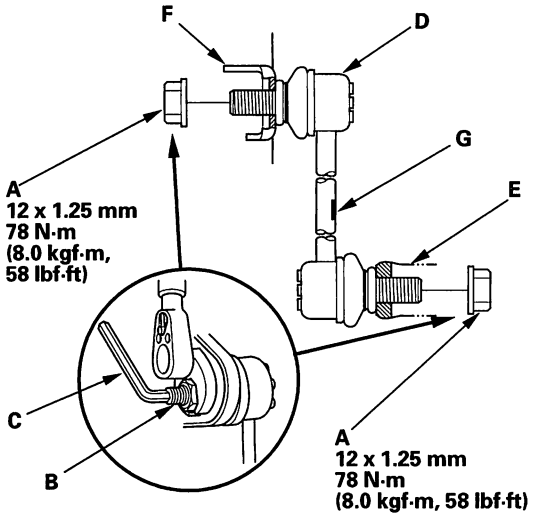
3. Install a new self-locking nut, then tighten the flange nut to the specified torque value.

BACK

Protected by AR

Stabilizer Link Removal/Installation

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the front wheel.
3. Remove the flange nuts (A) while holding the respective joint pin (B) with a hex wrench (C), then remove the stabilizer link (D).



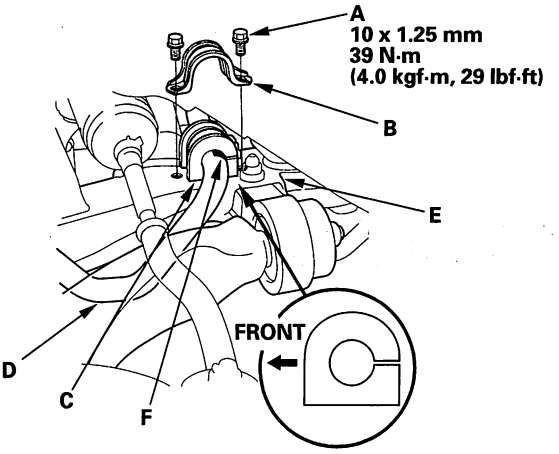
4. Install the stabilizer link on the stabilizer bar (E) and the damper (F) with the joint pins set at the center of their range of movement.

   NOTE: The stabilizer link has a paint mark (G). Align the stabilizer link with the paint mark facing inward.

5. Install the flange nuts, and lightly tighten them.
6. Clean the mating surface of the brake disc and the inside of the wheel, then install the front wheel.
7. Tighten the flange nuts to the specified torque values while holding the respective joint pin with a hex wrench.
8. Test-drive the vehicle.

Stabilizer Bar Replacement

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the front wheels.
3. Disconnect both stabilizer links from the stabilizer bar (see page 18-20).
4. Remove the flange bolts (A) and the bushing holders (B), then remove the bushings (C) and the stabilizer bar (D) from the front subframe (E).



5. Install the stabilizer bar in the reverse order of removal, and note these items:

   - Note the right and left direction of the stabilizer bar.
   - Align the paint marks (F) on the stabilizer bar with the sides of the bushings.
   - Note the fore/aft direction of the bushing.
   - Refer to the stabilizer link removal/installation to connect the stabilizer bar to the links (see page 18-20).
   - Clean the mating surface of the brake disc and the inside of the wheel, then install the front wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-5).

BACK

Protected by AR

Damper/Spring Removal and Installation

NOTE: Except where called out, the illustrations show without active damper system.

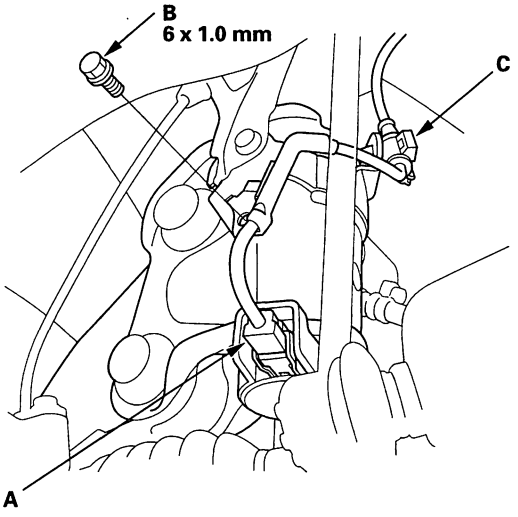
Removal

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-7).

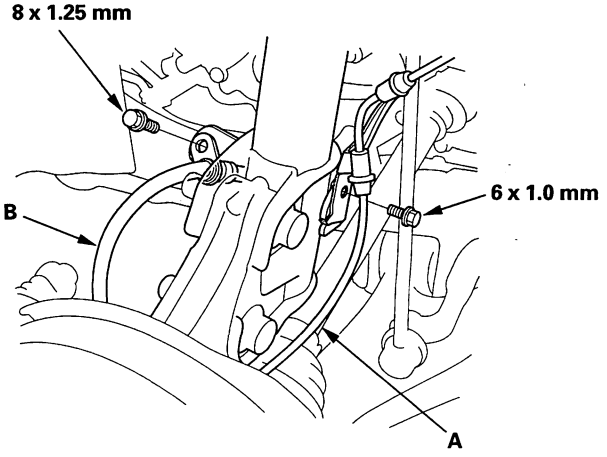
2. Remove the front wheel.

3. With active damper system: Disconnect the damper coil connector (A), and remove the flange bolt (B), and the harness clip (C).

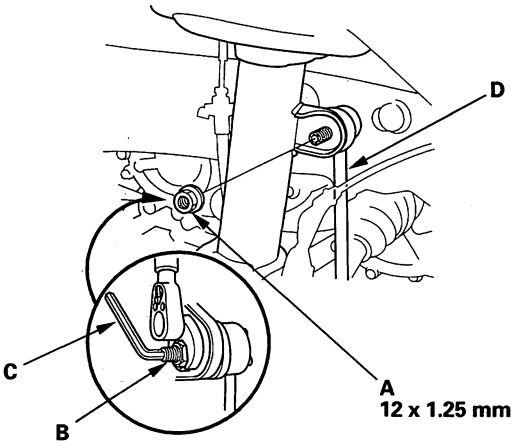
   NOTE: Be careful not to damage or contaminate the damper coil connector.



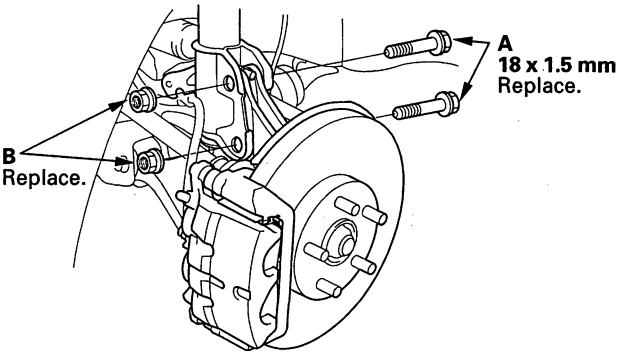
4. Remove the wheel sensor harness (A) and the brake hose (B) from the damper (C). Do not disconnect the wheel sensor connector.



5. Remove the flange nut (A), while holding the joint pin (B) with a hex wrench (C), and disconnect the stabilizer link (D) from the damper.



6. Remove the damper pinch bolts (A) and flange nuts (B) from the damper..

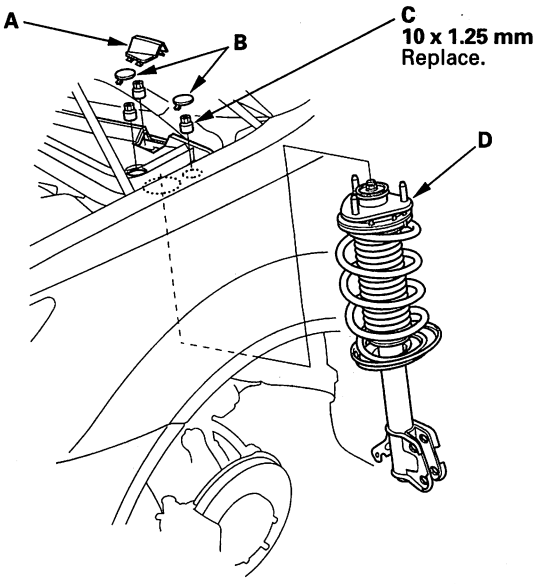


(cont'd)

Protected by AR

Damper/Spring Removal and Installation (cont'd)

7. Remove the cover (A) and the service caps (B).



8. Remove the flange nuts (C) from the top of the damper.

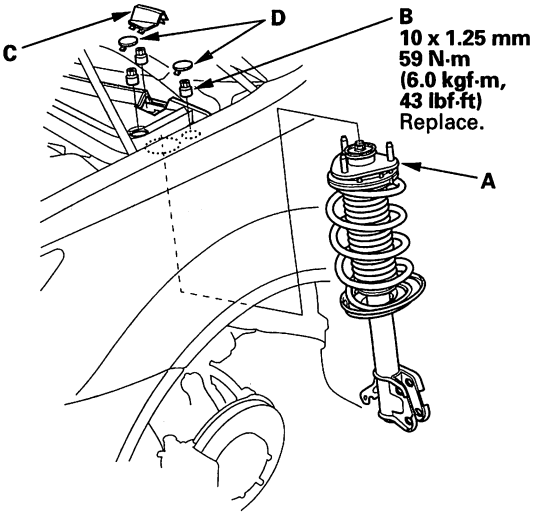
9. Remove the damper assembly (D).

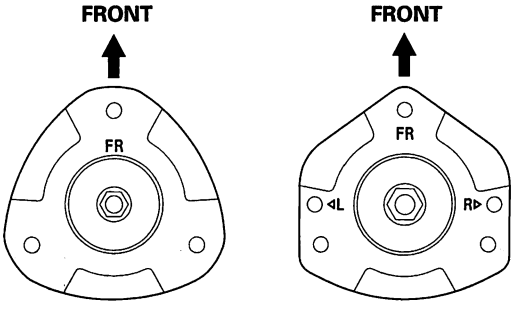
NOTE:
- The damper springs are different, left and right. Mark the springs L and R before you continue.
- Be careful not to damage the body.

Installation

1. Install the damper assembly (A) on to the frame. Note the direction of the damper mounting base as shown.

NOTE: Be careful not to damage the body.





Without active damper system | **With active damper system**

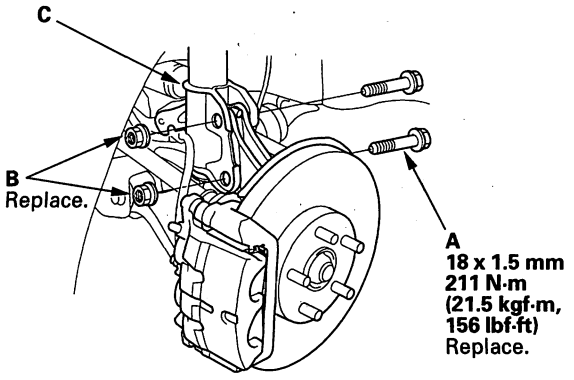
2. Loosely install the new flange nuts (B) to the top of the damper.

NOTE: Install the cover (C) and the service caps (D) after tightening the flange nuts to the specified torque value.

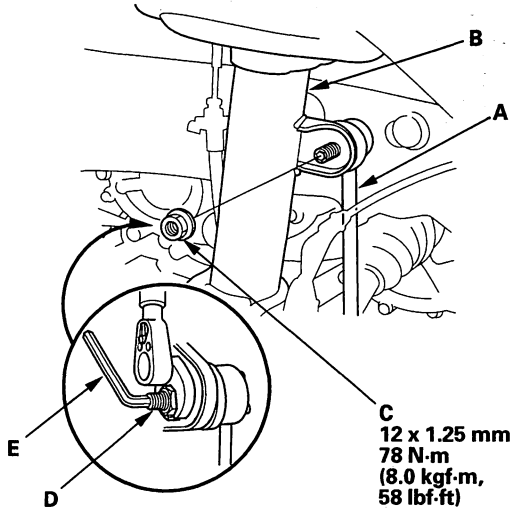
BACK

Protected by AR

3. Loosely install new damper pinch bolts (A) and new flange nuts (B) to the damper (C).



4. Connect the stabilizer link (A) to the damper (B), and loosely install new flange nut (C), while holding the joint pin (D) with the hex wrench (E).



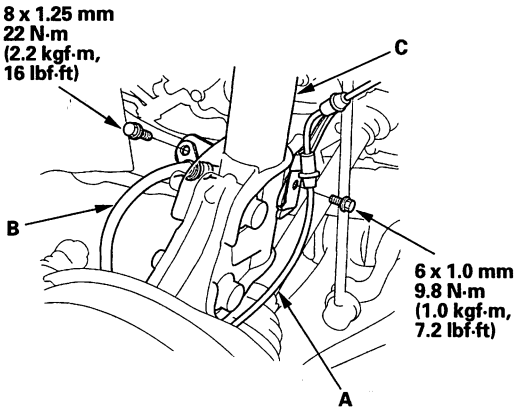
5. Raise the front suspension with a floor jack to load the suspension with the vehicle's weight.

6. Tighten the damper pinch bolts and the flange nuts to the specified torque value.

7. Tighten the flange nuts on top of the damper to the specified torque value.

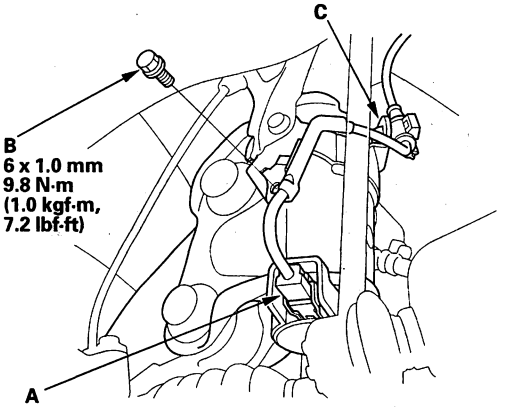
8. Install the cover and the service caps.

9. Install the wheel sensor harness (A) and the brake hose (B) to the damper (C).



10. With active damper system: Connect the damper coil connector (A), and install the flange bolt (B), and the harness clip (C).

NOTE: Be careful not to damage or contaminate the damper coil connecter.



11. Clean the mating surface of the brake disc and the inside of the wheel, then install the rear wheel.

12. With active damper system/Left side: Start the engine, then make sure there are no active damper system DTCs with the HDS (see page 18-53).

13. With active damper system/Left side: Do the DAMPER FORCE OPERATION in the ACTIVE DAMPER SYSTEM INSPECTION MENU with the HDS, then make sure the all four damper units function normally.

14. Check the wheel alignment, and adjust it if necessary (see page 18-5).

BACK

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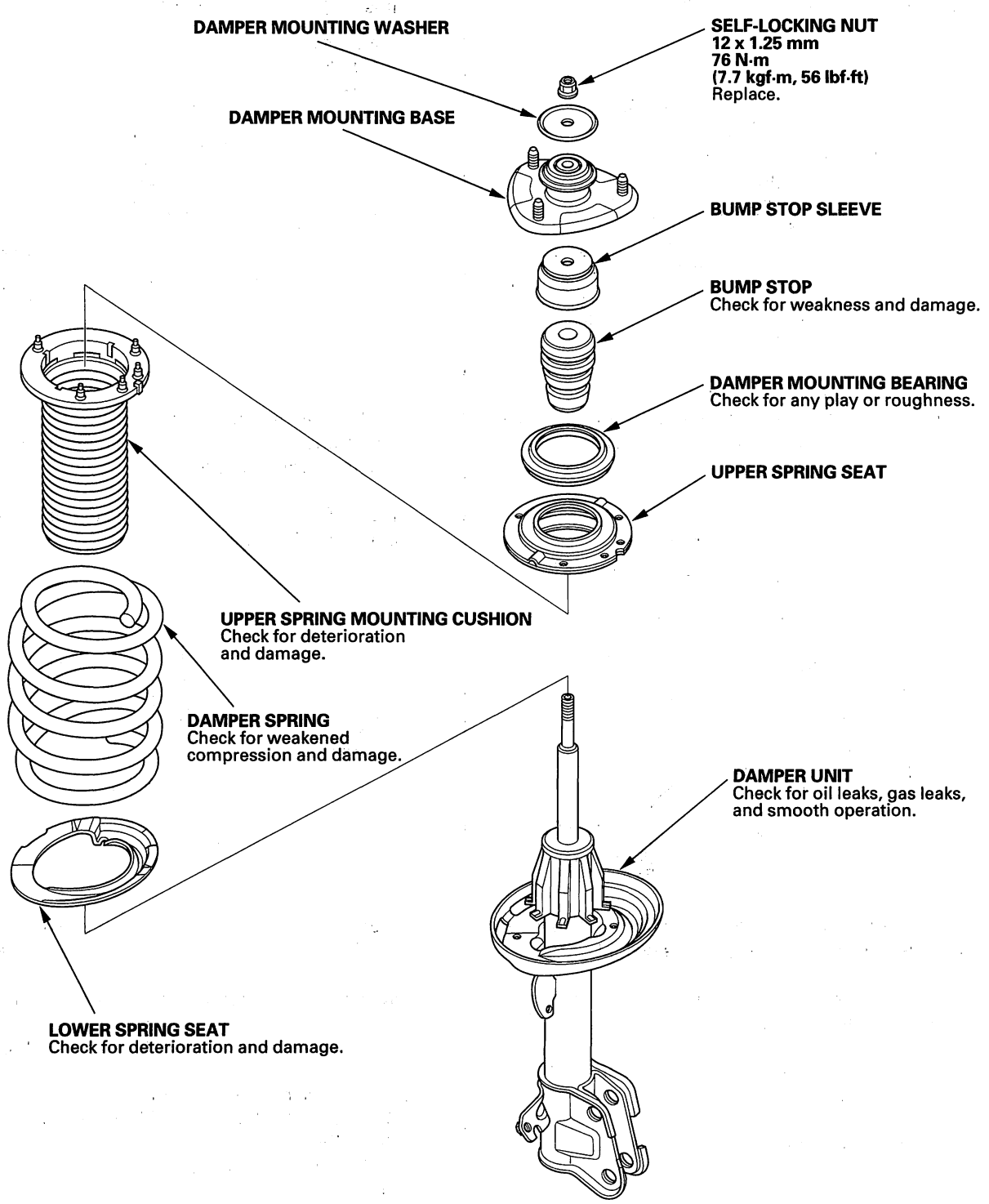
Damper/Spring Disassembly, Inspection, and Reassembly

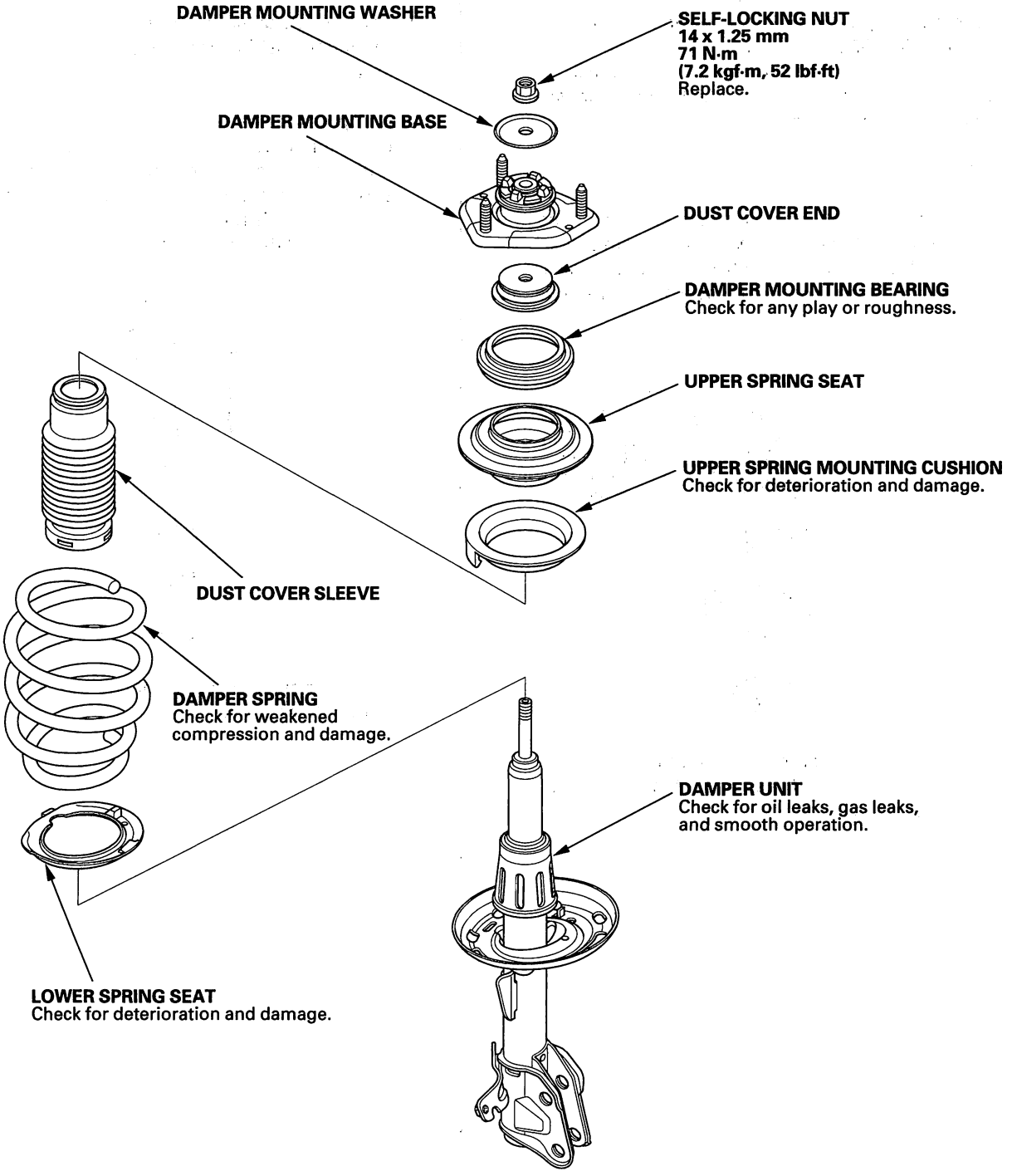
Exploded View-Without active damper system



BACK

Protected by AR

Exploded View-With active damper system



(cont'd)

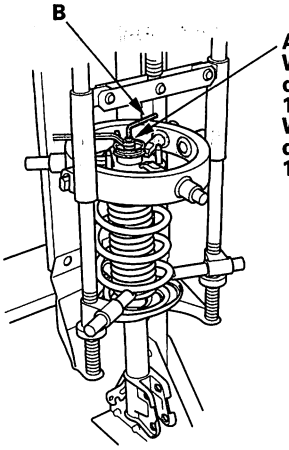
Protected by AR

Damper/Spring Disassembly, Inspection, and Reassembly (cont'd)

NOTE:
- When compressing the damper spring, use a commercially available strut spring compressor (Branick MST-580A or Model 7200, or equivalent) according to the manufacturer's instructions.
- Except where called out, the illustrations shown are without active damper system.

Disassembly

1. Compress the damper spring, then remove the nut (A) while holding the damper shaft with a hex wrench or TORX wrench (B). Do not compress the damper spring more than necessary to remove the nut.

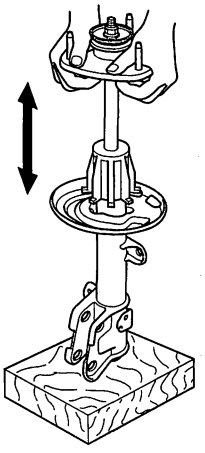


2. Release the pressure from the strut spring compressor, then disassemble the damper as shown in the Exploded View.

Inspection

1. Reassemble all parts, except for the upper spring mounting cushion, the bump stop, and the damper spring.

2. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should extend smoothly and constantly when compression is released. If it does not, the gas is leaking and the damper should be replaced.



3. Check for oil leaks, abnormal noises, and binding during these tests.

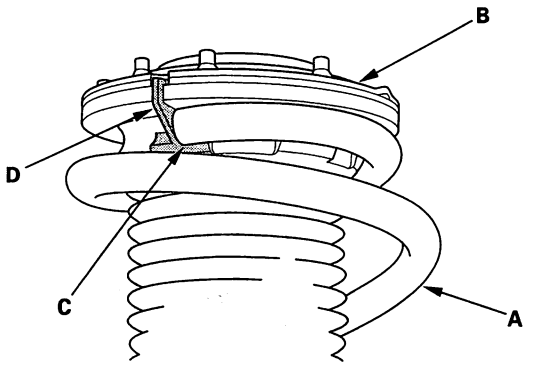
BACK

Protected by AR

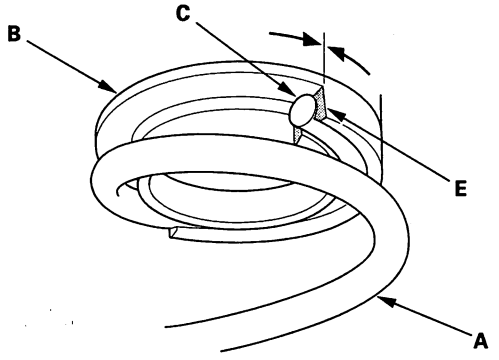
Reassembly

1. Install the damper spring (A) on the upper spring mounting cushion (B), then align the upper end (C) of the damper spring with the cushion stop (D) or the cushion end (E).

Without active damper system

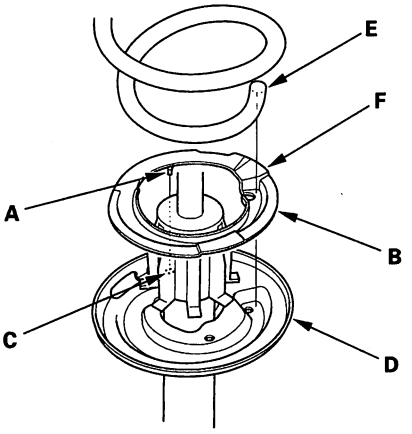


With active damper system

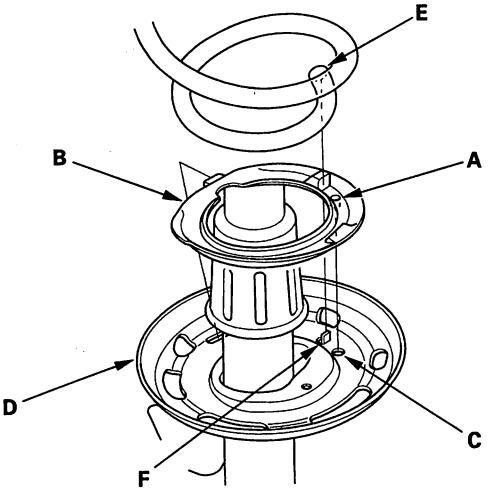


2. Install the tab (A) on the lower spring cushion (B) in the locating hole (C) on the damper unit (D).

Without active damper system



With active damper system



3. Align the lower end (E) of the spring with the stepped part (F) of the lower spring seat.

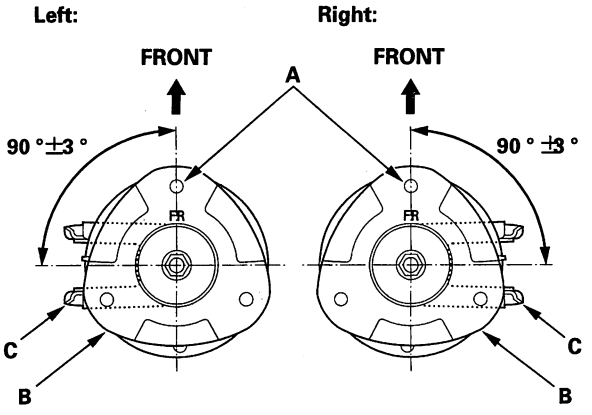
(cont'd)

Protected by AR

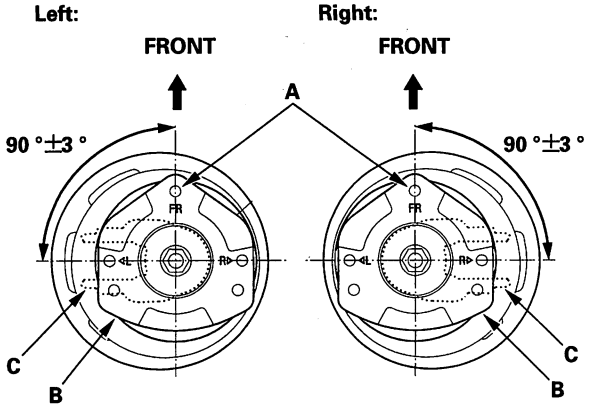
Damper/Spring Disassembly, Inspection, and Reassembly (cont'd)

4. Align the angle of the stud bolt (A) on the damper mounting base (B) and the damper bracket (C) as shown.

Without active damper system

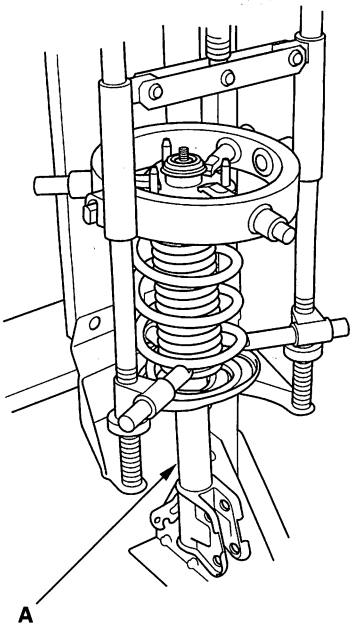


With active damper system

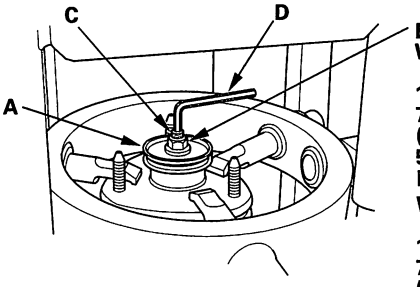


5. Compress the damper spring.

6. Install all the parts except the damper mounting washer and self-locking nut onto the damper unit (A) by referring to the Exploded View.



7. Install the damper mounting washer (A) and a new self-locking nut (B).



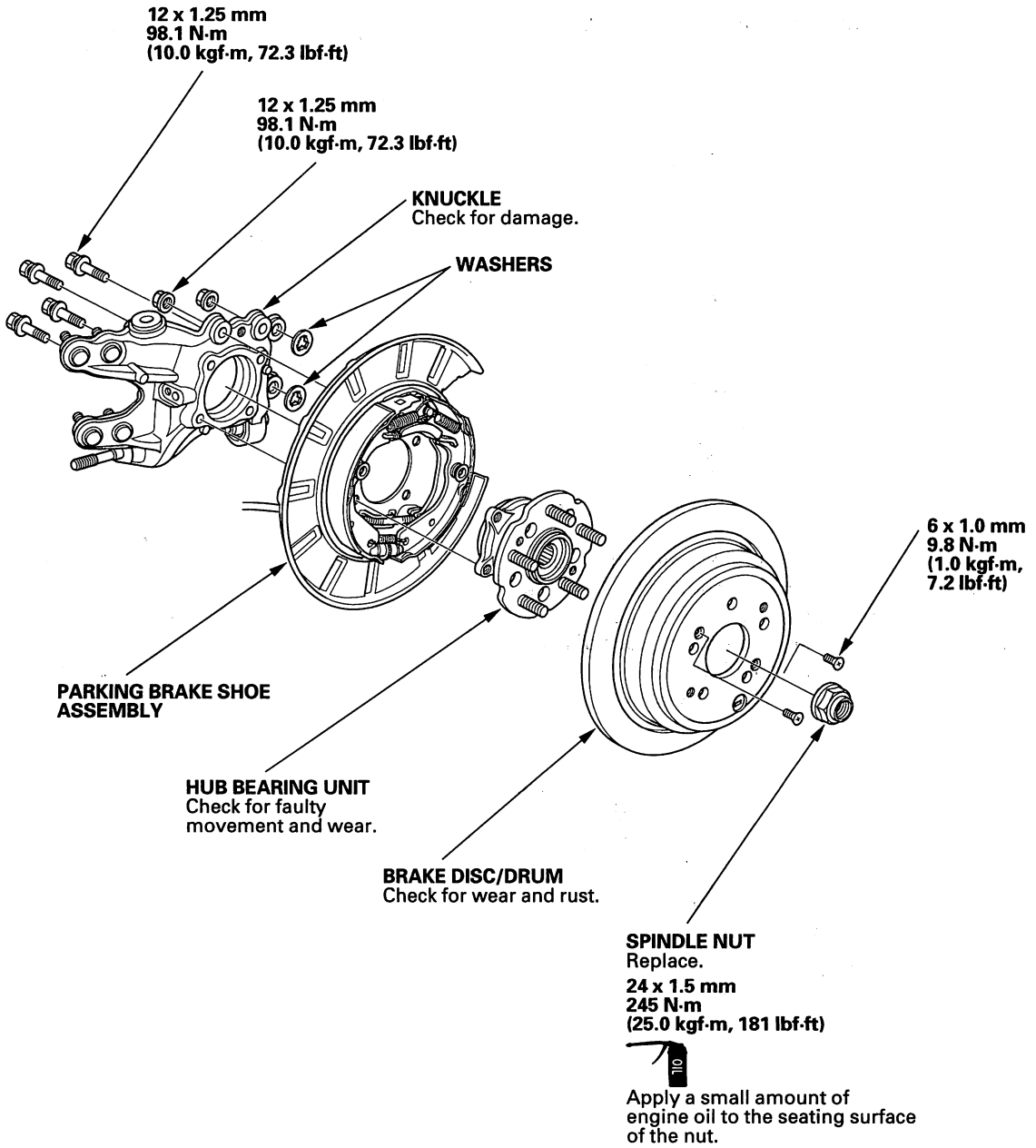
8. Hold the damper shaft (C) using a hex wrench or TORX wrench (D), and tighten the new self-locking nut to the specified torque value.

BACK

Protected by AR

Knuckle/Hub Bearing Unit Replacement

Exploded View



(cont'd)

BACK

Protected by AR

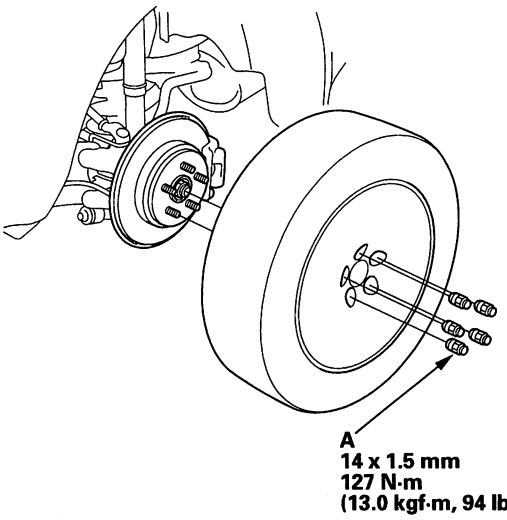
Knuckle/Hub Bearing Unit Replacement (cont'd)

Special Tools Required
Ball joint remover, 28 mm 07MAC-SL0A202

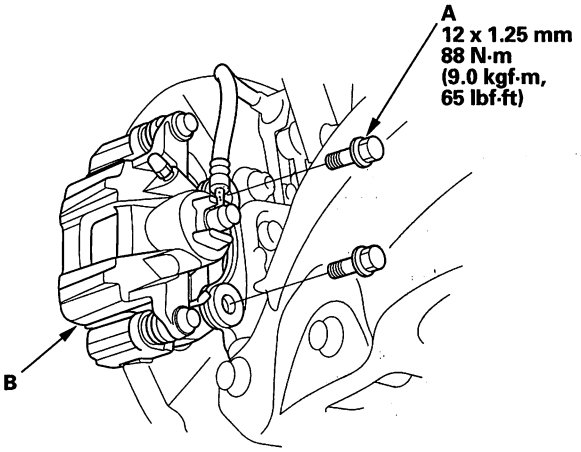
Hub Bearing Unit Replacement

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).

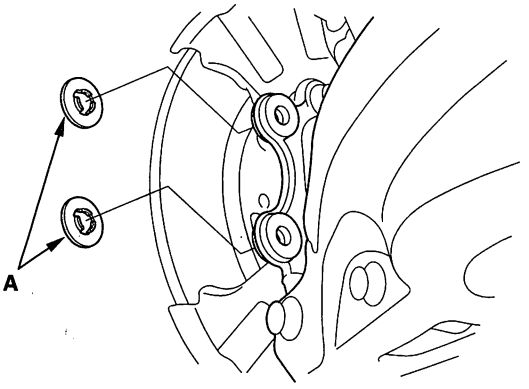
2. Remove the wheel nuts (A) and front wheel.



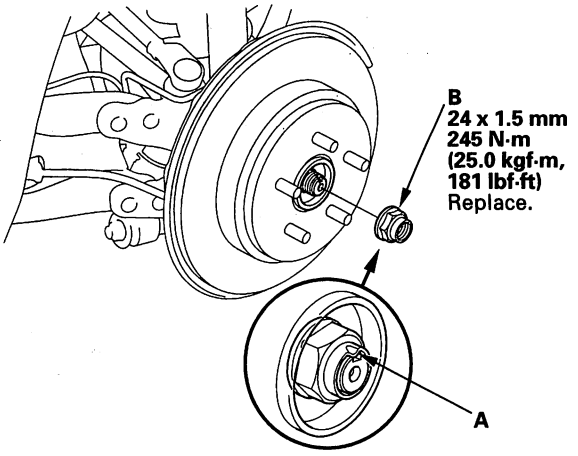
3. Remove the brake caliper bracket mounting bolts (A), and remove the caliper assembly (B) from the knuckle. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.



4. Remove the two washers (A).



5. Raise the stake (A), then remove the spindle nut (B).

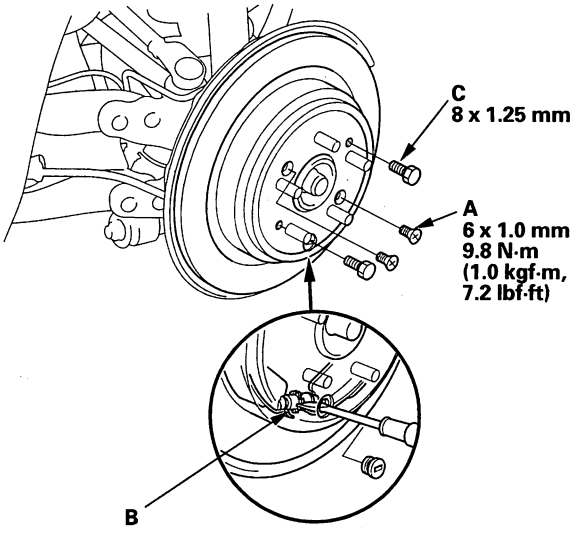


BACK

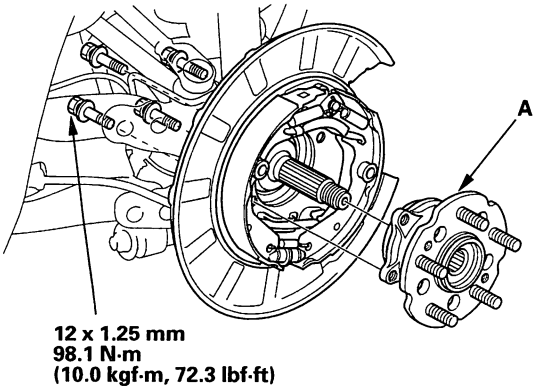
Protected by AR

6. Remove the two 6 x 1.0 mm screws (A) attaching the disc/drum to the hub bearing unit. Release the parking brake, and remove the brake disc/drum from the hub bearing unit.

   NOTE:
   - It may be necessary to back-off the parking brake adjuster nut (B) to remove the disc/drum from the hub bearing unit (see step 5 on page 19-8).
   - If the brake disc/drum has clung to the hub bearing unit. Screw two 8 x 1.25 mm bolts (C) into the brake disc/drum to push it away from the hub bearing unit. Turn each bolt 90 degrees at a time to prevent cocking the brake disc/drum.
   - After installation, check the parking brake, and adjust it necessary (see page 19-7).



7. Remove the hub bearing unit (A).



8. Check the hub bearing unit for damage and cracks.

9. Install the hub bearing unit in the reverse order of removal, and note these items:

   - Tighten all mounting hardware to the specified torque values.
   - Use a new spindle nut during reassembly.
   - Before installing the spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the driveshaft.
   - Before installing the brake disc/drum, clean the mating surface of the hub bearing unit and the inside of the brake disc/drum.
   - Before installing the wheel, clean the mating surface of the brake disc/drum and the inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-5).

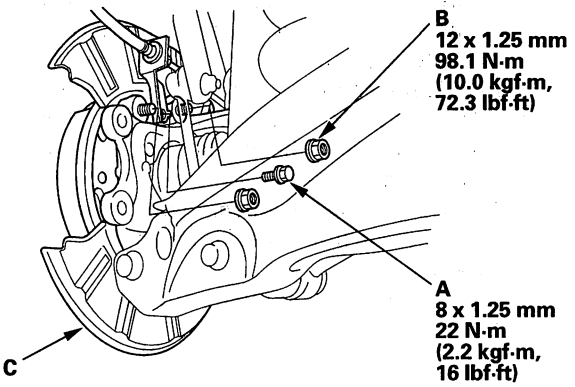
(cont'd)

Protected by AR

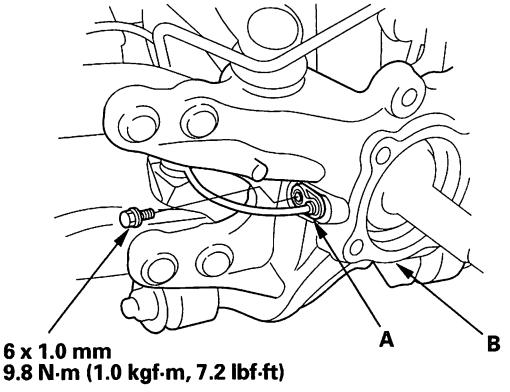
Knuckle/Hub Bearing Unit Replacement (cont'd)

Knuckle Replacement

1. Remove the hub bearing unit.
2. Remove the brake hose bracket mounting bolts (A) from the knuckle.

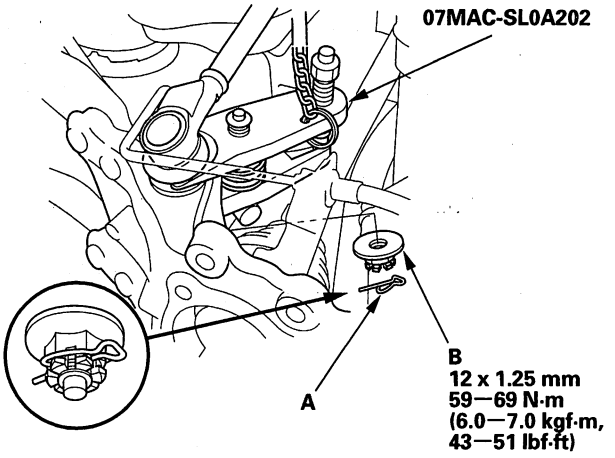


3. Remove the flange nuts (B), then remove the backing plate (C).
4. Remove the wheel sensor (A) from the knuckle (B). Do not disconnect the wheel sensor connector.



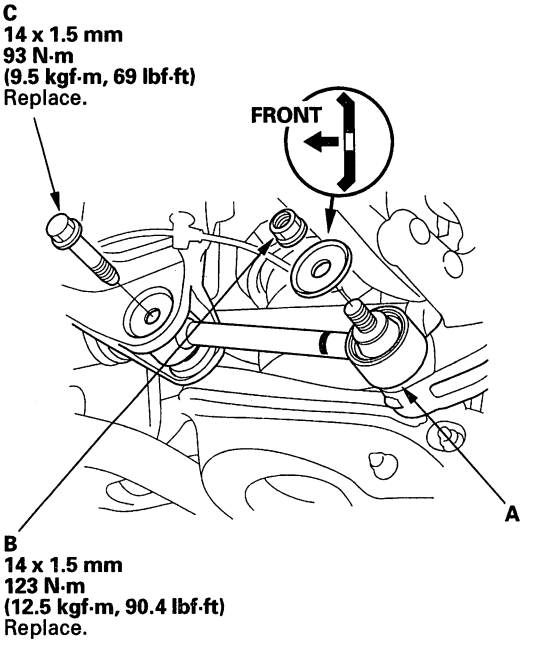
5. Remove the lock pin (A) from the upper arm ball joint, and loosen the nut (B).

   NOTE: During installation, install the lock pin and nut after tightening the nut as shown.



6. Disconnect the upper arm ball joint from the knuckle using the ball joint remover (see page 18-11).
7. Remove the self-locking nut (B), washer, and flange bolt (C), then remove the lower arm A.

   NOTE: Use a new self-locking nut and the new flange bolt, during reassembly.

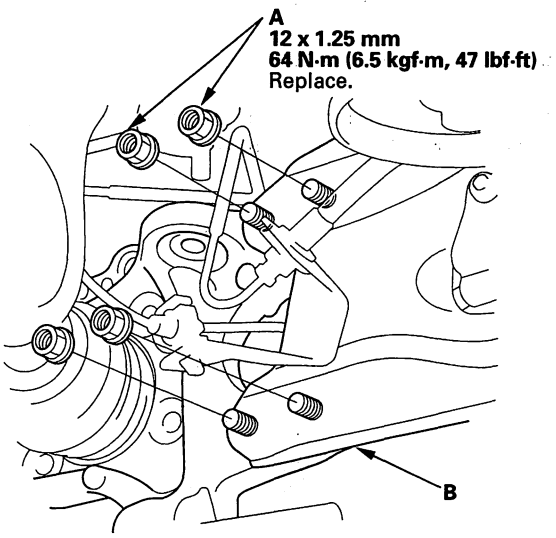


BACK

Protected by AR

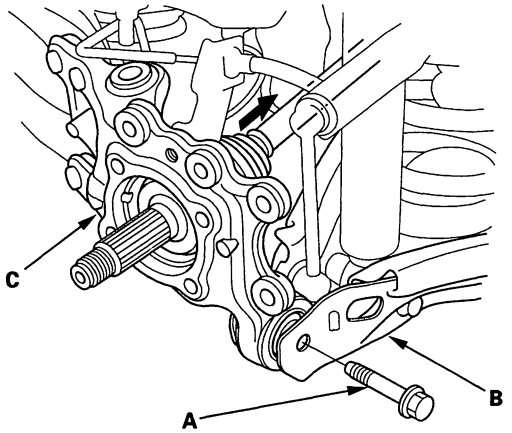
8. Remove the flange nuts (A), and separate the knuckle from the trailing arm (B).

   NOTE: Use new flange nuts during reassembly.



9. Place a floor jack under lower arm B, and remove the flange bolt (A), then remove the knuckle (C).

   NOTE: Use the new flange bolt during reassembly.



10. Install the knuckle in the reverse order of removal, and note these items:

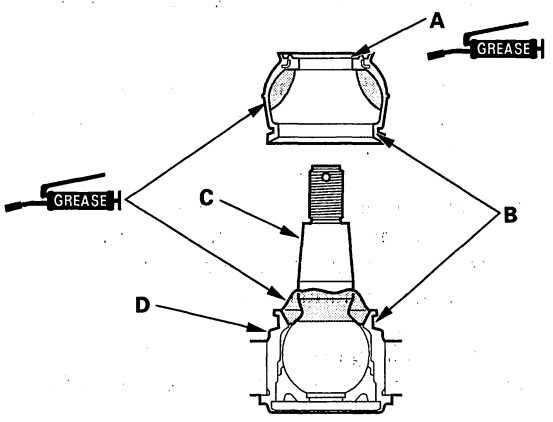
- Be careful not to damage the ball joint boot when connecting the upper arm to the knuckle.
- Before connecting the ball joint to the knuckle, degrease the threaded section and tapered portion of the ball joint pin, the connecting hole, and the threaded section and mating surface of the castle nut.
- Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the hole in the stud. Do not align the castle nut by loosening it.
- First install all the components and lightly tighten the bolts and nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque values.
- Tighten all mounting hardware to the specified torque values.
- Before installing the wheel, clean the mating surface on the brake disc and the inside of the wheel.
- Check the wheel alignment, and adjust it if necessary (see page 18-5).

Protected by AR

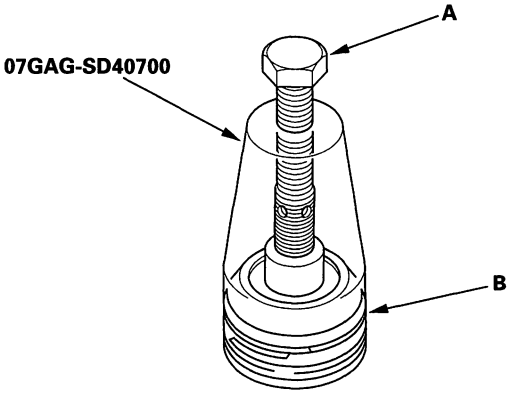
Ball Joint Boot Replacement

Special Tools Required
Ball joint boot clip guide 07GAG-SD40700

1. Remove the boot clip and the boot.
2. Pack the interior and lip (A) of a new boot with grease. Keep the grease off of the boot-to-knuckle mating surfaces (B).



3. Wipe the grease off the tapered portion of the pin (C), and pack fresh grease into the base (D). Do not let dirt or other foreign materials get into the boot.
4. Install the boot on the ball joint, then squeeze it gently to force out any air.
5. Adjust the special tool with the adjusting bolt (A) until its base is just above the groove around the bottom of the boot. Then slide the clip (B) over the tool and into position on the boot.

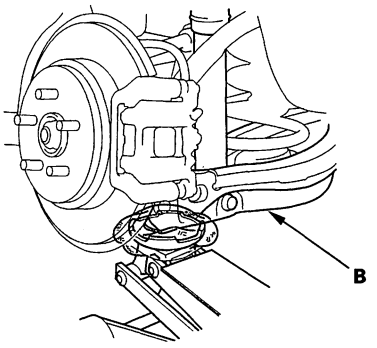


6. After installing a boot, wipe any grease off the exposed portion of the ball joint pin.

Upper Arm Removal/Installation

Special Tools Required
Ball joint remover, 32 mm 07MAC-SL0A102

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the rear wheel.
3. Position a floor jack under the lower arm B. Raise the floor jack until the suspension begins to compress.



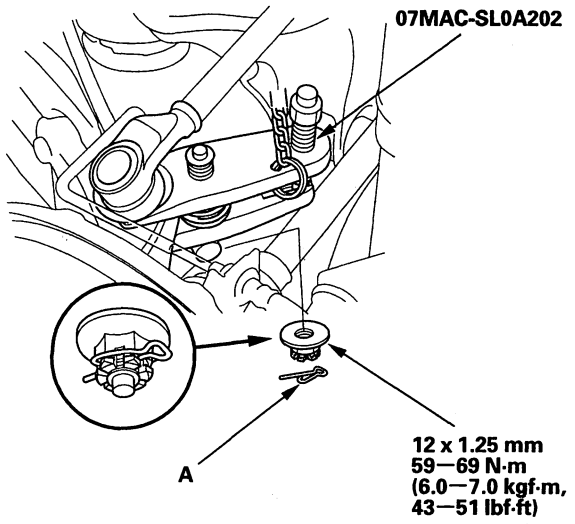
4. With active damper system: Remove the suspension stroke sensor from the upper arm (B) (see page 22-229).

BACK

Protected by AR

5. Remove the lock pin (A) from the upper arm ball joint, then remove the nut (B).

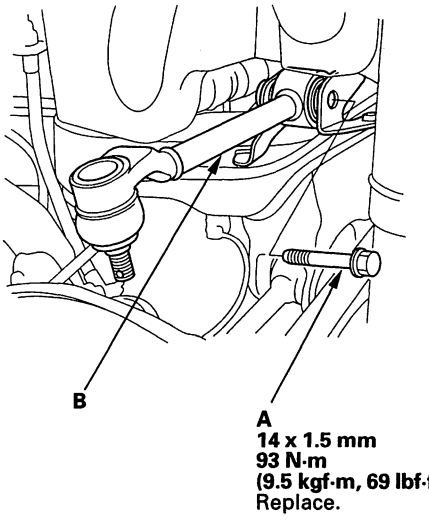
   NOTE: During installation, install the lock pin after tightening the castle nut.



6. Disconnect the upper arm ball joint from the knuckle using the ball joint remover (see page 18-11).

7. Remove the flange bolt (A) from the vehicle, and remove the upper arm (B).

   NOTE: Use new flange bolt during reassembly.



8. Install the upper arm in the reverse order of removal, and note these items:

   - Be careful not to damage the ball joint boot when connecting the upper arm to the knuckle.
   - Before connecting the ball joint to the knuckle, degrease the threaded section and tapered portion of the ball joint pin, the connecting hole, and the threaded section and mating surface of the castle nut.
   - First install all the components and lightly tighten the flange bolt and the castle nut, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque values.
   - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the hole in the stud. Do not align the castle nut by loosening it.
   - Refer to the stroke and stroke/headlight leveling sensor replacement to install the stroke sensor to the upper arm (see page 22-229).
   - Before installing the wheel, clean the mating surface of the brake disc/drum and the inside of the wheel.
   - Check the rear wheel alignment, and adjust if necessary (see page 18-5).

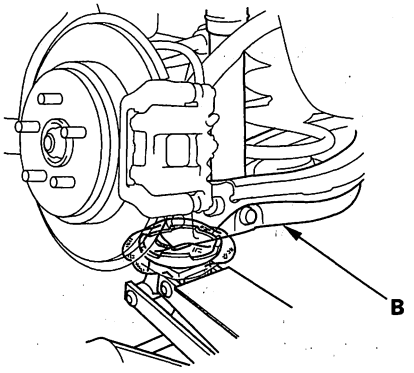
9. With active damper system: Do the memorizing rear suspension full rebound position (see page 18-54).

10. With active damper system/Left side: Do the headlight initial position learning procedure (see page 22-231).

Protected by AR

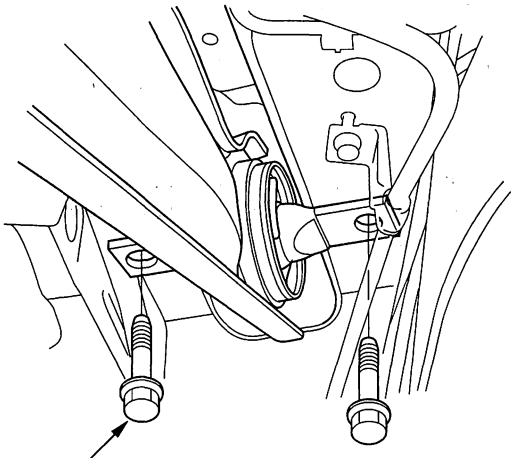
Lower Arm A Removal/Installation

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the rear wheel.
3. Position a floor jack under the lower arm B. Raise the floor jack until the suspension begins to compress.



4. Remove the flange bolts (A) from the trailing arm.

   NOTE: Use new flange bolts during reassembly.

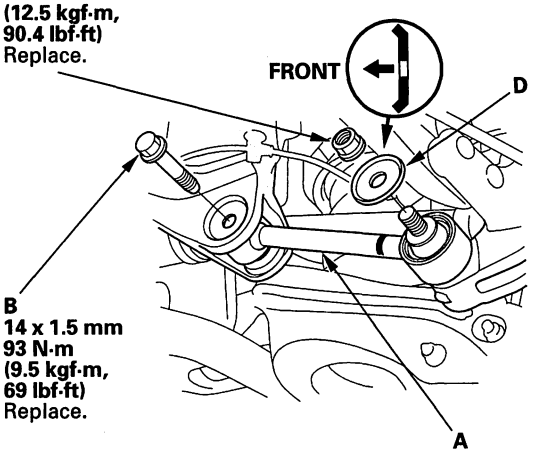


A
14 x 1.5 mm
103 N·m
(10.5 kgf·m, 75.9 lbf·ft)
Replace.

5. Remove the flange bolt (B) from the vehicle.

   NOTE: Use a new flange bolt during assembly.

C
14 x 1.5 mm
123 N·m
(12.5 kgf·m,
90.4 lbf·ft)
Replace.



B
14 x 1.5 mm
93 N·m
(9.5 kgf·m,
69 lbf·ft)
Replace.

6. Remove the self-locking nut (C) and the washer (D) from the knuckle, then remove the lower arm A.

   NOTE: Use a new self-locking nut during reassembly.

7. Install the lower arm A in the reverse order of removal, and note these items:

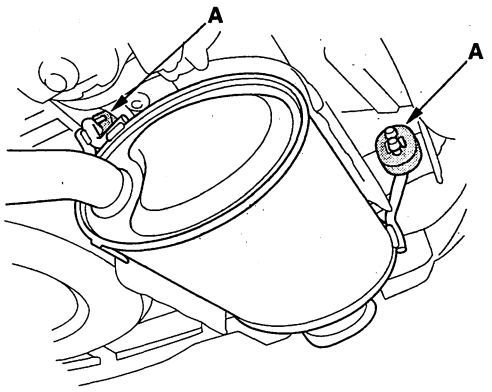
   - Before installing the wheel, clean the mating surface of the brake disc/drum and the inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-5).

BACK

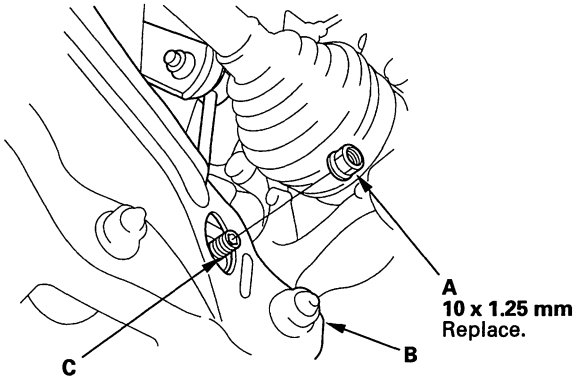
Protected by AR

Lower Arm B Removal/Installation

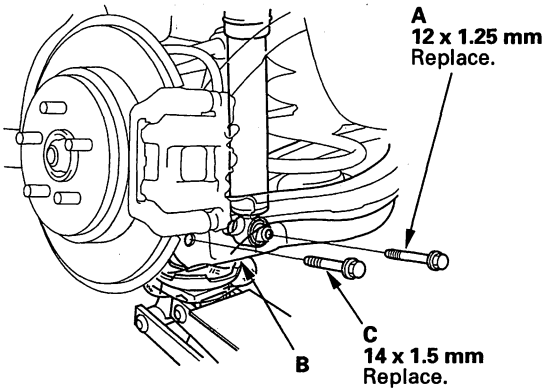
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the rear wheel.
3. Remove the muffler hanger (A).



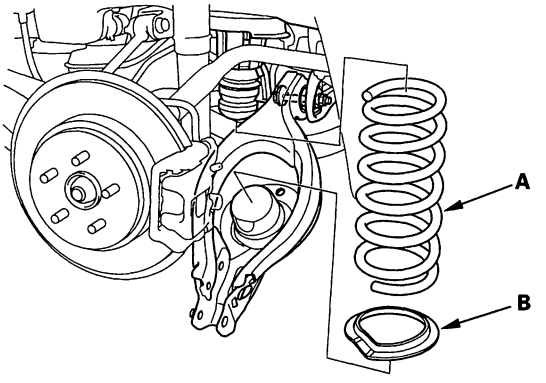
4. Remove the flange nut (A) while holding the respective joint pin (C) with a hex wrench, then remove the stabilizer link from the lower arm B.



5. Position the floor jack under the lower arm B. Raise the floor jack until the suspension begins to compress.



6. Remove the flange bolt (A) from the bottom of the damper.
7. Remove the flange bolt (C) from the knuckle.
8. Lower the floor jack gradually.
9. Remove the spring (A) and the lower spring seat (B).



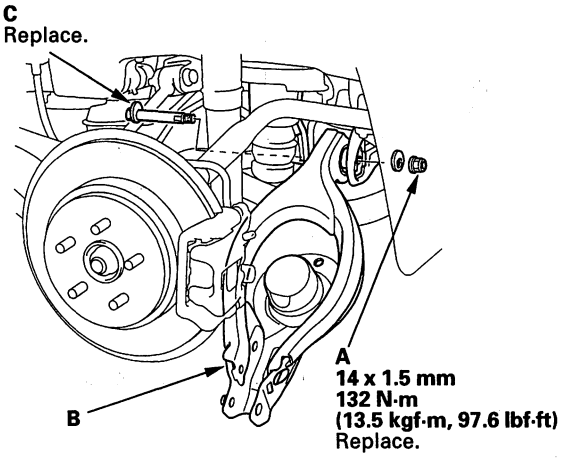
(cont'd)

Protected by AR

Lower Arm B Removal/Installation (cont'd)

10. Remove the self-locking nut (A) and adjusting bolt (C), then remove the lower arm B.

    NOTE: Use a new self-locking nut and a new adjusting bolt during reassembly.



11. Install the lower arm B in the reverse order of removal, and note these items:

    - First install all the suspension components, and lightly tighten the bolts and nuts, then place a floor jack under the lower arm, and raise the suspension to load it with the vehicle's weight before fully tightening the bolts and nuts to the specified torque values.
    - Align the cam positions of the adjusting bolt and the adjusting cam with the marked positions when tightening.
    - Before installing the brake disc/drum, clean the mating surface of the hub bearing unit and the inside of the brake disc/drum.
    - Check the wheel alignment, and adjust it if necessary (see page 18-5).

BACK

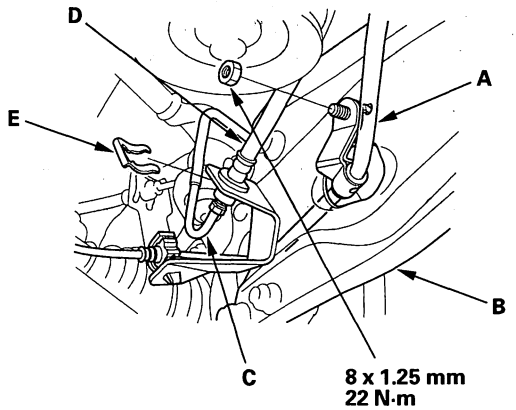
Protected by AR

Trailing Arm Removal/Installation

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).

2. Remove the rear wheel.

3. Remove the parking brake cable (A) from the trailing arm (B).



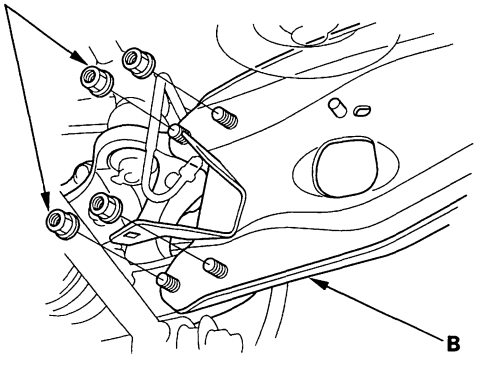
4. Disconnect the brake line (C) from the brake hose (D), then remove the retaining clip (E).

5. Disconnect the parking brake cable from the parking brake lever (see page 19-30).

6. Remove the flange nuts (A) from the trailing arm (B).

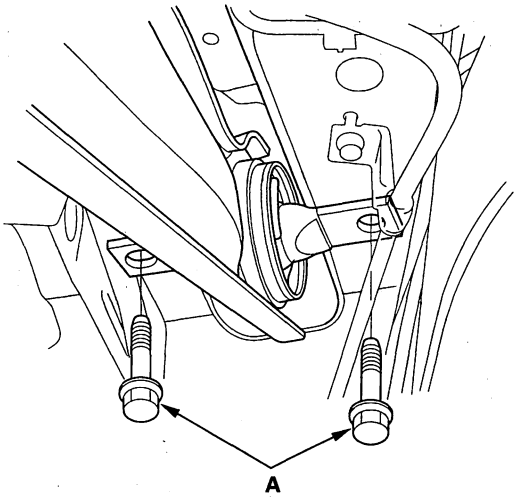
   NOTE: Use new flange nuts during reassembly.

A
12 x 1.25 mm
64 N·m (6.5 kgf·m, 47 lbf·ft)
Replace.



7. Remove the flange bolts (A) from the trailing arm, then remove the trailing arm.

   NOTE: Use new flange bolts during reassembly.



A
14 x 1.5 mm
103 N·m
(10.5 kgf·m, 75.9 lbf·ft)
Replace.

8. Install the trailing arm in the reverse order of removal, and note these items:

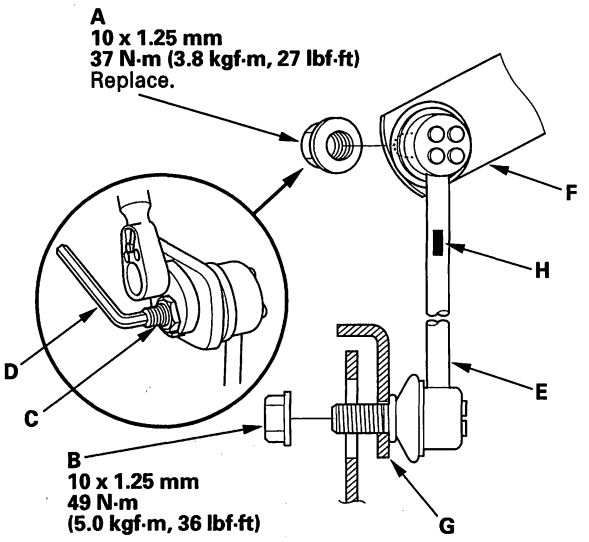
   - First install all the suspension components, and lightly tighten the bolts and nuts, then place a floor jack under the lower arm, and raise the suspension to load it with the vehicle's weight before fully tightening the bolts and nuts to the specified torque values.
   - Before installing the brake disc/drum, clean the mating surface of the hub bearing unit and the inside of the brake disc/drum.
   - Before installing the wheel, clean the mating surface of the brake disc/drum and the inside of the wheel.
   - Fill the master cylinder reservoir to the MAX (upper) level line, and bleed the brake system (see page 19-9). Check for a leak at the brake line to the brake hose, and retighten it if necessary.
   - Check the wheel alignment, and adjust it if necessary (see page 18-5).

BACK

Protected by AR

Stabilizer Link Removal/Installation

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the center cap and the rear wheel.
3. Remove the self-locking nut (A) and the flange nut (B) while holding the respective joint pin (C) with a hex wrench (D), then remove the stabilizer link (E).



4. Install the stabilizer link on the stabilizer bar (F) and lower arm (G) with the joint pins set at the center of their range of movement.

   NOTE: The left stabilizer link has a yellow paint mark (H), while the right stabilizer link has a white mark. Align the paint mark to the outside.

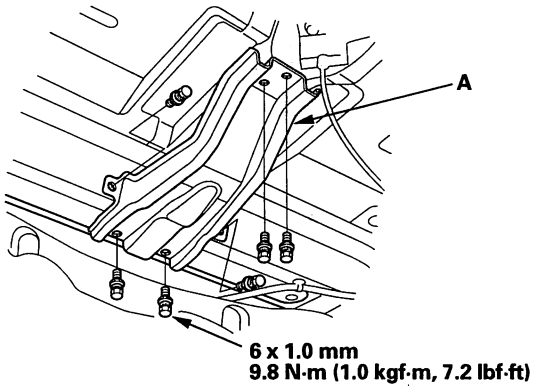
5. Install a new self-locking nut and a new flange nut, and lightly tighten them.
6. Clean the mating surface of the brake disc/drum and the inside of the wheel, then install the rear wheel.
7. Tighten the self-locking nut and flange nut to the specified torque values while holding the respective joint pin with a hex wrench.
8. Test-drive the vehicle.
9. After 5 minutes of driving, tighten the self-locking nut again to the specified torque value.

BACK

Protected by AR

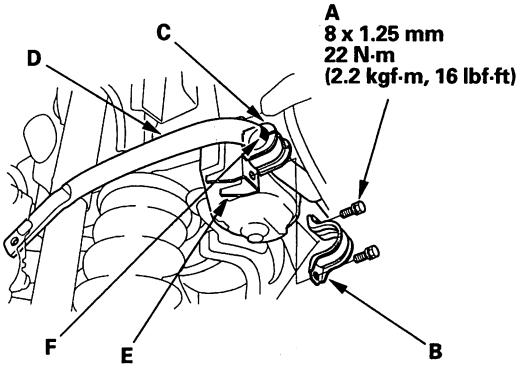
Stabilizer Bar Replacement

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the rear wheels.
3. Remove the spare tire from the vehicle.
4. Remove the spare tire support bracket (A).



5. Disconnect both stabilizer links from the stabilizer bar (see page 18-40).
6. Remove the flange bolts (A) and the bushing holders (B), then remove the bushings (C) and the stabilizer bar (D) from the front suspension subframe (E).

   NOTE: Align the paint marks (F) on the stabilizer bar with the sides of the bushings during reassembly.



7. Install the stabilizer bar in the reverse order of removal, and note these items:
   - Note the right and left direction of the stabilizer bar.
   - Note the fore/aft direction of the bushing holders.
   - Refer to stabilizer link removal/installation to connect the stabilizer bar to the links (see page 18-40).
   - Clean the mating surface of the brake disc/drum the inside of the wheel, then install the rear wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-5).

BACK

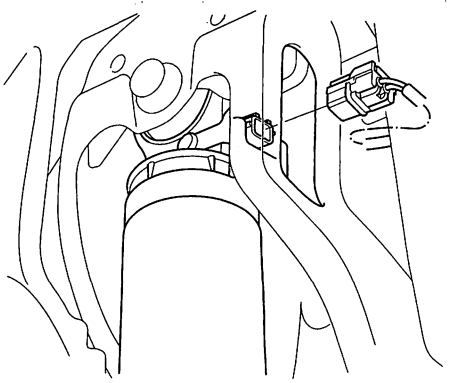
Protected by AR

Damper Replacement

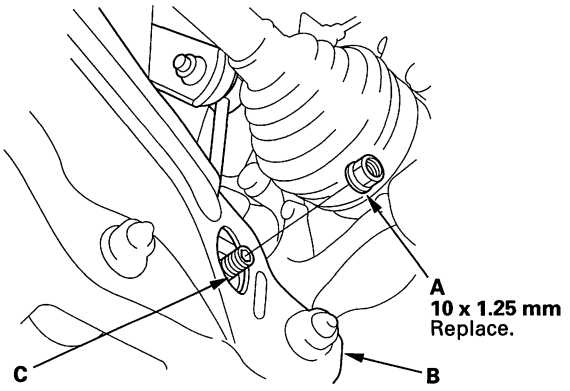
Removal

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the rear wheel.
3. With active damper system: Disconnect the damper coil connector (A).

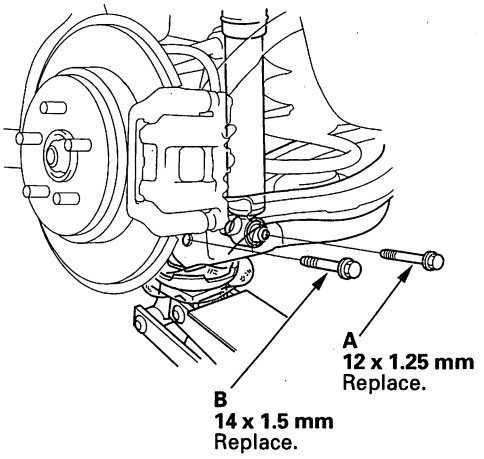
   NOTE: Be careful not to damage or contaminate the damper coil connector;



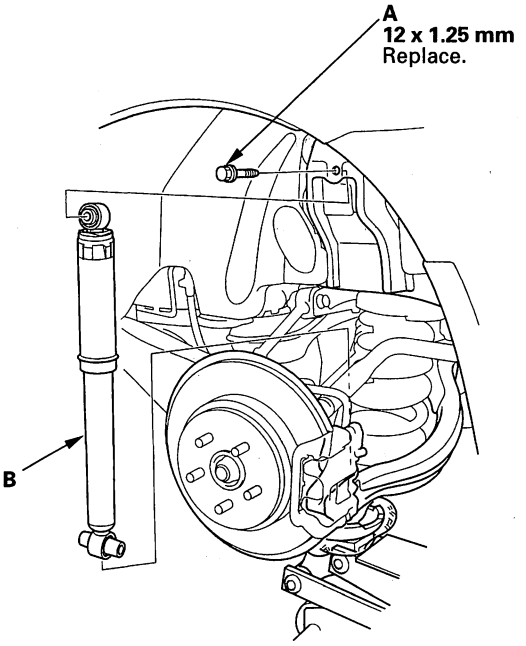
4. Position a floor jack under the lower arm B. Raise the floor jack until the suspension begins to compress.
5. Remove the flange nut (A) while holding the respective joint pin (C) with a hex wrench, then remove the stabilizer link from the lower arm B.



6. Remove the flange bolt (A) from the bottom of the damper.



7. Remove the flange bolt (B) from the knuckle.
8. Remove the flange bolt (A) from the top of the damper.



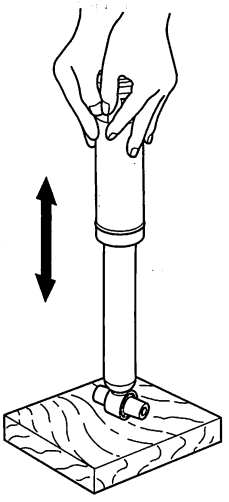
9. Lower the floor jack gradually, then remove the damper (B) from the vehicle.

BACK

Protected by AR

Inspection

1. Push on the damper as shown.

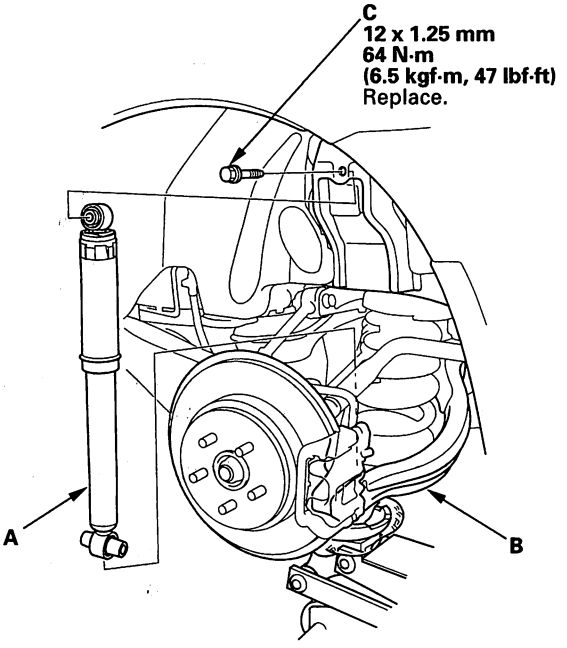


2. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should extend smoothly and constantly when compression is released. If it does not, the gas is leaking and the damper should be replaced.

3. Check for oil leaks, abnormal noises, and binding during these tests.

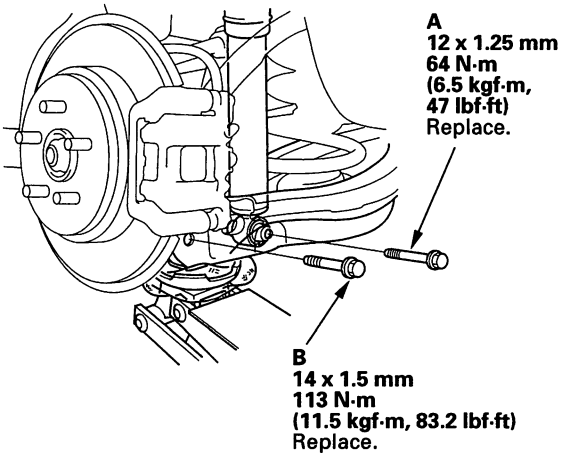
Installation

1. Position the damper (A) between the body and the lower arm B.



2. Loosely install a new flange bolt (C) to the top of the damper.

3. Loosely install the new flange bolt (A) to the bottom of the damper.



4. Loosely install a new flange bolt (B) to the knuckle.

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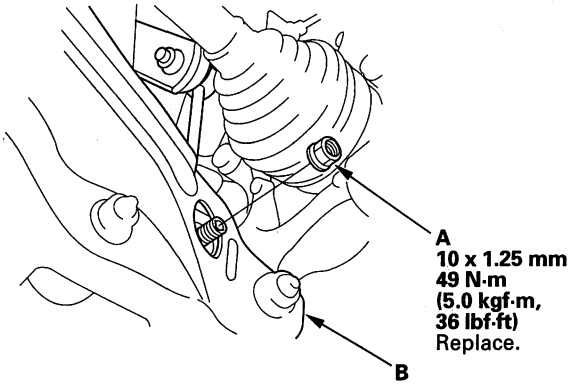
Damper Replacement (cont'd)

5. Install the stabilizer link on the lower arm B, then loosely install a new flange nut (A).



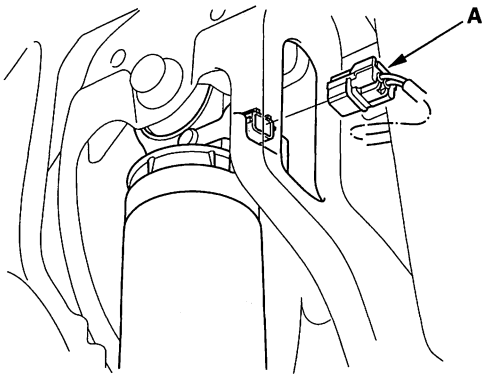
6. Raise the floor jack until the hole in the trailing arm aligns with the hole in the damper.

7. Tighten the flange bolts to the specified torque values.

8. Tighten the flange nut to the specified torque value, while holding the respective joint pin with a hex wrench.

9. With active damper system: Connect the damper coil connector (A).

   NOTE: Be careful not to damage or contaminate the damper coil connector.



10. Clean the mating surface of the brake disc/drum and the inside of the wheel, then install the rear wheel.

11. With active damper system: Do the memorizing rear suspension full rebound position (see page 18-54).

12. With active damper system: Start the engine, then make sure there are no active damper system DTCs with the HDS (see page 18-53).

13. With active damper system: Do the DAMPER FORCE OPERATION in the ACTIVE DAMPER SYSTEM INSPECTION MENU with the HDS, then make sure the all four damper units function normally.

14. Check the wheel alignment, and adjust it if necessary (see page 18-5).

BACK

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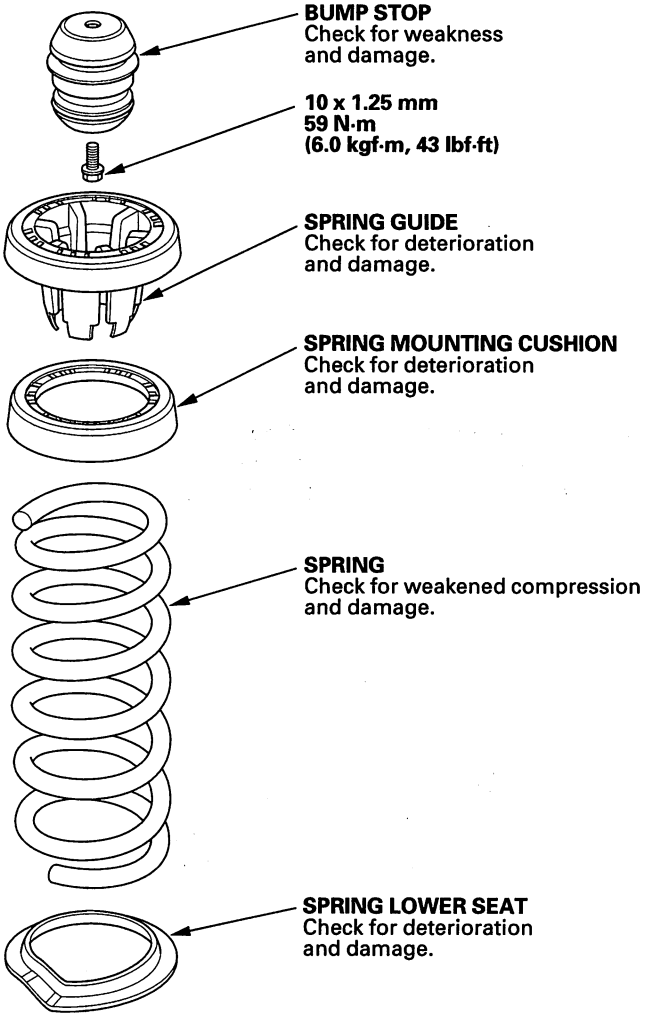
Spring/Bump Stop Removal/Installation

Exploded View



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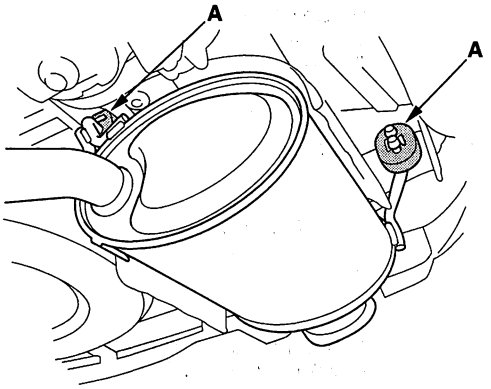
Protected by AR

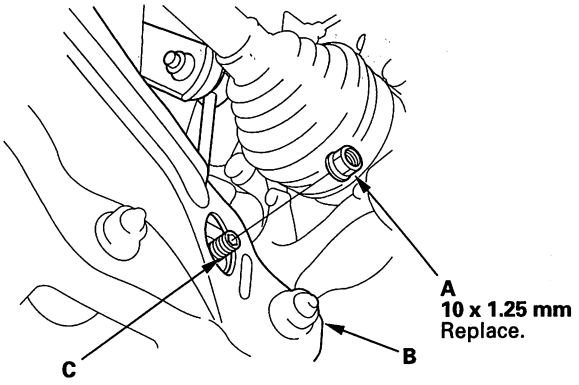
Spring/Bump Stop Removal/Installation (cont'd)

Removal

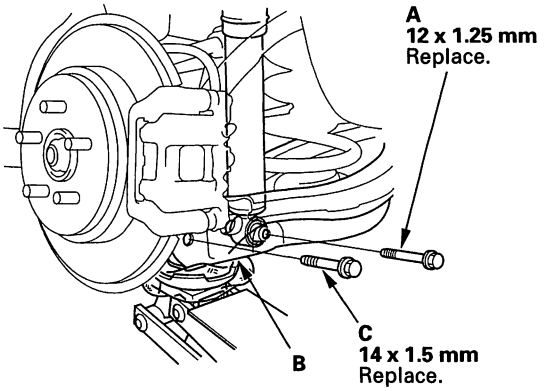
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the rear wheel.
3. Remove the muffler hanger (A).



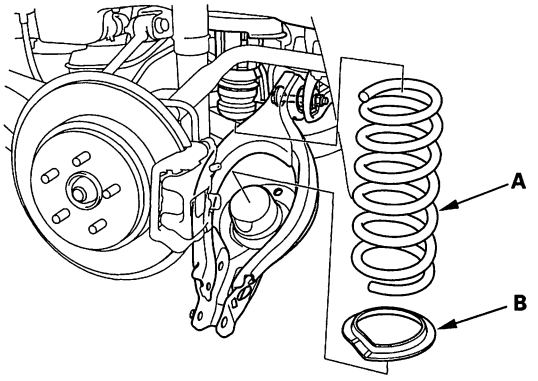
4. Remove the flange nut (A) while holding the respective joint pin (C) with a hex wrench, then remove the stabilizer link from the lower arm B.



5. Position the floor jack under the lower arm B. Raise the floor jack until the suspension begins to compress.



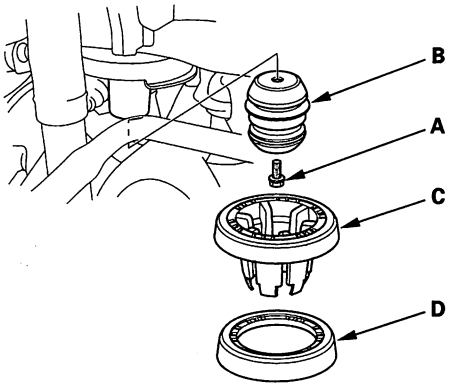
6. Remove the flange bolt (A) from the bottom of the damper.
7. Remove the flange bolt (C) from the knuckle.
8. Lower the floor jack gradually.
9. Remove the spring (A) and the lower spring seat (B).



BACK

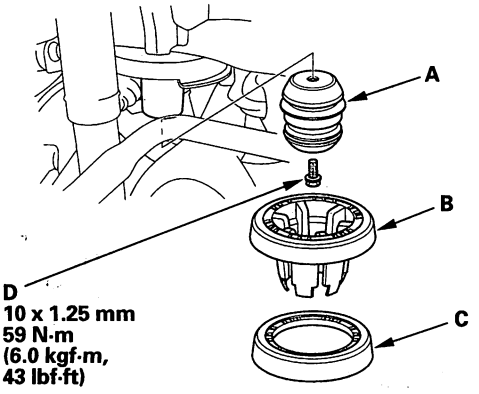
Protected by AR

10. Remove the flange bolt (A) that connects the body, and remove the bump stop (B), the spring guide (C), and the spring mounting cushion (D) if necessary.

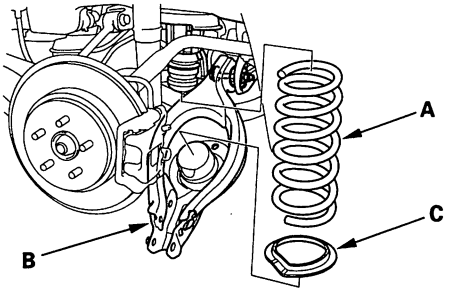


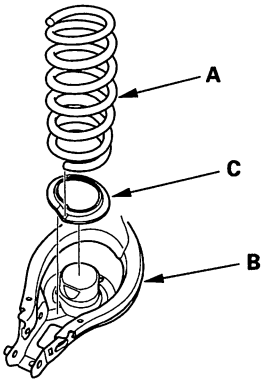
Installation

1. Install the bump stop (A), the spring guide (B), and the mounting cushion (C), then tighten the flange bolt (D) to the specified torque value if removed.



2. Install the spring (A) and the lower spring seat (C). Align the bottom of the spring and the lower spring seat with lower arm B as shown.





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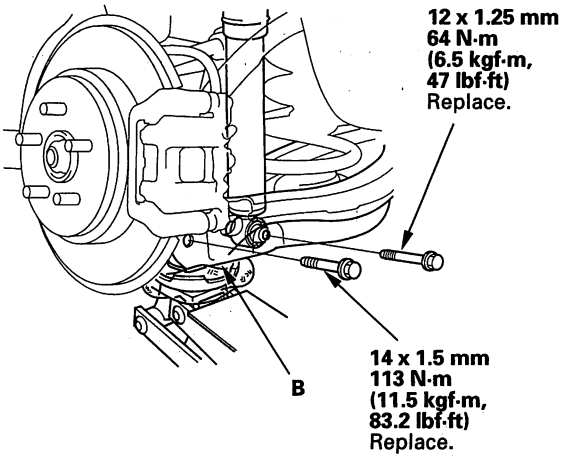
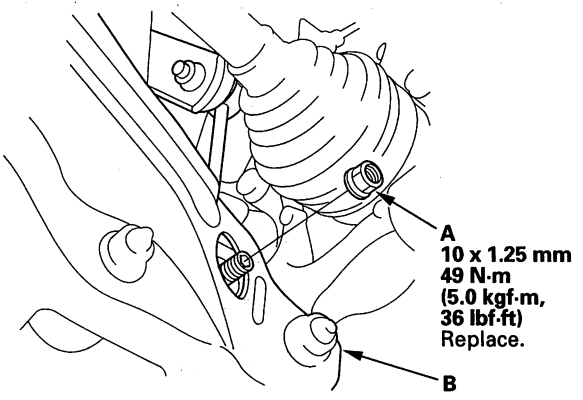
Spring/Bump Stop Removal/Installation (cont'd)

3. Position a floor jack under the lower arm B.



4. Slowly raise the floor jack until you can align the bolt hole with the holes in the lower arm B and the knuckle and install the new flange bolts.

5. Install the stabilizer link on the lower arm B, then loosely install the new flange nut (A).

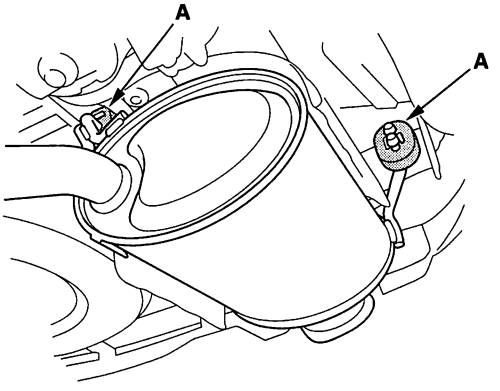


6. Raise the floor jack until the hole in the trailing arm aligns with the hole in the damper.

7. Tighten the flange bolts to the specified torque values.

8. Tighten the flange nut to the specified torque values, while holding the respective joint pin with a hex wrench.

9. Install the muffler hanger (A).



10. Clean the mating surface of the brake disc/drum and the inside of the wheel, then install the rear wheel.

11. Check the wheel alignment, and adjust it if necessary (see page 18-5).

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Suspension

Front and Rear Suspension **18-2**

Front Suspension **18-12**

Rear Suspension **18-29**

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- Component Location Index 18-50
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TPMS (Tire Pressure Monitoring System) **18-123**

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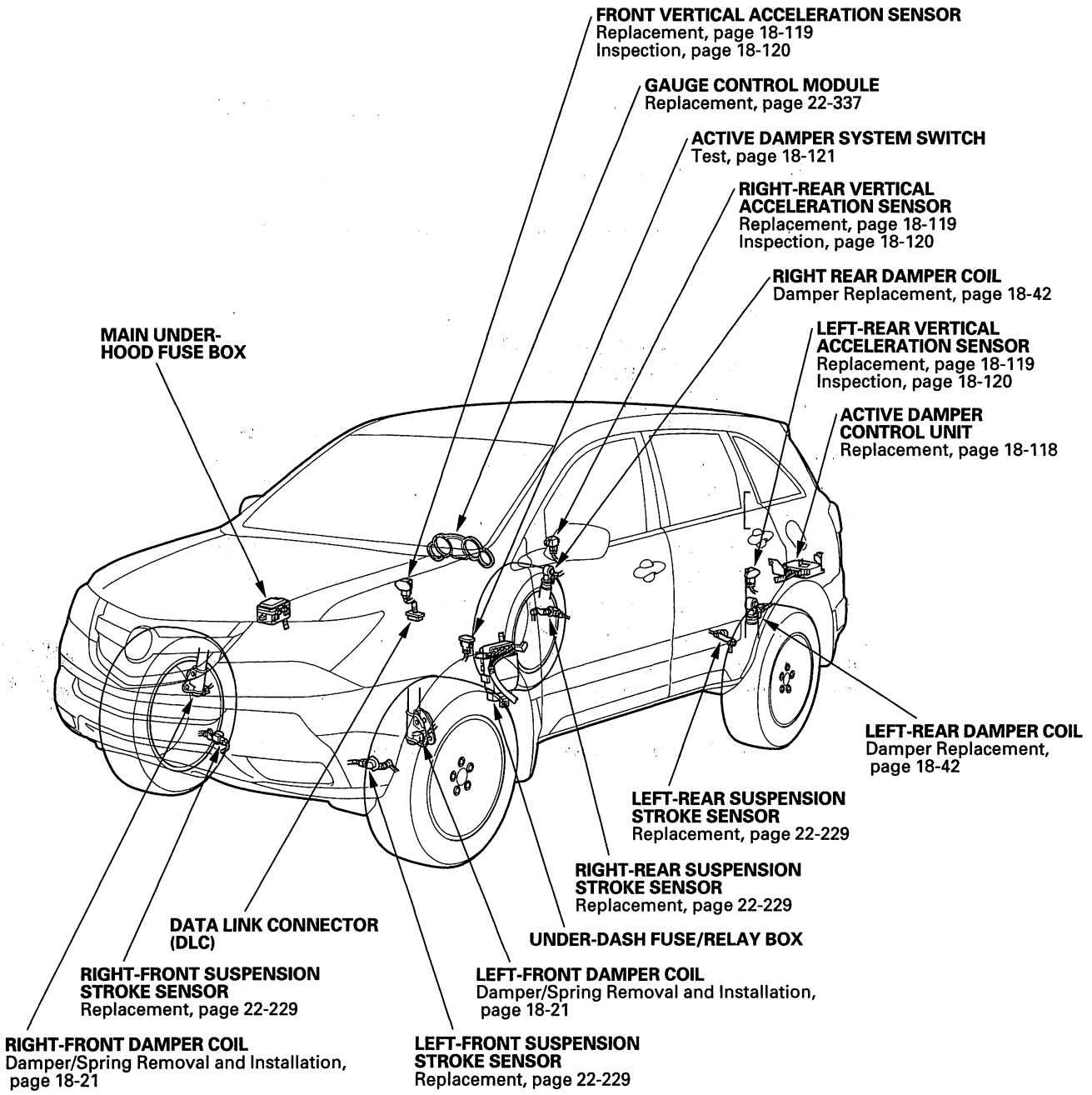
Active Damper System

Component Location Index



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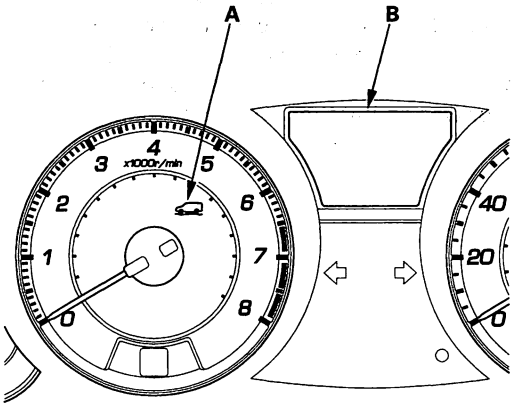
General Troubleshooting Information

System Indicator

This system has an active damper system indicator (A).



When the active damper system is working correctly, the active damper system indicator comes on after turning the ignition switch ON (II), and it goes off when the engine is started.
The indicator will stay on until the ignition switch is turned OFF, or until the problem goes away (system returns to normal), the indicator will then go off.

NOTE: The damper system mode is controlled by the active damper system switch and is indicated on the MID (multi-information display).

Diagnostic Trouble Code (DTC)

- The memory can hold any number of DTCs. However, when the same DTC is detected more than once, the most recent DTC is written over the earlier one. Therefore, when the same problem is detected repeatedly, it is memorized as a single DTC.
- The DTCs are indicated in ascending number order, not in the order they occur.
- The DTCs are memorized in the EEPROM. Therefore, the memorized DTCs cannot be cancelled by disconnecting the battery. Do the specified procedures to clear the DTCs.

Self-diagnosis

- Self-diagnosis can be classified into two categories:
  – Initial diagnosis: Done right after the ignition switch is turned ON (II) and until the active damper system indicator goes off.
  – Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned OFF.
- When the system detects a problem, it will go into fail safe mode which turns off the active damper function. When in this mode, handling characteristics are limited, and the vehicle speed should be reduced to 60 mph (96 km/h) or less, and driven no more than 200 miles (321 km).

Mode Select Switch

The system has two damping modes. Comfort and sport mode. Modes are changed using the mode selector switch.

Active Damper System Damper Units

The active damper system has four individual damper units, one on each suspension corner. These dampers function same as conventional dampers, but they should only be replaced as a single unit when indicated by a DTC. Do not replace the dampers units as a set.

(cont'd)

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General Troubleshooting Information (cont'd)

How to Troubleshoot DTCs

DTC troubleshooting procedures assume that the cause of the problem is still present and the active damper system indicator is still on. Following a troubleshooting procedure for a code that has been cleared and does not reset can result in incorrect diagnosis.

1. Question the client about the conditions that were present when the problem occurred, such as speed, turning, road conditions, and which mode the active damper system was selected. Try to duplicated the DTC by test-driving the vehicle under the same conditions.
2. Check for DTCs in the PGM-FI, A/T, and VSA system related to F-CAN stored at the same time. Troubleshoot these codes first, before troubleshooting the active damper system.
3. After troubleshooting, or repairs are done, clear the DTCs, and test-drive the vehicle under the same conditions that originally set the DTCs. Make sure the active damper system indicator does not come on.

Intermittent Failures

The term "Intermittent failure" means a system may have had a failure, but it checks OK now. If the active damper system indicator does not come on, check for poor connections or loose terminals at all connectors related to the circuit that you are troubleshooting. If the indicator was on but then went out, the original problem may have been intermittent.

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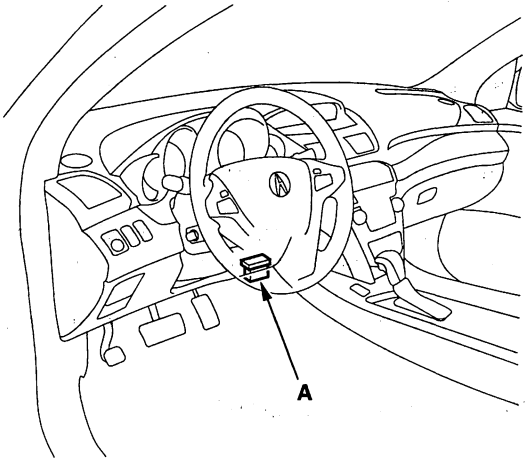
How to Retrieve DTCs and Freeze Data with the HDS (Honda Diagnostic System)

1. If the active damper system indicator stays on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the active damper system control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-223).
4. Check for and note any stored DTCs. Also check the on-board snapshot data, and download any data found. Then refer to the indicated DTC's troubleshooting, and begin the appropriate troubleshooting procedure.

   NOTE:
   - The HDS can read the DTC, freeze data, snapshot, current data, and other system data.
   - For specific operations, refer to the Help menu on the HDS.

How to Clear DTCs

1. With the ignition switch OFF, connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the active damper system control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-223).
4. Clear the DTC(s) by following the screen prompts on the HDS.
5. Turn the ignition switch OFF.

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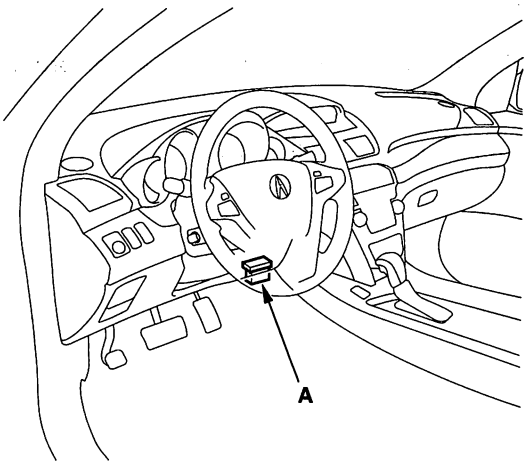
Memorizing Rear Suspension Full Rebound Position

Do the rear suspension full rebound position memorizing whenever you do any of these actions:

- Replace the active damper control unit.
- Replace the rear damper unit.
- Replace the rear suspension stroke sensor.
- In the specific DTC troubleshooting.

1. With the ignition switch OFF, connect the HDS to the data link connector (DLC) (A) under the driver's side of the dashboard.



2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the active damper control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-223).
4. Check for DTCs and make sure no DTC is indicated.

   NOTE: For specific operations, refer to the Help menu that came with the HDS.
5. Turn the ignition switch OFF.
6. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-8).

   NOTE: Verify the rear tires are suspended off the ground.
7. Make sure the rear suspension stroke sensors are installed correctly, and the linkages are properly connected (see page 22-229).
8. Turn the ignition switch ON (II).
9. Follow the screen prompts on the HDS to memorize the rear suspension full rebound position.

   NOTE: For specific operations, refer to the Help menu that came with the HDS.
10. Turn the ignition switch OFF.

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DTC Troubleshooting Index

DTC	Detection Item	Active Damper System Indicator	Note
1-1	Front vertical acceleration sensor circuit high voltage	ON	(see page 18-69)
1-2	Right-rear vertical acceleration sensor circuit high voltage	ON	(see page 18-69)
1-3	Left-rear vertical acceleration sensor circuit high voltage	ON	(see page 18-69)
1-4	Front vertical acceleration sensor range/performance problem	ON	(see page 18-71)
1-5	Right-rear vertical acceleration sensor range/performance problem	ON	(see page 18-71)
1-6	Left-rear vertical acceleration sensor range/performance problem	ON	(see page 18-71)
1-7	Front vertical acceleration sensor circuit low voltage	ON	(see page 18-72)
1-8	Right-rear vertical acceleration sensor circuit low voltage	ON	(see page 18-72)
1-9	Left-rear vertical acceleration sensor circuit low voltage	ON	(see page 18-72)
2-1	Right-front suspension stroke sensor circuit high voltage	ON	(see page 18-75)
2-2	Left-front suspension stroke sensor circuit high voltage	ON	(see page 18-77)
2-3	Right-rear suspension stroke sensor circuit high voltage	ON	(see page 18-75)
2-4	Left-rear suspension stroke sensor circuit high voltage	ON	(see page 18-79)
2-5	Right-front/right-rear suspension stroke sensor range/performance problem	ON	(see page 18-81)
2-6	Left-front/left-rear suspension stroke sensor range/performance problem	ON	(see page 18-81)
2-8	Right-front suspension stroke sensor signal circuit low voltage	ON	(see page 18-82)
2-9	Left-front suspension stroke sensor signal circuit low voltage	ON	(see page 18-84)
2-A	Right-rear suspension stroke sensor signal circuit low voltage	ON	(see page 18-82)
2-B	Left-rear suspension stroke sensor signal circuit low voltage	ON	(see page 18-87)
2-C	Right-rear/left-rear suspension stroke sensor incorrect correlation	ON	(see page 18-90)
3-1	Yaw rate-lateral/longitudinal acceleration sensor range/performance problem (yaw rate signal-lateral acceleration signal incorrect correlation)	ON	(see page 18-91)
3-3	Yaw rate-lateral/longitudinal acceleration sensor malfunction (lateral acceleration sensor)	ON	(see page 18-91)
3-4	Wheel speed signal malfunction (from VSA modulator-control unit by F-CAN)	ON	(see page 18-92)
3-6	Yaw rate-lateral/longitudinal acceleration sensor malfunction (yaw rate sensor)	ON	(see page 18-91)
3-7	Yaw rate-lateral/longitudinal acceleration sensor range/performance problem (wheel speed signal-longitudinal acceleration signal incorrect correlation)	ON	(see page 18-91)
3-9	Yaw rate-lateral/longitudinal acceleration sensor malfunction (longitudinal acceleration sensor)	ON	(see page 18-91)
3-A	Yaw rate-lateral/longitudinal acceleration sensor malfunction	ON	(see page 18-91)
5-1	Active damper control unit internal right-front damper coil drive circuit stuck ON	ON	(see page 18-93)
5-2	Active damper control unit internal left-front damper coil drive circuit stuck ON	ON	(see page 18-93)
5-3	Active damper control unit internal right-rear damper coil drive circuit stuck ON	ON	(see page 18-93)
5-4	Active damper control unit internal left-rear damper coil drive circuit stuck ON	ON	(see page 18-93)

(cont'd)

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DTC Troubleshooting Index (cont'd)

DTC	Detection Item	Active Damper System Indicator	Note
5-5	Active damper control unit internal right-front damper coil drive circuit stuck OFF	ON	(see page 18-94)
5-6	Active damper control unit internal left-front damper coil drive circuit stuck OFF	ON	(see page 18-94)
5-7	Active damper control unit internal right-rear damper coil drive circuit stuck OFF	ON	(see page 18-94)
5-8	Active damper control unit internal left-rear damper coil drive circuit stuck OFF	ON	(see page 18-94)
6-1	Active damper control unit internal right-front damper coil drive circuit current lower than expected	ON	(see page 18-97)
6-2	Active damper control unit internal left-front damper coil drive circuit current lower than expected	ON	(see page 18-97)
6-3	Active damper control unit internal right-rear damper coil drive circuit current lower than expected	ON	(see page 18-97)
6-4	Active damper control unit internal left-rear damper coil drive circuit current lower than expected	ON	(see page 18-97)
6-5	Active damper control unit internal right-front damper coil drive circuit current higher than expected	ON	(see page 18-99)
6-6	Active damper control unit internal left-front damper coil drive circuit current higher than expected	ON	(see page 18-99)
6-7	Active damper control unit internal right-rear damper coil drive circuit current higher than expected	ON	(see page 18-99)
6-8	Active damper control unit internal left-rear damper coil drive circuit current higher than expected	ON	(see page 18-99)
6-9	Active damper control unit power source circuit (+B) low voltage	ON	(see page 18-102)
7-1	Active damper control unit internal circuit malfunction	ON	(see page 18-93)
7-2	Active damper control unit internal circuit malfunction	ON	(see page 18-93)
7-3	Active damper control unit internal circuit malfunction	ON	(see page 18-93)
7-4	Active damper control unit internal circuit malfunction	ON	(see page 18-93)
7-5	Active damper control unit internal circuit malfunction	ON	(see page 18-93)
7-6	Active damper control unit internal circuit malfunction (fail safe relay stuck ON)	ON	(see page 18-104)
7-9	Active damper control unit internal circuit malfunction	ON	(see page 18-105)
8-2	Sensor reference voltage malfunction (SVCC line)	ON	(see page 18-107)
8-3	Sensor reference voltage malfunction (HVCC line)	ON	(see page 18-108)
8-5	F-CAN malfunction (active damper control unit lost communication with yaw rate-lateral/longitudinal acceleration sensor)	ON	(see page 18-110)
8-6	F-CAN malfunction (active damper control unit lost communication with VSA modulator-control unit)	ON	(see page 18-111)
14-1	Active damper control unit internal circuit malfunction	ON	(see page 18-93)
14-2	Active damper control unit internal circuit malfunction	ON	(see page 18-93)
14-5	Active damper control unit internal circuit malfunction	ON	(see page 18-93)
14-6	Active damper control unit internal circuit malfunction	ON	(see page 18-93)
14-7	Active damper control unit internal circuit malfunction	ON	(see page 18-93)
14-8	Active damper control unit internal circuit malfunction	ON	(see page 18-93)
14-A	Active damper control unit internal circuit malfunction	ON	(see page 18-93)
14-B	Active damper control unit power supply circuit malfunction	ON	(see page 18-113)
14-C	Active damper control unit internal circuit malfunction	ON	(see page 18-93)

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Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check for a diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure
HDS does not communicate with the active damper control unit or the vehicle	Troubleshoot the DLC circuit (see page 11-223)
Active damper system indicator does not come on	1. Do the gauge control module troubleshooting (see page 22-315) 2. Substitute a known-good active damper control unit, then recheck. If it is OK, replace the original active damper control unit (see page 18-118)
Active damper system indicator does not go off, and no DTCs are stored	1. Start the engine 2. Symptom Troubleshooting (see page 18-114) 3. Do the gauge control module troubleshooting (see page 22-315)
Active damper system switch does not work (damper mode cannot be selected)	Symptom Troubleshooting (see page 18-116)
Active damper system switch lamp blinks	1. Do the gauge control module troubleshooting (see page 22-315) 2. Substitute a known-good active damper control unit, then recheck. If it is OK, replace the original active damper control unit (see page 18-118)

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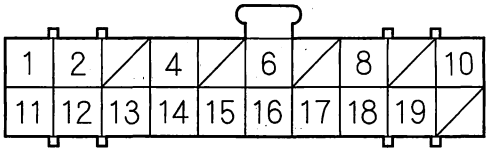
Active Damper System

System Description

Active Damper Control Unit Inputs and Outputs for Connector A (20P)



Wire side of female terminals

Terminal number	Wire color	Terminal sign	Description	Signal		
				Terminals	Conditions	Voltage
1	RED	CRLH	Left-rear damper coil drive power	1-11	Drive the vehicle	Variable
2	GRN	CRRH	Right-rear damper coil drive power	2-12	Drive the vehicle	Variable
4	BLK	CFLH	Left-front damper coil drive power	4-14	Drive the vehicle	Variable
6	RED	CFRH	Right-front damper coil drive power	6-16	Drive the vehicle	Variable
8	GRN	IG1	IG1 power supply	8-GND	Ignition switch ON (II)	Battery voltage
10	LT BLU	VB	Battery power supply	10-GND	At all times	Battery voltage

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Terminal number	Wire color	Terminal sign	Description	Signal		
				Terminals	Conditions	Voltage
11	WHT	CRLL	Left-rear damper coil drive ground	1-11	Drive the vehicle	Variable
12	YEL	CRRL	Right-rear damper coil drive ground	2-12	Drive the vehicle	Variable
13	ORN	RRST	Detects right-rear stroke sensor signal	13-GND	Damper stroking	About 0-5 V
14	WHT	CFLL	Left-front damper coil drive ground	4-14	Drive the vehicle	Variable
15	PUR	FLST	Detests left-front stroke sensor signal	15-GND	Damper stroking	About 0-5 V
16	BLU	CFRL	Right-front damper coil drive ground	6-16	Drive the vehicle	Variable
17	BLU	FRST	Detects right-front stroke sensor signal	17-GND	Damper stroking	About 0-5 V
18	BLK	LG	Ground for the logic circuit	18-GND	At all times	0.1 V or less
19	BLK	PG	Ground for the damper coil drive	19-GND	At all times	0.1 V or less

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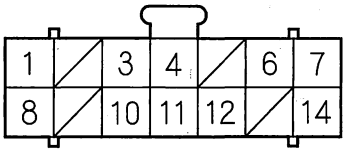
System Description (cont'd)

Active Damper Control Unit Inputs and Outputs for Connector B (14P)



Wire side of female terminals

Terminal number	Wire color	Terminal sign	Description	Signal		
				Terminals	Conditions	Voltage
1	WHT	CAN H	CAN communication circuit	———	———	———
3	LT BLU	K-LINE	Communication with HDS	3-GND	HDS not connected	About 5 V
4	PNK	SVCC	Supply power to the sensors	4-GND	Ignition switch ON (II)	About 5 V
6	PNK	HVCC	Supply power to the sensor and the other unit	6-GND	Ignition switch ON (II)	About 5 V
7	LT BLU	RLST	Detects left-rear stroke sensor signal	7-GND	Damper stroking	About 0-5 V
8	RED	CAN L	CAN communication circuit	———	———	———
10	LT GRN	RLG	Detects left-rear acceleration sensor signal	10-GND	Move the vehicle up and down	About 0-5 V
11	GRY	SG	Ground for the sensors	11-GND	At all times	0.1 V or less
12	BRN	RRG	Detects right-rear acceleration sensor signal	12-GND	Move the vehicle up and down	About 0-5 V
14	YEL	FCG	Detects front acceleration sensor signal	14-GND	Move the vehicle up and down	About 0-5 V

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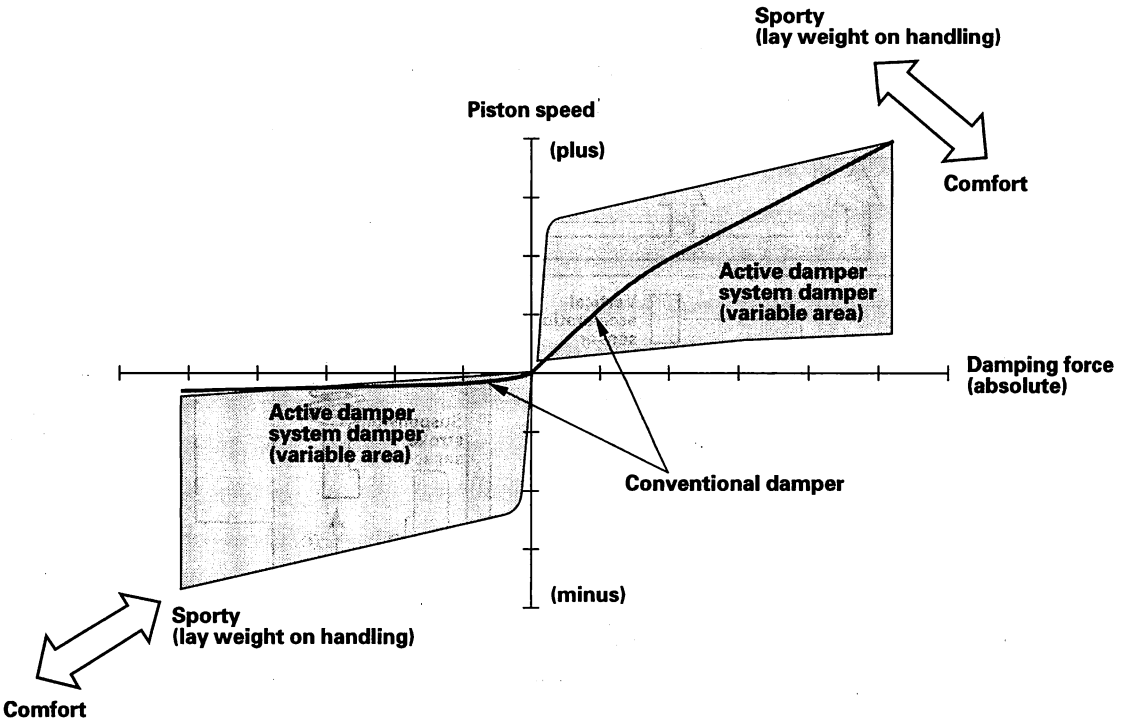
Active Damper System Controls

The active damper control unit continuously monitors inputs from various sensors and the mode select switch. The control unit will adjust each damper's force by controlling current to them.
The active damper system requires a special damper that is capable of quick response and action. This allows them to respond quickly for changes in conditions.

Active damper system damping character



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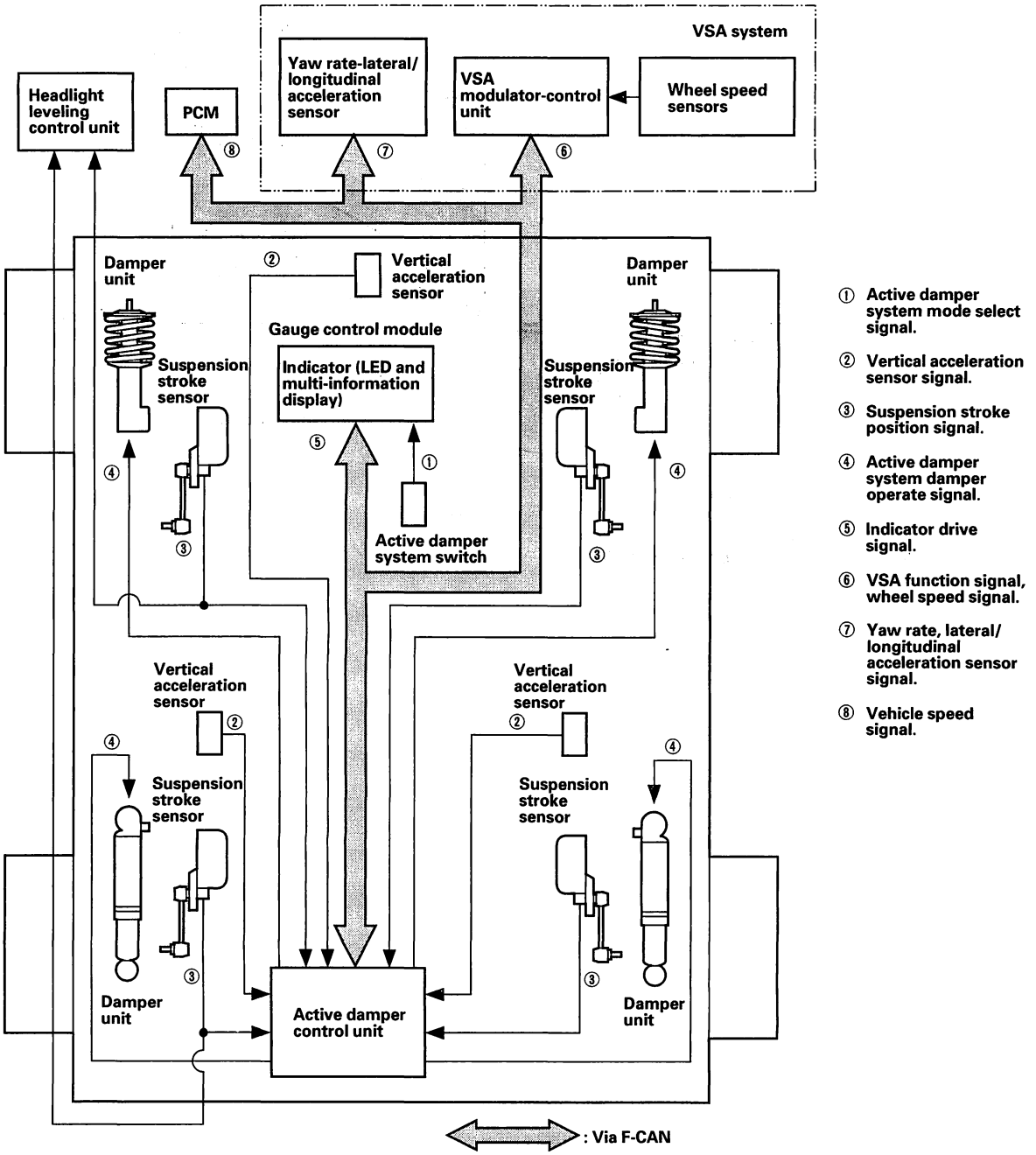
Active Damper System

System Description (cont'd)

System Communication

The active damper system has an active damper control unit, four quick-reacting damper units with internal damper coil, three vertical acceleration sensors, four suspension stroke sensors, a mode select switch, and an active damper system indicator. In addition, the active damper system receives signals from the VSA system, the PCM, and relates information with the headlight leveling control system.
The active damper control unit performs an arithmetical operation from various vehicle conditions pitching, roll, bump, vehicle speed, and driver's mode selection, then selects the most suitable damping characteristics or setting.



① Active damper system mode select signal.

② Vertical acceleration sensor signal.

③ Suspension stroke position signal.

④ Active damper system damper operate signal.

⑤ Indicator drive signal.

⑥ VSA function signal, wheel speed signal.

⑦ Yaw rate, lateral/ longitudinal acceleration sensor signal.

⑧ Vehicle speed signal.

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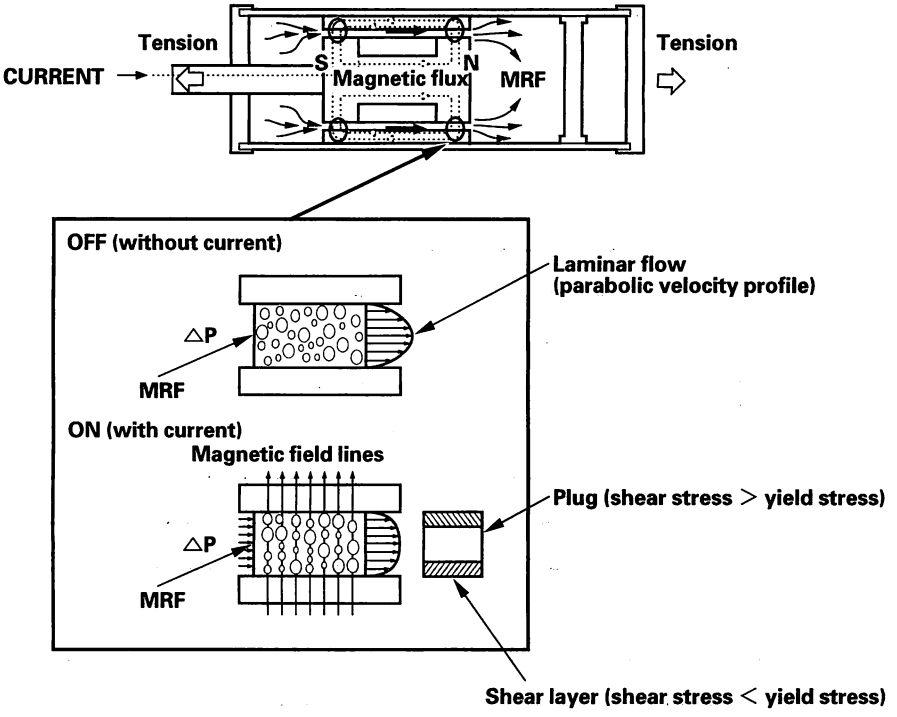
MRF (Magneto Rheological Fluid) in the Damper Unit

Variable suspension damping force is achieved by controlling the intensity of magnetic flux in the damper piston. The orientation of iron particles suspended in the damper oil is changed as the fluid flows through the magnetic field, thereby changing the effective viscosity of the fluid. The amount of change in the fluid's behavior is proportional to the amount of electrical current supplied to the windings in the piston.



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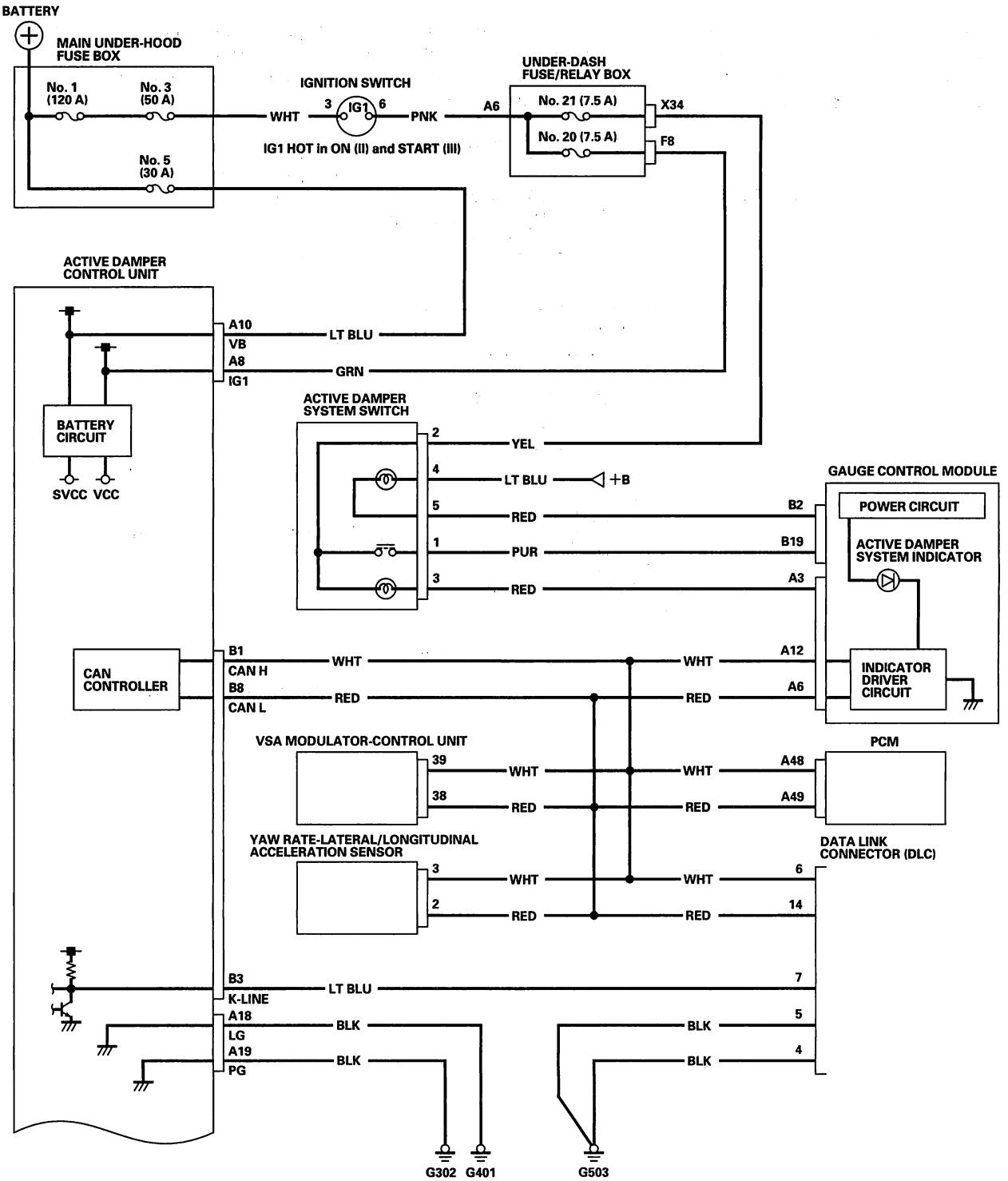
Active Damper System

Circuit Diagram



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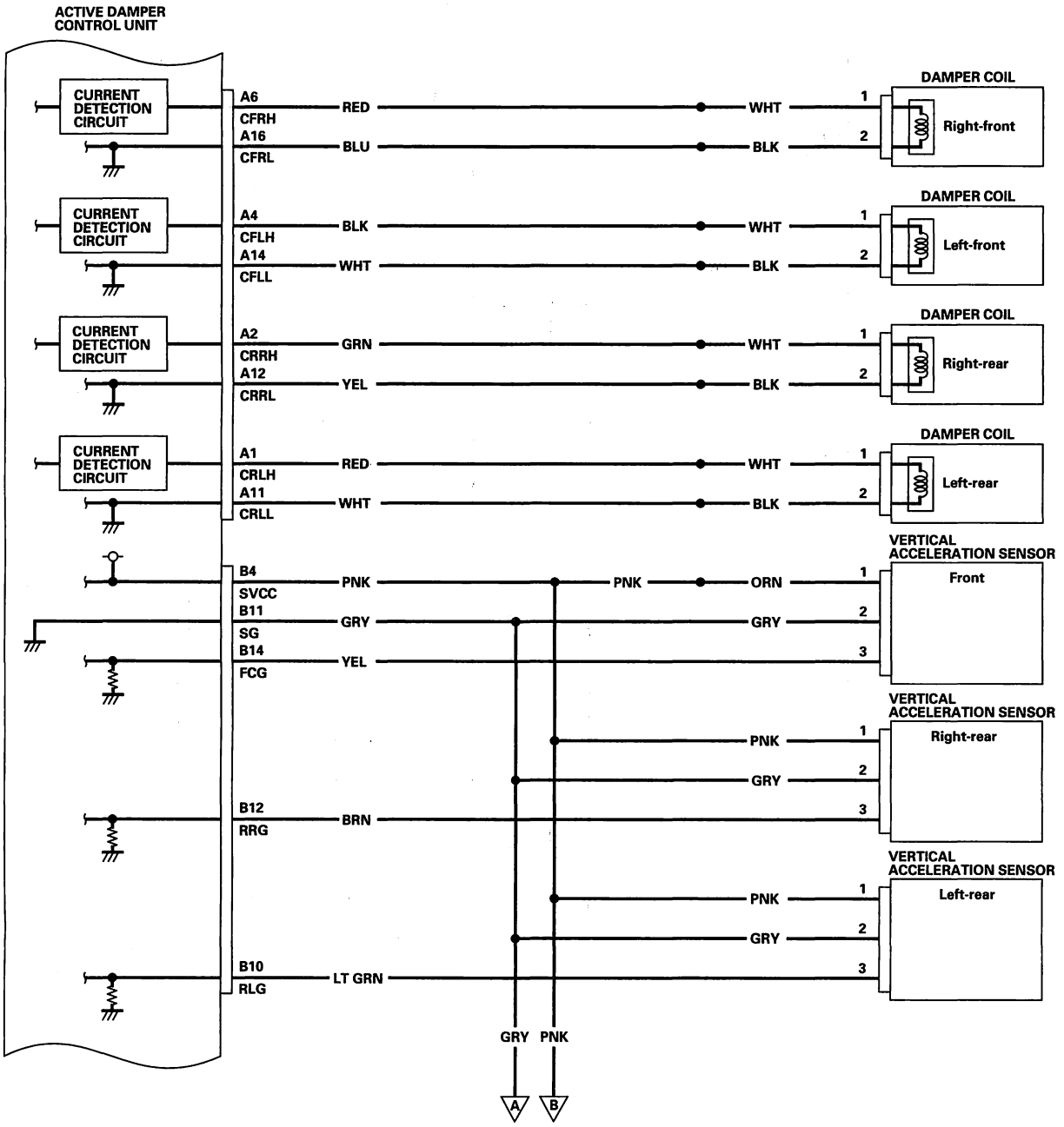

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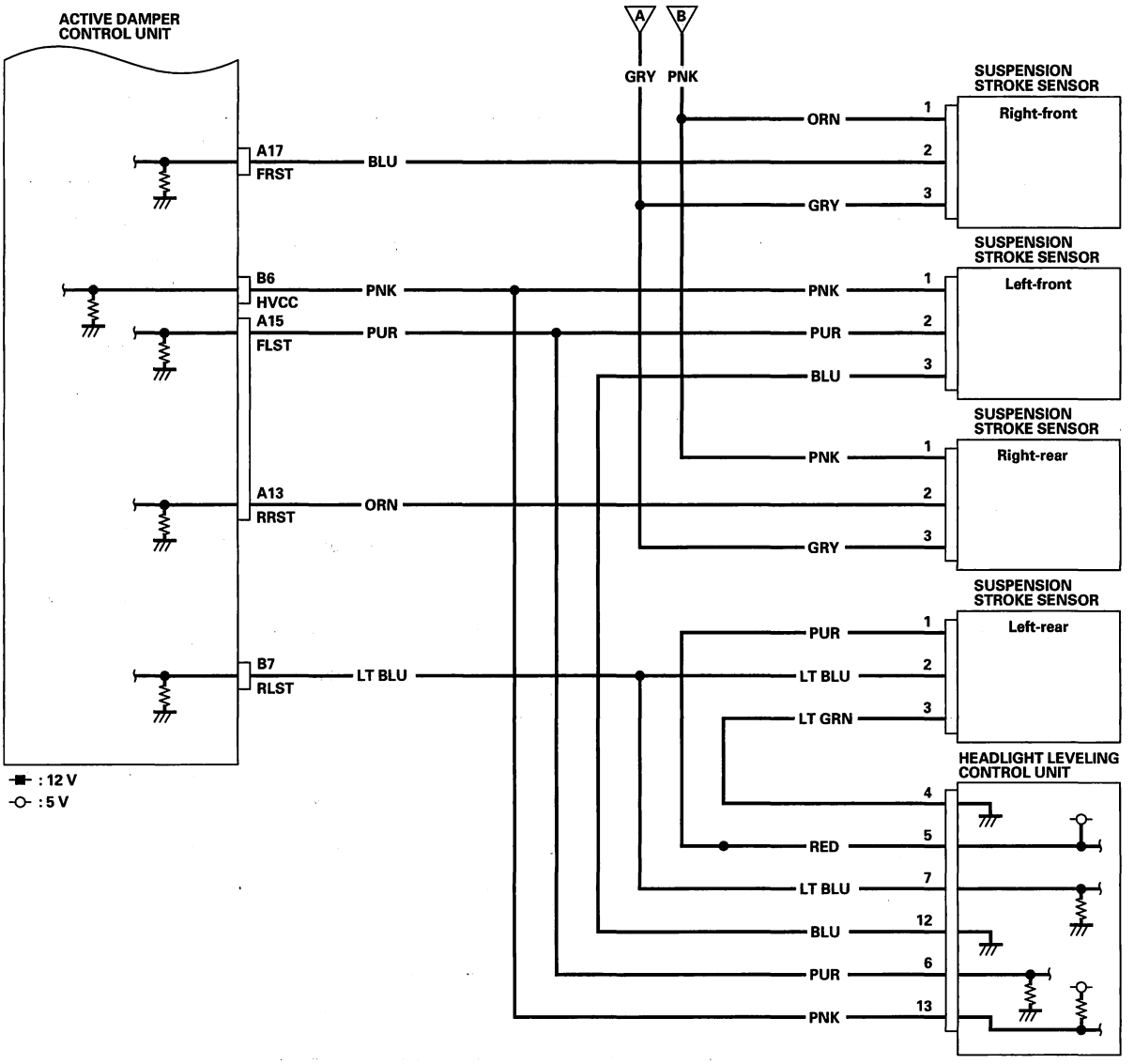
Active Damper System

Circuit Diagram (cont'd)



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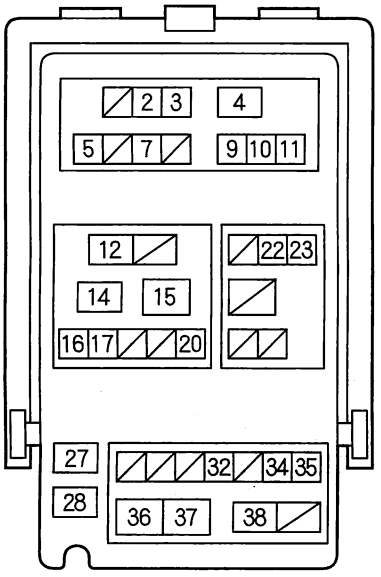
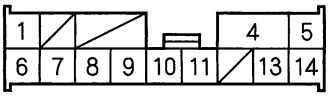
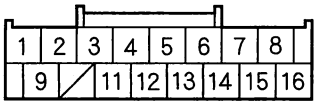
UNDER-DASH FUSE/RELAY BOX CONNECTOR X (39P)



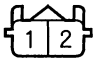
UNDER-DASH FUSE/RELAY BOX CONNECTOR F (14P)



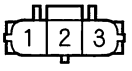
HEADLIGHT LEVELING CONTROL UNIT 16P CONNECTOR



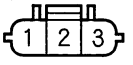
DAMPER COIL 2P CONNECTOR



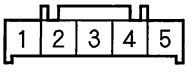
SUSPENSION STROKE SENSOR 3P CONNECTOR



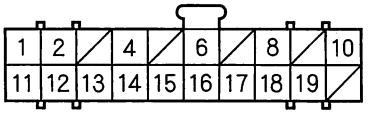
VERTICAL ACCELERATION SENSOR 3P CONNECTOR



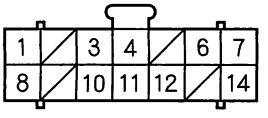
ACTIVE DAMPER SYSTEM SWITCH 5P CONNECTOR



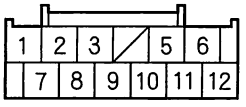
ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



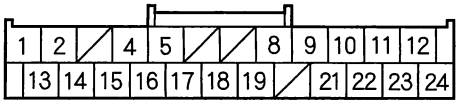
ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)



GAUGE CONTROL MODULE CONNECTOR A (12P)



GAUGE CONTROL MODULE CONNECTOR B (24P)



Wire side of female terminals

(cont'd)

BACK

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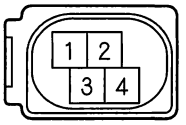
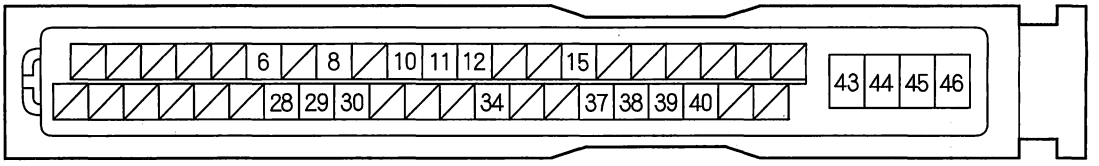
Circuit Diagram (cont'd)

YAW RATE-LATERAL/LONGITUDINAL ACCELERATION SENSOR 4P CONNECTOR

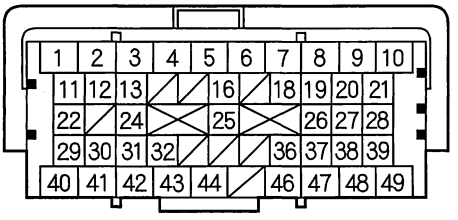


VSA MODULATOR-CONTROL UNIT 46P CONNECTOR

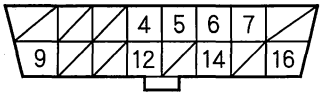


Wire side of female terminals

PCM CONNECTOR A (49P)



DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

BACK

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DTC Troubleshooting

DTC 1-1: Front Vertical Acceleration Sensor Circuit High Voltage

DTC 1-2: Right-rear Vertical Acceleration Sensor Circuit High Voltage

DTC 1-3: Left-rear Vertical Acceleration Sensor Circuit High Voltage

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

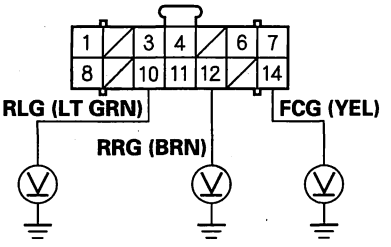
   Is DTC 1-1, 1-2, or 1-3 indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the vertical acceleration sensor and the active damper control unit. ■
6. Turn the ignition switch OFF.
7. Disconnect active damper control unit connector B (14P).
8. Turn the ignition switch ON (II).
9. Measure voltage between body ground and the appropriate active damper control unit connector B (14P) terminal (see table).

DTC	Active Damper Control Unit Connector Terminal
1-1	No. 14
1-2	No. 12
1-3	No. 10

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there more than 0.5 V?

YES—Repair short to power in the wire between the appropriate vertical acceleration sensor and the active damper control unit. ■

NO—Go to step 10.

(cont'd)

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DTC Troubleshooting (cont'd)

10. Turn the ignition switch OFF.
11. Reconnect active damper control unit connector B (14P).
12. Do the appropriate vertical acceleration sensor inspection (see page 18-120).

DTC	Appropriate Vertical Acceleration Sensor
1-1	Front
1-2	Right-rear
1-3	Left-rear

Is the vertical acceleration sensor indicate OK?

YES—Replace the active damper control unit (see page 18-118).■

NO—Go to step 13.

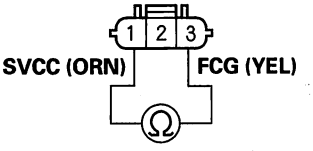
13. Turn the ignition switch OFF.
14. Disconnect the appropriate vertical acceleration sensor 3P connector.

DTC	Appropriate Vertical Acceleration Sensor
1-1	Front
1-2	Right-rear
1-3	Left-rear

15. Disconnect active damper control unit connector B (14P).
16. Check for continuity between the appropriate vertical acceleration sensor terminals No. 1 and No. 3.

DTC 1-1

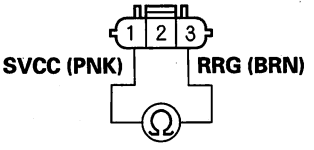
FRONT VERTICAL ACCELERATION SENSOR 3P CONNECTOR



Wire side of female terminals

DTC 1-2

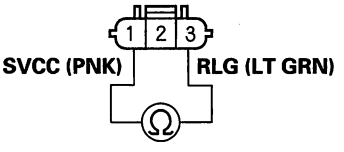
RIGHT-REAR VERTICAL ACCELERATION SENSOR 3P CONNECTOR



Wire side of female terminals

DTC 1-3

LEFT-REAR VERTICAL ACCELERATION SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the appropriate vertical acceleration sensor and the active damper control unit.■

NO—Go to step 17.

BACK

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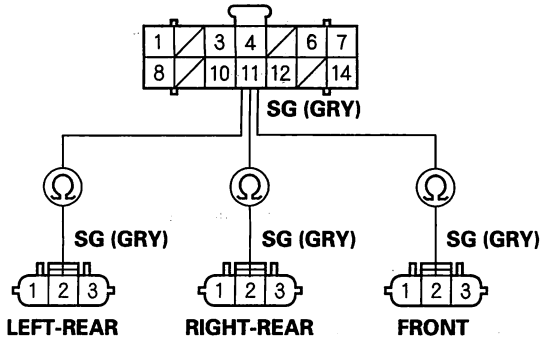
17. Check for continuity between active damper control unit connector B (14P) terminal No. 11 and appropriate vertical acceleration sensor 3P connector terminal No.2 (see table).

DTC	Appropriate Vertical Acceleration Sensor
1-1	Front
1-2	Right-rear
1-3	Left-rear

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals



VERTICAL ACCELERATION SENSOR 3P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Replace the appropriate vertical acceleration sensor (see page 18-119). ■

NO—Repair open in the wire between the appropriate vertical acceleration sensor and the active damper control unit. ■

DTC 1-4: Front Vertical Acceleration Sensor Range/Performance Problem

DTC 1-5: Right-rear Vertical Acceleration Sensor Range/Performance Problem

DTC 1-6: Left-rear Vertical Acceleration Sensor Range/Performance Problem

1. Turn the ignition switch OFF.
2. Do the appropriate vertical acceleration sensor inspection (see page 18-120).

DTC	Appropriate Vertical Acceleration Sensor
1-4	Front
1-5	Right-rear
1-6	Left-rear

Is the vertical acceleration sensor indicate OK?

YES—Replace the active damper control unit (see page 18-118). ■

NO—Replace the appropriate vertical acceleration sensor (see page 18-119). ■

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DTC Troubleshooting (cont'd)

DTC 1-7: Front Vertical Acceleration Sensor Circuit Low Voltage

DTC 1-8: Right-rear Vertical Acceleration Sensor Circuit Low Voltage

DTC 1-9: Left-rear Vertical Acceleration Sensor Circuit Low Voltage

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

   Is DTC 1-7, 1-8, or 1-9 indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the vertical acceleration sensor and the active damper control unit.■

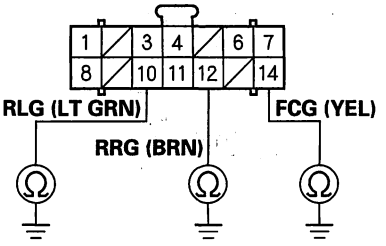
6. Do the appropriate vertical acceleration sensor inspection (see page 18-120).

DTC	Appropriate Vertical Acceleration Sensor
1-7	Front
1-8	Right-rear
1-9	Left-rear

7. Turn the ignition switch OFF.
8. Disconnect active damper control unit connector A (20P) and connector B (14P).
9. Check for continuity between body ground and the appropriate active damper control unit connector B (14P) terminal (see table).

DTC	Active Damper Control Unit Connector Terminal
1-7	No. 14
1-8	No. 12
1-9	No. 10

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there continuity?

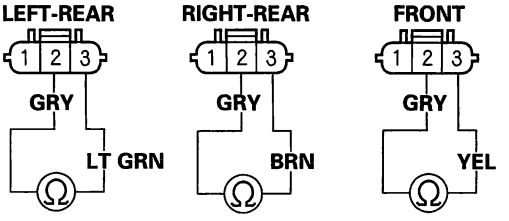
YES—Repair short to body ground in the wire between the appropriate vertical acceleration sensor and the active damper control unit.■

NO—Go to step 10.

10. Disconnect the appropriate vertical acceleration sensor 3P connector.

DTC	Appropriate Vertical Acceleration Sensor
1-7	Front
1-8	Right-rear
1-9	Left-rear

11. Check for continuity between the appropriate vertical acceleration sensor terminals No. 2 and No. 3.



Is there continuity?

YES—Repair short in the wires between the appropriate vertical acceleration sensor and the active damper control unit.■

NO—Go to step 12.

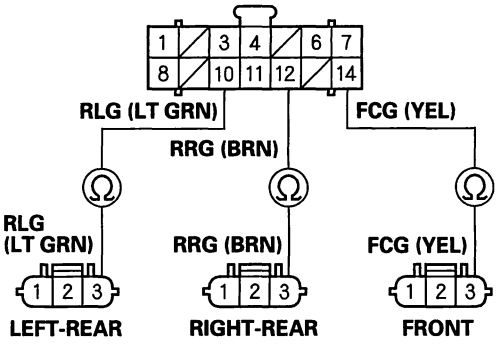
BACK

Protected by AR

12. Check for continuity between the appropriate active damper control unit connector B (14P) terminal and the appropriate vertical acceleration sensor 3P connector terminal No. 3 (see table).

DTC	Active Damper Control Unit Connector Terminal	Appropriate Vertical Acceleration Sensor
1-7	No. 14	Front
1-8	No. 12	Right-rear
1-9	No. 10	Left-rear

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals



VERTICAL ACCELERATION SENSOR 3P CONNECTOR
Wire side of female terminals

Is there continuity?

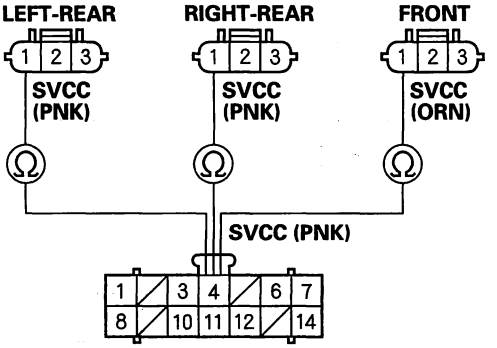
YES—Go to step 13.

NO—Repair open in the wire between the appropriate vertical acceleration sensor and the active damper control unit.■

13. Check for continuity between active damper control unit connector B (14P) terminal No. 4 and appropriate vertical acceleration sensor 3P connector terminal No. 1(see table).

DTC	Appropriate Vertical Acceleration Sensor
1-7	Front
1-8	Right-rear
1-9	Left-rear

VERTICAL ACCELERATION SENSOR 3P CONNECTOR
Wire side of female terminals



ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals

Is there continuity?

YES—Go to step 14.

NO—Repair open in the wire between the appropriate vertical acceleration sensor and the active damper control unit.■

(cont'd)

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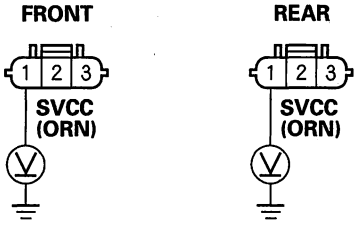
DTC Troubleshooting (cont'd)

14. Reconnect active damper control unit connector A (20P) and connector B (14P).

15. Start the engine, and wait 5 seconds.

16. Measure voltage between body ground and appropriate vertical acceleration sensor 3P connector terminal No. 1.

DTC	Appropriate Vertical Acceleration Sensor
1-7	Front
1-8	Right-rear
1-9	Left-rear



VERTICAL ACCELERATION SENSOR 3P CONNECTOR
Wire side of female terminals

Is there about 5 V?

YES—Replace the appropriate vertical acceleration sensor (see page 18-119).■

NO—Replace the active damper control unit (see page 18-118).■

BACK

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DTC 2-1: Right-front Suspension Stroke Sensor Circuit High Voltage

DTC 2-3: Right-rear Suspension Stroke Sensor Circuit High Voltage

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

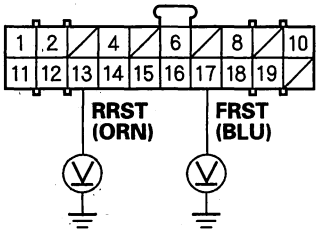
   Is DTC 2-1, or 2-3 indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the suspension stroke sensor and the active damper control unit.■
6. Turn the ignition switch OFF.
7. Disconnect active damper control unit connector A (20P).
8. Turn the ignition switch ON (II).
9. Measure voltage between body ground and the appropriate active damper control unit connector A (20P) terminal (see table).

DTC	Active Damper Control Unit Connector Terminal
2-1	No. 17
2-3	No. 13

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there more than 0.5 V?

YES—Repair short to power in the wire between the appropriate suspension stroke sensor and the active damper control unit.■

NO—Go to step 10.

(cont'd)

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DTC Troubleshooting (cont'd)

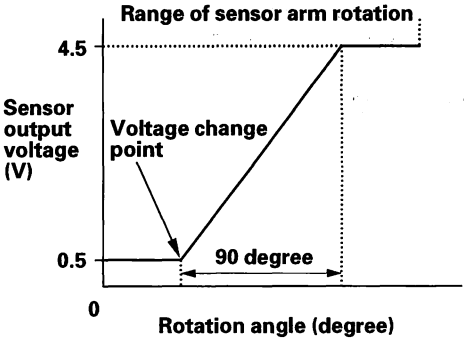
10. Turn the ignition switch OFF.
11. Reconnect active damper control unit connector A (20P).
12. Remove the appropriate suspension stroke sensor (see page 22-229). Do not disconnect the sensor connector.

DTC	Appropriate Suspension Stroke Sensor
2-1	Right-front
2-3	Right-rear

13. Start the engine, and wait 5 seconds.
14. Check the SUS STROKE_S VOLTAGE (RF), or (RR) in the ACTIVE DAMPER SYSTEM DATA LIST with the HDS while moving the suspension stroke sensor arm through a complete stroke. Compare the voltage/rotation angle between the chart and the measurements.

    NOTE: The voltage should increase (decrease) within 90 degrees of the sensor arm rotation from the first voltage change point.

Suspension stroke sensor specified voltage/rotation angle chart



Is the voltage as specified?

YES—Substitute a known-good active damper control unit and retest. If the DTC goes away, replace the original active damper control unit (see page 18-118). ■

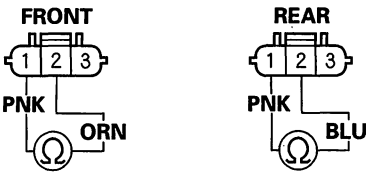
NO—Go to step 15.

15. Turn the ignition switch OFF.
16. Disconnect the appropriate suspension stroke sensor 3P connector.

DTC	Appropriate Suspension Stroke Sensor
2-1	Right-front
2-3	Right-rear

17. Check for continuity between the appropriate suspension stroke sensor 3P connector terminals No. 1 and No. 2.

SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals



Is there continuity?

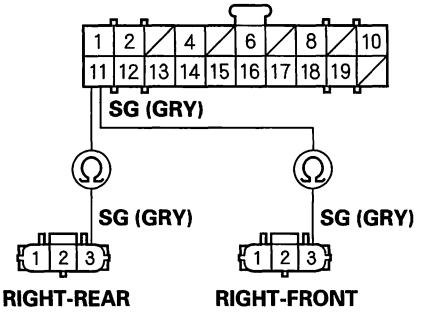
YES—Repair short in the wires between the appropriate suspsnesion stroke sensor and the active damper control unit. ■

NO—Go to step 18.

18. Check for continuity between active damper control unit connector B (14P) terminal No. 11 and appropriate suspension stroke sensor 3P connector terminal No. 3 (see table).

DTC	Appropriate Suspension Stroke Sensor
2-1	Right-front
2-3	Right-rear

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)
Wire side of female terminals



SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Replace the appropriate suspension stroke sensor (see page 22-229). ■

NO—Repair open in the wire between the appropriate suspension stroke sensor and the active damper control unit. ■

BACK

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DTC 2-2: Left-front Suspension Stroke Sensor Circuit High Voltage

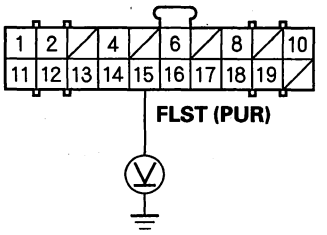
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

   Is DTC 2-2 indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the suspension stroke sensor and the active damper control unit.■
6. Turn the ignition switch OFF.
7. Disconnect active damper control unit connector A (20P).
8. Disconnect the headlight leveling control unit connector (16P).
9. Turn the ignition switch ON (II).
10. Measure voltage between body ground and active damper control unit connector A (20P) terminal No. 15.

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there more than 0.5 V?

YES—Repair short to power in the wire between the left-front suspension stroke sensor, the headlight leveling control unit, and the active damper control unit.

NO—Go to step 11.

(cont'd)

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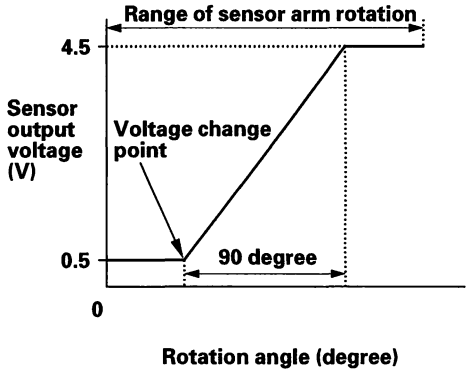
DTC Troubleshooting (cont'd)

11. Turn the ignition switch OFF.
12. Reconnect active damper control unit connector A (20P) and the headlight leveling control unit connector (16P).
13. Remove the left- front suspension stroke sensor (see page 22-229). Do not disconnect the sensor connector.

    NOTE: After troubleshooting, do the headlight initial position learning procedure (see page 22-229).
14. Start the engine, and wait 5 seconds.
15. Check the SUS STROKE_S VOLTAGE (LF) in the ACTIVE DAMPER SYSTEM DATA LIST with the HDS while moving the suspension stroke sensor arm through a complete stroke. Compare the voltage/rotation angle between the chart and the measurements.

    NOTE: The voltage increase (decrease) within 90 degrees of the sensor arm rotation from the first voltage change point.

Suspension stroke sensor specified voltage/rotation angle chart



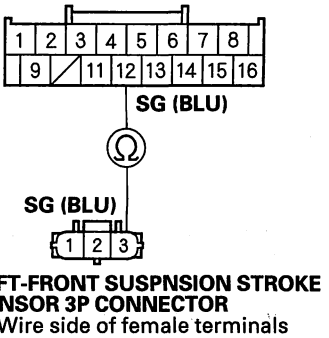
Is the voltage as specified?

YES—Substitute a known-good active damper control unit and retest. If the DTC goes away, replace the original active damper control unit (see page 18-118). ■

NO—Go to step 16.

16. Turn the ignition switch OFF.
17. Disconnect active damper control unit connector A (20P).
18. Disconnect the headlight leveling control unit 16P connector.
19. Disconnect the left-front suspension stroke sensor 3P connector.
20. Check for continuity between headlight leveling control unit 16P connector terminal No. 12 and left-front suspension stroke sensor 3P connector terminal No. 3.

HEADLIGHT LEVELING CONTROL UNIT 16P CONNECTOR
Wire side of female terminals



LEFT-FRONT SUSPNSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire between the left-front suspension stroke sensor and the headlight leveling control unit. ■

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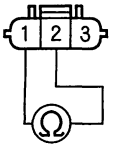
21. Check for continuity between the left-front suspension stroke sensor 3P connector terminals No. 1 and No. 2.

LEFT-FRONT SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals



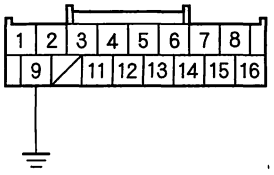
Is there continuity?

YES—Repair short in the wires between the left-front suspension stroke sensor and the active damper control unit.■

NO—Go to step 22.

22. Check for continuity between the No. 9 terminal of the headlight leveling control unit connector (16P) and body ground.

HEADLIGHT LEVELING CONTROL UNIT 16P CONNECTOR
Wire side of female terminals



Is there continuity?

YES—Replace the left-front suspension stroke sensor (see page 22-229).■

NO—Repair open in the wire between the headlight leveling control unit and body ground (G401).■

DTC 2-4: Left-rear Suspension Stroke Sensor Circuit High Voltage

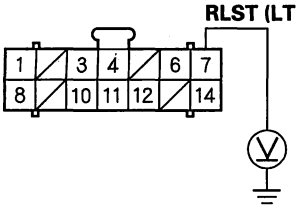
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

   Is DTC 2-4 indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the suspension stroke sensor and the active damper control unit.■
6. Turn the ignition switch OFF.
7. Disconnect active damper control unit connector B (14P).
8. Disconnect the headlight leveling control unit connector (16P).
9. Turn the ignition switch ON (II).
10. Measure voltage between body ground and active damper control unit connector B (14P) terminal No. 7.

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there more than 0.5 V?

YES—Repair short to power in the wire between the left-rear suspension stroke sensor, the headlight leveling control unit, and the active damper control unit.■

NO—Go to step 11.

(cont'd)

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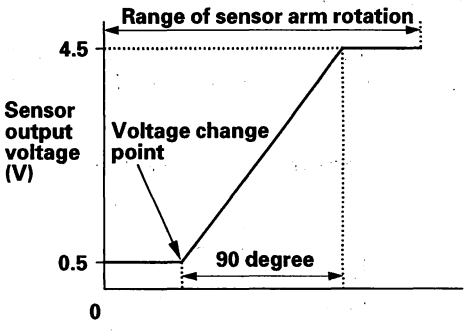
DTC Troubleshooting (cont'd)

11. Turn the ignition switch OFF.
12. Reconnect active damper control unit connector B (14P) and the headlight leveling control unit connector (16P).
13. Remove the left- rear suspension stroke sensor (see page 22-229). Do not disconnect the sensor connector.

    NOTE: After troubleshooting, do the headlight initial position learning procedure (see page 22-229).
14. Start the engine, and wait 5 seconds.
15. Check the SUS STROKE_S VOLTAGE (LR) in the ACTIVE DAMPER SYSTEM DATA LIST with the HDS while moving the suspension stroke sensor arm through a complete stroke. Compare the voltage/rotation angle between the chart and the measurements.

    NOTE: The voltage should increase (decrease) within 90 degrees of the sensor arm rotation from the first voltage change point.

Suspension stroke sensor specified voltage/rotation angle chart



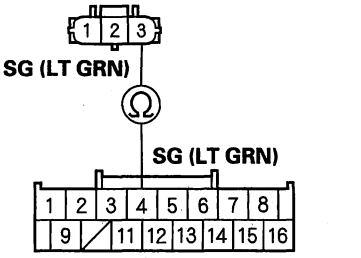
Is the voltage as specified?

YES—Substitute a known-good active damper control unit and retest. If the DTC goes away, replace the original active damper control unit (see page 18-118). ■

NO—Go to step 16.

16. Turn the ignition switch OFF.
17. Disconnect active damper control unit connector B (14P).
18. Disconnect the headlight leveling control unit 16P connector.
19. Disconnect the left-rear suspension stroke sensor 3P connector.
20. Check for continuity between headlight leveling control unit 16P connector terminal No. 4 and left-rear suspension stroke sensor 3P connector terminal No. 3.

LEFT-REAR SUSPNSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals



HEADLIGHT LEVELING CONTROL UNIT 16P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire between the left-rear suspension stroke sensor and the headlight leveling control unit. ■

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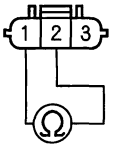
21. Check for continuity between the left-rear suspension stroke sensor 3P connector terminals No. 1 and No. 2.

LEFT-FRONT SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals



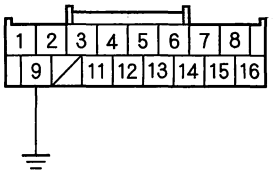
Is there continuity?

YES—Repair short in the wires between the left-rear suspension stroke sensor and the active damper control unit.■

NO—Go to step 22.

22. Check for continuity between the No. 9 terminal of the headlight leveling control unit connector (16P) and body ground.

HEADLIGHT LEVELING CONTROL UNIT 16P CONNECTOR
Wire side of female terminals



Is there continuity?

YES—Replace the left-front suspension stroke sensor (see page 22-229).■

NO—Repair open in the wire between the headlight leveling control unit and body ground (G401).■

DTC 2-5: Right-front/Right-rear Suspension Stroke Sensor Range/Performance Problem

DTC 2-6: Left-front/Left-rear Suspension Stroke Sensor Range/Performance Problem

1. Turn the ignition switch OFF.

2. Remove the appropriate suspension stroke sensor (see page 22-229). Do not disconnect the sensor connector.

   NOTE: After troubleshooting for the left side suspension stroke sensor, do the headlight initial position learning procedure (see page 22-229).

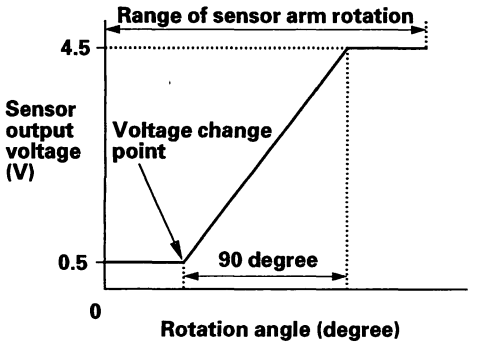
DTC	Appropriate Suspension Stroke Sensor
2-5	Right-front and Right-rear
2-6	Left-front and Left-rear

3. Start the engine, and wait 5 seconds.

4. Check the SUS STROKE_S VOLTAGE (RF), (LF), (RR), or (LR) in the ACTIVE DAMPER SYSTEM DATA LIST with the HDS while moving the suspension stroke sensor arm through a complete stroke. Compare the voltage/rotation angle between the chart and the measurements.

   NOTE: The voltage should increase (decrease) within 90 degrees of the sensor arm rotation from the first voltage change point.

Suspension stroke sensor specified voltage/rotation angle chart



Is the voltage as specified?

YES—Replace the active damper control unit (see page 18-118).■

NO—Replace the suspension stroke sensor (see page 22-229).■

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DTC Troubleshooting (cont'd)

DTC 2-8: Right-front Suspension Stroke Sensor Signal Circuit Low Voltage

DTC 2-A: Right-rear Suspension Stroke Sensor Signal Circuit Low Voltage

NOTE: If DTC 8-2 is stored at the same time as DTC 2-8 and DTC 2-A, troubleshoot DTC 8-2 first, then recheck for DTC 2-8 and 2-A.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

   Is DTC 2-8, or 2-A indicated?

   YES—Go to step 6.

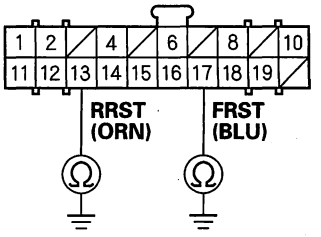
   NO—Intermittent failure at this time. Check for poor or loose connections between the suspension stroke sensor and the active damper control unit.■
6. Turn the ignition switch OFF.
7. Disconnect the appropriate suspension stroke sensor 3P connector.

DTC	Appropriate Suspension Stroke Sensor
2-8	Right-front
2-A	Right-rear

8. Disconnect active damper control unit connector A (20P).
9. Check for continuity between body ground and the appropriate active damper control unit connector A (20P) terminal (see table).

DTC	Active Damper Control Unit Connector Terminal
2-8	No. 17
2-A	No. 13

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the appropriate suspension stroke sensor and the active damper control unit.■

NO—Go to step 10.

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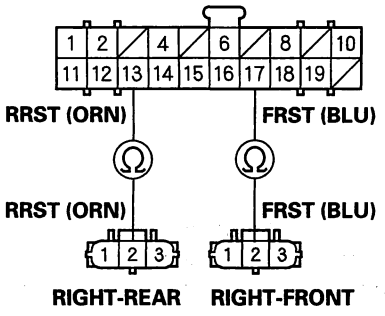
10. Check for continuity between appropriate suspension stroke sensor 3P connector terminal No. 2 and the appropriate active damper control unit connector A (20P) terminal (see table).

DTC	Active Damper Control Unit Connector Terminal	Appropriate Suspension Stroke Sensor
2-8	No. 17	Right-front
2-A	No. 13	Right-rear

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)
Wire side of female terminals



SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals

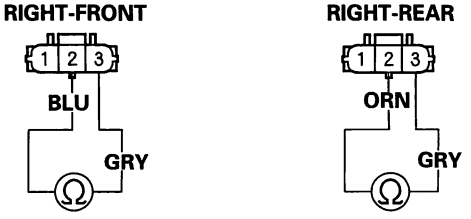
Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the appropriate suspension stroke sensor and the active damper control unit. ■

11. Check for continuity between the appropriate suspension strok sensor terminals No. 2 and No. 3.

SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals



Is there continuity?

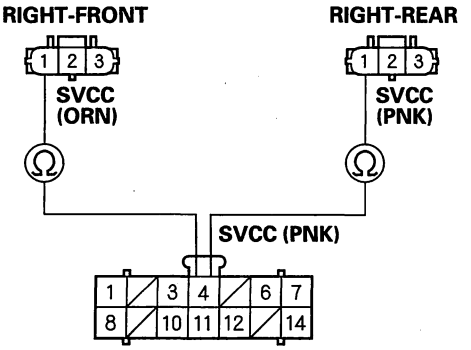
YES—Repair short in the wires between the appropriate suspension stroke sensor and the active damper control unit. ■

NO—Go to step 12.

12. Check for continuity between active damper control unit connector B (14P) terminal No. 4 and appropriate suspension stroke sensor 3P connector terminal No. 1 (see table).

DTC	Appropriate Suspension Stroke Sensor
2-8	Right-front
2-A	Right-rear

SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals



ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between the appropriate suspension stroke sensor and the active damper control unit. ■

(cont'd)

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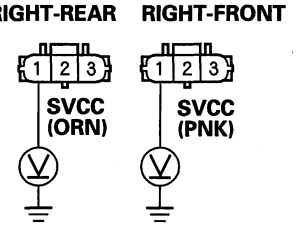
DTC Troubleshooting (cont'd)

13. Reconnect active damper control unit connector B (14P).
14. Start the engine, and wait 5 seconds.
15. Measure voltage between body ground and appropriate suspension stroke sensor 3P connector terminal No. 1.

DTC	Appropriate Suspension Stroke Sensor
2-8	Right-front
2-A	Right-rear



SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals

Is there about 5 V?

YES—Replace the suspension stroke sensor (see page 22-229). ■

NO—Replace the active damper control unit (see page 18-118). ■

DTC 2-9: Left-front Suspension Stroke Sensor Signal Circuit Low Voltage

NOTE: If DTC 8-3 is stored at the same time as DTC 2-9, troubleshoot DTC 8-3 first, then recheck for DTC 2-9.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

   Is DTC 2-9 indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the suspension stroke sensor and the active damper control unit. ■
6. Turn the ignition switch OFF.
7. Disconnect the left-front suspension stroke sensor 3P connector.
8. Disconnect active damper control unit connector A (20P).
9. Disconnect the headlight leveling control unit connector (16P).

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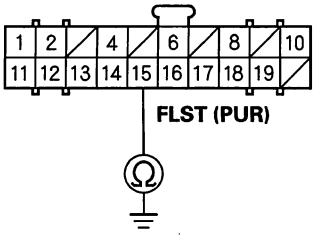
10. Check for continuity between body ground and active damper control unit connector A (20P) terminal No. 15.

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

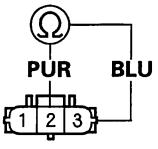
Is there continuity?

YES—Repair short to body in the wire between the left-front suspension stroke sensor and the active damper control unit.■

NO—Go to step 11.

11. Check for continuity between the appropriate suspension stroke sensor terminals No. 2 and No. 3.

LEFT-FRONT SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals



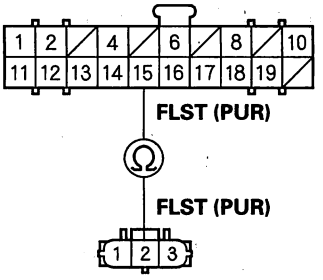
Is there continuity?

YES—Repair short in the wires between the appropriate suspension stroke sensor and the active damper control unit.■

NO—Go to step 12.

12. Check for continuity between left-front suspension stroke sensor 3P connector terminal No. 2 and active damper control unit connector A (20P) terminal No. 15.

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)
Wire side of female terminals



LEFT-FRONT SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between the left-front suspension stroke sensor and the active damper control unit.■

(cont'd)

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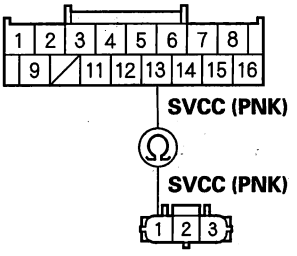
DTC Troubleshooting (cont'd)

13. Disconnect active damper control unit connector B (14P).

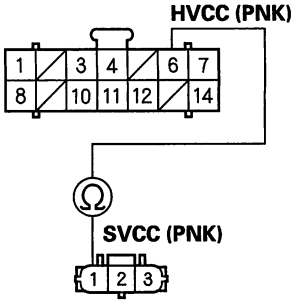
14. Check for continuity between headlight leveling control unit 16P connector terminal No. 13 and left-front suspension stroke sensor 3P connector terminal No. 1, and between active damper control unit connector B (14P) terminal No. 6 and left-front suspension stroke sensor 3P connector terminal No. 1 individually.

HEADLIGHT LEVELING CONTROL UNIT 16P CONNECTOR



LEFT-FRONT SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)



LEFT-FRONT SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals

Is there continuity?

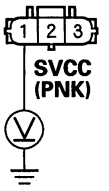
YES—Go to step 15.

NO—Repair open in the wire between the left-front suspension stroke sensor and the headlight leveling control unit, or between active damper control unit and the left-front suspension stroke sensor. ■

15. Reconnect the headlight leveling control unit 16P connector.

16. Start the engine, and wait 5 seconds.

17. Measure voltage between body ground and left-front suspension stroke sensor 3P connector terminal No. 1.



LEFT-FRONT SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals

Is there about 5 V?

YES—Replace the suspension stroke sensor (see page 22-229). ■

NO—Check the headlight leveling control system. If necessary, substitute a known-good headlight leveling control unit. ■

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DTC 2-B: Left-rear Suspension Stroke Sensor Signal Circuit Low Voltage

NOTE: If DTC 8-3 is stored at the same time as DTC 2-8, troubleshoot DTC 8-3 first, then recheck for DTC 2-B.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

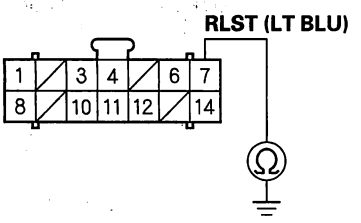
   Is DTC 2-B indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the suspension stroke sensor and the active damper control unit. ■

6. Turn the ignition switch OFF.
7. Disconnect the headlight leveling control unit 16P connector.
8. Disconnect the left-rear suspension stroke sensor 3P connector.
9. Disconnect active damper control unit connector B (14P).
10. Check for continuity between body ground and active damper control unit connector B (14P) terminal No. 7.

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there continuity?

YES—Go to step 11.

NO—Repair short to body ground in the wire between the left-rear suspension stroke sensor, the headlight leveling control unit, and the active damper control unit. ■

(cont'd)

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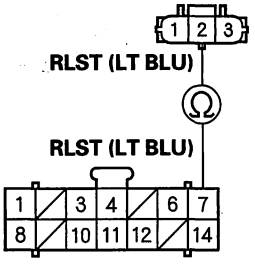
DTC Troubleshooting (cont'd)

11. Check for continuity between left-rear suspension stroke sensor 3P connector terminal No. 2 and active damper control unit connector B (14P) terminal No. 7.

LEFT-REAR SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals



ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals

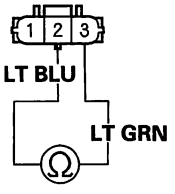
Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between the left-rear suspension stroke sensor, and the active damper control unit.■

12. Check for continuity between the appropriate suspension stroke sensor terminals No. 2 and No. 3.

LEFT-REAR SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals



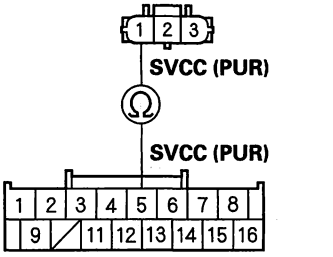
Is there continuity?

YES—Repair short in the wires between the appropriate suspension stroke sensor and the active damper control unit.■

NO—Go to step 13.

13. Check for continuity between headlight leveling control unit 16P connector terminal No. 5 and left-rear suspension stroke sensor 3P connector terminal No. 1.

LEFT-REAR SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals



HEADLIGHT LEVELING CONTROL UNIT 16P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 14.

NO—Repair open in the wire between the left-rear suspension stroke sensor and the headlight leveling control unit.■

BACK

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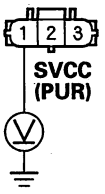
14. Reconnect the headlight leveling control unit 16P connector.

15. Start the engine, and wait 5 seconds.

16. Measure voltage between body ground and left-rear suspension stroke sensor 3P connector terminal No. 1.



LEFT-REAR SUSPENSION STROKE SENSOR 3P CONNECTOR
Wire side of female terminals

Is there about 5 V?

YES—Replace the suspension stroke sensor (see page 22-229). ■

NO—Check the headlight leveling control system. If necessary, substitute a known-good headlight leveling control unit. ■

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DTC Troubleshooting (cont'd)

DTC 2-C: Right-rear/Left-rear Suspension Stroke Sensor Incorrect Correlation

1. Turn the ignition switch OFF.
2. Check that the right-rear and left-rear suspension stroke sensors are properly mounted (see page 22-229), and check for bent to damaged sensor links.

   NOTE: After troubleshooting for the left side suspension stroke sensor, do the headlight initial position learning procedure (see page 22-231).

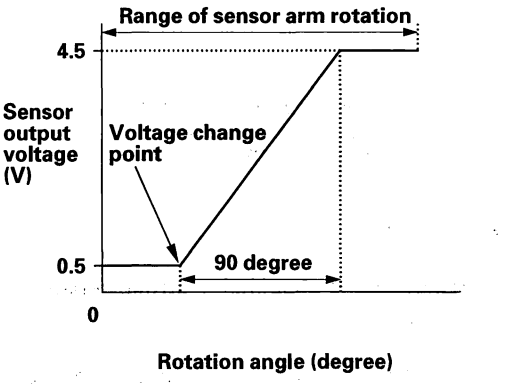
   Are they OK?

   YES—Go to step 3.

   NO—Reinstall or replace the appropriate suspension stroke sensor, or linkage (see page 22-229).■
3. Remove the right-rear and left-rear suspension stroke sensors (see page 22-229). Do not disconnect the sensor connector.
4. Start the engine, and wait 5 seconds.
5. Check the SUS STROKE_S VOLTAGE (RR), or (LR) in the ACTIVE DAMPER SYSTEM DATA LIST with the HDS while moving the suspension stroke sensor arm through a complete stroke. Compare the voltage/rotation angle between the chart and the measurements.

   NOTE: The voltage should increase (decrease) within 90 degrees of the sensor arm rotation from the first voltage change point.

Suspension stroke sensor specified voltage/rotation angle chart



Is the voltage as specified?

YES—Replace the active damper control unit (see page 18-118).■

NO—Replace the suspension stroke sensor (see page 22-229).■

BACK

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DTC 3-1: Yaw Rate-Lateral/Longitudinal Acceleration Sensor Range/Performance Problem (Yaw Rate Signal-Lateral Acceleration Signal Incorrect Correlation)

DTC 3-3: Yaw Rate-Lateral/Longitudinal Acceleration Sensor Malfunction (Lateral Acceleration Sensor)

DTC 3-6: Yaw Rate-Lateral/Longitudinal Acceleration Sensor Malfunction (Yaw Rate Sensor)

DTC 3-7: Yaw Rate-Lateral/Longitudinal Acceleration Sensor Range/Performance Problem (Wheel Speed Signeal-Longitudinal Acceleration Signal Incorrect Correlation)

DTC 3-9: Yaw Rate-Lateral/Longitudinal Acceleration Sensor Malfunction (Longitudinal Acceleration Sensor)

DTC 3-A: Yaw Rate-Lateral/Longitudinal Acceleration Sensor Malfunction

NOTE: If DTC 8-6 is stored at the same time, troubleshoot DTC 8-6 first.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Test-drive the vehicle around a corner for 2 seconds or more.
5. Check for DTCs with the HDS.

   Is DTC 3-1, 3-3, 3-6, 3-7, 3-9, or 3-A indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the yaw rate-lateral/longitudinal acceleration sensor and the active damper control unit.■
6. Check for VSA system DTCs with the HDS (see page 19-43).

   Is any DTC indicated?

   YES—Go to the indicated VSA system DTC's troubleshooting.■

   NO—Go to step 7.
7. Turn the ignition switch OFF.
8. Substitute a known-good yaw rate-lateral/longitudinal acceleration sensor (see page 19-100).
9. Turn the ignition switch ON (II).
10. Clear the DTC with the HDS.
11. Turn the ignition switch OFF.
12. Test-drive the vehicle around a corner for 2 seconds or more.
13. Check for DTCs with the HDS.

    Is DTC 3-1, 3-3, 3-6, 3-7, 3-9, or 3-A indicated?

    YES—Replace the active damper control unit (see page 18-118).■

    NO—Replace the original yaw rate-lateral/logitudinal acceleration sensor (see page 19-100).■

BACK

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DTC Troubleshooting (cont'd)

DTC 3-4: Wheel Speed Signal Malfunction (from VSA Modulator-control Unit by F-CAN)

NOTE: If DTC 8-6 is stored at the same time, troubleshoot DTC 8-6 first.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Test-drive the vehicle around corners at 10 mph (15 k/m) or more.
5. Check for DTCs with the HDS.

   Is DTC 3-4 indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the VSA medulator-control unit and the active damper control unit.■

6. Check for VSA system DTCs with the DTS (see page 19-43).

   Is any DTC indicated?

   YES—Go to the indicated VSA system DTC's troubleshooting.■

   NO—Go to step 7.

7. Turn the ignition switch OFF.
8. Substitute a konwn-good active damper control unit (see page 18-118).
9. Turn the ignition switch ON (II).
10. Clear the DTC with the HDS.
11. Turn the ignition switch OFF.
12. Test-drive the vehicle around corners at 10 mph (15 k/m) or more.
13. Check for DTCs with the HDS.

    Is DTC 3-4 indicated?

    YES—Replace the VSA modulator-control unit (see page 19-102).■

    NO—Replace the original active damper control unit (see page 18-118).■

BACK

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DTC 5-1: Active Damper Control Unit Internal Right-front Damper Coil Drive Circuit Stuck ON

DTC 5-2: Active Damper Control Unit Internal Left-front Damper Coil Drive Circuit Stuck ON

DTC 5-3: Active Damper Control Unit Internal Right-rear Damper Coil Drive Circuit Stuck ON

DTC 5-4: Active Damper Control Unit Internal Left-rear Damper Coil Drive Circuit Stuck ON

DTC 7-1: Active Damper Control Unit Internal Circuit Malfunction

DTC 7-2: Active Damper Control Unit Internal Circuit Malfunction

DTC 7-3: Active Damper Control Unit Internal Circuit Malfunction

DTC 7-4: Active Damper Control Unit Internal Circuit Malfunction

DTC 7-5: Active Damper Control Unit Internal Circuit Malfunction

DTC 14-1: Active Damper Control Unit Internal Circuit Malfunction

DTC 14-2: Active Damper Control Unit Internal Circuit Malfunction

DTC 14-5: Active Damper Control Unit Internal Circuit Malfunction

DTC 14-6: Active Damper Control Unit Internal Circuit Malfunction

DTC 14-7: Active Damper Control Unit Internal Circuit Malfunction

DTC 14-8: Active Damper Control Unit Internal Circuit Malfunction

DTC 14-A: Active Damper Control Unit Internal Circuit Malfunction

DTC 14-C: Active Damper Control Unit Internal Circuit Malfunction

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

Is DTC 5-1, 5-2, 5-3, 5-4, 7-1, 7-2, 7-3, 7-4, 7-5, 14-1, 14-2, 14-5, 14-6, 14-7, 14-8, 14-A, or 14-C indicated?

YES—Replace the active damper control unit (see page 18-118). ■

NO—Intermittent failure at this time. Check for poor or loose connections at the active damper control unit.

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DTC Troubleshooting (cont'd)

DTC 5-5: Active Damper Control Unit Internal Right-front Damper Coil Drive Circuit Stuck OFF

DTC 5-6: Active Damper Control Unit Internal Left-front Damper Coil Drive Circuit Stuck OFF

DTC 5-7: Active Damper Control Unit Internal Right-rear Damper Coil Drive Circuit Stuck OFF

DTC 5-8: Active Damper Control Unit Internal Left-rear Damper Coil Drive Circuit Stuck OFF

1. Turn the ignition switch OFF.
2. Disconnect the appropriate damper coil 2P connector, then reconnect the connector.

DTC	Appropriate Damper Coil
5-5	Right-front
5-6	Left-front
5-7	Right-rear
5-8	Left-rear

3. Turn the ignition switch ON (II).
4. Clear the DTC with the HDS.
5. Turn the ignition switch OFF.
6. Start the engine.
7. Do the DAMPER FORCE OPERATION in the ACTIVE DAMPER SYSTEM INSPECTION MENU with the HDS.
8. Check for DTCs with the HDS.

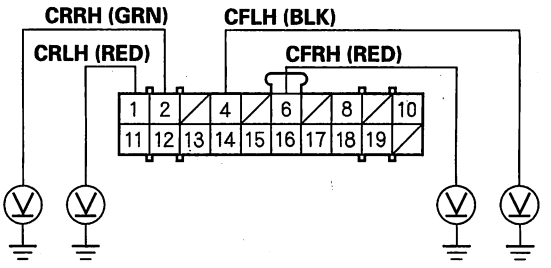
   Is DTC 5-5, 5-6, 5-7, or 5-8 indicated?

   YES—Go to step 9.

   NO—Intermittent failure at this time. Check for poor or loose connections between the damper coil and the active damper control unit.■
9. Turn the ignition switch OFF.
10. Disconnect active damper control unit connector A (20P).
11. Turn the ignition switch ON (II).
12. Measure voltage between body ground and the appropriate active damper control unit connector A (20P) terminal.

DTC	Active Damper Control Unit Connector Terminal
5-5	No. 6
5-6	No. 4
5-7	No. 2
5-8	No. 1

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the appropriate damper coil and the active damper control unit, then go to step 18.

NO—Go to step 13.

BACK

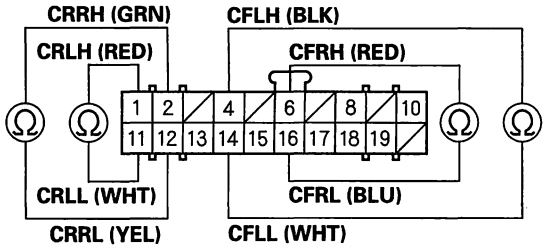
Protected by AR

13. Turn the ignition switch OFF.

14. Measure resistance between the appropriate active damper control unit connector A (20P) terminals (see table).

DTC	Active Damper Control Unit Connector Terminal	
5-5	No. 6	No. 16
5-6	No. 4	No. 14
5-7	No. 2	No. 12
5-8	No. 1	No. 11

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is the resistance between 0.6—2.0 Ω ?

YES—Check for loose terminals in the active damper control unit connector A (20P). If the terminals are OK, replace the active damper control unit (see page 18-118), then go to step 20.

NO—Go to step 15.

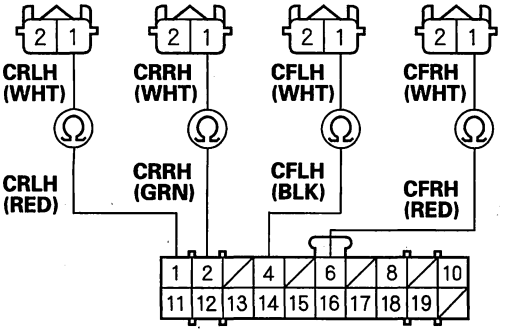
15. Disconnect the appropriate damper coil 2P connector.

DTC	Appropriate Damper Coil
5-5	Right-front
5-6	Left-front
5-7	Right-rear
5-8	Left-rear

16. Check for continuity between the appropriate active damper control unit connector A (20P) terminal and the appropriate damper coil 2P connector terminal No. 1 (see table).

DTC	Active Damper Control Unit Connector Terminal	Appropriate Damper Coil
5-5	No. 6	Right-front
5-6	No. 4	Left-front
5-7	No. 2	Right-rear
5-8	No. 1	Left-rear

DAMPER COIL 2P CONNECTOR
Terminal side of female terminals



ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)
Wire side of female terminals

Is there continuity?

YES—Go to step 17.

NO—Repair open in the wire between the damper coil and the active damper control unit, then go to step 19.

(cont'd)

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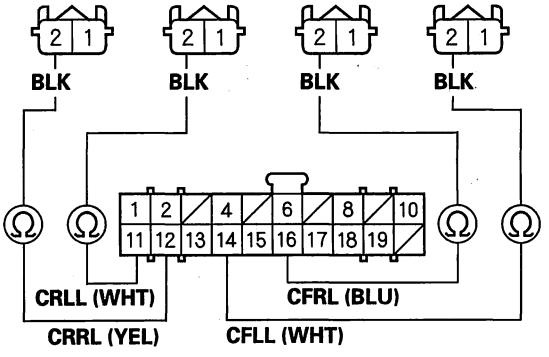
DTC Troubleshooting (cont'd)

17. Check for continuity between the appropriate active damper control unit connector A (20P) terminal and the appropriate damper coil 2P connector terminal No. 2 (see table).

DTC	Active Damper Control Unit Connector Terminal	Appropriate Damper Coil
5-5	No. 16	Right-front
5-6	No. 14	Left-front
5-7	No. 12	Right-rear
5-8	No. 11	Left-rear

DAMPER COIL 2P CONNECTOR
Terminal side of female terminals



ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)
Wire side of female terminals

Is there continuity?

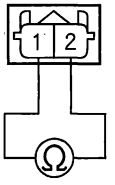
YES—Go to step 18.

NO—Repair open in the wire between the damper coil and the active damper control unit, then go to step 20.

18. On the damper, check for continuity betweem the appropriate damper coil terminals No. 1 and No. 2.

DTC	Appropriate Damper Coil
5-5	Right-front
5-6	Left-front
5-7	Right-rear
5-8	Left-rear

DAMPER COIL 2P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair open in the wire (CFRL, CFLL, CRRL, or CRLL line) between the damper coil and active damper control unit, then go to step 19.

NO—Replace the appropriate damper unit: Front (see page 18-24), rear (see page 18-42) then go to step 20.

19. Turn the ignition switch OFF.
20. Reconnect all connectors.
21. Turn the ignition switch ON (II).
22. Clear the DTC with the HDS.
23. Start the engine.
24. Do the DAMPER FORCE OPERATION in the ACTIVE DAMPER SYSTEM INSPECTION MENU with the HDS.
25. Check for DTCs with the HDS.

Is any DTC indicated?

YES—Go to the indicated DTC's troubleshooting.

NO—Troubleshooting is complete.■

BACK

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DTC 6-1: Active Damper Control Unit Internal Right-front Damper Coil Drive Circuit Current Lower Than Expected

DTC 6-2: Active Damper Control Unit Internal Left-front Damper Coil Drive Circuit Current Lower Than Expected

DTC 6-3: Active Damper Control Unit Internal Right-rear Damper Coil Drive Circuit Current Lower Than Expected

DTC 6-4: Active Damper Control Unit Internal Left-rear Damper Coil Drive Circuit Current Lower Than Expected

1. Turn the ignition switch OFF.
2. Disconnect the appropriate damper coil 2P connector, then reconnect the connector.

DTC	Appropriate Damper Coil
6-1	Right-front
6-2	Left-front
6-3	Right-rear
6-4	Left-rear

3. Turn the ignition switch ON (II).
4. Clear the DTC with the HDS.
5. Turn the ignition switch OFF.
6. Start the engine.
7. Do the DAMPER FORCE OPERATION in the ACTIVE DAMPER SYSTEM INSPECTION MENU with the HDS.
8. Check for DTCs with the HDS.

   Is DTC 6-1, 6-2, 6-3, or 6-4 indicated?

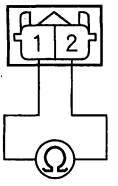
   YES—Go to step 9.

   NO—Intermittent failure at this time. Check for poor or lose connections between the damper coil and the active damper control unit. ■
9. Turn the ignition switch OFF.
10. Disconnect the appropriate damper coil 2P connector.

DTC	Appropriate Damper Coil
6-1	Right-front
6-2	Left-front
6-3	Right-rear
6-4	Left-rear

11. On the damper, measure the resistance between the appropriate damper coil terminals No. 1 and No. 2.

DAMPER COIL 2P CONNECTOR



Terminal side of male terminals

Is the resistance between 0.6 – 2.0 Ω ?

YES—Repair open or high resistance in the wires between the damper coil and the active damper control unit, then go to step 12.

NO—Replace the appropriate damper unit: Front (see page 18-24), rear (see page 18-42) then go to step 12.

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

12. Reconnect all connectors.
13. Turn the ignition switch ON (II).
14. Clear the DTC with the HDS.
15. Start the engine.
16. Do the DAMPER FORCE OPERATION in the ACTIVE DAMPER SYSTEM INSPECTION MENU with the HDS.
17. Check for DTCs with the HDS.

    Is any DTC indicated?

    YES—Go to the indicated DTC's troubleshooting.

    NO—Troubleshooting is complete.■

BACK

Protected by AR

DTC 6-5: Active Damper Control Unit Internal Right-front Damper Coil Drive Circuit Current Higher Than Expected

DTC 6-6: Active Damper Control Unit Internal Left-front Damper Coil Drive Circuit Current Higher Than Expected

DTC 6-7: Active Damper Control Unit Internal Right-rear Damper Coil Drive Circuit Current Higher Than Expected

DTC 6-8: Active Damper Control Unit Internal Left-rear Damper Coil Drive Circuit Current Higher Than Expected

1. Turn the ignition switch OFF.
2. Disconnect the appropriate damper coil 2P connector, then reconnect the connector.

DTC	Appropriate Damper Coil
6-5	Right-front
6-6	Left-front
6-7	Right-rear
6-8	Left-rear

3. Turn the ignition switch ON (II).
4. Clear the DTC with the HDS.
5. Turn the ignition switch OFF.
6. Start the engine.
7. Do the DAMPER FORCE OPERATION in the ACTIVE DAMPER SYSTEM INSPECTION MENU with the HDS.
8. Check for DTCs with the HDS.

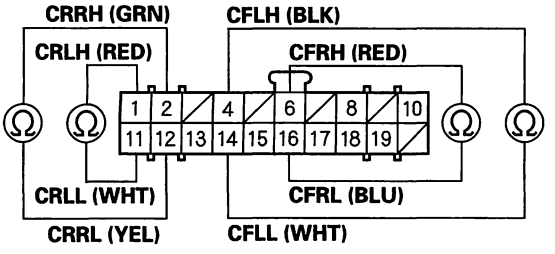
   Is DTC 6-5, 6-6, 6-7, or 6-8 indicated?

   YES—Go to step 9.

   NO—Intermittent failure at this time. Check for poor or loose connections between the damper coil and the active damper control unit. ■
9. Turn the ignition switch OFF.
10. Disconnect active damper control unit connector A (20P).
11. Measure resistance between the appropriate active damper control unit connector A (20P) terminals (see table).

DTC	Active Damper Control Unit Connector Terminal	
6-5	No.6	No.16
6-6	No.4	No.14
6-7	No.2	No.12
6-8	No.1	No.11

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is the resistance between 0.6–2.0Ω ?

YES—Replace the active damper control unit (see page 18-118), then go to step 16.

NO—Go to step 12.

12. Disconnect the appropriate damper coil 2P connector.

DTC	Appropriate Damper Coil
6-5	Right-front
6-6	Left-front
6-7	Right-rear
6-8	Left-rear

(cont'd)

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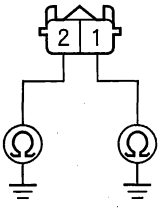
DTC Troubleshooting (cont'd)

13. Check for continuity between body ground and the appropriate damper coil 2P connector terminals No. 1 and No. 2 individually (see table).

DTC	Damper Coil	
	Sign/Terminal	Sign/Terminal
6-5	CFRH/No.1	CFRL/No.2
6-6	CFLH/No.1	CFLL/No.2
6-7	CRRH/No.1	CRRL/No.2
6-8	CRLH/No.1	CRLL/No.2

DAMPER COIL 2P CONNECTOR



Terminal side of female terminals

Is there continuity?

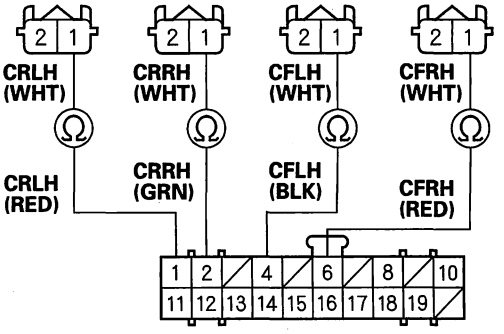
YES—Repair short to body ground in the wire between the appropriate damper coil and active damper control unit, then go to step 16.

NO—Go to step 14.

14. Check for continuity between the appropriate active damper control unit connector A (20P) terminal and the appropriate damper coil 2P connector terminal No. 1 (see table).

DTC	Active Damper Control Unit Connector Terminal	Appropriate Damper Coil
6-5	No. 6	Right-front
6-6	No. 4	Left-front
6-7	No. 2	Right-rear
6-8	No. 1	Left-rear

DAMPER COIL 2P CONNECTOR
Terminal side of female terminals



ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)
Wire side of female terminals

Is there continuity?

YES—Go to step 15.

NO—Repair open in the wire between the damper coil and the active damper control unit, then go to step 16.

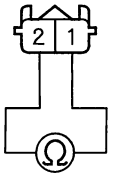
BACK

Protected by AR

15. Check for continuity between the appropriate damper coil 2P connector terminals No. 1 and No. 2 (see table).

DTC	Damper Coil	
	Sign/Terminal	Sign/Terminal
6-5	CFRH/No.1	CFRL/No.2
6-6	CFLH/No.1	CFLL/No.2
6-7	CRRH/No.1	CRRL/No.2
6-8	CRLH/No.1	CRLL/No.2

DAMPER COIL 2P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Repair short in the wires between the appropriate damper coil and the active damper control unit, then go to step 16.

NO—Replace the appropriate damper unit: Front (see page 18-24), rear (see page 18-42), then go to step 16.

16. Reconnect all connectors.
17. Turn the ignition switch ON (II).
18. Clear the DTC with the HDS.
19. Start the engine.
20. Do the DAMPER FORCE OPERATION in the ACTIVE DAMPER SYSTEM INSPECTION MENU with the HDS.
21. Check for DTCs with the HDS.

Is any DTC indicated?

YES—Go to the indicated DTC's troubleshooting.

NO—Troubleshooting is complete.■

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DTC Troubleshooting (cont'd)

DTC 6-9: Active Damper Control Unit Power Source Circuit (+B) Low Voltage

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

   Is DTC 6-9 indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the main under-hood fuse box and the active damper control unit. Check for a loose or poor ground at G302 and G401.■

6. Turn the ignition switch OFF.
7. Check the No. 5 (30 A) fuse in the main under-hood fuse box.

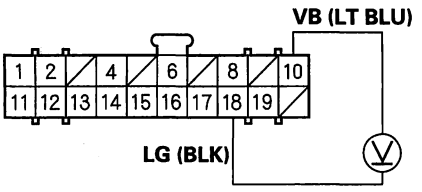
   Is the fuse blown?

   YES—Check for short to ground in the LT BLU wire between the main under-hood fuse box and the active damper control unit, then replace the fuse.■

   NO—Reinstall the fuse, then go to step 8.

8. Measure voltage between active damper control unit connector A (20P) terminals No. 10 and No 18.

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there battery voltage?

YES—Replace the active damper control unit (see page 18-118), then go to step 9.

NO—Repair open in the wire between the active damper control unit and the No. 5 (30 A) fuse in the main under-hood fuse box, or an open or poor connection between active damper control unit connector A terminal No. 18 and body ground (G302), then go to step 9.

BACK

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9. Turn the ignition switch ON (II).
10. Clear the DTC with the HDS.
11. Start the engine.
12. Do the DAMPER FORCE OPERATION in the ACTIVE DAMPER SYSTEM INSPECTION MENU with the HDS.
13. Check for DTCs with the HDS.

    Is any DTC indicated?

    YES—Go to the indicated DTC's troubleshooting.

    NO—Troubleshooting is complete.■

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DTC Troubleshooting (cont'd)

DTC 7-6: Active Damper Control Unit Internal Circuit Malfunction (Fail Safe Relay Stuck On)

NOTE: The fail safe relay is built into the active damper control unit.

1. Turn the ignition switch OFF.
2. Check that the all four damper coil 2P connectors are properly connected.

   Are the connectors OK?

   YES—Go to step 3.

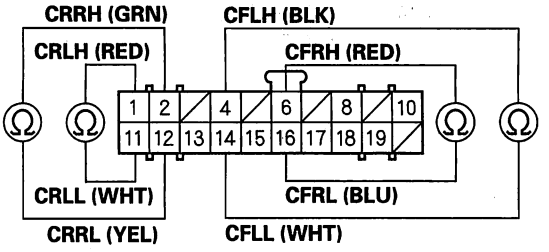
   NO—Reconnect and check the connectors, then go to step 12.
3. Turn the ignition switch ON (II).
4. Clear the DTC with the HDS.
5. Turn the ignition switch OFF.
6. Start the engine, and wait 5 seconds.
7. Check for DTCs with the HDS.

   Is DTC 7-6 indicated?

   YES—Go to step 8.

   NO—Intermittent failure at this time. Check for poor or loose connections between the damper coil and the active damper control unit.■
8. Turn the ignition switch OFF.
9. Disconnect active damper control unit connector A (20P).
10. Check for continuity between the active damper control unit connector A (20P) terminals individually.

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Check for poor or loose connections in the active damper control unit, clean body ground terminals G302 and G401. If the connections and the terminal are OK, replace the active damper control unit (see page 18-118), then go to step 11.

NO—Repair open in the wires between the damper coil and active damper control unit, then go to step 11.

11. Reconnect all connectors.
12. Turn the ignition switch ON (II).
13. Clear the DTC with the HDS.
14. Start the engine.
15. Do the DAMPER FORCE OPERATION in the ACTIVE DAMPER SYSTEM INSPECTION MENU with the HDS.
16. Check for DTC's with the HDS.

    Is any DTC indicated?

    YES—Go to the indicated DTC's troubleshooting.

    NO—Troubleshooting is complete.■

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DTC 7-9: Active Damper Control Unit Internal Circuit Malfunction

NOTE: If DTC 5-5, DTC 5-6, DTC 5-7, or DTC 5-8 stored at the same time as DTC 7-9, troubleshoot DTC 5-5, DTC 5-6, DTC 5-7, or DTC 5-8 first, then recheck for DTC 7-9.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

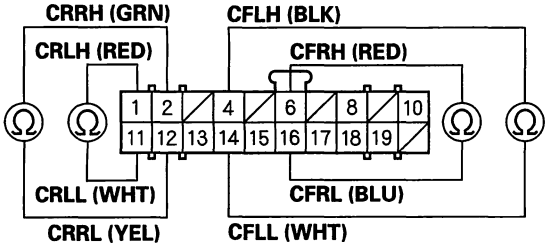
   Is DTC 7-9 indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the damper coil and the active damper control unit. ■

6. Turn the ignition switch OFF.
7. Disconnect active damper control unit connector A (20P).
8. Check for continuity between the active damper control unit connector A (20P) terminals individually.

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Replace the active damper control unit (see page 18-118), then go to step 11.

NO—Go to step 9.

9. Disconnect the appropriate damper coil 2P connector.

(cont'd)

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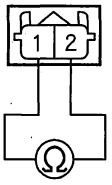
DTC Troubleshooting (cont'd)

10. On the damper, check for continuity between damper coil 2P connect or terminals No. 1 and No. 2 for all four dampers.

DAMPER COIL 2P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair open in the wire between the damper coil and active damper control unit, then go to step 11.

NO—Replace the damper unit: Front (see page 18-24), rear (see page 18-42), then go to step 11.

11. Reconnect all connectors.
12. Turn the ignition switch ON (II).
13. Clear the DTC with the HDS.
14. Start the engine.
15. Do the DAMPER FORCE OPERATION in the ACTIVE DAMPER SYSTEM INSPECTION MENU with the HDS.
16. Check for DTCs with the HDS.

    Is any DTC indicated?

    YES—Go to the indicated DTC's troubleshooting.

    NO—Troubleshooting is complete. ■

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DTC 8-2: Sensor Reference Voltage Malfunction (SVCC Line)

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

   Is DTC 8-2 indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the vertical acceleration sensor, the suspension stroke sensor, and the active damper control unit. ■
6. Clear the DTC with the HDS.
7. Turn the ignition switch OFF.
8. Disconnect the right-front suspension stroke sensor 3P connector.
9. Start the engine, and wait 5 seconds.
10. Check for DTCs with the HDS.

    Is DTC 8-2 indicated?

    YES—Go to step 11.

    NO—Replace the right-front suspension stroke sensor (see page 22-229). ■
11. Clear the DTC with the HDS.
12. Turn the ignition switch OFF.
13. Disconnect the right-rear suspension stroke sensor 3P connector.
14. Start the engine, and wait 5 seconds.
15. Check for DTCs with the HDS.

    Is DTC 8-2 indicated?

    YES—Go to step 16.

    NO—Replace the right-rear suspension stroke sensor (see page 22-229). ■
16. Clear the DTC with the HDS.
17. Turn the ignition switch OFF.
18. Disconnect the front vertical acceleration sensor 3P connector.
19. Start the engine, and wait 5 seconds.
20. Check for DTCs with the HDS.

    Is DTC 8-2 indicated?

    YES—Go to step 21.

    NO—Replace the front vertical acceleration sensor (see page 18-119). ■
21. Clear the DTC with the HDS.
22. Turn the ignition switch OFF.
23. Disconnect the right-rear vertical acceleration sensor 3P connector.
24. Start the engine, and wait 5 seconds.
25. Check for DTCs with the HDS.

    Is DTC 8-2 indicated?

    YES—Go to step 26.

    NO—Replace the right-rear vertical acceleration sensor (see page 18-119). ■
26. Clear the DTC with the HDS.
27. Turn the ignition switch OFF.
28. Disconnect the left-rear vertical acceleration sensor 3P connector.
29. Start the engine, and wait 5 seconds.
30. Check for DTCs with the HDS.

    Is DTC 8-2 indicated?

    YES—Go to step 31.

    NO—Replace the left-rear vertical acceleration sensor (see page 18-119). ■

(cont'd)

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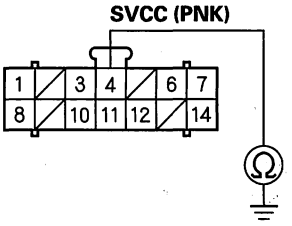
DTC Troubleshooting (cont'd)

31. Turn the ignition switch OFF.

32. Disconnect active damper control unit connector B (14P).

33. Check for continuity between body ground and active damper control unit connector B (14P) terminal No. 4.

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

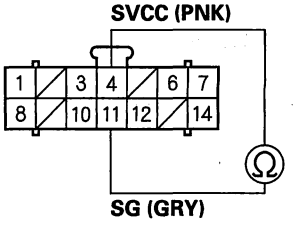
Is there continuity?

YES—Repair short to body ground in the wire between the right-front/right-rear suspension stroke sensors, the front/right-rear/left-rear vertical acceleration sensors, and the active damper control unit. ■

NO—Go to step 34.

34. Check for continuity between active damper control unit connector B (14P) terminals No. 4 and No. 11.

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires. ■

NO—Replace the active damper control unit (see page 18-118). ■

DTC 8-3: Sensor Reference Voltage Malfunction (HVCC Line)

1. Turn the ignition switch ON (II).

2. Clear the DTC with the HDS.

3. Turn the ignition switch OFF.

4. Start the engine, and wait 5 seconds.

5. Check for DTCs with the HDS.

   Is DTC 8-3 indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the suspension stroke sensor, the headlight leveling control unit, and the active damper control unit. ■

6. Turn the ignition switch OFF.

7. Disconnect the headlight leveling control unit 16P connector.

8. Disconnect the left-front suspension stroke sensor 3P connector.

9. Disconnect active damper control unit connector B (14P) connector.

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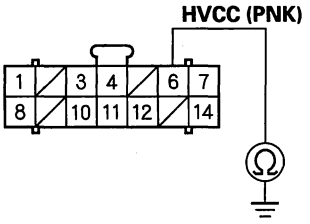
10. Check for continuity between body ground and active damper control unit connector B (14P) terminal No. 6.

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

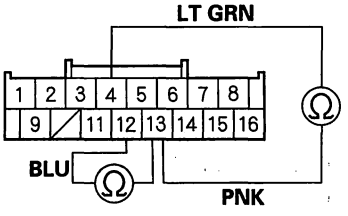
Is there continuity?

YES—Repair short to body ground in the wire between the left-front suspension stroke sensor, the headlight leveling control unit, and the active damper control unit.■

NO—Go to step 11.

11. Check for continuity between the headlight leveling control unit connector (16P) terminal No. 13 and terminals No. 4 and No. 12 individually.

HEADLIGHT LEVELING CONTROL UNIT 16P CONNECTOR
Wire side of female terminals



Is there continuity?

YES—Repair short between the wires.■

NO—Go to step 12.

12. Reconnect all connectors.

13. Start the engine, and wait 5 seconds.

14. Check the HVCC VOLTAGE in the ACTIVE DAMPER SYSTEM DATA LIST with the HDS.

Is there 4.36 V or more indicated?

YES—Replace the active damper control unit (see page 18-118).■

NO—Go to step 15.

15. Turn the ignition switch OFF.

16. Substitute a known-good headlight leveling control unit.

17. Reconnect all connectors.

18. Turn the ignition switch ON (II).

19. Clear the DTC with the HDS.

20. Start the engine, and wait 5 seconds.

21. Check for DTCs with the HDS.

Is DTC 8-3 indicated?

YES—Replace the active damper control unit (see page 18-118).■

NO—Replace the original headlight leveling control unit.■

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DTC Troubleshooting (cont'd)

DTC 8-5: F-CAN Malfunction (Active Damper Control Unit Lost Communication with Yaw Rate-lateral/Longitudinal Acceleration Sensor)

1. Turn the ignition switch ON (II).
2. Clear the active damper system, and VSA system DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

   Is DTC 8-5 indicated?

   YES—Go to step 6.

   NO—Intermittent failure at this time. Check for poor or loose connections between the yaw rate-lateral/longitudinal acceleration sensor and the active damper control unit.■
6. Check for VSA system DTCs with the HDS (see page 19-43).

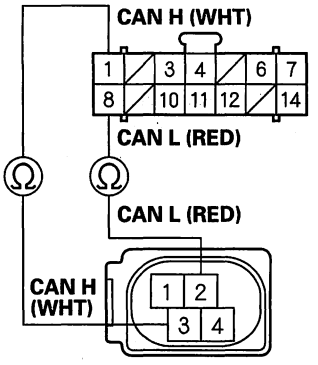
   Are any VSA system DTCs indicated?

   YES—Go to the indicated VSA DTC's troubleshooting.■

   NO—Go to step 7.
7. Turn the ignition switch OFF.
8. Wait 30 seconds or more.
9. Disconnect the yaw rate-lateral/longitudinal acceleration sensor 4P connector.
10. Disconnect active damper control unit connector B (14P) connector.
11. Check for continuity between the active damper control unit connector B (14P) terminals and the yaw rate-lateral/longitudinal acceleration sensor 4P connector terminals individually (see table).

Sign	Active Damper Control Unit Connector Terminal	Yaw Rate-lateral /Longitudinal Acceleration Sensor Terminal
CAN L	No. 8	No. 2
CAN H	No. 1	No. 3

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals



YAW RATE-LATERAL/LONGITUDINAL ACCELERATION SENSOR 4P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between the yaw rate-lateral/longitudinal acceleration sensor and the active damper control unit.■

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12. Substitute a known-good active damper control unit (see page 18-118).
13. Reconnect all connectors.
14. Turn the ignition switch ON (II).
15. Clear the DTC with the HDS.
16. Start the engine, and wait 5 seconds.
17. Check for DTCs with the HDS.

    Is DTC 8-5 indicated?

    YES—Replace the yaw rate-lateral/longitudinal acceleration sensor (see page 19-100). ■

    NO—Replace the original active damper control unit (see page 18-118). ■

DTC 8-6: F-CAN Malfunction (Active Damper Control Unit Lost Communication with VSA Modulator-control Unit)

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Start the engine, and wait 5 seconds.
5. Check for DTCs with the HDS.

    Is DTC 8-6 indicated?

    YES—Go to step 6.

    NO—Intermittent failure at this time. Check for poor or loose connections between the VSA modulator-control unit and the active damper control unit. ■

6. Check for VSA system DTCs with the HDS (see page 19-43).

    Are any VSA system DTCs indicated?

    YES—Go to the indicated DTC's troubleshooting, then go to step 17.

    NO—Go to step 7.

7. Turn the ignition switch OFF.
8. Wait 30 seconds or more.
9. Disconnect the VSA modulator-control unit 46P connector.
10. Disconnect active damper control unit connector B (14P) connector.

(cont'd)

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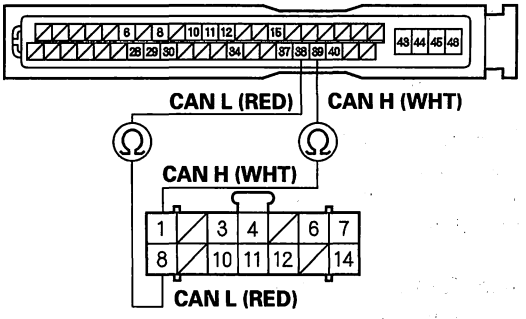
DTC Troubleshooting (cont'd)

11. Check for continuity between the active damper control unit connector B (14P) terminals and the VSA modulator-control unit 46P connector terminals individually (see table).

Sign	Active Damper Control Unit Connector Terminal	VSA Modulator-control Unit Terminal
CAN L	No. 8	No. 38
CAN H	No. 1	No. 39

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR
Wire side of female terminals



ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals

Is there continuity?

YES—Go to step 12

NO—Repair open in the wire between the VSA modulator-control unit and the active damper control unit. ■

12. Substitute a known-good active damper control unit (see page 18-118).

13. Reconnect all connectors.

14. Turn the ignition switch ON (II).

15. Clear the DTC with the HDS.

16. Start the engine, and wait 5 seconds.

17. Check for DTCs with the HDS.

Is DTC 8-6 indicated?

YES—Replacement the VSA modulator-control unit (see page 19-102). ■

NO—Replacement the original active damper control unit (see page 18-118). ■

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DTC 14-B: Active Damper Control Unit Power Supply Circuit Malfunction

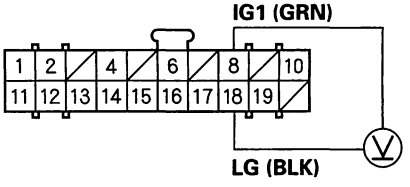
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and raise the engine speed to 2,000 rpm.
4. Check and note IG1 VOLTAGE in the ACTIVE DAMPER SYSTEM DATA LIST with the HDS within 40 seconds after starting the engine.

   Was there within 9.3—17.5 V for 30 seconds continuously?

   YES—Go to step 9

   NO—Go to step 5.
5. Wait 40 seconds.
6. Start the engine, then raise the engine speed to 2,000 rpms.
7. Measure voltage between active damper control unit connector A (20P) terminal No.8 and terminal No. 18.

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there battery voltage?

YES—If the voltage is above 17.5 V, check the battery (see page 22-76) and troubleshoot the alternator regulator circuit (see page 4-30), then go to step 8. If the voltage is normal, replace the active damper control unit (see page 18-118).

NO—Repair poor connection between under-dash fuse/relay box connector F (14P) terminal No. 8, and active damper control unit connector A (20P) terminal No. 8, or poor ground at G302 and G401, then go to step 8.

8. Clear the DTC with the HDS.
9. Start the engine.
10. Do the DAMPER FORCE OPERATION in the ACTIVE DAMPER SYSTEM INSPECTION MENU with the HDS.
11. Check for DTCs with the HDS.

    Is any DTC indicated?

    YES—Go to the indicated DTC's troubleshooting.

    NO—Troubleshooting is complete.■

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Symptom Troubleshooting

Active damper system indicator does not go off, and no DTCs are stored

NOTE: Check for gauges DTCs with the HDS (see page 22-3). If gauges DTCs are stored, troubleshoot those DTCs first.

1. Check for the communication between the vehicle and the HDS.

   Is there communication with all vehicle systems?

   YES—Check for loose terminals in the gauge control module connector A (12P). If necessary, substitute a known-good gauge control module, then recheck. If it is OK, replace the original gauge control module (see page 22-337).■

   NO—If the HDS does not communicate with all the systems of the vehicle, troubleshoot the DLC circuit (see page 11-223). If the HDS does not communicate with only the active damper control unit, go to step 2.

2. Turn the ignition switch OFF.

3. Check the No. 20 (7.5 A) fuse in the under-dash fuse /relay box.

   Is the fuse blown?

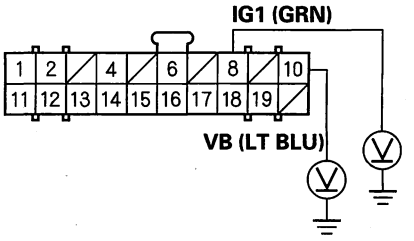
   YES—Install the No.20 (7.5 A) fuse, and recheck. If the fuse continues to blow, check for short to body ground in the wire between the No. 20 (7.5 A) fuse and the active damper control unit.■

   NO—Reinstall the fuse, then go to step 4.

4. Turn the ignition switch ON (II).

5. Measure voltage between body ground and active damper control unit connector A (20P) terminals No. 8, and No. 10.

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 6.

NO—Repair open in the wire between the active damper control unit and the No. 20 (7.5 A) fuse in the under-dash fuse/relay box or between the active damper control unit and the under-dash fuse/relay box.■

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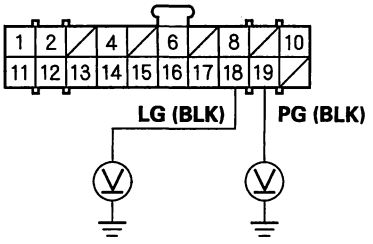
6. Measure voltage between body ground and active damper control unit connector A (20P) terminal No. 18 and No. 19 individually.

ACTIVE DAMPER CONTROL UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there less than 0.5 V?

YES—Go to step 7.

NO—Repair open in the wire between the active damper control unit and body ground (G401 or G302).■

7. Turn the ignition switch OFF.

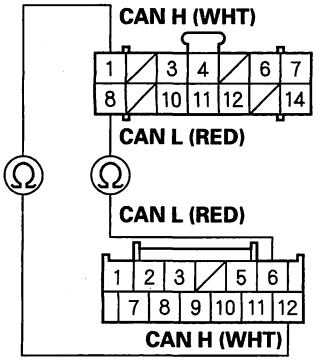
8. Disconnect gauge control module connector A (12P).

9. Disconnect active damper control unit connector A (20P).

10. Check for continuity between the active damper control unit connector B (14P) terminals and the gauge control module connector A (12P) terminals individually (see table).

Sign	Active Damper Control Unit Connector Terminal	Gauge Control Module Terminal
CAN L	No. 8	No. 6
CAN H	No. 1	No. 12

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals



GAUGE CONTROL MODULE CONNECTOR A (12P)
Wire side of female terminals

Is there continuity?

YES—Check for loose terminals in the active damper control unit connectors A (20P)/B (14P). If necessary, substitute a known-good active damper control unit, then recheck. If it is OK, replace the original active damper control unit (see page 18-118).■

NO—Repair open in the wire between the gauge control module and the active damper control unit.■

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Symptom Troubleshooting (cont'd)

Active damper system switch does not work (damper mode cannot be selected)

1. Turn the ignition switch ON (II).
2. Check for the ACTIVE DAMPER SYSTEM SWITCH in the ACTIVE DAMPER SYSTEM DATA LIST with the HDS when pushing the active damper system switch.

   Does the indicator change from ON (OFF) to OFF (ON)?

   YES—Check for loose terminals in the gauge control module connector B (24P). If necessary, substitute a known-good gauge control module, then recheck. If it is OK, replace the original gauge control module (see page 22-337).■

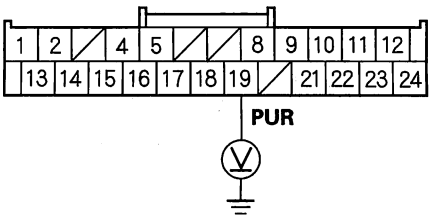
   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Check the No. 21 (7.5 A) fuse in the under-dash fuse /relay box.

   Is the fuse OK?

   YES—Go to step 5.

   NO—Replace the blown fuse.■
5. Disconnect gauge control module connector B (24P).
6. Turn the ignition switch ON (II).
7. Push the active damper system switch, and turn it ON.
8. Measure voltage between body ground and gauge control module connector B (24P) terminal No. 19.

GAUGE CONTROL MODULE CONNECTOR B (24P)



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminals in the gauge control module connector B (24P). If necessary, substitute a known-good gauge control module, then recheck. If it is OK, replace the original gauge control module (see page 22-337).■

NO—Go to step 9.

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9. Turn the ignition switch OFF.

10. Disconnect active damper system switch 5P connector.

11. Check the active damper system switch (see page 18-121).

Is the active damper system switch OK?

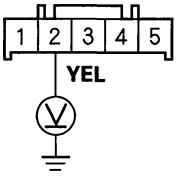
YES—Go to step 12.

NO—Replace the active damper system switch (see page 18-121).■

12. Turn the ignition switch ON (II).

13. Measure voltage between body ground and active damper system switch 5P connector terminal No. 2.

ACTIVE DAMPER SYSTEM SWITCH 5P CONNECTOR



Wire side of female terminals

Is there battery voltage?

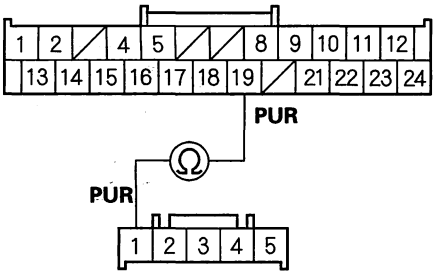
YES—Go to step 14.

NO—Repair open in the wire between the under-dash fuse/relay box and the active damper switch.■

14. Check for continuity between gauge control module connector B (24P) terminal No. 19 and the active damper system switch 5P connector terminal No. 1.

GAUGE CONTROL MODULE CONNECTOR B (24P)

Wire side of female terminals



ACTIVE DAMPER SYSTEM SWITCH 5P CONNECTOR
Wire side of female terminals

Is there continuity?

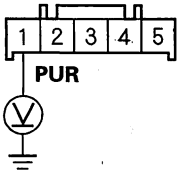
YES—Go to step 15.

NO—Repair open in the wire between the gauge control modulator and the active damper system switch.■

15. Turn the ignition switch ON (II).

16. Measure voltage between body ground and active damper system switch 5P connector terminal No. 1.

ACTIVE DAMPER SYSTEM SWITCH 5P CONNECTOR



Wire side of female terminals

Is there more than 0.1 V?

YES—Repair short to power in the wire between the gauge control module and the active damper system switch.■

NO—Check for loose terminals in the active damper control unit connectors A (20P)/B (14P). If necessary, substitute a known-good active damper control unit, then recheck. If it is OK, replace the original active damper control unit (see page 18-118).■

BACK

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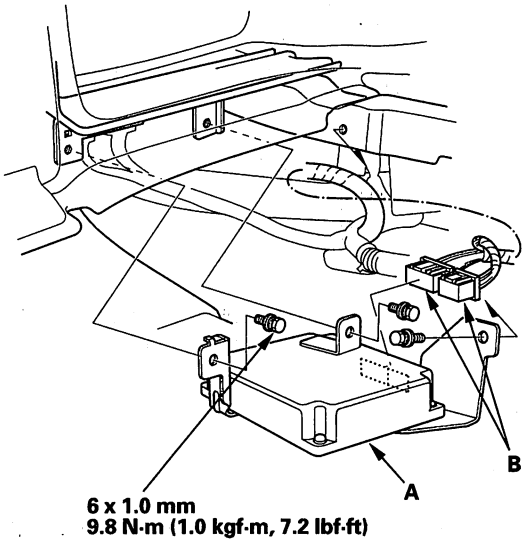
Active Damper Control Unit Replacement

1. Turn the ignition switch OFF.
2. Remove the cargo rear trim panel (see page 20-90).
3. Remove the mounting bolts ,and move the active damper control unit (A).



4. Disconnect the active damper control unit connectors (B).
5. Install the active damper control unit in the reverse order of removal.

   NOTE: Do not pinch the wire harnesses between the frame and the active damper control unit.

6. Do the memorizing rear suspension full rebound position (see page 18-54).
7. Start the engine, then make sure there are no active damper system DTCs with the HDS (see page 18-53).
8. Do the DAMPER FORCE OPERATION in the ACTIVE DAMPER SYSTEM INSPECTION MENU with the HDS, then make sure the all four damper units function normally.
9. Test-drive the vehicle, and check that the active damper system indicator does not come on (see page 18-51).

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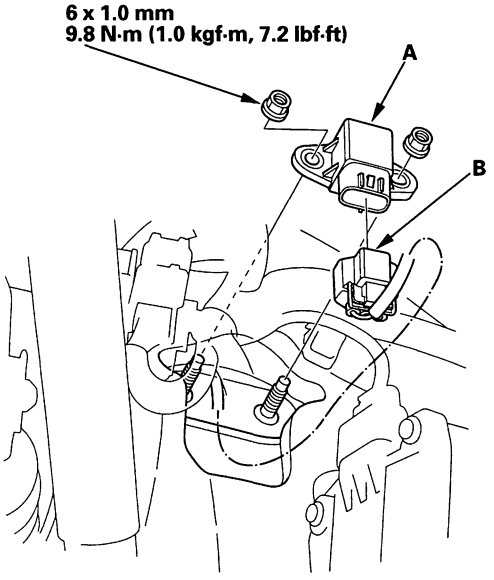
Vertical Acceleration Sensor Replacement

NOTE: This vehicle has one front vertical acceleration sensor, and two rear vertical acceleration sensors on both right and left sides.

Front

1. Turn the ignition switch OFF.
2. Remove the driver's dashboard undercover (see page 20-120).
3. Remove the TPMS control unit (see page 18-162).
4. Remove the sensor mounting nuts, and move the vertical acceleration sensor (A).

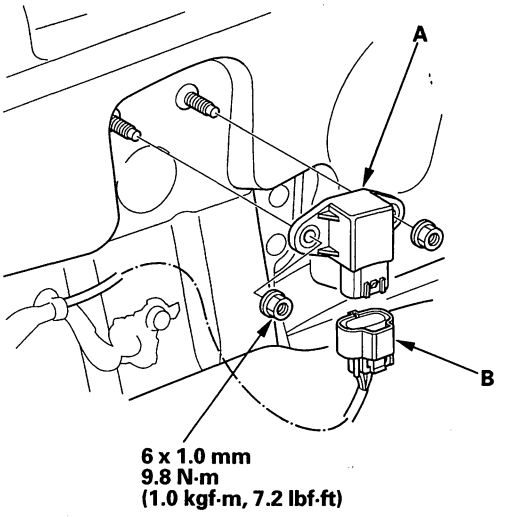


5. Disconnect the vertical acceleration sensor connector (B).
6. Install the vertical acceleration sensor in the reverse order of removal.
7. Test-drive the vehicle, and check that the active damper system indicator does not come on (see page 18-51).

Rear

1. Turn the ignition switch OFF.
2. Remove the appropriate side of the rear side trim panel (see page 20-92).
3. Remove the sensor mounting nuts, and move the vertical acceleration sensor (A).

   NOTE: The illustration shows the left side of the vehicle, the right side is similar.



4. Disconnect the vertical acceleration sensor connector (B).
5. Install the vertical acceleration sensor in the reverse order of removal.
6. Test-drive the vehicle, and check that the active damper system indicator does not come on (see page 18-51).

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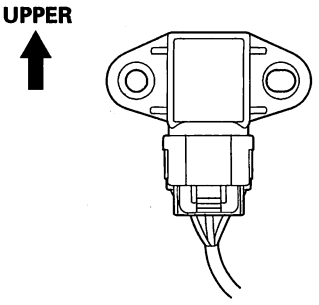
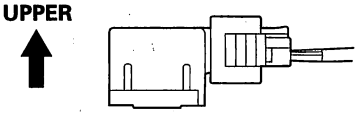
Vertical Acceleration Sensor Inspection

1. Turn the ignition switch OFF.
2. Remove the vertical acceleration sensor (see page 18-119). Do not disconnect the sensor connector.
3. Connect the HDS to the data link connector (DLC) (see page 18-53).
4. Start the engine, and wait 5 seconds.
5. With the HDS, check the VERTICAL_S VOLTAGE (F), (RR), or (LR) in the active damper system DATA LIST at a "normal", "lay down", and "top down" each sensor positions by moving it (see table).

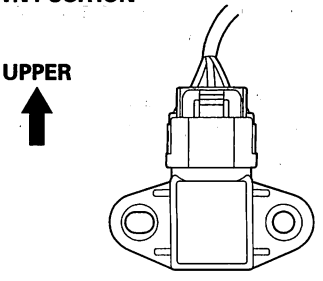
NORMAL POSITION



LAY DOWN POSITION



TOP DOWN POSITION



Sensor position	Specified voltage
Normal	2.2—2.8 V
Lay down	3.2—3.8 V
Top down	4.2—4.8 V

6. If the voltages shown on the HDS are within the specified voltage in the all positions, the sensor is OK. If the voltages are out of specification in only one position, the sensor is fault.
7. Turn the ignition switch OFF.
8. Install the vertical acceleration sensor in the proper position (see page 18-119).

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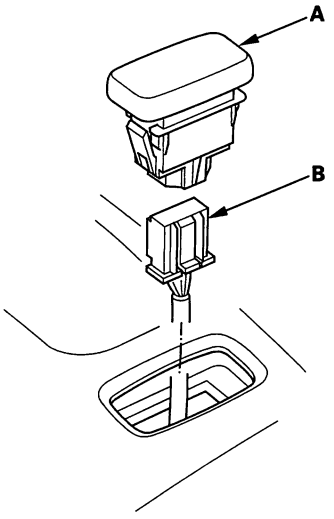
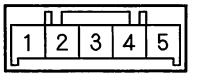
Active Damper System Switch Test

1. Turn the ignition switch OFF.
2. Remove the center console (see page 20-107).
3. Push out the active damper system switch (A) from the back of center console.



4. Disconnect the active damper system switch connector (B).
5. Check for continuity between the active damper system switch terminals in each switch position according to the table.

ACTIVE DAMPER SYSTEM SWITCH 5P CONNECTTOR



Terminal side of male terminals

Position \ Terminal	1	2	3	4	5
OFF		○	○	○	○
ON	○	○	○	○	○

6. If the continuity is not as specified, replace the illumination bulb or the switch.

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Suspension

Front and Rear Suspension **18-2**

Front Suspension **18-12**

Rear Suspension **18-29**

Active Damper System **18-49**

TPMS (Tire Pressure Monitoring System)

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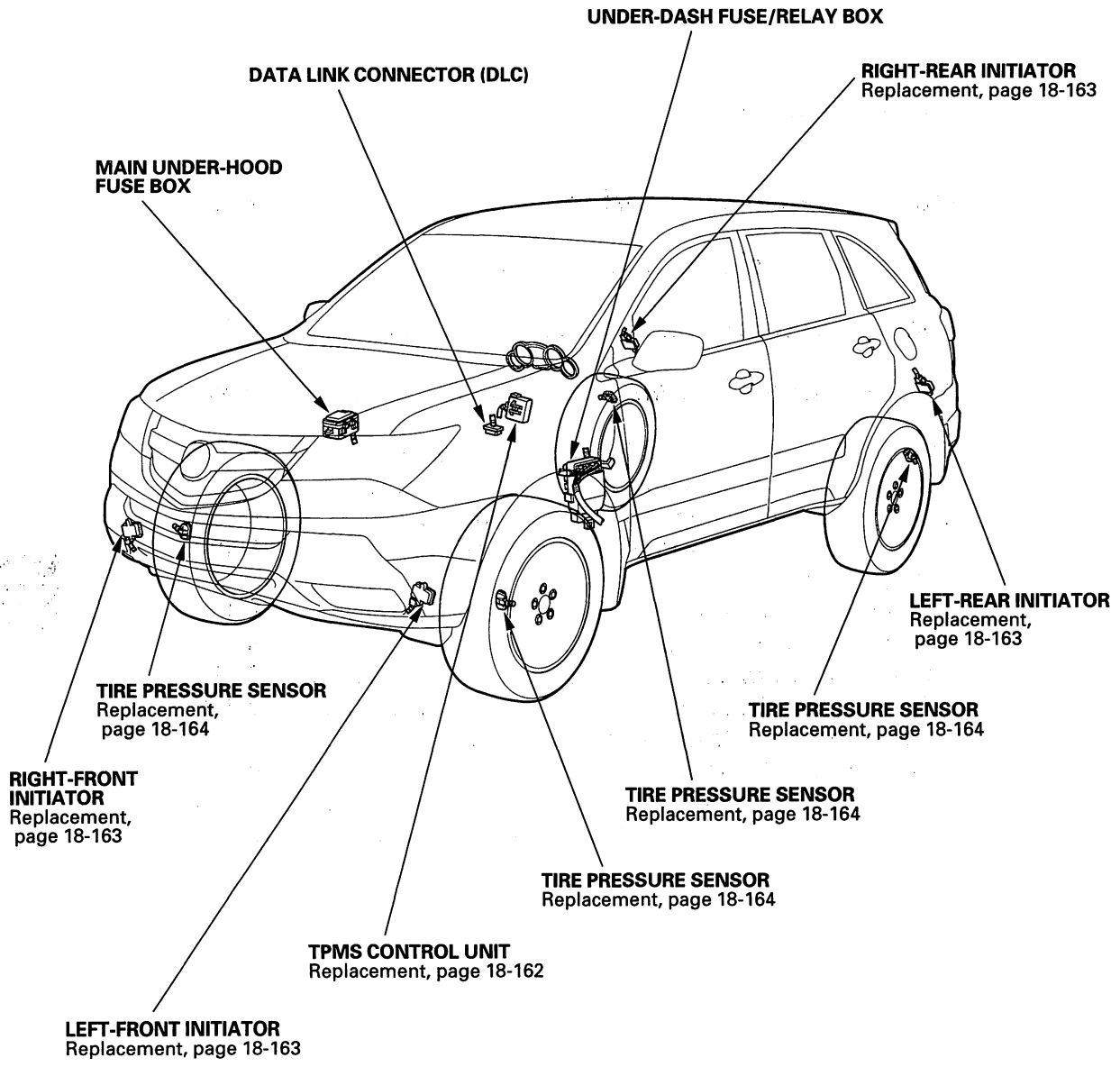
Component Location Index



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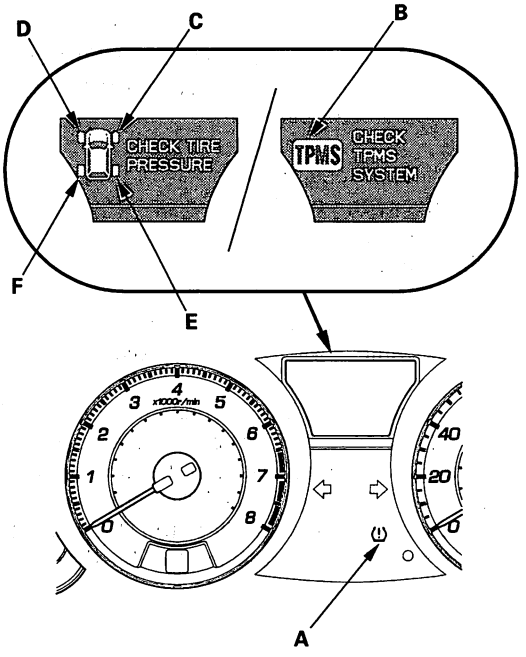
General Troubleshooting Information

System Indicator Location

The system has six indicators.

- The low pressure indicator (A)
- The TPMS indicator (B)
- The right-front (RF) tire indicator (C)
- The left-front (LF) tire indicator (D)
- The right-rear (RR) tire indicator (E)
- The left-rear (LR) tire indicator (F)



How TPMS Works

The TPMS (tire pressure monitoring system) has six indicators: four tire indicators (on the multi-information display), a low pressure indicator (LED indicator), and a TPMS indicator (on the multi-information display). When the TPMS control unit detects low pressure in a tire, or a problem in the system, it turns on the appropriate indicator(s).

- If low tire pressure is detected, the low pressure indicator and the appropriate tire indicator(s) come on.
- If a problem in the system is detected, the TPMS indicator comes on.
- If low tire pressure and a problem in the system are detected, only the TPMS indicator comes on.

If the system is OK, the low pressure indicator should come on when you turn the ignition switch ON (II), and then go off 2 seconds later. If it doesn't, there is a problem with the system.

If the system detects low pressure in any of the four tires, the low pressure indicator and the appropriate tire indicator(s) will come on, and the control unit will set one or more of these codes:
DTC 11, 13, 15, 17. When the tire pressure returns to normal, the control unit will turn off the indicators and store the DTC(s). However, if the control unit detects a problem in the system during an indication of low tire pressure, it will turn off the low pressure indicator and tire indicators, store the DTC(s), and turn on the TPMS indicator.

NOTE: Tire pressures will increase slightly as the temperature in the tires rises during driving at highway speeds. Pressures will also increase or decrease slightly with changes in outside air temperature. A temperature change of about 18 °F (10 °C) will change tire pressure by about 10 kPa (0.1 kgf/cm^2, 1.5 psi). If the temperature drops, tire pressure could decrease just enough to turn on the low pressure indicator and tire indicator(s), but later as tire temperature increases, the tire pressure could increase enough to turn them off. To resolve a complaint of such intermittent indications, confirm and clear the stored DTC(s) and check the tire pressures. Then explain to the customer how temperature changes can affect the system, especially when tire pressures are near the low end of the TPMS normal range - 168 to 220 kPa (1.7 to 2.2 kgf/cm^2, 24 to 32 psi).

If a problem is detected in the system, most DTCs will cause the TPMS indicator to come on and stay on until the system returns to normal. If DTC 45, 61, 63, 65, 67, 81, 83, or 85 is set, the TPMS indicator will go off only when the ignition switch is turned off.

If a flat tire is replaced with the spare tire, and the flat tire is stored in the trunk area or the cabin, the low pressure indicator will stay on, but the appropriate tire indicator will go off. This prevents the client from thinking there is a problem with the spare tire. When the flat tire is taken out of the vehicle for repair, the TPMS indicator will come on (DTC 32, 34, 36, or 38) because the system is no longer receiving the signal from the tire's transmitter.

(cont'd)

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General Troubleshooting Information (cont'd)

Problems That Are Not System Faults

- Tire Sealant
  Fluid sealant used to repair a punctured tire can damage the tire pressure sensor mounted on each wheel. It can prevent the system from detecting the correct tire pressure, which sets a DTC 11, 13, 15, or 17 even though the system is normal.
- Cold Weather
  When the weather is extremely cold - about −40 °F (−40 °C) or colder - the output of the lithium battery in each tire pressure sensor may drop far enough that the control unit sets a DTC for low battery voltage (31, 33, 35, or 37) even though the system is normal.
- Non-TPMS Wheels
  Vehicles equipped with TPMS must use wheels made for the system. Every TPMS wheel has an exclusive mark; do not use any other type of wheel.

How a Diagnostic Trouble Code (DTC) is Set

- When the system detects a problem, the TPMS control unit sets a code, but shifts to fail-safe mode, and will not alert the driver to low tire pressures.
- If the TPMS control unit loses power, or fails, the TPMS indicator will come on, but no DTC will be set.
- The memory can hold all the DTCs that could possibly be set. However, when the same DTC is detected more than once, the most recent one overwrites the previous one, so only the latest DTC of each type is stored.
- DTCs are indicated in ascending order, not in the order they occurred.
- Set DTCs are stored in the EEPROM (nonvolatile memory), they cannot be cleared by disconnecting the battery. To clear a DTC, connect the HDS (Honda Diagnostic System) to the data link connector (DLC), and follow the screen prompts.

How to Troubleshoot DTCs

DTC troubleshooting procedures assume the cause of the problem is still present and the TPMS indicator is still on. (NOTE: The TPMS indicator comes on for DTCs 11, 13, 15, and 17 only if the low tire pressure indication is false, caused by a problem in the system.) Do not use a troubleshooting procedure unless the system has set the DTC listed for it.

1. Ask the customer to describe the conditions when the indicator came on, and try to reproduce the same conditions for troubleshooting. Find out if the customer checked and/or adjusted tire pressures since the indicator came on.

2. If an indicator does not come on during the test-drive, check for loose terminals, poor contact due to damaged terminals, etc. before you start troubleshooting.

3. After troubleshooting, clear the DTCs, and test-drive the vehicle. Make sure no indicators come on.

4. Check for other unit DTCs which are connected via F-CAN. If there are DTCs that are related to F-CAN, the most likely cause was that the ignition switch was turned ON (II) with the TPMS control unit connector disconnected. Clear the DTCs. Check for PGM-FI and TPMS codes, and troubleshoot those first.

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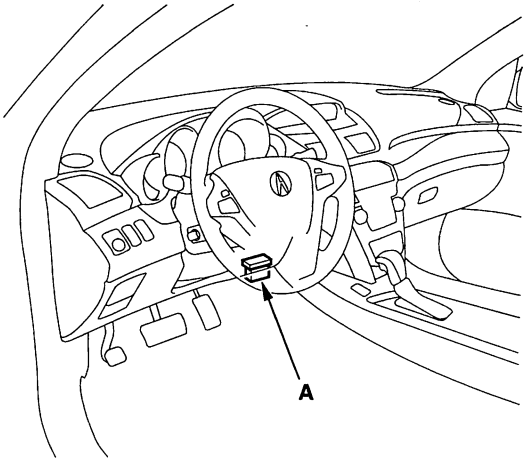
How to Retrieve DTCs

1. With the ignition switch OFF, connect the HDS (Honda Diagnostic System) to the data link connector (DLC) (A) located under the driver's side of the dashboard.

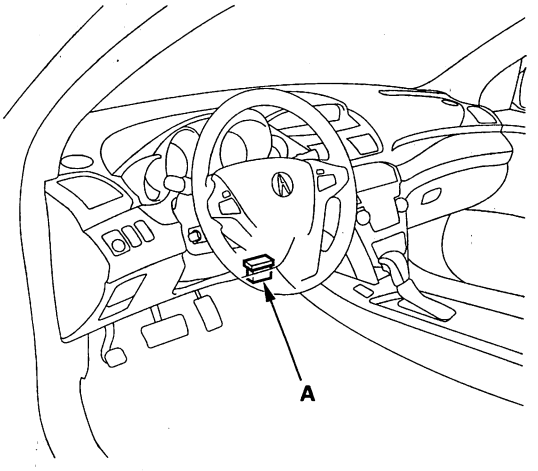


2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-223).
4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC Troubleshooting.

   NOTE: See the HDS Help menu for specific instructions.
5. Turn the ignition switch OFF.

How to Clear DTCs

1. With the ignition switch OFF, connect the HDS to the data link connector (DLC) (A) located under the dash on the driver's side of the dashboard.



2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-223).
4. Clear the DTC(s) by following the screen prompts on the HDS.

   NOTE: See the HDS Help menu for specific instructions.
5. Turn the ignition switch OFF.

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Memorizing the Tire Pressure Sensor ID

Memorizing a Tire Pressure Sensor ID

When a tire pressure sensor is replaced, the sensor ID must be memorized by the TPMS control unit.

NOTE: To ensure the control unit memorizes the correct ID, the vehicle with the new sensor must be at least 10 ft (3 m) from any other TPMS pressure sensor not installed on that vehicle.

Memorizing a Sensor ID Automatically

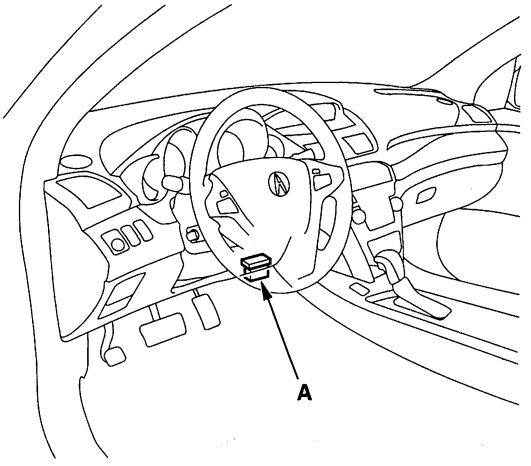
After rotating the tires or replacing a tire pressure sensor, drive the vehicle for at least 40 seconds at a speed of 15 mph (24 km/h) or more, and all the sensor IDs will be memorized automatically.

NOTE:
- When replacing the TPMS control unit, use the HDS to memorize IDs.
- After the IDs are memorized, reduce the pressure in all four tires to less than the appropriate specification, and check to see that the four tire indicators come on.

Memorize the ID with the HDS

The HDS can memorize the ID of a new tire pressure sensor or a previously memorized ID.

1. With the ignition switch OFF, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-223).
4. Memorize the ID of the tire pressure sensor by following the screen prompts on the HDS.

   NOTE:
   - See the HDS Help menu for specific instructions.
   - When replacing the TPMS control unit, use the HDS to memorize IDs.
   - After the IDs are memorized, reduce the pressure in all four tires to less than the appropriate specification, and check to see that the four tire indicators come on.

5. Turn the ignition switch OFF.

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DTC Troubleshooting Index

DTC	Detection Item	Troubleshooting
11	Right-front low tire pressure	(see page 18-139)
13	Left-front low tire pressure	(see page 18-139)
15	Right-rear low tire pressure	(see page 18-139)
17	Left-rear low tire pressure	(see page 18-139)
21	Right-front abnormally high tire sensor temperature	(see page 18-140)
22	Left-front abnormally high tire sensor temperature	(see page 18-140)
23	Right-rear abnormally high tire sensor temperature	(see page 18-140)
24	Left-rear abnormally high tire sensor temperature	(see page 18-140)
31	Right-front tire pressure sensor low battery voltage	(see page 18-140)
32	Right-front tire pressure sensor transmitting failure	(see page 18-141)
33	Left-front tire pressure sensor low battery voltage	(see page 18-140)
34	Left-front tire pressure sensor transmitting failure	(see page 18-141)
35	Right-rear tire pressure sensor low battery voltage	(see page 18-140)
36	Right-rear tire pressure sensor transmitting failure	(see page 18-141)
37	Left-rear tire pressure sensor low battery voltage	(see page 18-140)
38	Left-rear tire pressure sensor transmitting failure	(see page 18-141)
41	Abnormal signal reception error	(see page 18-145)
45	Initiator circuit short detection	(see page 18-146)
51	Right-front initialization status of TPMS control unit is not completed	(see page 18-148)
53	Left-front initialization status of TPMS control unit is not completed	(see page 18-148)
55	Right-rear initialization status of TPMS control unit is not completed	(see page 18-148)
57	Left-rear initialization status of TPMS control unit is not completed	(see page 18-148)
61	Right-front initiator circuit open detection	(see page 18-152)
63	Left-front initiator circuit open detection	(see page 18-152)
65	Right-rear initiator circuit open detection	(see page 18-152)
67	Left-rear initiator circuit open detection	(see page 18-152)
81	TPMS control unit failure check	(see page 18-155)
83	No VSP signal	(see page 18-155)
85	CAN data error	(see page 18-156)
91	Right-front tire pressure sensor internal error	(see page 18-157)
93	Left-front tire pressure sensor internal error	(see page 18-157)
95	Right-rear tire pressure sensor internal error	(see page 18-157)
97	Left-rear tire pressure sensor internal error	(see page 18-157)

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Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
HDS does not communicate with the TPMS control unit or the vehicle	Troubleshoot the DLC circuit (see page 11-223)	
Low pressure indicator does not come on, and no DTCs are stored	Symptom Troubleshooting (see page 18-158)	
Low pressure indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 18-159)	
TPMS indicator does not come on, and no DTCs are stored	Symptom Troubleshooting (see page 18-159)	
TPMS indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 18-160)	

BACK

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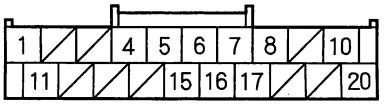
System Description

TPMS Control Unit Inputs and Outputs 20P Connector



Wire side of female terminals

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Signal		
				Terminal	Conditions	Voltage
1	WHT	CAN H (CAN communication signal high)	Sends the communication signal	———	Ignition switch ON (II)	Pulses
4	BLK	GND (Ground)	Ground for the TPMS control unit	4—GND	At all times	Less than 0.1 V
5	GRY	LF LF SIG. (LF low frequency signal)	Sends the signal to the left-front initiator	5—GND	For the first 5—16 seconds after turning the ignition switch ON (II)	Pulses 0—2 V
					With ignition switch ON (II) for more than 5—16 seconds	Less than 0.1 V
6	LT GRN	RF LF SIG. (RF low frequency signal)	Sends the signal to the right-front initiator	6—GND	For the first 5—16 seconds after turning the ignition switch ON (II)	Pulses 0—2 V
					With ignition switch ON (II) for more than 5—16 seconds	Less than 0.1 V
7	LT BLU	K-LINE (Data link connector)	Communications with the HDS	———	———	———
8	YEL	IG1 (Ignition switch 1)	Power source for activating the system	8—GND	Ignition switch ON (II)	Battery voltage
					Ignition switch OFF	Less than 0.1 V
10	WHT	+B (Battery positive)	Power source for the TPMS control unit	10—GND	At all times	Battery voltage

(cont'd)

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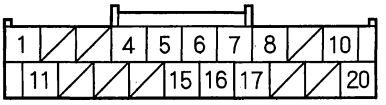
System Description (cont'd)

TPMS Control Unit Inputs and Outputs 20P Connector (cont'd)



Wire side of female terminals

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Signal		
				Terminal	Conditions	Voltage
11	RED	CAN L (CAN communication signal low)	Sends the communication signal	——	Ignition switch ON (II)	Pulses
15	LT BLU	LF GND (LF low frequency ground)	Ground for the initiators	15—GND	Ignition switch ON (II)	Less than 0.1 V
16	PNK	LR LF SIG. (LR low frequency signal)	Sends the signal to the left-rear initiator	16—GND	For the first 5—16 seconds after turning the ignition switch ON (II)	Pulses 0—2 V
					With ignition switch ON (II) for more than 5—16 seconds	Less than 0.1 V
17	GRY	RR LF SIG. (RR low frequency signal)	Sends the signal to the right-rear initiator	17—GND	For the first 5—16 seconds after turning the ignition switch ON (II)	Pulses 0—2 V
					With ignition switch ON (II) for more than 5—16 seconds	Less than 0.1 V
20	BRN	LF PWR. (LF low frequency power)	Power source for the initiators	20—GND	For 5 seconds with ignition switch ON (II)	About 7 V
					After 5 seconds with ignition switch ON (II)	——

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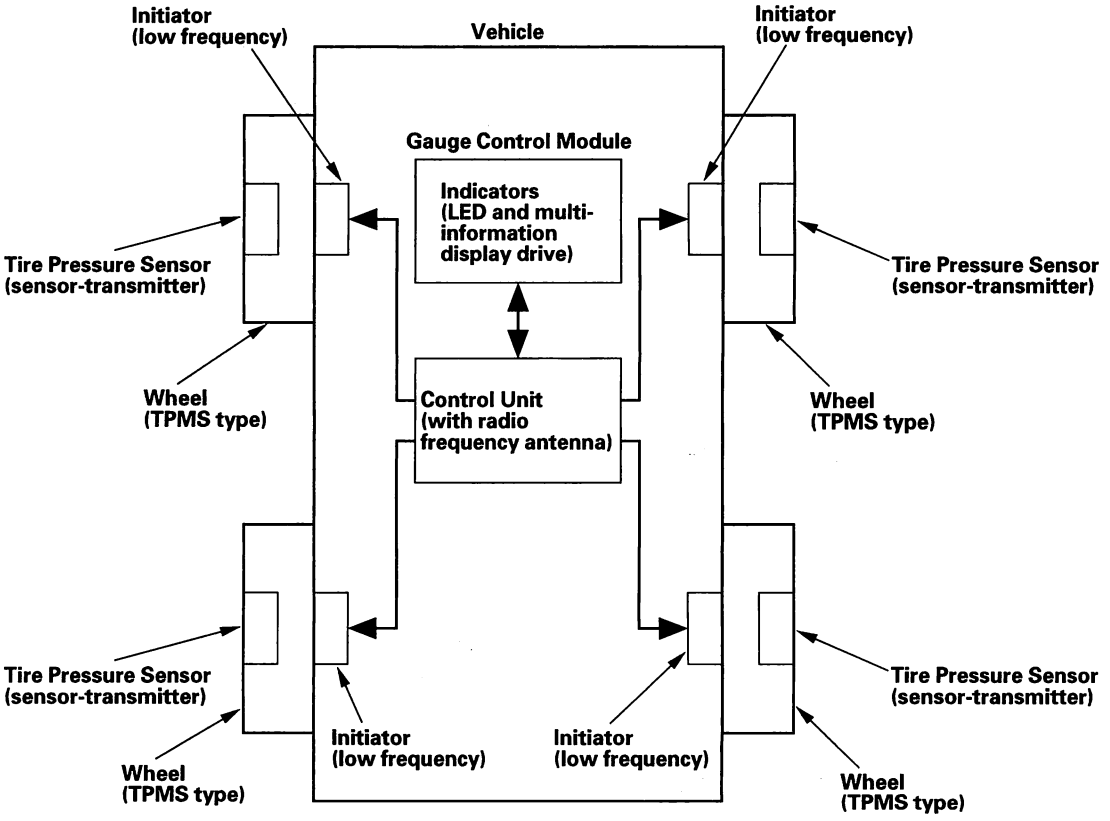
System Structure

Whenever the engine is running, the TPMS control unit continuously monitors all four tires and the system. If it detects low pressure in a tire, it alerts the driver by turning on the low pressure indicator and the appropriate tire indicator. If it detects a problem in the system, it turns on the TPMS indicator.

Initiators
Mounted on each wheel well, each initiator sends a start/stop signal to the tire pressure sensor in the tire below it.

Control unit
Mounted on the brake pedal bracket, the control unit sends signals to the initiators and receives signals from them to verify pressure sensor IDs every time the engine starts. It also receives signals from the transmitters in the tire pressure sensors, and it continuously monitors and controls the system.

Indicators
All indicators are in the gauge control module: The low pressure indicator (LED indicator), four tire indicators (on the multi-information display) to show which tire is affected, and the TPMS indicator (on the multi-information display) that comes on only if there's a problem with the system. When two or more tire pressures are low, the low pressure indicator comes on about 5 seconds before the appropriate tire indicator. Once low pressure is detected, the system scans all four pressure sensors to ensure that it turns on the correct tire indicator.



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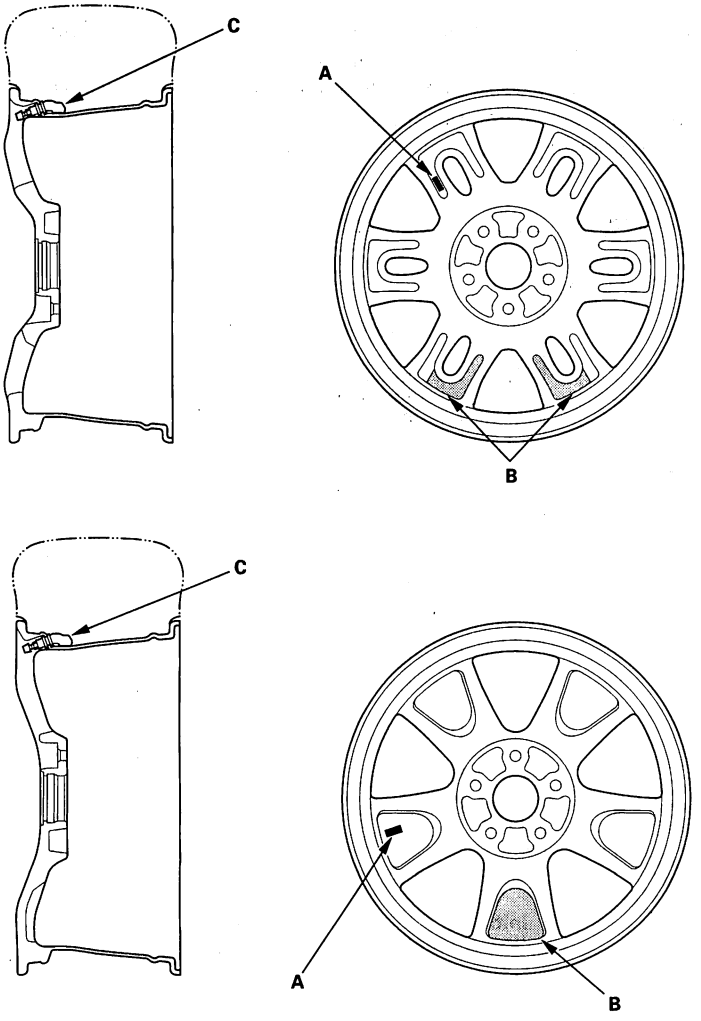
System Description (cont'd)

Tire pressure sensor
Each sensor is an integrated unit made up of the tire valve stem, a pressure sensor, and a transmitter. The unit is attached to the inside of the wheel, around the valve stem. The sensor transmits the internal tire information to the control unit once every 60 seconds. When the TPMS control unit receives tire pressure of less than 175 kPa (1.8 kgf/cm², 25 psi), the control unit then turns on the low pressure indicator and the appropriate tire(s) indicator. When that tire's pressure is increased to more than 200 kPa (2.0 kgf/cm², 29 psi), the transmitter sends tire pressure to the control unit, and then the control unit turns the indicators off.

Wheels
The TPMS will not work unless TPMS type wheels are installed on the vehicle. The original equipment wheels have a "TPMS" stamp (A) on the back of the wheel and counterweights (B) cast into the opposite side of the spoke to balance the weight of the tire pressure sensor (C).

NOTE: The vehicle is equipped with either wheel as shown.



BACK

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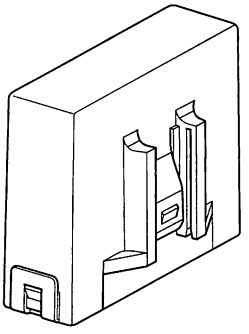
System Communication

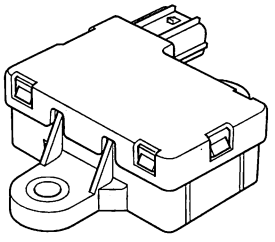
- When the vehicle is running, a RF (radio frequency) band wave signal is continuously transmitted from each tire pressure sensor to the control unit.
- When the ignition switch is turned ON (II), the initiators send a LF (low frequency) band wave signal to the tire pressure sensors, switching them from sleep mode to normal function mode. When the ignition switch is turned OFF, the sensors switch from normal function mode back to sleep mode to extend their battery life.
- Each tire pressure sensor has its own ID to prevent jamming by similar systems on other vehicles. After memorizing all the sensor IDs, the control unit receives only those specific signals.
- An ID can be memorized manually or automatically. Each initiator is hardwired to the control unit. Every time the ignition is turned ON (II), the control unit asks each initiator for a sensor ID. The initiators then transmit the sensor IDs, and the control unit receives and memorizes them. The control unit then knows which ID belongs to each tire location. This recurring ID confirmation prevents any confusion in the system as a result of normal tire rotation.

NOTE: Be careful not to bend the brackets on the TPMS control unit and the front initiators. Misalignment of the control unit and initiators could interfere with sending and receiving signals.

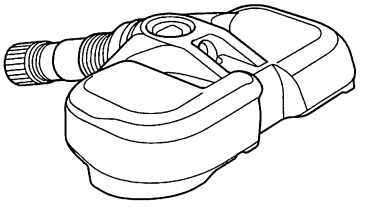
Control Unit
(with Radio Frequency Antenna)



Initiator
(Low Frequency Initiator)



Tire Pressure Sensor
(Sensor-transmitter)



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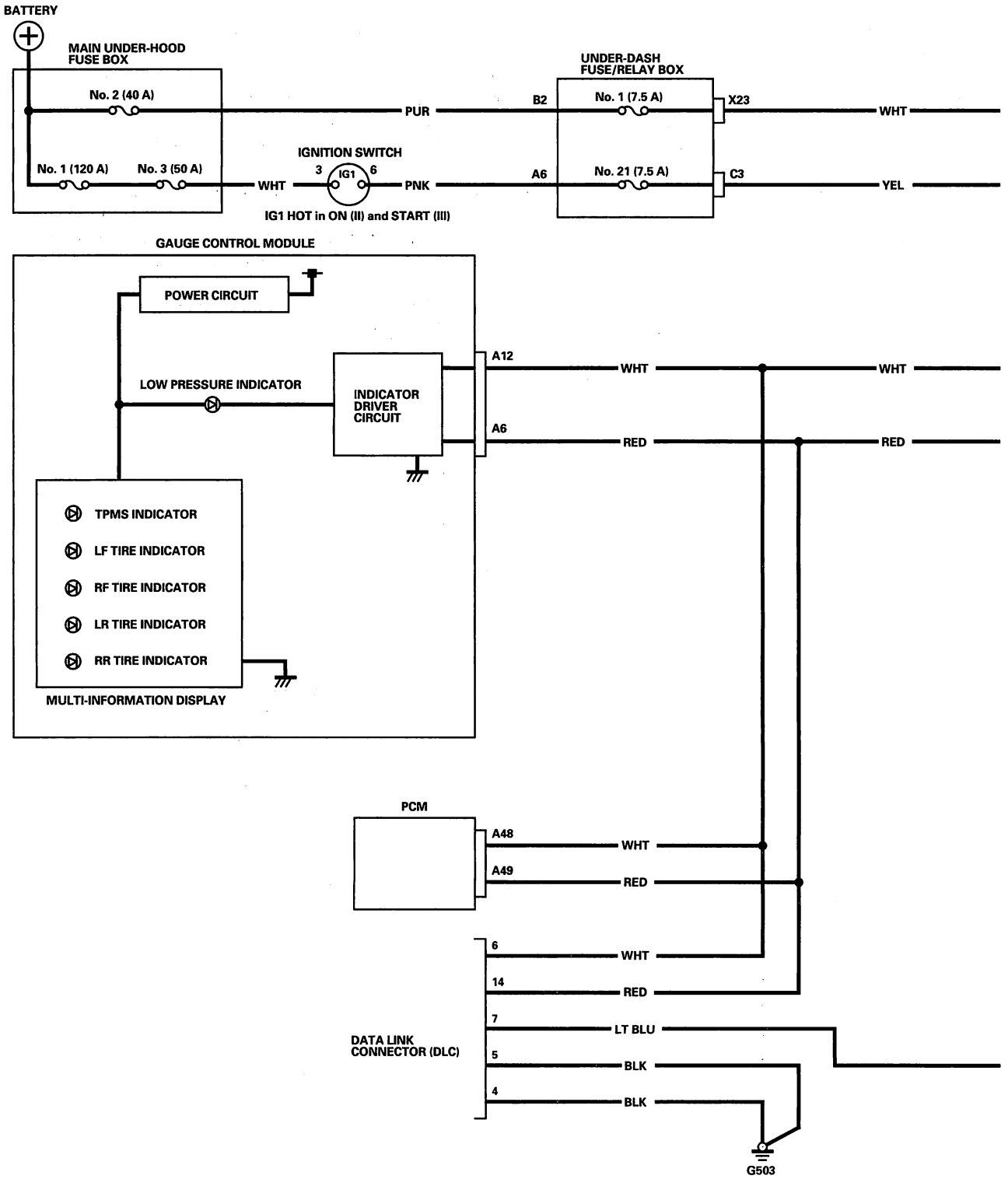
Circuit Diagram



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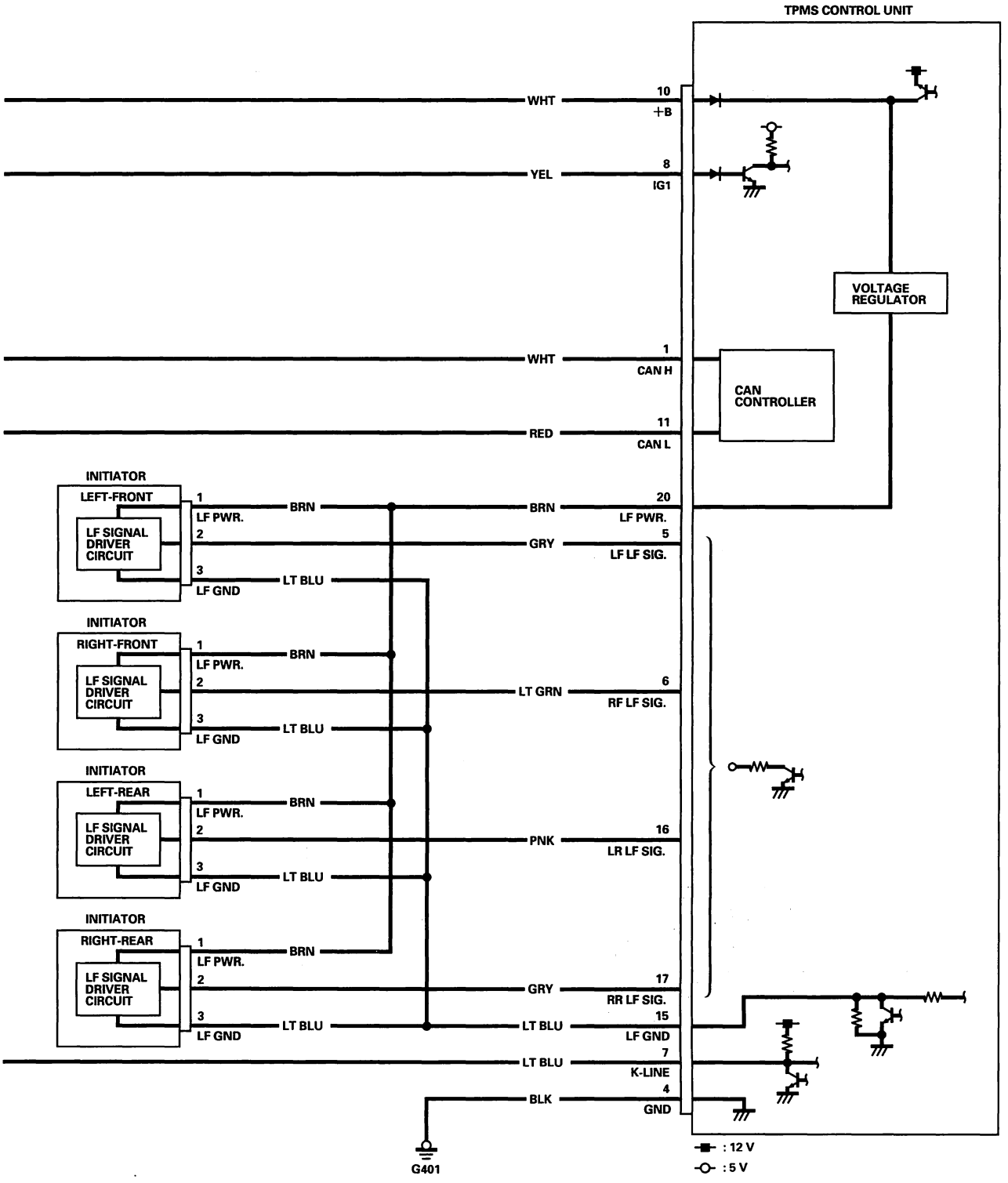

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BACK

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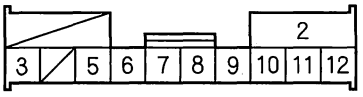
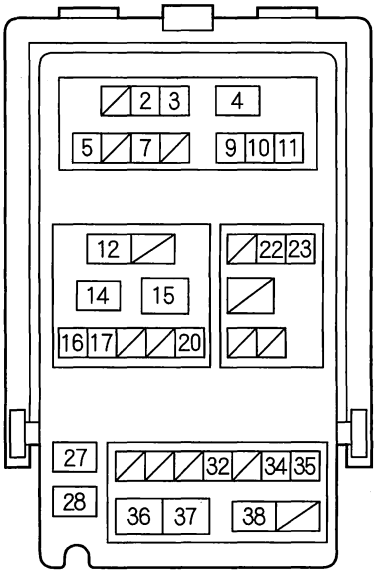
Circuit Diagram (cont'd)

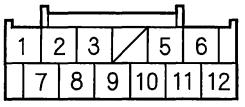
UNDER-DASH FUSE/RELAY BOX CONNECTOR C (12P)



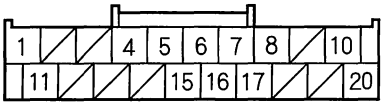
UNDER-DASH FUSE/RELAY BOX CONNECTOR X (39P)



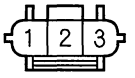
GAUGE CONTROL MODULE CONNECTOR A (12P)



TPMS CONTROL UNIT 20P CONNECTOR

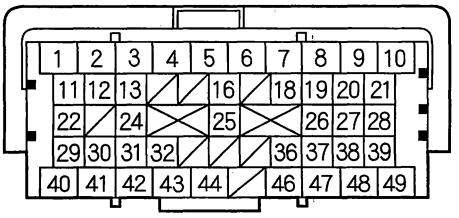


INITIATOR 3P CONNECTOR

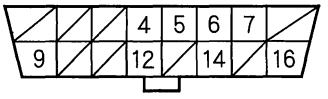


Wire side of female terminals

PCM CONNECTOR A (49P)



DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

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DTC Troubleshooting

DTC 11, 13, 15, 17: Low Tire Pressure

NOTE: If low tire pressure is detected, the control unit will set one or more of these DTCs, and turn on the low pressure indicator and the appropriate tire indicator(s). If the low pressure and tire indicators come on due to true low tire pressure, and the customer corrects it before bringing the vehicle in, the DTCs will have been stored, but all the indicators will be off.

1. Turn the ignition switch ON (II).
2. Check which tire indicator is on.

   NOTE: If no tire indicators are on, retrieve the DTCs with the HDS.

DTC	Tire location
11	Right-front
13	Left-front
15	Right-rear
17	Left-rear

3. Turn the ignition switch OFF.
4. Check the pressure of the indicated tire.

   Is there 175 kPa (1.8 kgf/cm², 25 psi) or less?

   YES—Go to step 5.

   NO—Go to step 7.

5. Check for and repair the cause of air loss, and then inflate the tire (see page 18-5).
6. Turn the ignition switch ON (II).

   Do the tire indicators go off within one minute?

   YES—The system is OK at this time. Clear the DTC with the HDS. ■

   NO—Go to step 7.

7. Check the tire pressure of the appropriate tire with the HDS.

   NOTE: If the HDS screen shows not defined for sensor status, turn the ignition switch OFF, rotate the tire 1/4 turn, then turn the ignition switch ON (II), and try again. If not defined is still shown, repeat the procedure in the previous sentence until NORMAL is shown.

   Is the indicated tire pressure on the HDS within 40 kPa (0.4 kgf/cm², 6 psi) of the actual tire pressure?

   YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck. ■

   NO—Check that the tire-pressure sensor is properly mounted. Replace the appropriate tire pressure sensor (see page 18-164). ■

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DTC Troubleshooting (cont'd)

DTC 21, 22, 23, 24: Abnormally High Tire Sensor Temperature

1. Make sure the tires have cooled down.
2. Turn the ignition switch ON (II).
3. Check the tire indicated by the DTCs you retrieved.

   NOTE: An abnormal rise in the internal temperature of the tires can be caused by:
   - Excessive braking
   - Failure to release the parking brake (rear tires only)
   - Leaving the vehicle running while parked
   - Improper assembly of a wheel and tire

DTC	Tire location
21	Right-front
22	Left-front
23	Right-rear
24	Left-rear

4. Turn the ignition switch ON (II).

   Does the TPMS indicator go off within one minute?

   YES—The system is OK at this time. Clear the DTC with the HDS.■

   NO—Go to step 5.

5. Read the internal temperature of the tire with the HDS.

   NOTE: If the HDS screen shows not defined for sensor status, turn the ignition switch OFF, rotate the tire 1/4 turn, then turn the ignition switch ON (II), and try again. If not defined is still shown, repeat the procedure in the previous sentence until NORMAL is shown.

   Is 176 °F (80 °C) or more indicated?

   YES—Replace the appropriate tire pressure sensor (see page 18-164).■

   NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck.■

DTC 31, 33, 35, 37: Tire Pressure Sensor Low Battery Voltage

NOTE: This problem occurs when the temperature around the sensor is −40 °F (−40 °C) or less. Note that the diagnosis must be made in a place where ambient temperature is −4 °F (−20 °C) or more.

1. Turn the ignition switch ON (II).

   Does the TPMS indicator go off within one minute?

   YES—The system is OK at this time. Clear the DTC with the HDS.■

   NO—Go to step 2.

2. Check the FR, FL, RR, or RL in the TPMS DATA LIST with the HDS.

   NOTE: If the HDS screen shows not defined for sensor status, turn the ignition switch OFF, rotate the tire 1/4 turn, then turn the ignition switch ON (II), and try again. If not defined is still shown, repeat the procedure in the previous sentence until NORMAL is shown.

DTC	Tire location
31	Right-front
33	Left-front
35	Right-rear
37	Left-rear

   Is LOW indicated?

   YES—Replace the appropriate tire pressure sensor (see page 18-164).■

   NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck.■

BACK

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DTC 32, 34, 36, 38: Tire Pressure Sensor Transmitting Failure

NOTE:
- Inspect for an aftermarket device interfering with the RF signal from the sensors when turning the ignition switch ON (II).
- Vehicle must be driven for 3 minutes at 15 mph (24 km/h) or more for DTC 32, 34, 36, or 38 to set.

1. Check the indicated location to make sure the wheel is a TPMS type with the tire pressure sensor.

DTC	Tire location
32	Right-front
34	Left-front
36	Right-rear
38	Left-rear

Is a TPMS type wheel with a tire pressure sensor mounted on the vehicle?

YES—Go to step 4.

NO—Go to step 2.

2. Install a known-good TPMS wheel.
3. To memorize the sensor ID, drive the vehicle above 15 mph (24 km/h) for 40 continuous seconds, or memorize the ID with the HDS (see page 18-128).
4. Test-drive the vehicle.
5. Check the VSP in the TPMS DATA LIST with the HDS.

Is the vehicle speed indicated?

YES—Go to step 9.

NO—Go to step 6.

6. Turn the ignition switch OFF.
7. Turn the ignition switch ON (II).
8. Check for DTCs with the HDS.

Is DTC 85 indicated?

YES—Go to the DTC 85 troubleshooting (see page 18-156). ■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck. ■

9. Turn the ignition switch OFF.
10. Turn the ignition switch ON (II).
11. With the HDS, check the indicated tire for the tire sensor status changing to normal.

NOTE: If the HDS screen shows not defined for sensor status, turn the ignition switch OFF, rotate the tire 1/4 turn, then turn the ignition switch ON (II), and try again. If the status does not change to normal, repeat the procedure in the previous sentence until NORMAL is shown.

DTC	Tire location
32	Right-front
34	Left-front
36	Right-rear
38	Left-rear

Is NORMAL indicated within one full turn of the tire?

YES—The system is OK at this time. Clear the DTC with the HDS. ■

NO—Go to step 12.

(cont'd)

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DTC Troubleshooting (cont'd)

12. Turn the ignition switch OFF.

13. Install a wheel with a known-good tire pressure sensor on the vehicle.

14. To memorize the sensor ID, drive the vehicle above 15 mph (24 km/h) for 40 continuous seconds, or memorize the ID with the HDS (see page 18-128).

15. Turn the ignition switch OFF.

16. Turn the ignition switch ON (II).

17. With the HDS, check the indicated tire for a normal pressure sensor signal.

    NOTE: If the HDS screen shows not defined for sensor status, turn the ignition switch OFF, rotate the tire 1/4 turn, then turn the ignition switch ON (II), and try again. If not defined is still shown, repeat the procedure in the previous sentence until NORMAL is shown.

DTC	Tire location
32	Right-front
34	Left-front
36	Right-rear
38	Left-rear

Is NORMAL indicated within one full turn of the tire?

YES—Replace the tire pressure sensor on the customer's wheel (see page 18-164).■

NO—Go to step 18.

18. Turn the ignition switch OFF.

19. Disconnect the appropriate initiator 3P connector.

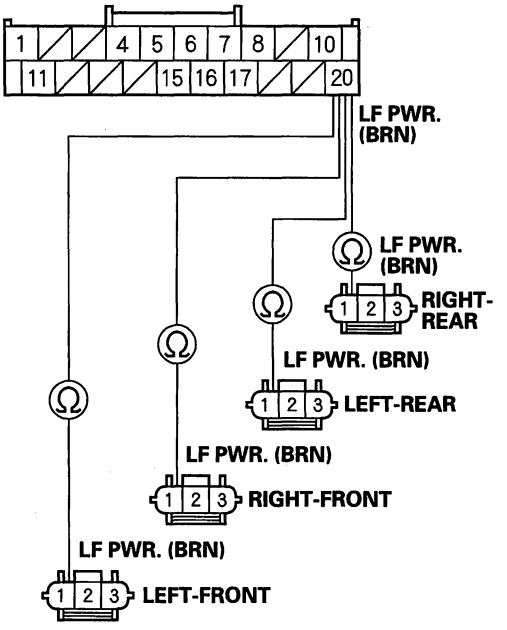
DTC	Initiator location
32	Right-front
34	Left-front
36	Right-rear
38	Left-rear

20. Disconnect the TPMS control unit 20P connector.

21. Check for continuity between TPMS control unit 20P connector terminal No. 20 and the appropriate initiator 3P connector terminal No. 1.

DTC	Initiator location
32	Right-front
34	Left-front
36	Right-rear
38	Left-rear

TPMS CONTROL UNIT 20P CONNECTOR
Wire side of female terminals



INITIATOR 3P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 22.

NO—Repair open in the wire between the TPMS control unit and the appropriate initiator.■

BACK

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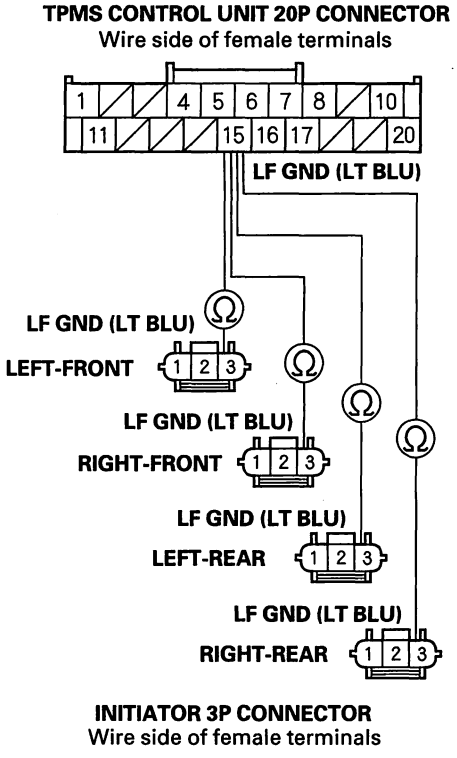
22. Check for continuity between TPMS control unit 20P connector terminal No. 15 and appropriate initiator 3P connector terminal No. 3.

DTC	Initiator location
32	Right-front
34	Left-front
36	Right-rear
38	Left-rear



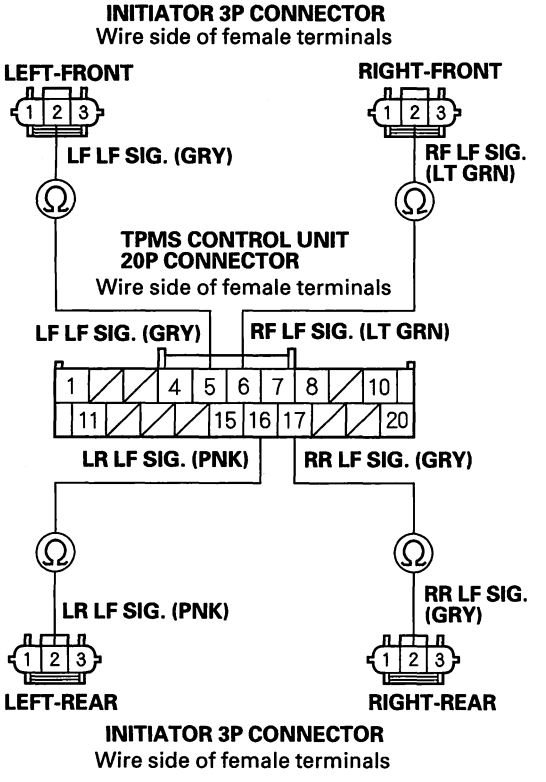
Is there continuity?

YES—Go to step 23.

NO—Repair open in the wire between the TPMS control unit and the appropriate initiator.■

23. Check for continuity between the appropriate TPMS control unit 20P connector terminal and appropriate initiator 3P connector terminal No. 2 (see table).

DTC	TPMS control unit terminal	Initiator location
32	No. 6	Right-front
34	No. 5	Left-front
36	No. 17	Right-rear
38	No. 16	Left-rear



Is there continuity?

YES—Go to step 24.

NO—Repair open in the wire between the TPMS control unit and the appropriate initiator.■

(cont'd)

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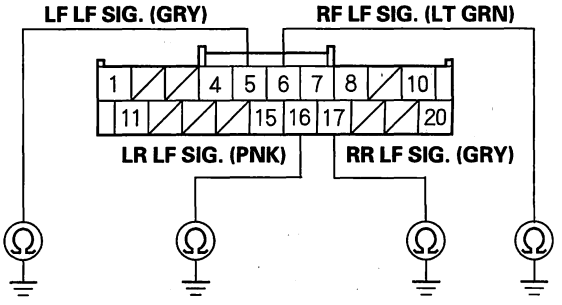
DTC Troubleshooting (cont'd)

24. Check for continuity between body ground and the appropriate TPMS control unit 20P connector terminal (see table).

DTC	TPMS control unit terminal
32	No. 6
34	No. 5
36	No. 17
38	No. 16

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

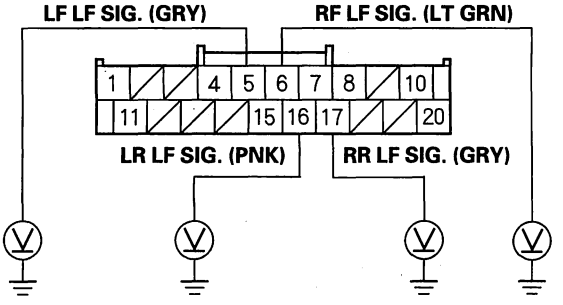
YES—Repair short to body ground in the wire between the TPMS control unit and the appropriate initiator. ■

NO—Go to step 25.

25. Measure voltage between body ground and the appropriate TPMS control unit 20P connector terminal (see table).

DTC	TPMS control unit terminal
32	No. 6
34	No. 5
36	No. 17
38	No. 16

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the TPMS control unit and the appropriate initiator. ■

NO—Replace the appropriate initiator (see page 18-163). ■

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DTC 41: Abnormal Signal Reception Error

NOTE: Inspect for an aftermarket device interfering with the RF signal from the sensors when turning the ignition switch ON (II).

1. Check all four wheels to make sure they are the TPMS type with the tire pressure sensor.

   Is each wheel a TPMS type with a tire pressure sensor mounted on the vehicle?

   YES—Go to step 4.

   NO—Go to step 2.

2. Install known-good TPMS wheel(s).

3. To memorize the sensor ID(s), drive the vehicle above 15 mph (24 km/h) for 40 continuous seconds, or memorize the ID(s) with the HDS (see page 18-128).

4. Test-drive the vehicle.

5. Check the VSP in the TPMS DATA LIST with the HDS.

   Is the vehicle speed indicated?

   YES—Go to step 9.

   NO—Go to step 6.

6. Turn the ignition switch OFF.

7. Turn the ignition switch ON (II).

8. Check for DTCs with the HDS.

   Is DTC 85 indicated?

   YES—Go to the DTC 85 troubleshooting (see page 18-156). ■

   NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck. ■

9. Turn the ignition switch OFF.

10. Turn the ignition switch ON (II).

11. Check TPMS DATA LIST for LF, RF, LR, RR sensor status changing to "NORMAL".

    NOTE: If the HDS screen shows not defined for sensor status, turn the ignition switch OFF, rotate the tire 1/4 turn, then turn the ignition switch ON (II), and try again. If not defined is still shown, repeat the procedure in the previous sentence until NORMAL is shown.

    Is NORMAL indicated within one full turn of the tire?

    YES—The system is OK at this time. Clear the DTC with the HDS. ■

    NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck. ■

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DTC Troubleshooting (cont'd)

DTC 45: Initiator Circuit Short Detection

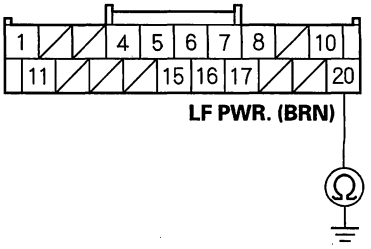
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn the ignition switch ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 45 indicated?

   YES—Go to step 5.

   NO—The system is OK at this time.■
5. Turn the ignition switch OFF.
6. Disconnect the TPMS control unit 20P connector.
7. Check for continuity between body ground and TPMS control unit 20P connector terminal No. 20.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

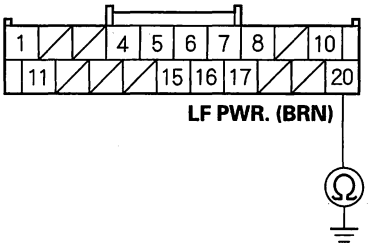
Is there continuity?

YES—Go to step 8.

NO—Go to step 11.

8. Disconnect all four of the initiator 3P connectors.
9. Check for continuity between body ground and TPMS control unit 20P connector terminal No. 20.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

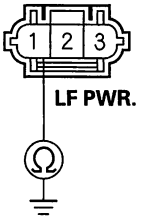
YES—Repair short to body ground in the wire between the TPMS control unit and the initiators.■

NO—Go to step 10.

10. On each individual initiator, check for continuity between body ground and initiator 3P connector terminal No. 1.

    NOTE: Check the initiators when mounted on the vehicle.

INITIATOR 3P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Replace the appropriate initiator (see page 18-163).■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck.■

BACK

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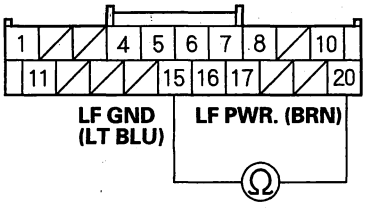
11. Check for continuity between TPMS control unit 20P connector terminals No. 15 and No. 20.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

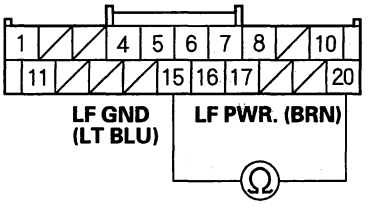
YES—Go to step 12.

NO—Go to step 15.

12. Disconnect all four of the initiator 3P connectors.

13. Check for continuity between TPMS control unit 20P connector terminals No. 15 and No. 20.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

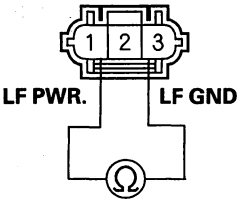
Is there continuity?

YES—Repair short in the wire between TPMS control unit 20P connector terminals No. 15 (LF GND line) and No. 20 (LF PWR. line).■

NO—Go to step 14.

14. On the initiator side, check for continuity between all four initiator 3P connector terminals No. 1 and No. 3 individually.

INITIATOR 3P CONNECTOR



Terminal side of male terminals

Is there continuity?

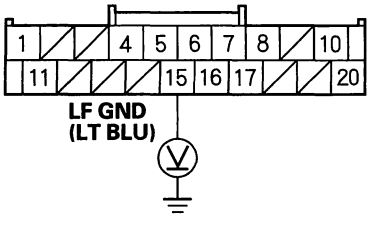
YES—Replace the appropriate initiator (see page 18-163).■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck.■

15. Turn the ignition switch ON (II).

16. Measure voltage between body ground and TPMS control unit 20P connector terminal No. 15.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the TPMS control unit and the initiators.■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck.■

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DTC Troubleshooting (cont'd)

DTC 51, 53, 55, 57: Initialization Status of TPMS Control Unit is Not Completed

NOTE: These DTCs will only set during initialization with the HDS.

1. Check the DTC indicated to the tire location to make sure the wheel is a TPMS type with the tire pressure sensor.

DTC	Tire location
51	Right-front
53	Left-front
55	Right-rear
57	Left-rear

Is a TPMS type wheel with a tire pressure sensor mounted on the vehicle?

YES—Go to step 7.

NO—Go to step 2.

2. Install a known-good TPMS wheel.
3. To memorize the sensor ID, drive the vehicle above 15 mph (24 km/h) for 40 continuous seconds, or memorize the ID with the HDS (see page 18-128).
4. Turn the ignition switch OFF.
5. Turn the ignition switch ON (II).
6. With the HDS, check the indicated tire for the normal sensor signal.

   NOTE: If the HDS screen shows not defined for sensor status, turn the ignition switch OFF, rotate the tire 1/4 turn, then turn the ignition switch ON (II), and try again. If not defined is still shown, repeat the procedure in the previous sentence until NORMAL is shown.

DTC	Tire location
51	Right-front
53	Left-front
55	Right-rear
57	Left-rear

Is NORMAL indicated within one full turn of the tire?

YES—The system is OK at this time. Clear the DTC with the HDS. ■

NO—Go to step 12.

7. Turn the ignition switch OFF.
8. Install a wheel with a known-good tire pressure sensor on the vehicle.
9. To memorize the sensor ID, drive the vehicle above 15 mph (24 km/h) for 40 continuous seconds, or memorize the ID with the HDS (see page 18-128).
10. Turn the ignition switch OFF.
11. Turn the ignition switch ON (II).

BACK

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12. With the HDS, check the indicated tire for a normal pressure sensor signal.

    NOTE: If the HDS screen shows not defined for sensor status, turn the ignition switch OFF, rotate the tire 1/4 turn, then turn the ignition switch ON (II), and try again. If not defined is still shown, repeat the procedure in the previous sentence until NORMAL is shown.

DTC	Tire location
51	Right-front
53	Left-front
55	Right-rear
57	Left-rear

    Is NORMAL indicated within one full turn of the tire?

    YES—Replace the tire pressure sensor on the customer's wheel (see page 18-164).■

    NO—Go to step 13.

13. Turn the ignition switch OFF.

14. Disconnect the appropriate initiator 3P connector.

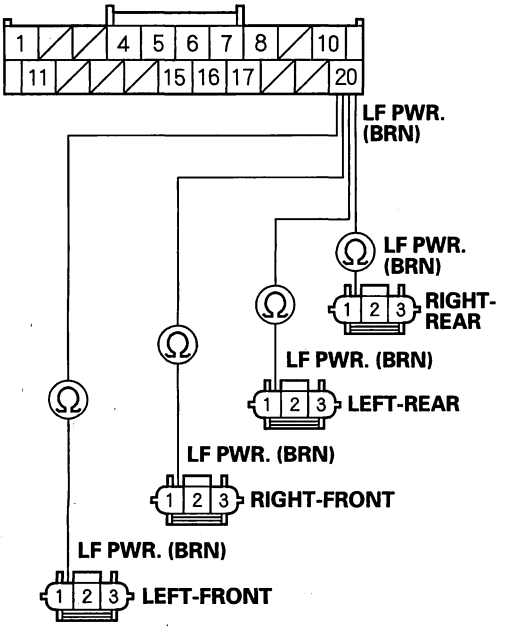
DTC	Initiator location
51	Right-front
53	Left-front
55	Right-rear
57	Left-rear

15. Disconnect the TPMS control unit 20P connector.

16. Check for continuity between TPMS control unit 20P connector terminal No. 20 and appropriate initiator 3P connector terminal No. 1.

DTC	Initiator location
51	Right-front
53	Left-front
55	Right-rear
57	Left-rear

TPMS CONTROL UNIT 20P CONNECTOR
Wire side of female terminals



INITIATOR 3P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 17.

NO—Repair open in the wire between the TPMS control unit and the appropriate initiator.■

(cont'd)

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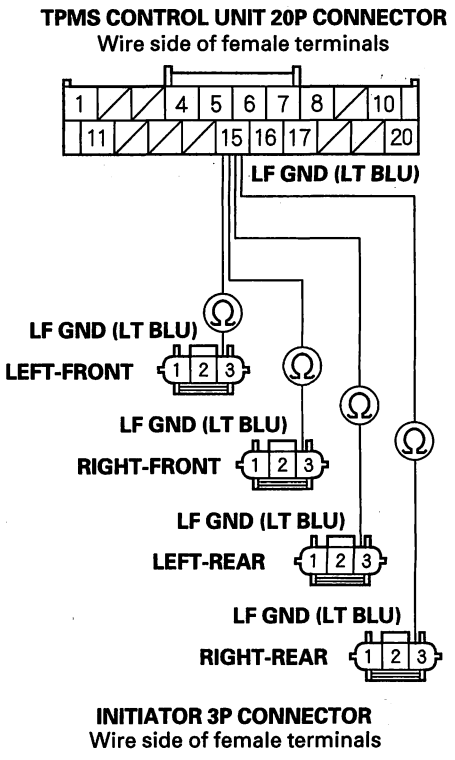
DTC Troubleshooting (cont'd)

17. Check for continuity between TPMS control unit 20P connector terminal No. 15 and appropriate initiator 3P connector terminal No. 3.

DTC	Initiator location
51	Right-front
53	Left-front
55	Right-rear
57	Left-rear



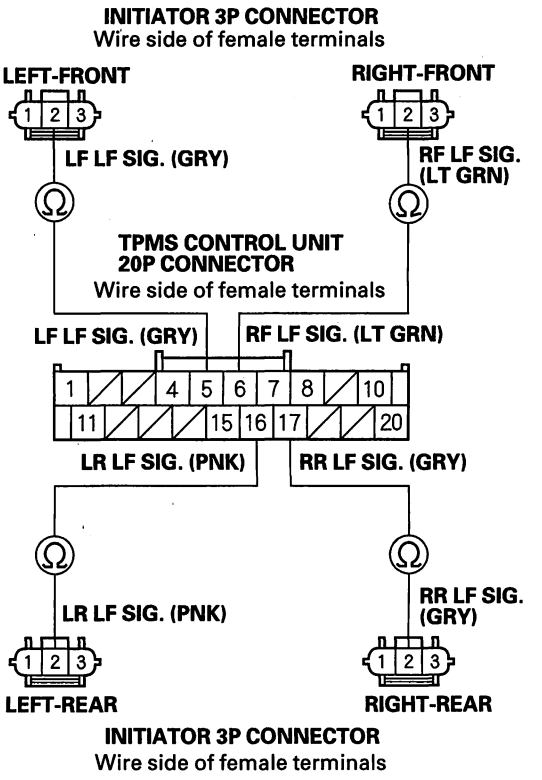
Is there continuity?

YES—Go to step 18.

NO—Repair open in the wire between the TPMS control unit and the appropriate initiator.■

18. Check for continuity between the appropriate TPMS control unit 20P connector terminal and appropriate initiator 3P connector terminal No. 2 (see table).

DTC	TPMS control unit terminal	Initiator location
51	No. 6	Right-front
53	No. 5	Left-front
55	No. 17	Right-rear
57	No. 16	Left-rear



Is there continuity?

YES—Go to step 19.

NO—Repair open in the wire between the TPMS control unit and the appropriate initiator.■

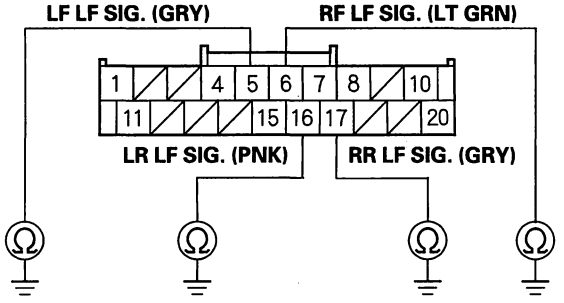
BACK

Protected by AR

19. Check for continuity between body ground and the appropriate TPMS control unit 20P connector terminal (see table).

DTC	TPMS control unit terminal
51	No. 6
53	No. 5
55	No. 17
57	No. 16

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

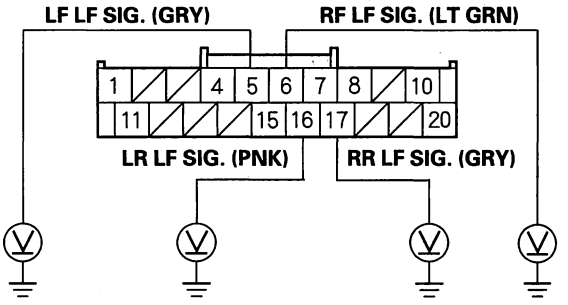
YES—Repair short to body ground in the wire between the TPMS control unit and the appropriate initiator. ■

NO—Go to step 20.

20. Measure voltage between body ground and the appropriate TPMS control unit 20P connector terminal (see table).

DTC	TPMS control unit terminal
51	No. 6
53	No. 5
55	No. 17
57	No. 16

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the TPMS control unit and the appropriate initiator. ■

NO—Repair the appropriate initiator (see page 18-163). ■

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DTC Troubleshooting (cont'd)

DTC 61, 63, 65, 67: Initiator Circuit Open Detection

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn the ignition switch ON (II) again.
4. Check for DTCs with the HDS, and note the indicated DTC(s).

   Is DTC 61, 63, 65, and/or 67 indicated?

   YES—Go to step 5.

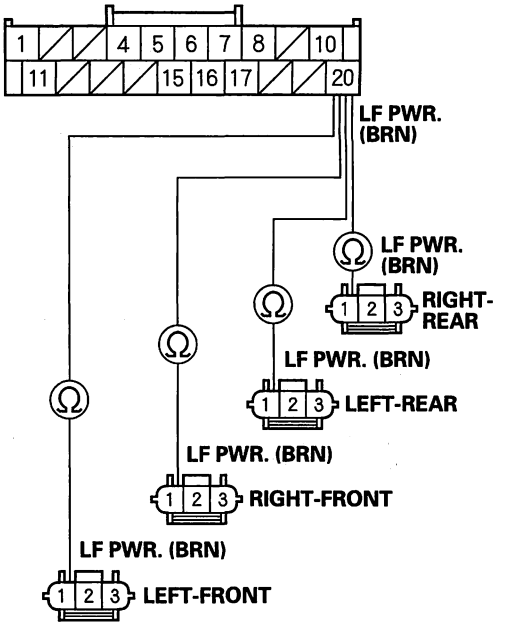
   NO—The system is OK at this time.■
5. Turn the ignition switch OFF.
6. Disconnect the appropriate initiator 3P connector.

DTC	Initiator location
61	Right-front
63	Left-front
65	Right-rear
67	Left-rear

7. Disconnect the TPMS control unit 20P connector.
8. Check for continuity between TPMS control unit 20P connector terminal No. 20 and appropriate initiator 3P connector terminal No. 1.

DTC	Initiator location
61	Right-front
63	Left-front
65	Right-rear
67	Left-rear

TPMS CONTROL UNIT 20P CONNECTOR
Wire side of female terminals



INITIATOR 3P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 9.

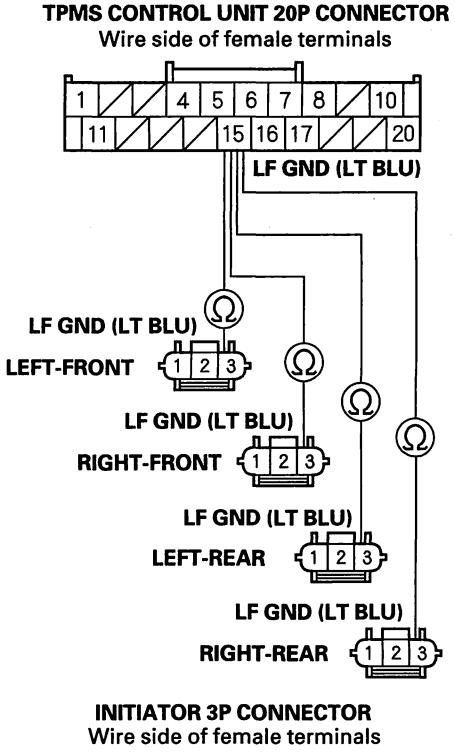
NO—Repair open in the wire between the TPMS control unit and the appropriate initiator.■

BACK

Protected by AR

9. Check for continuity between TPMS control unit 20P connector terminal No. 15 and appropriate initiator 3P connector terminal No. 3.

DTC	Initiator location
61	Right-front
63	Left-front
65	Right-rear
67	Left-rear



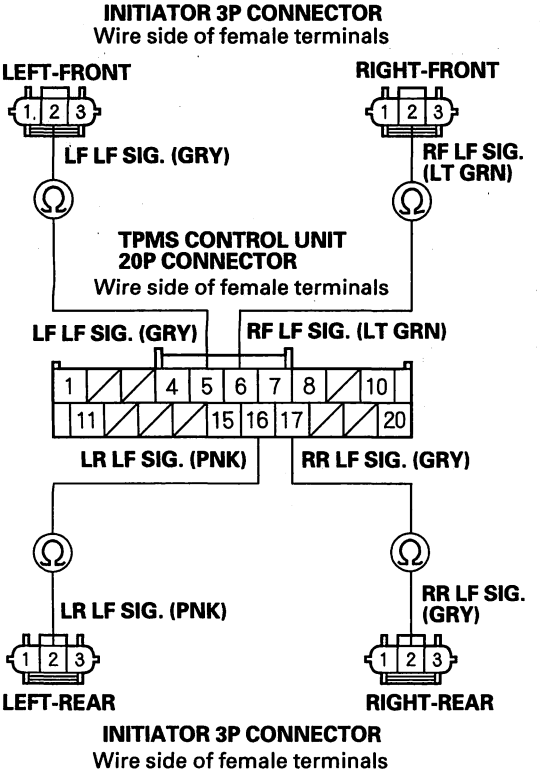
Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the TPMS control unit and the appropriate initiator.■

10. Check for continuity between the appropriate TPMS control unit 20P connector terminal and appropriate initiator 3P connector terminal No. 2 (see table).

DTC	TPMS control unit terminal	Initiator location
61	No. 6	Right-front
63	No. 5	Left-front
65	No. 17	Right-rear
67	No. 16	Left-rear



Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the TPMS control unit and the appropriate initiator.■

(cont'd)

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DTC Troubleshooting (cont'd)

11. Check for noted DTC(s) in step 4.

    Were DTC 61, 63, 65, and 67 indicated at the same time?

    YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck.■

    NO—Go to step 12.

12. Swap a known-good initiator with the initiator indicated by the DTC (see page 18-163).

DTC	Initiator location
61	Right-front
63	Left-front
65	Right-rear
67	Left-rear

13. Reconnect all connectors.

14. Turn the ignition switch ON (II).

15. Clear the DTC with the HDS.

16. Turn the ignition switch OFF, then turn the ignition switch ON (II) again.

17. Check for DTCs with the HDS, and compare the indicated DTC with the noted DTC(s) in step 4.

DTC	Initiator location
61	Right-front
63	Left-front
65	Right-rear
67	Left-rear

Does the indicated DTC change between the initiators that were replaced in step 12?

YES—Replace the appropriate initiator (see page 18-163).■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck.■

BACK

Protected by AR

DTC 81: TPMS Control Unit Failure (RAM/ROM/ADC/EEPROM/ALU) Check

NOTE: Low battery voltage can cause this DTC. Make sure the battery is fully charged and in good condition.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 81 indicated?

   YES—Replace the TPMS control unit (see page 18-162). ■

   NO—The system is OK at this time. ■

DTC 83: No VSP Signal

NOTE: Check the fuel and emission systems DTCs with the HDS, and troubleshoot the PCM and F-CAN communication errors first (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle.
4. Check for DTCs with the HDS.

   Is DTC 83 indicated?

   YES—Go to step 5.

   NO—The system is OK at this time. ■

5. Check for DTCs with the HDS.

   Is DTC 85 indicated?

   YES—Go to DTC 85 troubleshooting (see page 18-156). ■

   NO—Go to step 6.

6. Test-drive the vehicle.
7. Check the VSP in the TPMS DATA LIST with the HDS.

   Is the vehicle speed indicated?

   YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck. ■

   NO—Go to step 8.

8. Check the speedometer.

   Does the speedometer register speed?

   YES—Replace the TPMS control unit (see page 18-162). ■

   NO—Substitute a known-good PCM (see page 11-8), and retest. If no codes are shown, replace the original PCM. ■

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DTC Troubleshooting (cont'd)

DTC 85: CAN Data Error

NOTE: Check the fuel and emission systems DTCs with the HDS, and troubleshoot the PCM and F-CAN communication errors first (see page 11-3).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn the ignition switch ON (II) again.
4. Wait about 5 seconds.
5. Check for DTCs with the HDS.

   Is DTC 85 indicated?

   YES—Go to step 6.

   NO—The system is OK at this time.■
6. Test-drive the vehicle.

   Does the speedometer work?

   YES—Go to step 10.

   NO—Go to step 7.
7. Turn the ignition switch OFF.
8. Disconnect the TPMS control unit 20P connector.
9. Test-drive the vehicle.

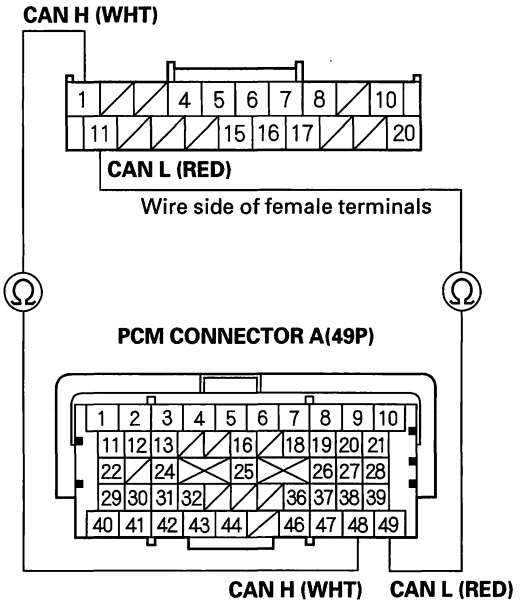
   Does the speedometer work?

   YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck.■

   NO—Turn the ignition switch OFF, and reconnect all connectors, then check and troubleshoot the fuel and emissions systems (see page 11-3).■
10. Turn the ignition switch OFF.
11. Short the SCS line with the HDS.
12. Disconnect PCM connector A (49P).
13. Disconnect the TPMS control unit 20P connector.
14. Check for continuity between the TPMS control unit 20P connector terminals and the PCM connector A (49P) terminals individually (see table).

Terminal name	TPMS control unit terminal	PCM A terminal
CAN L	No. 11	No. 49
CAN H	No. 1	No. 48

TPMS CONTROL UNIT 20P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck.■

NO—Repair open in the wire between the TPMS control unit and the PCM.■

BACK

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DTC 91, 93, 95, 97: Tire Pressure Sensor Internal Error

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) again.
4. Wait about 1 minute.
5. Check for DTCs with the HDS.

   NOTE: The tire pressure sensor of the appropriate wheel is shown.

DTC	Tire location
91	Right-front
93	Left-front
95	Right-rear
97	Left-rear

Is DTC 91, 93, 95 or 97 indicated?

YES—Replace the appropriate tire pressure sensor (see page 18-164).■

NO—The system is OK at this time.■

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Symptom Troubleshooting

Low pressure indicator does not come on, and no DTCs are stored

1. Turn the ignition switch ON (II).
2. Check the low pressure indicator for several seconds when the ignition switch is turned ON (II).

   Did the indicator come on and then go off?

   YES—Go to step 3.

   NO—Go to step 7.
3. Turn the ignition switch OFF.
4. Check the pressure in all four tires.

   Is the tire pressure 175 kPa (1.8 kgf/cm², 25 psi) or less?

   YES—Go to step 5.

   NO—The system is OK at this time.■
5. Turn the ignition switch ON (II).
6. Check the TIRE PRESSURE in the TPMS DATA LIST with the HDS, and compare with measured actual tire pressure.

   NOTE: If the HDS screen shows not defined for sensor status, turn the ignition switch OFF, rotate the appropriate tire 1/4 turn, then turn the ignition switch ON (II), and try again. If not defined is still shown, repeat the procedure in the previous sentence until NORMAL is shown.

   Is the indicated tire pressure on the HDS within 40 kPa (0.4 kgf/cm², 6 psi) of the actual tire pressure?

   YES—Go to step 7.

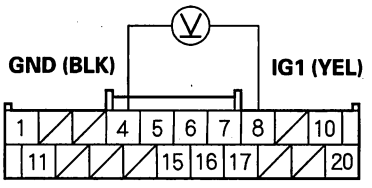
   NO—Replace the tire pressure sensor (see page 18-164).■
7. Wait about 5 seconds with the ignition switch turned ON (II).
8. Check for gauge DTCs with the HDS (see page 22-3).

   Is any gauge DTC indicated?

   YES—Troubleshoot the indicated gauge DTC.■

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Disconnect the TPMS control unit 20P connector.
11. Measure voltage between TPMS control unit 20P connector terminals No. 4 and No. 8.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the TPMS control unit and the No. 21 (7.5 A) fuse in the under-dash fuse/relay box.■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-162), and recheck.■

BACK

Protected by AR

Low pressure indicator does not go off, and no DTCs are stored

1. Turn the ignition switch OFF.
2. Disconnect the TPMS control unit 20P connector.
3. Turn the ignition switch ON (II).
4. Check the low pressure indicator for several seconds when the ignition switch is turned ON (II).

   Did the indicator come on and then go off?

   YES—Replace the TPMS control unit (see page 18-162).■

   NO—Do the troubleshooting for the gauge control module (see page 22-3). If necessary, substitute a known-good gauge control module (see page 22-337), and recheck.■

TPMS indicator does not come on, and no DTCs are stored

1. Turn the ignition switch ON (II).
2. Check the TPMS indicator for several seconds when the ignition switch is turned ON (II).

   Did the indicator come on and then go off?

   YES—The system is OK at this time.■

   NO—Do the troubleshooting for the gauge control module (see page 22-3). If necessary, substitute a known-good gauge control module (see page 22-337), and recheck.■

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Symptom Troubleshooting (cont'd)

TPMS indicator does not go off, and no DTCs are stored

NOTE: Check for gauge DTCs with the HDS (see page 22-3). If gauges DTCs are stored, troubleshoot those DTCs first.

1. Turn the ignition switch ON (II).
2. Check the TPMS indicator for several seconds when the ignition switch is turned ON (II).

   Did the indicator come on and then go off?

   YES—The system is OK at this time. ■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Check the No. 1 (7.5 A) fuse in the under-dash fuse/relay box.

   Is the fuse blown?

   YES—Replace the No. 1 (7.5 A) fuse, and recheck. ■

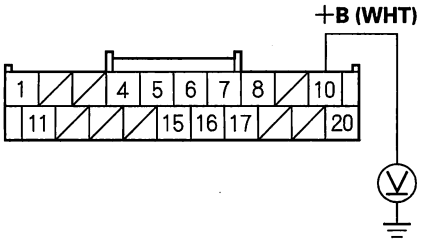
   NO—Reinstall the fuse, then go to step 5.
5. Check the No. 21 (7.5 A) fuse in the under-dash fuse/relay box.

   Is the fuse blown?

   YES—Replace the No. 21 (7.5 A) fuse, and recheck. ■

   NO—Reinstall the fuse, then go to step 6.
6. Measure voltage between body ground and TPMS control unit 20P connector terminal No. 10.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

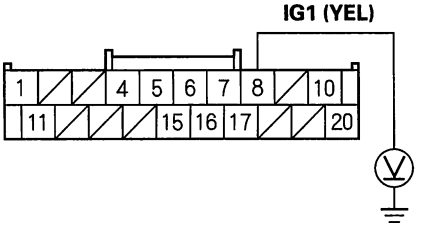
Is there battery voltage?

YES—Go to step 7.

NO—Repair open in the wire between the TPMS control unit and the No. 1 (7.5 A) fuse in the under-dash fuse/relay box. ■

7. Turn the ignition switch ON (II).
8. Measure voltage between body ground and TPMS control unit 20P connector terminal No. 8.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 9.

NO—Repair open in the wire between the TPMS control unit and the No. 21 (7.5 A) fuse in the under-dash fuse/relay box. ■

BACK

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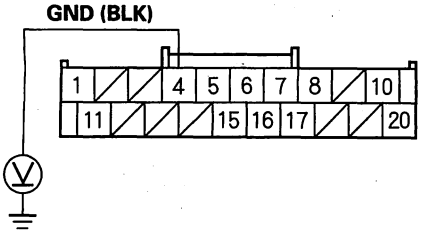
9. Measure voltage between body ground and TPMS control unit 20P connector terminal No. 4.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair open or high resistance in the wire between the TPMS control unit and body ground (G401).■

NO—Do the troubleshooting for the gauge control module (see page 22-3). If the gauge control module is OK, check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control (see page 18-162), and recheck.■

Protected by AR

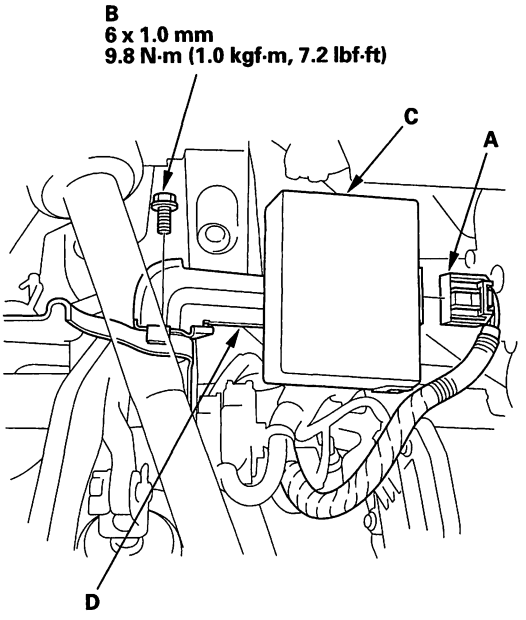
TPMS Control Unit Replacement

NOTE: Make sure the TPMS control unit mounting bracket is not bent or twisted as this may affect its communication with the initiators and the tire pressure sensors.

1. Remove the driver's dashboard undercover (see page 20-120).

2. Disconnect the TPMS control unit connector (A).

   NOTE: The TPMS control unit is located on the brake pedal bracket.

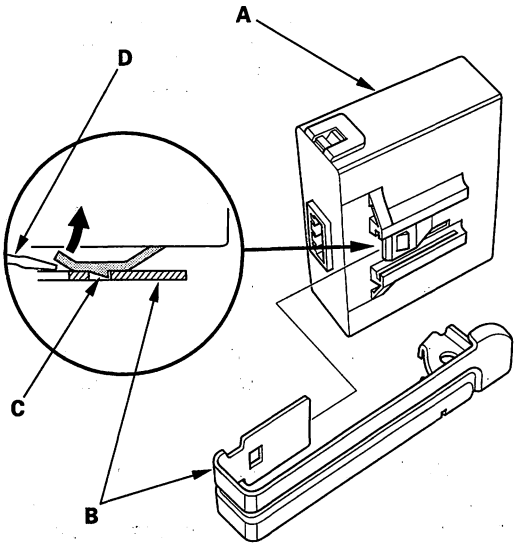


3. Remove the flange bolt (B) from the brake pedal bracket.

4. Remove the TPMS control unit (C) from the bracket (D).

5. Remove the TPMS control unit (A) from the bracket (B).

   NOTE: While separating the TPMS control unit from the bracket, release the hook (C) on the TPMS control unit using a flat-tipped screwdriver (D), and push up to release it from the bracket.



6. Install the TPMS control unit in the reverse order of removal.

   NOTE: Make sure the TPMS control unit is properly installed. You will hear a click when the TPMS control unit is securely mounted on the bracket.

7. Connect the HDS and memorize the tire pressure sensor IDs (see page 18-128). Do not memorize the IDs automatically.

BACK

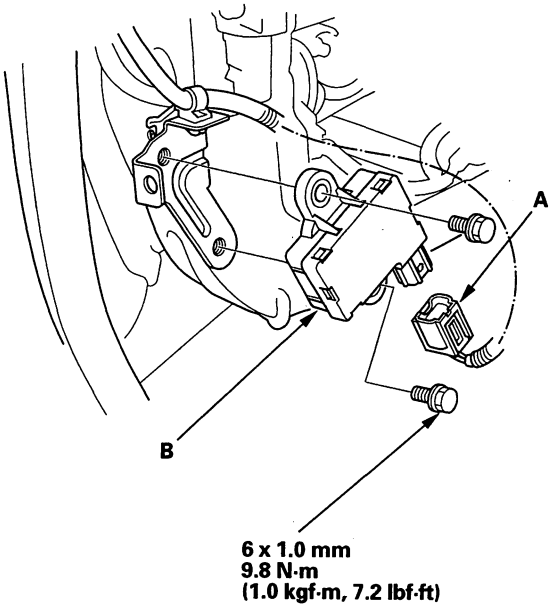
Protected by AR

Initiator Replacement

NOTE: Make sure the initiator mounting bracket is not bent or twisted as this may affect its communication with the TPMS control unit and the tire pressure sensor.

Front

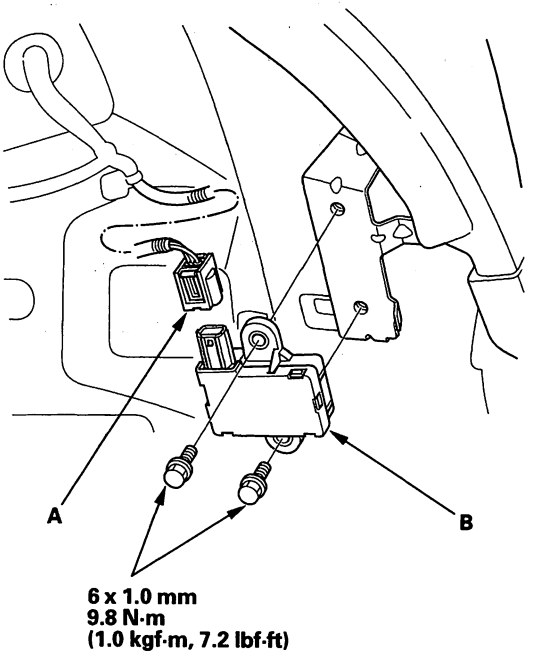
1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the front wheel.
3. Remove the front inner fender (see page 20-217).
4. Disconnect the initiator connector (A).



5. Remove the initiator (B) from the inner side of the wheelwell.
6. Install the initiator in the reverse order of removal.

Rear

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the rear wheel.
3. Remove the rear fender cover (see page 20-221).
4. Disconnect the initiator connector (A).



5. Remove the initiator (B) from the inner side of the wheelwell.
6. Install the initiator in the reverse order of removal.

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Tire Pressure Sensor Replacement

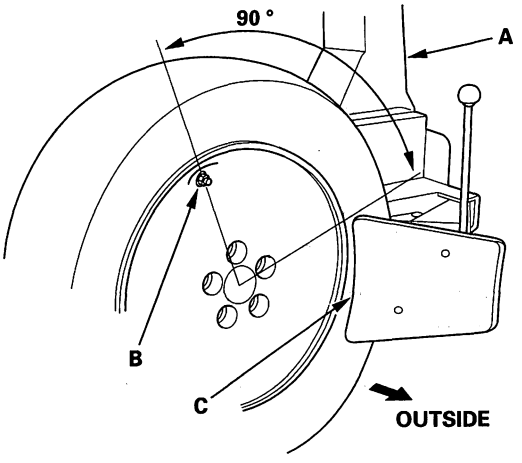
Removal

1. Raise the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the wheel with the faulty sensor.
3. Remove the tire valve cap and the valve core, and let the tire deflate.
4. Remove any balance weights, and then break the bead loose from the wheel with a commercially available tire changer (A).

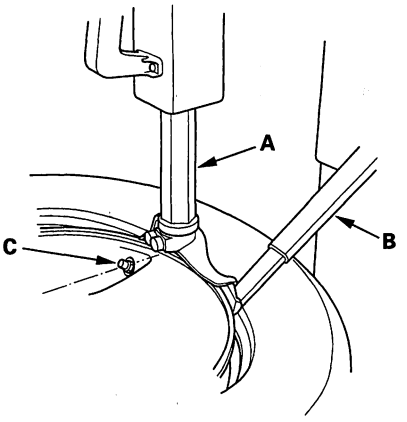
NOTICE

Note these items to avoid damaging the tire pressure sensor:

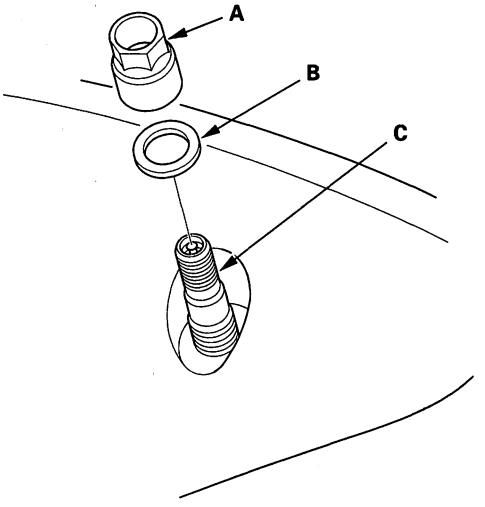
- Do the outside of the wheel first.
- Position the wheel as shown so the valve stem (B) is 90 degrees from the bead breaker (C) as shown.
- Do not position the bead breaker of the tire changer too close to the rim.



5. Position the wheel so the tire machine (A) and tire iron (B) are next to the valve stem (C) and will move away from it when the machine starts. Then remove the tire from the wheel.



6. Remove the valve stem nut (A) and washer (B), then remove the tire pressure sensor with valve stem (C) from the wheel.



BACK

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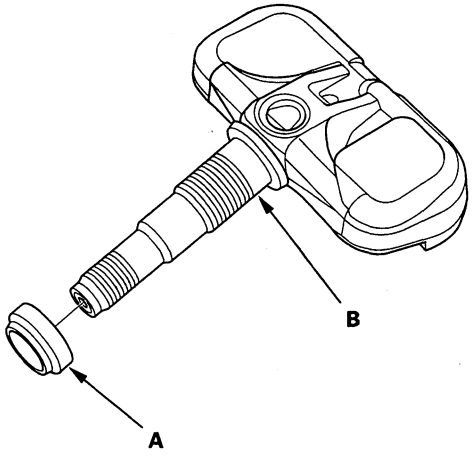
7. Remove and discard the valve stem grommet (A), from the tire pressure sensor (B).

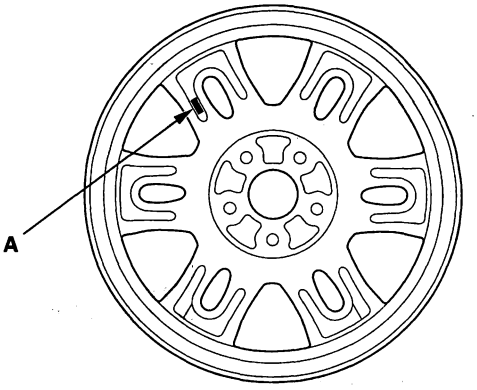
NOTE:
- The valve stem grommet might stay in the wheel; make sure you remove it.
- Always use a new valve stem grommet whenever the tire pressure sensor has been removed from the wheel. When only removing a tire from the wheel, replace the valve stem grommet if it is possible.



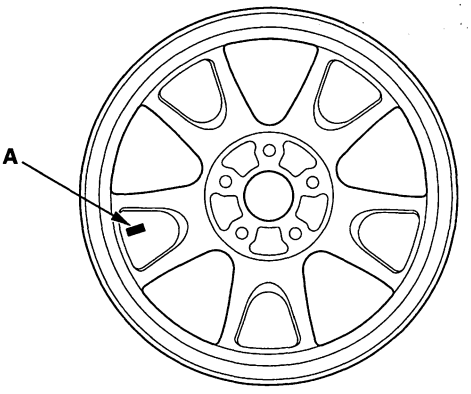
Installation

NOTE:
- Use only wheels that have a "TPMS" stamp (A) on them.
- This vehicle may be equipped with either type 1 or type 2 wheels.

TYPE 1



TYPE 2



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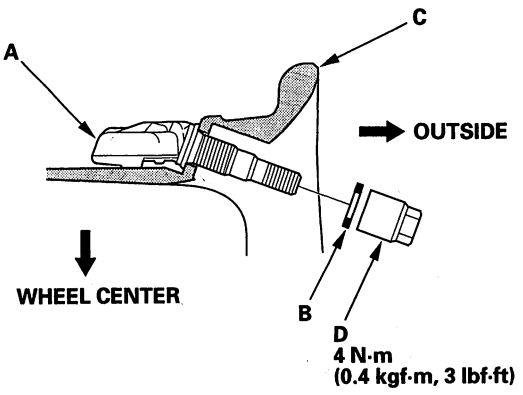
Tire Pressure Sensor Replacement (cont'd)

1. Before installing the tire pressure sensor, clean the mating surfaces on the sensor and the wheel.

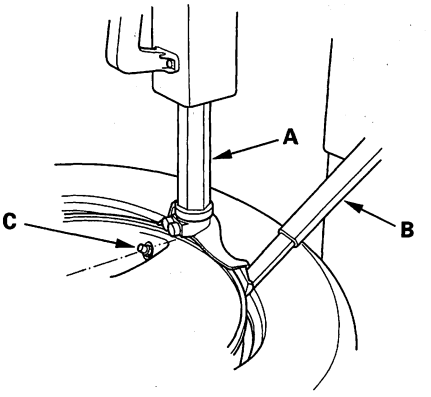
2. Install the tire pressure sensor (A) and the washer (B) to the wheel (C), and tighten the valve stem nut (D) finger tight. Make sure the pressure sensor is resting on the wheel.



3. Tighten the valve stem nut to the specified torque while holding the tire pressure sensor.

   NOTE: Do not use air or electric impact tools to tighten a valve stem nut.

4. Lube the tire bead, and position the wheel so the tire machine (A) and tire iron (B) are next to the valve stem (C) and will move away from it when the machine starts. Then install the tire onto the wheel.



5. Inflate the tire to 300 kPa (3.1 kgf/cm², 44 psi) to seat the tire bead to the rim, then adjust the tire pressure (see page 18-5).

   NOTE: Make sure the tire bead is uniformly seated on both sides of the rim.

6. Check the valve stem nut tightening torque, then install the valve stem cap.

7. Check and adjust the wheel balance, then install the wheels on the vehicle. Torque the wheels to specifications.

8. Remove the jack stands, and lower the vehicle.

9. Connect the HDS and memorize the tire pressure sensor ID(s) (see page 18-128).

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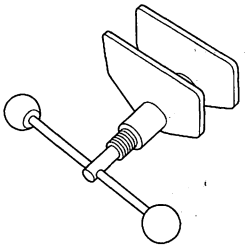
Conventional Brake Components

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07AAE-SEPA101	Brake Caliper Piston Compressor	1
②	070AB-SJA0100	Booster Piston Holder	1



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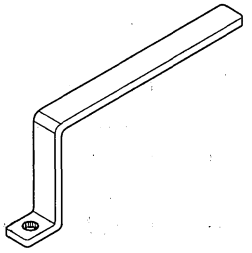

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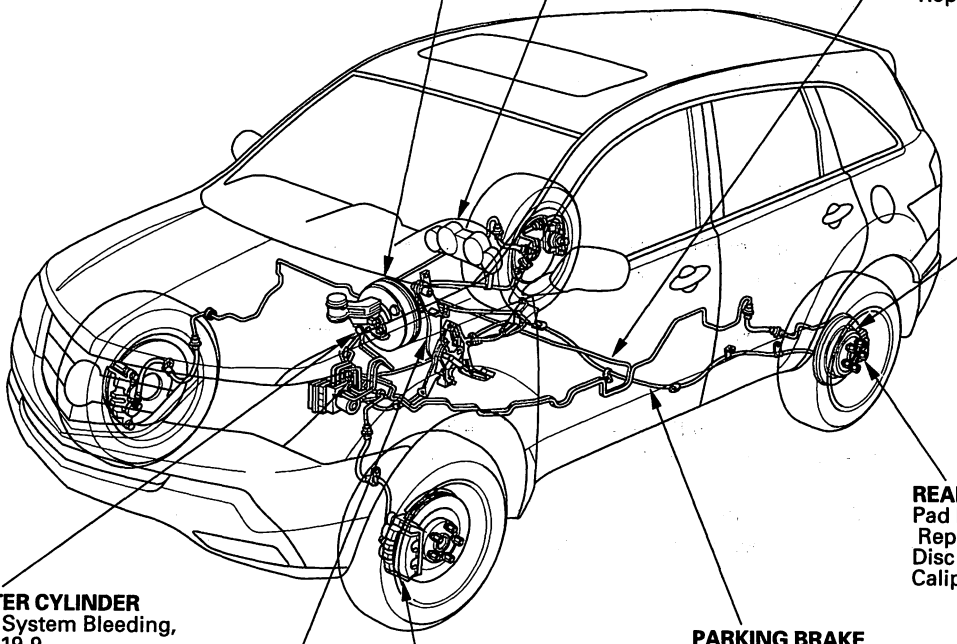
Component Location Index



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Conventional Brake Components

Brake System Inspection and Test

Inspect the brake system components listed. Repair or replace any parts that are leaking or damaged.

Component Inspections:

Component	Procedure	Also check for
Master Cylinder	Look for damage or signs of fluid leakage at: • Reservoir or reservoir grommets. • Line joints. • Between master cylinder and booster.	Bulging seat at reservoir cap. This is a sign of fluid contamination.
Brake Hoses	Look for damage or signs of fluid leakage at: • Line joints and banjo bolt connections. • Hoses and lines, also inspect for twisting or damage.	Bulging, twisted, or bent lines.
Caliper	Look for damage or signs of fluid leakage at: • Piston seal. • Banjo bolt connections. • Bleed screw.	Seized or sticking caliper pins.
VSA Modulator-control Unit	Look for damage or signs of fluid leakage at: • Line joints. • Modulator-control unit.	

Brake System Test

Brake pedal sinks/fades when braking

1. Set the parking brake, and start the engine, then turn off the A/C switch. Allow the engine to warm up to normal operating temperature (radiator fan comes on twice).
2. Attach a 50 mm (2 in.) piece of masking tape along the bottom of the steering wheel, and draw a horizontal reference mark across it.
3. With the transmission in P or N position, press and hold the brake pedal lightly (about the same pressure needed to keep an A/T-equipped vehicle from creeping), then release the parking brake.
4. While still holding the brake pedal, hook the end of the tape measure behind the brake pedal, then pull the tape up to the steering wheel. Note the measurement between the brake pedal and the reference mark on the steering wheel.
5. Apply steady pressure to the brake pedal for 3 minutes.
6. Watch the tape measure.
   - If the measurement increases 10 mm (3/8 in.) or less, the master cylinder is OK.
   - If the measurement increases more than 10 mm (3/8 in.), replace the master cylinder.

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Symptom Troubleshooting

Rapid brake pad wear, vehicle vibration (after a long drive), or high, hard brake pedal

NOTE: Make sure that the caliper pins are installed correctly.
The upper caliper pin B and lower caliper pin A are different. If the pins are installed in the wrong location, it will cause vibration, uneven or rapid brake pad wear, and possibly uneven tire wear. For proper caliper pin location (see page 19-17).

1. Drive the vehicle until the brakes drag or until the pedal is high and hard. This can take 20 or more brake pedal applications during an extended test-drive.

2. With the engine running, raise the vehicle on a lift, and spin all four wheels by hand.

   Is there brake drag at any of the wheels?

   YES—Go to step 3.

   NO—Look for other causes of the pad wear, high pedal, or vehicle vibration. ■

3. Turn the engine off, press the brake pedal several times to deplete the vacuum in the brake booster, and then spin the wheels again to check for brake drag.

   Is there brake drag at any of the wheels?

   YES—Go to step 4.

   NO—Replace the brake booster (see page 19-22). ■

4. Without removing the brake lines, unbolt and separate the master cylinder from the booster, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?

   YES—Go to step 5.

   NO—Check the brake pedal position switch adjustment and pedal free play (see page 19-6). ■

5. Loosen the hydraulic lines at the master cylinder, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?

   YES—Go to step 6.

   NO—Check the master cylinder reservoir for contamination in the brake fluid. If you find contamination, flush the entire brake system of all contaminated fluid. If the brake fluid is OK, replace the master cylinder (see page 19-18). ■

6. Loosen the bleed screws at each caliper, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?

   YES—Check the master cylinder reservoir for contamination in the brake fluid. If you find contamination, flush the entire brake system of all contaminated fluid. If the brake fluid is OK, disassemble and repair the caliper on the wheel(s) with brake drag. ■

   NO—Look for and replace any damaged brake lines. If all brake lines are OK, replace the VSA modulator-control unit (see page 19-102). ■

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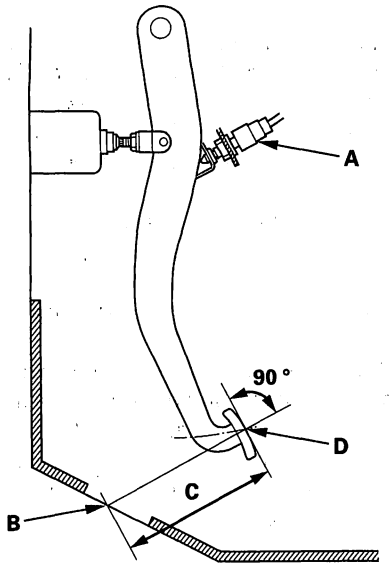
Brake Pedal and Brake Pedal Position Switch Adjustment

Pedal Height

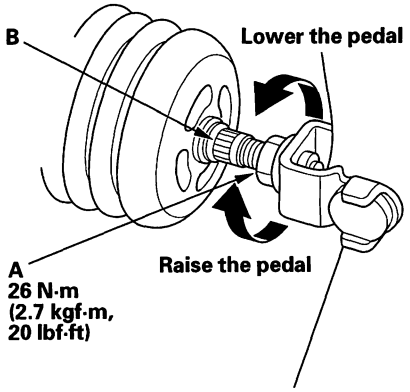
1. Turn the brake pedal position switch (A) counterclockwise, and pull it back until it is no longer touching the brake pedal.



2. Pull back the carpet and find the cutout (B) in the insulator. Measure the pedal height (C) at the center of the pedal pad (D) to the floor without the insulator.

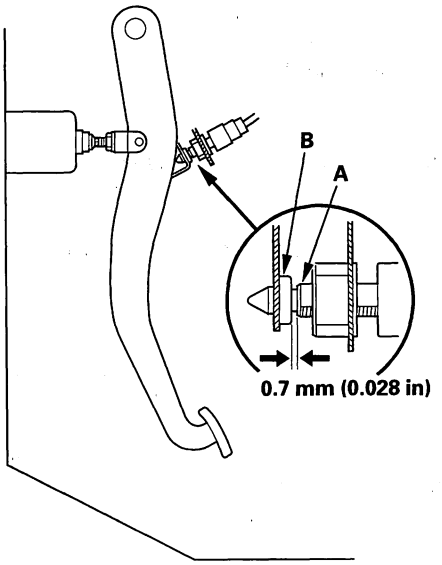
   Standard pedal height (with carpet removed):
   178 mm (7 in.)

3. Loosen the pushrod locknut (A), and screw the pushrod (B) in or out with pliers until the standard pedal height from the floor is reached. After adjustment, tighten the locknut firmly. Do not adjust the pedal height with the pushrod pressed.



Brake Pedal Position Switch Clearance

4. Lift up on the brake pedal by hand. Push in the brake pedal position switch until its plunger is fully pressed (threaded end (A) touching the pad (B) on the pedal arm). Then, turn the switch 45 ° clockwise to lock it. The gap between the brake pedal position switch and the pad is automatically adjusted to 0.7 mm (0.028 in.) by locking the switch. Make sure the brake lights go off when the pedal is released.



5. Check the brake pedal free play.

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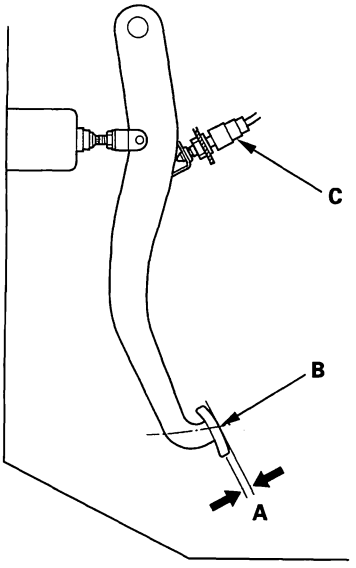
Pedal Free Play

1. With the engine off, inspect the play (A) on the brake pedal pad (B) by pushing the brake pedal by hand. If the brake pedal free play is out of specification, adjust the brake pedal position switch (C). If the brake pedal free play is insufficient, it may result in brake drag.

   Free play: 1—5 mm (1/16—3/16 in.)

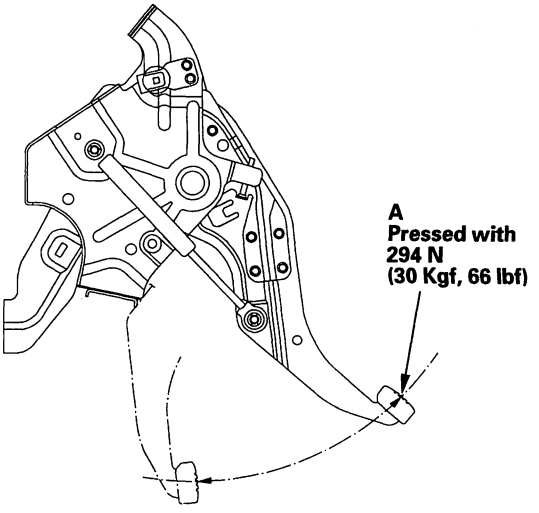


Parking Brake Inspection and Adjustment

Inspection

1. Press the parking brake pedal (A) with 294 N (30 kgf, 66 lbf) of force to fully apply the parking brake. The parking brake pedal should be locked within the specified number of clicks.

   Pedal locked clicks: 9 to 11



2. Adjust the parking brake if the pedal clicks are not within the specification.

   NOTE: Minor parking brake pedal adjustments (1 to 2 clicks) can be made with the adjusting nut (see parking brake minor adjustment, page 19-8). If a larger adjustment is required, follow the major adjustment procedure using the adjuster nut at the parking brake drum (see parking brake major adjustment, page 19-8).
   After installing new parking brake shoes and/or new brake disc/drum, make sure you drive the vehicle for "break-in" (see page 19-33).

(cont'd)

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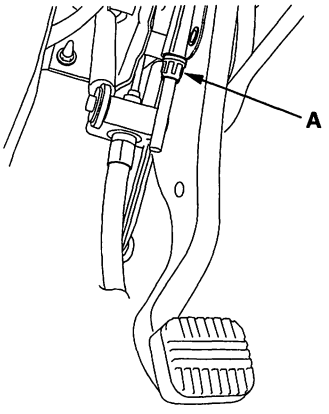
Parking Brake Inspection and Adjustment (cont'd)

Minor Adjustment

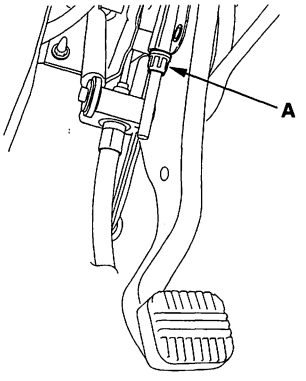
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Fully release the parking brake pedal.
3. Press the parking brake pedal 1 click.
4. Tighten the parking brake adjusting nut (A) until the parking brakes drag slightly when the rear wheels are turned.



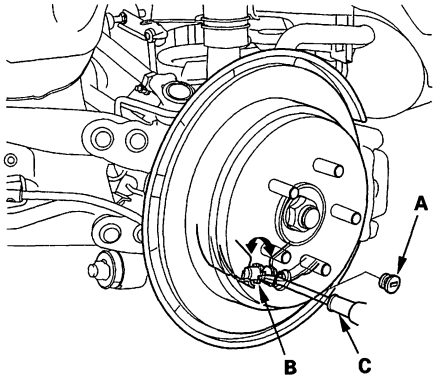
5. Release the parking brake pedal fully, and check that the parking brakes do not drag when the rear wheels are turned. Readjust if necessary.
6. Make sure the parking brakes are fully applied when the parking brake pedal is pressed all the way.

Major Adjustment (to be done when replacing parking brake shoes and after lining surface break-in)

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Fully release the parking brake pedal.
3. Back off the parking brake adjusting nut (A) in the parking brake pedal.



4. Remove the rear wheels.
5. Remove the access plug (A).



6. Turn the ratchet teeth on the adjuster nut (B) with a flat-tip screwdriver (C) until the shoes lock against the parking brake drum. Then back off the adjuster 10 clicks, and install the access plug.
7. Clean the mating surface of the brake disc/drum and the inside of the wheel, then install the rear wheels.
8. Do the minor adjustment procedure.

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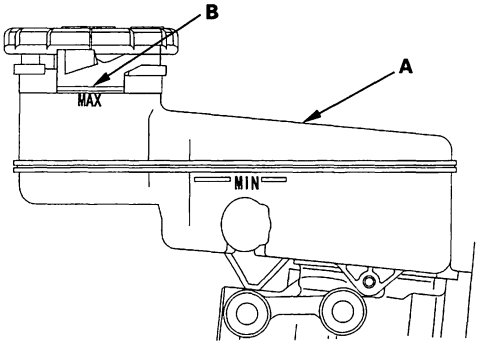
Brake System Bleeding

NOTE:
- Do not reuse the drained fluid. Use only clean Acura DOT 3 Brake Fluid from an unopened container. Using a non-Acura brake fluid can cause corrosion and shorten the life of the system.
- Do not mix different brands of brake fluid; they may not be compatible.
- Make sure no dirt or other foreign matter is allowed to contaminate the brake fluid.
- Do not spill brake fluid on the vehicle, it may damage the paint; if brake fluid does contact the paint, wash it off immediately with water.
- The reservoir connected to the master cylinder must be at the MAX (upper) level mark at the start of the bleeding procedure and checked after bleeding each brake circuit. Add fluid as required.

1. Make sure the brake fluid level in the reservoir (A) is at the MAX (upper) level line (B).

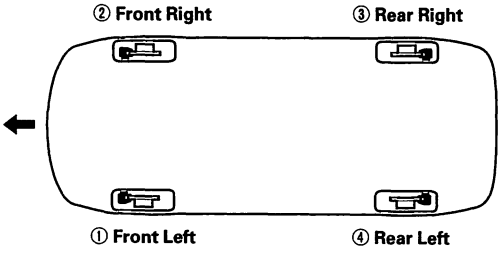


2. Have someone slowly pump the brake pedal several times, then apply steady pressure.

3. Start the bleeding at the driver's side of the front brake system.

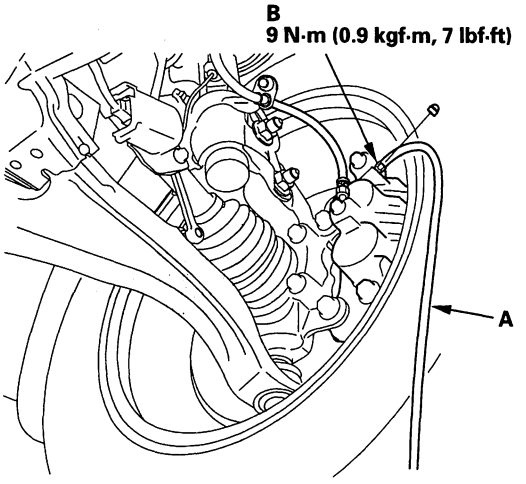
   NOTE: Bleed the calipers or the wheel cylinders in the sequence shown.

BLEEDING SEQUENCE:

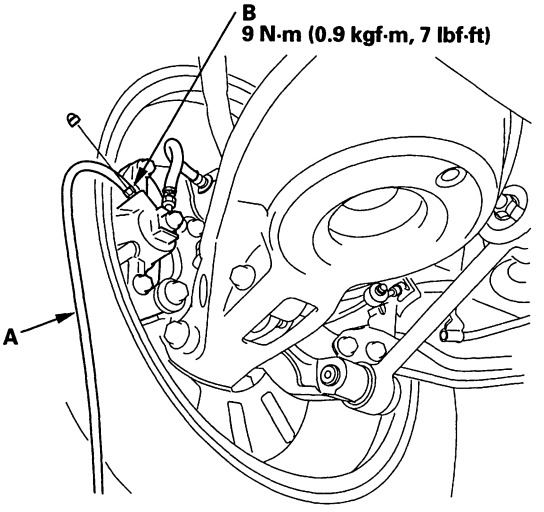


4. Attach a length of clear drain tube (A) to the bleed screw (B), then, loosen the bleed screw to allow air to escape from the system. Then tighten the bleed screw securely.

Front



Rear



5. Refill the master cylinder reservoir to the MAX (upper) level line.

6. Repeat the procedure for each brake circuit until there are no air bubbles are in the fluid.

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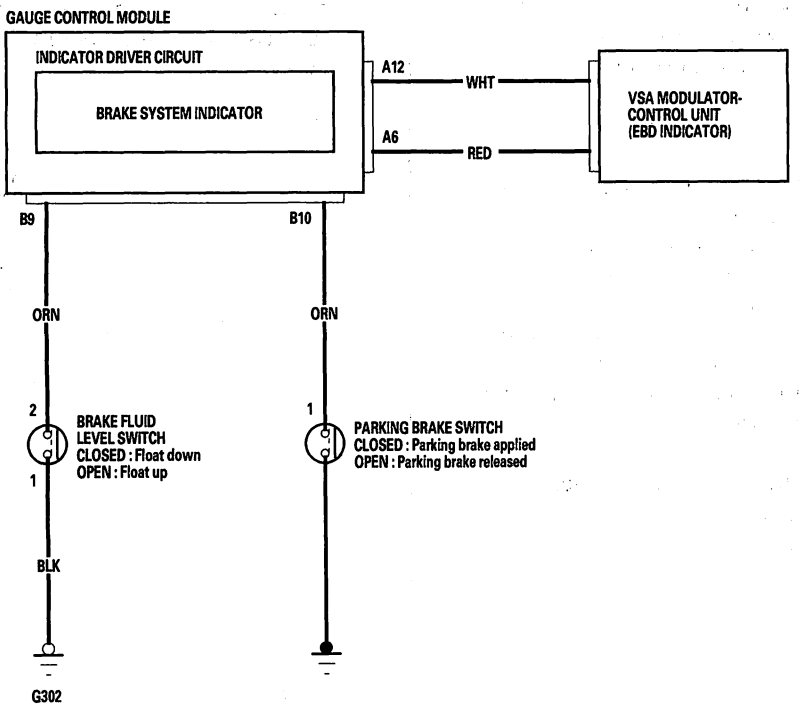
Brake System Indicator Circuit Diagram



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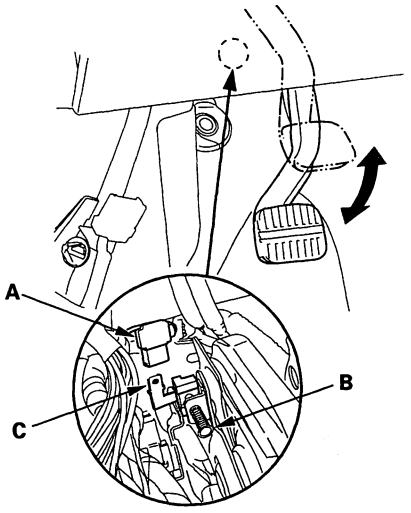
Parking Brake Switch Test

NOTE: If both the ABS/VSA indicator and the brake system indicator come on at the same time, check the VSA system first (see page 19-43).

1. Disconnect the parking brake switch connector (A) from the parking brake switch (B).



2. Check for continuity between the positive terminal (C) and body ground.

   - With the parking brake pedal pressed, there should be continuity.
   - With the parking brake pedal released, there should be no continuity.

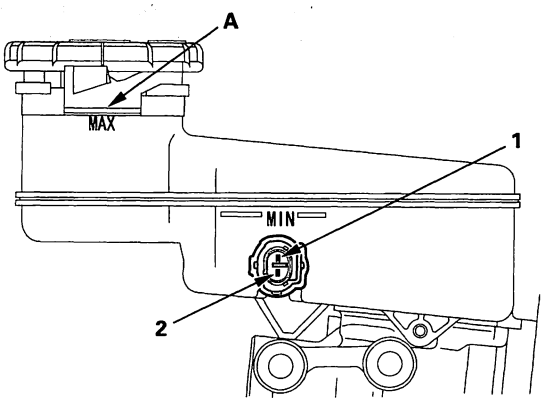
   NOTE: If the parking brake switch and the fluid level switch are OK, but the brake system indicator does not function, do the gauge control module test (see page 22-315).

Brake Fluid Level Switch Test

Check for continuity between the terminals (1) and (2) with the float in the down position and in the up position.

NOTE:

- Remove the brake fluid completely from the reservoir. With the float down, there should be continuity.
- Fill the reservoir with brake fluid to the MAX (upper) level (A). With the float up, there should be no continuity.
- If both the ABS/VSA indicator and the brake system indicator come on at the same time, check the VSA system first (see page 19-43).
- If the parking brake switch and fluid level switch are OK, but the brake system indicator does not function, do the gauge control module test (see page 22-315).



Protected by AR

Front Brake Pad Inspection and Replacement

Special Tools Required
Brake caliper piston compressor 07AAE-SEPA101

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

Inspection

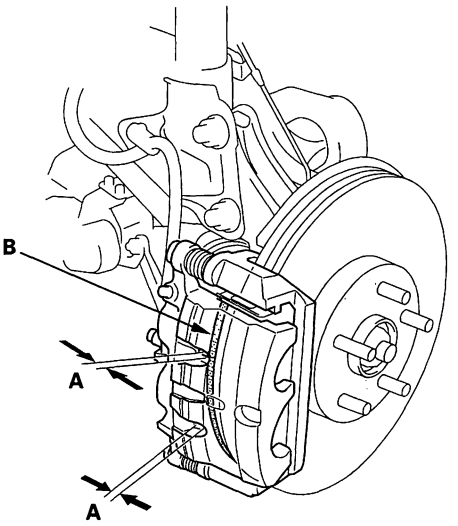
1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-7).

2. Remove the front wheels.

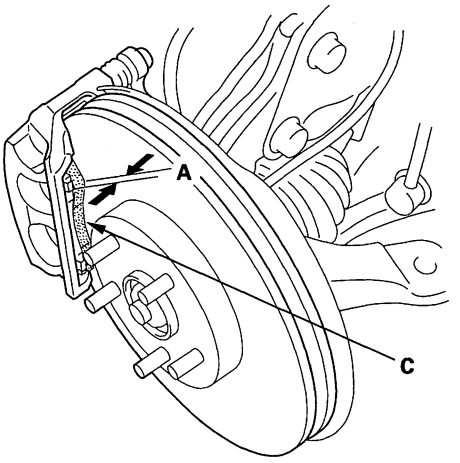
3. Check the thickness (A) of the inner pad (B) and outer pad (C). Do not include the thickness of the backing plate.

Brake pad thickness:
Standard: 10.6—11.2 mm (0.42—0.44 in.)
Service limit: 1.6 mm (0.06 in.)

Inner pad



Outer pad



4. If the brake pad thickness is less than the service limit, replace the front brake pads as a set.

5. Clean the mating surface of the brake disc and the inside of the wheel, then install the front wheels.

BACK

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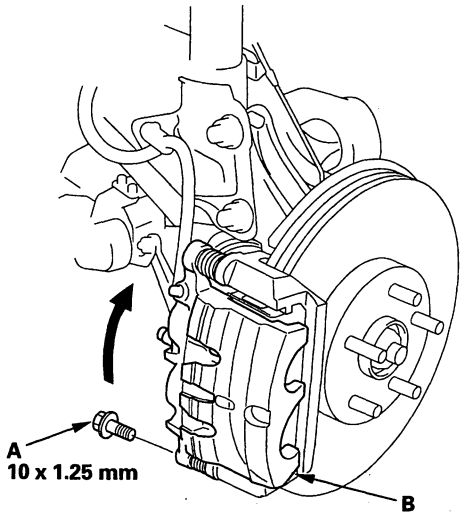
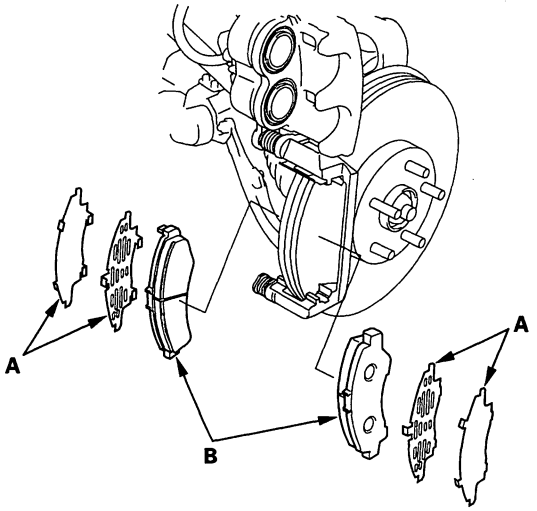
Replacement

1. Remove some brake fluid from the master cylinder.
2. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
3. Remove the front wheels.
4. Remove the flange bolt (A), and pivot the caliper (B) up out of the way. Check the hose and pin boots for damage and deterioration.

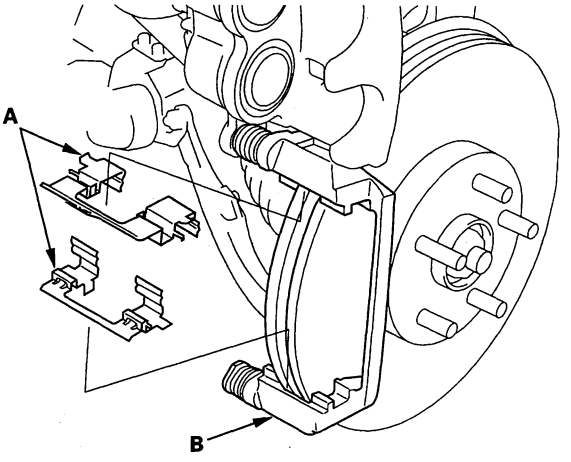


5. Remove the pad shims (A) and brake pads (B).



6. Remove the pad retainers (A).

   NOTE: The upper and lower pad retainers are different. During installation, make sure the pad retainers are in proper positions.



7. Clean the caliper bracket (B) thoroughly; remove any rust, and check for grooves and cracks.
8. Inspect the brake disc, and check for damage and cracks (see page 19-16).
9. Install the pad retainers. Wipe excess assembly paste off the retainers. Keep the assembly paste off the discs and pads.

(cont'd)

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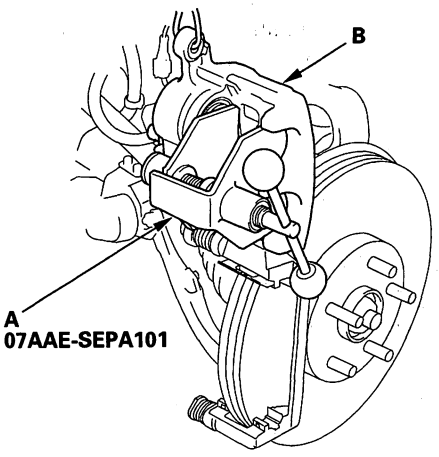
Front Brake Pad Inspection and Replacement (cont'd)

10. Mount the brake caliper piston compressor (A) on the caliper body (B).

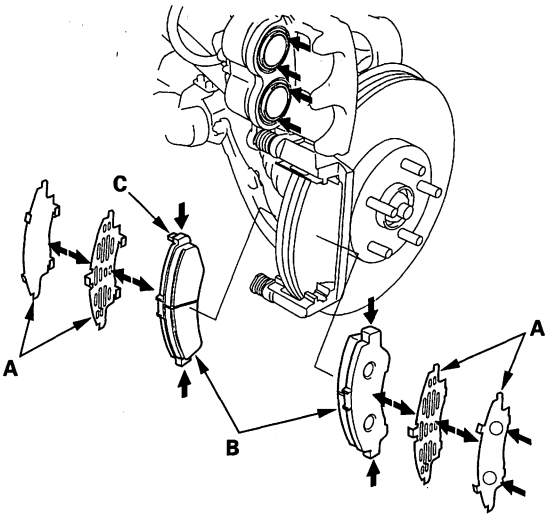


11. Press in the piston with the brake caliper piston compressor so the caliper will fit over the brake pads. Make sure the piston boot is in position to prevent damaging it when pivoting the caliper down.

    NOTE: Be careful when pressing in the piston; brake fluid might overflow from the master cylinder's reservoir. If brake fluid gets on any painted surface, wash it off immediately with water.

12. Remove the brake caliper piston compressor.

13. Apply a thin coat of M-77 assembly paste (P/N 08798-9010) to the pad side of the shims (A), the back of the brake pads (B) and the other areas indicated by the arrows. Wipe excess assembly paste off the pad shims and brake pads. Contaminated brake discs or brake pads reduce stopping ability. Keep grease and assembly paste off the brake discs and brake pads.

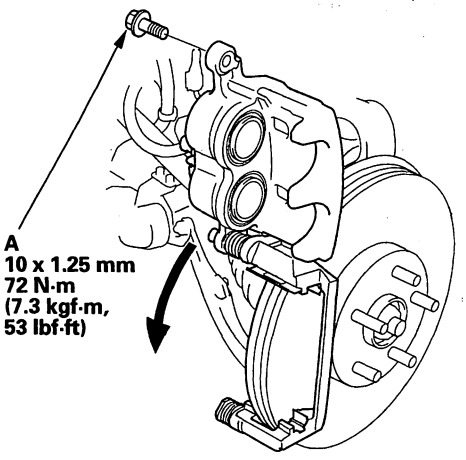


14. Install the brake pads and pad shims correctly. Install the brake pad with the wear indicator (C) on the upper inside. If you are reusing the brake pads, always reinstall the brake pads in their original positions to prevent a momentary loss of braking efficiency.

BACK

Protected by AR

15. Pivot the caliper down into position. Install the flange bolt (A), and tighten it to the specified torque.



16. Clean the mating surface of the brake disc and the inside of the wheel, then install the front wheels.

17. Press the brake pedal several times to make sure the brakes work.

    NOTE: Engagement may require a greater pedal stroke immediately after the brake pads have been replaced as a set. Several applications of the brake pedal will restore the normal pedal stroke.

18. Add brake fluid as needed.

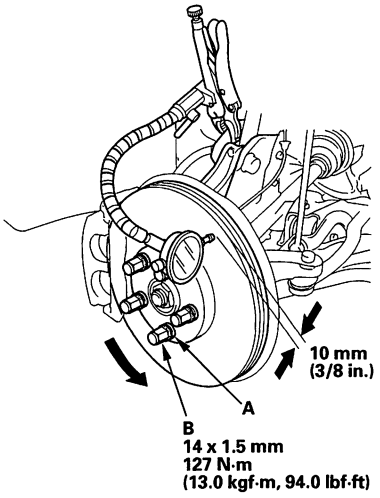
19. After installation, check for leaks at hose and line joints or connections, and retighten if necessary. Test-drive the vehicle, then check for leaks (see page 19-35).

Protected by AR

Front Brake Disc Inspection

Runout

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the front wheels.
3. Remove the brake pads (see page 19-13).
4. Inspect the brake disc surface for damage and cracks. Clean the brake disc thoroughly, and remove all rust.
5. Install suitable flat washers (A) and wheel nuts (B), and tighten the wheel nuts to the specified torque to hold the brake disc securely against the hub.



6. Set up the dial gauge against the brake disc as shown, and measure the runout at 10 mm (3/8 in.) from the outer edge of the brake disc.

   Brake disc runout:
   Service limit: 0.10 mm (0.004 in.)

7. If the brake disc is beyond the service limit, refinish the brake disc with an on-car brake lathe. The Kwik-Lathe produced by Kwik-Way Manufacturing Co. and the "Front Brake Disc Lathe" offered by Snap-on Tools Co. are approved for this operation.

   Max. refinishing limit: 26.0 mm (1.02 in.)

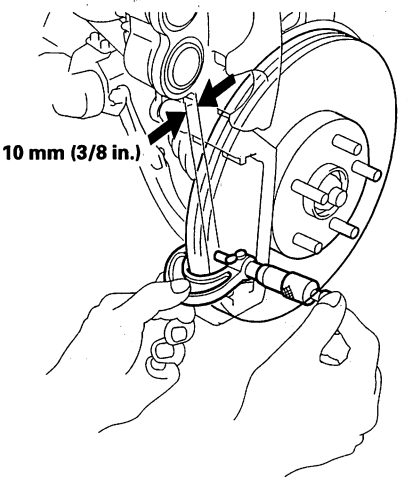
   NOTE:
   - If the brake disc is beyond the service limit for refinishing, replace it (see page 18-13).
   - A new brake disc should be refinished if its runout is greater than 0.10 mm (0.004 in.).

Thickness and Parallelism

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the front wheels.
3. Remove the brake pads (see page 19-13).
4. Using a micrometer, measure the brake disc thickness at eight points, about 45 ° apart and 10 mm (3/8 in.) in from the outer edge of the brake disc. Replace the brake disc if the smallest measurement is less than the max. refinishing limit.

   Brake disc thickness:
   Standard: 27.9—28.1 mm (1.10—1.11 in.)
   Max. refinishing limit: 26.0 mm (1.02 in.)
   Brake disc parallelism: 0.015 mm (0.0006 in.) max.

   NOTE: This is the maximum allowable difference between the thickness measurements.



5. If the brake disc is beyond the service limit for parallelism, refinish the brake disc with an on-car brake lathe. The Kwik-Lathe produced by Kwik-Way Manufacturing Co. and the "Front Brake Disc Lathe" offered by Snap-on Tools Co. are approved for this operation.

   NOTE: If the brake disc is beyond the service limit for refinishing, replace it. Remove the following items:

   - Front brake caliper bracket (see step 4 on page 18-13).
   - Front brake disc (see step 6 on page 18-13).

BACK

Protected by AR

Front Brake Caliper Overhaul

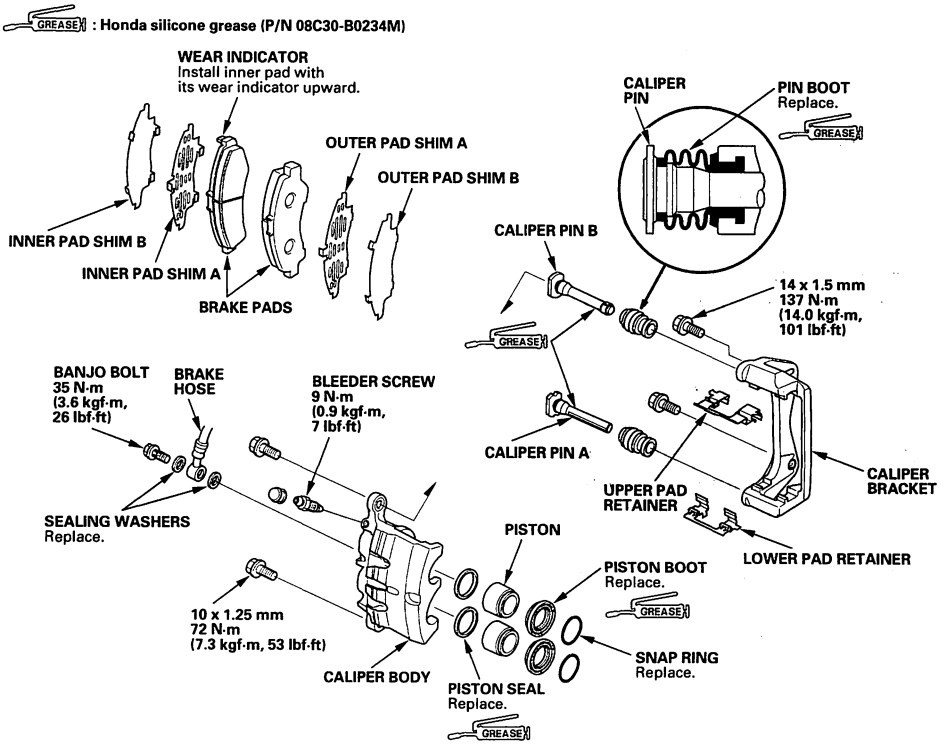
⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

Remove, disassemble, inspect, reassemble, and install the caliper, and note these items:

NOTE: Make sure that the caliper pins are installed correctly. Upper caliper pin B and lower caliper pin A are different. If these caliper pins are installed in the wrong location, it will cause vibration, uneven or rapid pad wear, and possibly uneven tire wear.

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- To prevent dripping brake fluid, cover disconnected hose joints with rags or shop towels.
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all parts are free of dirt and other foreign particles.
- Replace parts with new ones as specified in the illustration.
- Make sure no dirt or other foreign matter gets in the brake fluid.
- Make sure no grease or oil gets on the brake discs or pads.
- When reusing brake pads, always reinstall them in their original positions to prevent loss of braking efficiency.
- Do not reuse drained brake fluid. Use only clean Acura DOT 3 Brake Fluid from an unopened container. Using a non-Acura brake fluid can cause corrosion and shorten the life of the system.
- Do not mix different brands of brake fluid as they may not be compatible.
- Coat the pistons, piston seal grooves, and caliper bores with clean brake fluid.
- Replace all rubber parts with new ones whenever disassembled.
- After installing the caliper, check the brake hose and line for leaks, interference, and twisting.



BACK

Protected by AR

Master Cylinder Replacement

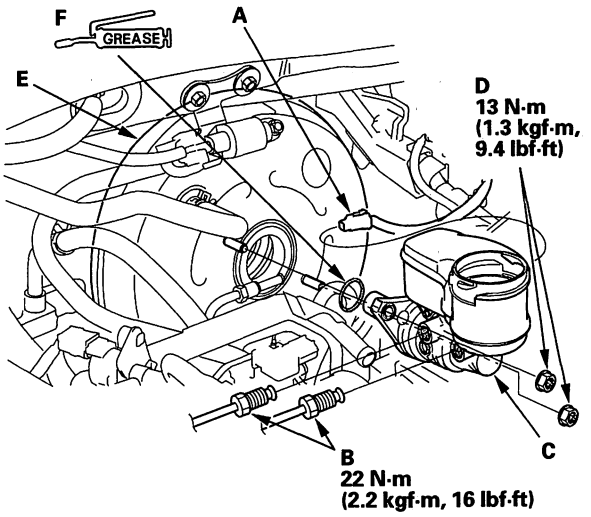
NOTICE

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- Be careful not to damage or deform the brake lines during removal and installation.
- To prevent the brake fluid from flowing, plug and cover the hose ends and joints with a shop towel or equivalent.

1. Open the air cleaner housing cover (see page 11-364).

2. Remove the reservoir cap and the brake fluid from the master cylinder reservoir with a syringe.

3. Disconnect the brake fluid level switch connector (A).



4. Disconnect the brake lines (B) from the master cylinder (C). To prevent spills, cover the hose joints with rags or shop towels.

5. Remove the master cylinder mounting nuts (D).

6. Remove the master cylinder from the brake booster (E). Be careful not to bend or damage the brake lines when removing the master cylinder.

7. Remove the O-ring (F) from the master cylinder.

   NOTE: Replace the O-ring whenever the master cylinder is removed.

8. Install the master cylinder in the reverse order of removal, and note these items:

   - Check the brake booster pushrod clearance (see page 19-21).
   - Coat the new O-ring with silicone oil (Shin-Etsu KF 54).
   - Check the brake pedal height and free play after installing the master cylinder, and adjust it if necessary (see page 19-6).

9. Bleed the brake system (see page 19-9).

10. Spin the wheels to check for brake drag.

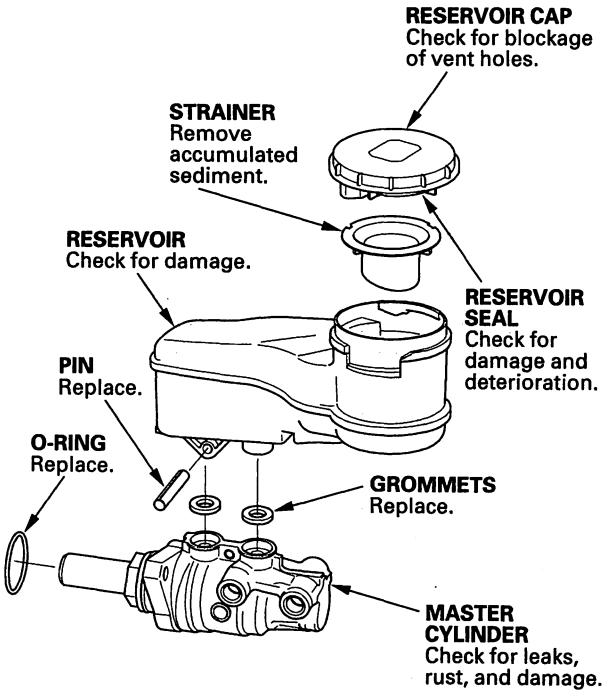
BACK

Protected by AR

Master Cylinder Inspection

1. Inspect and note these items:

   - Before reassembling, check that all parts are free of dirt and other foreign particles.
   - Do not try to disassemble the master cylinder assembly. Replace the master cylinder assembly with a new part if necessary.
   - Do not allow dirt or foreign matter to contaminate the brake fluid.



Protected by AR

Brake Booster Test

Functional Test

1. With the engine off, press the brake pedal several times to deplete the vacuum reservoir, then press the brake pedal hard, and hold it for 15 seconds. If the brake pedal sinks, either the master cylinder is bypassing internally, or the brake system is leaking. Inspect the brake hoses and lines (see page 19-35).

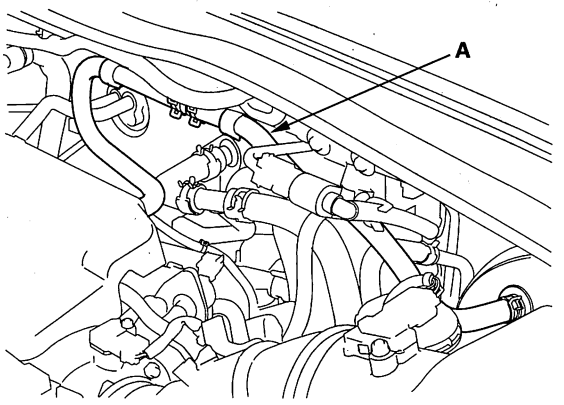
2. Start the engine with the brake pedal pressed. If the brake pedal sinks slightly, the vacuum booster is operating normally. If the brake pedal height does not vary, do the brake system test (see page 19-4).

Leak Test

1. Press the brake pedal with the engine running, then stop the engine. The brake pedal height should not vary while pressed for 30 seconds. If the pedal height rises, go to step 6. If it does not rise, go to step 2.

2. Start the engine and let it idle for 30 seconds. Turn the ignition switch off, and wait 30 seconds. Press the brake pedal several times using normal pressure. When the pedal is first pressed, it should be low. On consecutive applications, the pedal height should gradually rise. Does the pedal rise on each consecutive application? If it rises, the booster is OK. If it does not, go to step 3.

3. Disconnect the brake booster vacuum hose (A) at the booster. The check valve is built into the hose.



4. Start the engine, and let it idle. There should be vacuum available. If no vacuum is available, the check valve is not working properly. Replace the brake booster vacuum hose and check valve, and retest. If vacuum is found, go to step 5.

5. With the engine off, reconnect the vacuum hose to the brake booster.

6. Start the engine, and then pinch the brake booster vacuum hose between the check valve and the booster.

7. Turn the ignition switch off, and wait 30 seconds. Press the brake pedal several times using normal pressure. When the pedal is first pressed, it should be low. On consecutive applications, the pedal height should gradually rise.

   - If the pedal position does not vary, inspect the seal between the master cylinder and booster. If the seal is OK, replace the brake booster.
   - If the pedal position varies, replace the brake booster vacuum hose/check valve assembly.

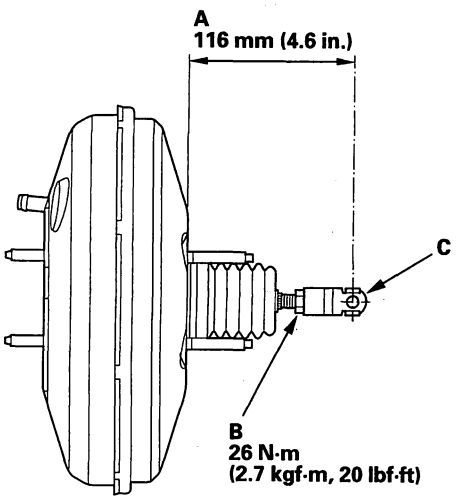
BACK

Protected by AR

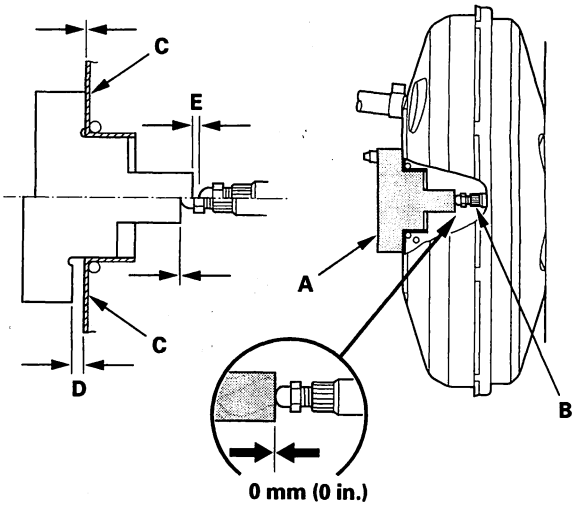
Brake Booster Pushrod Clearance Adjustment

Special Tools Required
Booster piston holder 070AB-SJA0100

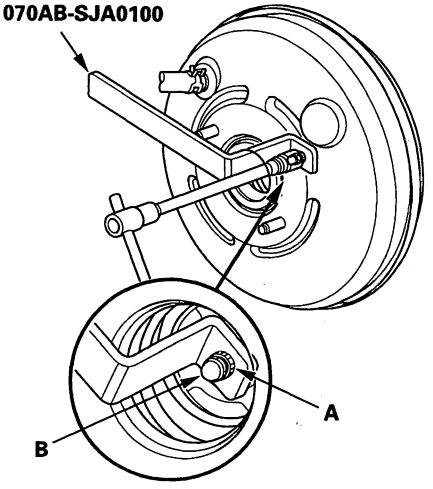
NOTE:
- Brake booster pushrod to piston clearance must be checked and readjusted before installing a new master cylinder.
- The master cylinder assembly comes with a tool that must be used to adjust the clearance between the brake booster pushrod and the master cylinder piston.
- Use only the tool that comes with the new master cylinder to check the pushrod clearance. Do not use any other tool.
- Make sure to discard the tool supplied with the master cylinder after its use.
- The brake booster must be installed on the vehicle before doing the pushrod clearance adjustment.
- If the booster is removed, check the pushrod length (A) as shown. If the length is incorrect, loosen the pushrod locknut (B), and turn the yoke (C) in or out to adjust.



1. Measure the clearance between the plate (A) supplied with master cylinder and brake booster pushrod (B). Make sure that the tool is lying flat against the surface (C) of the brake booster, and that the tip of the tool contacts the pushrod. If the tool will not lie flat (D) or there is a gap (E) between the tool and the pushrod, go to step 2 to adjust the pushrod in or out.



2. If the clearance is incorrect, use the booster piston holder to hold the pushrod (A) and turn the adjusting screw (B) clockwise to inward or counterclockwise to outward.



3. Install the master cylinder (see page 19-19).

BACK

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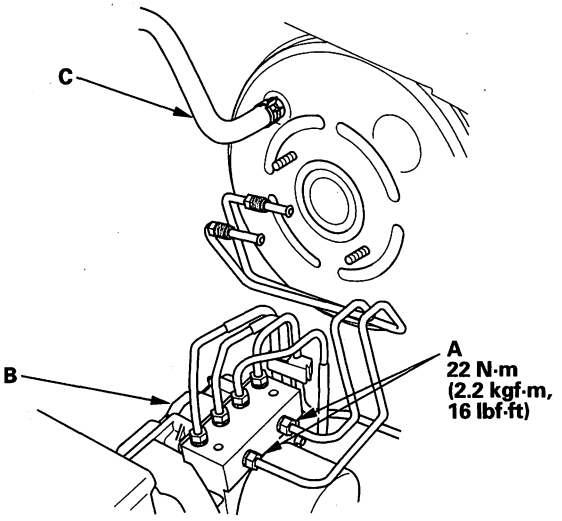
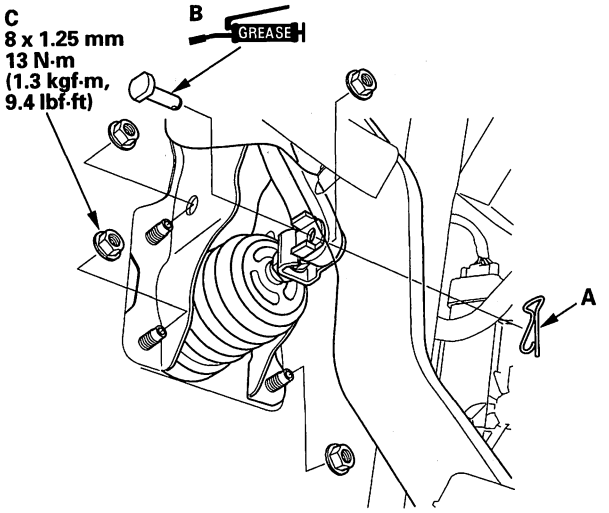
Brake Booster Replacement

1. Remove the air cleaner (see page 11-363).
2. Remove the master cylinder (see page 19-18).
3. Remove the brake lines (A) from the VSA modulator-control unit (B).



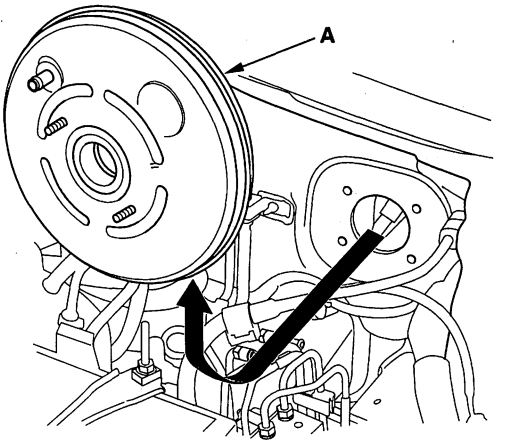
4. Disconnect the brake booster vacuum hose (C) from the brake booster.
5. Remove the driver's dashboard undercover (see page 20-120).
6. Remove the lock pin (A) and the joint pin (B), then disconnect the yoke from the brake pedal.



7. Remove the brake booster mounting nuts (C).
8. Remove the brake booster (A) from the engine compartment.

NOTICE

- Be careful not to damage the booster surfaces and threads of the booster stud bolts.
- Be careful not to bend or damage the brake lines.



9. Install the brake booster in the reverse order of removal, and note these items:

- Adjust the pushrod clearance before installing the brake booster (see page 19-21).
- Install the master cylinder after installing the brake booster (see page 19-18).
- Check the brake pedal height and free play after installing the master cylinder, and adjust it if necessary (see page 19-6).
- Bleed the brake system (see page 19-9).

BACK

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Rear Brake Pad Inspection and Replacement

Special Tools Required
Brake caliper piston compressor 07AAE-SEPA101

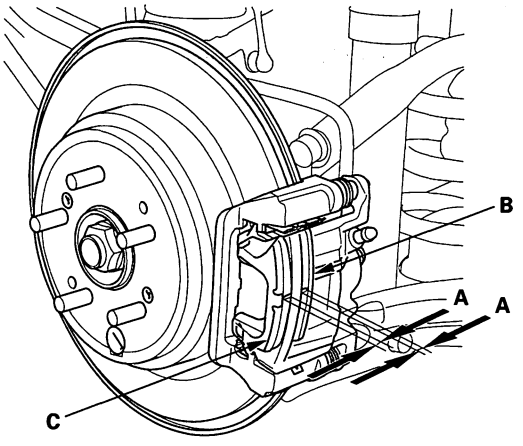
⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

Inspection

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the rear wheels.
3. Check the thickness (A) of the inner pad (B) and outer pad (C). Do not include the thickness of the backing plate.

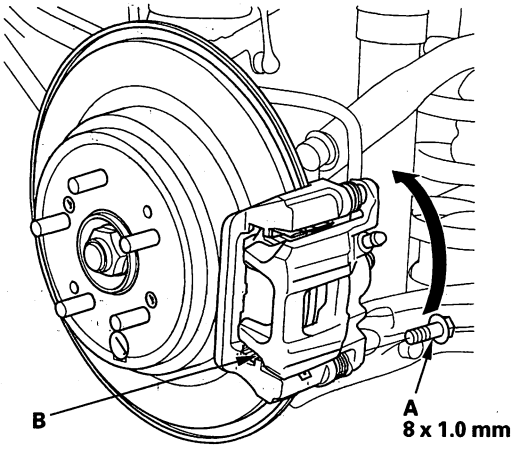
   Brake pad thickness:
   Standard: 9.6—10.2 mm (0.38—0.40 in.)
   Service limit: 1.6 mm (0.06 in.)



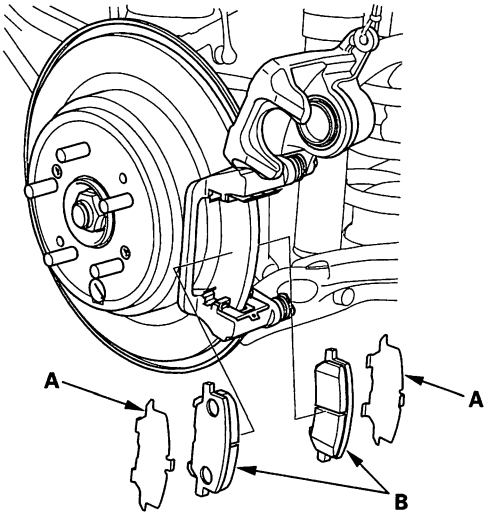
4. If the brake pad thickness is less than the service limit, replace the rear brake pads as a set.
5. Clean the mating surface of the brake disc/drum and the inside of the wheel, then install the rear wheels.

Replacement

1. Remove some brake fluid from the master cylinder.
2. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
3. Remove the rear wheels.
4. Remove the flange bolt (A), and pivot the caliper (B) up out of the way. Check the hose and pin boots for damage and deterioration.



5. Remove the pad shims (A) and brake pads (B).



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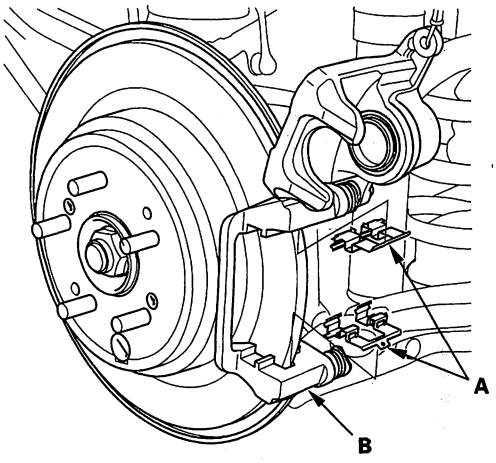
Rear Brake Pad Inspection and Replacement (cont'd)

6. Remove the pad retainers (A).

   NOTE: The upper and lower pad retainers are different. During installation, make sure the pad retainers are in their proper positions.

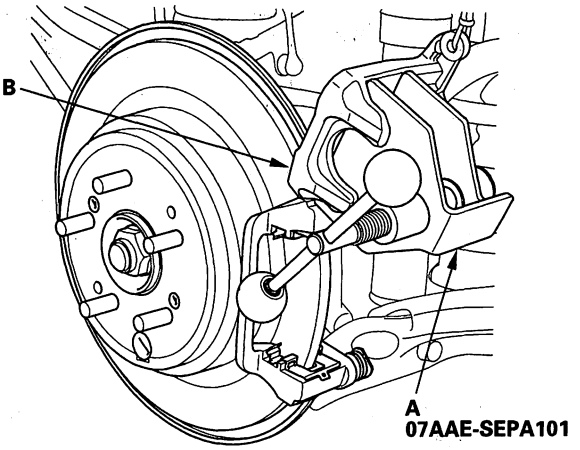


7. Clean the caliper bracket (B) thoroughly; remove any rust, and check for grooves and cracks.

8. Inspect the brake disc/drum, and check for damage and cracks (see page 19-26).

9. Install the pad retainers. Wipe excess assembly paste off the retainers. Keep the assembly paste off the discs and pads.

10. Mount the brake caliper piston compressor (A) on the caliper body (B).



11. Press in the piston with the brake caliper piston compressor so the caliper will fit over the brake pads. Make sure the piston boot is in position to prevent damaging it when pivoting the caliper down.

    NOTE: Be careful when pressing in the piston; brake fluid might overflow from the master cylinder's reservoir. If brake fluid gets on any painted surface, wash it off immediately with water.

12. Remove the brake caliper piston compressor.

BACK

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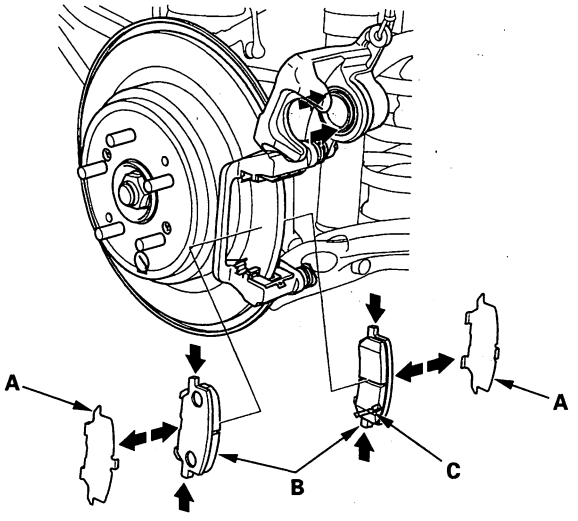
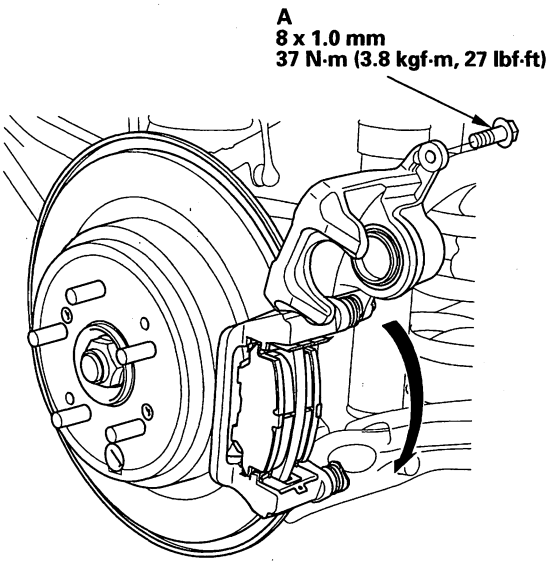
13. Apply a thin coat of M-77 assembly paste (P/N 08798-9010) to the pad side of the shims (A), the back of the brake pads (B), and the other areas indicated by the arrows. Wipe excess assembly paste off the pad shims and brake pads. Contaminated brake discs or brake pads reduce stopping ability. Keep grease and assembly paste off the brake discs and brake pads.



14. Install the brake pads and pad shims correctly. Install the brake pad with the wear indicator (C) on the bottom inside. If you are reusing the brake pads, always reinstall the brake pads in their original positions to prevent a momentary loss of braking efficiency.

15. Pivot the caliper down into position. Install the flange bolt (A), and tighten it to the specified torque.



16. Clean the mating surface of the brake disc/drum and the inside of the wheel, then install the rear wheels.

17. Press the brake pedal several times to make sure the brakes work.

    NOTE: Engagement may require a greater pedal stroke immediately after the brake pads have been replaced as a set. Several applications of the brake pedal will restore the normal pedal stroke.

18. Add brake fluid as needed.

19. After installation, check for leaks at hose and line joints or connections, and retighten if necessary. Test-drive the vehicle, then check for leaks (see page 19-35).

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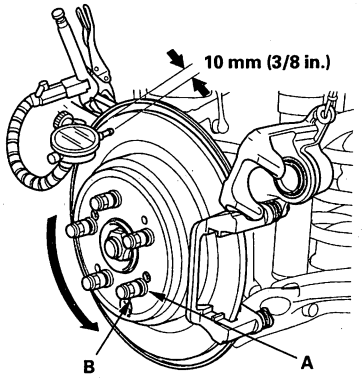
Rear Brake Disc Inspection

Runout

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the rear wheels.
3. Remove the brake pads (see page 19-23).
4. Inspect the brake disc/drum surface for damage and cracks. Clean the brake disc/drum thoroughly, and remove all rust.
5. Install suitable flat washers (A) and wheel nuts (B), and tighten the wheel nuts to the specified torque to hold the brake disc/drum securely against the hub.



6. Set up the dial gauge against the brake disc/drum as shown, and measure the runout at 10 mm (3/8 in.) from the outer edge of the brake disc/drum.

   Brake disc/drum runout:
   Service limit: 0.10 mm (0.004 in.)

7. If the brake disc/drum is beyond the service limit, refinish the brake disc/drum with an on-car brake lathe. The Kwik-Lathe produced by Kwik-Way Manufacturing Co. and the "Front Brake Disc Lathe" offered by Snap-on Tools Co. are approved for this operation.

   Max. refinishing limit: 9.0 mm (0.35 in.)

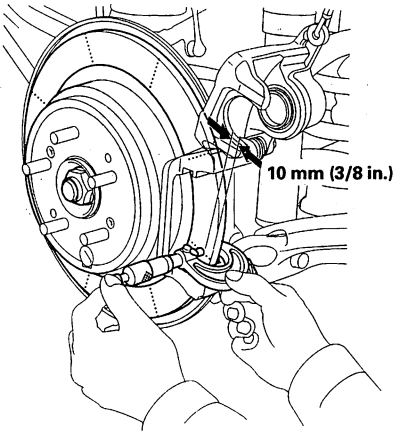
   NOTE:
   - If the brake disc/drum is beyond the service limit for refinishing, replace it (see page 18-30).
   - A new brake disc/drum should be refinished if its runout is greater than 0.10 mm (0.004 in.).

Thickness and Parallelism

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the rear wheels.
3. Remove the brake pads (see page 19-23).
4. Using a micrometer, measure the brake disc/drum thickness at eight points, about 45 ° apart and 10 mm (3/8 in.) in from the outer edge of the brake disc/drum. Replace the brake disc/drum if the smallest measurement is less than the max. refinishing limit.

   Brake disc/drum thickness:
   Standard: 10.9—11.1 mm (0.43—0.44 in.)
   Max. refinishing limit: 9.0 mm (0.35 in.)
   Brake disc/drum parallelism:
   0.015 mm (0.0006 in.) max.

   NOTE: This is the maximum allowable difference between the thickness measurements.



5. If the brake disc/drum is beyond the service limit for parallelism, refinish the brake disc/drum with an on-car brake lathe. The Kwik-Lathe produced by Kwik-Way Manufacturing Co. and the "Front Brake Disc Lathe" offered by Snap-on Tools Co. are approved for this operation.

   NOTE: If the brake disc/drum is beyond the service limit for refinishing, replace it. Remove the following items:

   - Rear brake caliper bracket (see step 3 on page 18-30).
   - Rear brake disc/drum (see step 6 on page 18-31).

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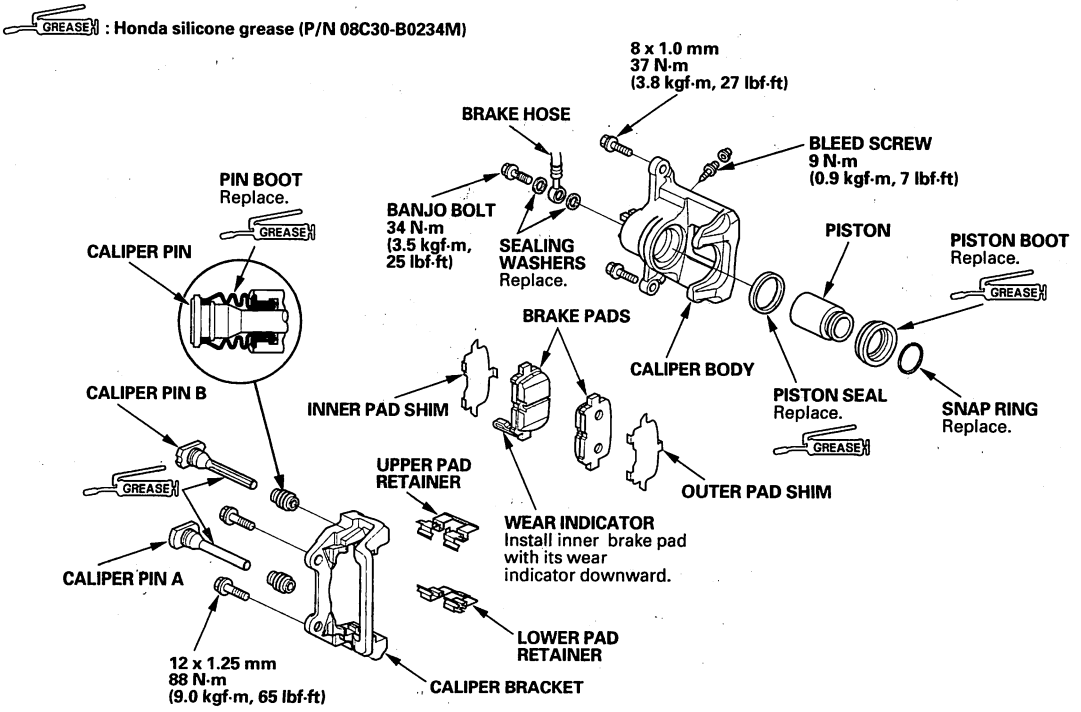
Rear Brake Caliper Overhaul

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

Remove, disassemble, inspect, reassemble, and install the caliper, and note these items:

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- To prevent dripping brake fluid, cover disconnected hose joints with rags or shop towels.
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all parts are free of dirt and other foreign particles.
- Replace parts with new ones as specified in the illustration.
- Make sure no dirt or other foreign matter gets in the brake fluid.
- Make sure no grease or oil gets on the brake discs or pads.
- When reusing brake pads, always reinstall them in their original positions to prevent loss of braking efficiency.
- Do not reuse drained brake fluid. Use only clean Acura DOT 3 Brake Fluid from an unopened container. Using a non-Acura brake fluid can cause corrosion and shorten the life of the system.
- Do not mix different brands of brake fluid as they may not be compatible.
- Coat the pistons, piston seal grooves, and caliper bores with clean brake fluid.
- Replace all rubber parts with new ones whenever disassembled.
- After installing the caliper, check the brake hose and line for leaks, interference, and twisting.



BACK

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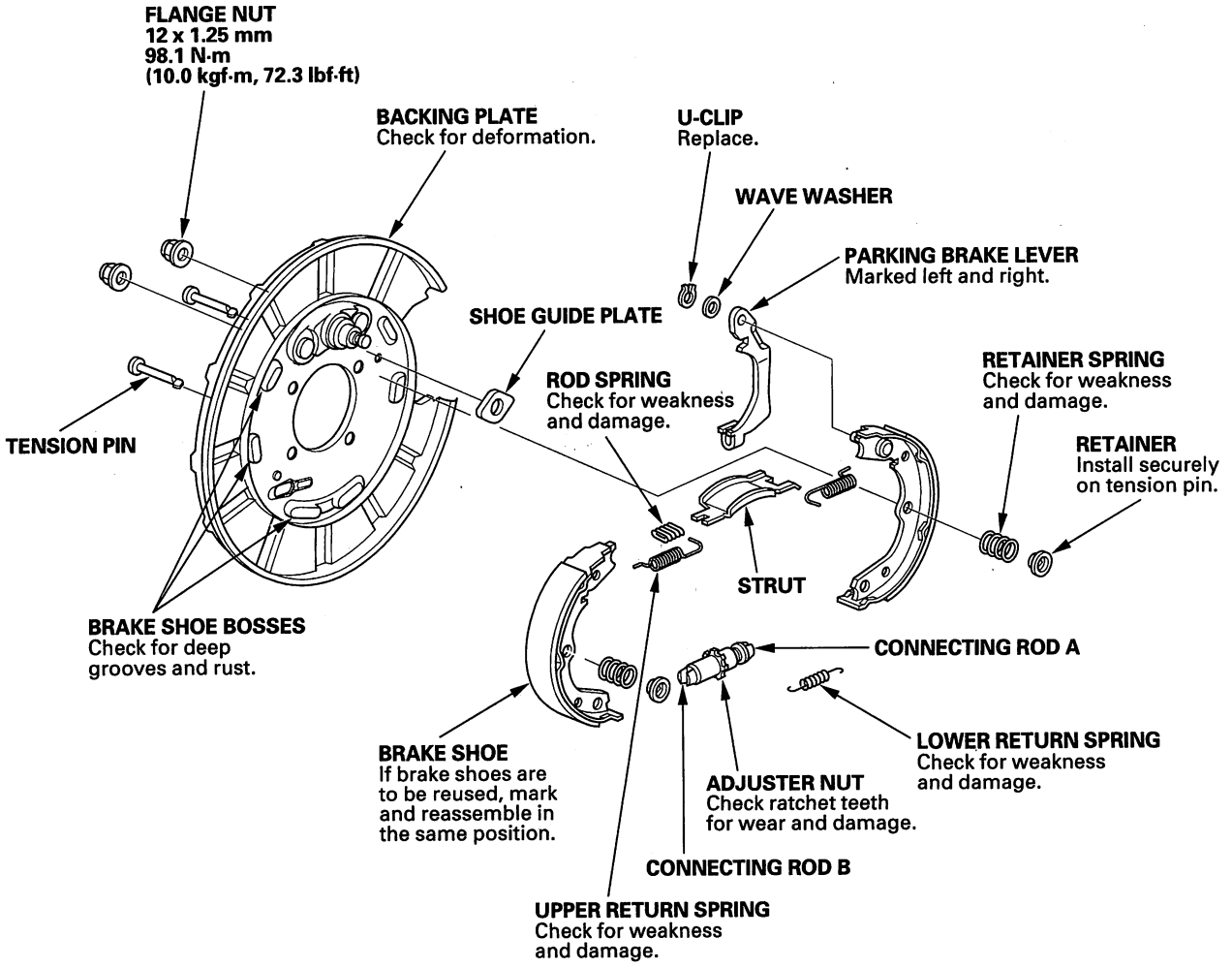
Conventional Brake Components

Parking Brake Inspection

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the rear wheels.
3. Release the parking brake, and remove the following items:
   - Rear brake caliper bracket (see step 3 on page 18-30).
   - Rear brake disc/drum (see step 6 on page 18-31).



BACK

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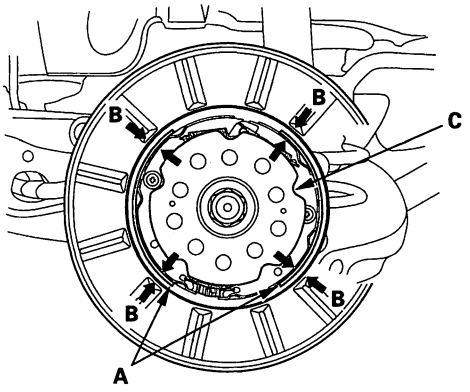
4. Check the parking brake linings (A) for cracking, glazing, wear, and contamination.



5. Measure the parking brake lining thickness (B). Measurement does not include brake shoe thickness.

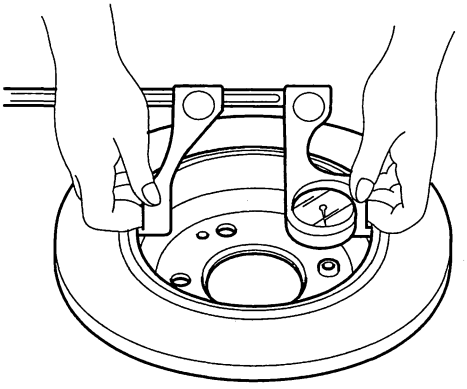
Parking brake lining thickness:
Standard: 3.9 mm (0.15 in.)
Service limit: 1.0 mm (0.04 in.)

6. If the parking brake lining thickness is less than the service limit, replace all the parking brake shoes as a set (see page 19-30).

7. Check the hub (C) for smooth operation. If it requires servicing, replace the hub bearing unit (see page 18-30).

8. Measure the inside diameter of the parking brake drum with inside vernier calipers.

Parking brake drum inside diameter:
Standard: 210.0—210.1 mm (8.268—8.272 in.)
Service limit: 211.0 mm (8.307 in.)



9. If the inside diameter of the parking brake drum is more than service limit, replace the brake disc/drum.

10. Check the parking brake disc/drum for scoring, grooves, and cracks.

11. Clean the mating surface of the brake disc/drum and the inside of the wheel, then install the rear wheels.

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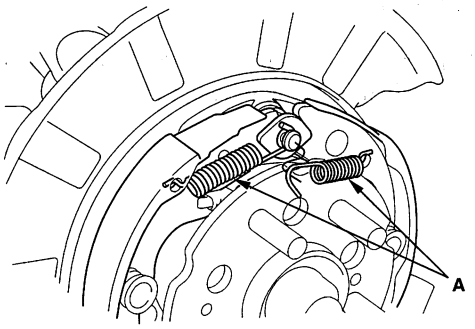
Parking Brake Shoe Replacement

⚠CAUTION

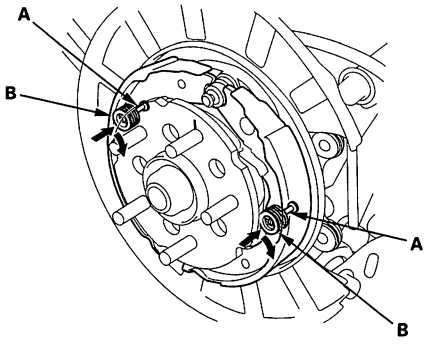
Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

Disassembly

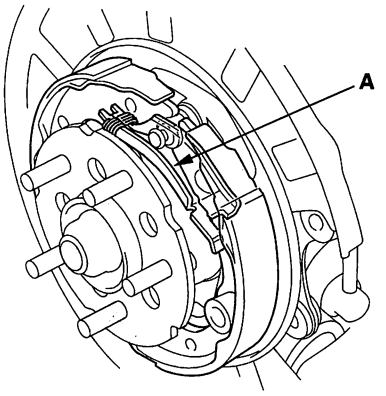
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-7).
2. Remove the rear wheels.
3. Release the parking brake, and remove the following items:
   - Rear brake caliper bracket (see step 3 on page 18-30).
   - Rear brake disc/drum (see step 6 on page 18-31).
4. Disconnect and remove the upper return springs (A).



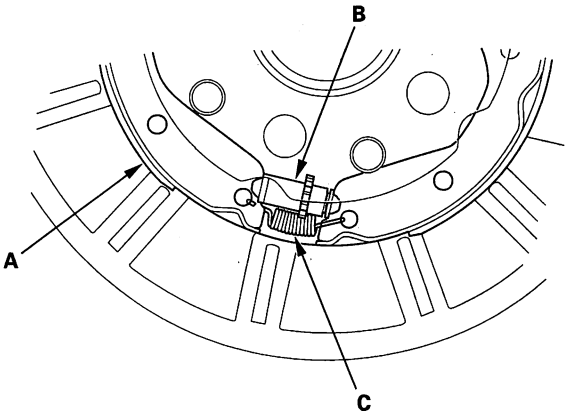
5. Remove the tension pins (A) by pushing the respective retainer (B) and turning the pin.



6. Remove the strut (A).



7. Lower the parking brake shoe assembly.
8. Remove the forward brake shoe (A) and the adjuster assembly (B) by removing the lower return spring (C).



BACK

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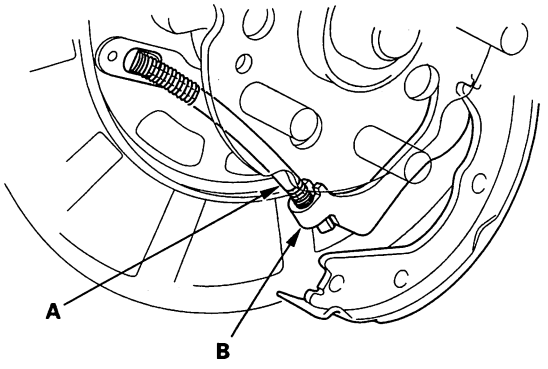
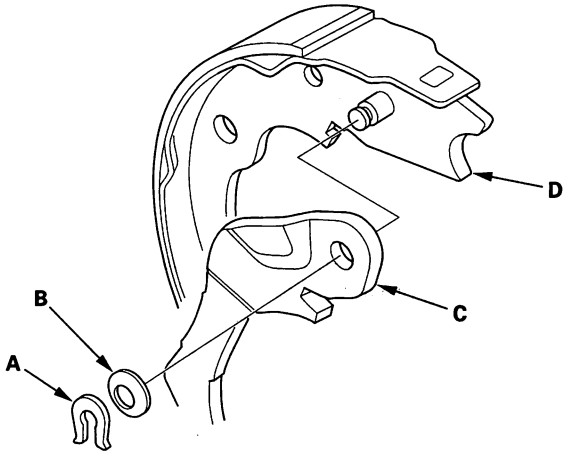
9. Remove the rearward brake shoe by disconnecting the parking brake cable (A) from the parking brake lever (B).

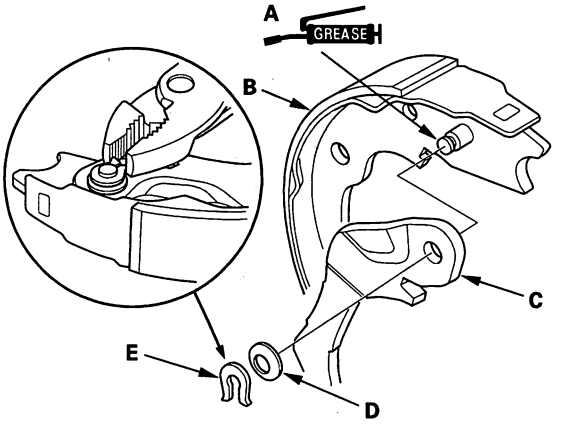


10. Remove the U-clip (A), wave washer (B), and parking brake lever (C) from the brake shoe (D).



Reassembly

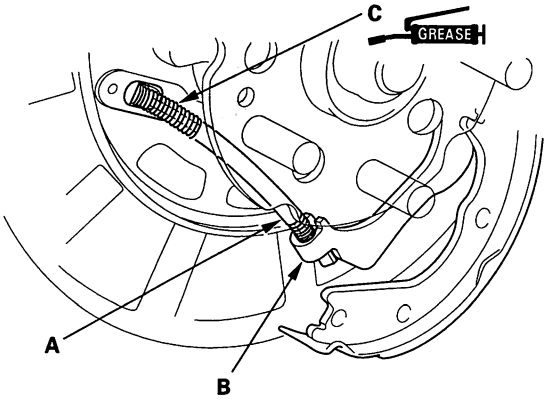
1. Apply Molykote Plastilube #2 grease to the sliding surface of the pivot pin (A) of the rearward brake shoe (B).



2. Install the parking brake lever (C) and wave washer (D) on the pivot pin, and secure with a new U-clip (E).

   - Install the wave washer with its convex side facing out.
   - Pinch the U-clip securely to prevent the parking brake lever from coming off the brake shoe.

3. Connect the parking brake cable (A) to the parking brake lever (B). Apply Plastilube #2 grease to the cable contact surface (C) on the backing plate.



(cont'd)

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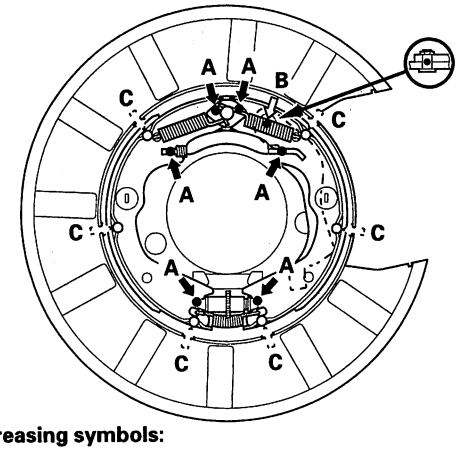
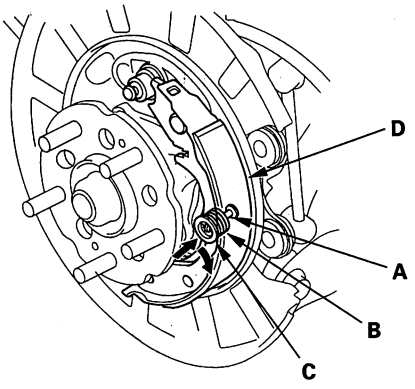
Parking Brake Shoe Replacement (cont'd)

4. Apply a thin coat of Plastilube #2 grease to the shoe ends and strut ends (A), sliding surfaces (B), and opposite edges of the parking brake shoe (C) as shown. Wipe off any excess. Keep the grease off the brake linings.



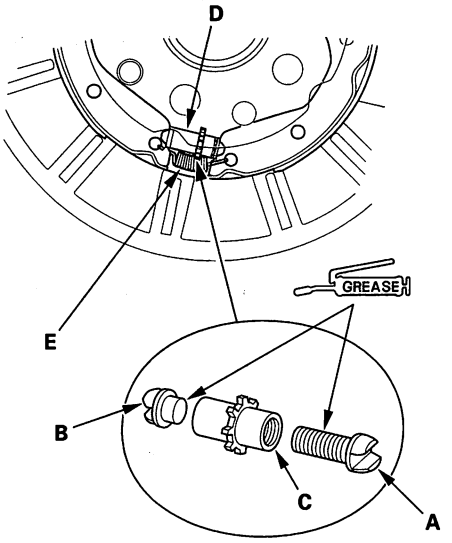
Greasing symbols:
- **Brake shoe ends and strut ends**
- **Opposite edge of the shoe**
- **Sliding surface**

5. Install the tension pin (A), the retainer spring (B), and the retainer (C) on the rearward brake shoe (D). Make sure the tension pin does not contact the parking brake lever.



6. Install connecting rods A and B on the adjuster nut (C).

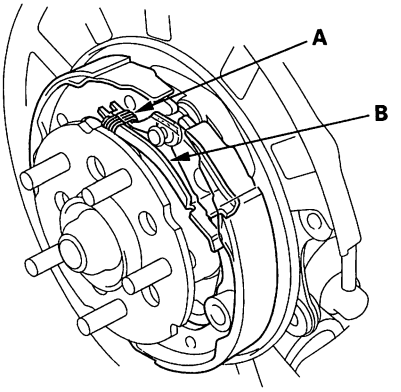
NOTE:
- Clean the threaded portions of connecting rod A and the sliding surface of connecting rod B, then coat them with rubber grease.
- Shorten connecting rod A by fully turning the adjuster nut.



7. Position the brake shoe adjuster assembly (D) on the parking brake shoes.

8. Hook the lower return spring (E) on the parking brake shoes.

9. Install the rod spring (A) to the strut (B) first. Then install the strut on the parking brake shoes.



BACK

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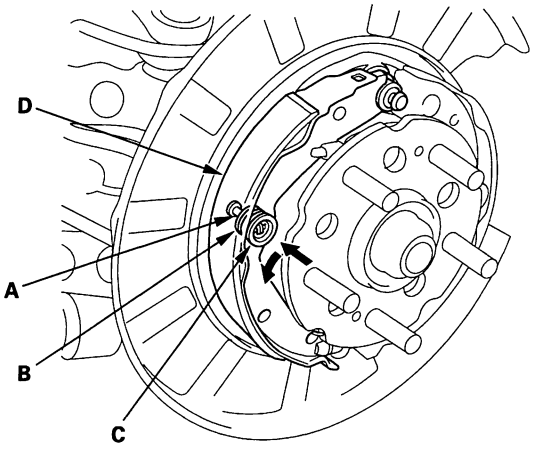
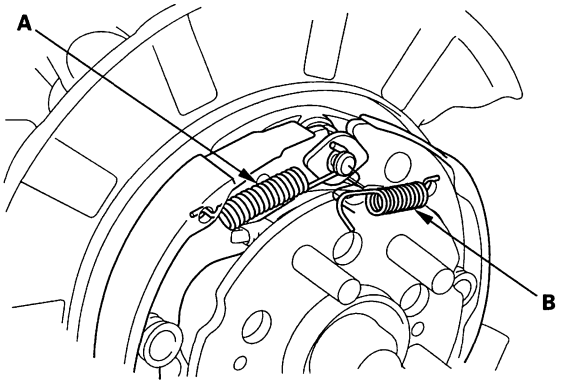
10. Install the tension pin (A), the retainer spring (B), and the retainer (C) on the forward brake shoe (D).



11. Install the forward upper return spring (A) as shown.



12. Install the rearward upper return spring (B) as shown.

13. Install the rear brake disc/drum and the rear brake caliper bracket in the reverse order of removal.

14. Do the major parking brake adjustment (see page 19-8).

Parking Brake Shoe Lining Break-in

⚠ WARNING

Do this operation in a safe area.

NOTE:
- Do the brake lining surface break-in when replacing shoes with new brake linings and/or new rear brake disc/drum.
- Check the number of parking brake lever clicks. Adjust the parking brake before lining surface break-in (see page 19-8).

1. Park the vehicle on a firm, level surface.
2. Release the parking brake pedal.
3. Press the parking brake pedal 5 clicks.
4. Drive the vehicle for 1/4 mile (400 m) at about 31 mph (50 km/h).
5. Stop the vehicle, and release the parking brake for 5—10 minutes to allow the brake disc/drum to cool.
6. Repeat steps 3 through 5 two more times.
7. Check the parking brake pedal adjustment (see page 19-7).

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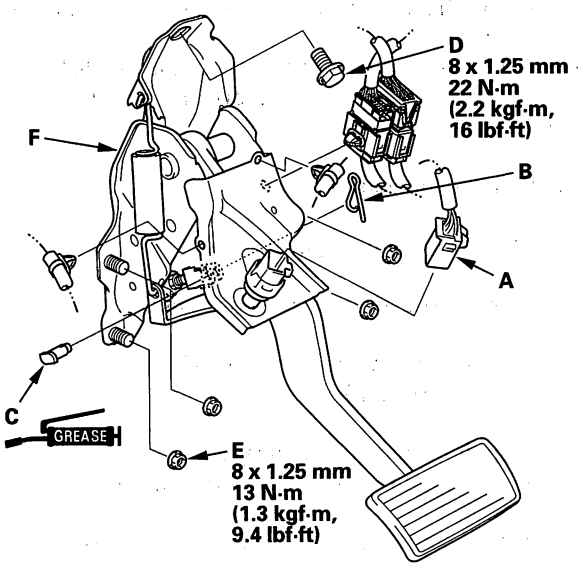
Brake Pedal Replacement

1. Remove the driver's dashboard undercover (see page 20-120).
2. Remove the TPMS control unit (see page 18-162).
3. Disconnect the brake pedal position switch connector (A), and remove the harness clips.



4. Remove the lock pin (B) and joint pin (C).
5. Remove the harness and connector clips.
6. Remove the brake pedal bracket mounting bolt (D) and nuts (E).
7. Remove the brake pedal with bracket (F).
8. Install in the reverse order of removal.
9. Do the brake pedal and brake pedal position switch adjustment (see page 19-6).

BACK

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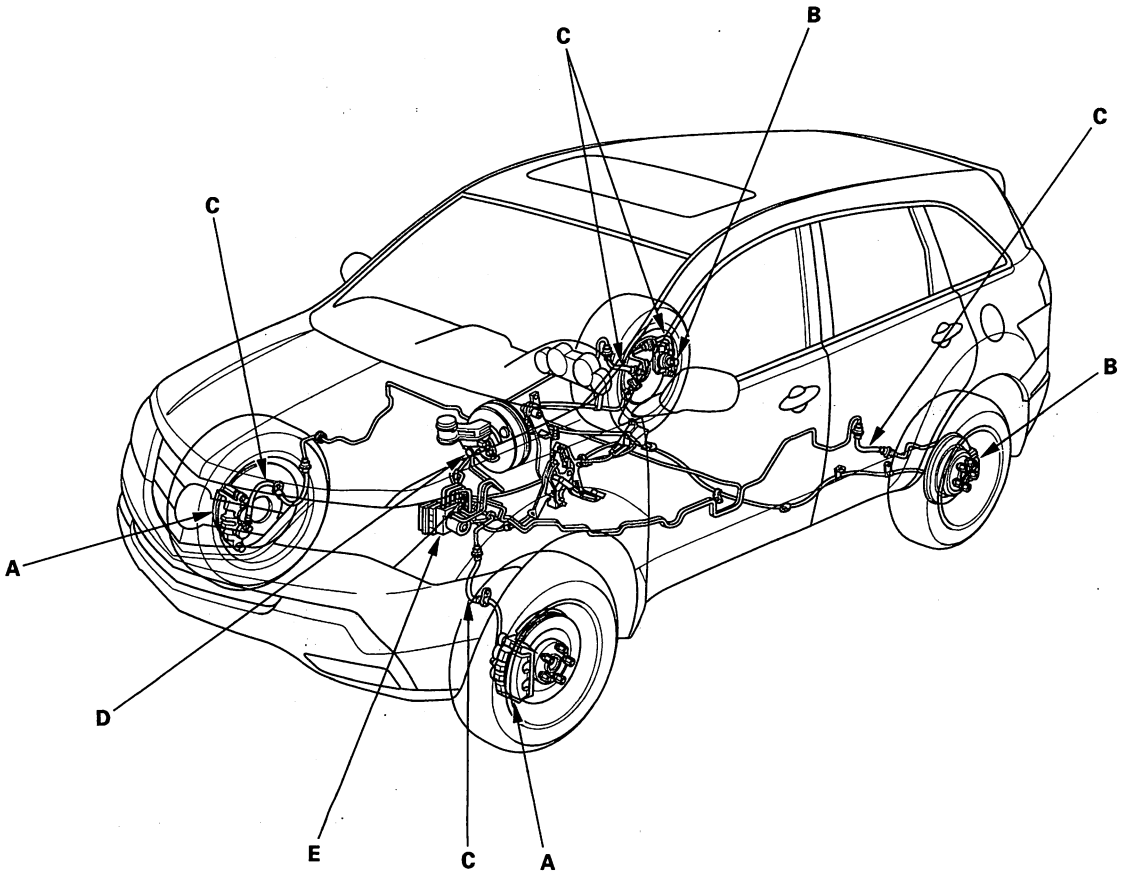
Brake Hose and Line Inspection

1. Inspect the brake hoses for damage, deterioration, leaks, interference, and twisting.
2. Check the brake lines for damage, rusting, and leaks. Also check for bent brake lines.
3. Check for leaks at hose and line joints and connections, and retighten if necessary.
4. Check the master cylinder and the VSA modulator-control unit for damage and leaks.

Connection Point	Component	Connected to	Specified Torque Value	Note
A	Front brake caliper	Brake hose	34 N·m (3.5 kgf·m, 25 lbf·ft)	Banjo bolt
		Bleed screw	9 N·m (0.9 kgf·m, 7 lbf·ft)	
B	Rear brake caliper	Brake hose	34 N·m (3.5 kgf·m, 25 lbf·ft)	Banjo bolt
		Bleed screw	9 N·m (0.9 kgf·m, 7 lbf·ft)	
C	Brake hose	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
D	Master cylinder	Brake line	22 N·m (2.2 kgf·m, 16 lbf·ft)	Flare nut
E	VSA modulator-control unit	Brake line (12 mm nut)	22 N·m (2.2 kgf·m, 16 lbf·ft)	Flare nut
		Brake line (10 mm nut)	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut



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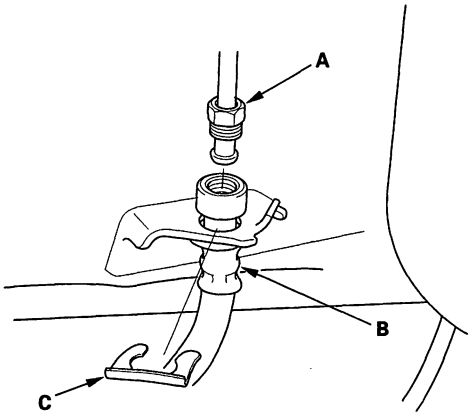
Brake Hose Replacement

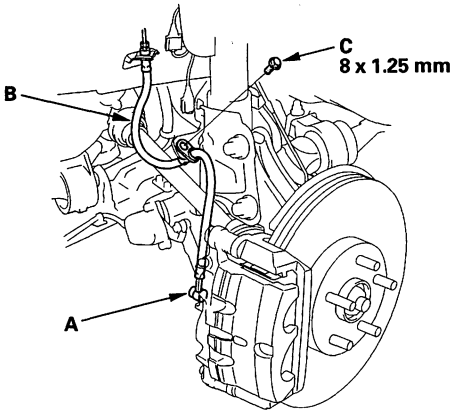
NOTE:
- Before reassembling, check that all parts are free of dirt and other foreign particles.
- Replace parts with new ones whenever specified to do so.
- *Do not spill* brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- To prevent the brake fluid from flowing, plug and cover the hose ends and joints with a shop towel or equivalent material.

Removal - Front

1. Remove the front wheel.
2. Disconnect the brake line (A) from the brake hose (B), then remove the brake hose clip (C).



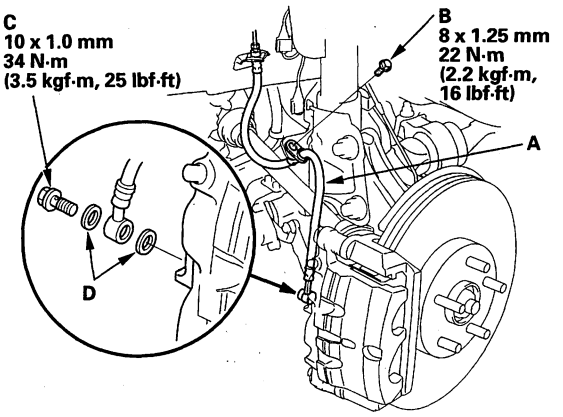
3. Remove the banjo bolt (A), and disconnect the brake hose (B) from the caliper.



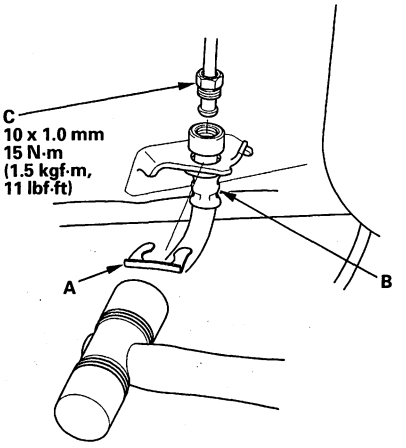
4. Remove the brake hose mounting bolt (C), then remove the brake hose.

Installation - Front

1. Install the brake hose (A) with the mounting bolt (B).



2. Connect the brake hose to the caliper with the banjo bolt (C) and new sealing washers (D).
3. Install a new brake hose clip (A) to the brake hose (B) on the bracket, then connect the brake line (C). Do not twist the brake hose.



4. After installing the brake hose, bleed the brake system (see page 19-9).
5. Do the following checks:
   - Check the brake hose and line joint for leaks, and tighten if necessary.
   - Check the brake hoses for interference and twisting.
6. Clean the mating surface of the brake disc and the inside of the wheel, then install the front wheel.

BACK

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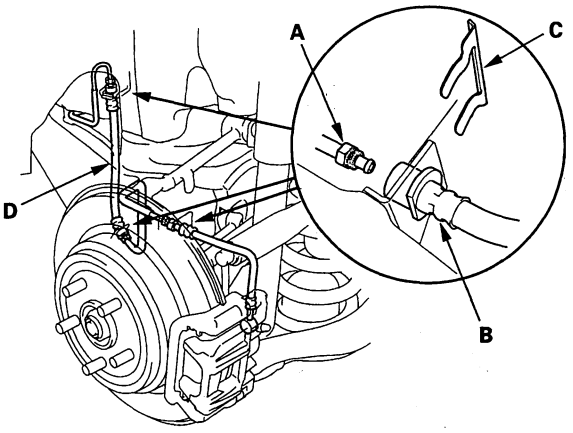
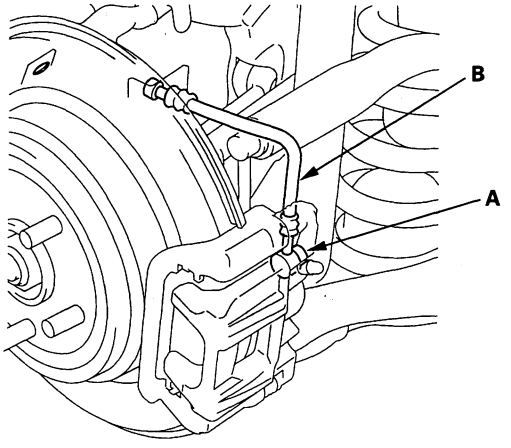
Removal - Rear

1. Remove the rear wheel.
2. Disconnect the brake lines (A) from the brake hoses (B), then remove the brake hose clips (C).



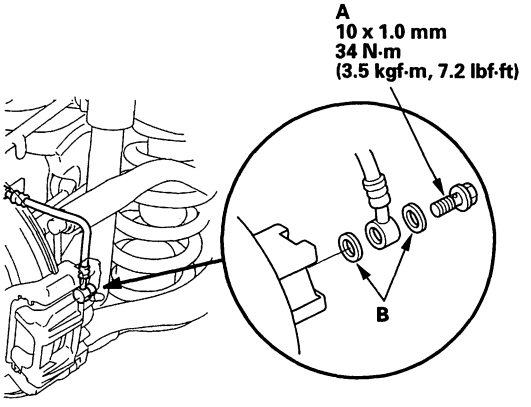
3. Remove the front side brake hose (D).
4. Remove the banjo bolt (A), and disconnect the brake hose from the caliper.



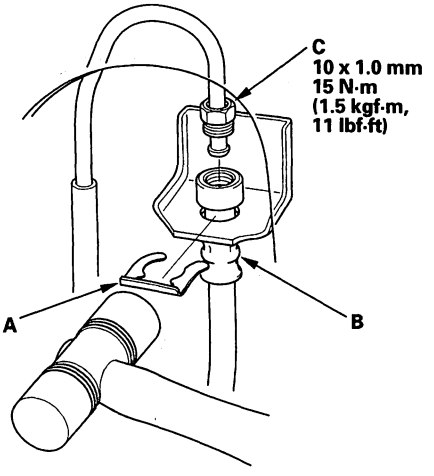
5. Remove the rear side brake hose (B).

Installation - Rear

1. Connect the rear side brake hose to the caliper with the banjo bolt (A) and new sealing washers (B).



2. Install new brake hose clip (A) to the brake hoses (B) on the brackets, then connect the brake lines (C). Do not twist the brake hoses.



3. After installing the brake hoses, bleed the brake system (see page 19-9).
4. Do the following checks:
   - Check the brake hose and line joint for leaks, and tighten if necessary.
   - Check the brake hoses for interference and twisting.
5. Clean the mating surface of the brake disc/drum and the inside of the wheel, then install the rear wheel.

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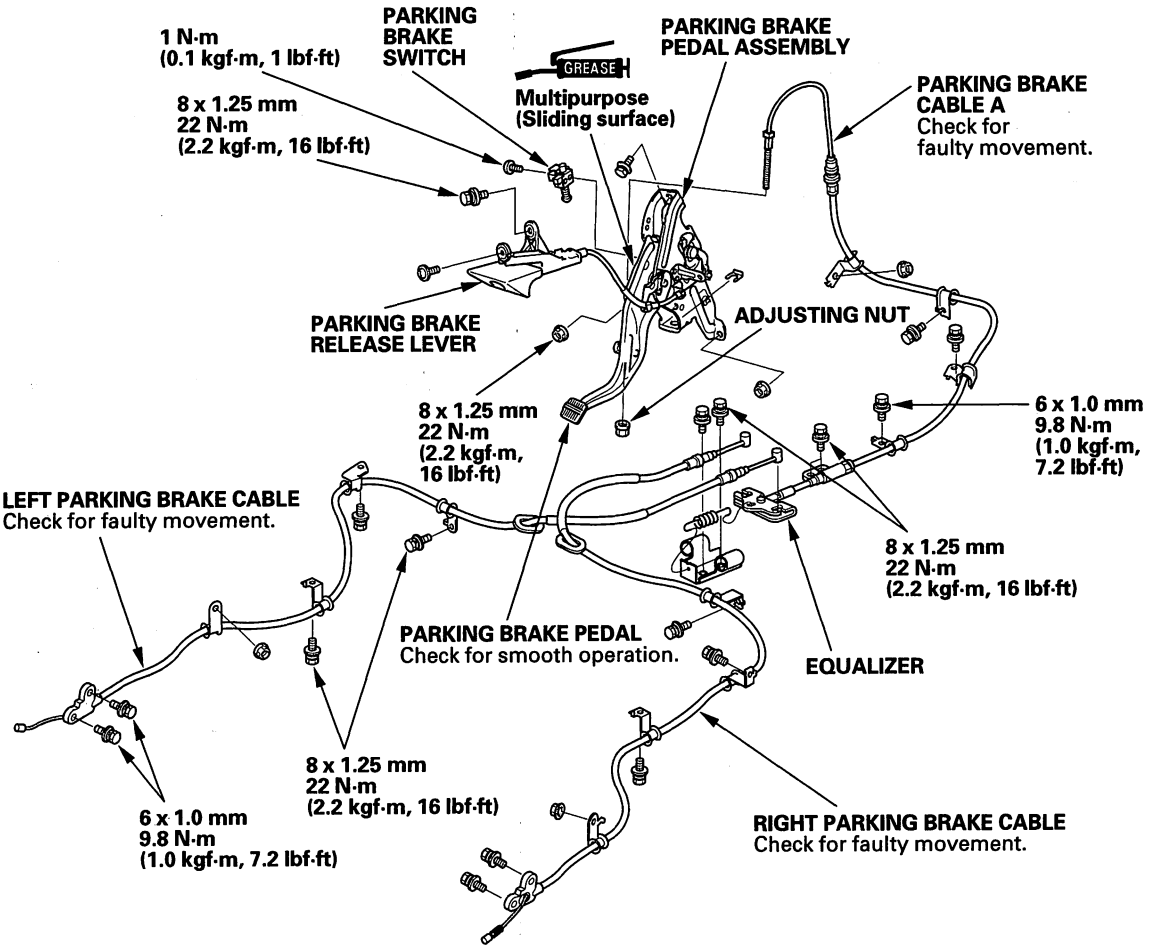
Conventional Brake Components

Parking Brake Cable Replacement

Exploded View



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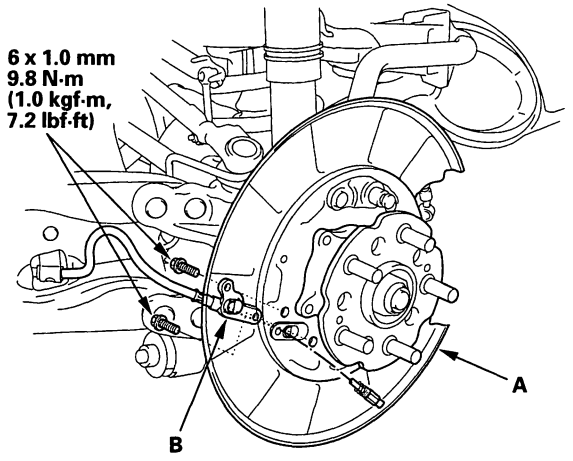
NOTE:
- The parking brake cables must not be bent or distorted. This will lead to stiff operation and premature failure.
- Refer to the Exploded View as needed during this procedure.

1. Loosen the parking brake cable adjusting nut (see page 19-8).

2. Remove the parking brake shoes, and disconnect the parking brake cable from the parking brake lever (see page 19-30).

3. Remove the parking brake cable mounting bolts from the backing plate (A).



4. Pull the parking brake cable (B) and remove it from the backing plate.

5. Reinstall the parking brake cable in the reverse order of removal, and note these items:

   - Be careful not to bend or distort the cable.
   - Connect the parking brake cable to the brake lever, and install the parking brake shoes and drum (see page 19-31).
   - Do the parking brake adjustment (see page 19-8). Apply the parking brake firmly 10 times then adjust it again.

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Brakes

Conventional Brake Components 19-1

VSA (Vehicle Stability Assist) System Components
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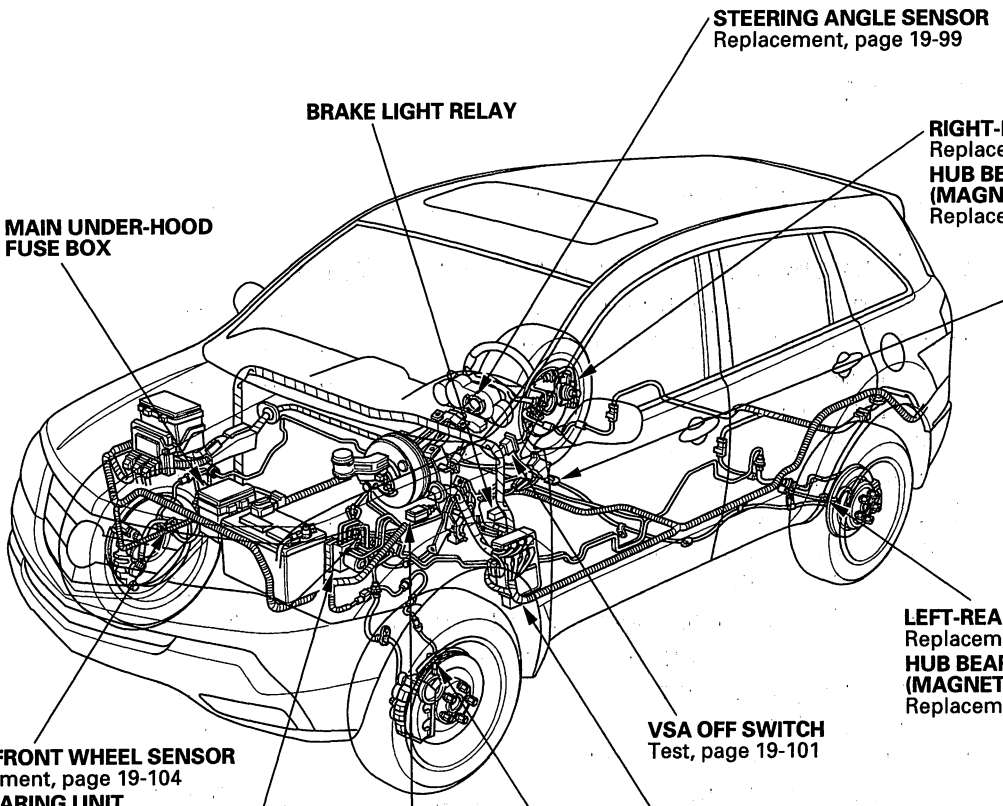
VSA System Components

Component Location Index



STEERING ANGLE SENSOR
Replacement, page 19-99

BRAKE LIGHT RELAY

RIGHT-REAR WHEEL SENSOR
Replacement, page 19-105
HUB BEARING UNIT (MAGNETIC ENCODER)
Replacement, page 18-29

MAIN UNDER-HOOD FUSE BOX

DATA LINK CONNECTOR (DLC)

LEFT-REAR WHEEL SENSOR
Replacement, page 19-105
HUB BEARING UNIT (MAGNETIC ENCODER)
Replacement, page 18-29

VSA OFF SWITCH
Test, page 19-101

RIGHT-FRONT WHEEL SENSOR
Replacement, page 19-104
HUB BEARING UNIT (MAGNETIC ENCODER)
Replacement, page 18-12

UNDER-DASH FUSE/RELAY BOX

VSA MODULATOR-CONTROL UNIT
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HUB BEARING UNIT (MAGNETIC ENCODER)
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YAW RATE-LATERAL/LONGITUDINAL ACCELERATION SENSOR
Replacement, page 19-100

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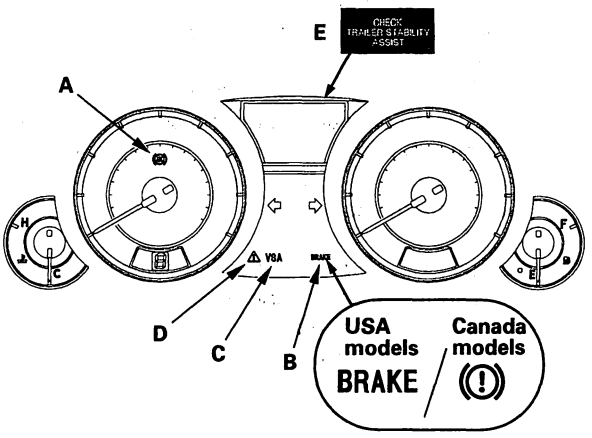
General Troubleshooting Information

System Indicator

This system has four indicators and one warning:

- ABS indicator (A)
- Brake system indicator (B)
- VSA indicator (C)
- VSA activation indicator (D)
- Trailer stability assist warning (E)



When the system detects a problem, it will turn the appropriate indicators on or warning indicate. Depending on the failure, the VSA modulator-control unit determines which indicators are turned on or warning indicate.
When the system is OK, each indicator comes on for about 2 seconds after turning the ignition switch ON (II), then goes off.

ABS Indicator

The ABS indicator comes on when the ABS function is lost. The brakes still work like a conventional system.

Brake System Indicator

The brake system indicator comes on when the EBD function is lost, the parking brake is applied, and/or the brake fluid level is low.

VSA Indicator

The VSA indicator comes on, when VSA function is lost.

VSA Activation Indicator

The VSA activation indicator blinks, when the VSA function is activating. The VSA activation indicator comes on, when the VSA is turned OFF by using the VSA OFF switch, or the VSA function is lost. The VSA activation indicator is on until the steering angle sensor center point writing is done (see page 19-100).

Trailer Stability Assist Warning

Trailer stability assist warning comes on, when brake light relay has malfunctioned or when VSA function is lost.

ABS, VSA Indicators, and Trailer Stability Assist Warning go off

Each indicator or warning will go off after a problem goes away, but the timing which the VSA modulator-control unit turns off the indicators or warning varies between DTCs.

- DTC 61, 62:
  The indicators go off automatically when the system returns to normal.
- DTC 11, 13, 15, 17, 21*, 22, 25, 26, 27, 31, 32, 33, 34, 35, 36, 37, 38, 45, 46, 47, 48, 54, 59, 65, 66, 67, 68, 69, 72, 73, 74, 75, 76, 81, 84, 91, 92, or 97**:
  The indicators stay on until the ignition switch is turned OFF whether or not the system returns to normal.
  *: There are some cases that the indicators stay on until the vehicle is driven after the system returns to normal.
  **: There are some cases that the indicators go off automatically when the system returns to normal.
- DTC 12, 14, 16, 18, 51, 52, or 53:
  The indicators stay on until the vehicle is driven after the system returns to normal.

(cont'd)

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General Troubleshooting Information (cont'd)

Diagnostic Trouble Code (DTC)

- The memory can hold up to 10 DTCs. However, when the same DTC is detected more than once, the more recent DTC is written over the earlier one. Therefore, when the same problem is detected repeatedly, it is memorized as a single DTC.
- The DTCs are indicated in the order they occur.
- The DTCs are memorized in the EEPROM. Therefore, the memorized DTCs cannot be cancelled by disconnecting the battery. Do the specified procedures to clear the DTCs.

Self-diagnosis

- Self-diagnosis can be classified into two categories:
  - Initial diagnosis: Done right after the ignition switch is turned ON (II) and until the ABS and VSA indicators go off.
  - Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned OFF.
- When the system detects a problem, the VSA modulator-control unit shifts to the fail-safe mode.

Kickback

The pump motor operates when the VSA modulator-control unit is functioning, and the fluid in the reservoir is forced out to the master cylinder, causing a kickback at the brake pedal.

Pump Motor

- The pump motor operates when the VSA modulator-control unit is functioning.
- The VSA modulator-control unit checks the pump motor operation during regular diagnosis when the vehicle is driven over 10 mph (15 km/h) and at 19 mph (30 km/h) the first time after the ignition switch is turned ON (II). You may hear the motor operate at this time and feel some vibration, but it is normal.

Brake Fluid Replacement/Air Bleeding

Brake fluid replacement and air bleeding procedures are identical to the procedures used on vehicles without the VSA system (see page 19-9).

How to Troubleshoot DTCs

The troubleshooting procedures assume that the cause of the problem is still present and the ABS, VSA indicators, and/or trailer stability assist warning are still on. Following a troubleshooting procedure for a code that has been cleared but does not reset can result in incorrect diagnosis.

1. Question the client about the conditions when the problem occurred, and try to reproduce the same conditions for troubleshooting. Find out when the ABS, VSA indicators, and/or trailer stability assist warning came on, such as during activation, after activation, when the vehicle was traveling at a certain speed, etc. If necessary, have the client demonstrate the concern.

2. When the ABS, VSA indicators, or trailer stability assist warning does not come on during the test-drive, but troubleshooting is done based on the DTC, check for loose connectors, poor contact of the terminals, etc. before you start troubleshooting.

3. After troubleshooting, or the repairs are done, clear the DTCs, and test-drive the vehicle under the same conditions that originally set the DTCs. Make sure the ABS, VSA indicators, and trailer stability assist warning do not come on.

4. Check for DTCs from other control unit DTCs which connected via F-CAN. If there are DTCs that are related to F-CAN, the most likely cause was that the ignition switch was turned ON (II) with the VSA modulator-control unit connector disconnected. Clear the DTCs. Check for fuel and emissions, and VSA codes, first. Be sure to troubleshoot those first.

Intermittent Failures

The term "intermittent failure" means a system may have had a failure, but it checks OK now. If the indicator(s) of the system does not come on, check for loose connectors or poor contacts in the terminals related to the circuit that you are troubleshooting. If the indicators were on, but then went out, the original problem may have been intermittent.

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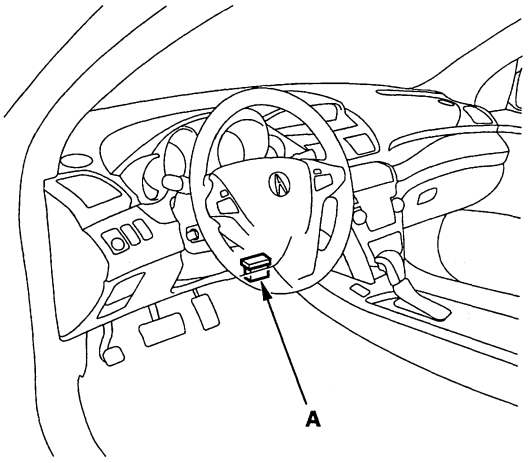
How to Use the HDS (Honda Diagnostic System)

1. If the system indicators stay on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-223).
4. Check the diagnostic trouble code (DTC) and note it. Also check the on-board snapshot data, and download any data found. Then refer to the indicated DTC's troubleshooting, and do the appropriate troubleshooting procedure.

   NOTE:
   - The HDS can read the DTC, the current data, and other system data.
   - For specific operations, refer to the Help menu that came with the HDS.

How to Retrieve DTCs

1. With the ignition switch OFF, connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-223).
4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC troubleshooting.
5. Turn the ignition switch OFF.

How to Clear DTCs

1. With the ignition switch OFF, connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-223).
4. Clear the DTC(s) by following the screen prompts on the HDS.
5. Turn the ignition switch OFF.

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VSA System Components

DTC Troubleshooting Index

DTC	Detection Item	ABS Indicator	Brake System Indicator	VSA Indicator	VSA Activation Indicator	Trailer Stability Assist Warning	Note
11	Right-front wheel sensor (open/short to body ground/short to power)	ON	ON or OFF*	ON	ON	ON	(see page 19-61)
12	Right-front wheel sensor (electrical noise/intermittent interruption)	ON	ON or OFF*	ON	ON	ON	(see page 19-66)
13	Left-front wheel sensor (open/short to body ground/short to power)	ON	ON or OFF*	ON	ON	ON	(see page 19-61)
14	Left-front wheel sensor (electrical noise/intermittent interruption)	ON	ON or OFF*	ON	ON	ON	(see page 19-66)
15	Right-rear wheel sensor (open/short to body ground/short to power)	ON	ON or OFF*	ON	ON	ON	(see page 19-61)
16	Right-rear wheel sensor (electrical noise/intermittent interruption)	ON	ON or OFF*	ON	ON	ON	(see page 19-66)
17	Left-rear wheel sensor (open/short to body ground/short to power)	ON	ON or OFF*	ON	ON	ON	(see page 19-61)
18	Left-rear wheel sensor (electrical noise/intermittent interruption)	ON	ON or OFF*	ON	ON	ON	(see page 19-66)
21	Difference in wheel speed	ON	ON or OFF	ON	ON	ON	(see page 19-67)
22	Current flow into wheel sensor input amplifier	ON	OFF	ON	ON	ON	(see page 19-68)
25	Yaw rate sensor (sensor unit)	OFF	OFF	ON	ON	ON	(see page 19-68)
26	Lateral/longitudinal acceleration sensor (sensor unit)	OFF	OFF	ON	ON	ON	(see page 19-68)
27	Steering angle sensor (hardware)	OFF	OFF	ON	ON	ON	(see page 19-69)
31	ABS solenoid	ON	ON	ON	ON	ON	(see page 19-69)
32	ABS solenoid	ON	ON	ON	ON	ON	(see page 19-69)
33	ABS solenoid	ON	ON	ON	ON	ON	(see page 19-69)
34	ABS solenoid	ON	ON	ON	ON	ON	(see page 19-69)
35	ABS solenoid	ON	ON	ON	ON	ON	(see page 19-69)
36	ABS solenoid	ON	ON	ON	ON	ON	(see page 19-69)
37	ABS solenoid	ON	ON	ON	ON	ON	(see page 19-69)
38	ABS solenoid	ON	ON	ON	ON	ON	(see page 19-69)

*: Brake system indicator turns ON when three or more wheel sensors fail.

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DTC	Detection Item	ABS Indicator	Brake System Indicator	VSA Indicator	VSA Activation Indicator	Trailer Stability Assist Warning	Note
45	VSA solenoid	ON	ON	ON	ON	ON	(see page 19-70)
46	VSA solenoid	ON	ON	ON	ON	ON	(see page 19-70)
47	VSA solenoid	ON	ON	ON	ON	ON	(see page 19-70)
48	VSA solenoid	ON	ON	ON	ON	ON	(see page 19-70)
51	Motor Locked	ON	ON	ON	ON	ON	(see page 19-70)
52	Motor stuck OFF	ON	ON	ON	ON	ON	(see page 19-71)
53	Motor stuck ON	ON	ON	ON	ON	ON	(see page 19-73)
54	Valve relay	ON	ON or OFF	ON	ON	ON	(see page 19-74)
59	BRKDIAG high	OFF	OFF	OFF	OFF	ON	(see page 19-75)
61	IG1 voltage low	ON	ON or OFF	ON	ON	ON	(see page 19-77)
62	IG1 voltage high	ON	ON	ON	ON	ON	(see page 19-78)
65	VSA pressure sensor (hardware)	ON	OFF	ON	ON	ON	(see page 19-78)
66	VSA pressure sensor (software)	ON	OFF	ON	ON	ON	(see page 19-79)
67	Brake pedal position switch stuck ON (hardware)	OFF	OFF	ON	ON	ON	(see page 19-80)
68	Brake pedal position switch stuck OFF (software)	ON	OFF	ON	ON	ON	(see page 19-81)
69	BRKDIAG low	OFF	OFF	OFF	OFF	ON	(see page 19-83)
72	Steering angle sensor (software)	OFF	OFF	ON	ON	ON	(see page 19-87)
73	Yaw rate sensor (power supply)	OFF	OFF	ON	ON	ON	(see page 19-88)
74	Yaw rate sensor (software)	OFF	OFF	ON	ON	ON	(see page 19-89)
75	Lateral/longitudinal acceleration sensor (joint failure)	OFF	OFF	ON	ON	ON	(see page 19-90)
76	Lateral/longitudinal acceleration sensor (software)	OFF	OFF	ON	ON	ON	(see page 19-90)
81	Central processing unit (CPU)	ON or OFF	ON or OFF	ON or OFF	ON or OFF	ON or OFF	(see page 19-91)
84	Steering angle sensor No center point writing	OFF	OFF	ON or OFF	ON	ON	(see page 19-91)
91	F-CAN communication	OFF	OFF	ON	ON	ON or OFF	(see page 19-92)
92	F-CAN system (bus-off)	ON or OFF	ON or OFF	ON or OFF	ON or OFF	ON or OFF	(see page 19-94)
97	VSA system	ON	OFF	ON	ON	ON	(see page 19-95)

*: Brake system indicator turns ON when three or more wheel sensors fail.

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VSA System Components

Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check for a diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure
HDS does not communicate with the VSA modulator-control unit or the vehicle	Troubleshoot the DLC circuit (see page 11-223).
VSA activation indicator does not come on at start-up (bulb check)	1. Do the gauge control module troubleshooting (see page 22-315). 2. Substitute a known-good VSA modulator-control unit, then recheck. If it is OK, replace the original VSA modulator-control unit (see page 19-102).
VSA activation indicator does not go off, and no DTCs are stored	1. Do the Steering Angle Sensor center point writing procedure. 2. Symptom troubleshooting (see page 19-96). 3. Do the gauge control module troubleshooting (see page 22-315). 4. Substitute a known-good VSA modulator-control unit, then recheck. If it is OK, replace the original VSA modulator-control unit (see page 19-102).
ABS indicator, brake system indicator, and VSA indicator do not come on at the same time	1. Do the gauge control module troubleshooting (see page 22-315). 2. Substitute a known-good VSA modulator-control unit, then recheck. If it is OK, replace the original VSA modulator-control unit (see page 19-102).
ABS indicator, brake system indicator, and VSA indicator do not go off at the same time	1. Check for F-CAN DTCs, and troubleshoot and repair those first. 2. Symptom troubleshooting (see page 19-97). 3. Do the gauge control module troubleshooting (see page 22-315). 4. Substitute a known-good VSA modulator-control unit, then recheck. If it is OK, replace the original VSA modulator-control unit (see page 19-102).

BACK

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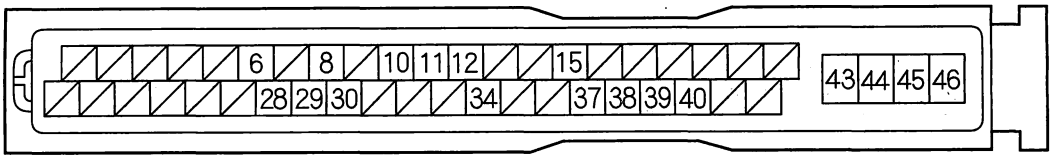
System Description

VSA Modulator-control Unit Inputs and Outputs for 46P Connector



Wire side of female terminals

Terminal number	Wire color	Terminal sign	Description	Measurement (Disconnect the VSA modulator-control unit 46P connector)		
				Terminal	Conditions	Result
6	ORN	BRK DIAG	Detects brake light relay	6—GND	Trailer stability assist brake operated or brake pedal pressed	Battery voltage
8	GRY	RR-GND	Detects right-rear wheel sensor signal	———	———	———
10	RED	RL-GND	Detects left-rear wheel sensor signal	———	———	———
11	YEL	RL +B	Detects left-rear wheel sensor signal	———	———	———
12	ORN	FL +B	Detects left-front wheel sensor signal	———	———	———
15	LT BLU	K-LINE	Communicates with HDS	———	———	———

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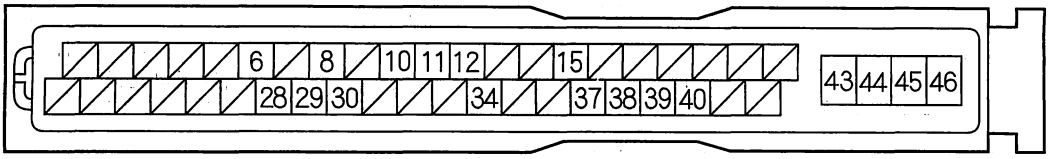
VSA System Components

System Description (cont'd)

VSA Modulator-control Unit Inputs and Outputs for 46P Connector (cont'd)



Wire side of female terminals

Terminal number	Wire color	Terminal sign	Description	Measurement (Disconnect the VSA modulator-control unit 46P connector)		
				Terminal	Conditions	Result
28	PNK	FR-GND	Detects right-front wheel sensor signal	———	———	———
29	GRN	FR +B	Detects right-front wheel sensor signal	———	———	———
30	LT BLU	RR +B	Detects right-rear wheel sensor signal	———	———	———
34	GRY	FL-GND	Detects left-front wheel sensor signal	———	———	———
37	YEL	BRK LAMP	Drives the brake light relay	37—GND	Ignition switch ON (II)	Battery voltage
38	RED	CAN-L	F-CAN communication circuit	———	———	———
39	WHT	CAN-H	F-CAN communication circuit	———	———	———
40	ORN	IG1	Power source for activating the system	40—GND	Ignition switch ON (II)	Battery voltage
43	BRN	GND2	Ground for the VSA modulator-control unit	43—GND	At all times	Continuity to ground
44	LT GRN	+B SOL	Power source for the valve relay	44—GND	At all times	Battery voltage
45	RED	+B MOT	Power source for the motor relay	45—GND	At all times	Battery voltage
46	BLK	GND1	Ground for the pump motor	46—GND	At all times	Continuity to ground

BACK

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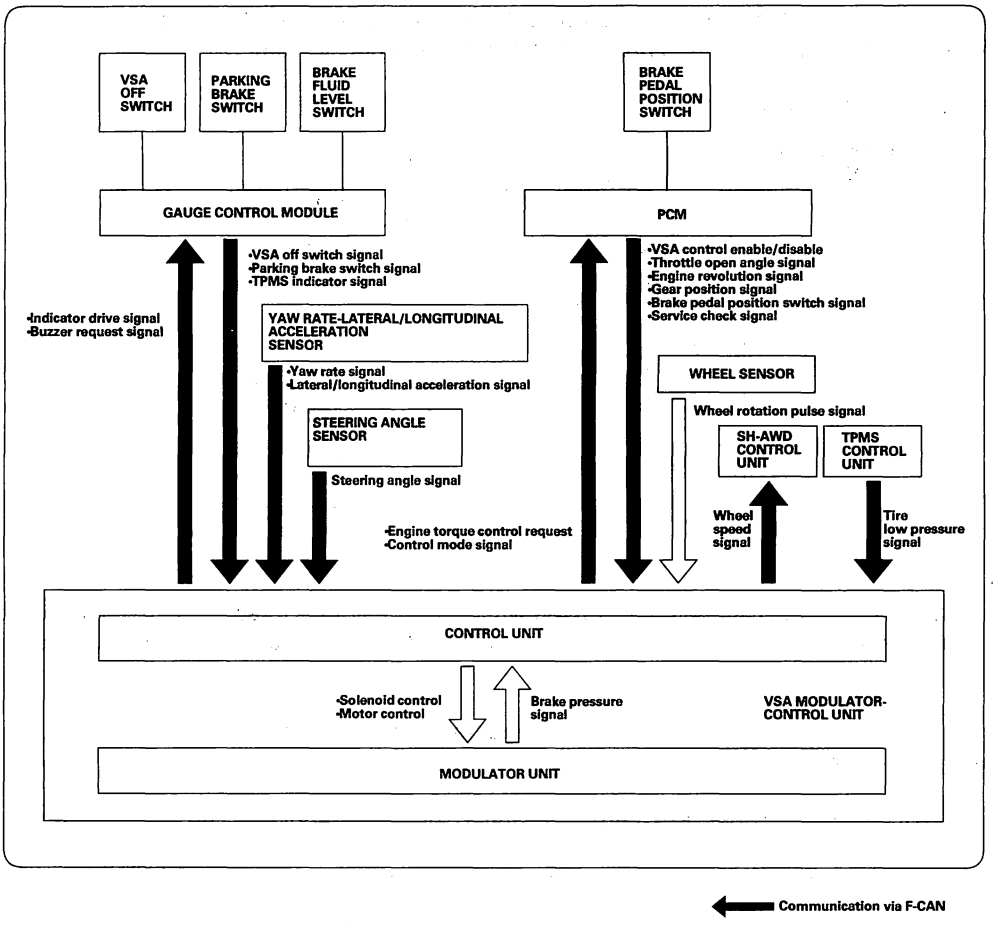
System Outline

This system is composed of the VSA modulator-control unit, the wheel sensors, the steering angle sensor, and the yaw rate-lateral/longitudinal acceleration sensor, and the system indicators in the gauge control module. The VSA modulator-control unit controls the ABS, EBD, TCS, VSA, TSA, and brake assist with the brake pressure of each wheel and the engine torque.



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VSA System Components

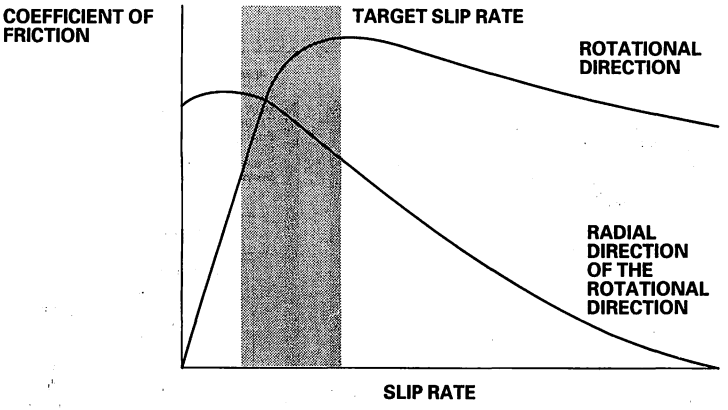
System Description (cont'd)

ABS Features

Anti-lock control

Without ABS, when the brake pedal is pressed while driving, the wheels sometimes lock before the vehicle comes to a stop. In such an event, the maneuverability of the vehicle is reduced if the front wheels are locked, and the stability of the vehicle is reduced if the rear wheels are locked, creating an extremely unstable condition. With ABS, the system precisely controls the slip rate of the wheels to ensure maximum grip force from the tires, and it thereby ensures maneuverability and stability of the vehicle. The ABS calculates the slip rate of the wheels based on the four wheel speeds, and then it controls the brake fluid pressure to reach the target slip rate.

Grip force of tire and road surface

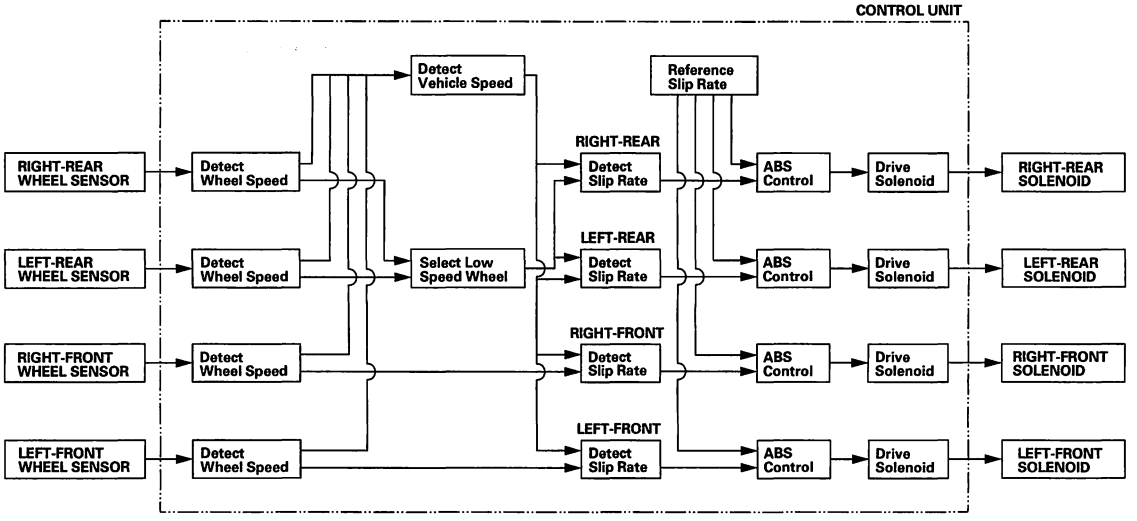


Main Control

The control unit detects the wheel speed based on the wheel sensor signals it receives, then it calculates the vehicle speed based on the detected wheel speed. The control unit detects the vehicle speed during deceleration based on the wheel speeds.

The control unit calculates the slip rate of each wheel, and transmits the control signal to the modulator unit solenoid valve when the slip rate is high.

The hydraulic control has three modes: Pressure intensifying, pressure reducing, and pressure retaining.



BACK

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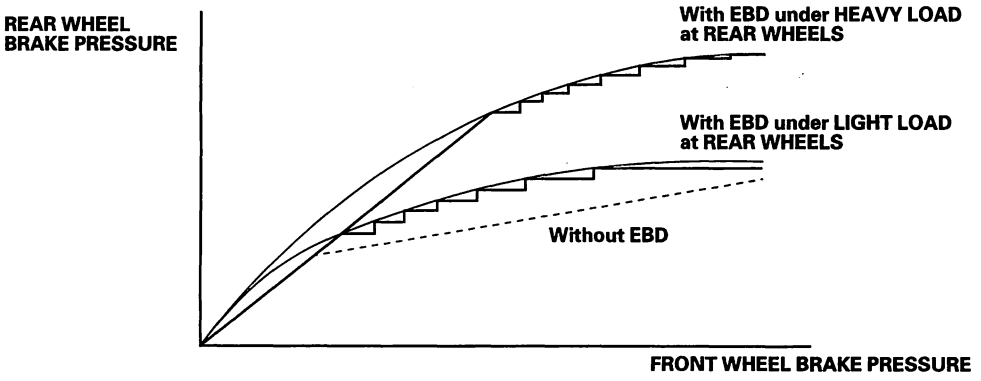
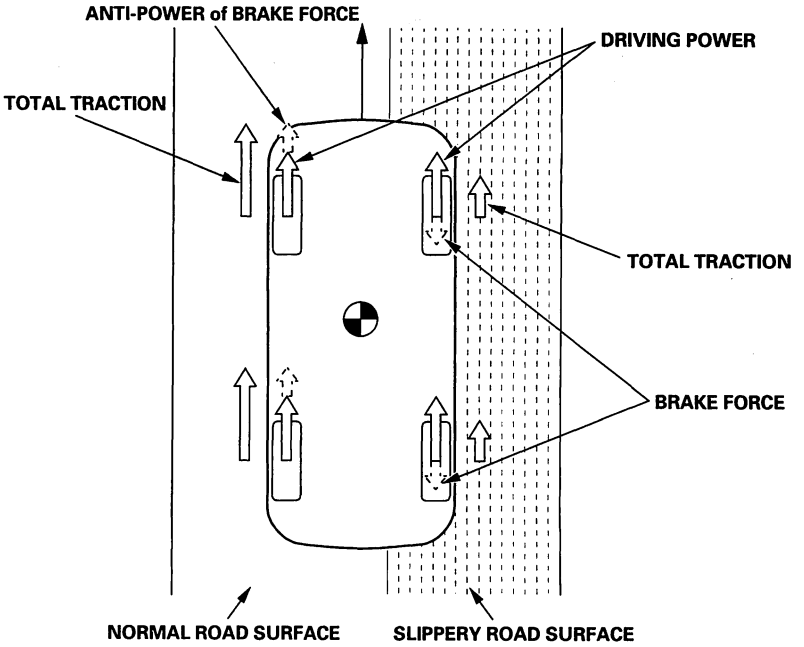
EBD Features

The electronic brake distribution (EBD) feature helps control vehicle braking by adjusting the rear brake force in accordance with the rear wheel load before the ABS operates. Based on the wheel sensor signals, the control unit uses the modulator to control the rear brakes individually. When the rear wheel speed is less than the front wheel speed, the VSA modulator-control unit retains the current rear brake fluid pressure by closing the inlet valve in the modulator. As the rear wheel speed increases and approaches the front wheel speed, the VSA modulator-control unit increases the rear brake fluid pressure by momentarily opening the inlet valve. This whole process is repeated very rapidly. While this is happening, kickback may be felt at the brake pedal.



TCS Features

When a drive wheel loses traction on a slippery road surface and starts to spin, the VSA modulator-control unit applies brake pressure to the spinning wheel and sends an engine torque control request to the PCM to slow the spinning wheel and keep traction.



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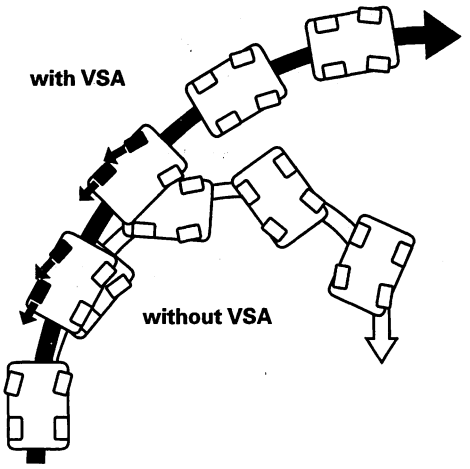
VSA System Components

System Description (cont'd)

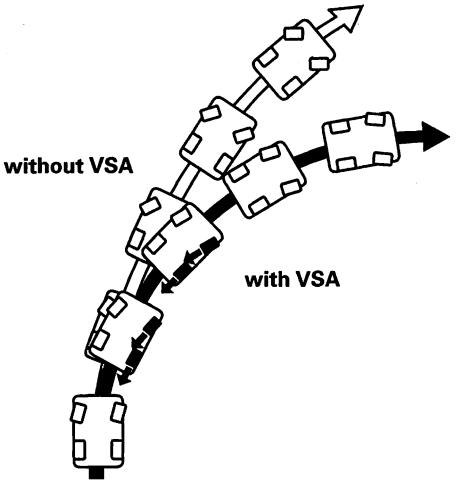
VSA System Features

Oversteer control
Applies the brake to the front and rear outside wheels



The brake makes the yaw rate opposite to the turning direction

Understeer control
- Applies the brake to the front and rear inside wheels
- Controls the engine torque when accelerating



The brake increases the yaw rate toward the turning direction

The throttle control effect:
- **reduces vehicle speed**
- **increases cornering force**

BACK

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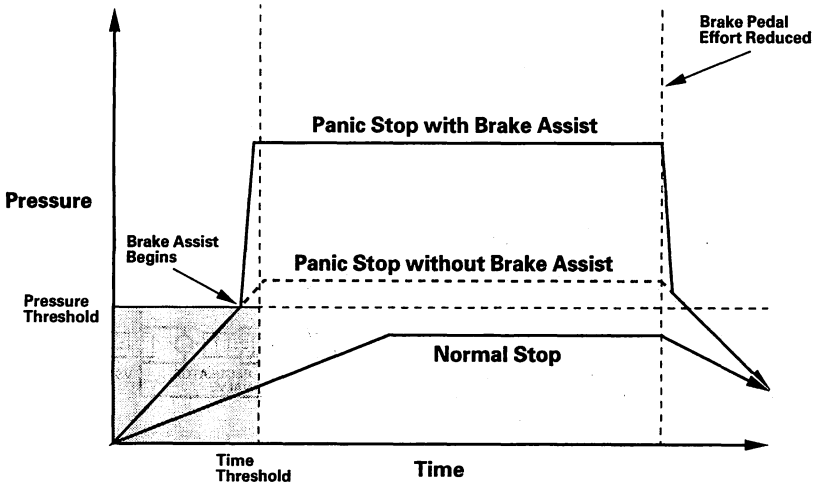
Brake Assist Features

Brake assist helps ensure that any driver can achieve the full braking potential of the vehicle by increasing brake system pressure in a panic situation, bringing the vehicle into a full ABS stop.
If during a panic stop the VSA modulator-control unit determines that the brake system pressure increases above a threshold in less than a certain amount of time, the VSA modulator-control unit engages brake assist.
Because the brake system pressure crossed the pressure threshold before the time threshold had expired, the VSA modulator-control unit goes into brake assist mode.



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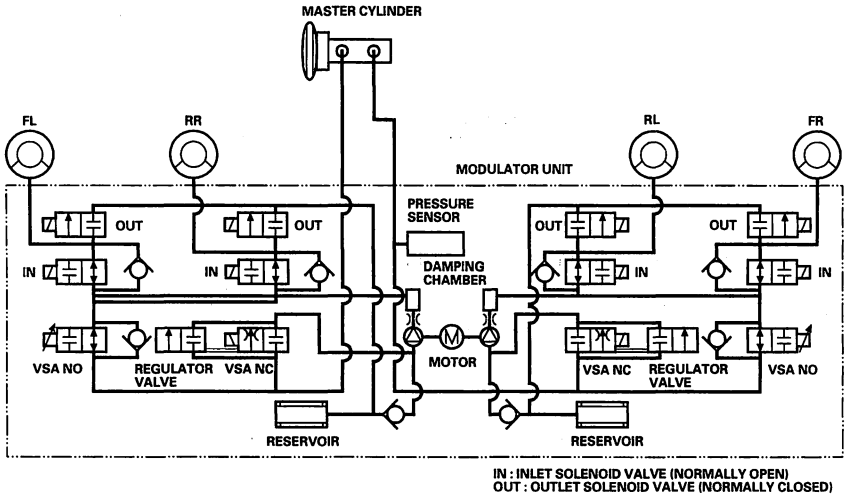
VSA System Components

System Description (cont'd)

Modulator Unit

The modulator unit consists of the inlet solenoid valve, the outlet solenoid valve, the VSA NO (normally open) solenoid valve, the VSA NC (normally closed) solenoid valve, the reservoir, the pump, the pump motor, and the damping chamber.
The hydraulic control has three modes of ABS action; pressure intensifying, pressure retaining, and pressure reducing. Pressure adding mode is a combination of at TCS, VSA, and brake assist action.
The hydraulic circuit is an independent four channel type; one channel for each wheel.



Mode	VSA NO Valve	VSA NC Valve	Inlet Solenoid Valve	Outlet Solenoid Valve	Brake Fluid
Pressure intensifying mode	open	closed	open	closed	Master cylinder fluid is pumped out to the caliper.
Pressure retaining mode	open	closed	closed	closed	Caliper fluid is retained by the inlet and outlet valves.
Pressure reducing mode	open	closed	closed	open	• Caliper fluid flows through the outlet valve to the reservoir. • The motor pumps the reservoir fluid through the damping chamber to the master cylinder*.
Pressure intensifying mode (VSA)	closed	open	open	closed	• Master cylinder fluid is pumped out by pump with motor through VSA NC valve to the caliper. • Caliper fluid pressure exceed master cylinder pressure.

*: The motor will continue running until the operation of the one anti-lock brake control is finished with the first pressure reducing mode.

BACK

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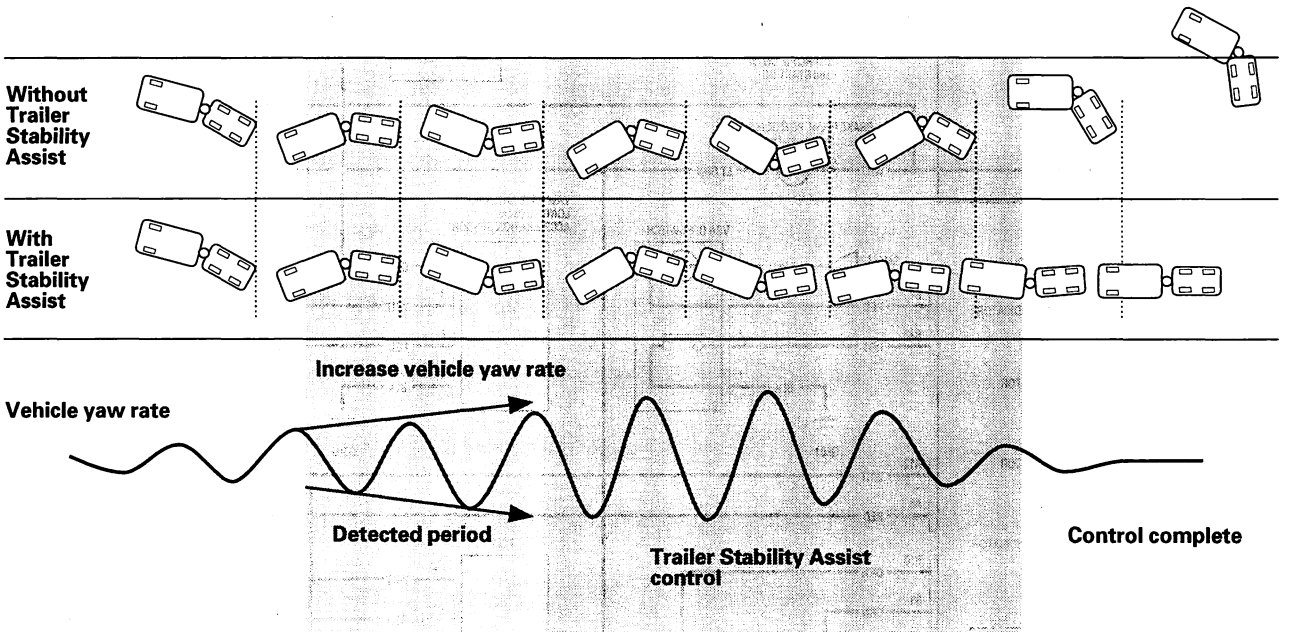
Trailer Stability Assist Features

While towing a trailer, factors, such as a lane change, inappropriate tongue weight, and crosswind, can cause trailer sway. This may also cause the vehicle to sway. The trailer stability assist helps stabilize the vehicle, using the same system as VSA (VSA modulator-control unit and sensors). With signals from each sensor, the trailer stability assist detects when trailer sway affects the vehicle, and then reduces vehicle speed while stabilizing the vehicle. The rear brake lights automatically turn on when the trailer stability assist activates.



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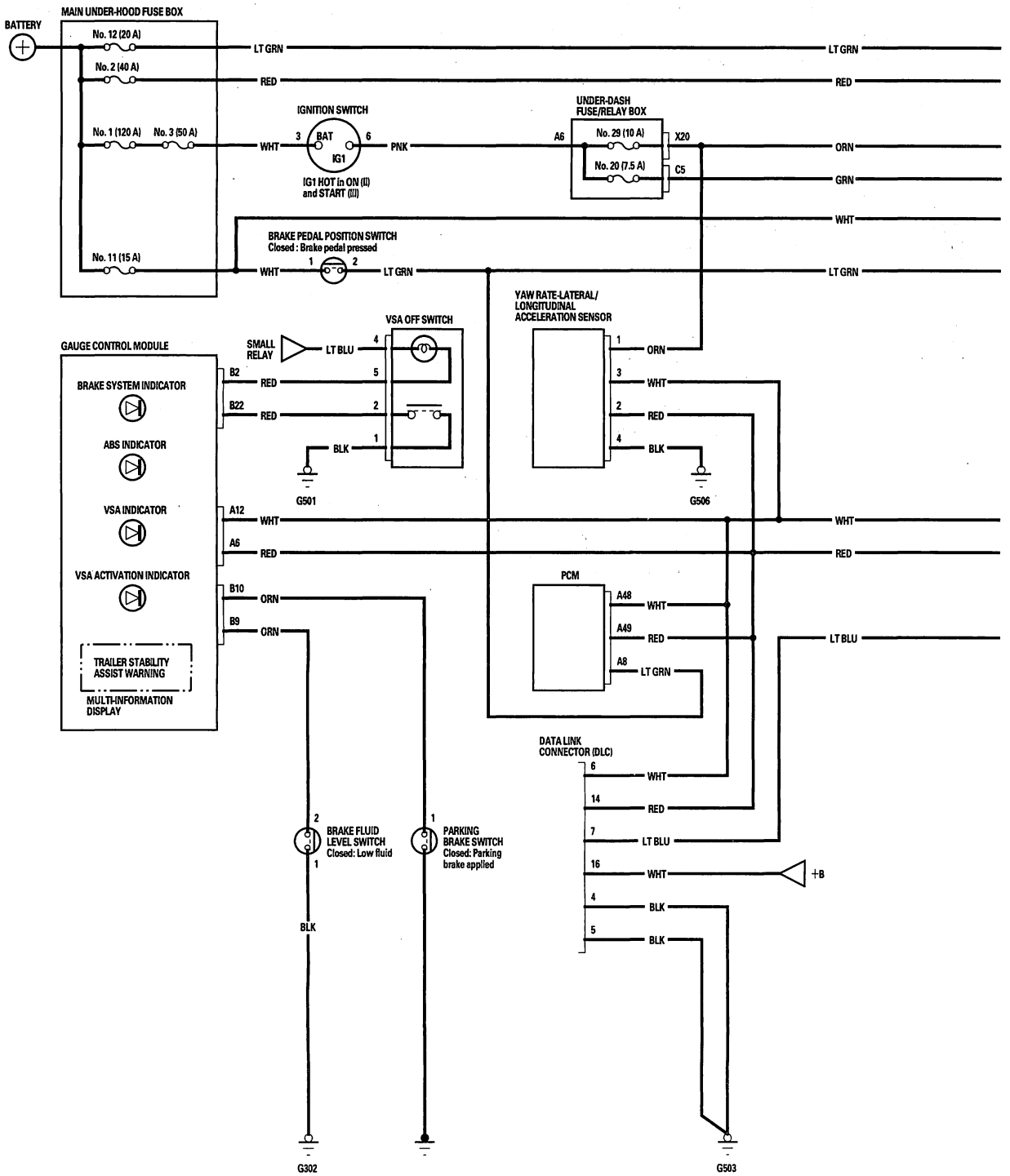
VSA System Components

Circuit Diagram



BACK

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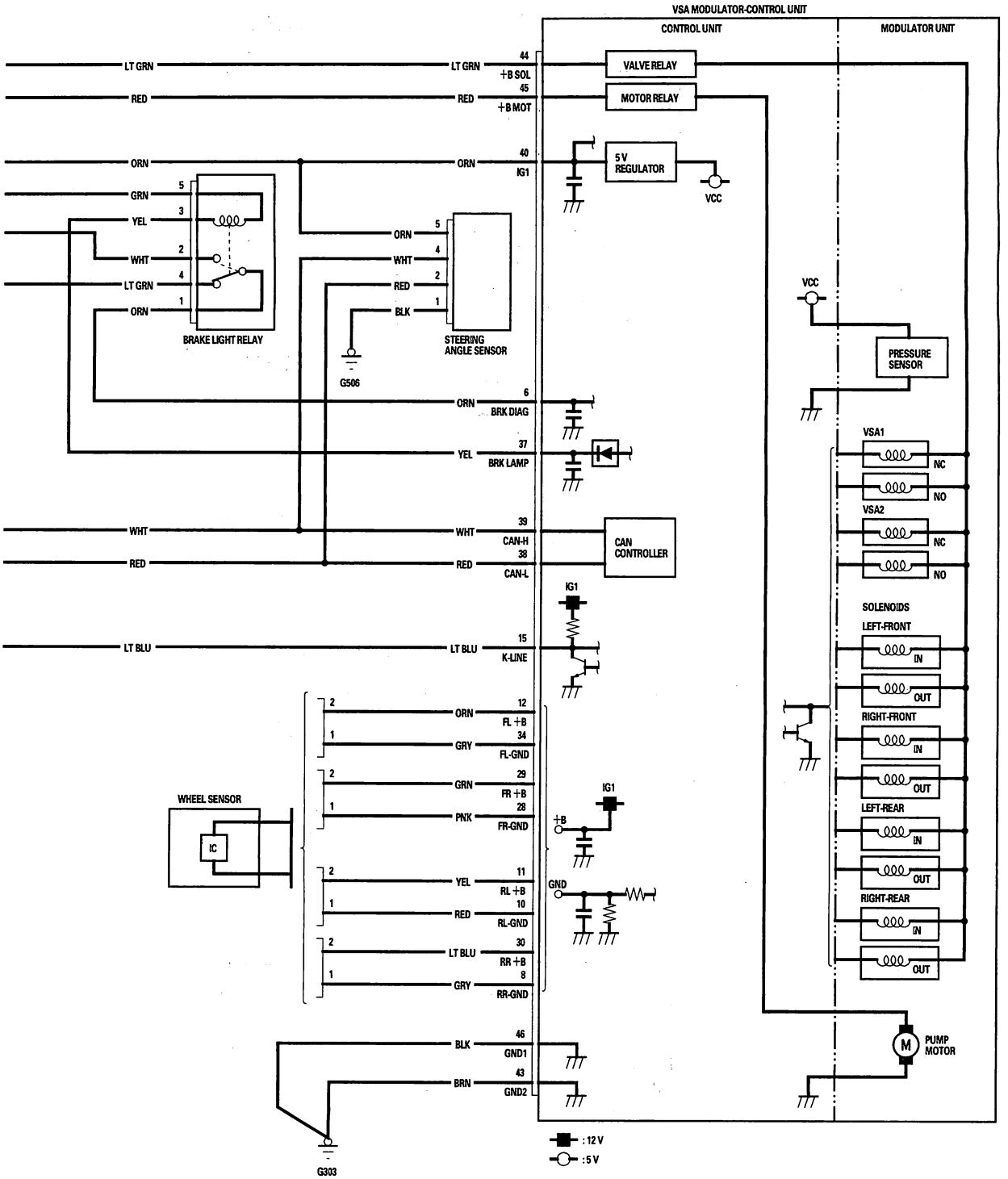

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BACK

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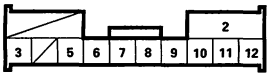
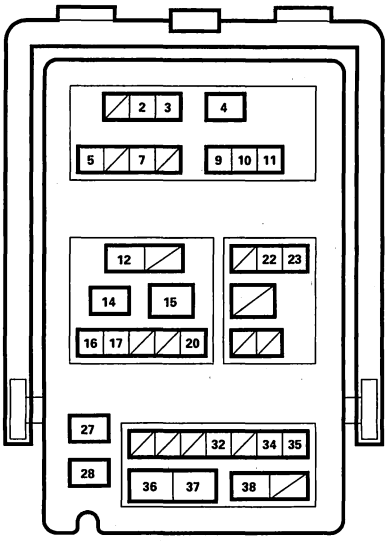
VSA System Components

Circuit Diagram (cont'd)

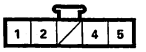
UNDER-DASH FUSE/RELAY BOX CONNECTOR C (12P)



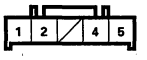
UNDER-DASH FUSE/RELAY BOX CONNECTOR X (39P)



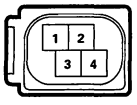
STEERING ANGLE SENSOR 5P CONNECTOR



VSA OFF SWITCH 5P CONNECTOR

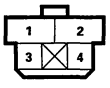


YAW RATE-LATERAL/ LONGITUDINAL ACCELERATION SENSOR 4P CONNECTOR



BRAKE FLUID LEVEL SWITCH 2P CONNECTOR

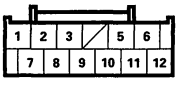
BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



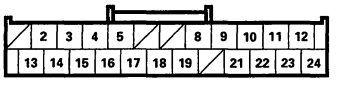
PARKING BRAKE SWITCH 1P CONNECTOR

WHEEL SENSOR 2P CONNECTOR

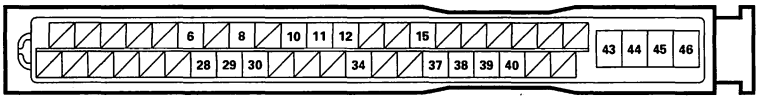
GAUGE CONTROL MODULE CONNECTOR A (12P)



GAUGE CONTROL MODULE CONNECTOR B (24P)

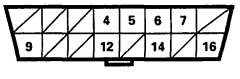


VSA MODULATOR-CONTROL UNIT 46P CONNECTOR

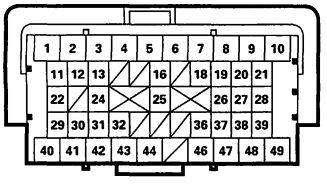


Wire side of female terminals

DATA LINK CONNECTOR (DLC)



PCM CONNECTOR A (49P)



Terminal side of female terminals

BRAKE LIGHT RELAY 5P CONNECTOR

BACK

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DTC Troubleshooting

DTC 11, 13, 15, 17: Wheel Sensor (Open/Short to Body Ground/Short to Power)

1. Turn the ignition switch ON (II).
2. Check for DTCs with the HDS.

   Is DTC 22 indicated with DTC 11, 13, 15, and/or 17 at the same time?

   YES—Go to step 9.

   NO—Go to step 3.
3. Clear the DTC with the HDS.
4. Turn the ignition switch OFF, then turn it ON (II) again.
5. Check for DTCs with the HDS.

   Is DTC 11, 13, 15, and/or 17 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel sensor 2P connector and the VSA modulator-control unit 46P connector. Check for a loose connection at G303. Refer to intermittent failures troubleshooting (see page 19-44). ■
6. Turn the ignition switch OFF.
7. Check for loose terminals between the wheel sensor 2P connector and the VSA modulator-control unit 46P connector.

   Are their connections OK?

   YES—Go to step 8.

   NO—Reconnect the connector and retest. ■
8. Check that the appropriate wheel sensor is properly mounted (see page 19-104).

DTC	Appropriate Wheel Sensor
11	Right-front
13	Left-front
15	Right-rear
17	Left-rear

   Is the wheel sensor installation OK?

   YES—Go to step 10.

   NO—Reinstall the wheel sensor, and check the mounting position (see page 19-104). ■
9. Turn the ignition switch OFF.
10. Disconnect the VSA modulator-control unit 46P connector.
11. Start the engine.

(cont'd)

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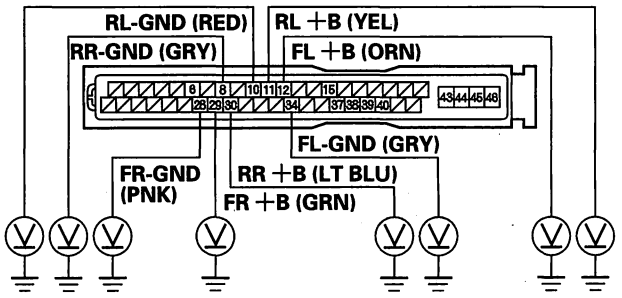
DTC Troubleshooting (cont'd)

12. Measure the voltage between body ground and the appropriate wheel sensor +B and GND terminals of the VSA modulator-control unit 46P connector respectively (see table).

DTC	Appropriate Terminal	
	+B	GND
11 (Right-front)	FR +B: No. 29	FR-GND: No. 28
13 (Left-front)	FL +B: No. 12	FL-GND: No. 34
15 (Right-rear)	RR +B: No. 30	RR-GND: No. 8
17 (Left-rear)	RL +B: No. 11	RL-GND: No. 10

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair short to power in the wire between the VSA modulator-control unit and the appropriate wheel sensor. ■

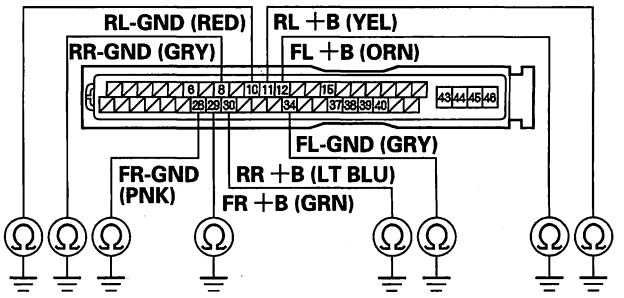
NO—Go to step 13.

13. Turn the ignition switch OFF.

14. Check for continuity between body ground and the appropriate wheel sensor +B and GND terminals of the VSA modulator-control unit 46P connector respectively (see table).

DTC	Appropriate Terminal	
	+B	GND
11 (Right-front)	FR +B: No. 29	FR-GND: No. 28
13 (Left-front)	FL +B: No. 12	FL-GND: No. 34
15 (Right-rear)	RR +B: No. 30	RR-GND: No. 8
17 (Left-rear)	RL +B: No. 11	RL-GND: No. 10

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 15.

NO—Go to step 17.

BACK

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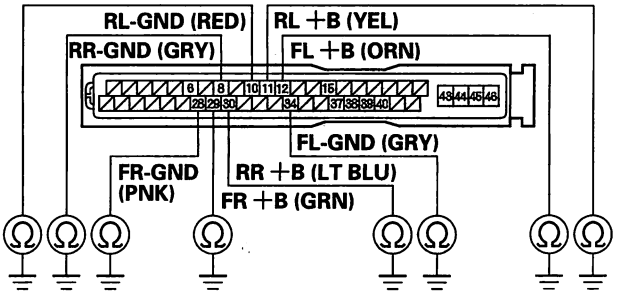
15. Disconnect the appropriate wheel sensor 2P connector.

16. Check for continuity between body ground and the appropriate wheel sensor +B and GND terminals of the VSA modulator-control unit 46P connector respectively (see table).

DTC	Appropriate Terminal	
	+B	GND
11 (Right-front)	FR +B: No. 29	FR-GND: No. 28
13 (Left-front)	FL +B: No. 12	FL-GND: No. 34
15 (Right-rear)	RR +B: No. 30	RR-GND: No. 8
17 (Left-rear)	RL +B: No. 11	RL-GND: No. 10

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

Is there continuity?

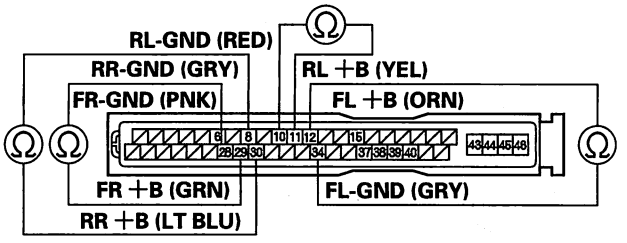
YES—Repair short to body ground in the wire between the VSA modulator-control unit and the appropriate wheel sensor. ■

NO—Replace the appropriate wheel sensor (see page 19-104). ■

17. Measure the resistance between the appropriate VSA modulator-control unit 46P connector wheel sensor +B and GND terminals (see table), then measure the resistance between the same terminals and reverse the positive and negative tester probes.

DTC	Appropriate Terminal	
	+B	GND
11 (Right-front)	FR +B: No. 29	FR-GND: No. 28
13 (Left-front)	FL +B: No. 12	FL-GND: No. 34
15 (Right-rear)	RR +B: No. 30	RR-GND: No. 8
17 (Left-rear)	RL +B: No. 11	RL-GND: No. 10

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

Is the resistance infinity (ohmmeter may read OL) in both directions?

YES—Go to step 18.

NO—Go to step 20.

(cont'd)

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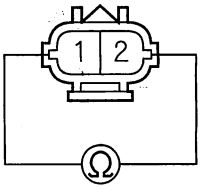
DTC Troubleshooting (cont'd)

18. Disconnect the appropriate wheel sensor 2P connector.

19. On the sensor side, measure the resistance between appropriate wheel sensor 2P connector terminals No. 1 and No. 2, then measure resistance between the same terminals and reverse the positive and negative tester probes.

WHEEL SENSOR 2P CONNECTOR



Terminal side of male terminals

Is the resistance infinity (ohmmeter may read OL) in both directions?

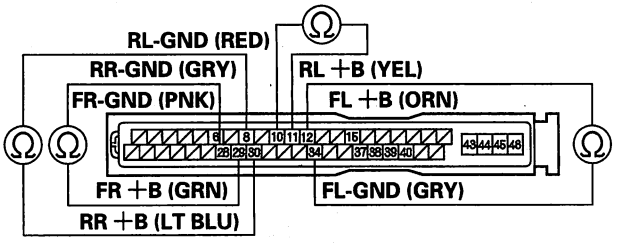
YES—Replace the appropriate wheel sensor (see page 19-104). ■

NO—Repair open in the wire between the appropriate wheel sensor and the VSA modulator-control unit. ■

20. Check for continuity between the appropriate VSA modulator-control unit 46P connector wheel sensor +B and GND terminals (see table), then check for continuity between the same terminals and reverse the positive and negative tester probes.

DTC	Appropriate Terminal	
	+B	GND
11 (Right-front)	FR +B: No. 29	FR-GND: No. 28
13 (Left-front)	FL +B: No. 12	FL-GND: No. 34
15 (Right-rear)	RR +B: No. 30	RR-GND: No. 8
17 (Left-rear)	RL +B: No. 11	RL-GND: No. 10

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

Is there continuity in both directions?

YES—Go to step 21.

NO—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest. ■

BACK

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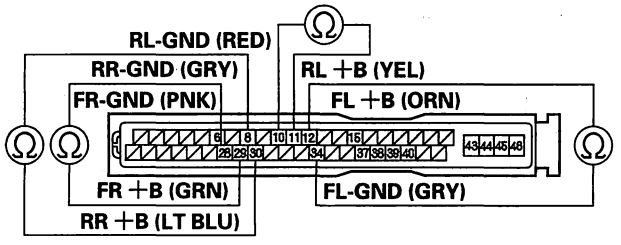
21. Disconnect the appropriate wheel sensor 2P connector.

22. Check for continuity between the appropriate VSA modulator-control unit 46P connector wheel sensor +B and GND terminals (see table), then check for continuity between the same terminals and reverse the positive and negative tester probes.

DTC	Appropriate Terminal	
	+B	GND
11 (Right-front)	FR +B: No. 29	FR-GND: No. 28
13 (Left-front)	FL +B: No. 12	FL-GND: No. 34
15 (Right-rear)	RR +B: No. 30	RR-GND: No. 8
17 (Left-rear)	RL +B: No. 11	RL-GND: No. 10

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

Is there continuity in both directions?

YES—Repair short in the wires between the VSA modulator-control unit and the appropriate wheel sensor. ■

NO—Replace the appropriate wheel sensor (see page 19-104). ■

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DTC Troubleshooting (cont'd)

DTC 12, 14, 16, 18: Wheel Sensor (Electrical Noise/Intermittent Interruption)

NOTE:
- If the ABS and other indicators come on because of electrical noise, the indicators will go off when you test-drive the vehicle speed at 10 mph (15 km/h) or more and the noise is gone.
- An incorrectly installed wheel bearing can cause one of these DTCs.

1. Turn the ignition switch OFF.
2. Check the appropriate wheel sensor and inspect the magnetic encoder on the appropriate hub bearing for debris: Front (see page 18-12), rear (see page 18-29).

DTC	Appropriate Wheel Sensor and Magnetic Encoder
12	Right-front
14	Left-front
16	Right-rear
18	Left-rear

Are they installed correctly in good condition, and free of debris?

YES—Go to step 3.

NO—Reinstall or replace the appropriate wheel sensor, hub bearing unit, and recheck by test-driving.■

3. Substitute an appropriate known-good wheel sensor (see page 19-104).
4. Turn the ignition switch ON (II).
5. Clear the DTC with the HDS.
6. Test-drive the vehicle at 10 mph (15 km/h) or more.
7. Check for DTCs with the HDS.

Is DTC 12, 14, 16, and/or 18 indicated?

YES—Go to step 8.

NO—Replace the original wheel sensor (see page 19-104).■

8. Turn the ignition switch OFF.
9. Substitute an appropriate known-good hub bearing unit: Front (see page 18-12), rear (see page 18-29).
10. Turn the ignition switch ON (II).
11. Clear the DTC with the HDS.
12. Test-drive the vehicle at 10 mph (15 km/h) or more.
13. Check for DTCs with the HDS.

Is DTC 12, 14, 16, and/or 18 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest.■

NO—Replace the original hub bearing unit:

- Front: Replace the original front hub bearing unit (see page 18-12).■
- Rear: Replace the original rear hub bearing unit (see page 18-29).■

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DTC 21: Difference in Wheel Speed

NOTE: A wheel bearing that is installed backwards can cause this DTC.

1. Check all four tires for size, inflation, and wear.

   Are all four tires the correct size, properly inflated, and worn evenly?

   YES—Go to step 2.

   NO—Install the correct tires, a known-good set of tires, or set the tires to the correct pressure, and retest by test-driving. ■

2. Test-drive the vehicle.

3. Check the RF, LF, RR, LR WHEEL SPD in the VSA DATA LIST with the HDS.

   Are all four the same indicated value?

   YES—Go to step 4.

   NO—Reinstall or replace the wheel sensor(s) (see page 19-104), and recheck by test-driving. ■

4. Check all magnetic encoders on the hub bearing units: Front (see page 18-12), rear (see page 18-29).

   Are they installed correctly and in good condition?

   YES—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest. ■

   NO—Replace the hub bearing unit(s), and recheck by test-driving:

   - Front: Replace the front hub bearing unit (see page 18-12). ■
   - Rear: Replace the rear hub bearing unit (see page 18-29). ■

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DTC Troubleshooting (cont'd)

DTC 22: Current Flow into Wheel Sensor Input Amplifier

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 22 indicated?

   YES—Do the DTC 11, 13, 15, and/or 17 troubleshooting (see page 19-61).■

   NO—Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel sensor 2P connector and the VSA modulator-control unit 46P connector. Check for a loose connection at G303. Refer to intermittent failures troubleshooting (see page 19-44).■

DTC 25: Yaw Rate Sensor (Sensor Unit)

DTC 26: Lateral/Longitudinal Acceleration Sensor (Sensor Unit)

NOTE: These code(s) will set after a test drive if the sensor is installed incorrectly.

1. Turn the ignition switch ON (II).
2. Check for DTCs with the HDS.

   Is DTC 91 or 92 indicated with DTC 25 or 26 at the same time?

   YES—Do the DTC 91 or 92 troubleshooting: DTC 91 (see page 19-92), DTC 92 (see page 19-94).■

   NO—Go to step 3.
3. Substitute a known-good yaw rate-lateral/longitudinal acceleration sensor.
4. Turn the ignition switch ON (II).
5. Clear the DTC with the HDS.
6. Test-drive the vehicle. Drive the vehicle at 19 mph (30 km/h) or more, and go a distance of 985 ft (300 m) or more.
7. Check for DTCs with the HDS.

   Is DTC 25 or 26 indicated?

   YES—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest.■

   NO—Replace the original yaw rate-lateral/longitudinal acceleration sensor.■

BACK

Protected by AR

DTC 27: Steering Angle Sensor (Hardware)

1. Turn the ignition switch ON (II).
2. Check for DTCs with the HDS.

   Is DTC 91 or 92 indicated with DTC 27 at the same time?

   YES—Do the DTC 91 or 92 troubleshooting: DTC 91 (see page 19-92), DTC 92 (see page 19-94). ■

   NO—Go to step 3.

3. Check the steering angle sensor installation.

   Is the steering angle sensor installed correctly?

   YES—Replace the steering angle sensor, then do the steering angle sensor center point write procedure. ■

   NO—Reinstall the steering angle sensor correctly (see page 19-99), then do the steering angle sensor center point writing procedure. ■

DTC 31, 32, 33, 34, 35, 36, 37, 38: ABS Solenoid

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 31, 32, 33, 34, 35, 36, 37, and/or 38 indicated?

   YES—Replace the VSA modulator-control unit (see page 19-102). ■

   NO—Intermittent failure, the system is OK at this time. Check for a loose connection at G303. ■

Protected by AR

DTC Troubleshooting (cont'd)

DTC 45, 46, 47, 48: VSA Solenoid

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 45, 46, 47, and/or 48 indicated?

   YES—Replace the VSA modulator-control unit (see page 19-102).■

   NO—Intermittent failure, the system is OK at this time. Check for a loose connection at G303.■

DTC 51: Motor Locked

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle. Drive the vehicle at 10 mph (15 km/h) or more, with the engine speed at 2,500 rpm or higher.
4. Check for DTCs with the HDS.

   Is DTC 51 indicated?

   YES—Inspect G303 for loose or poor connection, then replace the VSA modulator-control unit (see page 19-102).■

   NO—Intermittent failure, the system is OK at this time. Check for a loose connection at G303.■

BACK

Protected by AR

DTC 52: Motor Stuck OFF

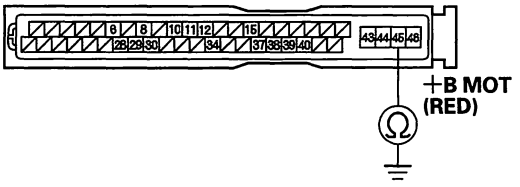
1. Turn the ignition switch OFF.
2. Check the No. 2 (40 A) fuse in the main under-hood fuse box.

   Is the fuse blown?

   YES—Go to step 3.

   NO—Reinstall the checked fuse, then go to step 5.
3. Disconnect the VSA modulator-control unit 46P connector.
4. Check for continuity between VSA modulator-control unit 46P connector terminal No. 45 and body ground.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

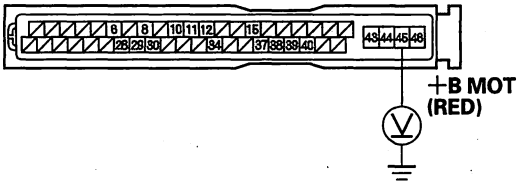
Is there continuity?

YES—Repair short to body ground in the wire between the No. 2 (40 A) fuse in the main under-hood fuse box and the VSA modulator-control unit. ■

NO—Install a new No. 2 (40 A) fuse, then go to step 6.

5. Disconnect the VSA modulator-control unit 46P connector.
6. Measure the voltage between VSA modulator-control unit 46P connector terminal No. 45 and body ground.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 7.

NO—Repair open in the wire between the No. 2 (40 A) fuse in the main under-hood fuse box and the VSA modulator-control unit. ■

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

7. Reconnect the VSA modulator-control unit 46P connector.
8. Turn the ignition switch ON (II).
9. Clear the DTC with the HDS.
10. Test-drive the vehicle. Drive the vehicle at 10 mph (15 km/h) or more, with the engine speed at 2,500 rpm or higher.
11. Check for DTCs with the HDS.

    Is DTC 52 indicated?

    YES—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest. ■

    NO—Intermittent failure, the system is OK at this time. Check for loose terminals at the VSA modulator-control unit 46P connector. Check for a loose connection at G303. Refer to intermittent failures troubleshooting (see page 19-44). ■

BACK

Protected by AR

DTC 53: Motor Stuck ON

1. Turn the ignition switch ON (II).

   Is the pump motor running?

   YES—Replace the VSA modulator-control unit (see page 19-102). ■

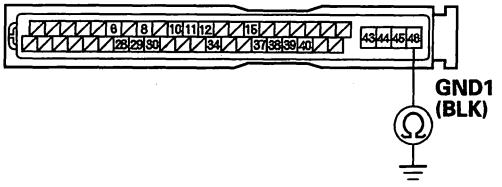
   NO—Go to step 2.

2. Turn the ignition switch OFF.

3. Disconnect the VSA modulator-control unit 46P connector.

4. Check for continuity between VSA modulator-control unit 46P connector terminal No. 46 and body ground.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 5.

NO—Repair open in the wire between the VSA modulator-control unit and body ground (G303). ■

5. Reconnect the VSA modulator-control unit 46P connector.

6. Turn the ignition switch ON (II).

7. Clear the DTC with the HDS.

8. Test-drive the vehicle. Drive the vehicle at 10 mph (15 km/h) or more, with the engine speed at 2,500 rpm or higher.

9. Check for DTCs with the HDS.

   Is DTC 53 indicated?

   YES—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest. ■

   NO—Intermittent failure, the system is OK at this time. Check for loose terminals at the VSA modulator-control unit 46P connector. Check for a loose connection at G303. Refer to intermittent failures troubleshooting (see page 19-44). ■

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DTC Troubleshooting (cont'd)

DTC 54: Valve Relay

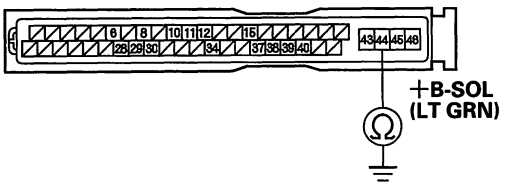
1. Turn the ignition switch OFF.
2. Check the No. 12 (20 A) fuse in the main under-hood fuse box.

   Is the fuse blown?

   YES—Go to step 3.

   NO—Reinstall the checked fuse, then go to step 5.
3. Disconnect the VSA modulator-control unit 46P connector.
4. Check for continuity between VSA modulator-control unit 46P connector terminal No. 44 and body ground.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

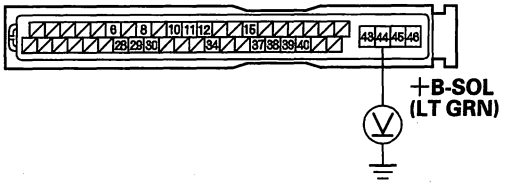
Is there continuity?

YES—Repair short to body ground in the wire between the No. 12 (20 A) fuse in the main under-hood fuse box and the VSA modulator-control unit. ■

NO—Install a new No. 12 (20 A) fuse, then go to step 6.

5. Disconnect the VSA modulator-control unit 46P connector.
6. Measure the voltage between VSA modulator-control unit 46P connector terminal No. 44 and body ground.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 7.

NO—Repair open in the wire between the No. 12 (20 A) fuse in the main under-hood fuse box and the VSA modulator-control unit. ■

BACK

Protected by AR

7. Reconnect the VSA modulator-control unit 46P connector.
8. Turn the ignition switch ON (II).
9. Clear the DTC with the HDS.
10. Turn the ignition switch OFF, then turn it ON (II) again.
11. Check for DTCs with the HDS.

    Is DTC 54 indicated?

    YES—Check for loose terminals between terminal No. 20 of the driver's under-dash fuse/relay box connector X (38P) and in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest. ■

    NO—Intermittent failure, the system is OK at this time. Check for loose terminals at the VSA modulator-control unit 46P connector. Check for a loose connection at G303. Refer to intermittent failures troubleshooting (see page 19-44). ■

DTC 59: BRKDIAG High

1. Turn the ignition switch OFF.
2. Check the brake lights without pressing the brake pedal.

    Are the brake lights on?

    YES—Replace the brake light relay. ■

    NO—Go to step 3.
3. Turn the ignition switch ON (II).
4. Check the brake lights without pressing the brake pedal.

    Are the brake lights on?

    YES—Go to step 5.

    NO—Go to step 9.
5. Turn the ignition switch OFF.
6. Disconnect the VSA modulator-control unit 46P connector.
7. Turn the ignition switch ON (II).

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

8. Check the brake lights without pressing the brake pedal.

   Are the brake lights on?

   YES—Go to step 9.

   NO—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest. ■

9. Clear the DTC with the HDS.

10. Press the brake pedal for 3 seconds or more.

11. Check for DTCs with the HDS.

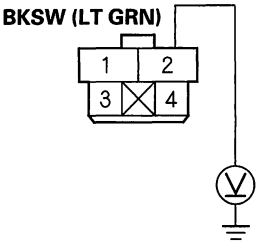
    Is DTC 59 indicated?

    YES—Go to step 12.

    NO—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest. ■

12. Measure the voltage between the brake pedal position switch 4P connector terminal No. 2 and body ground with the headlights OFF and ON.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



Wire side of female terminals

Is there less than 0.5 V?

YES—Go to step 13.

NO—Disconnect the taillight assemblies one at a time and recheck. If the voltage is OK, check the taillight ground connection and then replace the faulty taillight. ■

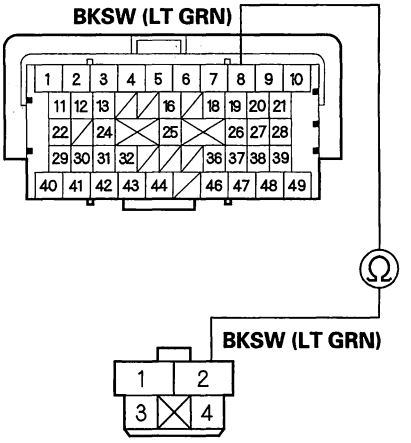
13. Turn the ignition switch OFF.

14. Short the SCS line with the HDS.

15. Disconnect the PCM connector A (49P), and the brake pedal position switch 4P connector.

16. Check for continuity between brake pedal position switch 4P connector terminal No. 2 and PCM connector A (49P) terminal No. 8.

PCM CONNECTOR A (49P)
Terminal side of female terminals



BRAKE PEDAL POSITION SWITCH 4P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Replace the PCM (see page 11-244). ■

NO—Repair open in the wire between the PCM and the brake pedal position switch. ■

BACK

Protected by AR

DTC 61: IG1 Voltage Low

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle at 2 mph (3 km/h) or more.
4. Check for DTCs with the HDS.

   Is DTC 61 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose terminals at the VSA modulator-control unit 46P connector. Check for a loose connection at G303. Refer to intermittent failures troubleshooting (see page 19-44).■

5. Test the battery and connections.

   Are the battery and battery connections OK?

   YES—Check for a poor connection at the battery terminals, and all IG1 circuit connections between the VSA modulator-control unit 46P connector terminal No. 40 and the under-dash fuse/relay box No. 29 (10A) fuse. If the connections are good, go to the Alternator and Regulator Circuit Troubleshooting (see page 4-30).■

   NO—Replace or charge the battery (see page 22-76), or repair the connections.■

Protected by AR

DTC Troubleshooting (cont'd)

DTC 62: IG1 Voltage High

NOTE: An overcharging a alternator can cause this DTC.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle at 2 mph (3 km/h) or more.
4. Check for DTCs with the HDS.

   Is DTC 62 indicated?

   YES—Check for a poor connection at the battery terminals. Check for a loose connection at G303. If the connections are good, go to the Alternator and Regulator Circuit Troubleshooting (see page 4-30). ■

   NO—Intermittent failure, the system is OK at this time. Check for loose terminals at the VSA modulator-control unit 46P connector. Check for a loose connection at G303. Refer to intermittent failures troubleshooting (see page 19-44). ■

DTC 65: VSA Pressure Sensor (Hardware)

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 65 indicated?

   YES—Replace the VSA modulator-control unit (see page 19-102). ■

   NO—Intermittent failure, the system is OK at this time. Check for a loose connection at G303. ■

BACK

Protected by AR

DTC 66: VSA Pressure Sensor (Software)

1. Turn the ignition switch ON (II).
2. Check for DTCs with the HDS.

   Is DTC 91 or 92 indicated with DTC 66 at the same time?

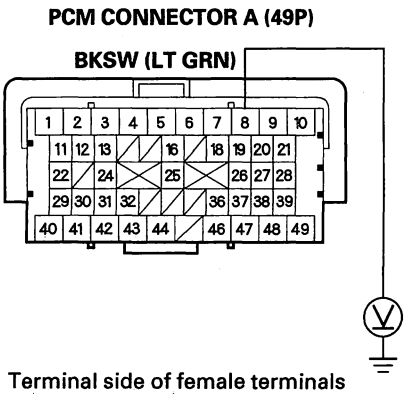
   YES—Do the DTC 91 or 92 troubleshooting: DTC 91 (see page 19-92), DTC 92 (see page 19-94). ■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect the brake pedal position switch 4P connector.
5. Do the brake pedal position switch test (see page 22-214).

   Is the switch OK?

   YES—Go to step 6.

   NO—Replace the brake pedal position switch (see page 19-6). ■
6. Short the SCS line with the HDS.
7. Disconnect the PCM connector A (49P).
8. Turn the ignition switch ON (II).
9. Measure the voltage between PCM connector A (49P) terminal No. 8 and body ground.



Terminal side of female terminals

   Is there 0.1 V or more when the brake pedal is released?

   YES—Repair short to power in the wire between the brake pedal position switch and the PCM. ■

   NO—Go to step 10.
10. Turn the ignition switch OFF.
11. Substitute a known-good PCM (see page 11-244).
12. Turn the ignition switch ON (II).
13. Clear the DTC with the HDS.
14. Test-drive the vehicle at 8 mph (12 km/h) for 60 seconds or more.
15. Check for DTCs with the HDS.

    Is DTC 66 indicated?

    YES—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102), and retest. ■

    NO—Replace the original PCM (see page 11-244). ■

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DTC Troubleshooting (cont'd)

DTC 67: Brake Pedal Position Switch Stuck ON (Hardware)

1. Turn the ignition switch ON (II).
2. Check for DTCs with the HDS.

   Is DTC 91 or 92 indicated with DTC 67 at the same time?

   YES—Do the DTC 91 or 92 troubleshooting: DTC 91 (see page 19-92), DTC 92 (see page 19-94).■

   NO—Go to step 3.
3. Check the BRAKE SWITCH in the VSA DATA LIST with the HDS while moving the brake pedal.

   Does it indicate ON when the pedal is pressed, and OFF when the pedal is released?

   YES—Go to step 4.

   NO—Go to step 7.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle at 10 mph (15 km/h) for 60 seconds or more.
6. Check for DTCs with the HDS.

   Is DTC 67 indicated?

   YES—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest.■

   NO—Intermittent failure, the system is OK at this time. Check for loose terminals at the VSA modulator-control unit 46P connector. Check for a loose connection at G303. Refer to intermittent failures troubleshooting (see page 19-44).■
7. Turn the ignition switch OFF.
8. Disconnect the brake pedal position switch 4P connector.
9. Do the brake pedal position switch test (see page 22-214).

   Is the switch OK?

   YES—Check for fuel and emissions systems DTCs, and troubleshoot those DTCs first, if no fuel and emissions DTCs are found troubleshoot the brake pedal position switch signal circuit (see page 11-308).■

   NO—Replace the brake pedal position switch (see page 19-6).■

BACK

Protected by AR

DTC 68: Brake Pedal Position Switch Stuck OFF (Software)

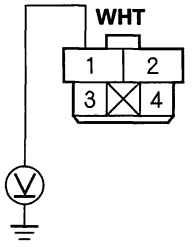
1. Turn the ignition switch OFF.
2. Check the No. 11 (15 A) fuse in the main under-hood fuse box.

   Is the fuse OK?

   YES—Reinstall the fuse, and go to step 3.

   NO—Replace the fuse, and recheck. If the fuse is blown, check for a short to body ground in the brake pedal position switch circuit. ■
3. Disconnect the brake pedal position switch 4P connector.
4. Measure the voltage between brake pedal position switch 4P connector terminal No. 1 and body ground.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



Wire side of female terminals

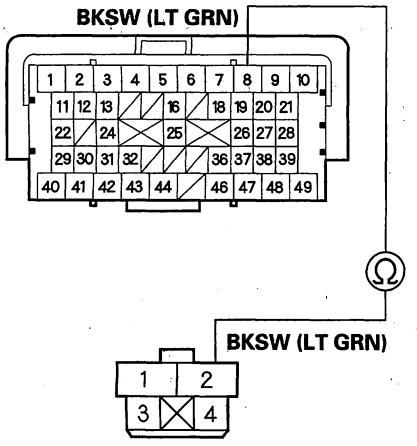
Is there battery voltage?

YES—Go to step 5.

NO—Repair open in the wire between the No. 11 (15 A) fuse in the main under-hood fuse box and the brake pedal position switch. ■

5. Short the SCS line with the HDS.
6. Disconnect the PCM connector A (49P).
7. Check for continuity between brake pedal position switch 4P connector terminal No. 2 and PCM connector A (49P) terminal No. 8.

PCM CONNECTOR A (49P)
Terminal side of female terminals



BRAKE PEDAL POSITION SWITCH 4P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 8.

NO—Repair open in the wire between the PCM and the brake pedal position switch. ■

(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

8. Do the brake pedal position switch test (see page 22-214).

   Is the switch OK?

   YES—Go to step 9.

   NO—Replace the brake pedal position switch (see page 19-6). ■

9. Substitute a known-good PCM (see page 11-244).

10. Start the engine, then press the brake pedal slowly and hard.

11. Check for DTCs with the HDS.

    Is DTC 68 indicated?

    YES—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest. ■

    NO—Replace the original PCM (see page 11-244). ■

BACK

Protected by AR

DTC 69: BRKDIAG Low

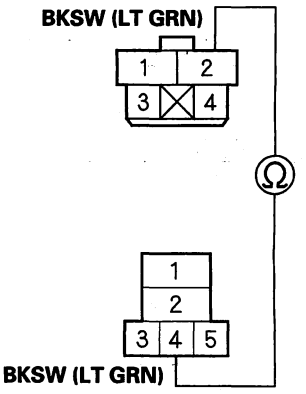
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) again.
4. After the VSA indicator goes off, press the brake pedal for 3 seconds or more.
5. Check for DTCs with the HDS.

   Is DTC 69 indicated?

   YES—Go to step 6.

   NO—Go to step 19.
6. Turn the ignition switch OFF.
7. Remove the brake light relay.
8. Disconnect the brake pedal position switch 4P connector.
9. Check for continuity between the brake pedal position switch 4P connector terminal No. 2 and the brake light relay 5P connector No. 4.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR
Wire side of female terminals



BRAKE LIGHT RELAY 5P CONNECTOR
Terminal side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the brake pedal position switch and the brake light relay. ■

(cont'd)

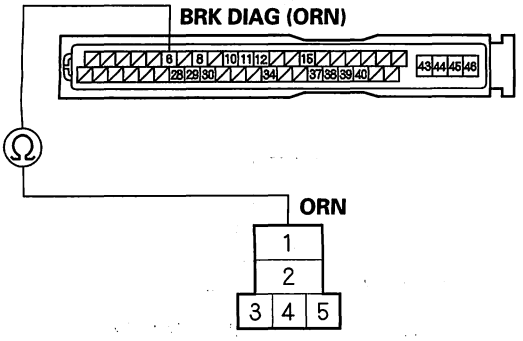
Protected by AR

DTC Troubleshooting (cont'd)

10. Disconnect the VSA modulator-control unit 46P connector.

11. Check for continuity between the VSA modulator-control unit 46P connector terminal No. 6 and the brake light relay 5P connector No. 1.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR
Wire side of female terminals



BRAKE LIGHT RELAY 5P CONNECTOR
Terminal side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between the VSA modulator-control unit and the brake light relay. ■

12. Substitute a known-good brake light relay.

13. Connect the VSA modulator-control unit 46P connector.

14. Turn the ignition switch ON (II).

15. Clear the DTC with the HDS.

16. Turn the ignition switch OFF, then turn it ON (II) again.

17. After the VSA indicator goes off, press the brake pedal for 3 seconds or more.

18. Check for DTCs with the HDS.

Is DTC 69 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest. ■

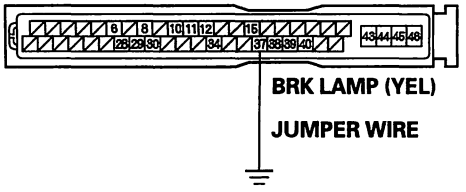
NO—Replace the original brake light relay. ■

BACK

Protected by AR

19. Turn the ignition switch OFF.
20. Remove the brake light relay.
21. Disconnect the VSA modulator-control unit 46P connector.
22. Turn the ignition switch ON (II).
23. Connect the VSA modulator-control unit 46P connector terminal No. 37 to body ground with a jumper wire.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

24. Check the brake lights without pressing the brake pedal.

    Are the brake lights on?

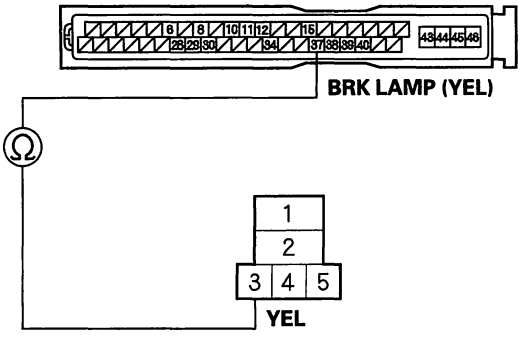
    YES—Go to step 25.

    NO—Go to step 29.

25. Turn the ignition switch OFF.

26. Check for continuity between the VSA modulator-control unit 46P connector terminal No. 37 and the brake light relay 5P connector No. 3.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR
Wire side of female terminals



BRAKE LIGHT RELAY 5P CONNECTOR
Terminal side of female terminals

Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the VSA modulator-control unit and the brake light relay. ■

(cont'd)

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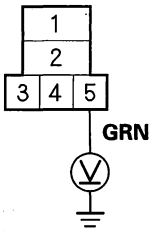
DTC Troubleshooting (cont'd)

27. Turn the ignition switch ON (II).

28. Measure the voltage between brake light relay 5P connector terminal No. 5 and body ground.

BRAKE LIGHT RELAY 5P CONNECTOR



Terminal side of female terminals

Is there battery voltage?

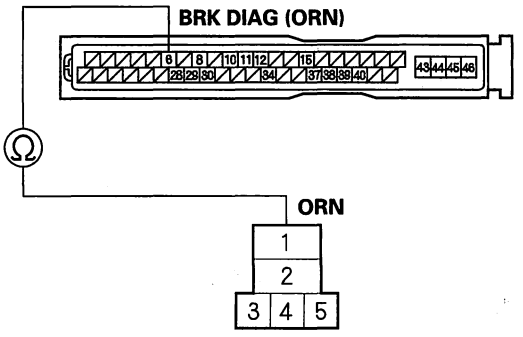
YES—Replace the brake light relay. ■

NO—Repair open in the wire between the No. 20 (7.5 A) fuse in the under-dash fuse/relay box and the brake light relay. ■

29. Turn the ignition switch OFF.

30. Check for continuity between the VSA modulator-control unit 46P connector terminal No. 6 and the brake light relay 5P connector No. 1.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR
Wire side of female terminals



BRAKE LIGHT RELAY 5P CONNECTOR
Terminal side of female terminals

Is there continuity?

YES—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest. ■

NO—Repair open in the wire between the VSA modulator-control unit and the brake light relay. ■

BACK

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DTC 72: Steering Angle Sensor (Software)

1. Turn the ignition switch ON (II).
2. Check for DTCs with the HDS.

   Is DTC 91 or 92 indicated with DTC 72 at the same time?

   YES—Do the DTC 91 or 92 troubleshooting: DTC 91 (see page 19-92), DTC 92 (see page 19-94). ■

   NO—Go to step 3.
3. Put the vehicle on a level surface, and center the steering wheel spokes.
4. Check STEERING ANGLE in the VSA DATA LIST with the HDS.

   With steering wheel in the straight ahead position, is STEERING ANGLE within ± 5 °?

   YES—Go to step 5.

   NO—Check for installation of the steering angle sensor. If installation is good, do the steering angle sensor center point writing (see page 19-100). ■
5. Check for wheel alignment (see page 18-5).

   Is the wheel alignment within the specification?

   YES—Go to step 6.

   NO—Make sure the suspension is not modified, and adjust the wheel alignment correctly, and recheck by test-driving the vehicle. ■
6. Turn the ignition switch ON (II).
7. Clear the DTCs with the HDS.
8. Test-drive the vehicle around a number of corners.
9. Check for DTCs with the HDS.

   Is DTC 72 indicated?

   YES—Replace the VSA modulator-control unit (see page 19-102). ■

   NO—The system is OK at this time. ■

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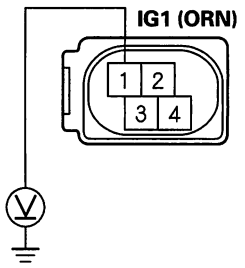
DTC Troubleshooting (cont'd)

DTC 73: Yaw Rate Sensor (Power Supply)

1. Turn the ignition switch OFF.
2. Disconnect the yaw rate-lateral/longitudinal acceleration sensor 4P connector.
3. Turn the ignition switch ON (II).
4. Measure the voltage between body ground and yaw rate-lateral/longitudinal acceleration sensor 4P connector terminal No. 1.

YAW RATE-LATERAL/LONGITUDINAL ACCELERATION SENSOR 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Replace the yaw rate-lateral/longitudinal acceleration sensor. ■

NO—Repair open in the wire between the No. 29 (10 A) fuse in the under-dash fuse/relay box and the yaw rate-lateral/longitudinal acceleration sensor. ■

BACK

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DTC 74: Yaw Rate Sensor (Software)

NOTE: Driving on an extremely angled road can cause this DTC.

1. Turn the ignition switch ON (II).
2. Check for DTCs with the HDS.

   Is DTC 97 indicated with DTC 74 at the same time?

   YES—Do the DTC 97 troubleshooting (see page 19-95).■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Check that the yaw rate-lateral/longitudinal acceleration sensor is properly mounted (see page 19-100).

   Is the yaw rate-lateral/longitudinal acceleration sensor installation OK?

   YES—Go to step 5.

   NO—Reinstall the yaw rate-lateral/longitudinal acceleration sensor, and recheck by test-driving.■
5. Put the vehicle on a level surface.
6. Turn the ignition switch ON (II).
7. Check the YAW RATE S in the VSA DATA LIST with the HDS.

   Is it indicated within ± 5 °/s?

   YES—Go to step 8.

   NO—Replace the yaw rate-lateral/longitudinal acceleration sensor (see page 19-100).■
8. Clear the DTC with the HDS.
9. Test-drive the vehicle around a number of corners.
10. Check for DTCs with the HDS.

    Is DTC 74 indicated?

    YES—Go to step 11.

    NO—Intermittent failure; the most probable cause is the vehicle has been driven on an extremely angled road. The system is OK at this time.■
11. Turn the ignition switch OFF.
12. Substitute a known-good yaw rate-lateral/longitudinal acceleration sensor (see page 19-100).
13. Turn the ignition switch ON (II).
14. Clear the DTC with the HDS.
15. Test-drive the vehicle around a number of corners.
16. Check for DTCs with the HDS.

    Is DTC 74 indicated?

    YES—Check for loose terminal in the VSA modulator-control unit 46P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest.■

    NO—Replace the original yaw rate-lateral/longitudinal acceleration sensor (see page 19-100).■

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DTC Troubleshooting (cont'd)

DTC 75: Lateral/Longitudinal Acceleration Sensor (Joint Failure)

DTC 76: Lateral/Longitudinal Acceleration Sensor (Software)

NOTE: Driving on an extremely angled road can cause this DTC.

1. Turn the ignition switch ON (II).
2. Check for DTCs with the HDS.

   Is DTC 97 indicated with DTC 75 or 76 at the same time?

   YES—Do the DTC 97 troubleshooting (see page 19-95). ■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Check that the yaw rate-lateral/longitudinal acceleration sensor is properly mounted (see page 19-100).

   Is the yaw rate-lateral/longitudinal acceleration sensor installation OK?

   YES—Go to step 5.

   NO—Reinstall the yaw rate-lateral/longitudinal acceleration sensor, and recheck by test-driving. ■
5. Put the vehicle on a level surface.
6. Turn the ignition switch ON (II).
7. Check the LATERAL ACCELERATION SENSOR in the VSA DATA LIST with the HDS.

   Is it indicated within ± 1 m/s?

   YES—Go to step 8.

   NO—Replace the yaw rate-lateral/longitudinal acceleration sensor (see page 19-100). ■
8. Clear the DTC with the HDS.
9. Test-drive the vehicle around a number of corners.
10. Check for DTCs with the HDS.

    Is DTC 75 or 76 indicated?

    YES—Go to step 11.

    NO—Intermittent failure; the most probable cause is the vehicle has been driven on an extremely angled road. The system is OK at this time. ■
11. Turn the ignition switch OFF.
12. Substitute a known-good yaw rate-lateral/longitudinal acceleration sensor (see page 19-100).
13. Turn the ignition switch ON (II).
14. Clear the DTC with the HDS.
15. Test-drive the vehicle around a number of corners.
16. Check for DTCs with the HDS.

    Is DTC 75 or 76 indicated?

    YES—Replace the VSA modulator-control unit (see page 19-102). ■

    NO—Replace the original yaw rate-lateral/longitudinal acceleration sensor (see page 19-100). ■

BACK

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DTC 81: Central Processing Unit (CPU)

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 81 indicated?

   YES—Replace the VSA modulator-control unit (see page 19-102).■

   NO—Intermittent failure, the system is OK at this time. Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303.■

DTC 84: Steering Angle Sensor No Center Point Writing

1. Turn the ignition switch ON (II).
2. Check for DTCs with the HDS.

   Are any DTCs indicated with DTC 84 at the same time?

   YES—Troubleshoot any other DTCs, and recheck.■

   NO—Go to step 3.
3. Do the steering angle sensor center point writing with the HDS (see page 19-100).
4. Clear the DTC with the HDS.
5. Turn the ignition switch OFF, then turn it ON (II) again.
6. Check for DTCs with the HDS.

   Is DTC 84 indicated?

   YES—Replace the steering angle sensor (see page 19-99), then do the steering angle sensor center point writing (see page 19-100).■

   NO—Intermittent failure, the system is OK at this time. Check for loose terminals between the steering angle sensor 5P connector and the VSA modulator-control unit 46P connector. Check for a loose connection at G303. Refer to intermittent failures troubleshooting (see page 19-44).■

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DTC Troubleshooting (cont'd)

DTC 91: F-CAN Communication

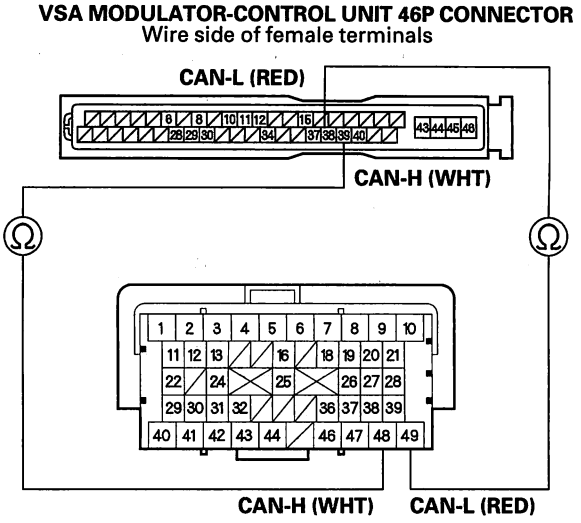
NOTE: Check the PCM for DTCs. If there are DTCs present, troubleshoot them first.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 92 indicated with DTC 91 at the same time?

   YES—Do the DTC 92 troubleshooting (see page 19-94).■

   NO—If only DTC 91 is indicated, go to step 5. If no DTCs are indicated, intermittent failure, the system is OK at this time. Check for loose terminals between the yaw rate-lateral/longitudinal acceleration sensor 4P connector, the PCM connector A (49P), and the VSA modulator-control unit 46P connector. Check for a loose connection at G303. Refer to intermittent failures troubleshooting (see page 19-44).
5. Turn the ignition switch OFF.
6. Short the SCS line with the HDS.
7. Disconnect the PCM connector A (49P).
8. Disconnect the VSA modulator-control unit 46P connector.
9. Check for continuity between VSA modulator-control unit 46P connector terminal No. 38, and No. 39 and PCM connector A (49P) terminal No. 49, and No. 48 respectively.



Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the PCM and the VSA modulator-control unit.■

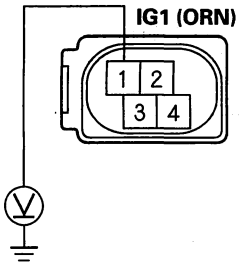
10. Disconnect the yaw rate-lateral/longitudinal acceleration sensor 4P connector.
11. Turn the ignition switch ON (II).

BACK

Protected by AR

12. Measure the voltage between yaw rate-lateral/longitudinal acceleration sensor 4P connector terminal No. 1 and body ground.

YAW RATE-LATERAL/LONGITUDINAL ACCELERATION SENSOR 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

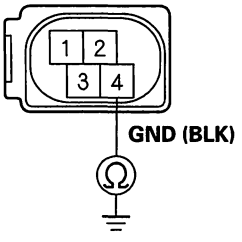
YES—Go to step 13.

NO—Repair open in the wire between the No. 29 (10 A) fuse in the under-dash fuse/relay box and the yaw rate-lateral/longitudinal acceleration sensor. ■

13. Turn the ignition switch OFF.

14. Check for continuity between yaw rate-lateral/longitudinal acceleration sensor 4P connector terminal No. 4 and body ground.

YAW RATE-LATERAL/LONGITUDINAL ACCELERATION SENSOR 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 15.

NO—Repair open in the wire between the yaw rate-lateral/longitudinal acceleration sensor and body ground (G506). ■

15. Reconnect all connectors.

16. Test-drive the vehicle. Check the YAW RATE S in the VSA DATA LIST with the HDS while driving in corners.

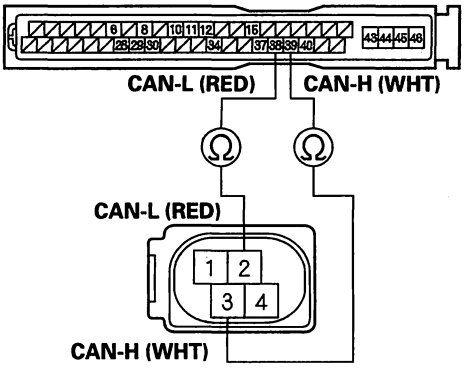
Are there 0 °/s indicated?

YES—Go to step 17.

NO—Check the fuel and emissions DTCs (see page 11-3), and troubleshoot the indicated DTC. ■

17. Check for continuity between VSA modulator-control unit 46P connector terminal No. 38, and No. 39 and yaw rate-lateral/longitudinal acceleration sensor 4P connector terminal No. 2, and No. 3 respectively.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR
Wire side of female terminals



YAW RATE-LATERAL/LONGITUDINAL ACCELERATION SENSOR 4P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Replace the yaw rate-lateral/longitudinal acceleration sensor (see page 19-100). ■

NO—Repair open in the wire between the yaw rate-lateral/longitudinal acceleration sensor and the VSA modulator-control unit. ■

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DTC Troubleshooting (cont'd)

DTC 92: F-CAN System (Bus-off)

NOTE: Check the PCM for DTCs. If there are DTCs present, troubleshoot them first.

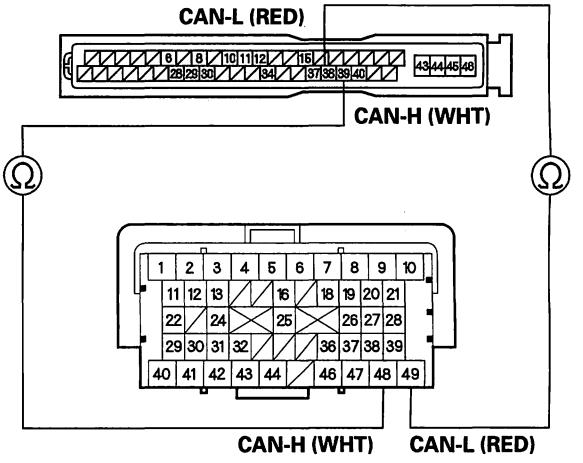
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 92 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose terminals between the PCM connector A (49P), and the VSA modulator-control unit 46P connector. Check for a loose connection at G303. Refer to intermittent failures troubleshooting (see page 19-44).■
5. Turn the ignition switch OFF.
6. Short the SCS line with the HDS.
7. Disconnect the PCM connector A (44P).
8. Disconnect the VSA modulator-control unit 46P connector.
9. Check for continuity between VSA modulator-control unit 46P connector terminal No. 38, and No. 39 and PCM connector A (49P) terminal No. 49, and No. 48 respectively.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR
Wire side of female terminals



PCM CONNECTOR A (49P)
Terminal side of female terminals

Is there continuity?

YES—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest.■

NO—Repair open in the wire between the PCM and the VSA modulator-control unit.■

BACK

Protected by AR

DTC 97: VSA System

1. Check the brake system for leaks or mechanical problems.

   Is the brake system OK? (No brake fluid leakage, no air trapped in the brake system, no brake pads worn out.)

   YES—Go to step 2.

   NO—Repair the brake system, then recheck.■

2. Turn the ignition switch ON (II).

3. Clear the DTC with the HDS.

4. Test-drive the vehicle in a straight line. Accelerate the vehicle up to 6 mph (10 km/h), and stop, then accelerate up to 6 mph (10 km/h).

5. Check for DTCs with the HDS.

   Is DTC 97 indicated?

   YES—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest.■

   NO—Intermittent failure, the system is OK at this time. Check for loose terminals at the VSA modulator-control unit 46P connector. Check for a loose connection at G303. Refer to intermittent failures troubleshooting (see page 19-44).■

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Symptom Troubleshooting

VSA activation indicator does not go off, and no DTCs are stored

1. Turn the ignition switch ON (II), and watch the VSA activation indicator.

   Does VSA activation indicator go off within 2 seconds?

   YES—The system is OK at this time. ■

   NO—Go to step 2.

2. Turn the ignition switch OFF.

3. Disconnect the VSA OFF switch 5P connector.

4. Check the VSA OFF switch (see page 19-101).

   Is the VSA OFF switch OK?

   YES—Go to step 5.

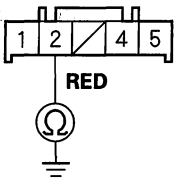
   NO—Replace the VSA OFF switch (see page 19-101). ■

5. Remove the gauge control module (see page 22-337).

6. Disconnect gauge control module connector B (24P).

7. Check for continuity between VSA OFF switch 5P connector terminal No. 2 and body ground.

VSA OFF SWITCH 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground between the gauge control module and the VSA OFF switch. ■

NO—Substitute a known-good gauge control module, then go to step 1 and recheck. If it is OK, replace the original gauge control module (see page 22-337). ■

BACK

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ABS indicator, brake system indicator, and VSA indicator do not go off at the same time

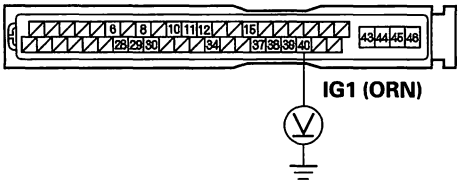
1. Turn the ignition switch OFF.
2. Check the No. 29 (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse blown?

   YES—Install a new No. 29 (10 A) fuse, and recheck. ■

   NO—Reinstall the checked fuse, then go to step 3.
3. Disconnect the VSA modulator-control unit 46P connector.
4. Turn the ignition switch ON (II).
5. Measure the voltage between VSA modulator-control unit 46P connector terminal No. 40 and body ground.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

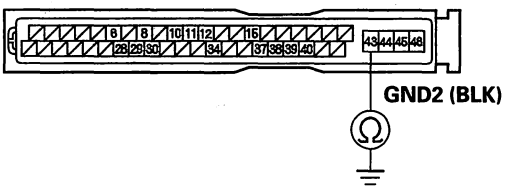
Is there battery voltage?

YES—Go to step 6.

NO—Repair open in the wire between the No. 29 (10 A) fuse in the under-dash fuse/relay box and the VSA modulator-control unit. ■

6. Turn the ignition switch OFF.
7. Check for continuity between VSA modulator-control unit 46P connector terminal No. 43 and body ground.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

NO—Repair open in the wire between the VSA modulator-control unit and body ground (G303). ■

8. Disconnect gauge control module connector A (12P).

(cont'd)

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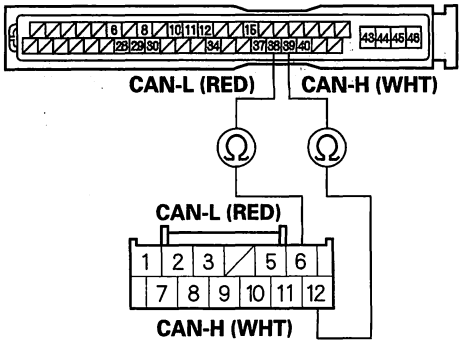
Symptom Troubleshooting (cont'd)

9. Check for continuity between VSA modulator-control unit 46P connector terminal No. 38, and No. 39 and gauge control module connector A (12P) No. 6, and No. 12 respectively.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR
Wire side of female terminals



GAUGE CONTROL MODULE CONNECTOR A (12P)
Wire side of female terminals

Is there continuity?

YES—Check for loose terminals in the VSA modulator-control unit 46P connector. Check for a loose connection at G303. If necessary, substitute a known-good VSA modulator-control unit (see page 19-102) and retest. ■

NO—Repair open in the wire between the gauge control module and the VSA modulator-control unit. ■

BACK

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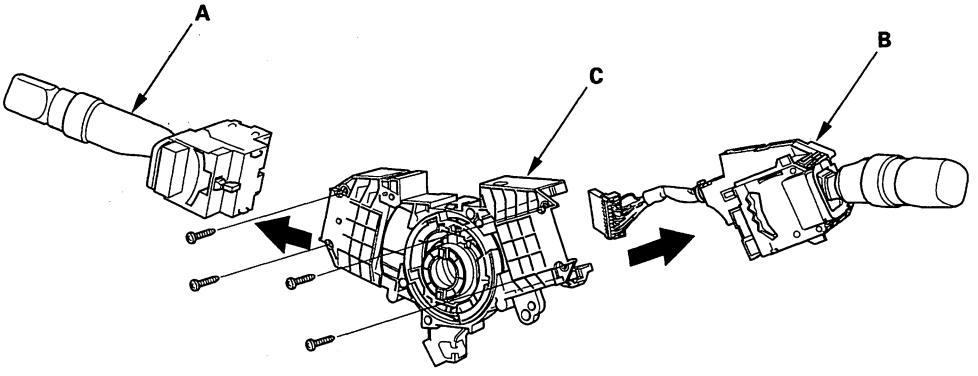
Steering Angle Sensor Replacement

NOTE: Do not damage or drop the combination switch as the steering angle sensor is sensitive to shock and vibration.

1. Remove the steering wheel (see page 17-22).
2. Remove the steering column covers (see page 20-129) and the cable reel (see page 24-149).
3. Remove the combination switch assembly (see step 9 on page 17-26).
4. Remove the combination light switch (A) and the wiper/washer switch (B).



5. Replace the combination switch body assembly (C).
6. Install the combination switch in the reverse order of removal.

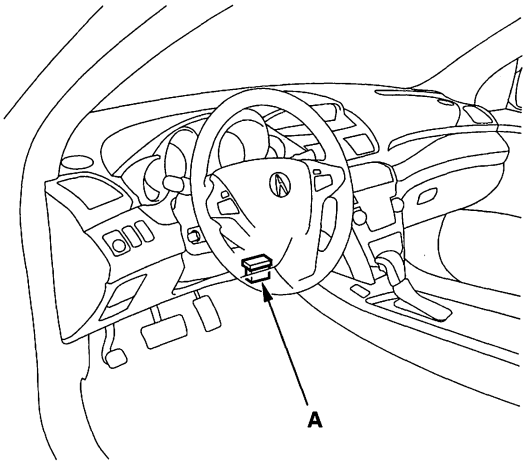
NOTE:
- Do not remove the steering angle sensor from the combination switch body.
- When installing the cable reel, set the turn signal canceling sleeve position (see page 24-150).

Protected by AR

Steering Angle Sensor Center Point Writing

NOTE: Before doing the steering angle sensor center point writing, place the vehicle on a flat level surface, and turn the steering wheel to the straight ahead position while moving the vehicle.

1. With the ignition switch OFF, connect the HDS to the data link connector (DLC) (A) under the driver's side of the dashboard.



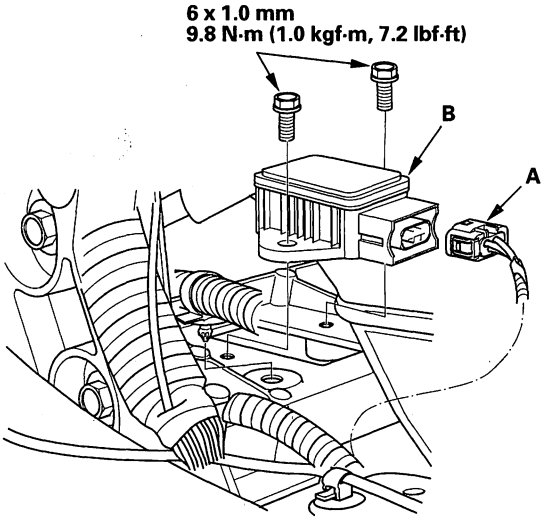
2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-223).
4. Do the steering angle sensor center point writing in the VSA ADJUSTMENT menu with the HDS.

   NOTE: See the HDS Help menu for specific instructions.
5. Turn the ignition switch OFF.
6. Verify DTC 84 clears and does not return. If DTC 84 is indicated, do the appropriate troubleshooting.

Yaw Rate-Lateral/Longitudinal Acceleration Sensor Replacement

NOTE:
- Do not damage or drop the sensor as it is sensitive.
- Do not use power tools.

1. Turn the ignition switch OFF.
2. Remove the driver's center console trim (see step 5 on page 20-107).
3. Disconnect the yaw rate-lateral/longitudinal acceleration sensor 4P connector (A).



4. Remove the sensor mounting nuts, and remove the yaw rate-lateral/longitudinal acceleration sensor (B).
5. Install in the reverse order of removal.
6. Do the yaw rate-lateral/longitudinal acceleration neutral position memorization (see page 15-7).

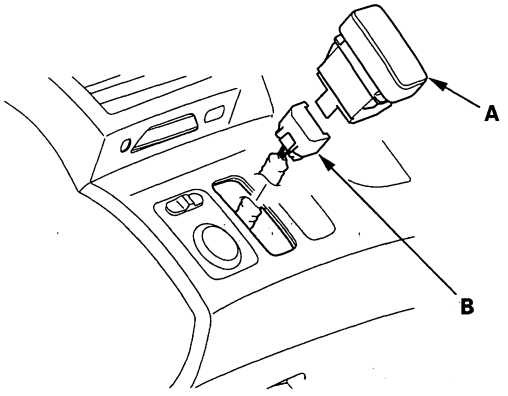
BACK

Protected by AR

VSA Off Switch Test

1. Remove the driver's dashboard lower cover (see page 20-119).

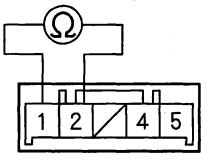
2. Push out the VSA OFF switch (A) from the back of the instrument panel.



3. Disconnect the VSA OFF switch 5P connector (B).

4. Check for continuity between the VSA OFF switch 5P connector terminal No. 1 and No. 2. There should be continuity when the switch is pressed, and no continuity when the switch is released.

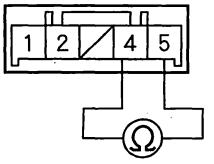
VSA OFF SWITCH 5P CONNECTOR



Terminal side of male terminals

5. Check for continuity between the VSA OFF switch 5P connector terminal No. 4 and No. 5. There should be continuity at all times.

VSA OFF SWITCH 5P CONNECTOR



Terminal side of male terminals

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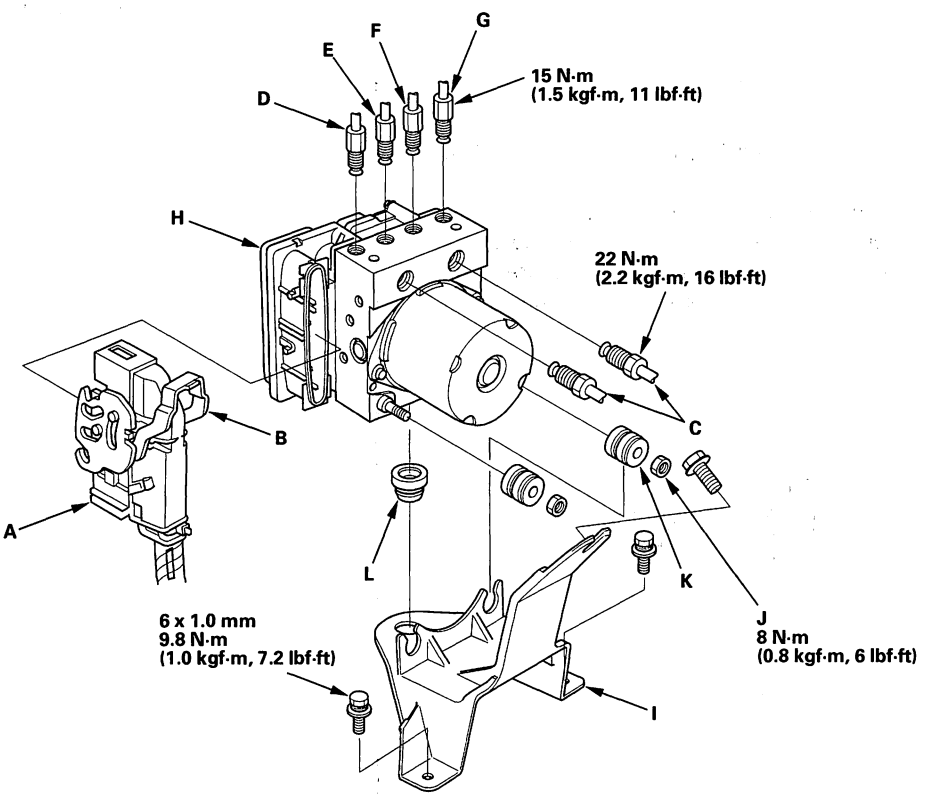
VSA System Components

VSA Modulator-Control Unit Removal and Installation

NOTE:
- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- Be careful not to damage or deform the brake lines during removal and installation.
- To prevent the brake fluid from flowing, plug and cover the hose ends and joints with a shop towel or equivalent material.

Removal

1. Turn the ignition switch OFF.
2. Remove the air cleaner box (see page 11-363).
3. Disconnect the VSA modulator-control unit 46P connector (A) by pulling up the lock (B); the connector disconnects itself.



4. Disconnect the six brake lines from the VSA modulator-control unit.

   NOTE: Brake lines are connected to the master cylinder (C) and to the right-front (D), the left-rear (E), the right-rear (F), and the left-front (G) brake systems.

5. Remove the VSA modulator-control unit (H) with the bracket (I) from the body.
6. Remove the locknuts (J), then remove the VSA modulator-control unit from the bracket.

   NOTE: During installation, install a new bushing (K) and new grommets (L). Otherwise, unwanted noise and vibration may be transmitted to the vehicle.

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Installation

1. Install the new bushing and new grommets. (Otherwise, unwanted noise and vibration may be transmitted to the vehicle.)
2. Install the VSA modulator-control unit on the bracket, then install new locknuts.
3. Install the bracket with the VSA modulator-control unit.
4. Reconnect the six brake lines, then tighten the flare nuts with the specified torque.
5. Align the connecting surface of the VSA modulator-control unit 46P connector to the VSA modulator-control unit.
6. Lower the lock of the VSA modulator-control unit 46P connector, then confirm the connector is fully seated.
7. Reinstall the air cleaner box (see page 11-363).
8. Bleed the brake system (see page 19-9).
9. Do the steering angle center point write procedure (see page 19-100).
10. Start the engine, and check that the ABS, the VSA indicators, and the trailer stability assist warning goes off.
11. Test-drive the vehicle, and check that the ABS, the VSA indicators, and the trailer stability assist warning do not come on.

    NOTE: If the brake pedal is spongy, there may be air trapped in the modulator which could then be induced into the normal brake system during modulation. Bleed the brake system again (see page 19-9).

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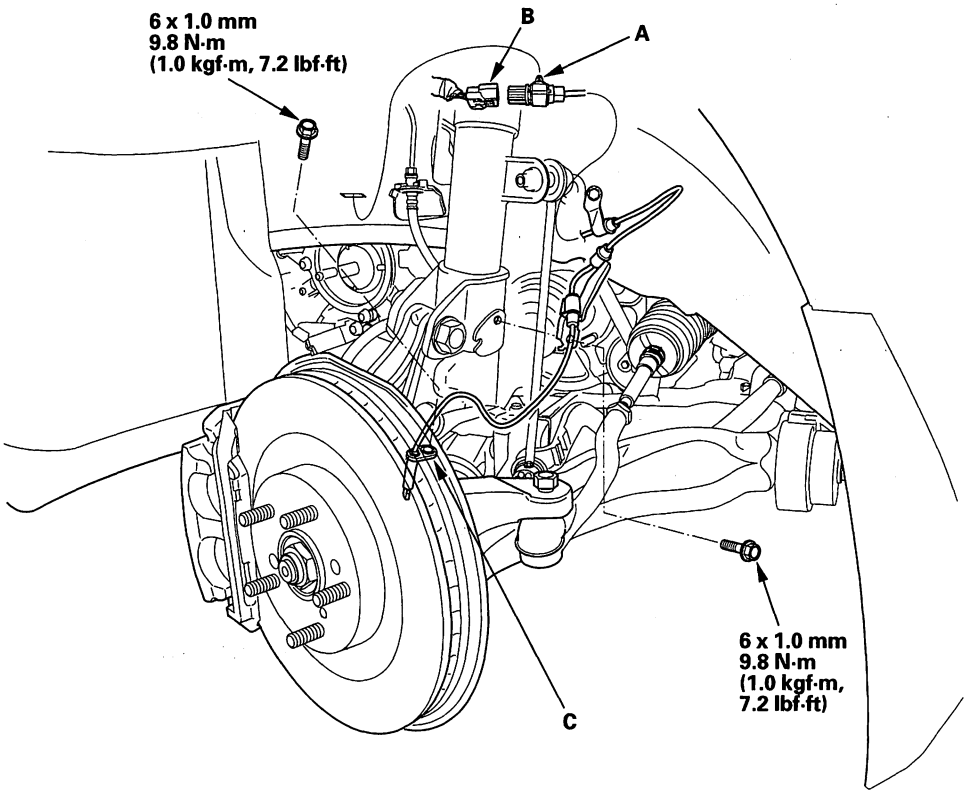
VSA System Components

Wheel Sensor Replacement

Front

1. Turn the ignition switch OFF.
2. Remove the clip (A), then disconnect the wheel sensor connector (B).



3. Remove the bolts and the wheel sensor (C).
4. Install the wheel sensor in the reverse order of removal, and note these items:
   - Install the sensor carefully to avoid twisting the wires.
   - If the wheel sensor comes in contact with the hub bearing unit, it is faulty.
5. Start the engine, and check that the ABS, the VSA indicators, and the trailer stability assist warning goes off.
6. Test-drive the vehicle, and check that the ABS, the VSA indicators, and the trailer stability assist warning do not come on.

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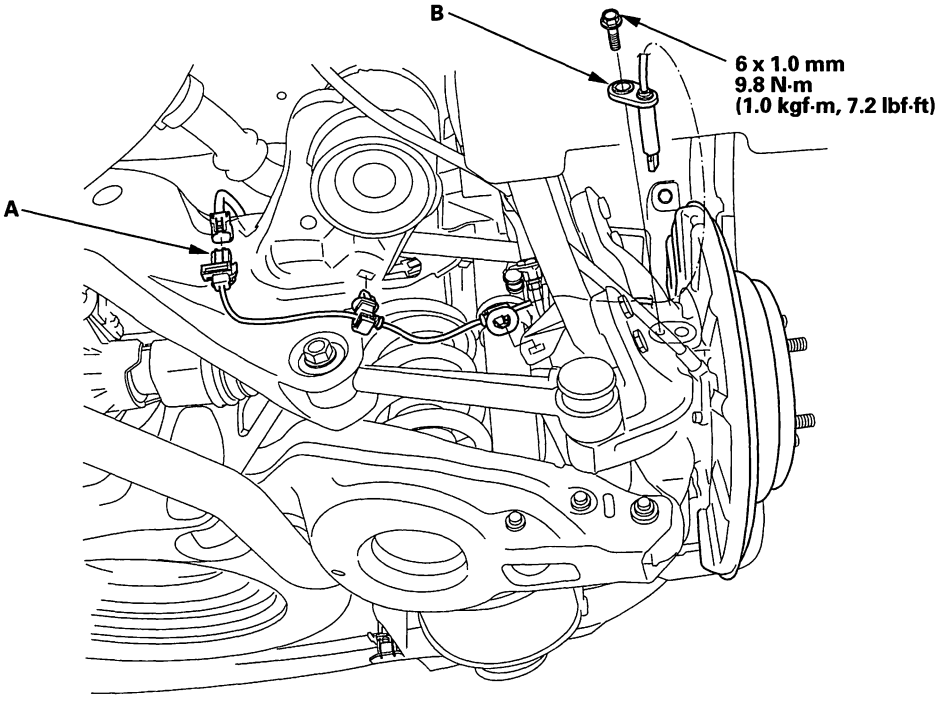
Rear

1. Turn the ignition switch OFF.
2. Disconnect the wheel sensor connector (A).



3. Remove the clips, the bolt, and the wheel sensor (B).
4. Install the wheel sensor in the reverse order of removal, and note these items:
   - Install the sensor carefully to avoid twisting the wires.
   - If the wheel sensor comes in contact with the hub bearing unit, it is faulty.
5. Start the engine, and check that the ABS, the VSA indicators, and the trailer stability assist warning goes off.
6. Test-drive the vehicle, and check that the ABS, the VSA indicators, and the trailer stability assist warning do not come on.

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SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If body maintenance is required)

The Acura MDX SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done only by an authorized Acura dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Acura dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags and/or side airbags.
- Do not bump or impact the SRS unit, front impact sensors, side impact sensors, or roll rate sensor when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.

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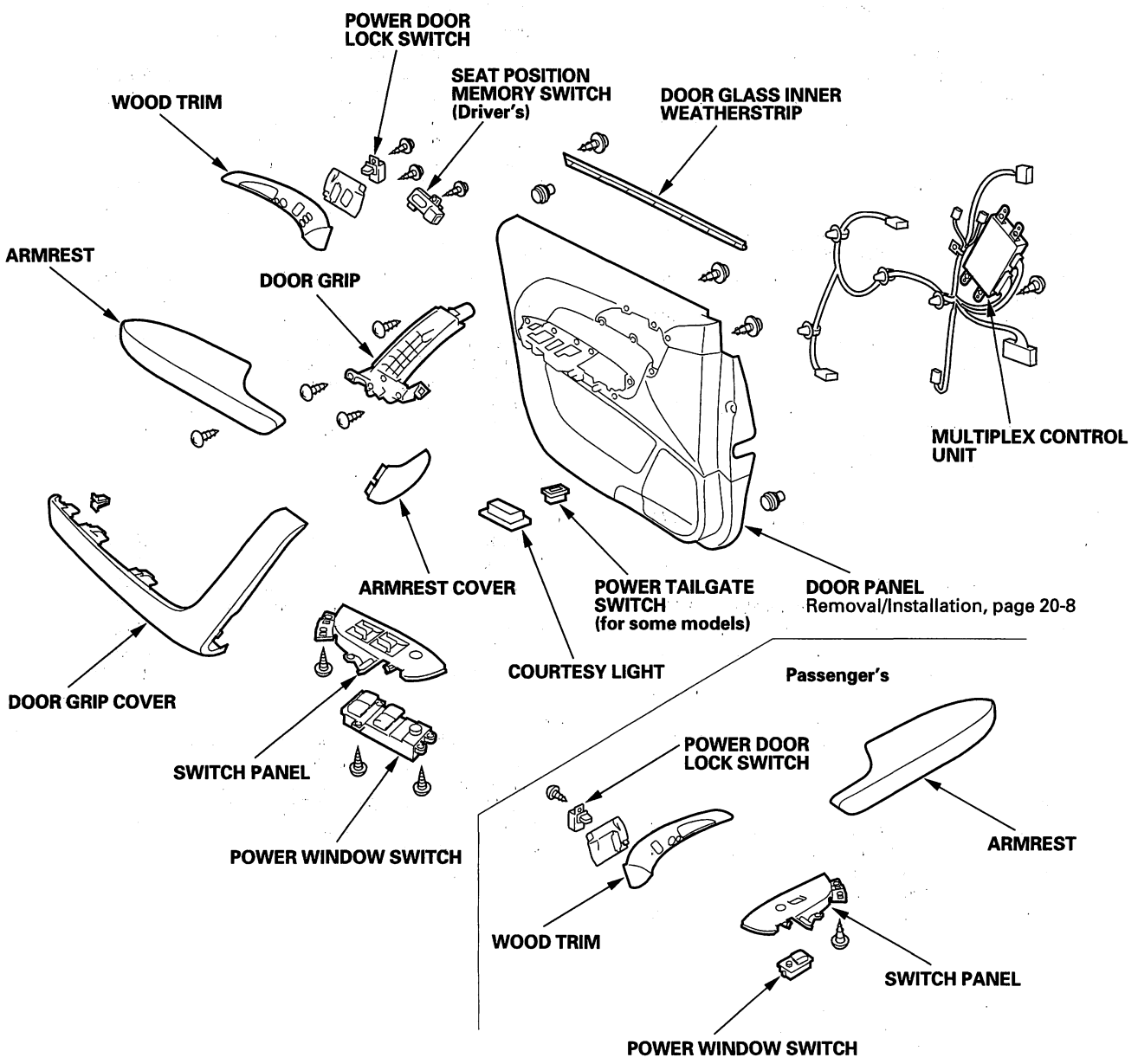

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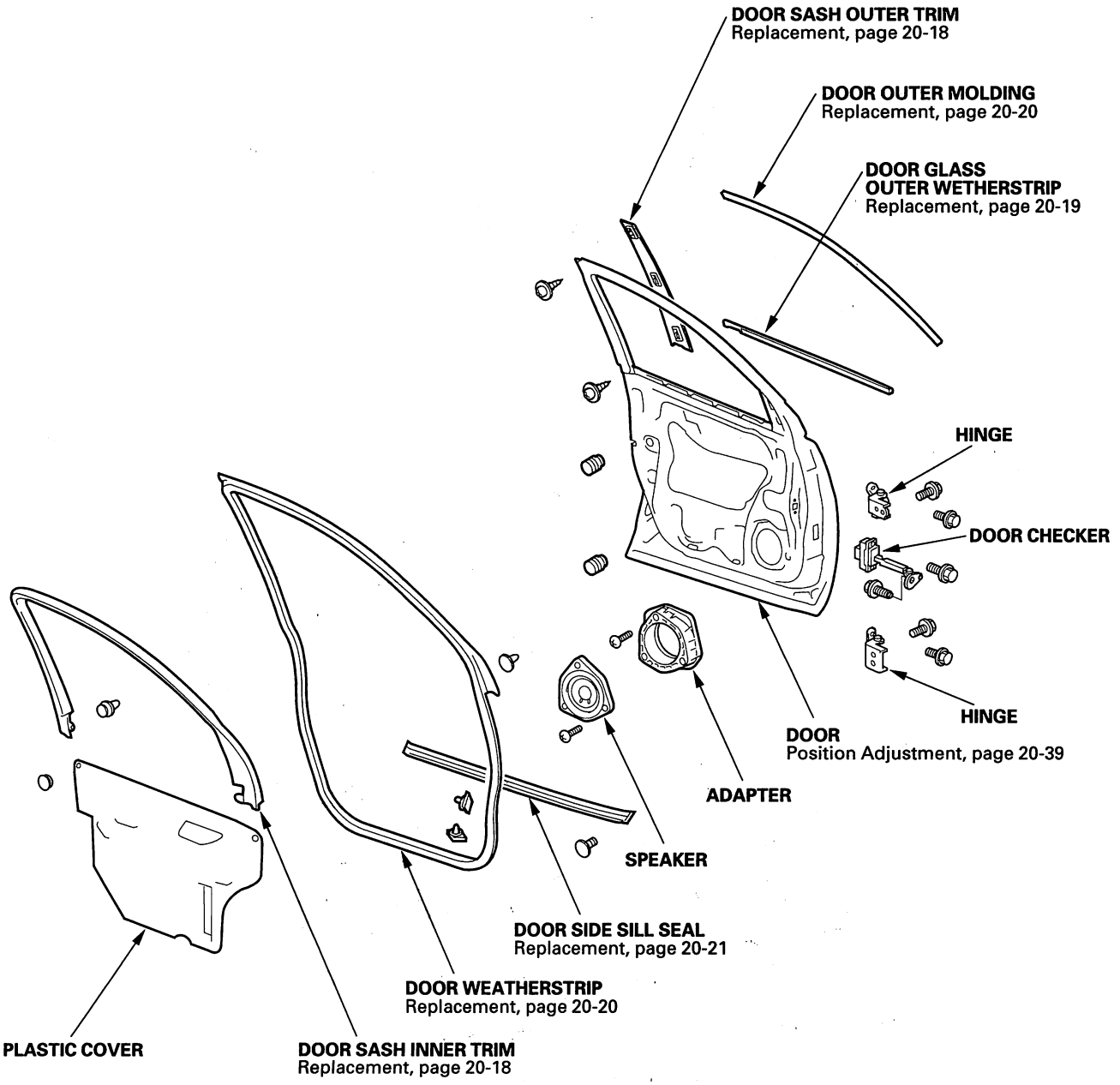

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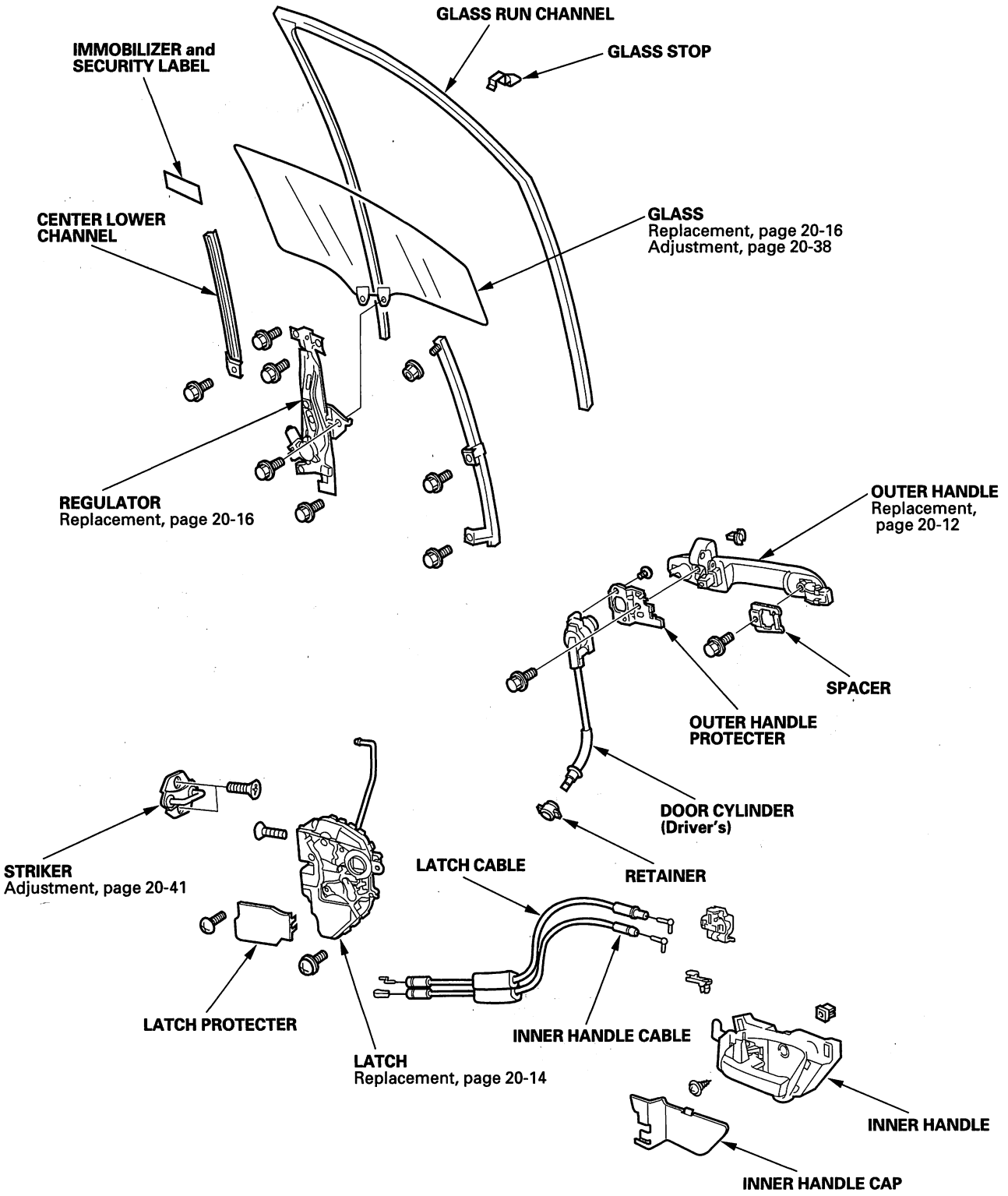
Component Location Index - Front Door (cont'd)



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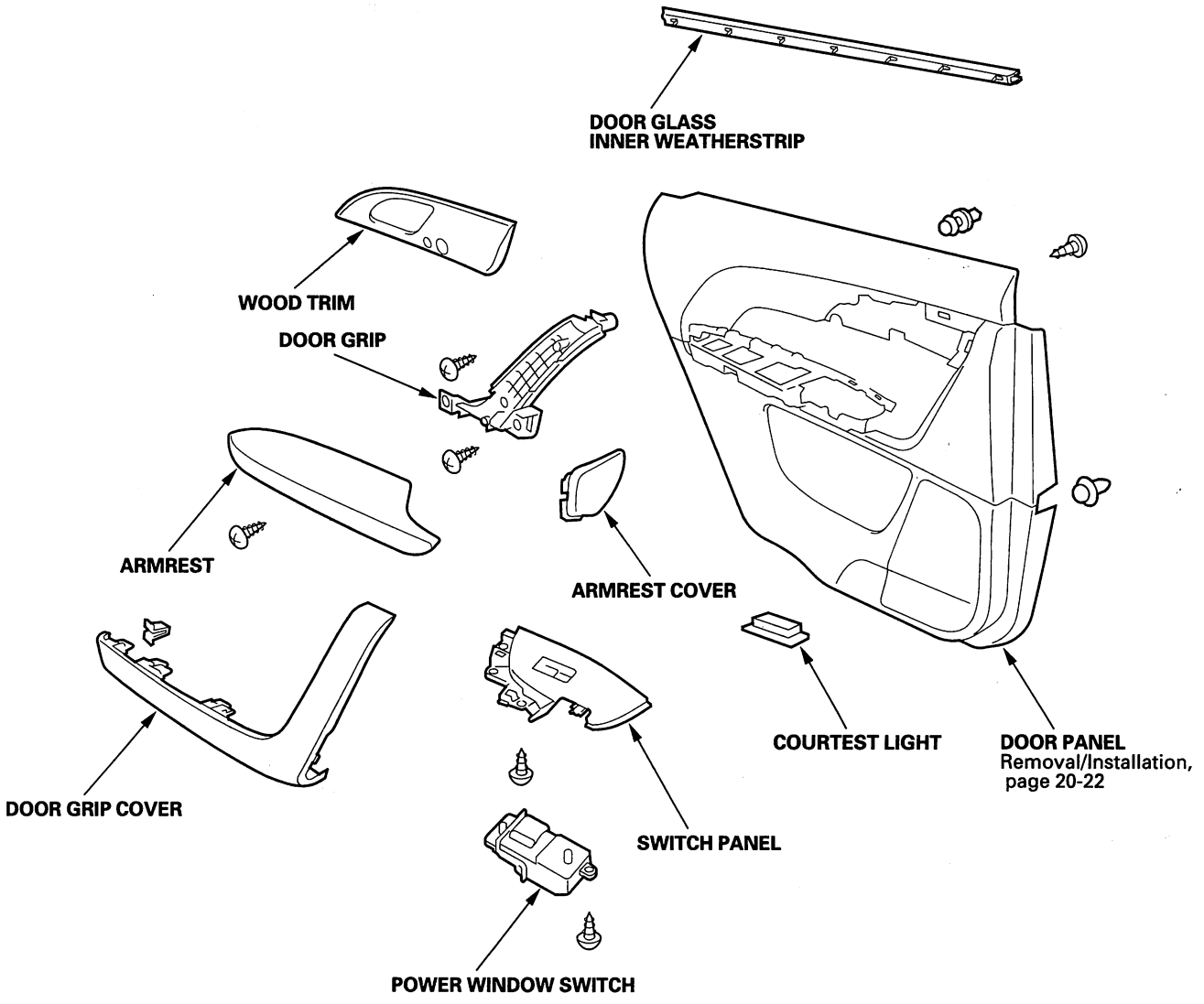

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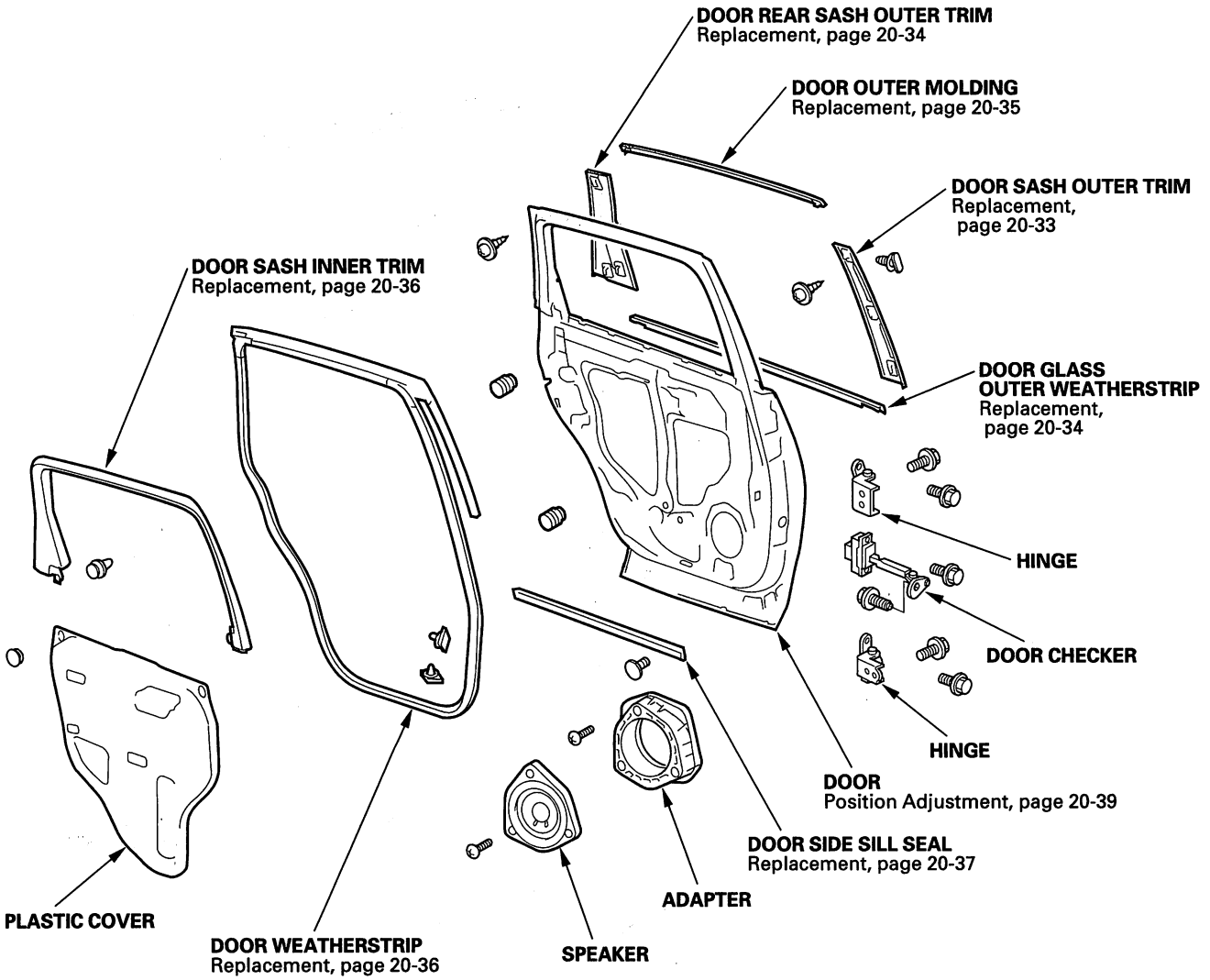
Component Location Index - Rear Door (cont'd)



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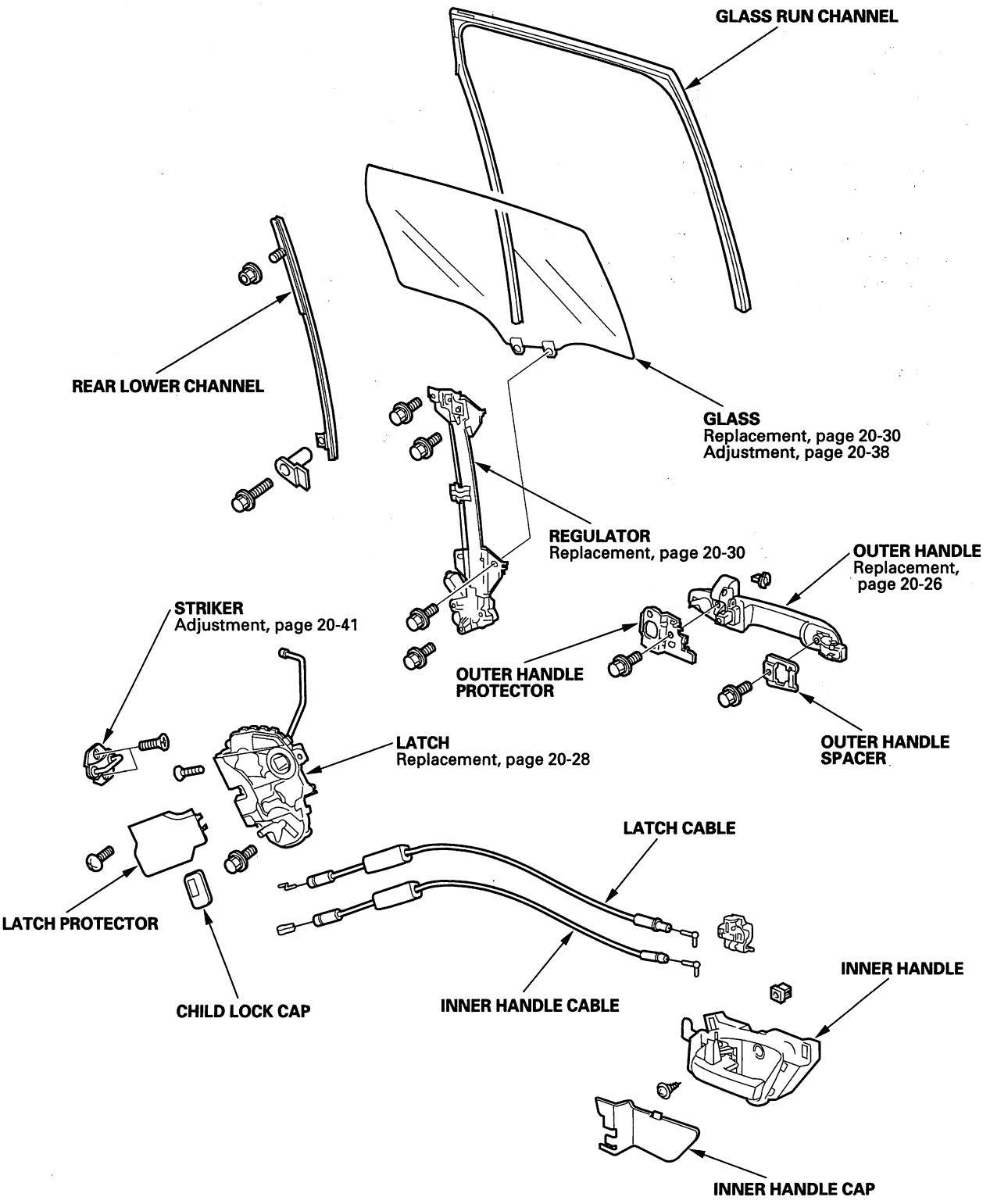

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Front Door Panel Removal/Installation

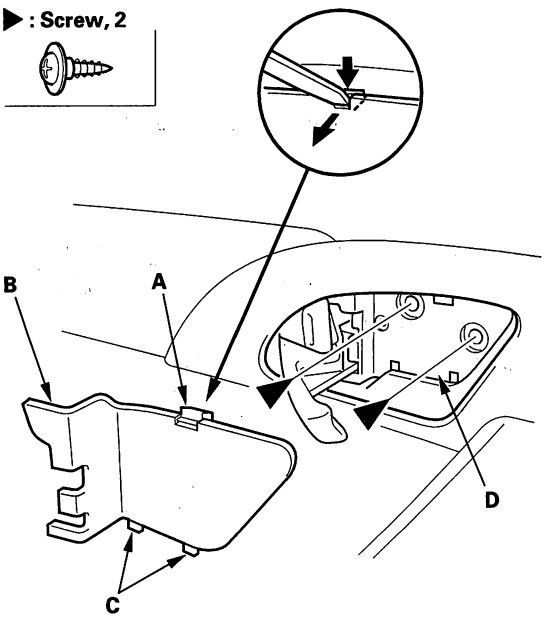
Special Tools Required
- KTC trim tool set SOJATP2014 *
- Trim pad remover, Snap-on A 177A or equivalent, commercially available

* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE: Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

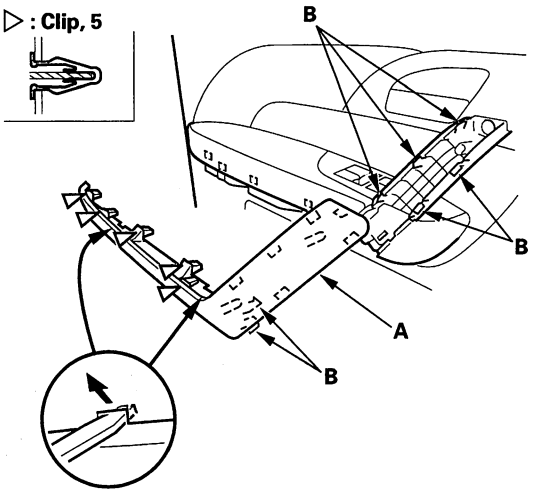
1. Using a trim tool, push on the upper hook (A) and pivot the inner handle cap (B) on the bottom hooks (C), then remove the cap and the screw securing the inner handle (D).

Fastener Locations
▶ : Screw, 2



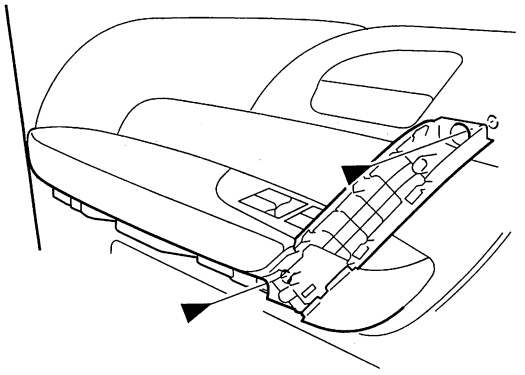
2. Pry out the bottom edge of the grip cover (A) at the notches with the trim tool to detach the clips and to release the hooks (B). Then remove the cover.

Fastener Locations
▷ : Clip, 5



3. Remove the screws.

Fastener Locations
▶ : Screw, 2



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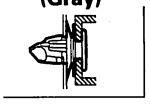
4. Remove the door panel (A) with as little bending as possible to avoid creasing or breaking it.

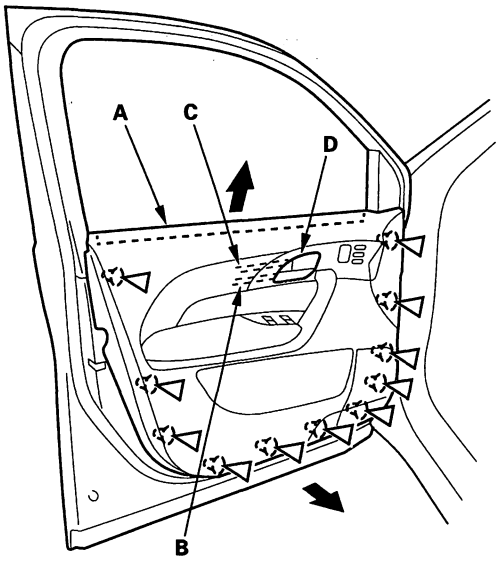
   1 Start at the bottom edge of the door panel, release the clips with a commercially available trim pad remover.
   2 Detach the upper clips.
   3 Starting at the rear, pull the door panel upward.

   NOTE: The inner handle cable (B) and latch cable (C) are connected to the inner handle (D). Do not pull the door panel up too far, or these cables will be damaged.

Fastener Locations

▷: **Clip, 11 (Gray)**

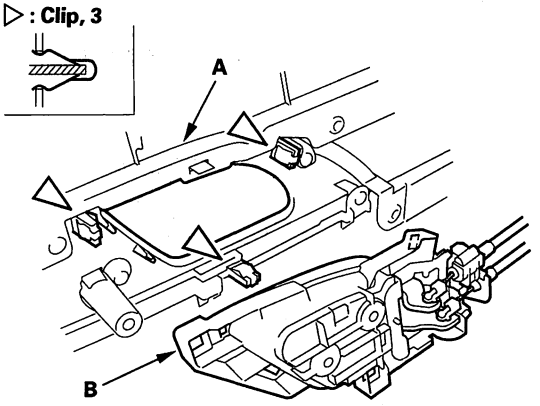




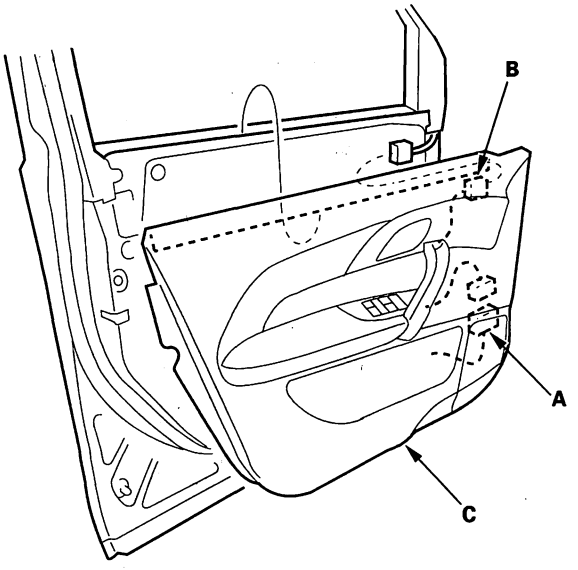
5. While holding the door panel (A) away from the door, remove the inner handle (B) from the door panel by detaching the clips.

Fastener Locations

▷: **Clip, 3**



6. Disconnect the door subharness connector (A) and power mirror switch connector (B), then remove the door panel (C).



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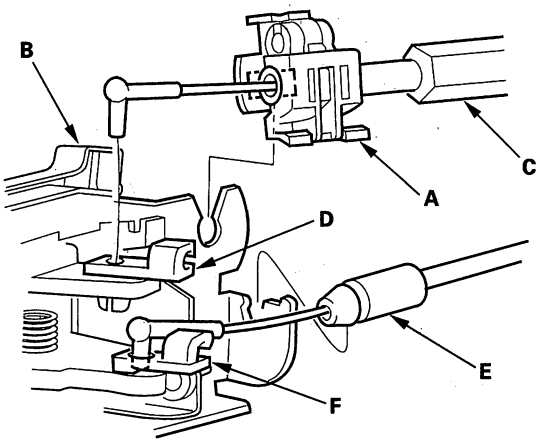
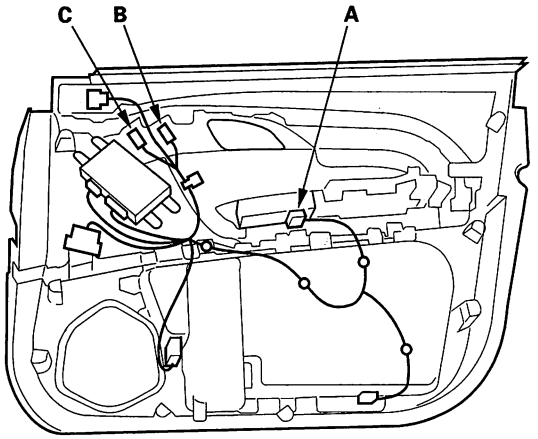
Front Door Panel Removal/Installation (cont'd)

7. Remove the latch cable fastener (A) from the inner handle (B), and then disconnect the latch cable (C) from the cable fastener (D). Disconnect the inner handle cable (E) from the cable fastener (F), then remove the inner handle.

   NOTE: Check if the cable fasteners are damaged or stress-whitened.



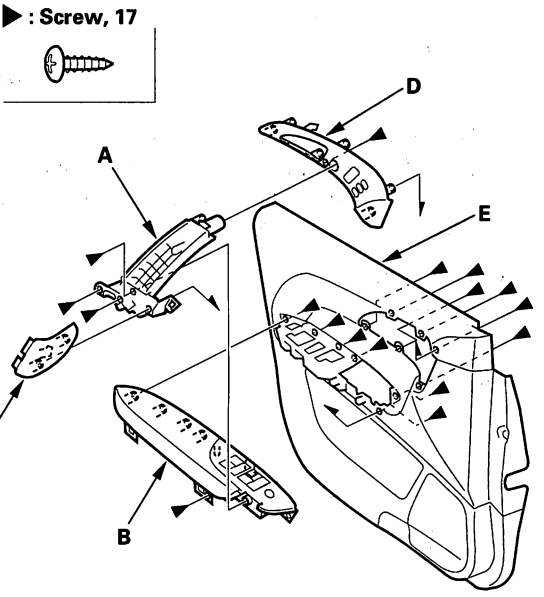
8. Disconnect the power window switch connector (A), and on the driver's side, disconnect the power door lock switch connector (B) and the seat position memory switch connector (C).



9. Remove the screws, then remove the grip(A), armrest assembly (B), armrest cover (C), and the wood trim (D) from the door panel (E).

Fastener Locations

▶ : Screw, 17



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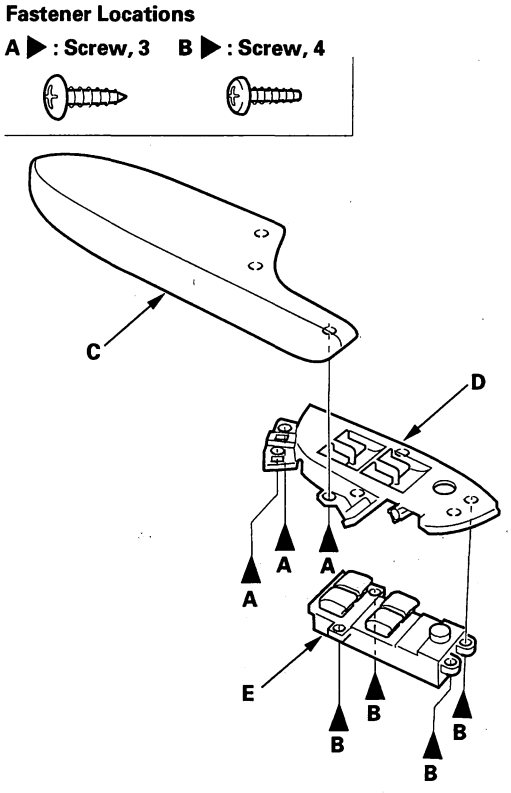
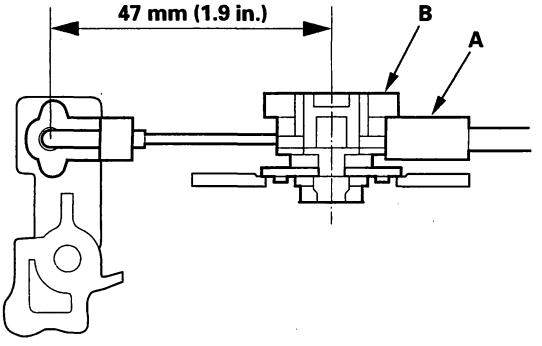
10. Remove the screws (A, B), then separate the armrest (C), the power window switch panel (D), and the power window switch (E).



11. Install the door panel in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Replace any damaged cable fasteners with new ones.
- The latch cable (A) should be fixed to the cable fastener (B) with the latch in the unlocked position as shown.
- Make sure the connectors are plugged in properly, and the cables are connected securely.
- Make sure the window and power door lock operate properly.



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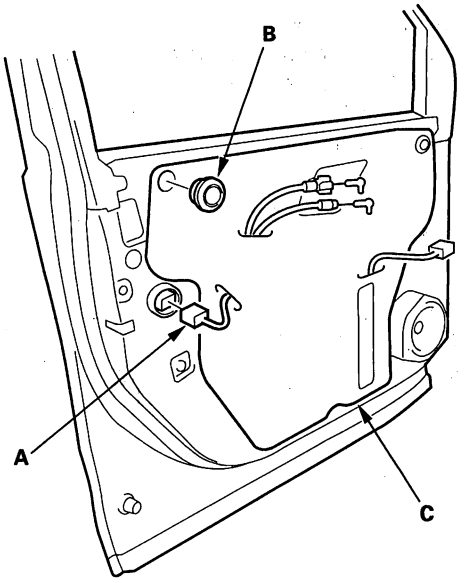
Front Door Outer Handle Replacement

NOTE: Put on gloves to protect your hands.

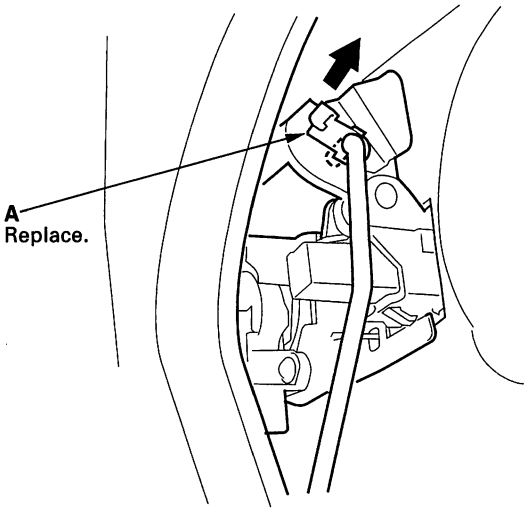
1. Raise the glass fully.
2. Remove the door panel (see page 20-8).
3. Disconnect the power door lock actuator connector (A).



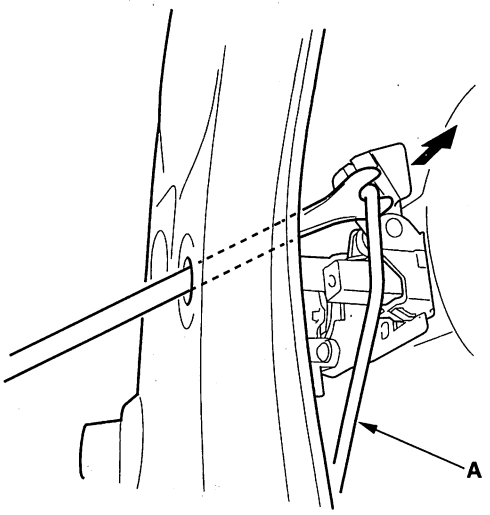
4. Remove the plug cap (B), then remove the plastic cover (C), as needed.

   NOTE: Remove the glue from the door surface. If the plastic cover is damaged or torn, replace it.

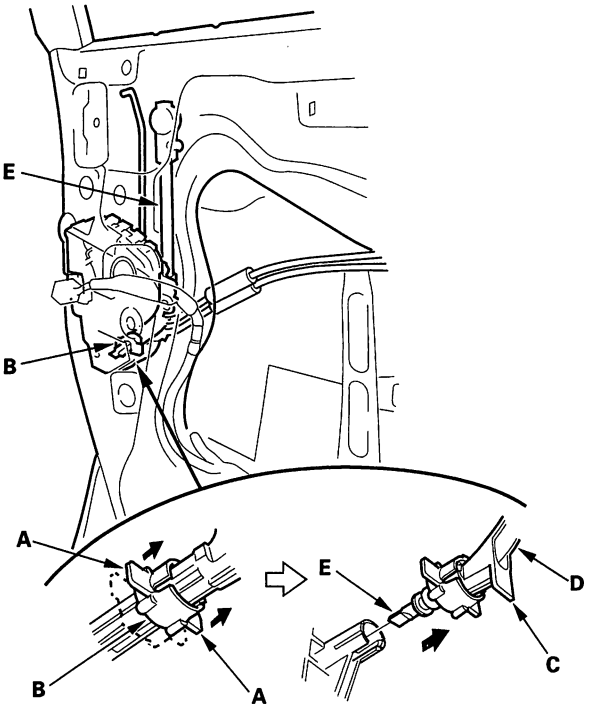
5. Detach the rod fastener (A) from the outer handle.



6. With a clip remover, disconnect the outer handle rod (A).



7. Driver's side: Pull both side flanges (A) of the retainer (B) outward, and pull the middle flange portion (C) of the outer casing cover (D) out, then disconnect the cylinder cable (E) from the latch.



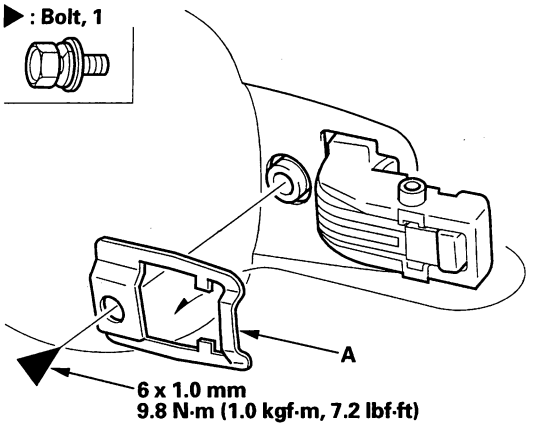
BACK

Protected by AR

8. Remove the bolt, then remove the spacer (A).

Fastener Location

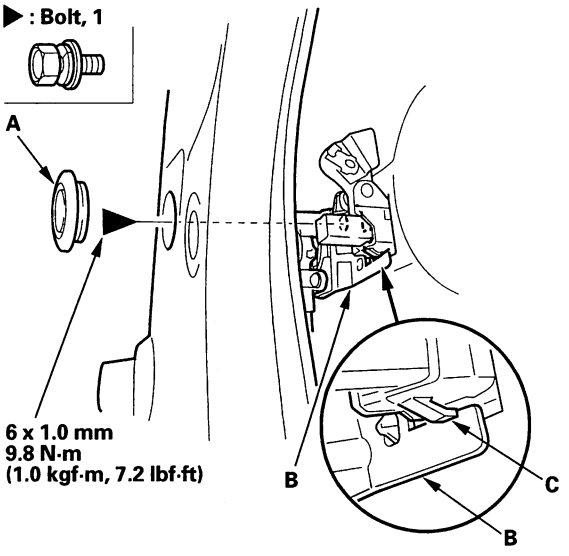
▶ : Bolt, 1



9. Remove the maintenance cap (A). Remove the bolt securing the outer handle protector (B), then remove the protector by releasing the hook (C).

Fastener Location

▶ : Bolt, 1

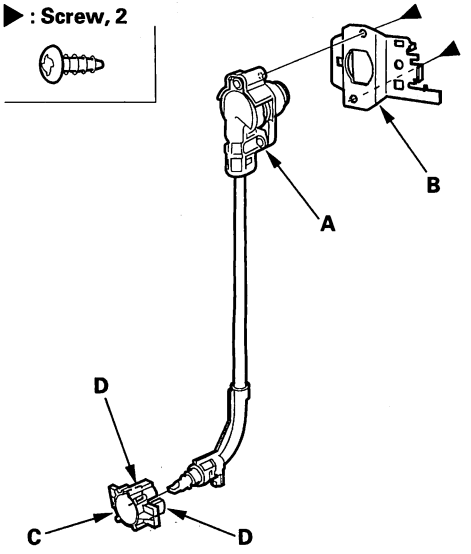


10. If necessary, cut a slot in each screwhead of the special screws with a saw, remove the special screws with a flat-tip screwdriver, then separate the door cylinder (A) and outer handle protector (B). If the retainer (C) is damaged, release the hooks (D), and replace it.

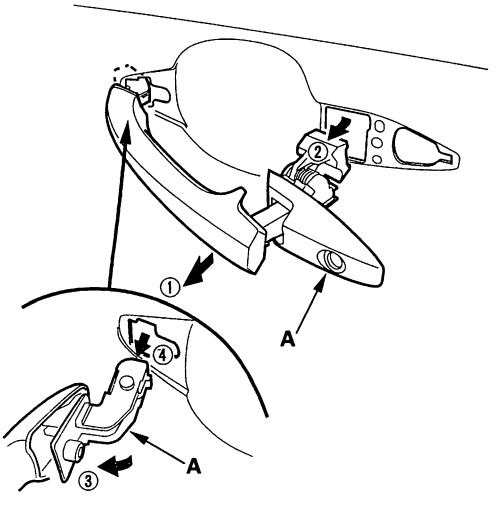
NOTE: If removed, the special screws must be replaced.

Fastener Locations

▶ : Screw, 2



11. While pulling the outer handle (A), remove the handle from the holes in the door panel. Take care not to scratch the door.



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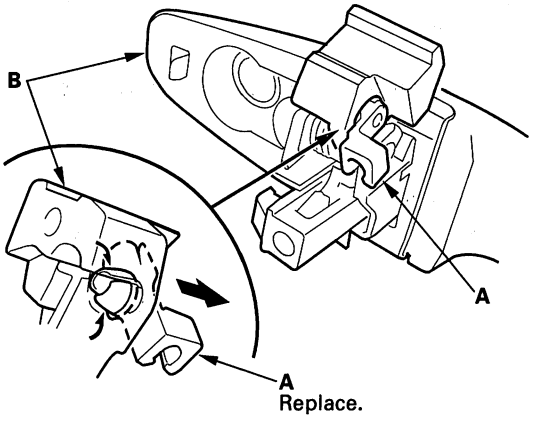
Front Door Outer Handle Replacement (cont'd)

12. Remove the rod fastener (A) from the outer handle (B), then replace it with a new one.



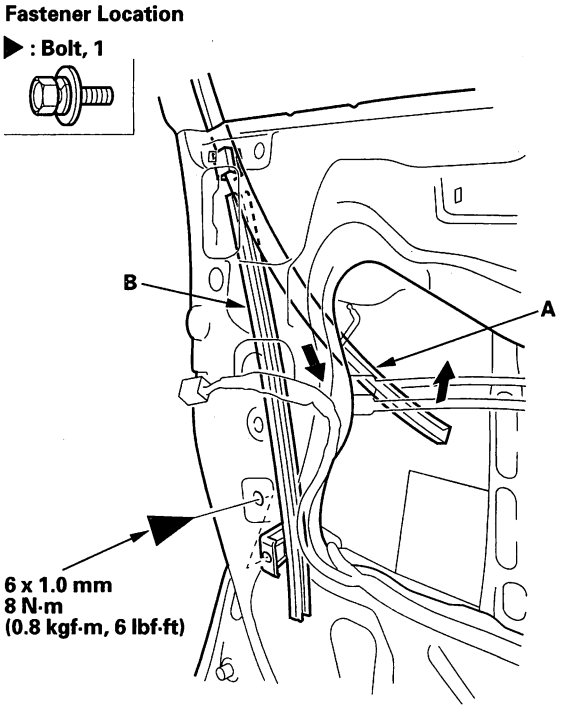
13. Install the handle in the reverse order of removal, and note these items:

- Make sure that the actuator connector is plugged in properly, and that the cylinder cable and the outer handle rod are connected securely.
- Make sure the door key cylinder/door locks operate properly.
- Make sure the door handle works properly.
- When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.

Front Door Latch Replacement

NOTE: Put on gloves to protect your hands.

1. Raise the glass fully.
2. Remove the door panel and inner handle (see page 20-8).
3. Remove the plastic cover, as needed (see step 3 on page 20-12).
4. Detach the rod fastener (see step 5 on page 20-12).
5. Disconnect the outer handle rod from the outer handle (see step 6 on page 20-12).
6. Disconnect the cylinder cable from the latch (see step 7 on page 20-12).
7. Pull the glass run channel (A) away as needed, and remove the bolt, then remove the center lower channel (B) by pulling it downward.



BACK

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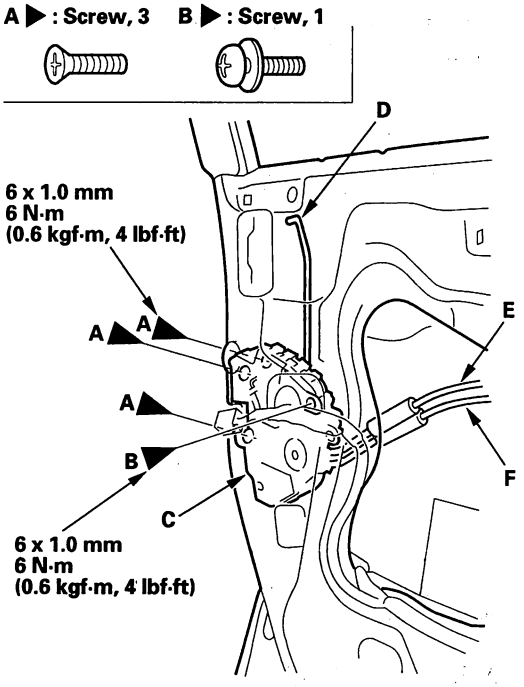
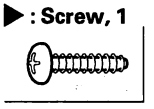
8. Remove the screws (A, B) securing the latch (C), then remove the latch through the hole in the door. Take care not to bend the outer handle rod (D), latch cable (E), and inner handle cable (F).

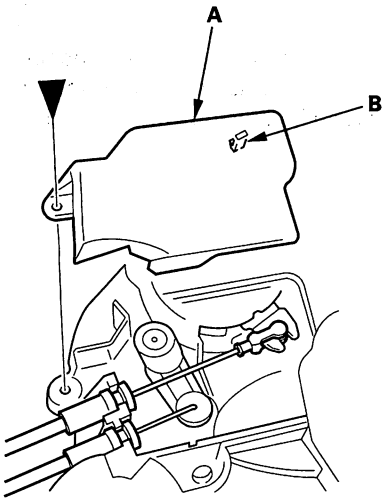
Fastener Locations
A ▶ : Screw, 3 B ▶ : Screw, 1



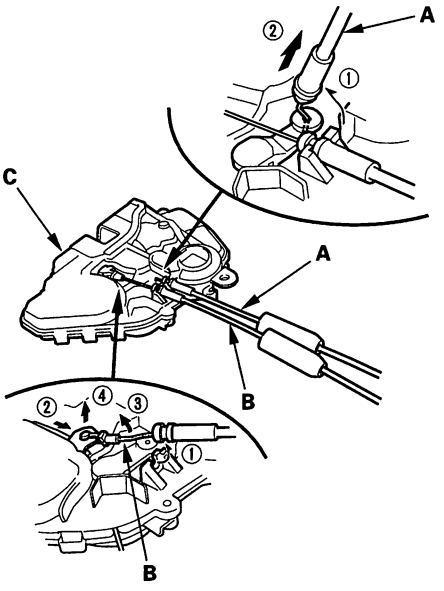
9. Remove the screw, then remove the latch protector (A) by releasing the hook (B).

Fastener Location
▶ : Screw, 1





10. Detach the latch cable (A) and the inner handle cable (B) from the latch (C).



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Protected by AR

Front Door Latch Replacement (cont'd)

11. Install the latch in the reverse order of removal, and note these items:

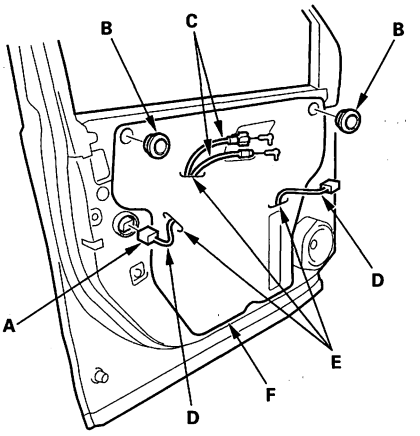
    - Make sure that the actuator connector is plugged in properly, and that the cylinder cable and the outer handle rod are connected securely.
    - Make sure the door locks and opens properly.
    - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.

Front Door Glass and Regulator Replacement

NOTE: Put on gloves to protect your hands.

1. Remove the door panel (see page 20-8).

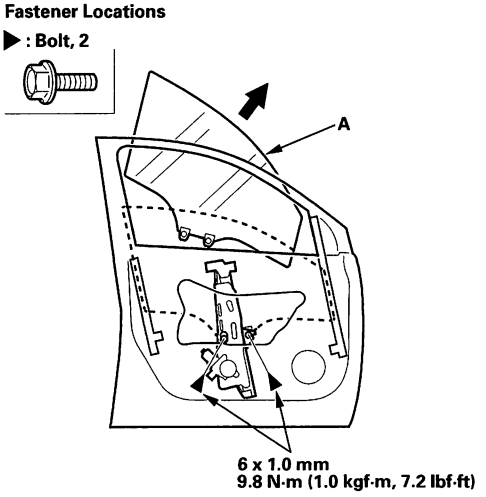
2. Disconnect the power door lock actuator connector (A), and remove the plug caps (B).



3. Pass the cables (C) and the harnesses (D) through the slits (E) in the plastic cover (F), then remove the plastic cover.

   NOTE: Remove the glue from the door surface. If the plastic cover is damaged or torn, replace it.

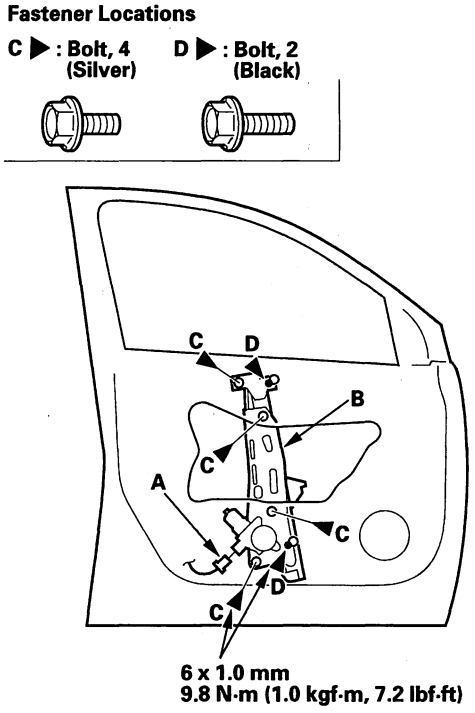
4. Carefully raise the glass (A) until you can see the bolts, then remove them. Carefully pull the glass out through the window slot. Take care not to drop the glass inside the door.



BACK

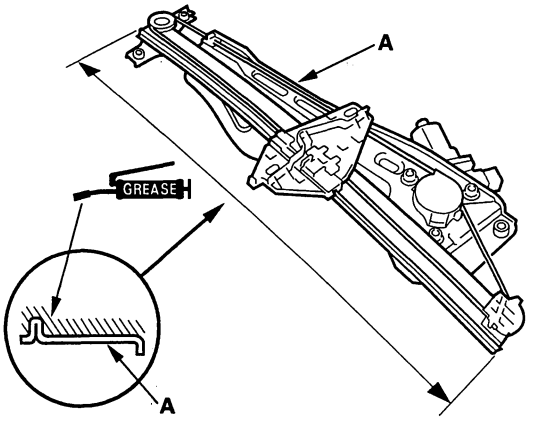
Protected by AR

5. Disconnect the connector (A) from the regulator (B).



6. Remove the bolts (C), and loosen the bolts (D), then remove the regulator through the hole in the door.

7. Apply multipurpose grease to all the sliding surfaces of the regulator (A) where shown.



8. Install the glass and regulator in the reverse order of removal, and note these items:

- Roll the glass up and down to see if it moves freely without binding.
- Make sure that there is no clearance between the glass and glass run channel when the glass is closed.
- Adjust the position of the glass as necessary (see page 20-38).
- Do the power window control unit reset procedure (see page 22-259).
- Check for water leaks (see step 7 on page 20-39).
- Test-drive and check for wind noise and rattles.
- When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
- Make sure the power door locks, windows and power mirror operate properly.

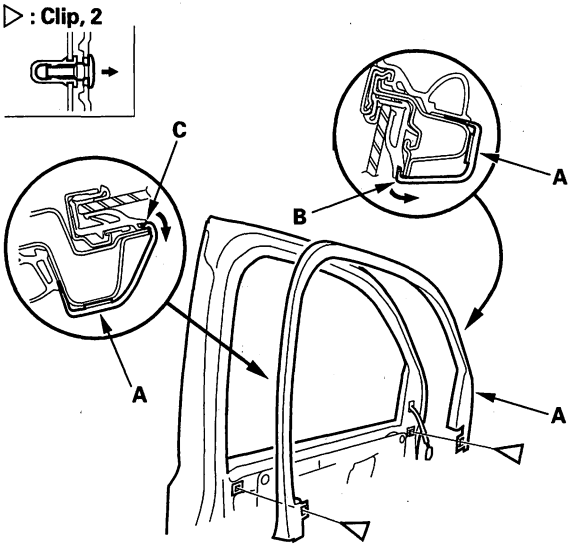
Protected by AR

Front Door Sash Inner Trim Replacement

NOTE: Take care not to scratch the door.

1. Remove the door panel (see page 20-8).
2. Using a clip remover, detach the clips fastening the front door sash inner trim (A).

Fastener Locations
▷ : Clip, 2



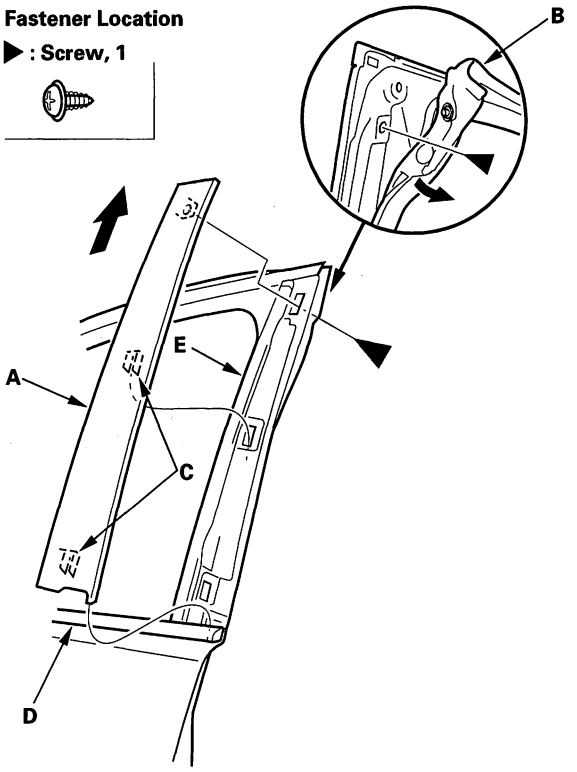
3. Pull the door glass opening side of the trim back to release the hooks (B, C) from the door glass opening flange of the door sash.
4. Install the trim in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the hooks and clips into place securely.

Front Door Sash Outer Trim Replacement

NOTE: Take care not to scratch the door.

1. Lower the glass fully.
2. Remove the door sash outer trim (A).
   1 Pull back the door weatherstrip (B), then remove the screw.
   2 Pull the trim up to release the hook (C) from the door. Take care not to damage the door glass outer weatherstrip (D).

Fastener Location
▶ : Screw, 1



3. Install the trim in the reverse order of removal, and make sure the glass run channel (E) is installed in the door sash securely.

BACK

Protected by AR

Front Door Glass Outer Weatherstrip Replacement

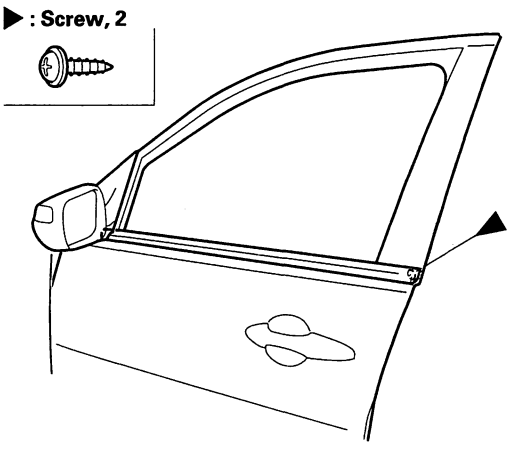
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- If you remove the door glass outer weatherstrip, replace it with a new one because it will bend.
- Put on gloves to protect your hands.
- Take care not to scratch the door.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

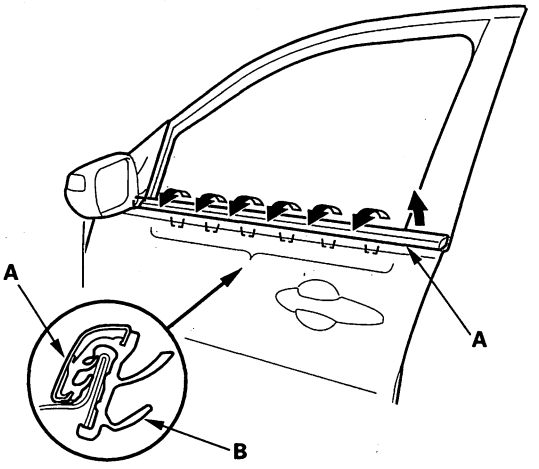
1. Remove the door panel (see page 20-8).

2. Remove the screw from the rear edge of the door.

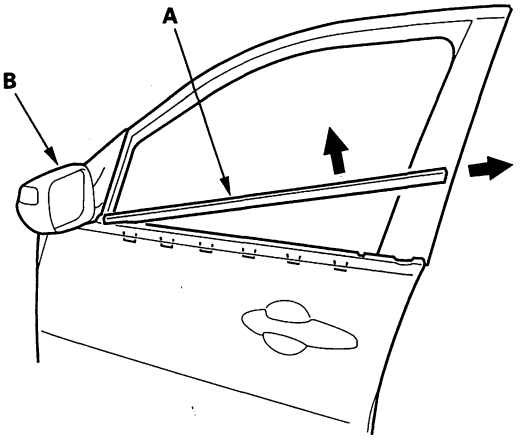
Fastener Location
▶ : Screw, 2



3. Starting at the rear, pull the door glass outer weatherstrip (A) up at each portion where the inner molding (B) catches the inside edge of the window slot.



4. Pull the rear of the glass outer weatherstrip (A) away from the door, then pull the front end of it out from under the power mirror (B).



5. Install new weatherstrip in the reverse order of removal.

Protected by AR

Front Door Outer Molding Replacement

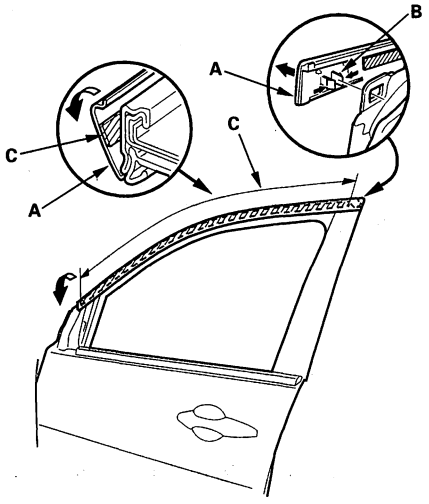
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- If you remove the door outer molding, replace it with a new one because it will bend during removal.
- Put on gloves to protect your hands.
- Take care not to scratch the door.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the power mirror (see page 20-43).

2. Remove the door outer molding (A):

   1 Push out the rear clip (B).
   2 While removing the upper edge of the door outer molding from the edge of the sash, cut the double-sided adhesive tape (C) with a utility knife, then remove the molding.



3. Scrape off the remaining double-sided adhesive tape from the sash, then clean the sash surface with a sponge dampened in isopropyl alcohol.

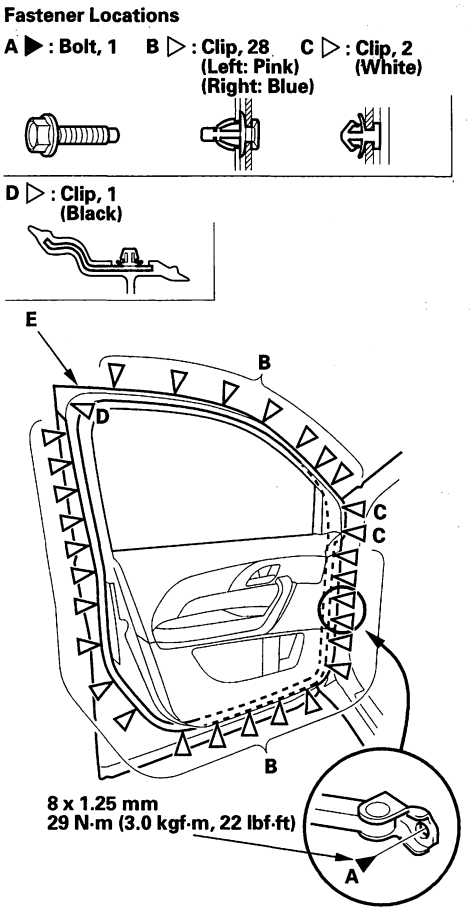
4. Install new door outer molding in the reverse order of removal, and note these items:

   - Push the clip and the adhesive portions into place securely.
   - Make sure the upper and lower sides of the molding are catching the edges of the sash properly.

Front Door Weatherstrip Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the door.
- Use a clip remover to remove the clips.

1. At the A-pillar, remove the door checker mounting bolt (A).



2. Detach the clips (B, C, D), then remove the door weatherstrip (E).

3. Install the weatherstrip in the reverse order of removal, and note these items:

   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Apply medium strength type liquid thread lock to the door checker mounting bolt before installation.
   - Check for water leaks (see step 7 on page 20-39).

BACK

Protected by AR

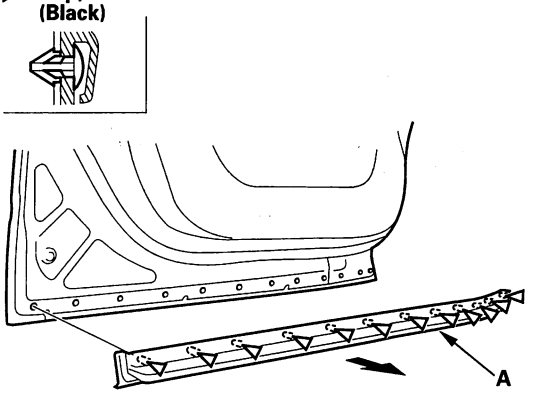
Front Door Side Sill Seal Replacement

NOTE:
- Take care not to scratch the door.
- Use a clip remover to remove the clips.

1. Detach the clips, then remove the door side sill seal (A).

Fastener Locations

▷: Clip, 12 (Black)



2. Install the side sill seal in the reverse order of removal, and note these items:

   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.
   - Check for water leaks (see step 7 on page 20-39).

Protected by AR

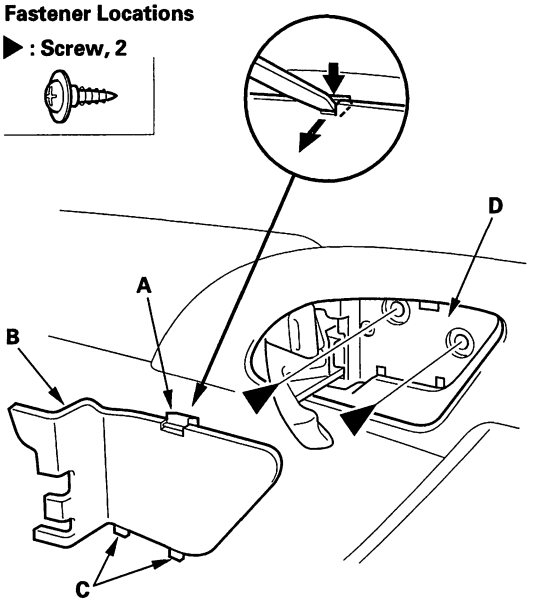
Rear Door Panel Removal/Installation

Special Tools Required
- KTC trim tool set SOJATP2014 *
- Trim pad remover, Snap-on A 177A or equivalent, commercially available

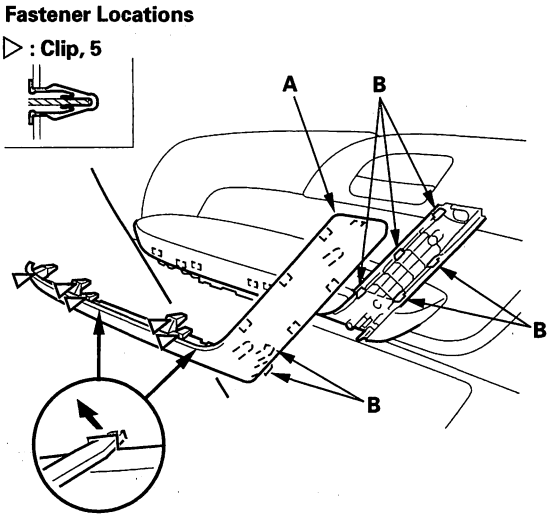
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE: Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

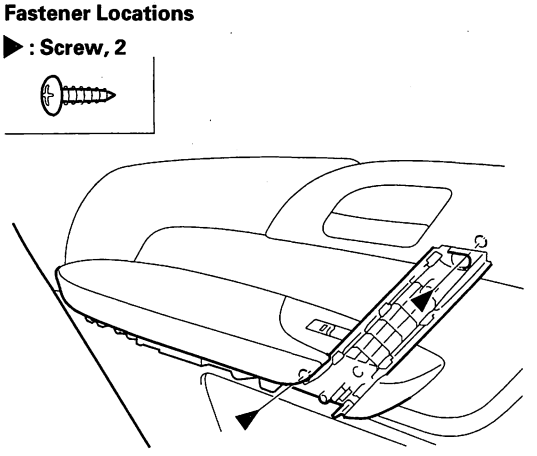
1. Using a trim tool, push on the upper hook (A) and pivot the inner handle cap (B) on the bottom hooks (C), then remove the cap and the screws securing the inner handle (D).



2. Pry out the bottom edge of the grip cover (A) at the notches with the trim tool to detach the clips and to release the hooks (B). Then remove the cover.



3. Remove the screws.



BACK

Protected by AR

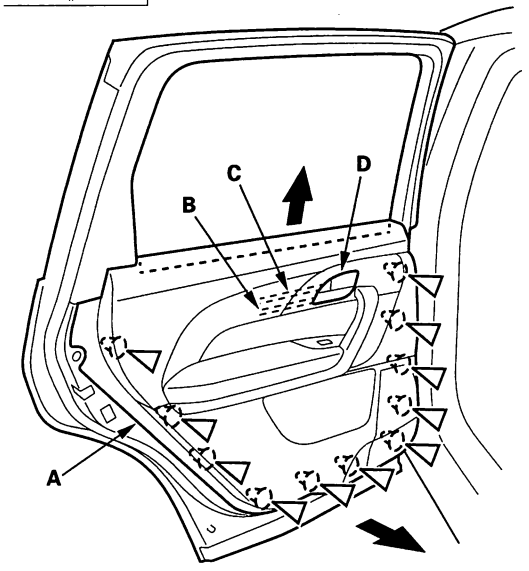
4. Remove the door panel (A) with as little bending as possible to avoid creasing or breaking it.

   1 Start at the bottom edge of the door panel, release the clips with a commercially available trim pad remover.
   2 Detach the upper clips.
   3 Stating at the rear, pull the door panel upward.

   NOTE: The inner handle cable (B) and latch cable (C) are connected to the inner handle (D). Do not pull the door panel up too far, or the cables will be damaged.

Fastener Locations

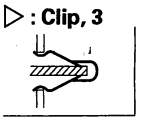
▷: **Clip, 11 (Gray)**

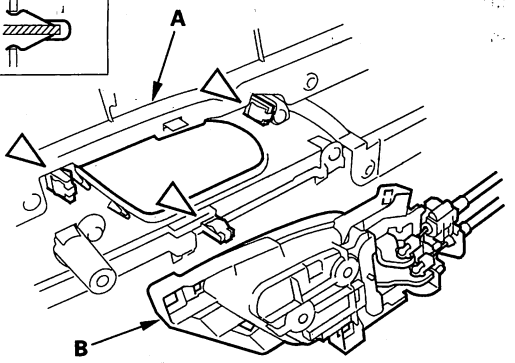


5. While holding the door panel (A) away from the door, remove the inner handle (B) from the door panel by detaching the clips.

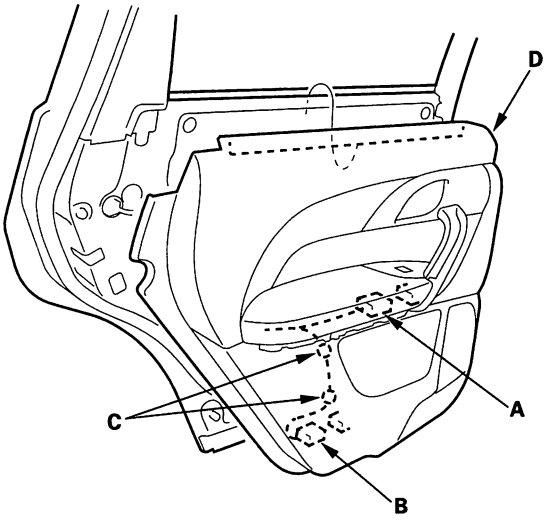
Fastener Locations

▷: **Clip, 3**





6. Disconnect the power window switch connector (A) and courtesy light connector (B), detach the harness clips (C), then remove the door panel (D).



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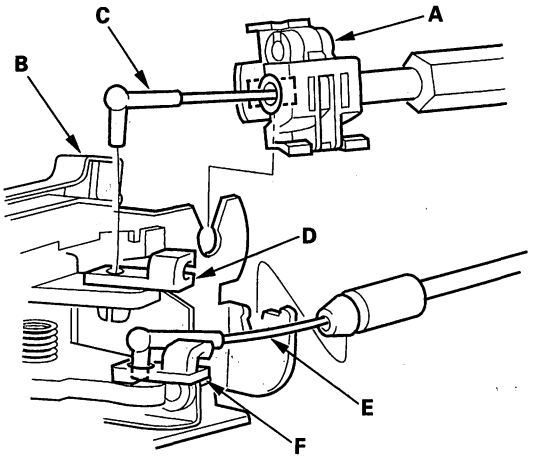
Rear Door Panel Removal/Installation (cont'd)

7. Remove the latch cable fastener (A) from the inner handle (B), and then disconnect the latch cable (C) from the cable fastener (D). Disconnect the inner handle cable (E) from the cable fastener (F), then remove the inner handle.

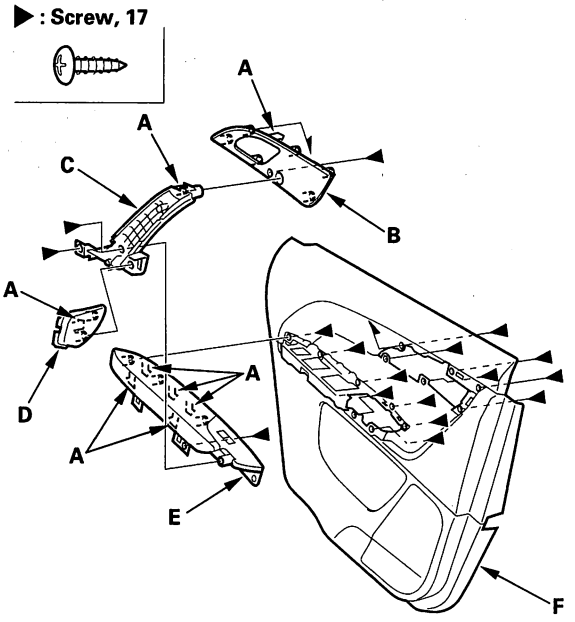
   NOTE: Check if the cable fasteners are damaged or stress-whitened.



8. Remove the screws and release the hooks (A), then remove the wood trim (B), the door grip (C), armrest cover (D) and the armrest assembly (E) from the door panel (F).

Fastener Locations

▶ : Screw, 17



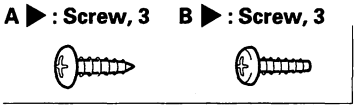
BACK

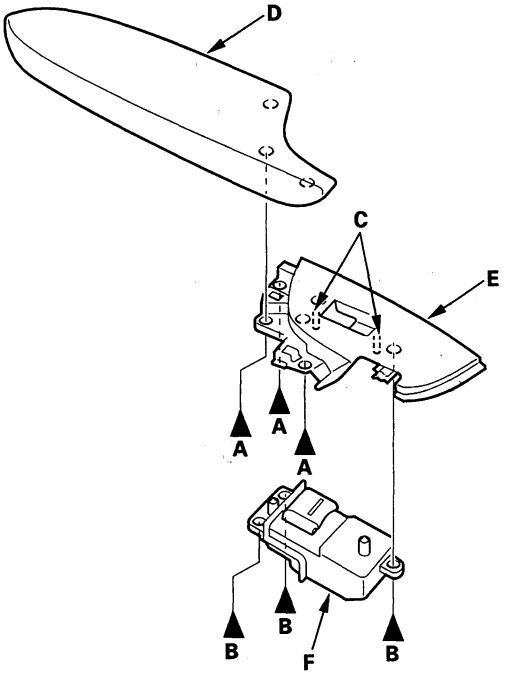
Protected by AR

9. Remove the screws (A, B) and release the pins (C), then separate the armrest (D), the power window switch panel (E), and the power window switch (F).

Fastener Locations

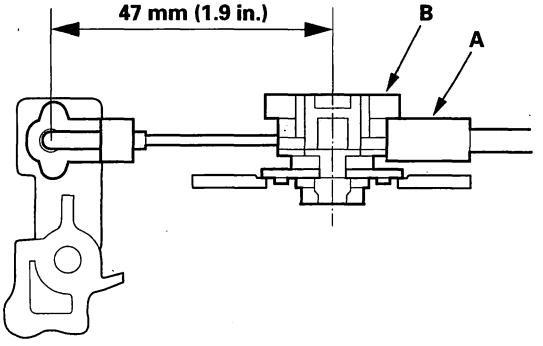
A ▶ : Screw, 3 B ▶ : Screw, 3





10. Install the door panel in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Replace any damaged cable fasteners with new ones.
- The latch cable (A) should be fixed to the cable fastener (B) with the latch in the unlocked position as shown.
- Make sure the connectors are plugged in properly, and the cables are connected securely.
- Make sure the window and power door lock operate properly.



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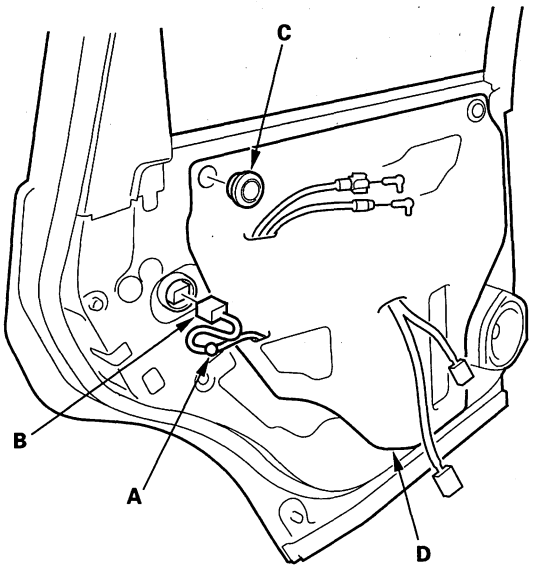
Rear Door Outer Handle Replacement

NOTE: Put on gloves to protect your hands.

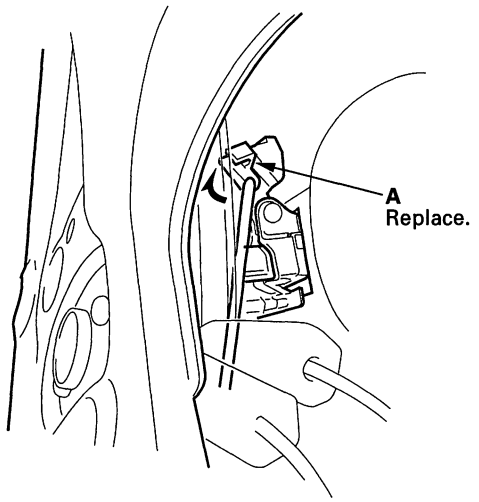
1. Raise the glass fully.
2. Remove the door panel (see page 20-22).
3. Detach the harness clip (A), and disconnect the power door lock actuator connector (B).



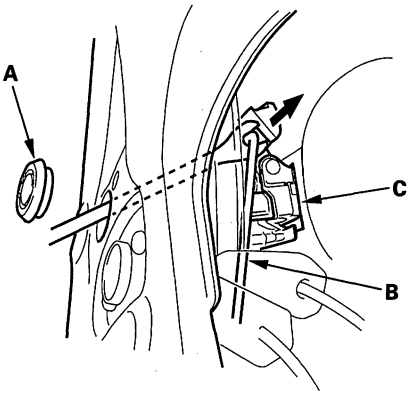
4. Remove the rear plug cap (C), then remove the plastic cover (D), as needed.

   NOTE: Remove the glue from the door surface. If the plastic cover is damaged or torn, replace it.

5. Detach the rod fastener (A).



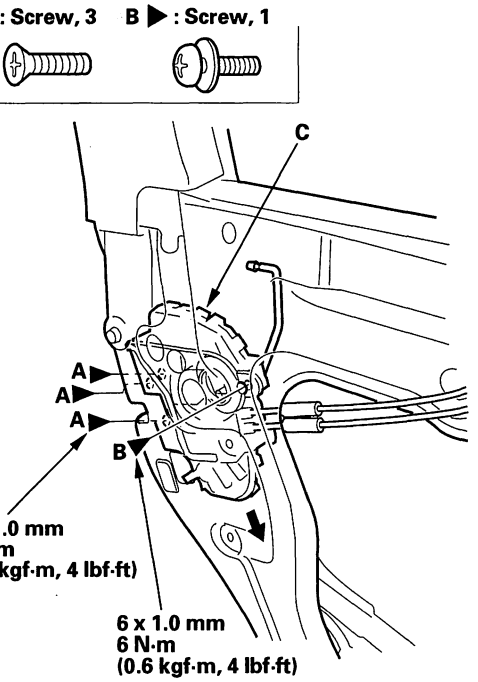
6. Remove the maintenance cap (A) with a clip remover, then disconnect the outer handle rod (B) from the outer handle (C).



7. Remove the screws (A, B) securing the latch (C), then lower it.

Fastener Locations

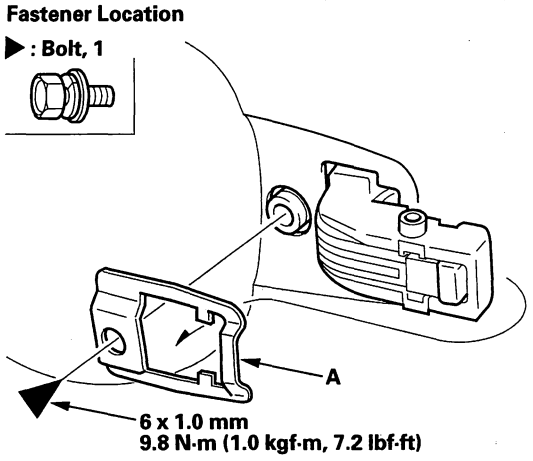
A ▶ : Screw, 3 B ▶ : Screw, 1



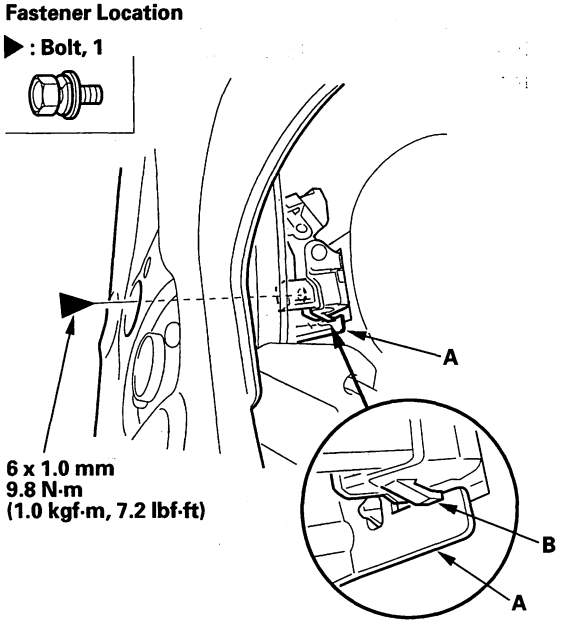
BACK

Protected by AR

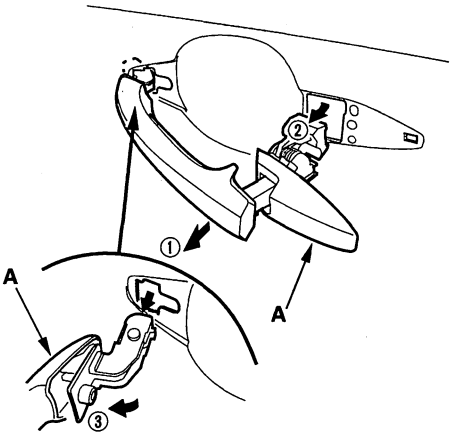
8. Remove the bolt, then remove the spacer (A).



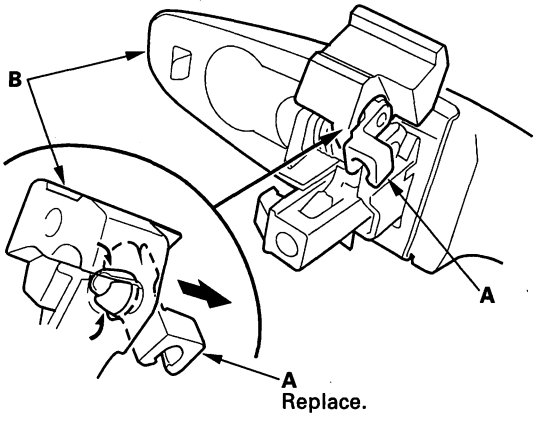
9. Remove the bolt securing the outer handle protector (A), then remove the protector by releasing the hook (B).



10. While pulling the outer handle (A), remove the handle from the holes in the door panel. Take care not to scratch the door.



11. Remove the rod fastener (A) from the outer handle (B), then replace it with a new one.



12. Install the handle in the reverse order of removal, and note these items:

- Make sure the outer handle rod is connected securely.
- Make sure the door locks operate properly.
- Make sure the door handle works properly.
- When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.

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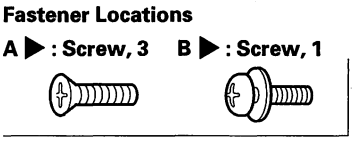
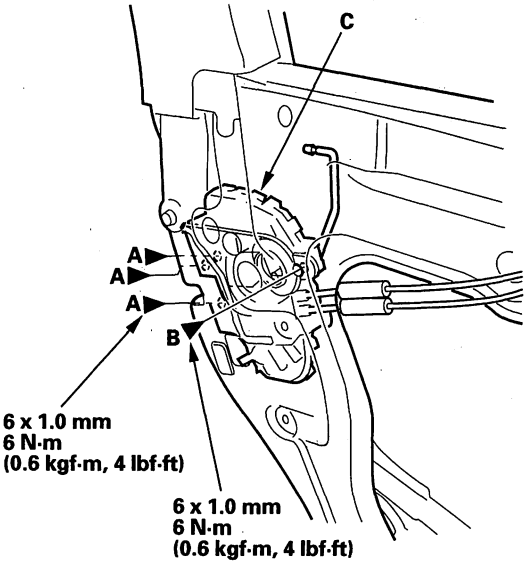
Rear Door Latch Replacement

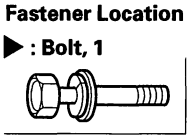
NOTE: Put on gloves to protect your hands.

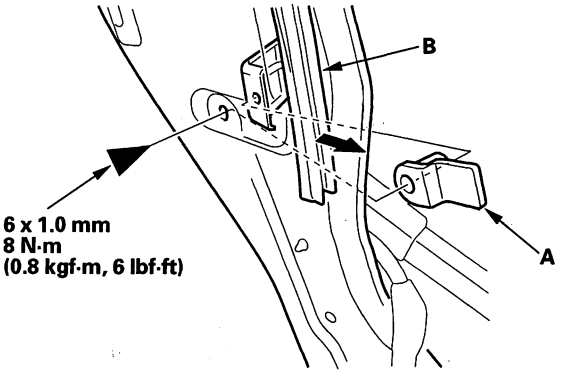
1. Raise the glass fully.
2. Remove the door panel (see page 20-22).
3. Remove the plastic cover, as needed (see step 3 on page 20-26).
4. Remove the screws (A, B) securing the latch (C), then lower it.



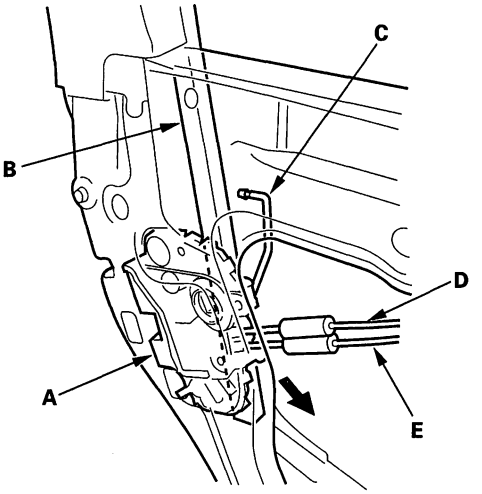


5. Detach the rod fastener (see step 5 on page 20-26).
6. Disconnect the outer handle rod from the outer handle (see step 6 on page 20-26).
7. Remove the bolt, then remove the collar (A) from the rear lower channel (B).





8. Remove the latch (A) out from between the rear lower channel (B) and the door. Take care not to bend the outer handle rod (C), latch cable (D), and inner handle cable (E).



BACK

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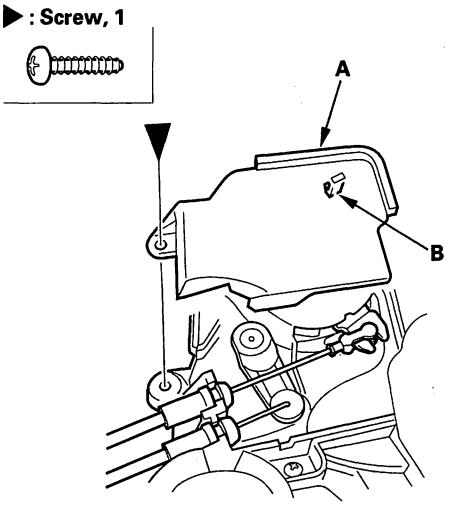
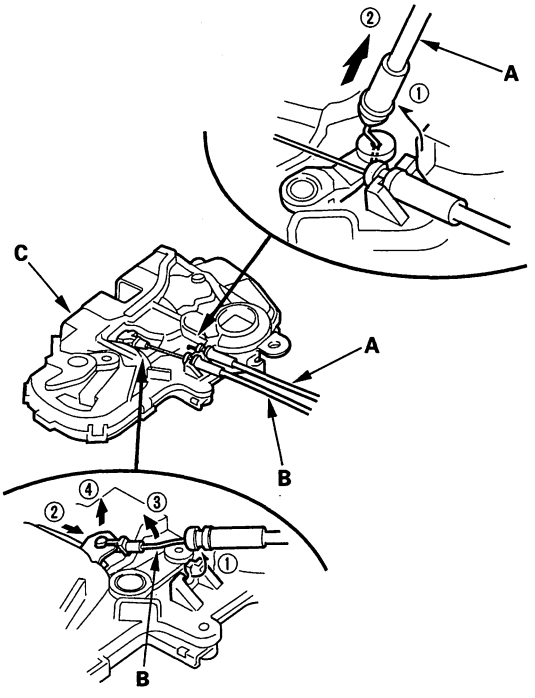
9. Remove the screw, then remove the latch protector (A) by releasing the hook (B).

Fastener Location

▶ : Screw, 1



10. Detach the latch cable (A) and the inner handle cable (B) from the latch (C).



11. Install the latch in the reverse order of removal, and note these items:

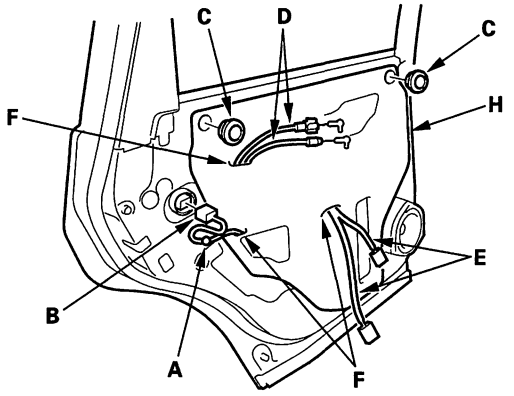
- Make sure the actuator connector is plugged in properly, and the outer handle rod is connected securely.
- Make sure the door locks and opens properly.

Protected by AR

Rear Door Glass and Regulator Replacement

NOTE: Put on gloves to protect your hands.

1. Remove the door panel (see page 20-22).
2. Detach the harness clip (A), and disconnect the power door lock actuator connector (B). Remove the plug caps (C).



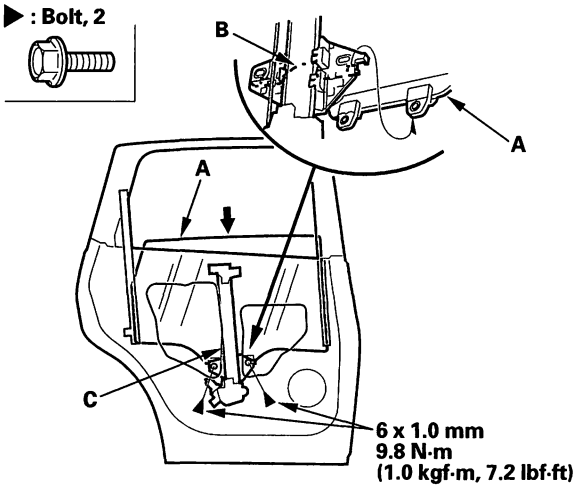
3. Pass the cables (D) and the harnesses (E) through the slits (F) in the plastic cover (H), then remove it.

   NOTE: Remove the glue from the door surface. If the plastic cover is damaged or torn, replace it.

4. Carefully move the glass (A) until you can see the bolts, then remove them. Release the glass from the holder (B), then remove it from the regulator (C), and carefully lower the glass. Take care not to drop the glass inside the door.

Fastener Locations

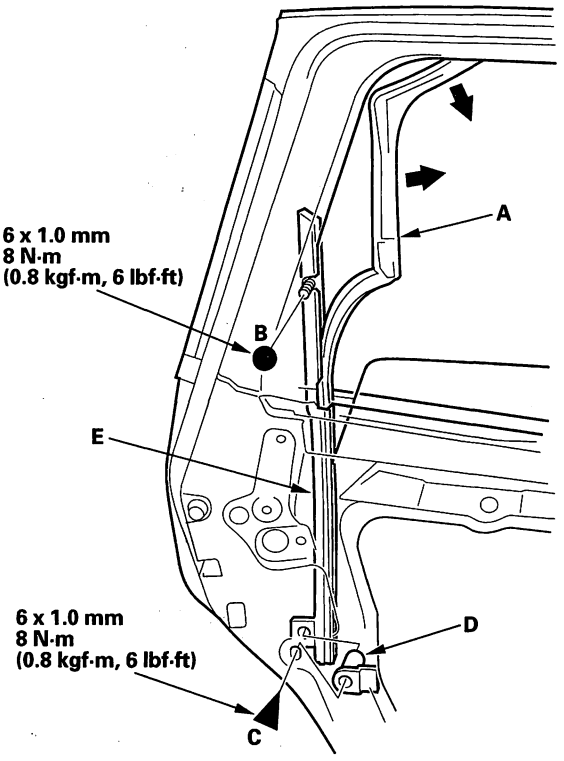
▶ : Bolt, 2



5. Pull the glass run channel (A) away as needed. Loosen the nut (B), and remove the bolt (C) and collar (D) from the rear lower channel (E).

Fastener Locations

B ● : Nut, 1 C ▶ : Bolt, 1



BACK

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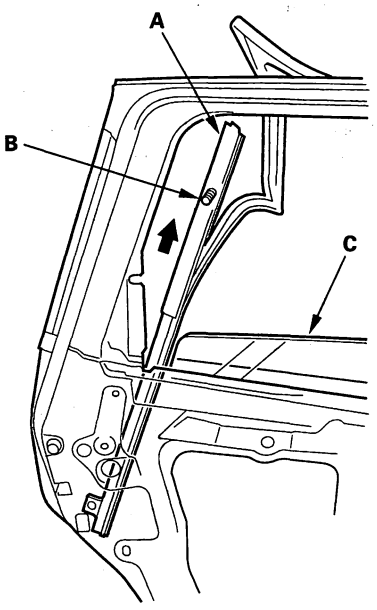
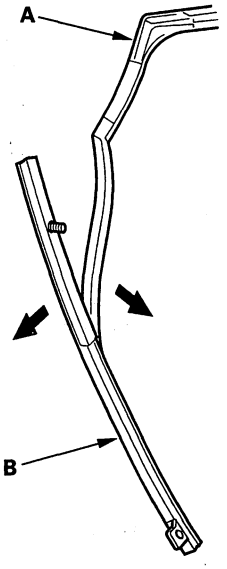
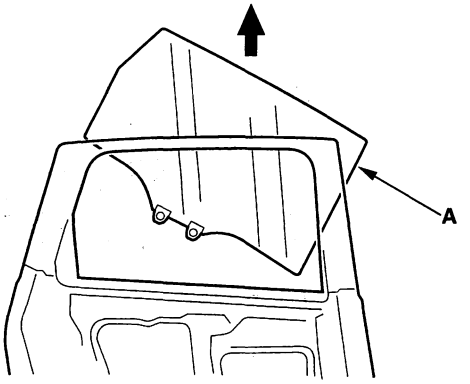
6. Pull the rear lower channel (A) forward, then remove the nut portion (B) from the door. Release the channel from the glass (C), then pull the channel upward to remove it through the window slot. Take care not to scratch the door.



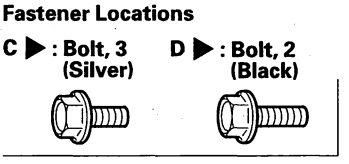
7. Remove the rear lower channel (A) from the glass run channel (B).

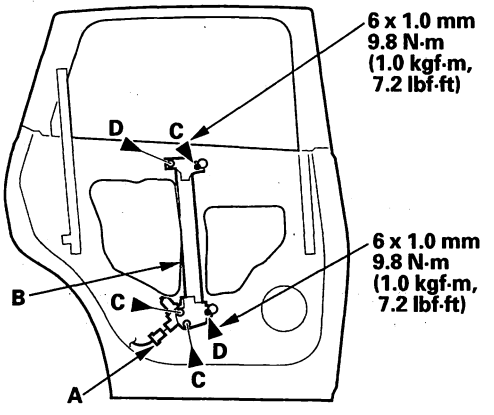


8. Carefully remove the glass (A) out through the window slot. Take care not to drop the glass inside the door.



9. Disconnect the connector (A) from the regulator (B).





10. Remove the bolts (C), and loosen the bolt (D), then remove the regulator through the hole in the door.

(cont'd)

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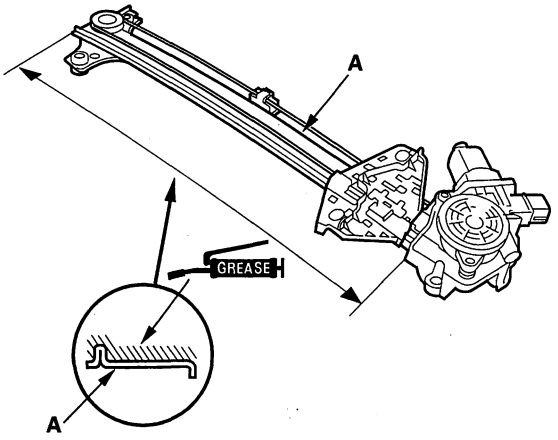
Rear Door Glass and Regulator Replacement (cont'd)

11. Apply multipurpose grease to all the sliding surfaces of the regulator (A) where shown.



12. Install the glass and regulator in the reverse order of removal, and note these items:

- Roll the glass up and down to see if it moves freely without binding.
- Make sure that there is no clearance between the glass and glass run channel when the glass is closed.
- Adjust the position of the glass as necessary (see page 20-38).
- Do the power window control unit reset procedure (see page 22-259).
- Check for water leaks (see step 7 on page 20-39).
- Test-drive and check for wind noise and rattles.
- When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.

Rear Door Sash Inner Trim Replacement

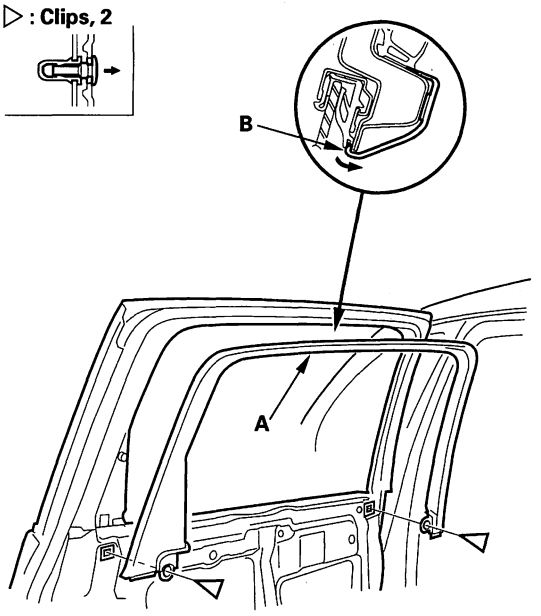
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the door.

1. Remove the door panel (see page 20-22).

2. Using a clip remover, detach the clips fastening the rear door sash inner trim (A).

Fastener Locations
▷: Clips, 2



3. Pull the door glass opening side of the trim back to release the hooks (B) from the door glass opening flange of the door sash.

4. Install the trim in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the hooks and clips into place securely.

BACK

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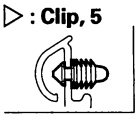
Rear Door Sash Outer Trim Replacement

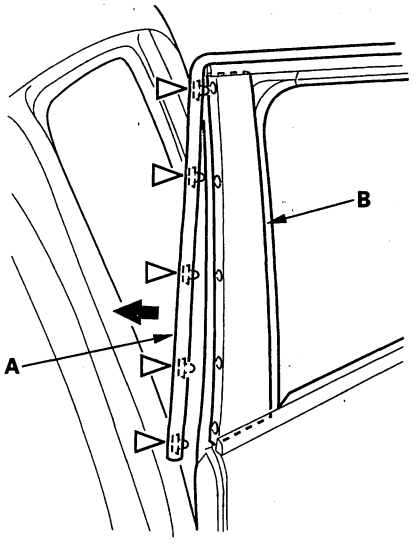
NOTE: Take care not to scratch the door.

1. Lower the glass fully.
2. Using a clip remover, detach the clips fastening the door weatherstrip (A) from the door sash outer trim (B).

Fastener Locations

▷ : **Clip, 5**

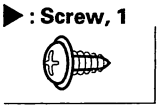


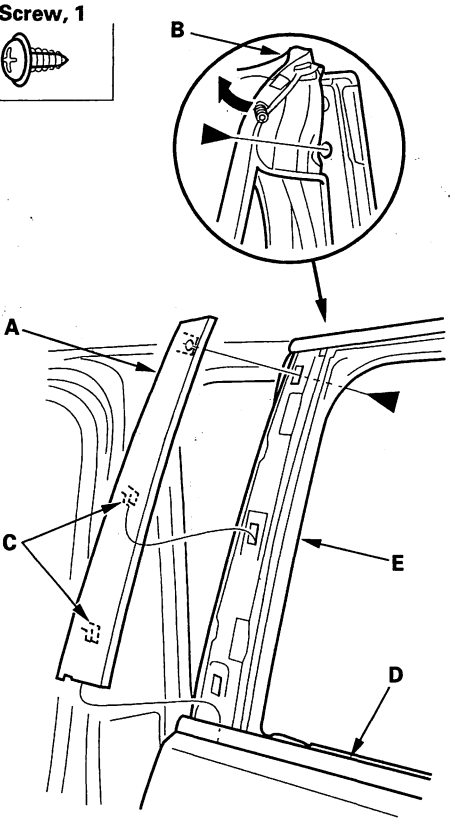


3. Remove the door sash outer trim (A).
   1. Pull back the door weatherstrip (B), then remove the screw.
   2. Pull the trim up to release the hooks (C) from the door. Take care not to damage the door glass outer weatherstrip (D).

Fastener Location

▶ : **Screw, 1**





4. Install the trim in the reverse order of removal, and note these items:
   - Make sure the glass run channel (E) is installed in the door sash securely.
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

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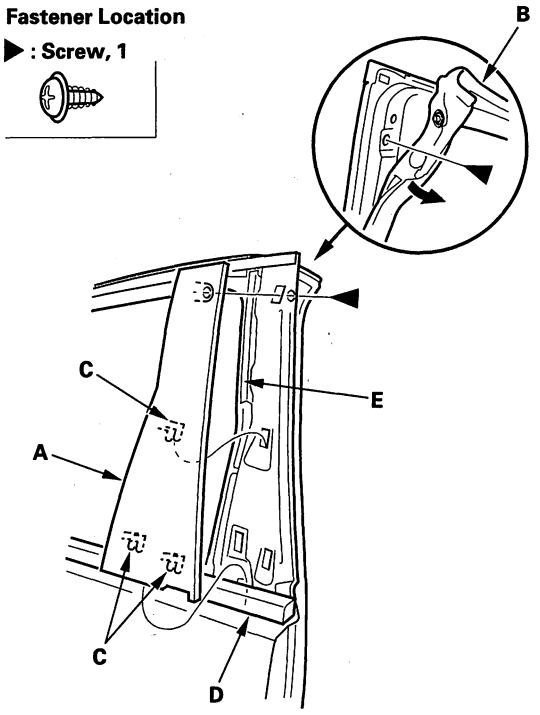
Rear Door Rear Sash Outer Trim Replacement

NOTE: Take care not to scratch the door.

1. Lower the glass fully.
2. Remove the door rear sash outer trim (A).
   -1 Pull back the door weatherstrip (B), then remove the screw.
   -2 Pull the trim up to release the hooks (C) from the door. Take care not to damage the door glass outer weatherstrip (D).



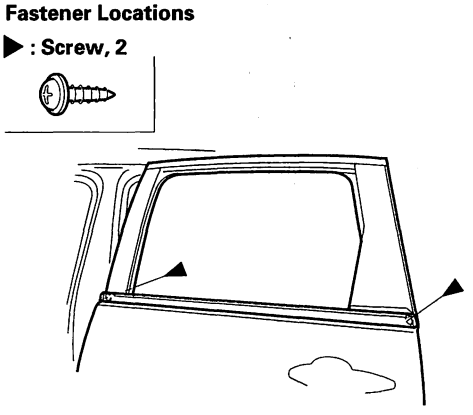
3. Install the trim in the reverse order of removal, and make sure the glass run channel (E) is installed in the door sash securely.

Rear Door Glass Outer Weatherstrip Replacement

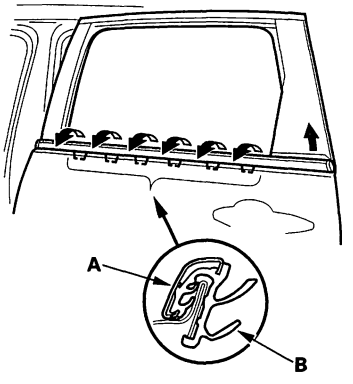
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- If you remove the door glass outer weatherstrip, replace it with a new one because it will bend.
- Put on gloves to protect your hands.
- Take care not to scratch the door.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the door panel (see page 20-22).
2. Remove the screws from both side edges of the door.



3. Starting at the rear, pull the door glass outer weatherstrip (A) up at each portion where the inner molding (B) catches the inside edge of the window slot.



BACK

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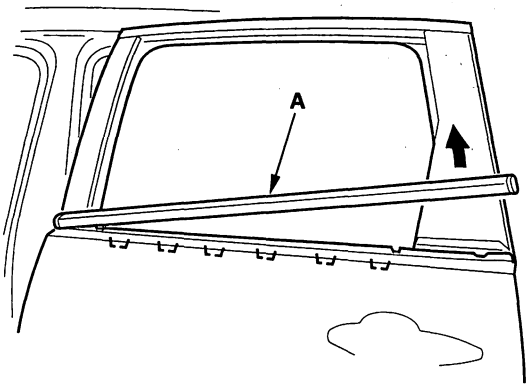
4. Remove the door glass outer weatherstrip (A).



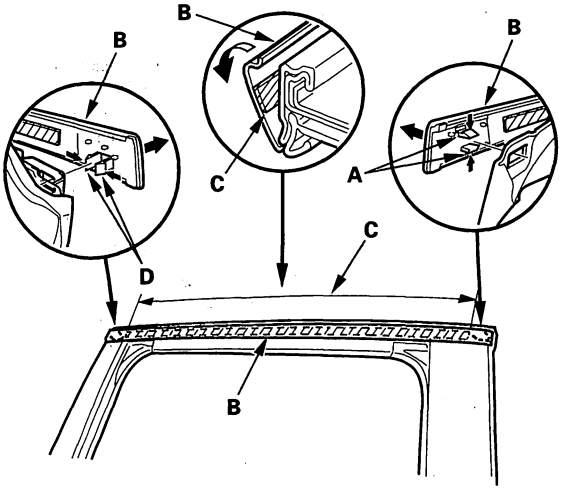
5. Install a new weatherstrip in the reverse order of removal.

Rear Door Outer Molding Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- If you remove the door outer molding, replace it with a new one because it will bend during removal.
- Put on gloves to protect your hands.
- Take care not to scratch the door.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Release the rear clip (A).



2. While removing the upper edge of the door outer molding (B) from the edge of the sash, cut the double-sided adhesive tape (C) with a utility knife, release the front clip (D), then remove the molding.

3. Scrape off the remaining double-sided adhesive tape from the sash, then clean the sash surface with a sponge dampened in isopropyl alcohol.

4. Install a new door outer molding in the reverse order of removal, and note these items:

   - Push the clips and the adhesive portions into place securely.
   - Make sure the upper and lower sides of the molding are catching the edges of the sash properly.

BACK

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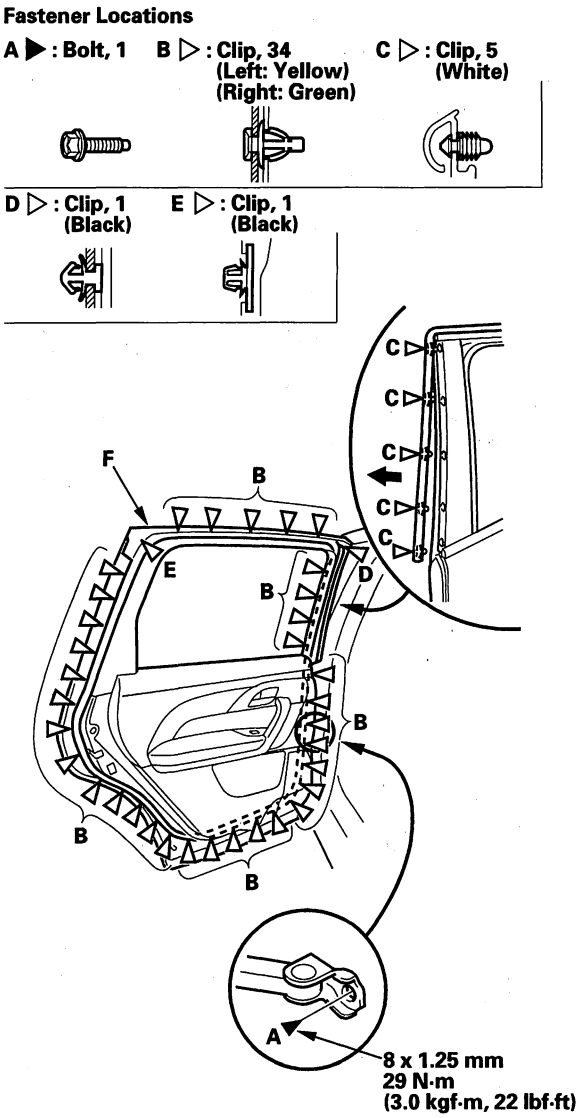
Rear Door Weatherstrip Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the door.
- Use a clip remover to remove the clips.

1. At the B-pillar, remove the door checker mounting bolt (A).



2. Detach the clips (B, C, D, E), then remove the door weatherstrip (F).

3. Install the weatherstrip in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Apply medium strength type liquid thread lock to the door checker mounting bolt before installation.
   - Check for water leaks (see step 7 on page 20-39).

BACK

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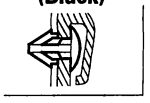
Rear Door Side Sill Seal Replacement

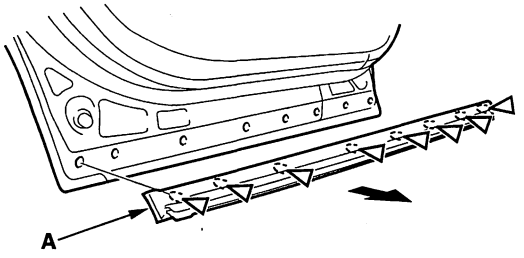
NOTE:
- Take care not to scratch the door.
- Use a clip remover to remove the clips.

1. Detach the clips, then remove the door side sill seal (A).

Fastener Locations

▷: **Clip, 8 (Black)**





2. Install the side sill seal in the reverse order of removal, and note these items:

   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.
   - Check for water leaks (see step 7 on page 20-39).

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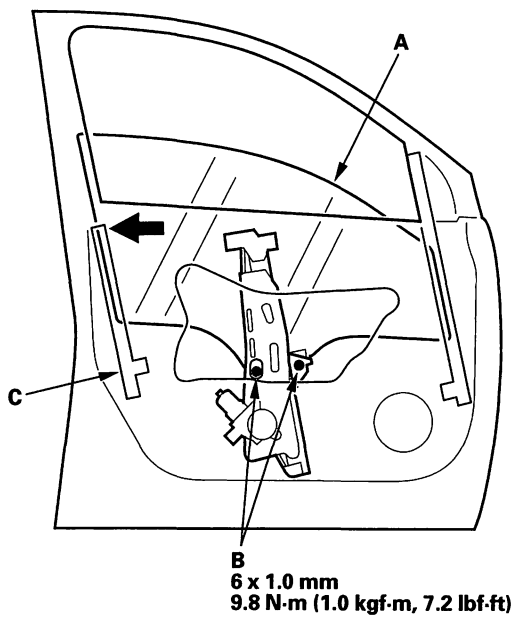
Front and Rear Door Glass Adjustment

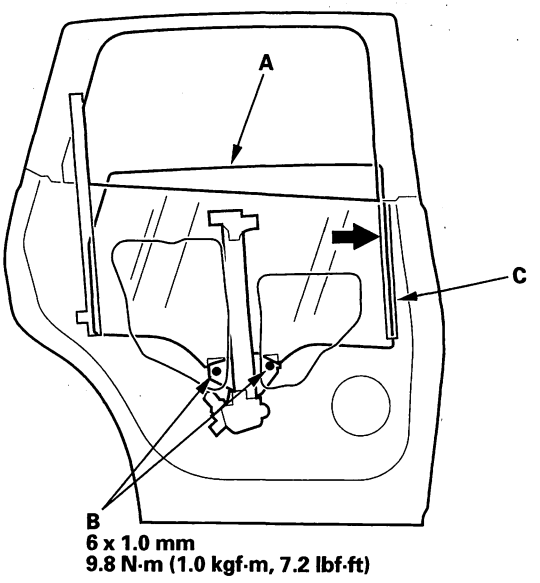
NOTE: Check the weatherstrip and glass run channel for damage or deterioration, and replace them if necessary.

1. Place the vehicle on a firm, level surface.
2. Remove these items:
   - Door panel:
     – Front door (see page 20-8)
     – Rear door (see page 20-22)
   - Plastic cover:
     – Front door (see step 3 on page 20-16)
     – Rear door (see step 3 on page 20-30)
3. Carefully move the glass (A) until you can see the glass mounting bolts (B), then loosen them.

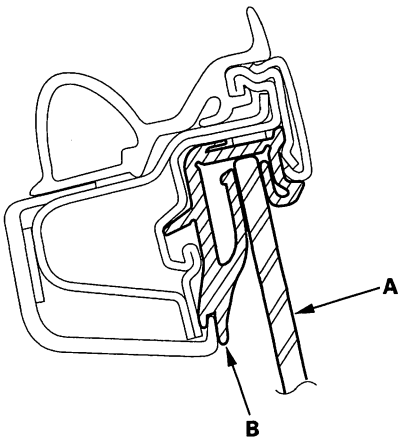
Front



Rear



4. Push the glass against the channel (C), then tighten the glass mounting bolts.
5. Check that the glass moves smoothly.
6. Raise the glass fully, and check for gaps. Also make sure that the glass (A) contacts the glass run channel (B) evenly.

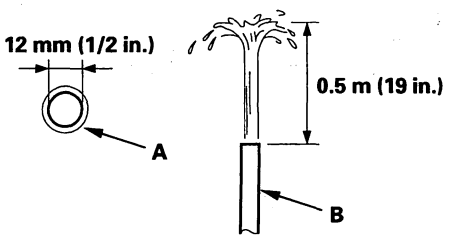


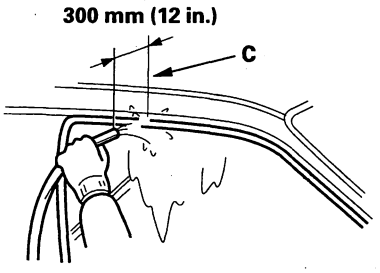
BACK

Protected by AR

7. Check for water leaks. Run water over the roof and on the sealing area as shown, and note these items:

   - Use a 12 mm (1/2 in.) diameter hose (A).
   - Adjust the rate of water flow as shown (B).
   - Do not use a nozzle.
   - Hold the hose about 300 mm (12 in.) away from the door (C).





8. Attach the plastic cover, making sure it is sealed around its outside perimeter to seal out water, then install the door panel:

   - Front door (see page 20-8)
   - Rear door (see page 20-22)

Front and Rear Door Position Adjustment

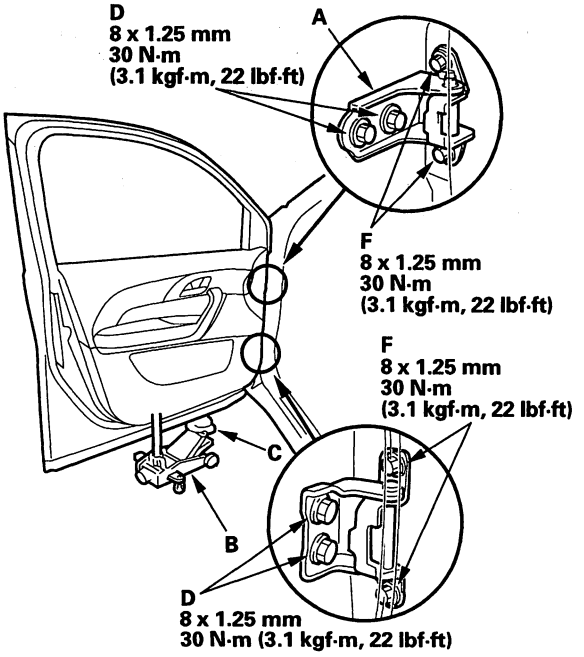
NOTE: Check for a flush fit with the body, then check for equal gaps between the front, rear, and bottom door edges and the body. Check that the door and body edges are parallel.

1. Place the vehicle on a firm, level surface when adjusting the doors.

2. Adjust at the hinges (A):

   - Pad a floor jack (B) with shop towels (C), then use the jack to support the door to prevent damage to the door while adjusting it.
   - On the front door: Remove the front inner fender (see page 20-217). Loosen the hinge mounting bolts (D) slightly, and move the door backward or forward, up or down as necessary to equalize the gaps.
   - On the rear door: Loosen the hinge mounting bolts (E) slightly, and move the door backward or forward, up or down as necessary to equalize the gaps.

Front door



(cont'd)

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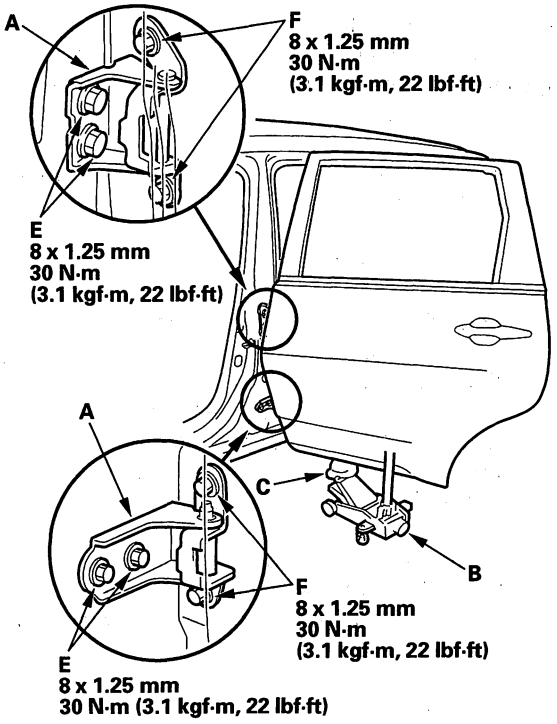
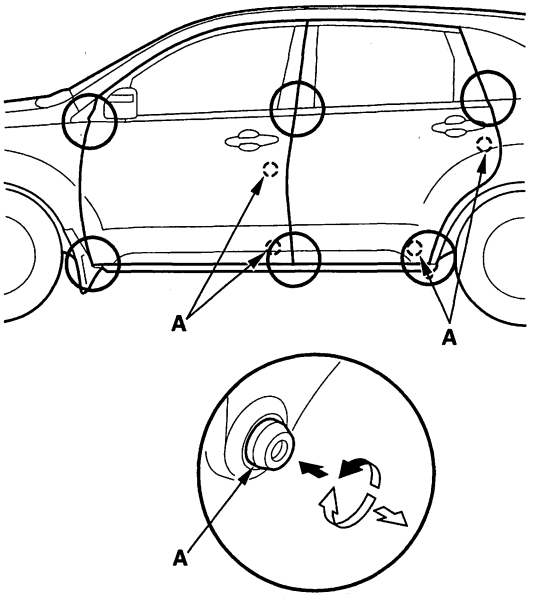
Front and Rear Door Position Adjustment (cont'd)

Rear door



3. If necessary, replace the door mounting bolts with the adjusting bolts (P/N 90102-SFA-305) made specifically for door adjustment, then adjust at the door: Loosen the door mounting bolts (F) slightly, and move the door up or down as necessary to equalize the gaps, and move it in or out until it's flush with the body.

4. Check that the door and body edges are parallel. If necessary, adjust the door cushions (A) to make the rear of the doors flush with the body.



5. Apply touch-up paint to the hinge mounting bolts, and around the hinges.

6. Check for water leaks (see step 7 on page 20-39).

BACK

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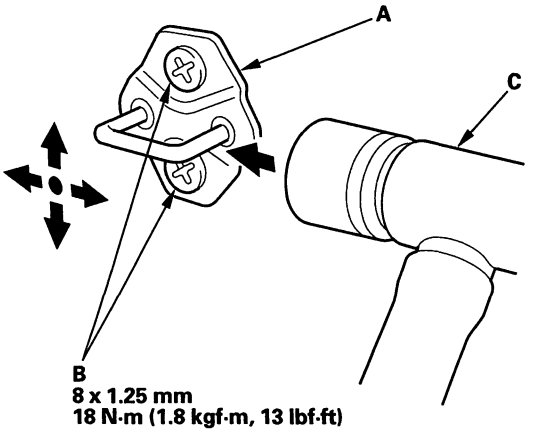
Front and Rear Door Striker Adjustment

Make sure the door latches securely without slamming it. If necessary, adjust the striker (A): The striker nuts are fixed, but the striker can be adjusted slightly up or down, and in or out.

1. Loosen the screws (B).



2. Wrap the striker with a shop towel, then adjust the striker by tapping it with a plastic hammer (C). Do not tap the striker too hard.

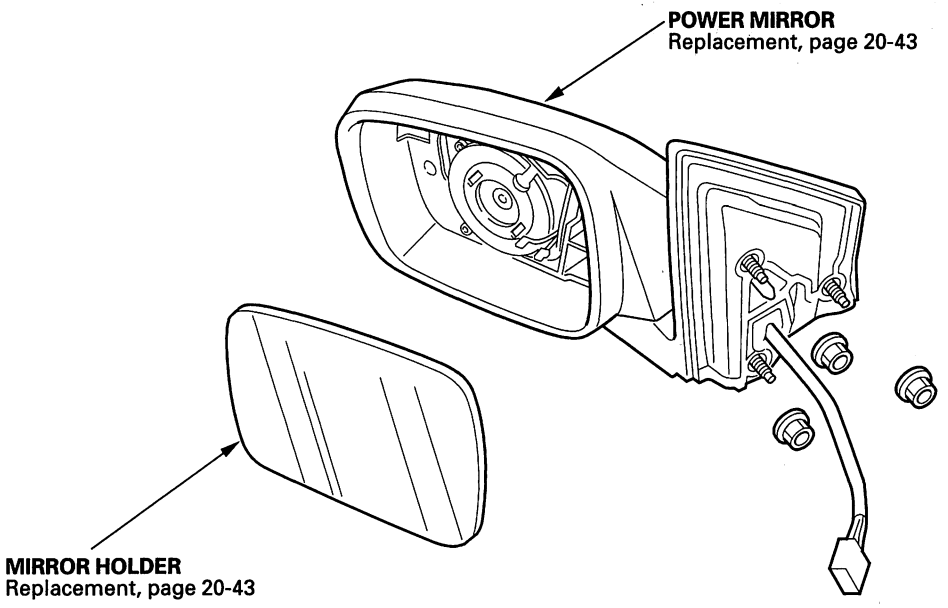
3. Lightly tighten the screws.

4. Hold the outer handle out, and push the door against the body to be sure the striker allows a flush fit. If the door latches properly, tighten the screws and recheck.

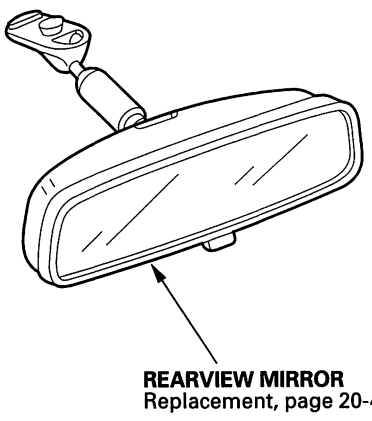
Protected by AR

Mirrors

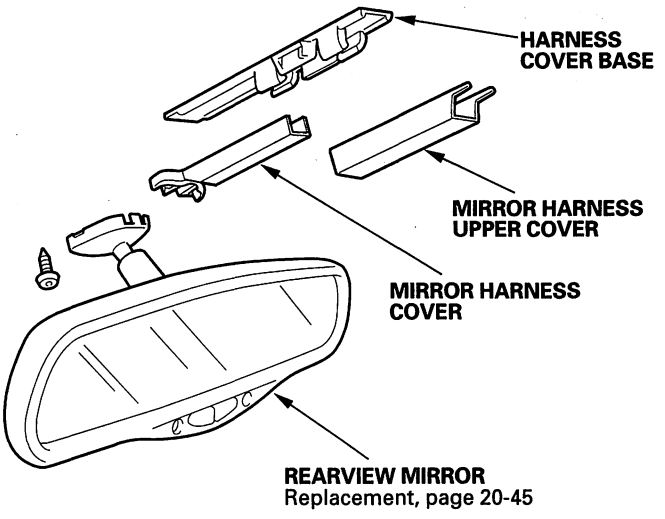
Component Location Index



Without automatic dimming mirror



With automatic dimming mirror



BACK

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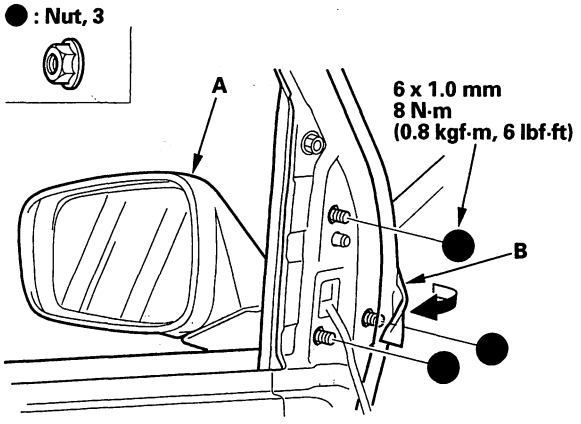
Power Mirror Replacement

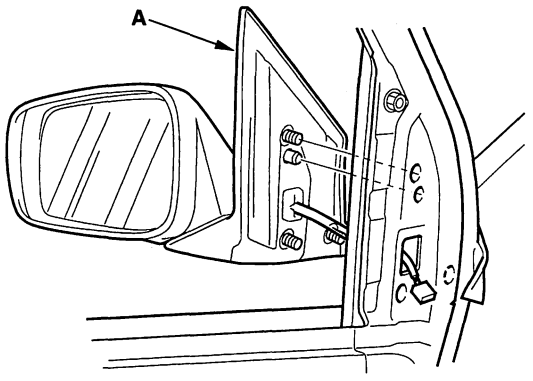
1. Lower the door glass fully.
2. Remove these items:
   - Front door panel (see page 20-8)
   - Front door sash inner trim (see page 20-18)
3. While holding the mirror (A), pull back the door weatherstrip (B) as needed, then remove the nuts.

Fastener Locations

● : Nut, 3



4. Remove the mirror (A). Take care not to scratch the door.

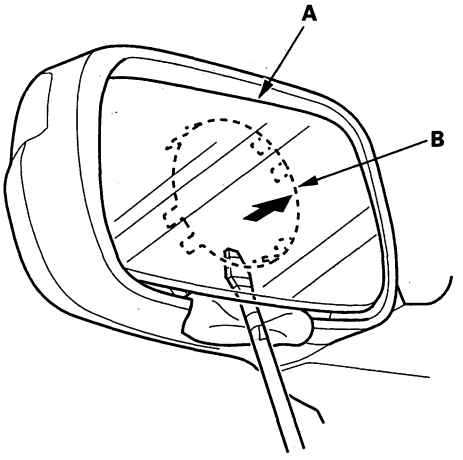


5. Install the mirror in the reverse order of removal.

Mirror Holder Replacement

NOTE: When prying with a flat-tipped screwdriver, wrap it with protective tape to prevent damage.

1. Adjust the mirror fully to the upward position.
2. Insert a long, thin flat-tipped screwdriver under the mirror holder (A). Slide the tip of the screwdriver between the mirror holder and the actuator (B).



3. Quickly twist the screwdriver to separate the mirror holder from the mirror actuator.
4. Insert the screwdriver further under the mirror holder and twist it again.

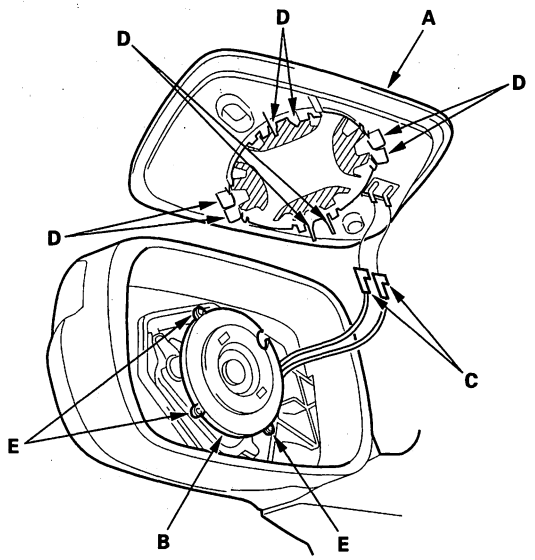
   NOTE: Do not pry up on the mirror holder to separate the two parts, as this can cause either the mirror glass or actuator to break.

(cont'd)

Protected by AR

Mirror Holder Replacement (cont'd)

5. Separate the mirror holder (A) from the actuator (B). Disconnect the mirror defogger connectors (C) from the heater pad terminals.



6. Reconnect the mirror defogger connector.

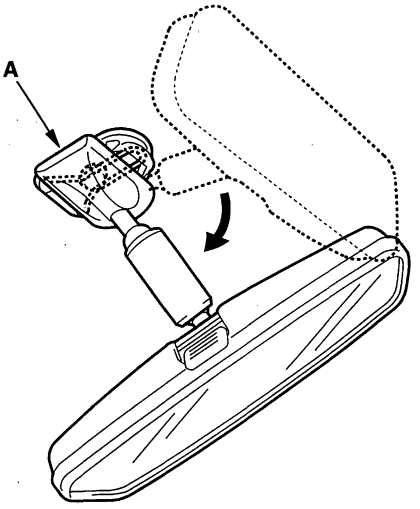
7. Align the tabs (D) on the mirror holder so they line up on each side of the actuator tabs (E). Carefully push on the mirror holder until it locks into place.

8. Check the operation of the actuator.

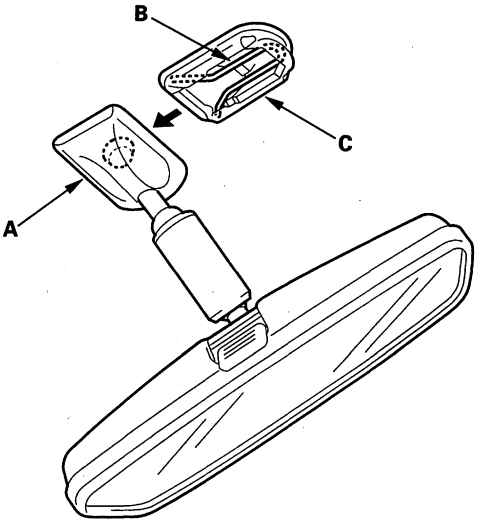
Rearview Mirror Replacement

Without automatic dimming mirror

1. Turn the rearview mirror base (A) 90 °.



2. Slide the rearview mirror (A) down toward the bottom of the windshield to detach it from the spring (B) in the mount (C).



3. If necessary, remove the spring from the mount.

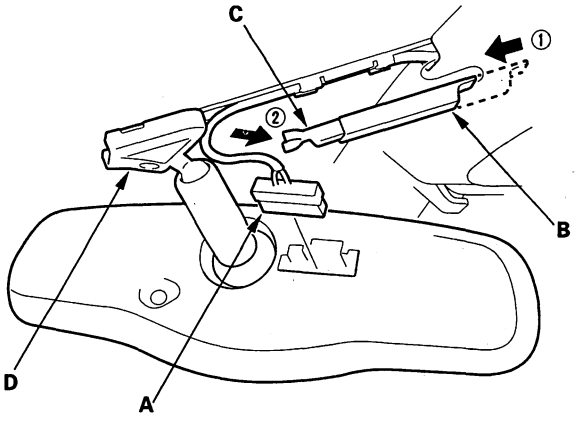
4. Install the rearview mirror in the reverse order of removal.

BACK

Protected by AR

With automatic dimming mirror

1. Disconnect the connector (A).

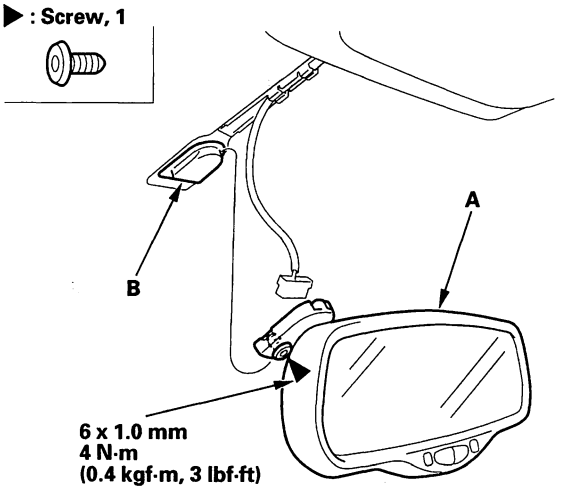


2. Slide the mirror harness upper cover (B) forward, then remove the mirror harness cover (C) from the mirror base (D).

3. Using a T20 TORX bit, loosen the screw, then slide the rearview mirror (A) rearward and off the mount (B).

Fastener Location

▶ : Screw, 1

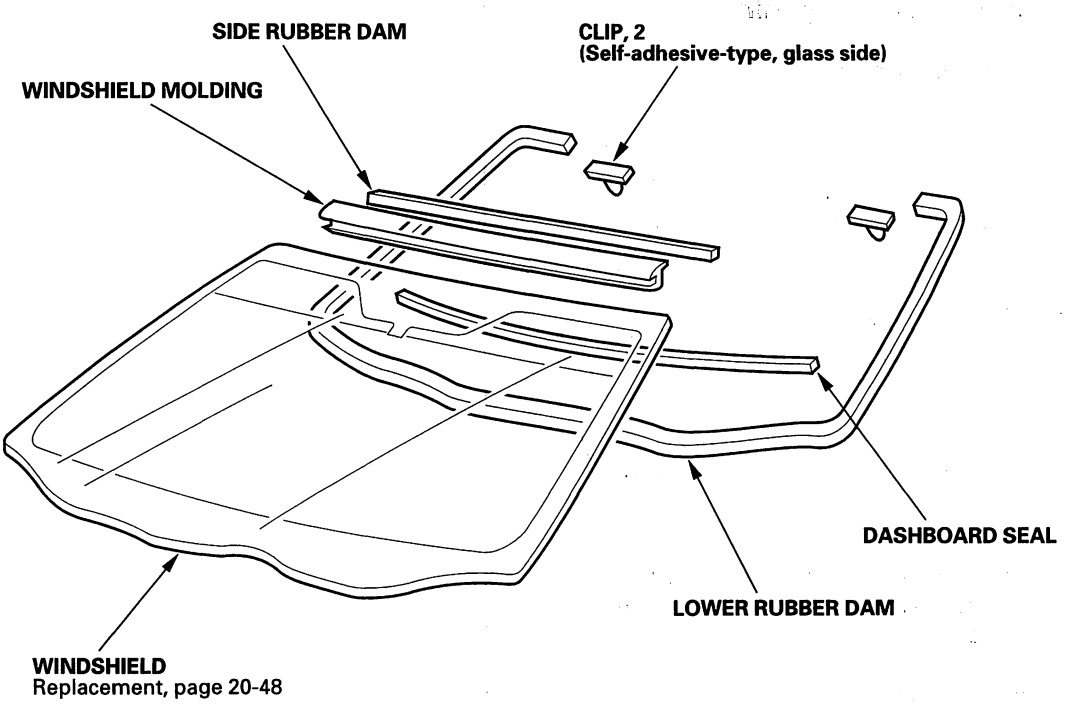


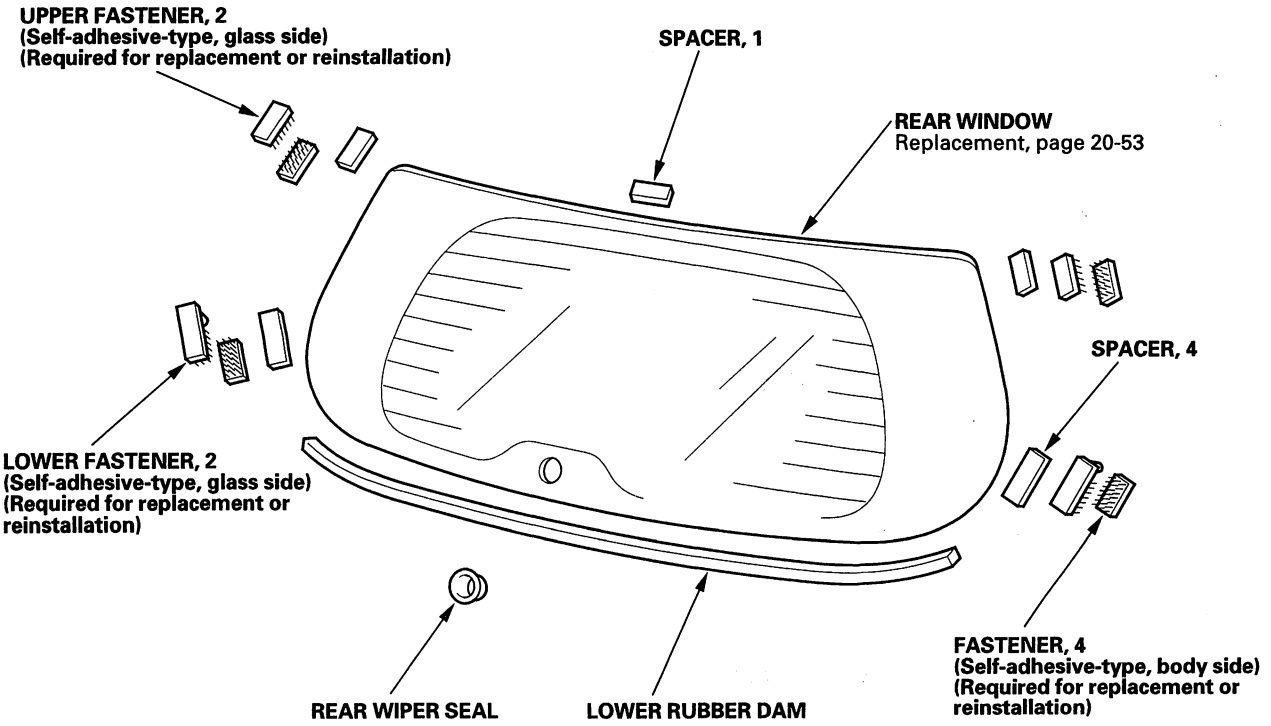
4. Install the mirror in the reverse order of removal, and note these items:

   - Before installing the mirror, remove the TORX screw, and apply medium strength type liquid thread lock to it.
   - Make sure the connector is plugged in properly.

Protected by AR

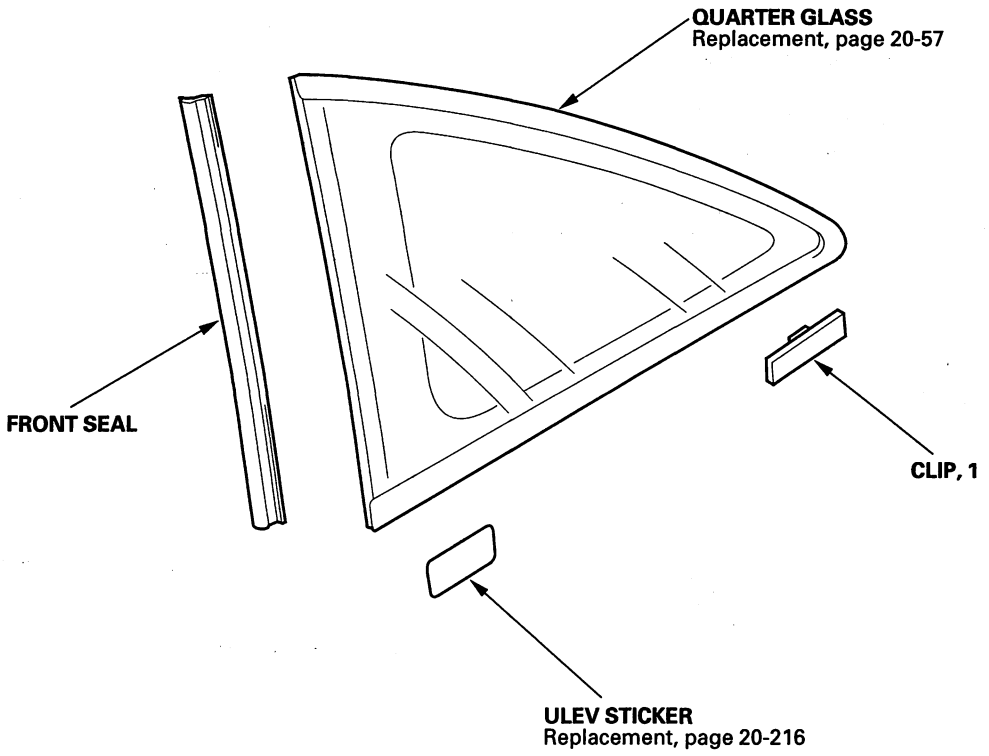
Component Location Index





BACK

Protected by AR



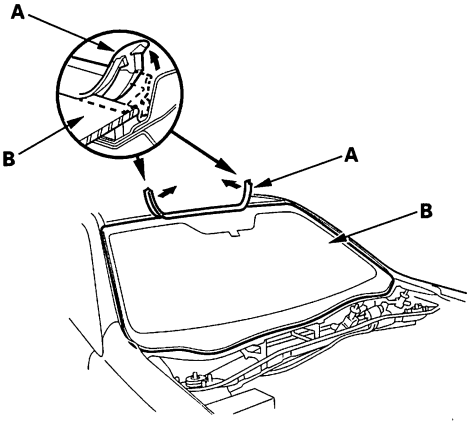
Protected by AR

Windshield Replacement

NOTE:
- Put on gloves to protect your hands.
- Wear eye protection while cutting the glass adhesive with a piano wire.
- Use seat covers to avoid damaging the seat.
- When replacing a broken windshield, a commercially available windshield cutter can be efficiently used for cutting the adhesive. For details, follow the instructions of the tool manufacturer.

1. Remove these items:
   - Cowl cover (see page 20-205)
   - Rearview mirror
     – Without automatic dimming mirror (see page 20-44).
     – With automatic dimming mirror (see page 20-45).
   - A-pillar trim, both sides (see page 20-78)
   - Roof moldings (see page 20-208)

2. Remove the molding (A) from the upper edge of the windshield (B). If necessary, cut the molding with a utility knife.

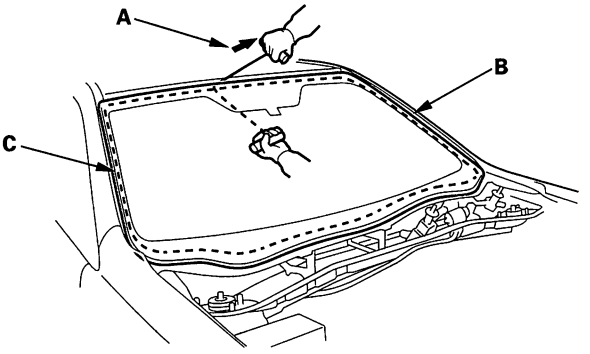


3. If the old windshield will be reinstalled, make alignment marks across the glass and body with a grease pencil.

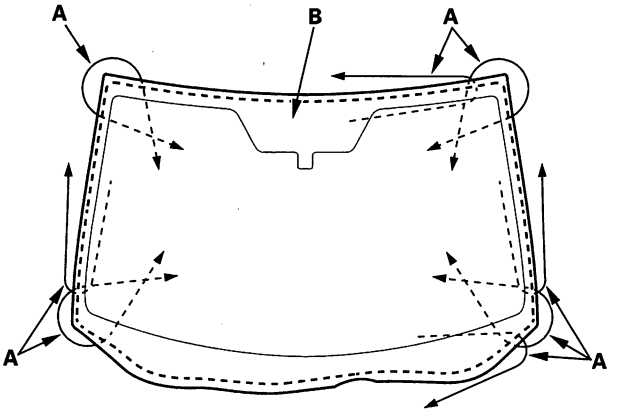
4. Pull down the front portion of the headliner (see page 20-101). Take care not to bend the headliner excessively, or you may crease or break it.

5. Apply protective tape along the edge of the dashboard and body. Using an awl, make a hole through the rubber dam and adhesive from inside the vehicle at the corner portion of the windshield. Push a piece of piano wire through the hole, and wrap each end around a piece of wood.

6. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the windshield (B) as possible to prevent damage to the body and dashboard. Carefully cut through the rubber dam and adhesive (C) around the entire windshield.



Cutting positions



7. Carefully remove the windshield.

BACK

Protected by AR

8. With a knife, scrape the old adhesive smooth to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire windshield opening flange:

   - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
   - Remove the rubber dam and fasteners from the body.

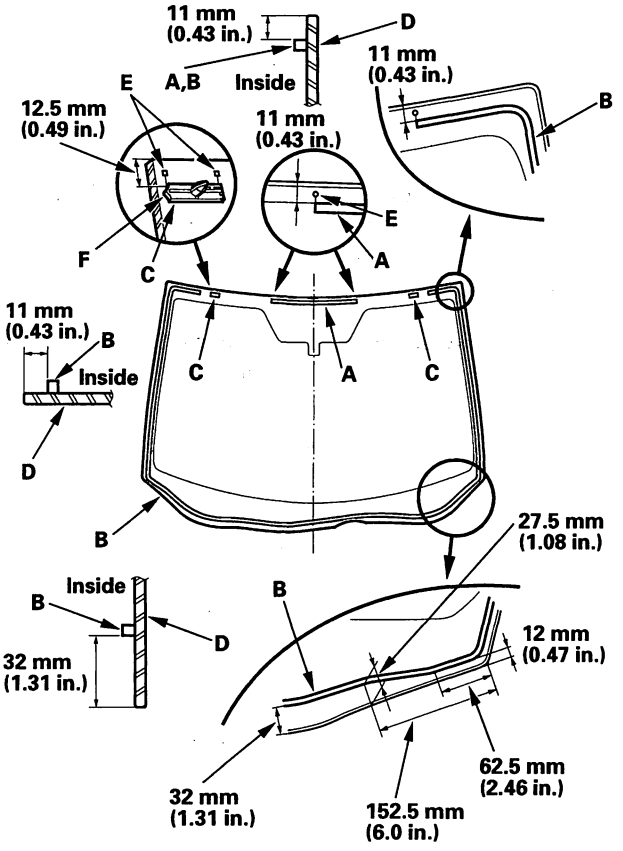
9. Clean the body bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease and water from getting on the clean surface.

10. If the old windshield will be reinstalled, use a putty knife to scrape off the old adhesive, the clips the rubber dam, and the dashboard seal from the windshield. Clean the inside face and the edge of the windshield with isopropyl alcohol where new adhesive will be applied. Make sure the bonding surface is kept free of water, oil, and grease.

11. Attach the upper rubber dam (A), lower rubber dam (B), and clips (C) with adhesive tape to the inside face of the windshield (D) as shown:

    - Be sure the rubber dam and clips line up with the alignment marks (E).
    - Be sure the convex portion (F) of the left and right clips toward left.
    - Be careful not to touch the windshield where adhesive will be applied.

    Rubber dams adhesive tape:
    Thickness 0.16 mm (0.006 in.)
    Width 3.5 mm (0.14 in.)
    Clips adhesive tape:
    Thickness 0.4 mm (0.016 in.)
    Width 10 mm (0.39 in.)



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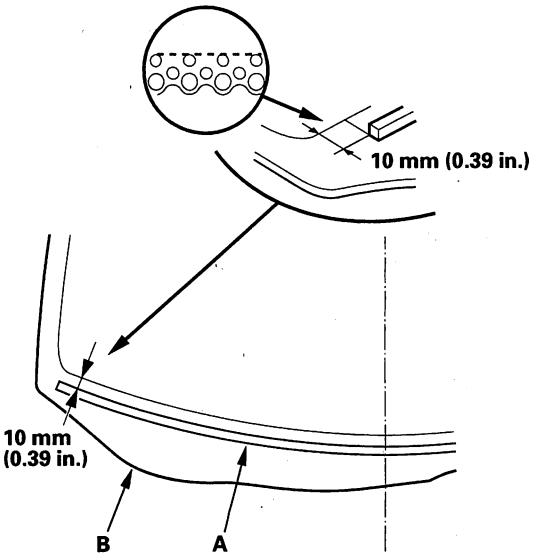
Protected by AR

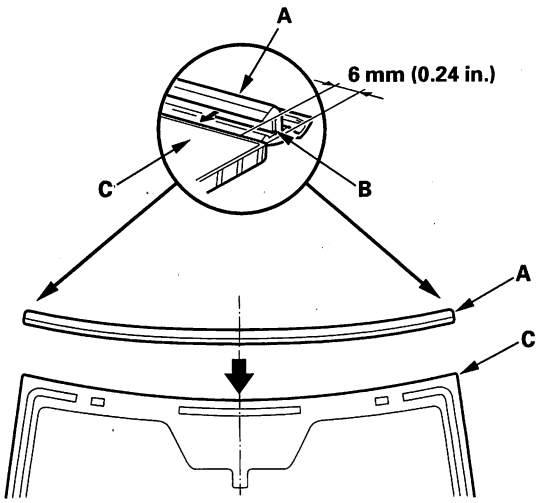
Windshield Replacement (cont'd)

12. Attach the dashboard seal (A) with adhesive tape to the inside surface of the windshield (B) as shown.

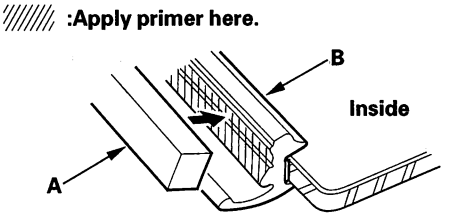


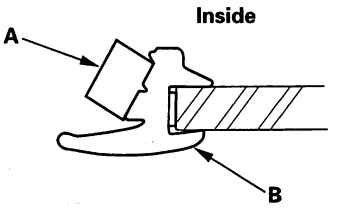
13. Attach the molding (A) with adhesive tape (B) to the upper edge of the windshield (C). Be careful not to touch the windshield where adhesive will be applied.

Molding adhesive tape: Thickness 0.8 mm (0.03 in.)
Width 4 mm (0.16 in.)

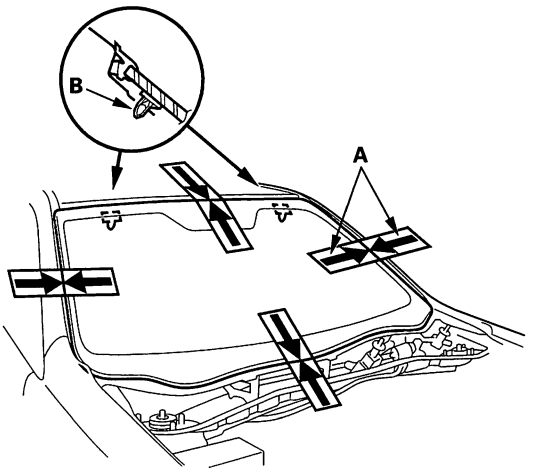


14. Attach the molding upper seal (A) with adhesive tape to the inside surface of the molding (B) as shown.





15. Set the windshield in the opening, and center it. Make alignment marks (A) across the windshield and body with a grease pencil at the four points shown. Make sure both clips (B) contact with the edge of the body holes. Be careful not to touch the windshield where adhesive will be applied.



16. Remove the windshield.

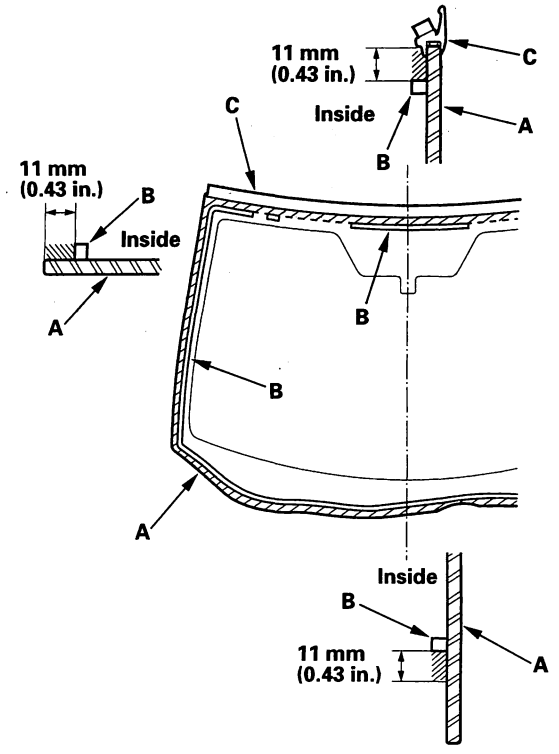
BACK

Protected by AR

17. With a sponge, apply a light coat of glass primer around the edge of the windshield (A) between the dams (B) and molding (C) as shown, then lightly wipe it off with gauze or cheesecloth:

    - Apply glass primer to the molding.
    - Do not apply body primer to the windshield, and do not get body and glass primer sponges mixed up.
    - Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the windshield properly, causing a leak after the windshield is installed.
    - Keep water, dust, and abrasive materials away from primed surfaces.

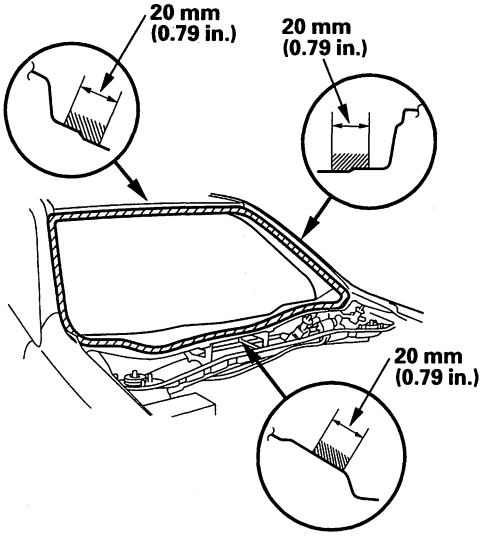
    ////// **:Apply glass primer here.**



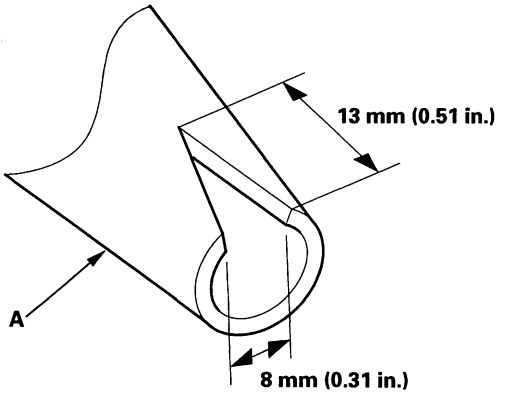
18. With a sponge, carefully apply a light coat of body primer to any exposed paint or metal around the flange where new adhesive will be applied. Let the primer dry for at least 10 minutes:

    - Do not apply body primer to any remaining original adhesive on the flange.
    - Be careful not to mix up the body and glass primer sponges.
    - Never touch the primed surfaces with your hands.

    ////// **:Apply body primer to exposed paint as shown.**



19. Cut a "V" in the end of the nozzle (A) on the adhesive cartridge as shown.



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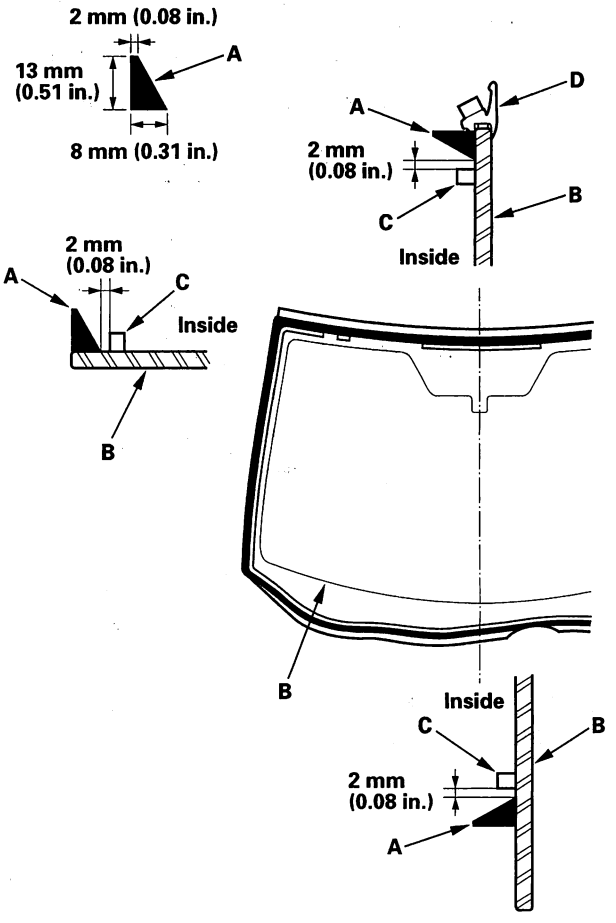
Protected by AR

Windshield Replacement (cont'd)

20. Pack adhesive into the cartridge without air pockets to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of adhesive (A) around the edge of the windshield (B) between the dams (C) and molding (D) as shown. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.



21. Use suction cups to hold the windshield over the opening, align it with the alignment marks made in step 15, and set it down on the adhesive. Lightly push on the windshield until its edges are fully seated on the adhesive all the way around.

    NOTE: Do not open or close the doors for about an hour until the adhesive is dry.

22. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the windshield, wipe with a soft shop towel dampened with isopropyl alcohol.

23. After the adhesive has dried, spray water over the windshield and check for leaks. Mark leaking areas, and let the windshield dry, then seal with sealant. Let the vehicle stand for at least 4 hours after windshield installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.

24. Reinstall all remaining removed parts.

    NOTE: Advise the customer not to do the following things for 2 to 3 days:

    - Slam the doors with all the windows rolled up.
    - Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

BACK

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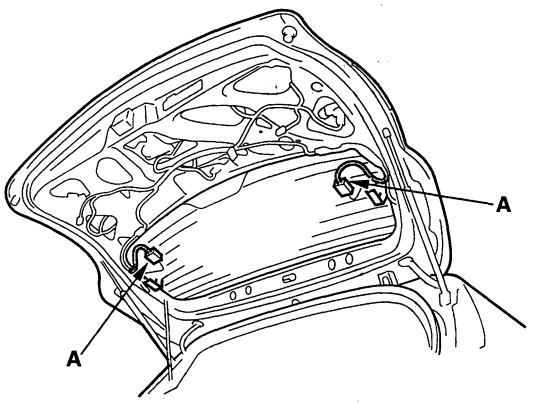
Rear Window Replacement

NOTE:
- Put on gloves to protect your hands.
- Wear eye protection when removing the glass with piano wire.
- Use seat covers to avoid damaging any surfaces.
- Do not damage the rear window defogger grid lines and terminals.

1. Remove these items:
   - Tailgate spoiler trim (see page 20-213)
   - Tailgate lower trim panel (see page 20-96)
   - Rear window wiper motor (see page 22-306)

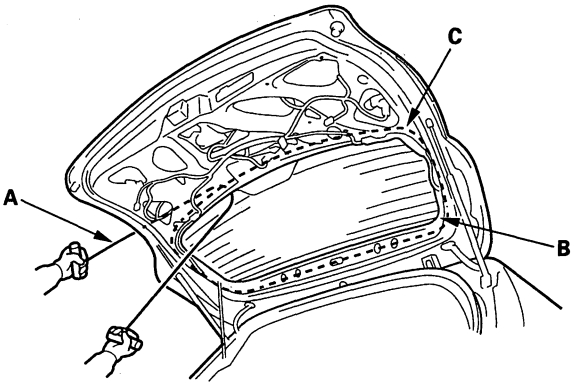
2. Disconnect the rear window defogger connectors (A).



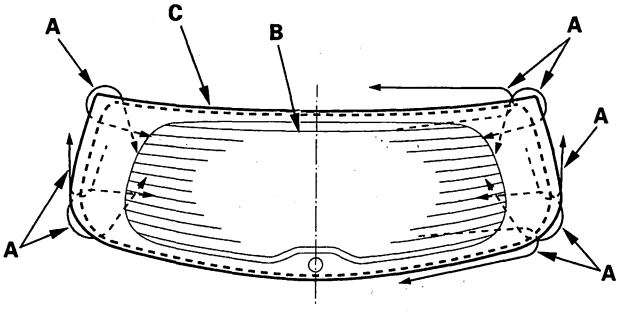
3. If the old rear window will be reinstalled, make alignment marks across the glass and body with a grease pencil.

4. Apply protective tape along the inside and outside edges of the tailgate. Using an awl, make a hole through the adhesive from inside the vehicle at the corner portion of the rear window. Push the piano wire through the hole, and wrap each end around a piece of wood.

5. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the rear window (B) as possible to prevent damage to the tailgate, and carefully cut through the adhesive (C) around the entire rear window.



Cutting positions



6. Carefully remove the rear window.

(cont'd)

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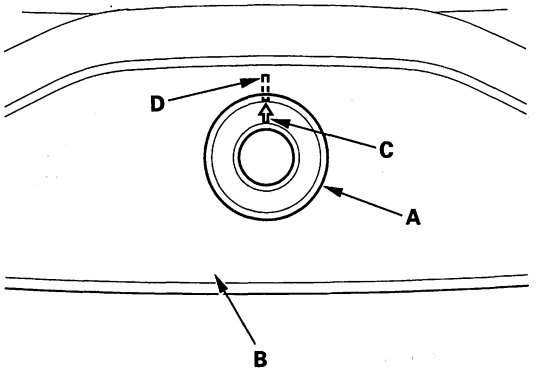
Rear Window Replacement (cont'd)

7. With a putty knife, scrape the old adhesive smooth to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire rear window opening flange:

   - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
   - Remove the fasteners from the tailgate.

8. Clean the tailgate bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease and water from getting on the surface.

9. If a new rear window is to be installed, install the rear wiper seal (A) to the rear window (B) with its alignment mark (C) being aligned with the mark (D) on the rear window.



10. If the old rear window is to be reinstalled, check for a damaged rear wiper seal, and replace it with a new one.

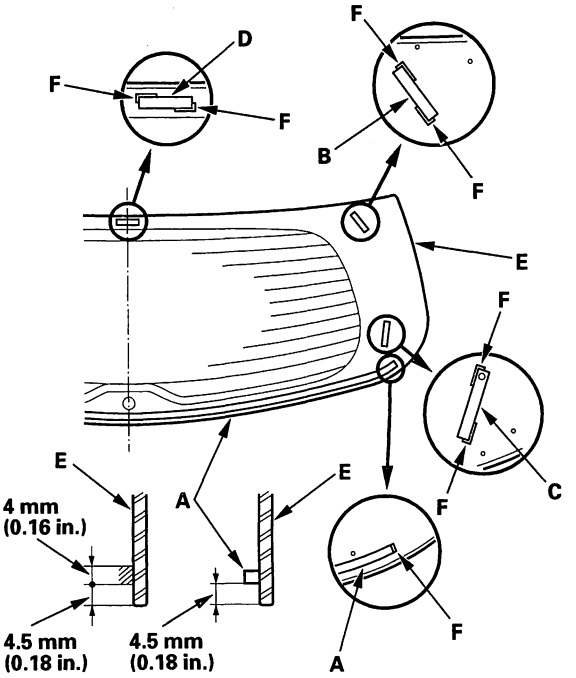
11. If the old rear window is to be reinstalled, use a putty knife to scrape off all of the old adhesive, the fasteners and the rubber dams from the rear window. Clean the inside face and the edge of the rear window with alcohol where new adhesive is to be applied. Make sure the bonding surface is kept free of water, oil and grease.

12. Attach the rubber dam (A), fasteners (B, C), and spacer (D) with adhesive tape to the inside face of the rear window (E) as shown. Before installing the rubber dam, apply primer to the area where the adhesive tape will be applied to the inside face of the rear window:

    - Be sure the fasteners and rubber dam line up with alignment marks (F).
    - Be careful not to touch the rear window where adhesive will be applied.

Rubber dam adhesive tape:
Thickness 0.16 mm (0.006 in.)
Width 3.5 mm (0.14 in.)
Fasteners adhesive tape:
Thickness 0.6 mm (0.024 in.)
Width 7.5 mm (0.3 in.)
Spacer adhesive tape:
Thickness 0.16 mm (0.006 in.)
Width 6.5 mm (0.26 in.)

:Apply primer here.



BACK

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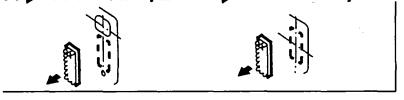
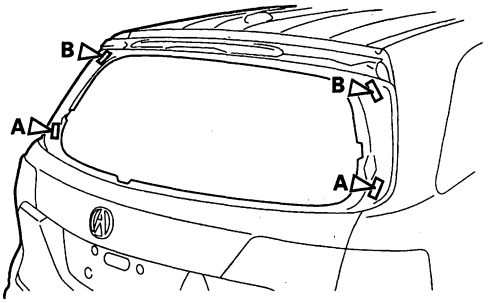
13. Attach the fasteners (A, B) with adhesive tape to the tailgate as shown.

Fasteners adhesive tape:
Thickness 0.6 mm (0.024 in.)
Width 7.5 mm (0.3 in.)

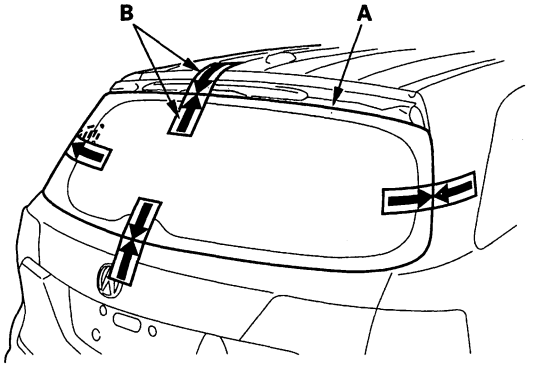
Fastener Locations

A ▷ : Fastener, 2 B ▷ : Fastener, 2





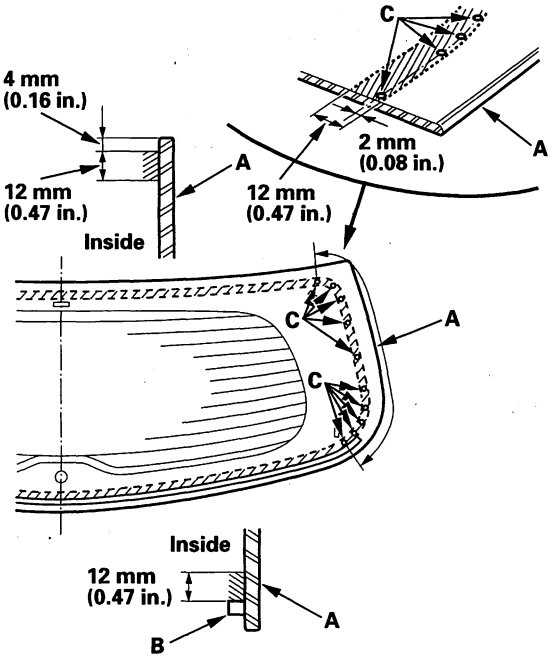
14. Set the rear window (A) in the opening, and center it. Make alignment marks (B) across the rear window and body with a grease pencil at the four points shown. Be careful not to touch the rear window where adhesive will be applied.



15. With a sponge, apply a light coat of glass primer to the rear window (A) along the edge of the rubber dam (B) as shown, then lightly wipe it off with gauze or cheesecloth:

- With the printed dots (C) on the rear window as a guide, apply the glass primer to both side portions of the rear window.
- Do not apply body primer to the rear window, and do not get body and glass primer sponges mixed up.
- Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the rear window properly, causing a leak after the rear window is installed.
- Keep water, dust, and abrasive materials away from the primed surface.

:Apply glass primer here.



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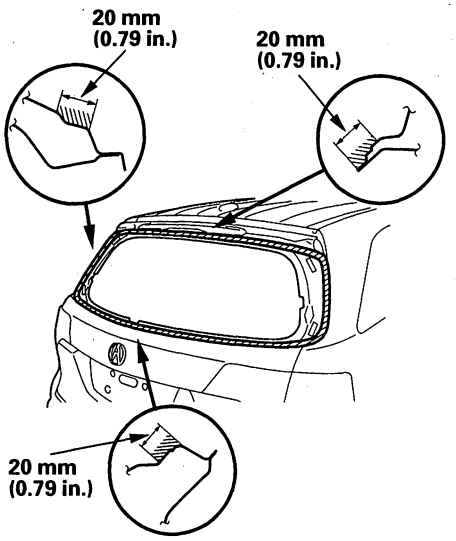
Rear Window Replacement (cont'd)

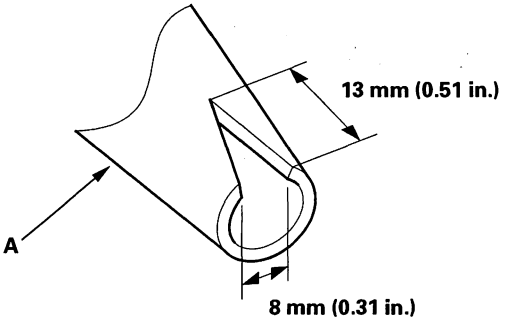
16. With a sponge, carefully apply a light coat of body primer to any exposed paint around the flange where new adhesive will be applied. Let the body primer dry for at least 10 minutes:

    - Do not apply body primer to any remaining original adhesive on the flange.
    - Be careful not to mix up glass and body primer sponges.
    - Never touch the primed surfaces with your hands.

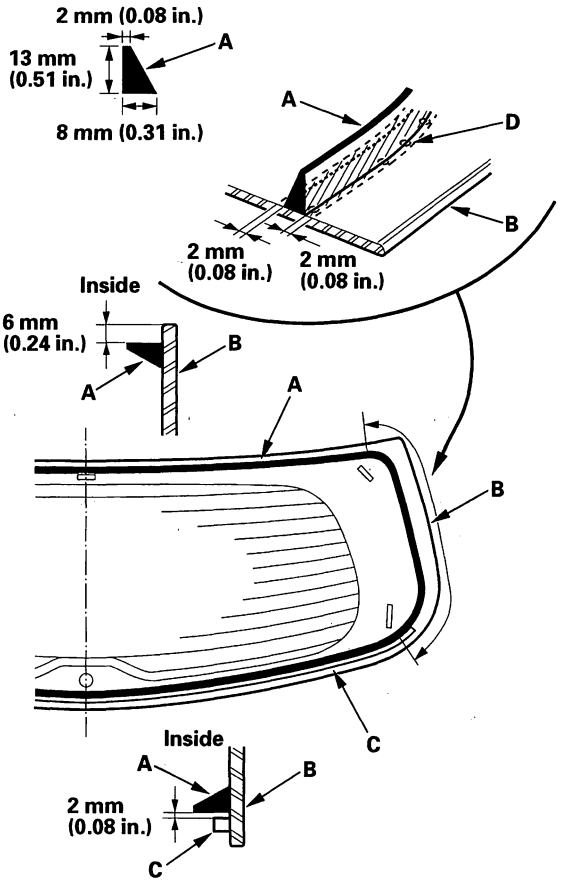
    ////// :Apply body primer to any exposed paint as shown.



17. Cut a "V" in the end of the nozzle (A) on the adhesive cartridge as shown.



18. Pack adhesive into the cartridge without air pockets to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of adhesive (A) on the rear window (B) around the edge of the lower rubber dam (C) as shown. With the printed dots (D) on the rear window as a guide, apply the adhesive to both side portions of the quarter glass. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.



BACK

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19. Use suction cups to hold the rear window over the opening, align it with the alignment marks you made in step 14, and set it down on the adhesive. Lightly push on the rear window until its edges are fully seated on the adhesive all the way around.

    NOTE: Do not open or close the doors for about an hour until the adhesive is dry.

20. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the rear window, use a soft shop towel dampened with alcohol.

21. After the adhesive has dried, spray water over the rear window and check for leaks. Mark the leaking areas, and let the rear window dry, then seal with sealant. Let the vehicle stand for at least 4 hours after rear window installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.

22. Reinstall all remaining removed parts.

    NOTE: Advise the customer not to do the following things for 2 to 3 days:

    - Slam the doors with all the windows rolled up.
    - Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

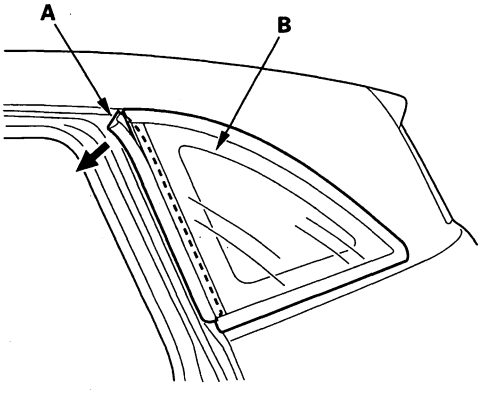
Quarter Glass Replacement

NOTE:
- Put on gloves to protect your hands.
- Wear eye protection when removing the glass with piano wire.
- Use seat covers to avoid damaging any surface.

1. Remove the quarter pillar trim (see page 20-85).

2. Apply protective tape along the inside and outside edges of the body. Using an awl, make a hole through the adhesive from inside the vehicle. Push a piece of piano wire through the hole, and wrap each end around a piece of wood.

3. Remove the front seal (A) from the front edge of the quarter glass (B). If necessary, cut the front seal with a utility knife.



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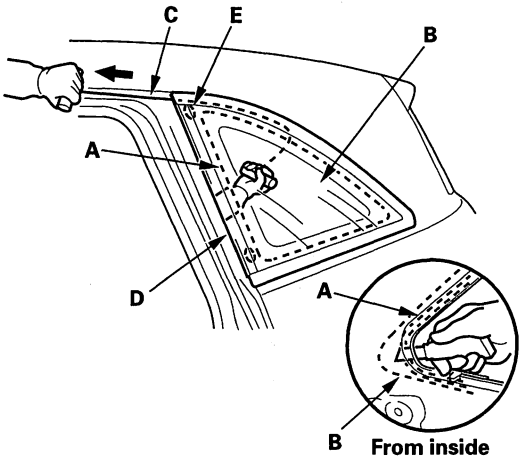
Protected by AR

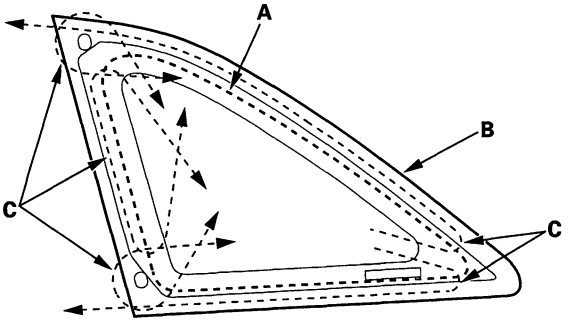
Quarter Glass Replacement (cont'd)

4. Carefully cut through the adhesive (A) at the rear corner portion of the quarter glass (B) with a utility knife. With a helper on the outside, pull the piano wire (C) back and forth in a sawing motion. Hold the piano wire as close to the quarter glass as possible to prevent damage to the body, and carefully cut through the adhesive around the entire quarter glass:

   - If the quarter glass will be reinstalled, take care not to damage the molding (D).
   - If the molding is damaged, replace the quarter glass, molding, and clips (E) as an assembly.
   - If any of the clips are broken, the quarter glass can be reinstalled using butyl tape (refer to step 9).



Cutting positions



5. Carefully remove the quarter glass.

6. With a putty knife, scrape the old adhesive smooth to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire quarter glass opening flange:

   - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
   - Remove the clips and fastener from the body.

7. Clean the body bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.

8. If the old quarter glass will be reinstalled, use a putty knife to scrape off the old adhesive, any broken clips from the quarter glass. Clean the inside face and the edge of the quarter glass with isopropyl alcohol where new adhesive will be applied. Make sure the bonding surface is kept free of water, oil, and grease.

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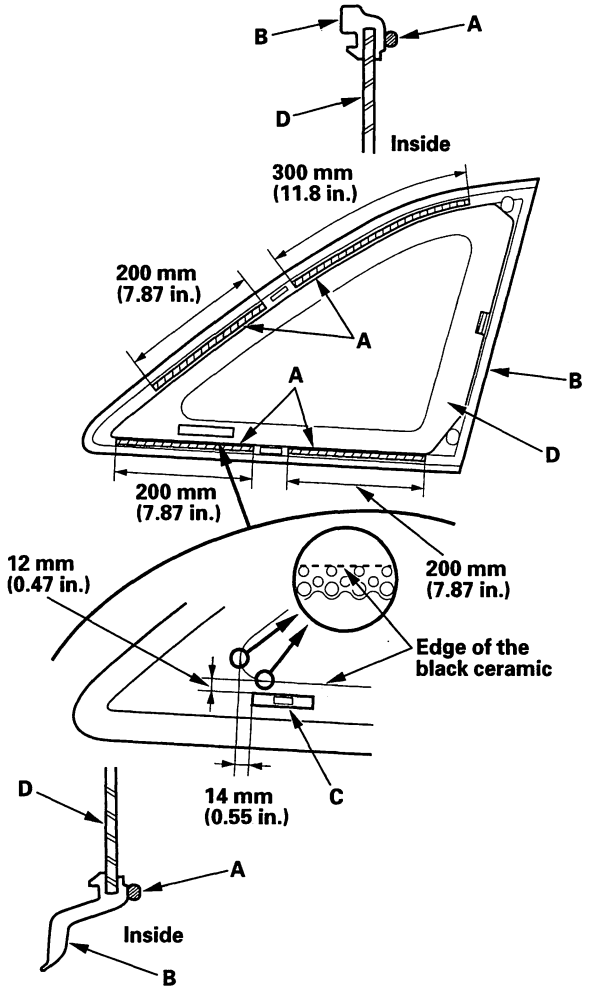
9. If the old quarter glass will be reinstalled (and either clip is broken off the molding), apply a light coat of primer, then apply butyl tape (A) to the molding (B) as shown. Attach the clip (C) with adhesive tape to the inside face of the quarter glass (D):

   - Be careful not to touch the quarter glass where adhesive will be applied.
   - Do not peel the separator off the butyl tape.

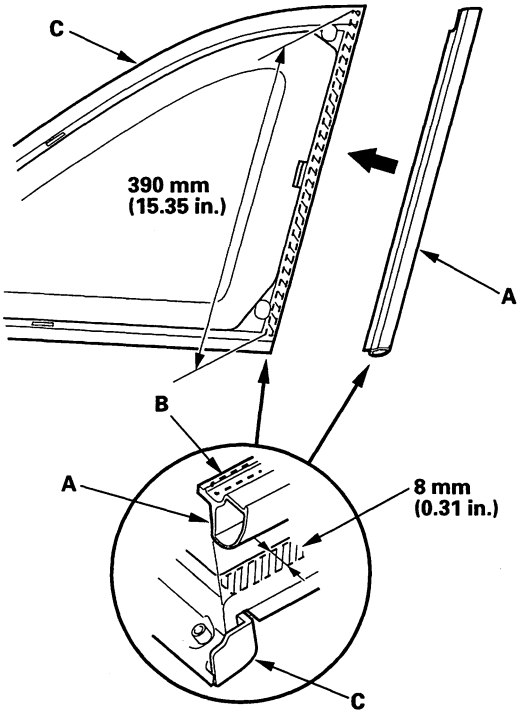
   Clip adhesive tape: Thickness 0.4 mm (0.016 in.)
   Width 7.5 mm (0.3 in.)



10. Attach the front seal (A) with adhesive tape (B) onto the molding (C).

    Seal adhesive tape: Thickness 0.8 mm (0.031 in.)
    Width 7 mm (0.28 in.)

    :Apply primer here.



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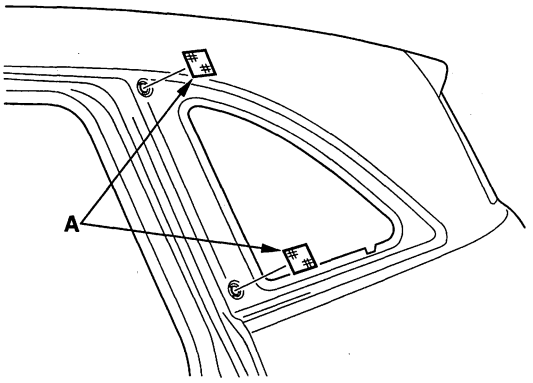
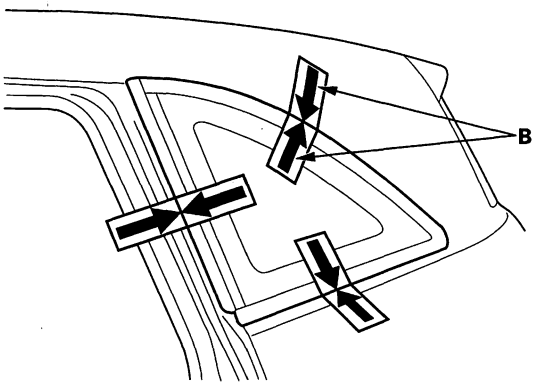
Quarter Glass Replacement (cont'd)

11. If the old quarter glass will be reinstalled (and either clip is broken off the molding), seal the body holes with pieces of urethane tape (A). Then set the quarter glass upright in the opening, and make alignment marks (B) across the quarter glass and body with a grease pencil at the three points shown. Be careful not to touch the quarter glass where adhesive will be applied.



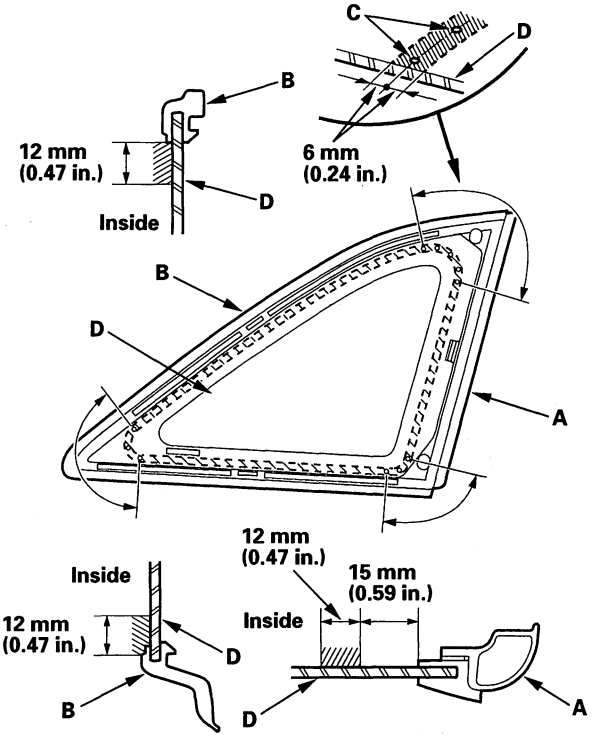


12. Remove the quarter glass.

13. With a sponge, apply a light coat of glass primer along the edge of the front seal (A) and molding (B) as shown, then lightly wipe it off with gauze or cheesecloth:

- With the printed dots (C) on the quarter glass (D) as a guide, apply the glass primer to the *front* portion of the quarter glass.
- Do not apply body primer to the quarter glass, and do not get body and glass primer sponges mixed up.
- Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the quarter glass properly, causing a leak after the quarter glass is installed.
- Keep water, dust, and abrasive materials away from primed surfaces.

:Apply body primer here.



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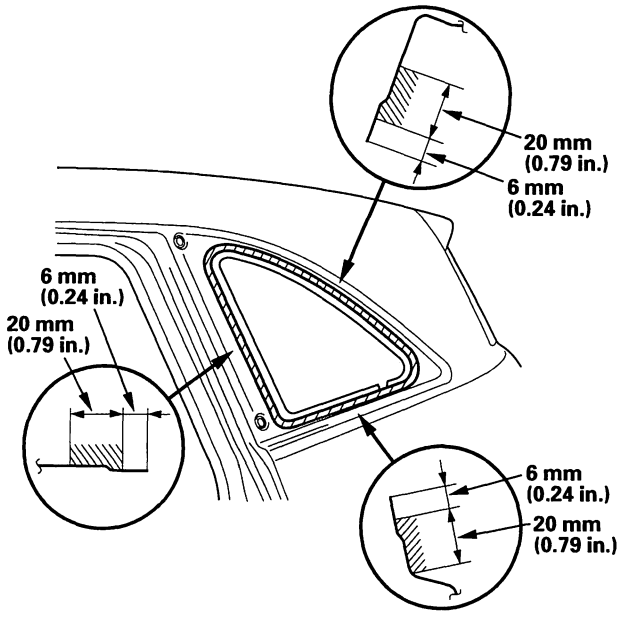
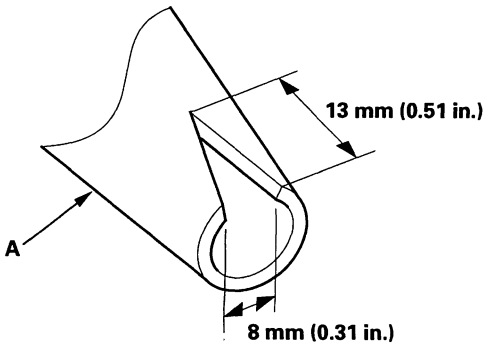
14. With a sponge, carefully apply a light coat of body primer to any exposed paint or metal around the flange where new adhesive will be applied. Let the primer dry for at least 10 minutes:

    - Do not apply body primer to any remaining original adhesive on the flange.
    - Be careful not to mix up the body and glass primer sponges.
    - Never touch the primed surfaces with your hands.

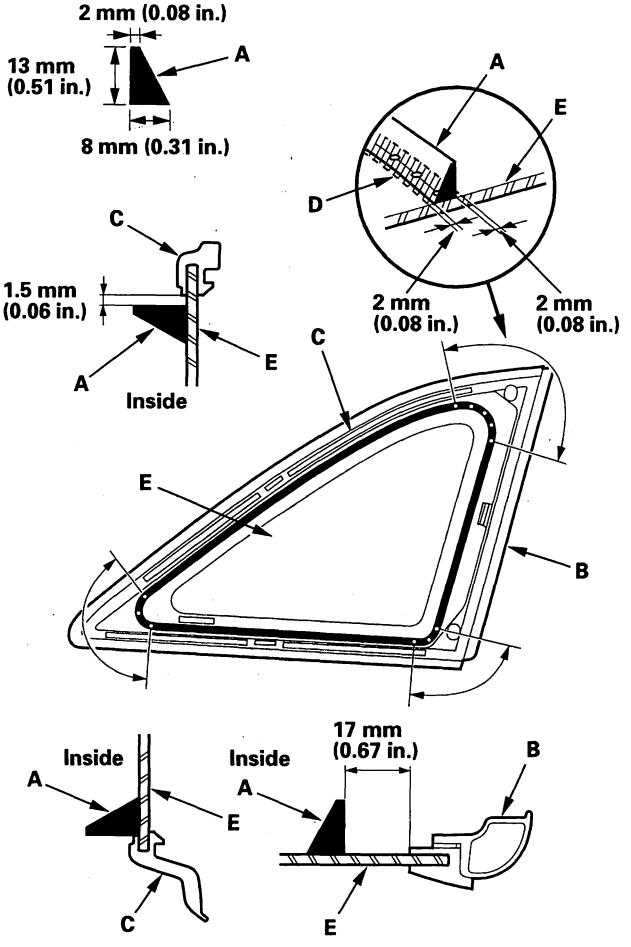
    ////// :Apply glass primer to exposed paint as shown.



15. Cut a "V" in the end of the nozzle (A) on the adhesive cartridge as shown.



16. Pack adhesive into the cartridge without air pockets to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of adhesive (A) around the edge of the front seal (B) and molding (C) as shown. With the glass primer (D) you applied in step 13 on the quarter glass (E) as a guide, apply the adhesive to the upper and lower corner portions of the quarter glass. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.



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BACK

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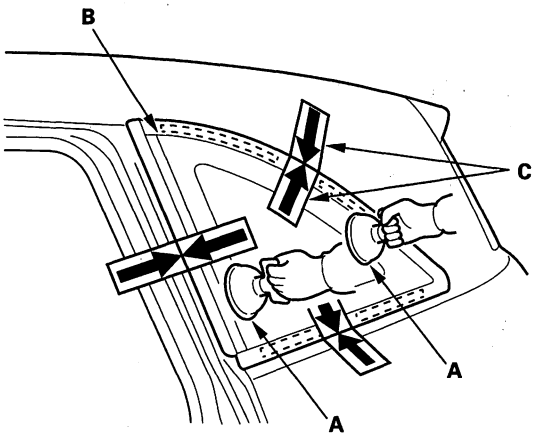
Quarter Glass Replacement (cont'd)

17. Use suction cups (A) to hold the quarter glass (B) over the opening, align the clips or the alignment marks (C) made in step 11, and set it down on the adhesive. Lightly push on the quarter glass until its edges are fully seated on the adhesive all the way around.

    NOTE: Do not open or close the doors for an hour until the adhesive is dry.



18. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the quarter glass, wipe with a soft shop towel dampened with isopropyl alcohol.

19. After the adhesive has dried, spray water over the quarter glass and check for leaks. Mark the leaking areas, and let the quarter glass dry, then seal with sealant. Let the vehicle stand for at least 4 hours after quarter glass installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.

20. Reinstall all remaining removed parts.

    NOTE: Advise the customer not to do the following things for 2 to 3 days:

    - Slam the doors with all the windows rolled up.
    - Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

BACK

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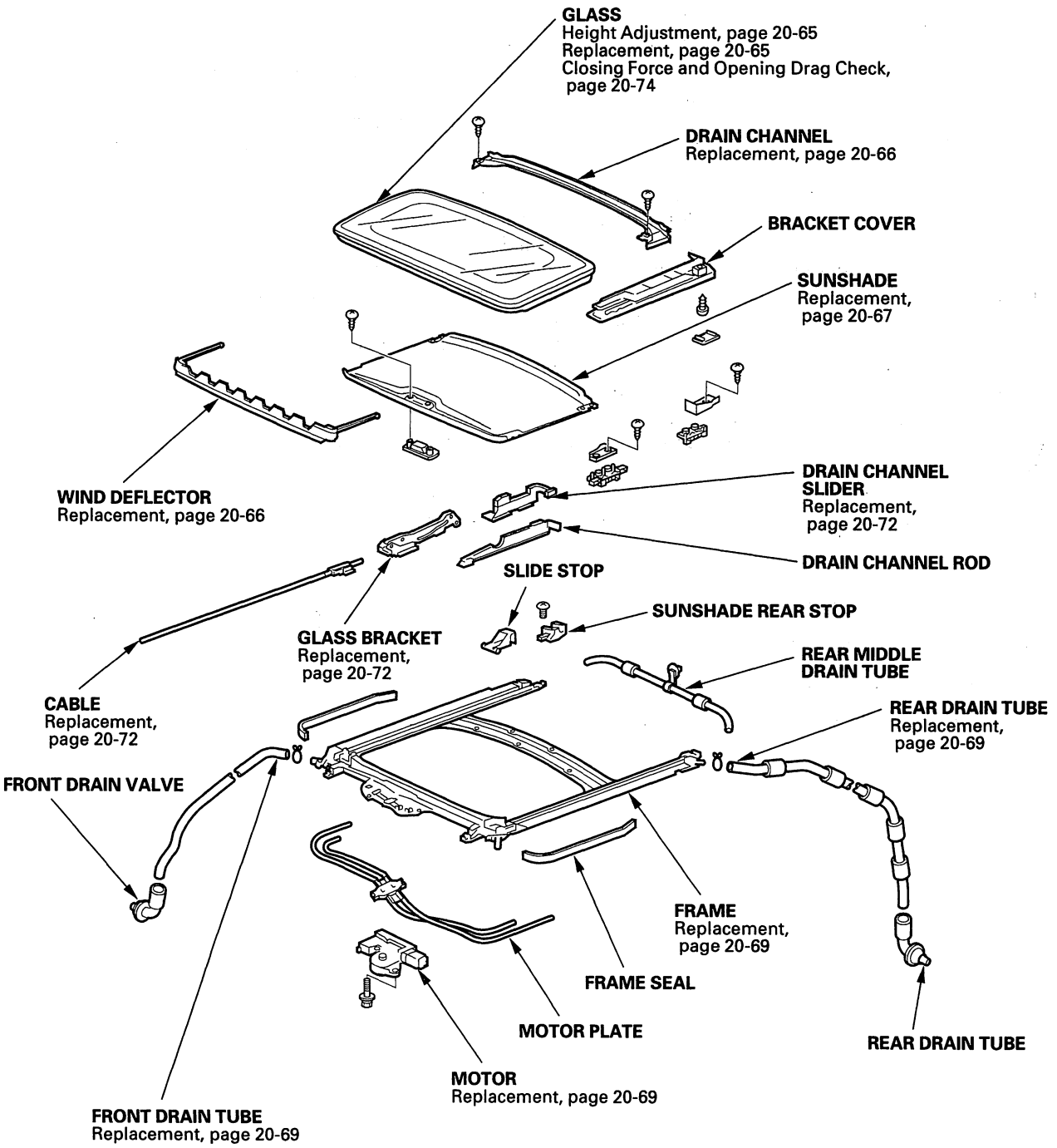
Moonroof

Component Location Index



BACK

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Symptom Troubleshooting Index

Symptom	Diagnostic procedure
Water leaks from moonroof	1. Check for a clogged drain tube. 2. Check for a gap between the glass weatherstrip and the roof panel. 3. Check for a defective or an improperly installed glass weatherstrip or drain channel. 4. Check for a gap between the drain seal and the roof panel.
Wind noise from moonroof	Check for excessive clearance between the glass weatherstrip and the roof panel.
Motor noise from moonroof	1. Check for a loose motor. 2. Check for a worn gear or bearing. 3. Check for a deformed cable assembly.
Moonroof glass does not move, but motor turns	1. Check for a defective gear or inner cable. 2. Check for foreign matter stuck between the guide rail and the slider. 3. Check for a loose inner cable. 4. Make sure the cable assembly is attached properly.
Moonroof glass does not move and motor does not turn (glass can be moved with 5 mm hexagonal wrench)	1. Check for a blown fuse. 2. Check for a faulty moonroof switch. 3. Check for a run down battery. 4. Check for a defective motor control unit.
Moonroof glass does not stop at proper flush closed position	1. Reset the moonroof control unit (see page 22-357). 2. Check glass height adjustment.
Moonroof glass moves in a jerking motion (moves 40 mm (1.57 in.), stops for 0.4 seconds, and repeats)	Reset the moonroof control unit (see page 22-357).
During auto close operation, moonroof glass reverses when no object is trapped	Check for dirt and debris in the track. Reset the moonroof control unit (see page 22-357).
Moonroof glass moves, but there is no AUTO function	Reset the moonroof control unit (see page 22-357).

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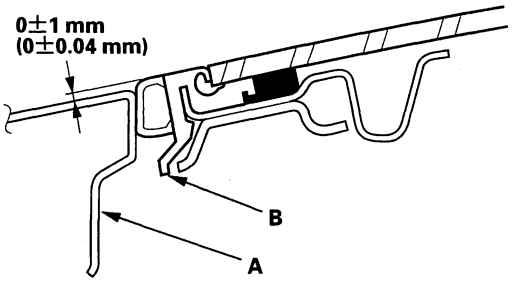
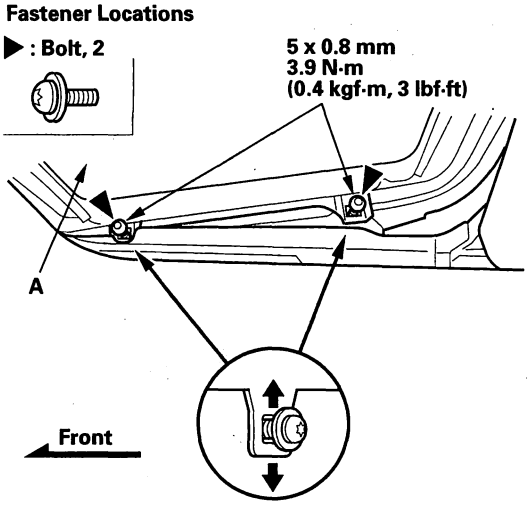
Glass Height Adjustment

The roof panel (A) should be even with the glass weatherstrip (B), to within 0+1/−1 mm (0+0.04/−0.04 in.) all the way around. If not, make the following adjustment:



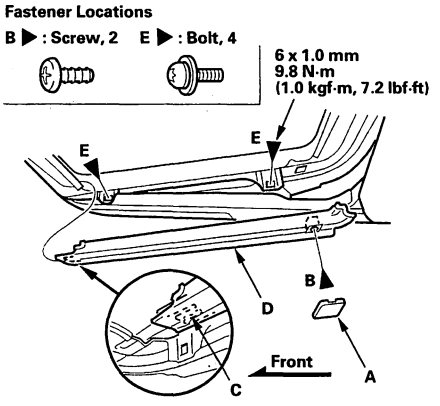
1. Remove the bracket cover.
2. With a T25 TORX bit, loosen the bolts on each side, and adjust the glass (A).



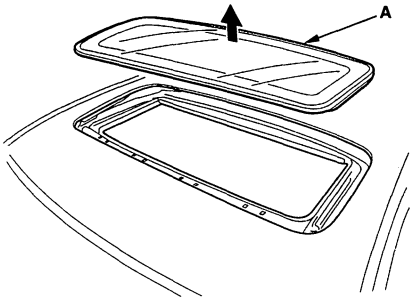
3. If necessary, repeat on the opposite side.

Glass Replacement

1. Tilt the glass all the way up.
2. Slide the sunshade all the way back.
3. Pry out the cap (A), remove the screw (B), release the hooks (C), and remove the bracket cover (D). Repeat on opposite side. Use a T25 TORX bit to remove the bolts (E) from the glass brackets (F) on both sides.



4. Remove the glass (A) by lifting it up. Do not damage the roof panel.



5. Install the glass in the reverse order of removal, and note these items:
   - Apply medium strength type liquid thread lock to the glass mounting bolts before reinstallation.
   - Reset the moonroof control unit (see page 22-357).
   - Adjust the glass height alignment.
6. Check for water leaks. Use free-flowing water from a hose without a nozzle. Do not use high-pressure water.

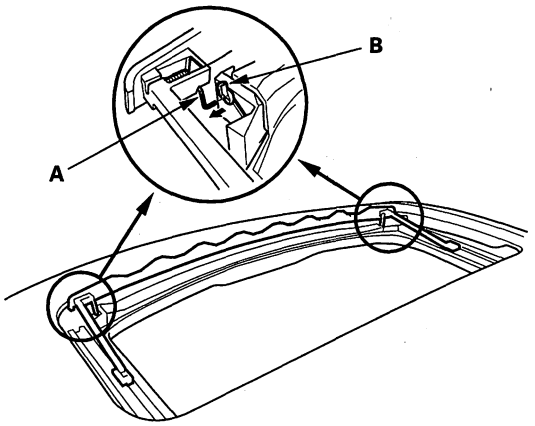
   NOTE: It is normal for some water to seep past the moonroof into the moonroof frame, and exit through the drains.

Protected by AR

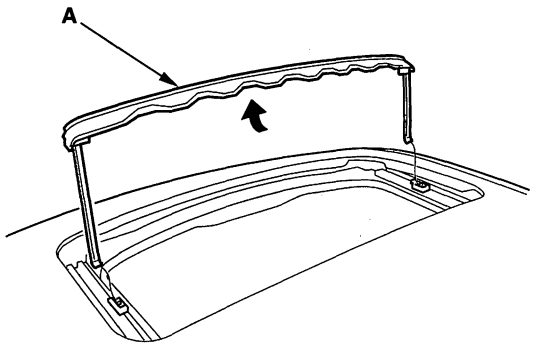
Moonroof

Wind Deflector Replacement

1. Open the glass fully.
2. Disconnect the deflector springs (A) from the bushings (B) on both sides.



3. Remove the wind deflector (A).



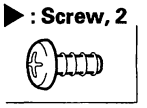
4. Install the deflector in the reverse order of removal.
5. Reset the moonroof control unit (see page 22-357).

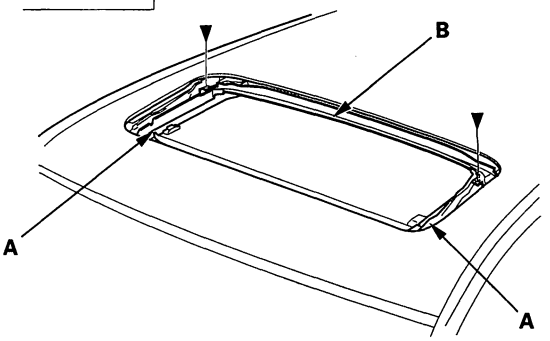
Drain Channel Replacement

1. Remove the glass (see page 20-65).
2. Move both glass brackets (A) to the position where the moonroof normally pivots down, and remove the screws securing the drain channel (B).

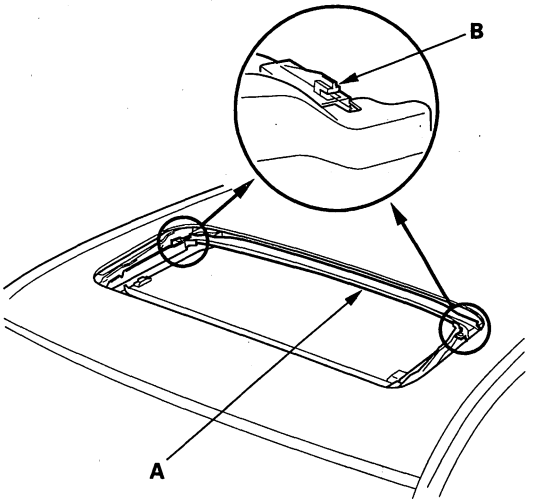
Fastener Locations

▶ : Screw, 2





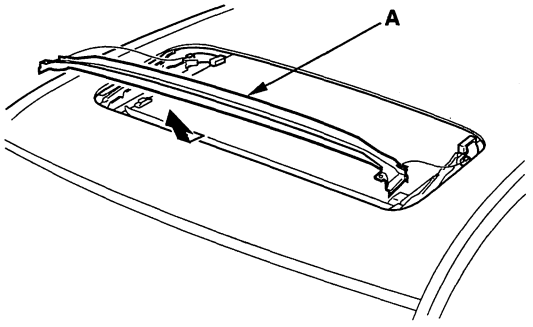
3. Release the drain channel (A) from both hooks (B) of the drain channel slider by pulling the drain channel forward.



BACK

Protected by AR

4. Remove the drain channel (A).



5. Install the channel in the reverse order of removal, and note these items:

   - Push the drain channel onto the hooks until a faint click is heard.
   - Check the glass height adjustment (see page 20-65).

6. Reset the moonroof control unit (see page 22-357).

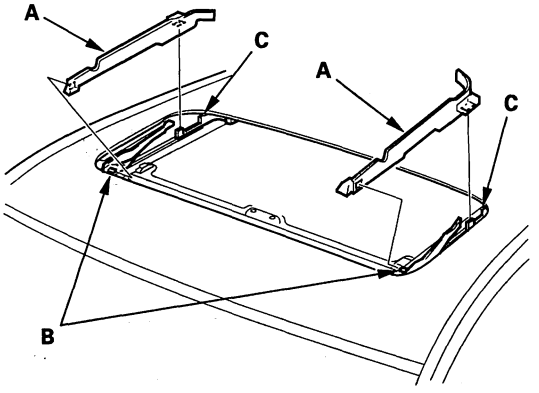
7. Check for water leaks. Let the water run freely from a hose without a nozzle. Do not use a high-pressure spray.

Sunshade Replacement

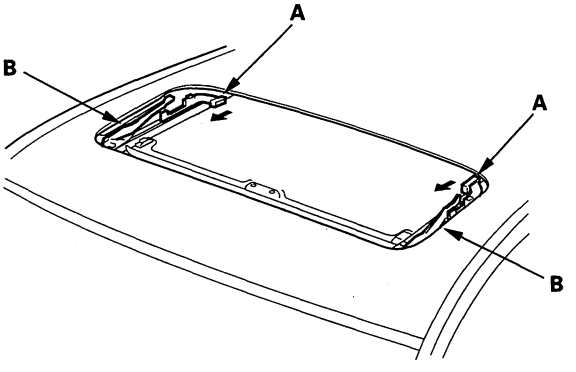
1. Remove the drain channel (see page 20-66).

2. Slide the sunshade all the way forward.

3. Disconnect both drain channel rods (A) from both glass brackets (B) by pulling the front of them inside, then remove the rods from both drain channel sliders (C) by lifting them up.



4. Slide both drain channel sliders (A) forward untill they contact both glass brackets (B).

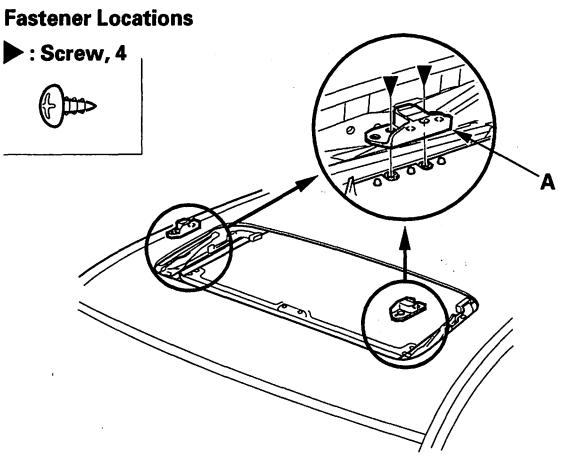


(cont'd)

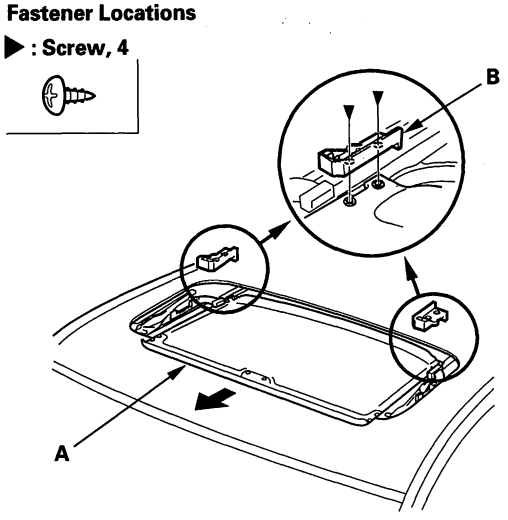
Protected by AR

Sunshade Replacement (cont'd)

5. Remove the screws, then remove both sunshade slider spacers (A).

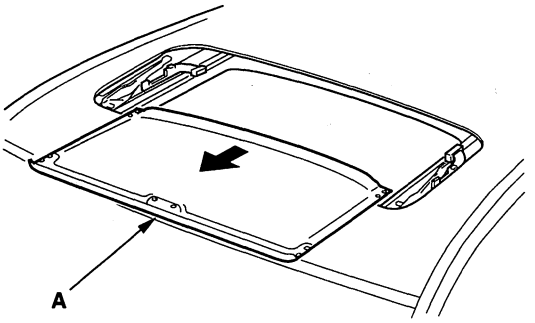


6. While lifting the front portion of the sunshade (A), move the sunshade forward until you can see both sunshade rear hooks (B). Do not damage the sunshade and hooks.

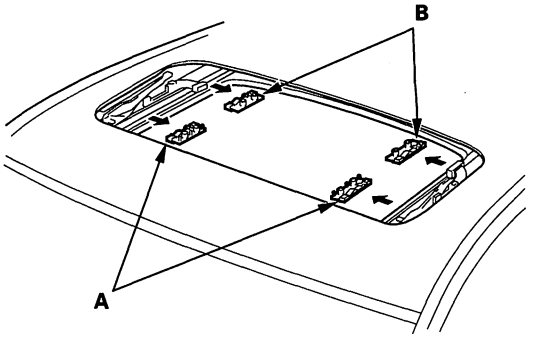


7. Remove the screws, then remove both hooks.

8. Remove the sunshade (A).



9. Remove both front sunshade base sliders (A) and both rear sunshade base sliders (B).



10. Install the sunshade in the reverse order of removal, and check the glass height adjustment (see page 20-65).

11. Reset the moonroof control unit (see page 22-357).

12. Check for water leaks. Let the water run freely from a hose without a nozzle. Do not use a high-pressure spray.

BACK

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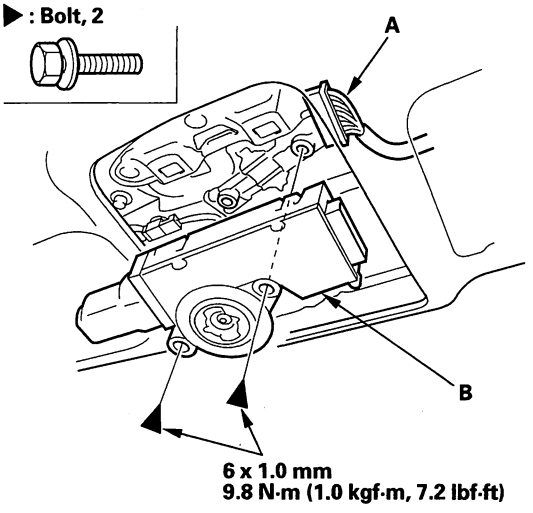
Motor Replacement

1. Remove these items:
   - Roof console (see page 22-239)
   - Roof console bezel (see step 2 on page 20-101)

2. Put on gloves to protect your hands. Disconnect the connector (A), and remove the bolts, then remove the motor (B).

Fastener Locations

▶ : Bolt, 2



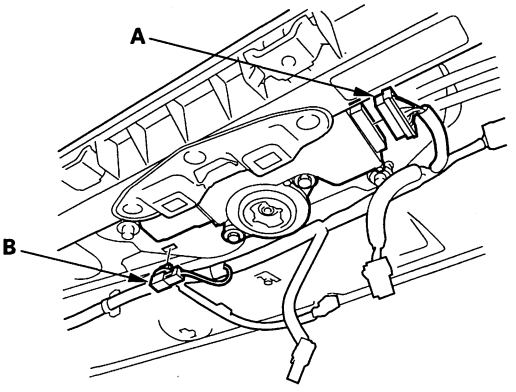
3. Install the motor in the reverse order of removal, and note these items:
   - Make sure the connector is plugged in properly.
   - Reset the moonroof control unit (see page 22-357).
   - Check the motor operation.

Frame and Drain Tube Replacement

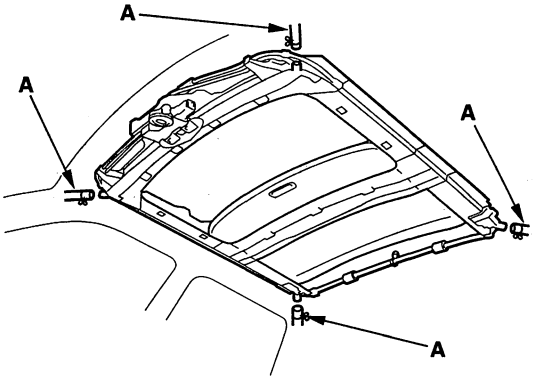
SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

1. Remove these items:
   - Headliner (see page 20-101)
   - Moonroof glass (see page 20-65)
   - With rear entertainment system: Rear controller and display (see page 23-215)

2. Put on gloves to protect your hands. Disconnect the motor connector (A), and detach the moonroof wire harness connector (B) from the moonroof frame.



3. Disconnect the drain tubes (A).



(cont'd)

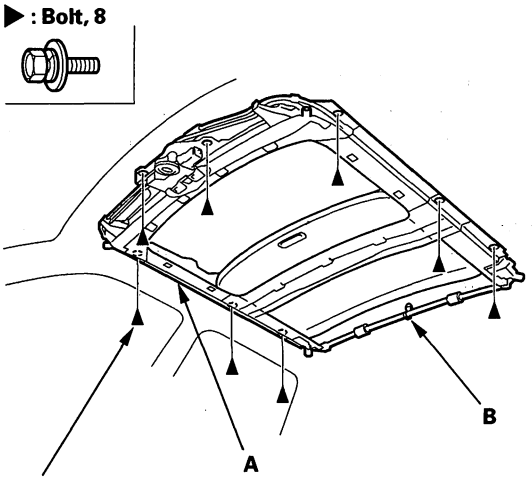
Protected by AR

Frame and Drain Tube Replacement (cont'd)

4. With an assistant holding the frame (A), remove the bolts and release the rear middle drain tube clip (B), then remove the frame.

Fastener Locations

▶ : Bolt, 8



Front Drain Tube

5. Remove these items:

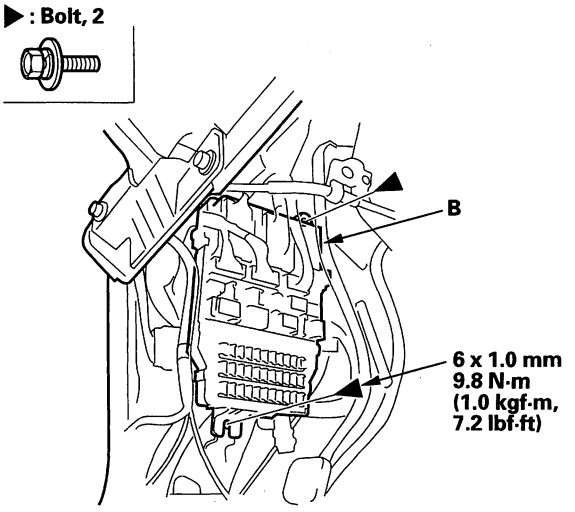
- Front door sill trim (see page 20-76)
- Kick panel (see page 20-76)
- Driver's dashboard undercover (see page 20-120)
- Passenger's dashboard undercover (see page 20-127)

6. Passenger's side: Remove the glove box damper from the pivot on the glove box (see step 3 on page 20-125). While holding the glove box, release the glove box stop on each side from the dashboard by pushing them in, then lower the glove box (see step 6 on page 20-126).

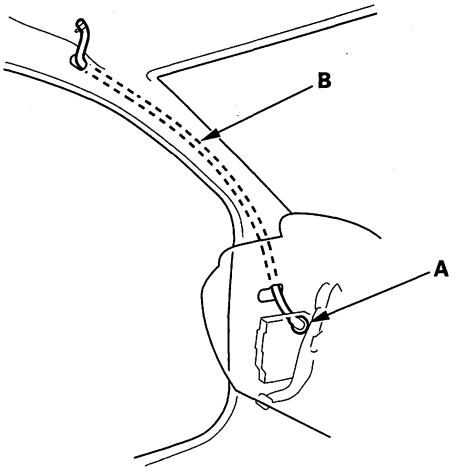
7. Driver's side: Remove the bolts, then move the under-dash fuse/relay box (A) as needed.

Fastener Locations

▶ : Bolt, 2



8. To remove a front drain valve (A) from the body, tie a string to the top end of the drain tube, then pull the front drain tube (B) down out of the A-pillar. Leave the string in the pillar to use when reinstalling the drain tube.



BACK

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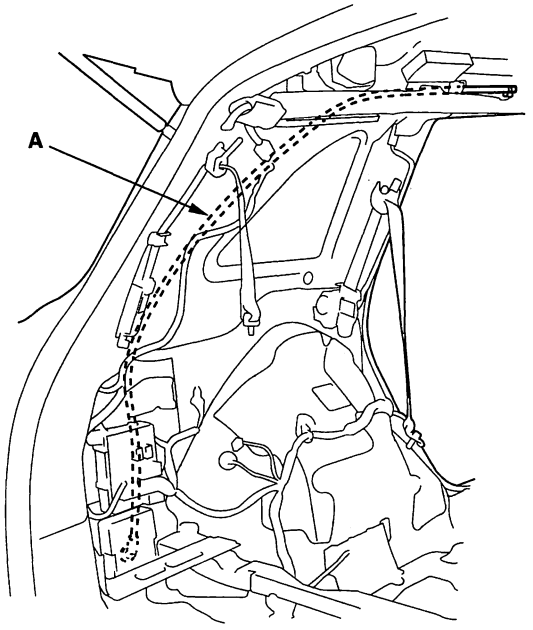
Rear Drain Tube

9. Remove these items:

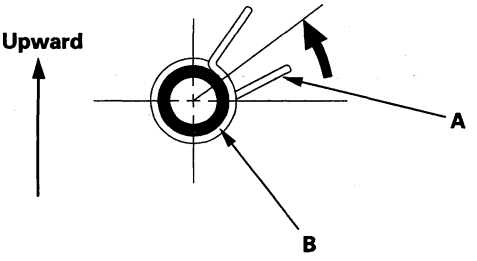
   - Rear side trim panel (see page 20-92)
   - Left side: Subwoofer box (see page 23-94)

10. Tie a string to the top end of the rear drain tube (A), then pull the drain tube down out of the pillar. Leave the string in the pillar to use when reinstalling the drain tube.



11. Install the frame and drain tube in the reverse order of removal, and note these items:

    - Before installing the frame, clear the drain tubes and drain valves using compressed air.
    - When installing, tie the string that was left in the pillar to the top end of the new drain tube and pull it up into the roof.
    - Check the frame seal.
    - Clean the surface of the frame.
    - Make sure the connectors are plugged in properly.
    - When connecting the drain tube, slide it over the frame nozzle at least 10 mm (0.39 in.).
    - Install the tube clip (A) on the drain tube (B) as shown.
    - After all parts are installed, including the headliner, reset the moonroof control unit (see page 22-357).
    - Adjust the glass height alignment (see page 20-65).



12. Check for water leaks. Let the water run freely from a hose without a nozzle. Do not use a high-pressure spray.

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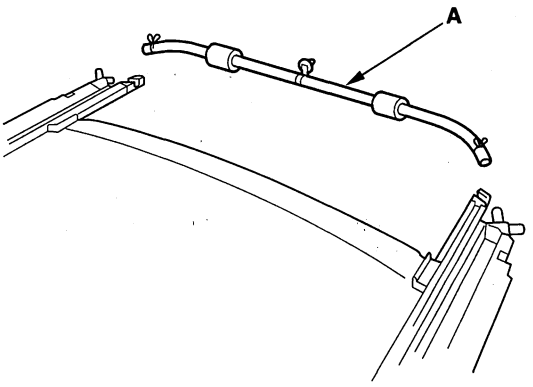
Drain Channel Slider and Cable Assembly Replacement

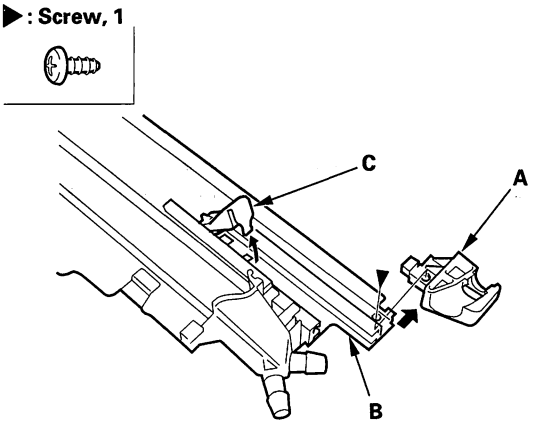
1. Remove the frame (see page 20-69).
2. Remove these parts from the frame:
   - Sunshade (see page 20-67)
   - Moonroof motor (see page 20-69)
3. Disconnect and remove the rear middle drain tube (A).



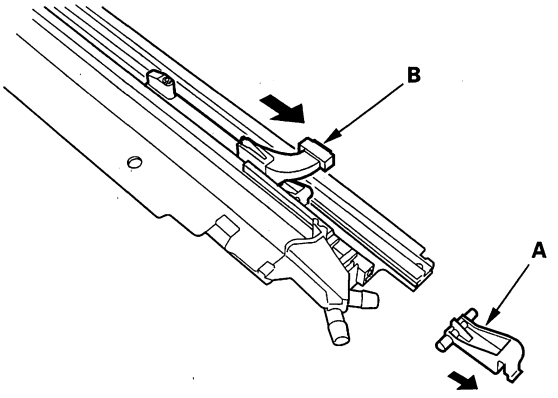
4. Put on gloves to protect your hands. Remove the screw securing the sunshade rear stop (A), and remove it from the frame (B). Release the rear hook of the slide stop (C) by pushing it forward, and pivot the stop up.

Fastener Location

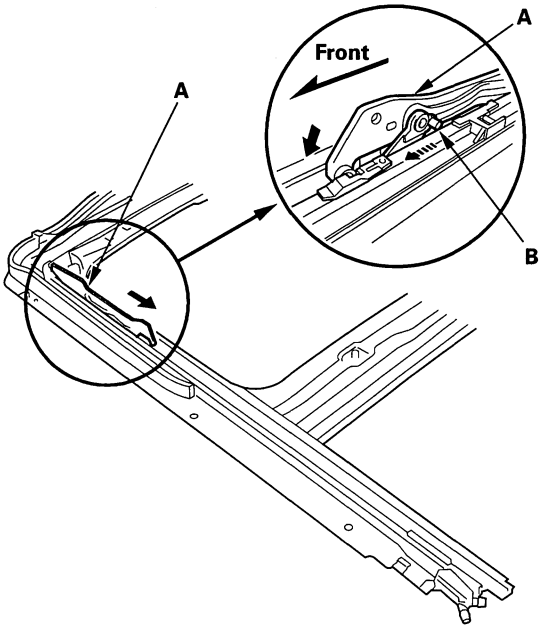
▶: Screw, 1



5. Remove the slide stop (A) and the drain channel slider (B).



6. Pivot the glass bracket (A) down by sliding the link lifter (B) back, then slide the glass bracket back with the link lifter.



BACK

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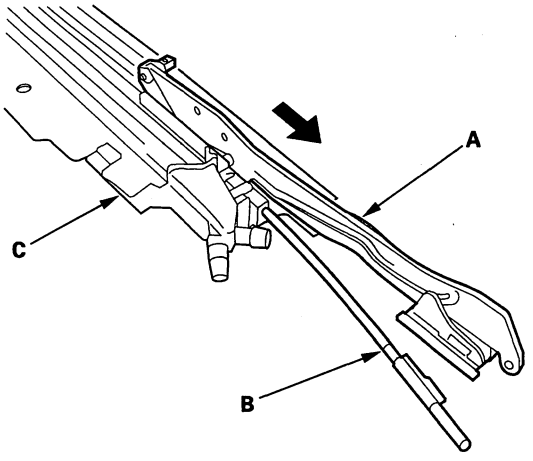
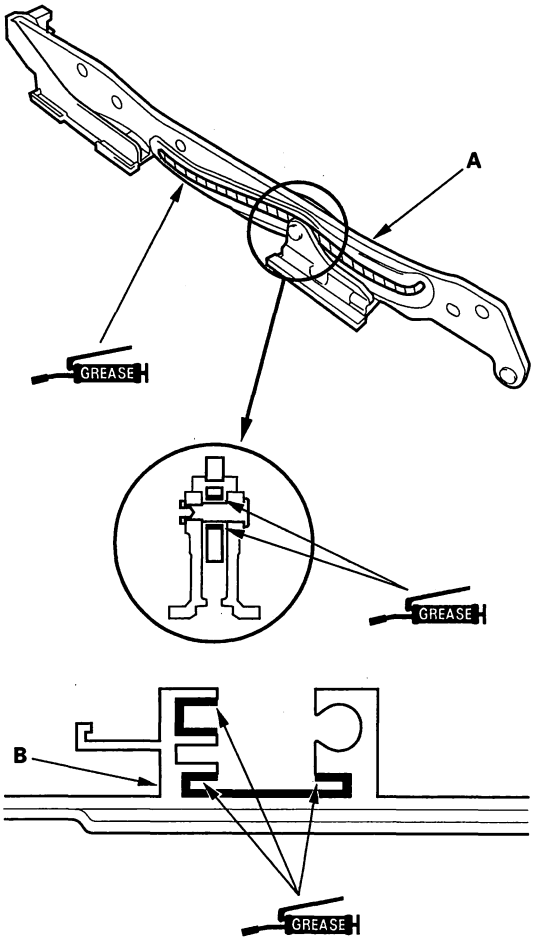
7. Slide the glass bracket (A) along with the cable (B) back, then remove them from the frame (C).



8. Install the slider and cable assembly in the reverse order of removal, and note these items:

- Damaged parts should be replaced.
- Apply molybdenum grease to the glass bracket (A) and guide rail portion of the frame (B) indicated by the arrows.
- Before reinstalling the motor, make sure both link lifters are parallel, and in the tilt-up position.
- Before reinstalling the motor, install the frame and glass, then check the opening drag (see page 20-74).
- After reinstalling the motor reset the moonroof control unit (see page 22-357).



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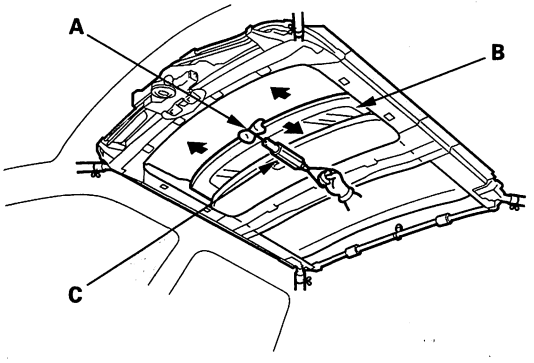
Closing Force and Opening Drag Check

1. Remove the headliner (see page 20-101).

2. Closing force check:

   - With a shop towel (A) on the leading edge of the glass (B), attach a spring scale (C) as shown.
   - Have an assistant hold the switch to close the glass while you measure the force required to stop it.
   - Read the force as soon as the glass stops moving, then immediately release the switch and spring scale.

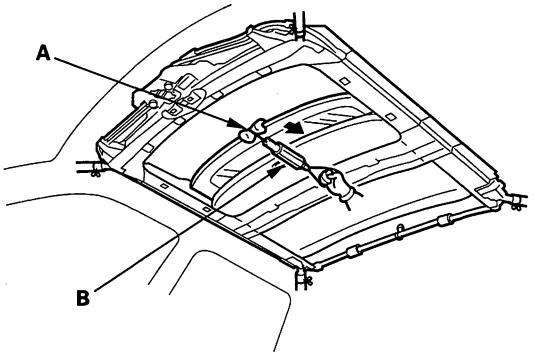
   Closing force: 200—290 N (20—30 kgf, 44—66 lbf)



3. If the force in not within specification, remove the moonroof motor (see page 20-69), then check:

   - The gear teeth and the inner cable for breakage and damage. If the gear teeth are broken, replace the motor. If the inner cable is damaged, remove the frame (see page 20-69), and replace the cable (see page 20-72).
   - Do the moonroof control unit input test (see page 22-354). If the motor fails to run or doesn't turn smoothly, replace it.
   - The opening drag. Go to step 4.

4. Opening drag check: Protect the leading edge of the glass with a shop towel (A). Measure the effort required to open the glass using a spring scale (B) as shown.



5. If the load is over 40 N (4 kgf, 9 lbf), check:

   - The side clearance and glass height adjustment (see page 20-65).
   - For broken or damaged sliding parts. If any sliding parts are damaged, replace them.

6. Reset the moonroof control unit (see page 22-357) after reinstalling the moonroof motor.

BACK

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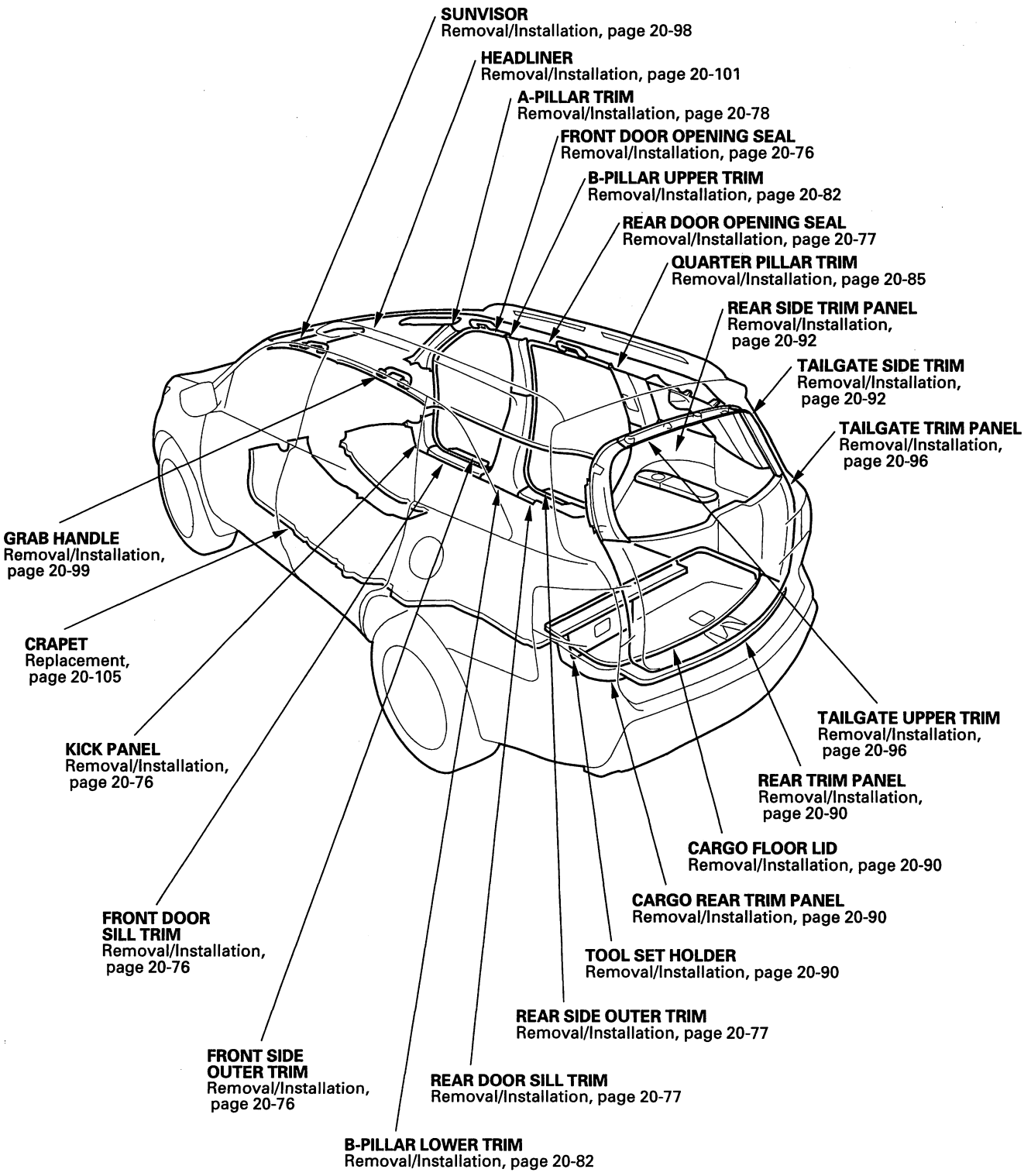
Component Location Index



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Trim Removal/Installation - Door Areas

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

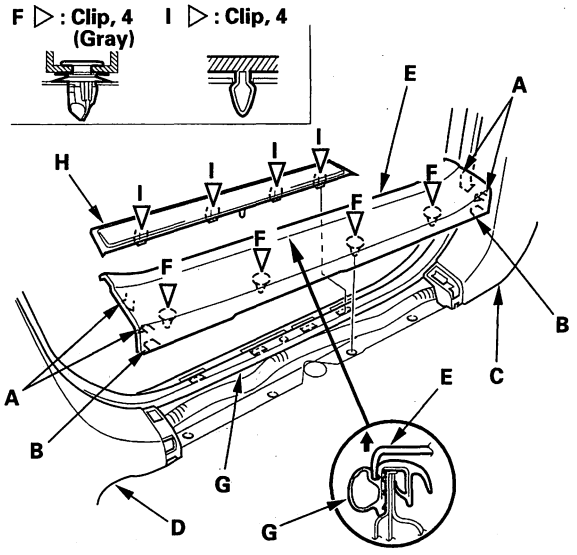
Front Door Sill Area

NOTE:
- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Detach the hooks (A) and tabs (B) from the kick panel (C) and B-pillar lower trim (D), and pull the front door sill trim (E) up by hand to detach the clips (F), then remove it from the front door opening seal (G).

Fastener Locations

F ▷: Clip, 4 (Gray) I ▷: Clip, 4



2. If necessary, pull the front side outer trim (H) up to detach the clips (I), then remove the trim.

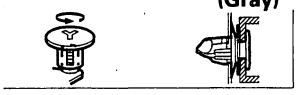
3. Remove the left kick panel (A) or the right kick panel (B).

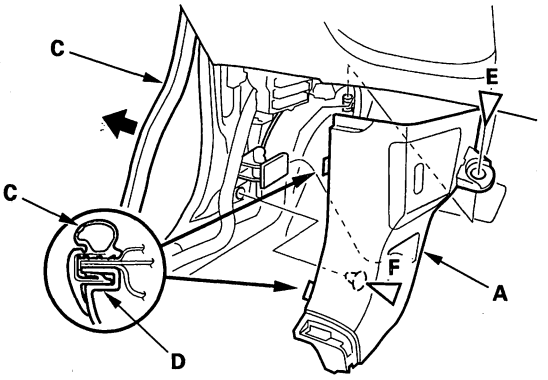
-1 Pull out the door opening seal (C) as needed from the kick panel hooks (D) and the door opening flange.
-2 Remove the clip (E).
-3 Pull the kick panel back by hand to detach the clip (F), then remove it.

Driver's

Fastener Locations

E ▷: Clip, 1 F ▷: Clip, 1 (Gray)

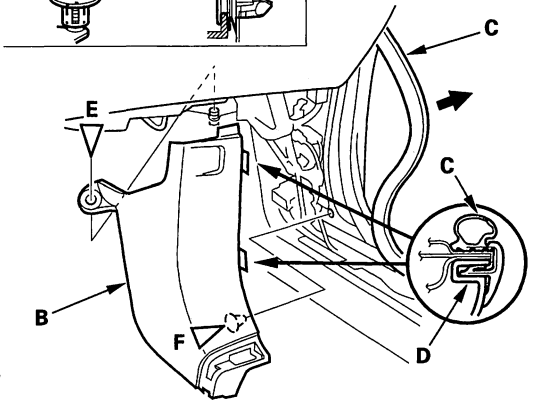




Passenger's

Fastener Locations

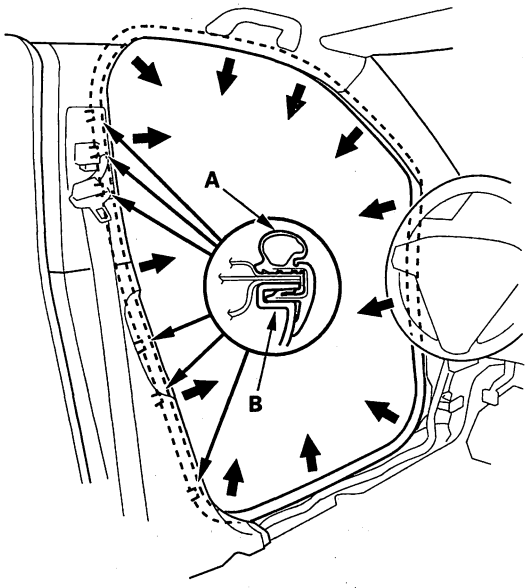
E ▷: Clip, 1 F ▷: Clip, 1 (Gray)



BACK

Protected by AR

4. Pull out the front door opening seal (A) from the trim hooks (B) and around the front door opening flange, then remove the seal.



5. Install the trim in the reverse order of removal, and note these items:

   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips and hooks into place securely.

Special Tools Required

KTC trim tool set SOJATP2014 *

* Available through the American Honda Tool and Equipment Program; call 888-424-6857

Rear Door Sill Area

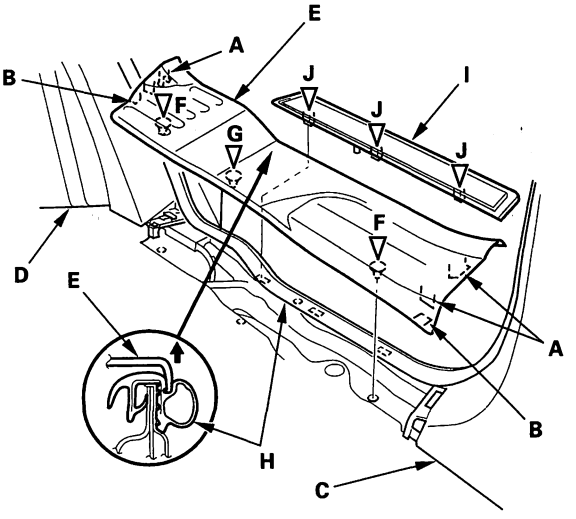
NOTE:

- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Detach the hooks (A) and tabs (B) from the B-pillar lower trim (C) and rear side trim panel (D), and pull the rear door sill trim (E) up by hand to detach the clips (F, G), then remove it from the rear door opening seal (H).

Fastener Locations

F ▷ : Clip, 2 (Gray) G ▷ : Clip, 1 (Pink) J ▷ : Clip, 3



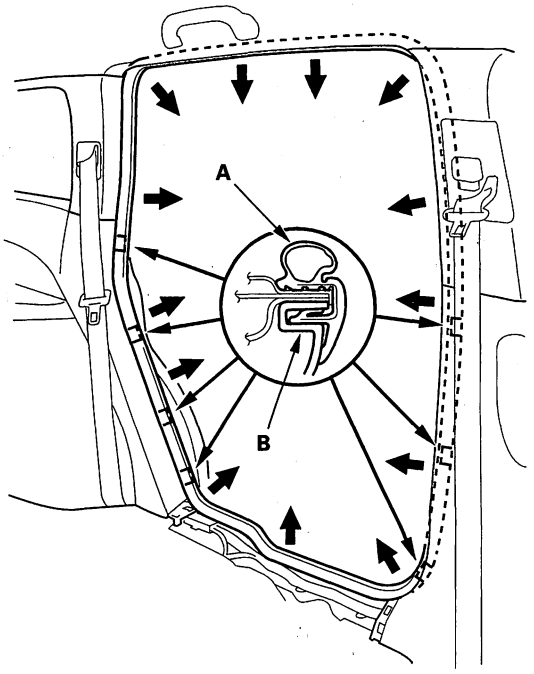
2. If necessary, pull the rear side outer trim (I) up to detach the clips (J), then remove the trim.

(cont'd)

Protected by AR

Trim Removal/Installation - Door Areas (cont'd)

3. Pull out the rear door opening seal (A) from the trim hooks (B) and around the rear door opening flange, then remove the seal.



4. Install the trim in the reverse order of removal, and note these items:

   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips and hooks into place securely.

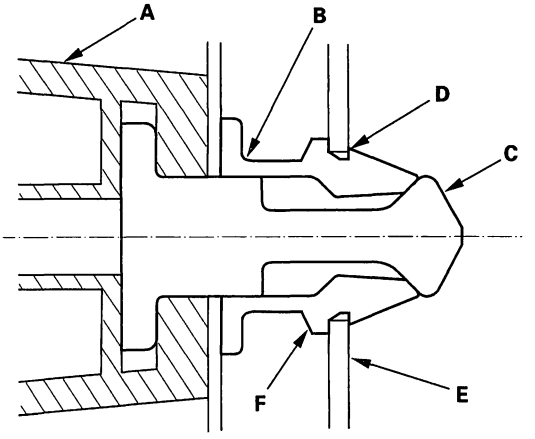
Trim Removal/Installation - Pillar Areas

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

A-pillar Trim

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

NOTE:
- Follow the A-pillar trim installation procedure carefully; improper installation could cause the side curtain airbags to deploy improperly and possibly cause injury.
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the trim and panels.
- The upper clip in the A-pillar trim (A) consists of a resin grommet (B) and a metal pin (C). The groove (D) in the grommet secures it to the body panel (E). The shoulder (F) on the grommet is broken during removal, so the clip must be replaced with a new one when the trim is reinstalled.



BACK

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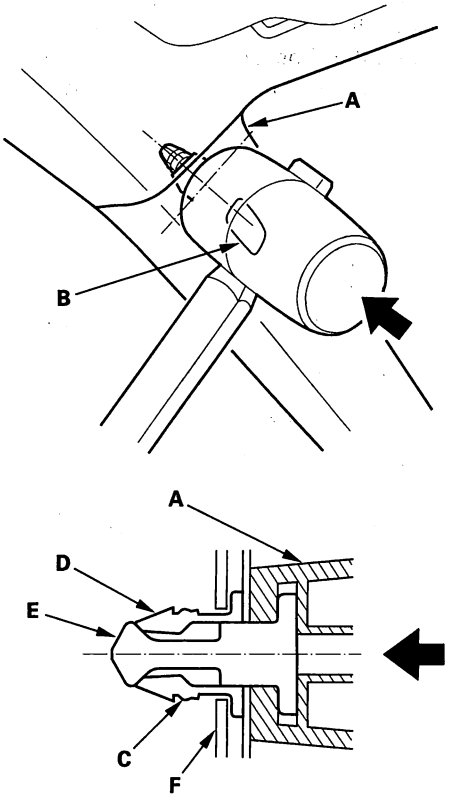
1. Pull the front door opening seal away from the A-pillar as needed (see step 4 on page 20-77).

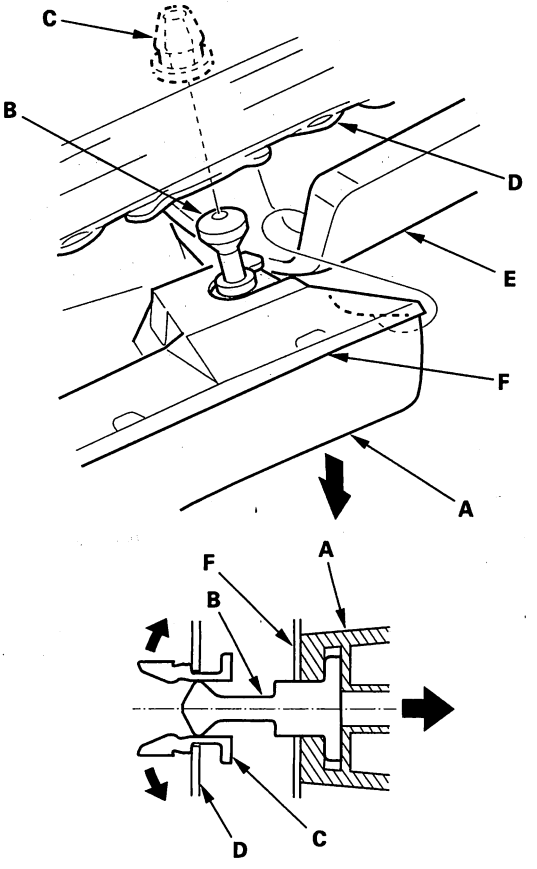
2. Hit the surface of the A-pillar trim (A) with a rubber mallet. The clip is located under the top of the A-pillar trim near the "SIDE CURTAIN AIRBAG" mark (B). Hitting the trim surface breaks the shoulder (C) on the grommet (D) and pushes the pin (E) and grommet against the body (F).

   NOTE: The clip must be replaced with a new one when the A-pillar trim is reinstalled.



3. Pull the top of the A-pillar trim (A) back by hand to remove the pin (B) from the grommet (C) remaining in the body (D).

   NOTE: The edge of the headliner (E) lies between the A-pillar trim and the guide bracket (F) of the trim. The A-pillar trim shouldn't be pulled out too far at a time, or the guide bracket might catch the headliner and bend it.



(cont'd)

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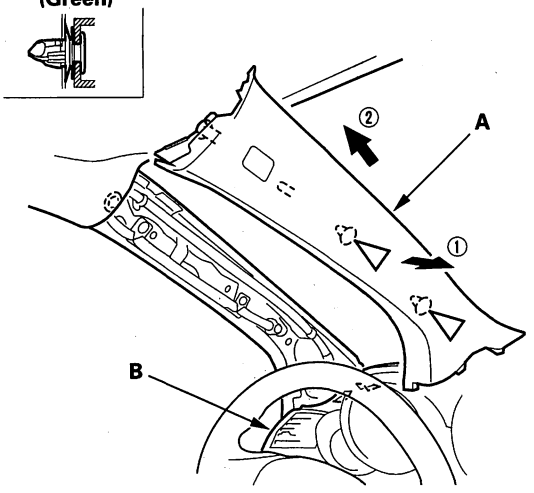
Trim Removal/Installation - Pillar Areas (cont'd)

4. Remove the A-pillar trim (A) by hand to detach the remaining clips, then pull the trim up from the dashboard (B).

Fastener Locations

▷: Clip, 2 (Green)



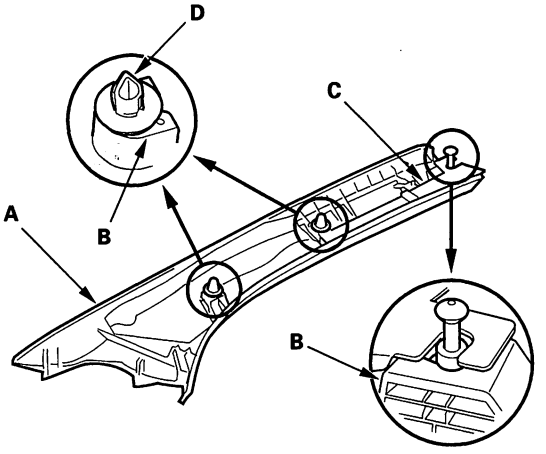
5. Remove the grommet from the body.

   NOTE: The upper grommet must be replaced with a new one because the grommet is damaged during removal.

6. If the side curtain airbag has been deployed, replace the A-pillar trim with a new one (see page 24-134).

7. If the side curtain airbag has not been deployed, check the A-pillar trim (A) and note the following:

   - To prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect the A-pillar trim and replace it if it has any of these types of damage:
     – Any cracks, deformations, or stress-whitened areas in the A-pillar trim
     – Any cracks or stress-whitening in the clip and pin seating surfaces (B)
     – Damaged guide bracket (C)
   - Replace the upper grommet with a new one because it will be damaged during removal.
   - Check if the clips (D) are damaged or stress-whitened, and if replace, replace them with new ones.



BACK

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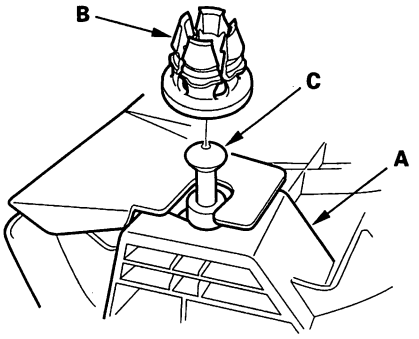
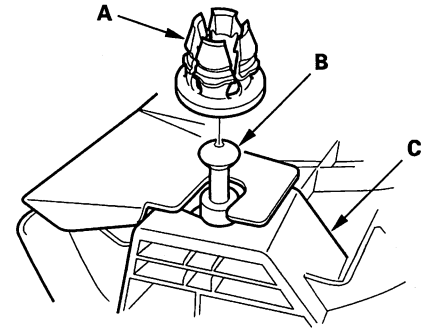
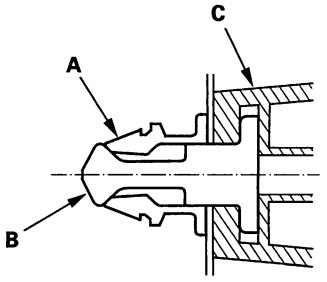
8. Before installing the A-pillar trim (A), carefully remove the grommet (B) from the pin (C) on the upper clip.



9. Check the overlap between the headliner and A-pillar trim, and if necessary, adjust it (see page 24-136).

10. Carefully reinstall the grommet (A) on the pin (B) and seat them on the A-pillar trim (C) as shown.





11. Reinstall the A-pillar trim (A).

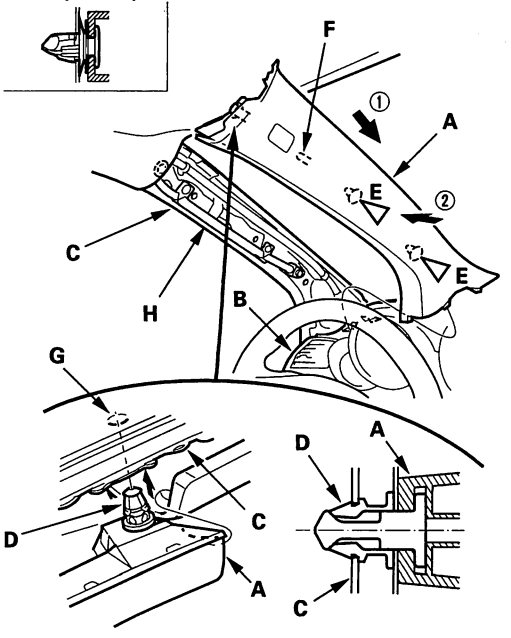
-1 Insert the bottom of the trim into the dashboard (B).

-2 Place the trim over the A-pillar (C), and fit its upper clip (D), the other clips (E) and the pin (F) into holes (G) in the A-pillar, then lightly push the trim into place.

NOTE:
- Make sure that the side curtain airbag tether (H) is below the clip.
- Make sure the side curtain airbag isn't tucked down under the clips and ribs.
- Apply pressure to the areas of the trim on the upper clip until these clip fittings are felt. If you push too hard, the clip will be damaged, and it will not hold the trim properly.
- Make sure the upper clip portions of the trim don't come off the body by tugging on the trim.

Fastener Locations

E ▷ : Clip, 2 (Green)



12. Reinstall the front door opening seal.

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Trim Removal/Installation - Pillar Areas (cont'd)

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

B-Pillar Upper/Lower Trim

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

NOTE:
- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

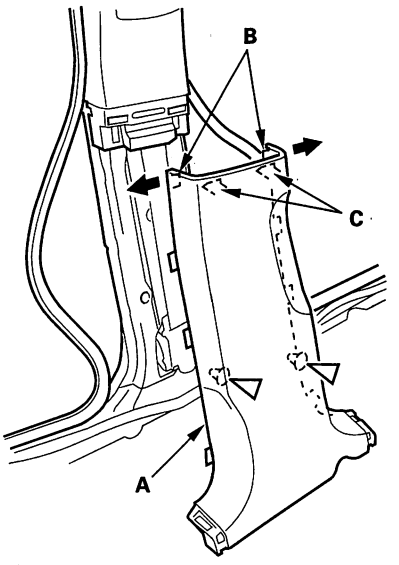
1. Remove these items:
   - Front door sill trim (see page 20-76)
   - Rear door sill trim (see page 20-77)
   - Front door opening seal, as needed (see step 4 on page 20-77)
   - Rear door opening seal, as needed (see step 3 on page 20-78)

2. Slide the front seat fully forward.

3. Remove the B-pillar lower trim (A).
   -1 Detach the lower clips by pulling the middle of the trim back by hand.
   -2 While releasing the upper tabs (B), pull the upper portion of the trim back to release the upper hooks (C).

Fastener Locations

▷: **Clip, 2 (Gray)**



4. Remove the front seat belt lower anchor (see page 24-4).

BACK

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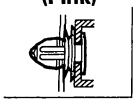
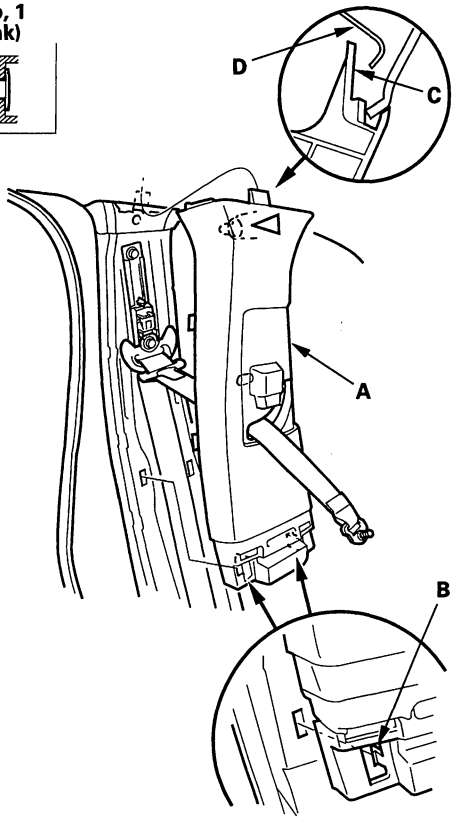
5. Pull the bottom of the B-pillar upper trim (A) back by hand to detach the lower hooks (B).

Fastener Location

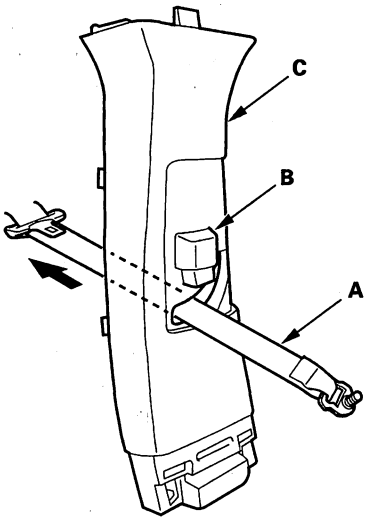
▷: **Clip, 1 (Pink)**





6. Detach the upper clip by pulling the top of the B-pillar upper trim. Pull the trim down to release the upper hooks (C) from the side curtain airbag B-pillar bracket (D).

7. Pass the front seat belt (A) lower anchor out through a hole in the slider (B), then remove the B-pillar upper trim (C).



(cont'd)

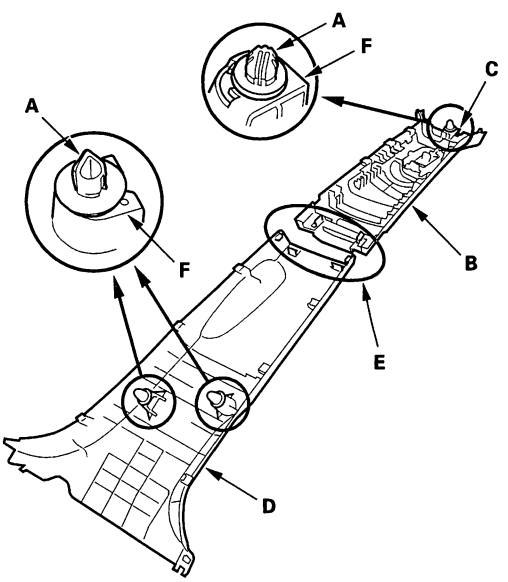
Protected by AR

Trim Removal/Installation - Pillar Areas (cont'd)

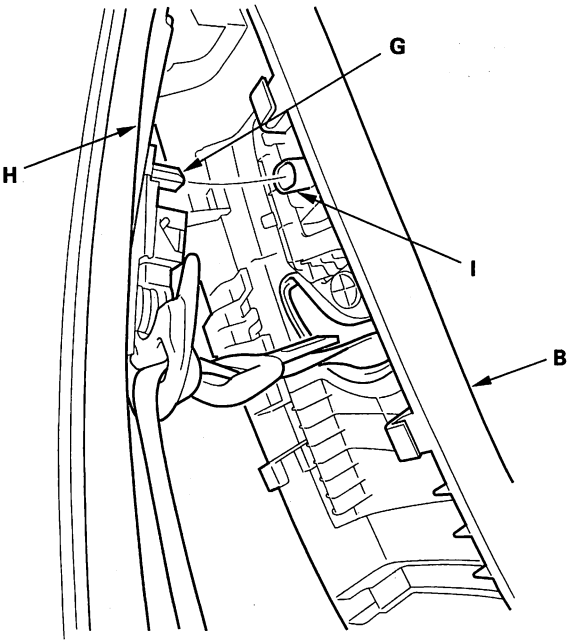
8. Install the trim in the reverse order of removal, and note these items:

- Replace any damaged clips (A) with new ones.
- If the side curtain airbag has deployed, replace the B-pillar upper and lower trim and all clips on the trim with new ones (see page 24-134).
- To prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect the trim and replace it if it has any of these types of damage:
  – Any cracks or deformations in the B-pillar upper trim (B) and the upper hook (C), and any stress-whitened areas in the upper part of the trim
  – Any cracks or deformations in the B-pillar lower trim (D), and any breakages in the part (E) fitted with the B-pillar upper trim
  – Any cracks or stress-whitened areas in the clips seating surface (F)
- Replace any damaged parts with new ones.
- Make sure the top of the trim overlaps with the headliner correctly (see page 24-136).
- Make sure the pin (G) on the front seat belt shoulder anchor adjuster (H) and the hole (I) on the back of the slider are engaged when installing the B-pillar upper trim.
- Make sure the trim hook is installed into the side curtain airbag B-pillar bracket securely.
- Push the clip and hooks into place securely.
- Before installing the anchor bolt, make sure there are no twists or kinks in the seat belt.

Trim Inspection



Slider engagement with shoulder anchor adjuster



BACK

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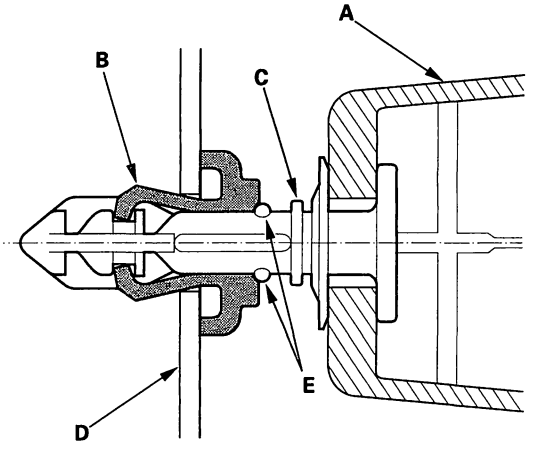
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

Quarter Pillar Trim

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

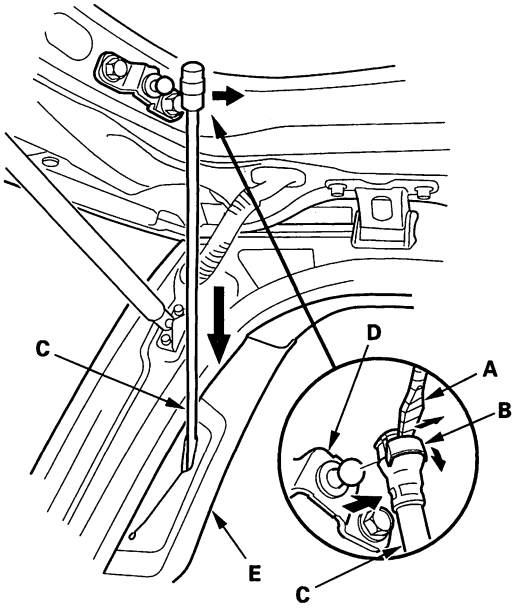
NOTE:
- Follow the quarter pillar trim installation procedure carefully; improper installation could cause the side curtain airbag to deploy improperly and possibly cause injury.
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the trim and panels.
- The upper clip in the quarter pillar trim (A) consists of a grommet (B) and a pin (C). The grommet expanded with the pin secures it to the body panel (D). The projections (E) on the pin is broken during removal, so the clip must be replaced with a new one when the trim is reinstalled.



1. Remove these items:
   - Rear door opening seal, as needed (see step 3 on page 20-78)
   - Tailgate weatherstrip, as needed (see page 20-199)
   - Second row seat belt lower anchor (see step 3 on page 24-7)
   - Seat belt exit C-pillar cap (see step 4 on page 24-7)
   - Seat belt exit D-pillar cap (see step 3 on page 24-13)
   - With power tailgate: Left tailgate side trim (see page 20-96)

2. Remove the upper portion of the rear side trim panel, as needed (see page 20-92).

3. With power tailgate: Use a flat-tip screwdriver (A) to pry the clip (B) downward from the power tailgate rod (C), then release the rod from the pivot bracket (D) and push it in the quarter pillar trim (E). Do not remove the clip from the rod.



(cont'd)

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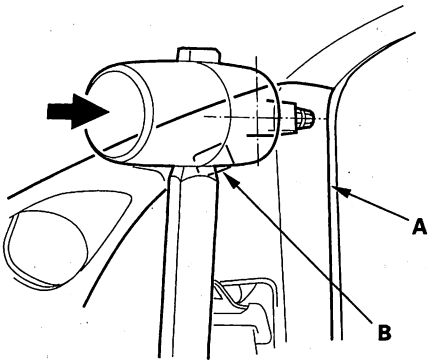
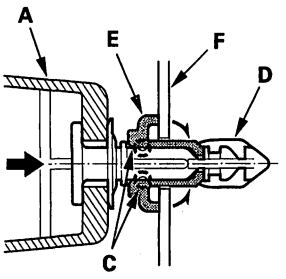
Trim Removal/Installation - Pillar Areas (cont'd)

4. Hit the surface of the quarter pillar trim (A) with a rubber mallet. The clip is located in the top of the C-pillar near the "SIDE CURTAIN AIRBAG" mark (B). Hitting the trim surface breaks the projections (C) on the pin (D) and pushes it into the grommet (E) and against the body (F).

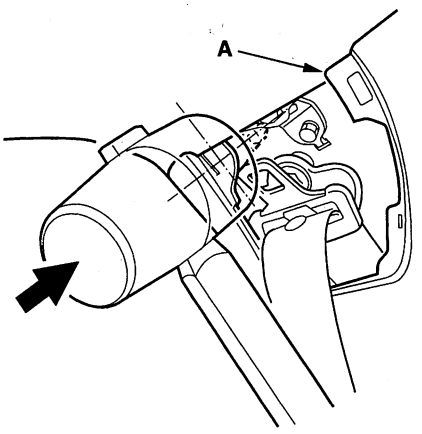
   NOTE: The clip must be replaced with a new one when the quarter pillar trim is reinstalled.

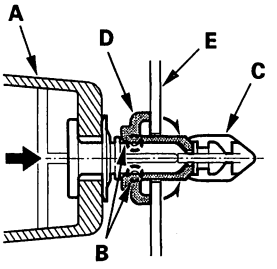




5. Hit the surface of the quarter pillar trim (A) with a rubber mallet. The clip is located in the seat belt exit D-pillar cap opening. Hitting the trim surface breaks the projections (B) on the pin (C) and pushes it into the grommet (D) and against the body (E).

   NOTE: The clip must be replaced with a new one when the quarter pillar is reinstalled.





BACK

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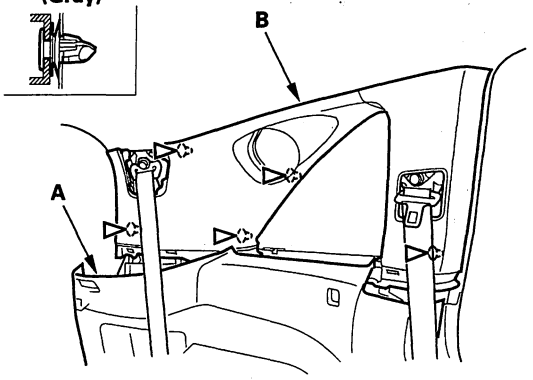
6. While pulling the upper portion of the rear side trim panel (A) back, detach the clips, then release the lower portion of the quarter pillar trim (B) away from the body.

   NOTE: The quarter pillar is still fastened with two upper clips located in the middle of it.

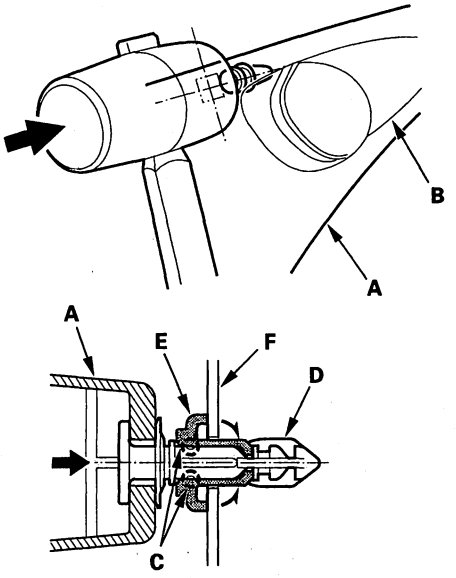
Fastener Locations

▷: **Clip, 5 (Gray)**

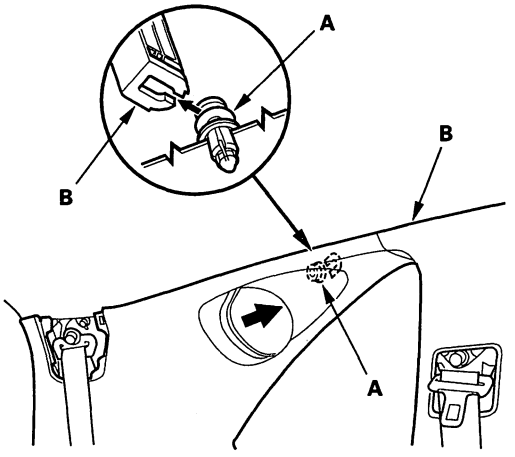


7. While pulling the lower portion of the quarter pillar trim (A) away from the body, hit the surface of the quarter pillar trim (A) with a rubber mallet. The clip is located in the rear of the hollow (B) in the trim. Hitting the trim surface breaks the projections (C) on the pin (D) and pushes it into the grommet (E) and against the body (F).

   NOTE: The clip must be replaced with a new one when the quarter pillar trim is reinstalled.



8. Slide the upper clip portion (A) of the quarter pillar trim (B) up at a 45 ° angle to remove the trim from the clip. The clip can be removed once the trim is clear.



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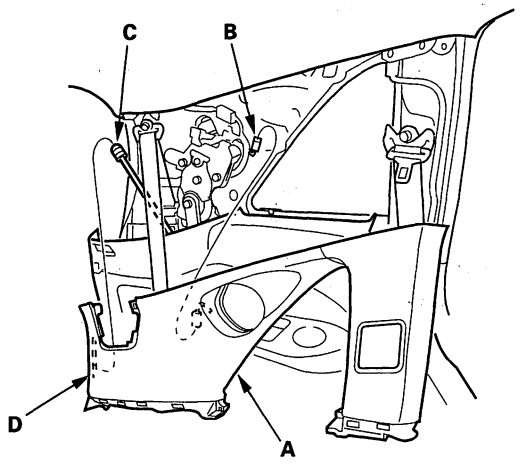
Protected by AR

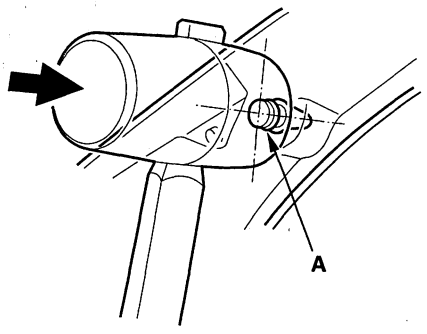
Trim Removal/Installation - Pillar Areas (cont'd)

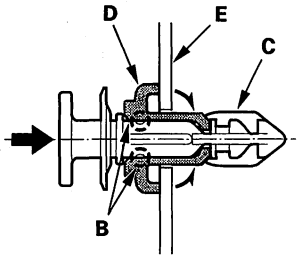
9. Remove the quarter pillar trim (A). If equipped with the premium sound system, disconnect the D-pillar speaker connector (B). If equipped with power tailgate, pull the power tailgate rod (C) out of the slit (D) in the quarter pillar trim.



10. Hit the remaining upper clip (A) with a rubber mallet. Hitting the clip breaks the projections (B) on the pin (C) and pushes it into the grommet (D) and against the body (E).

    NOTE: The clip must be replaced with a new one when the quarter pillar trim is reinstalled.

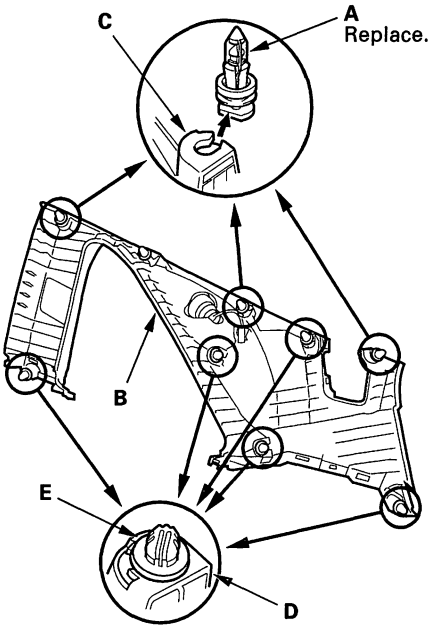




11. If the side curtain airbag has not deployed, remove the quarter pillar trim and all the clips on the trim with new ones (see page 24-134).

12. If the side curtain airbag has not deployed, remove the upper clips (A) from the removed quarter pillar trim (B) and discard them. Then check the trim and note the following:

    - To prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect the quarter pillar trim and replace it if it has any of these types of damage:
      – Any cracks, deformations, or stress-whitened areas in the quarter pillar trim
      – Any cracks or stress-whitened areas in the clip seating surfaces (C, D)
    - If any of the lower clips (E) are damaged or stress-whitened, replace them.
    - Replace the upper clips (A) with new ones.



BACK

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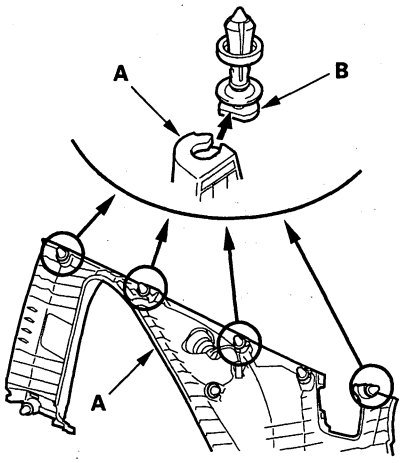
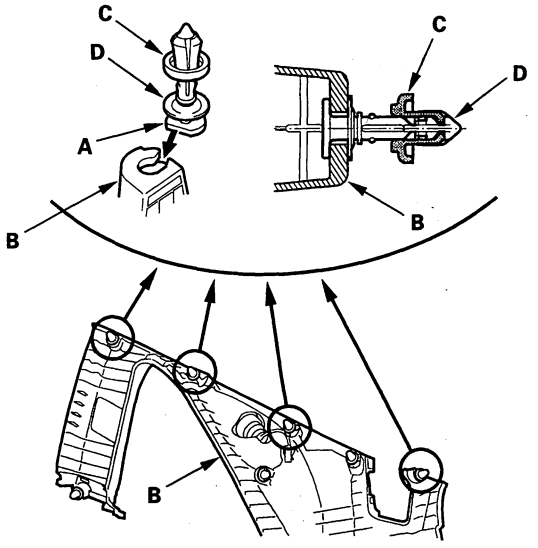
13. Before installing the quarter pillar trim (A), whether replaced or reinstalled, temporarily remove the new clips (B).



14. Check the overlap between the headliner and quarter pillar trim, and if necessary, adjust it (see page 24-136).

15. Carefully reinstall the clips (A) to the quarter pillar trim (B). Make sure that the grommet (C) is nearest to the top of the pin (D) as shown.



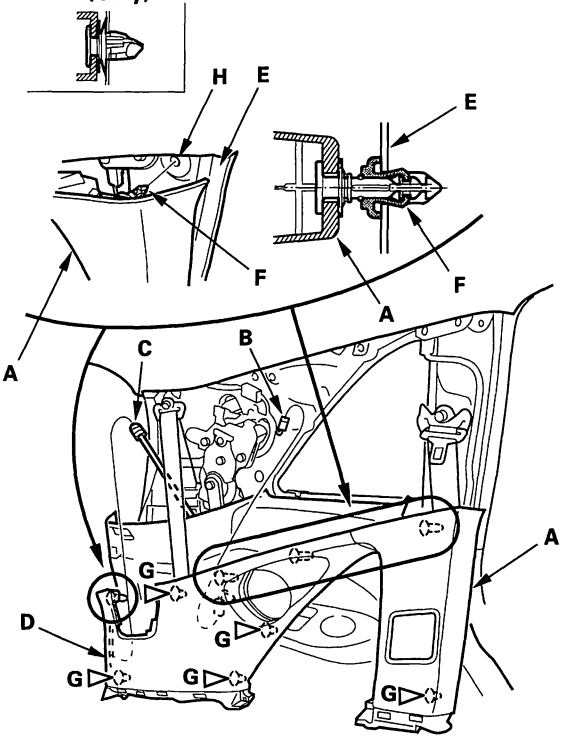
16. Reinstall the quarter pillar trim (A).

1. If equipped with the premium sound system, reconnect the D-pillar speaker connector (B).
2. If equipped with power tailgate, pass the power tailgate rod (C) through the slit (D) in the quarter pillar trim.
3. Place the trim over the C-pillar/D-pillar (E), and fit its upper clip (F), and all of the other clips (G) into holes (H) in the body, then lightly push the trim into place.

NOTE:
- Make sure the side curtain airbag isn't tucked down under the clips and ribs.
- Apply pressure to the areas of the trim on the upper clips until these clip fittings are felt. If you push too hard, the clip will be damaged, and it will not hold the trim properly.
- Make sure the upper clip portions of the trim don't come off the body by tugging on the trim.

Fastener Locations

G ▷ : Clip, 5 (Gray)



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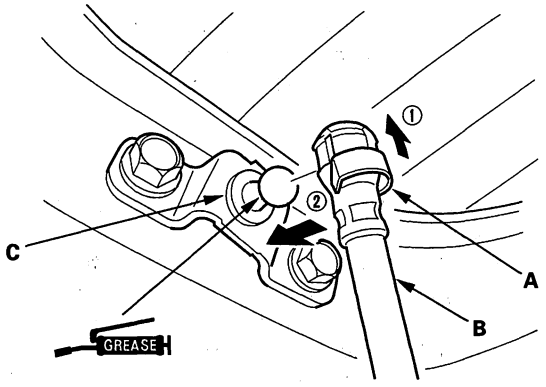
Protected by AR

Trim Removal/Installation - Pillar Areas (cont'd)

17. With power tailgate: Set the clip (A) on the original position, then reattach the power tailgate rod (B) on the pivot bracket (C) by pushing the rod onto the pivot.



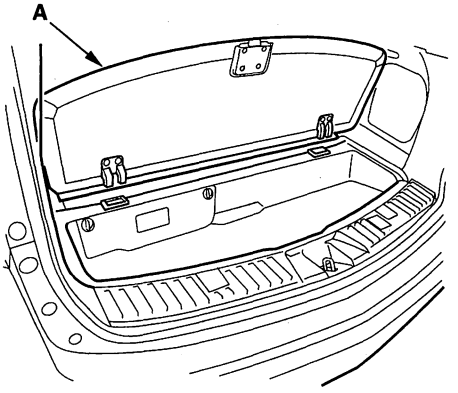
18. Reinstall all of the removed parts.

Trim Removal/Installation - Cargo Area

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

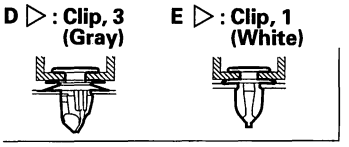
NOTE:
- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

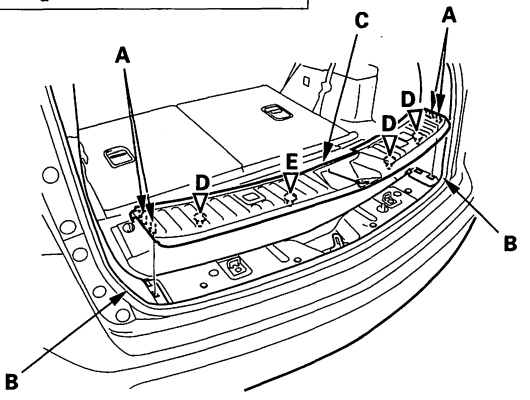
1. Remove the cargo floor lid (A).



2. Detach the hooks (A) from the rear side trim panel (B), and pull the rear trim panel (C) up by hand to detach the clips (D, E), then remove it.

Fastener Locations

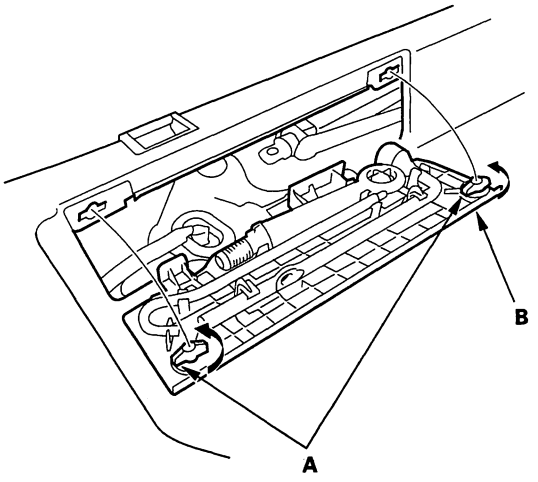




BACK

Protected by AR

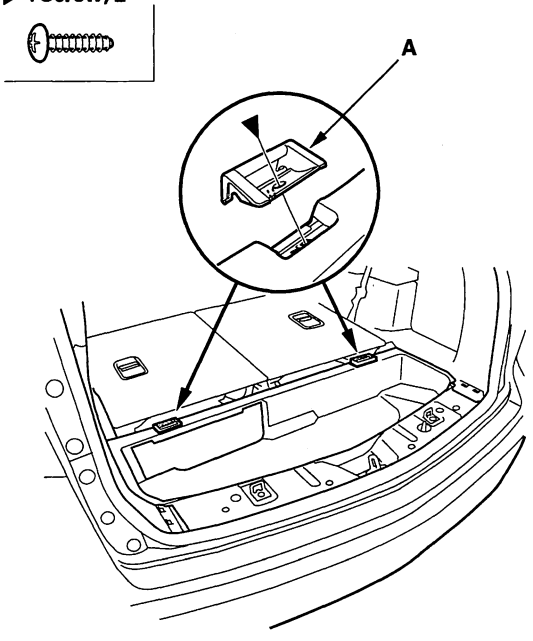
3. Turn the lock knobs (A) 90 °, then remove the tool set holder (B).



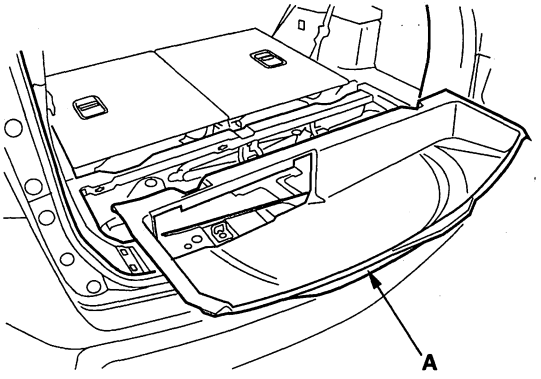
4. Remove the screws, then remove the cargo lid hinges (A).

Fastener Locations

▶ : Screw, 2



5. Remove the cargo rear trim panel (A).



6. Install the trim in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips and hooks into place securely.

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Trim Removal/Installation - Rear Side Area

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

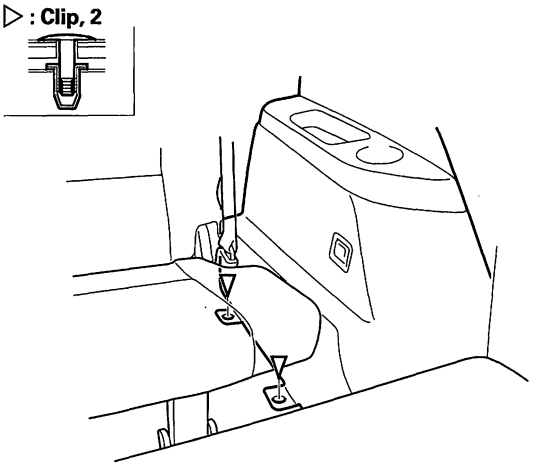
Rear Side Trim Panel Removal/Installation

NOTE:
- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove these items:
   - Rear door sill trim (see page 20-77)
   - Rear door opening seal, as needed (see step 3 on page 20-78)
   - Tailgate weatherstrip, as needed (see page 20-199)
   - Cargo floor lid (see step 1 on page 20-90)
   - Rear trim panel (see step 2 on page 20-90)
   - Cargo lid hinges (see step 4 on page 20-91)
   - Cargo rear trim panel (see step 5 on page 20-91)

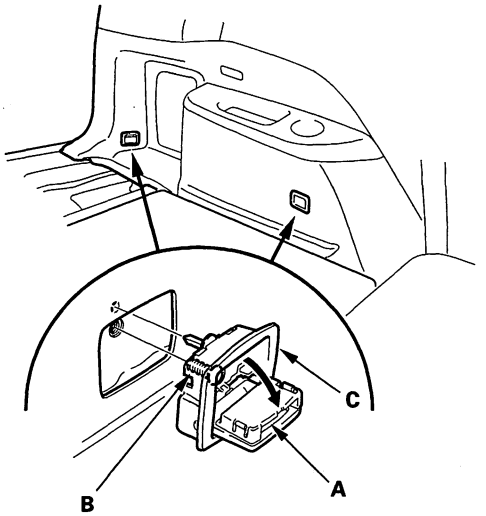
2. Raise the third row seat up, and remove the clips from under the third row seat.

Fastener Locations
▷ : Clip, 2



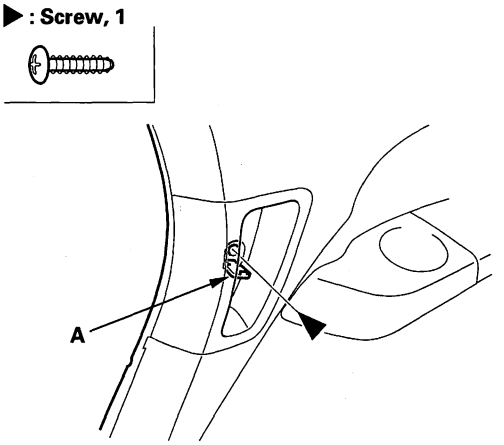
3. Fold the third row seat-back forward.

4. Pry out the cover (A) and remove the bolt (B), then remove the tie down hook (C) (two places).



5. Right side: Pry out the lid (A) and remove the screw in the pull pocket.

Fastener Location
▶ : Screw, 1



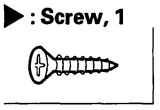
BACK

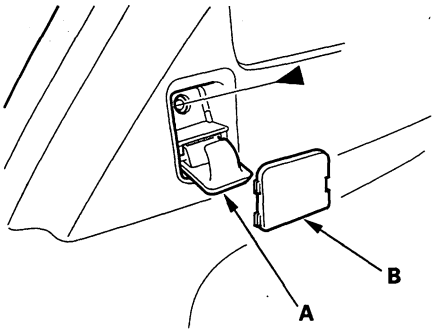
Protected by AR

6. Open the cargo hook (A). Pry out the cover (B) and remove the screw.

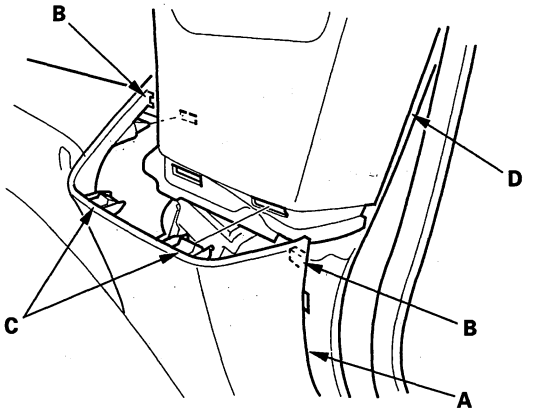
Fastener Location

▶ : Screw, 1

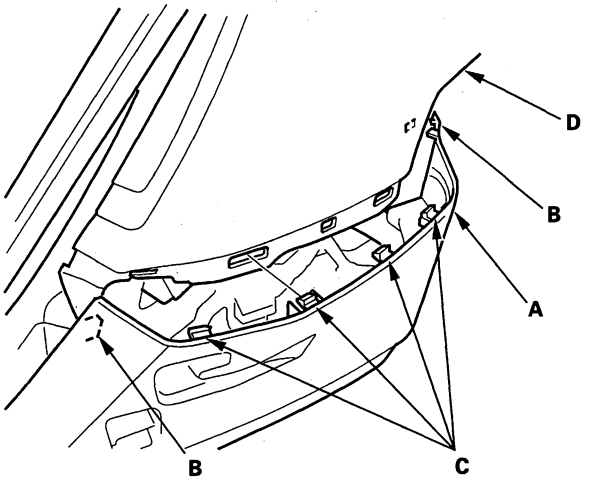




7. Pull out the front upper edge of the rear side trim panel (A) by hand to release the tabs (B) and hooks (C) from the quarter pillar trim (D).



8. Pull out the rear upper edge of the rear side trim panel (A) by hand to release the tabs (B) and hooks (C) from the quarter pillar trim (D).

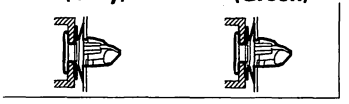


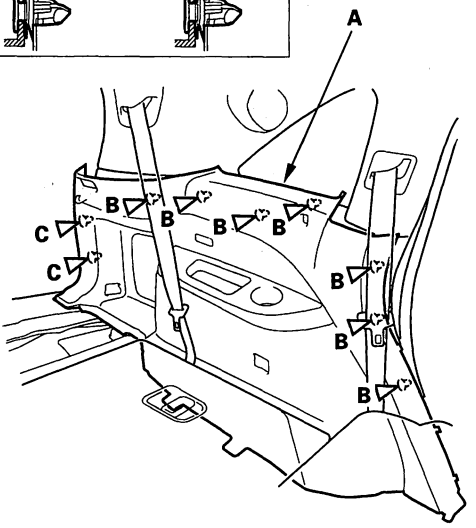
9. Pull the rear side trim panel (A) back by hand to detach the clips (B, C).

Left side

Fastener Locations

B ▷ : Clip, 7 (Gray) C ▷ : Clip, 2 (Green)





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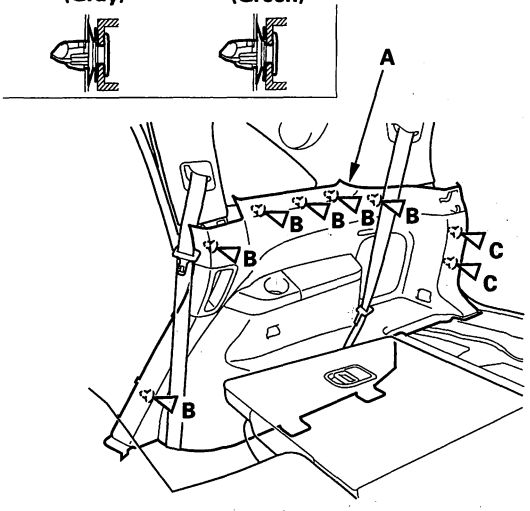
Trim Removal/Installation - Rear Side Area (cont'd)

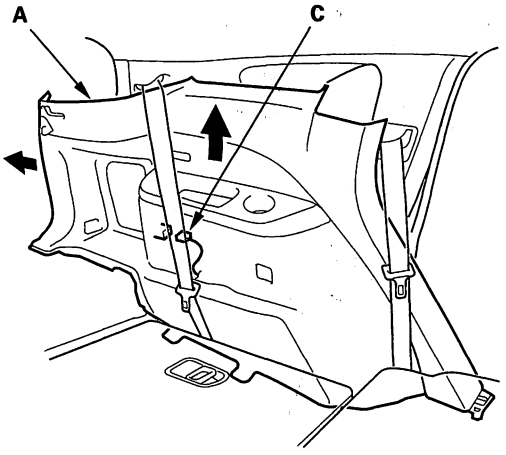
Right side

Fastener Locations

B ▷ : Clip, 6 (Gray) C ▷ : Clip, 2 (Green)



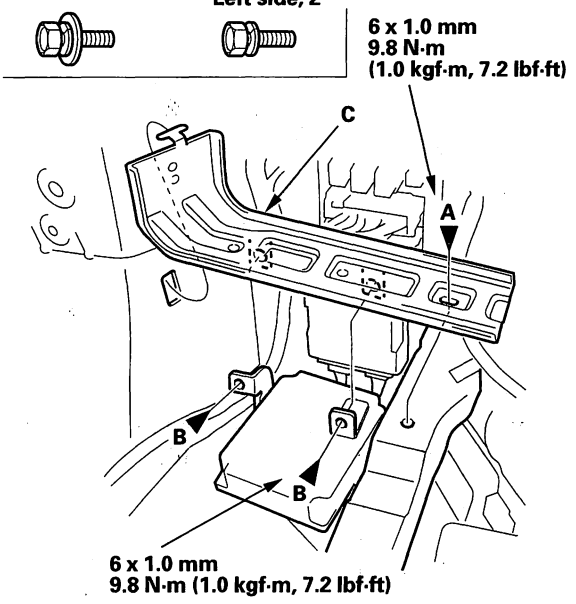
10. Pull the rear side trim panel (A) up, then remove it. On the left side, disconnect the rear accessory socket connector (C).



11. If necessary, remove the bolt (A), and on the left side, remove the active damper unit mounting bolts (B), then remove the rear side trim panel support bracket (C).

Fastener Locations

A ▶ : Bolt, 1 B ▶ : Bolt Left side, 2



12. Install the trim in the reverse order of removal, and note these items:

- Make sure the accessory socket connector is plugged in properly.
- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips, hooks and tabs into place securely.

BACK

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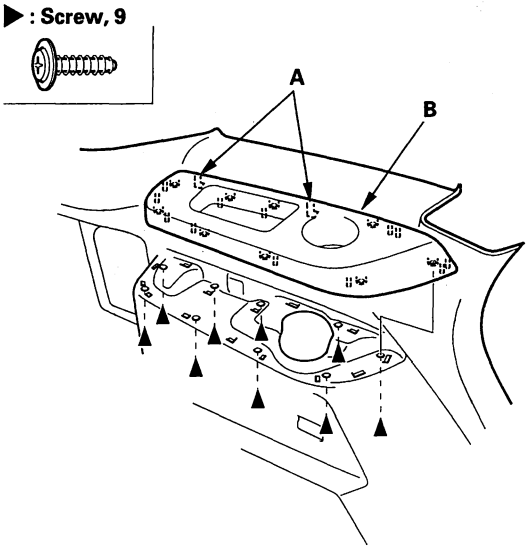
Armrest Replacement

1. Remove the rear side trim panel.
2. Remove the screws and release the hooks (A), then remove the armrest (B).

Left side

Fastener Locations

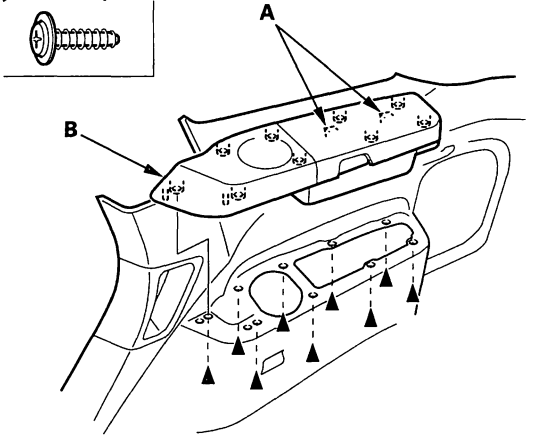
▶ : Screw, 9



Right side

Fastener Locations

▶ : Screw, 9



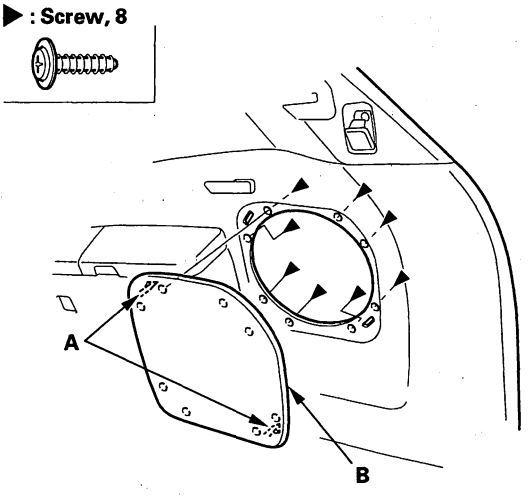
3. Install the armrest in the reverse order of removal.

Speaker Grille Replacement

1. Remove the rear side trim panel.
2. Remove the screws and release the hooks (A), then remove the speaker grille (B).

Fastener Locations

▶ : Screw, 8



3. Install the grille in the reverse order of removal.

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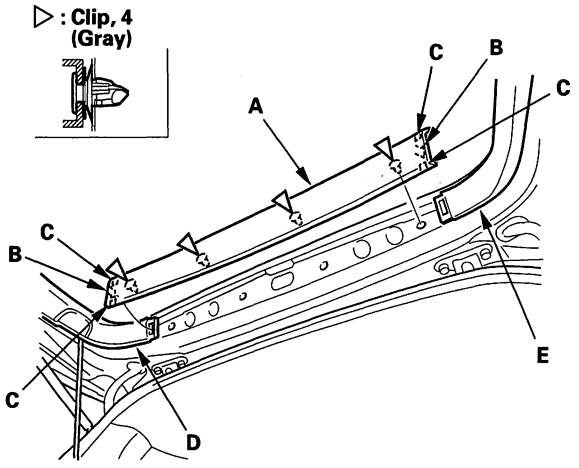
Trim Removal/Installation - Tailgate Area

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

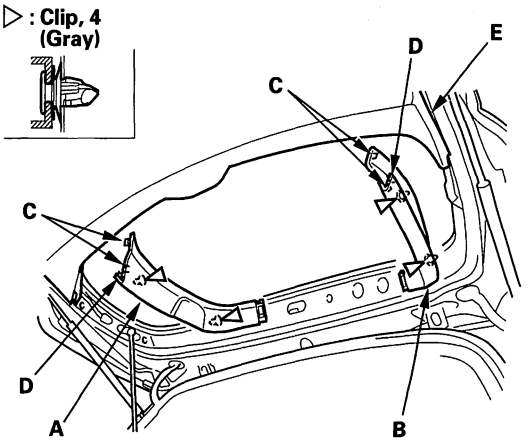
1. Remove the tailgate upper trim panel (A).
   1. Detach the hooks (B) and tabs (C) from the left tailgate side trim (D) and right tailgate side trim (E).
   2. Pull the tailgate upper trim panel back by hand to detach the clips, then remove it.

Fastener Locations



2. Remove the left tailgate side trim (A) and the right tailgate side trim (B).
   1. Pull out the top of the side trim to detach the clips.
   2. Detach the tabs (C) and hooks (D) from the tailgate lower trim panel (E).

Fastener Locations



BACK

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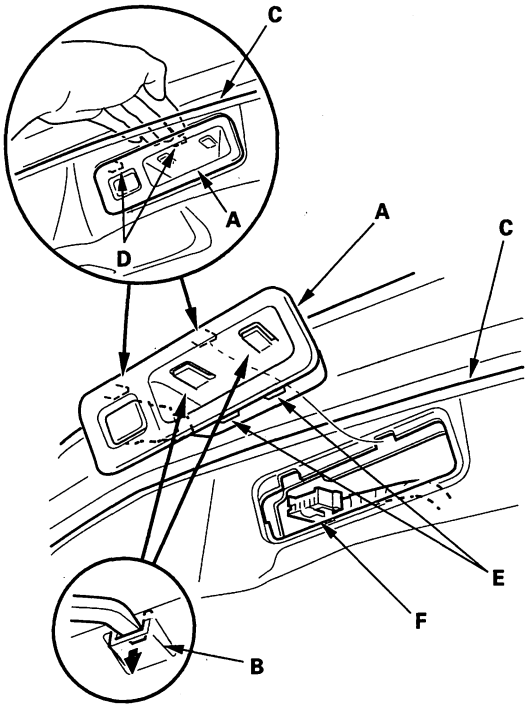
3. Remove the tailgate pull pocket (A).

-1 Pry the hooks (B) with a trim tool.
-2 Carefully pull the edge of the tailgate lower trim panel (C) just beside the tailgate pull pocket by hand, and push out the inside hooks (D).
-3 Pull down the upper edge of the pocket and release the lower tabs (E).
-4 With power tailgate: Disconnect the power tailgate close switch connector (F).

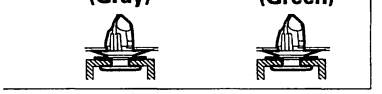


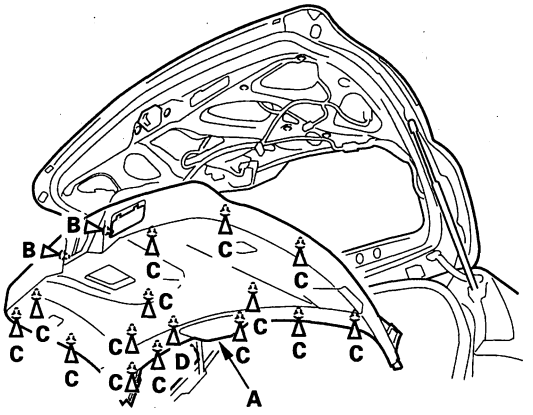
4. Remove the tailgate lower trim panel (A).

-1 Detach the clips (B) beside the tailgate latch.
-2 Pull down the panel to detach all of the clips (C).

Fastener Locations

B, C ▷ : Clip, 16 (Gray) **D ▷ : Clip, 1 (Green)**





5. Install the trim and panel in the reverse order of removal, and note these items:

- Make sure the power tailgate close switch connector is plugged in properly.
- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.

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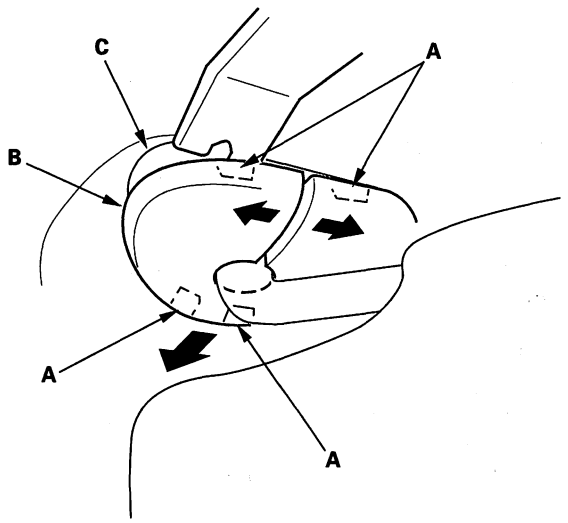
Sunvisor Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

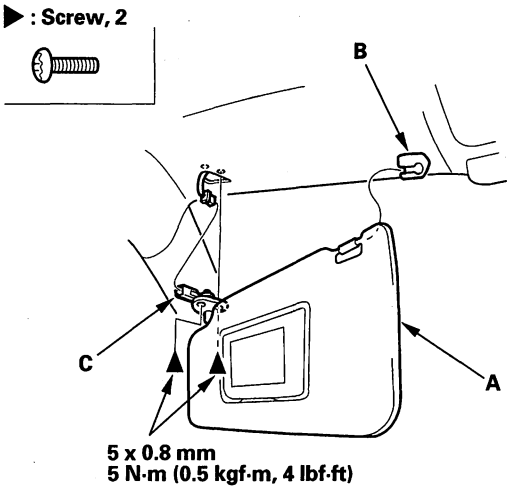
NOTE:
- Take care not to scratch the headliner.
- Be careful not to damage the dashboard and other interior trim.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- When using a flat-tip screwdriver, wrap it with protective tape to prevent damage.

1. Using a trim tool, release the tabs (A) of the sunvisor cap (B) from the bracket (C).

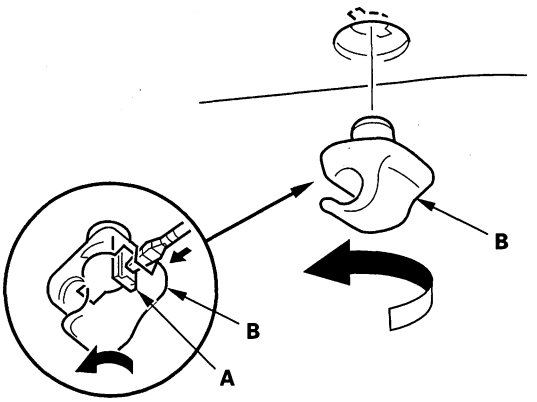


2. Remove the sunvisor (A).
   -1 Remove the screws.
   -2 Remove the sunvisor from the body and holder (B).
   -3 Disconnect the vanity mirror light connector (C).

Fastener Locations
▶ : Screw, 2



3. Using a flat-tip screwdriver, push the hook (A), and turn the holder (B) 90 °, then pull it out.



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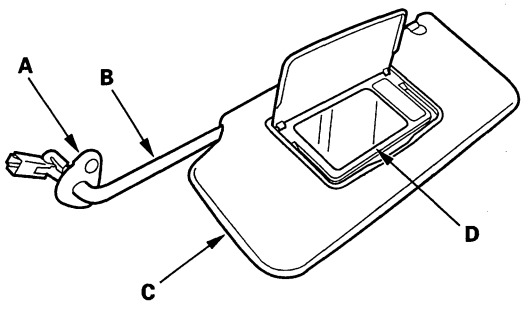
4. If the side curtain airbag has deployed (see page 24-134), replace the sunvisor with a new one.

5. If the side curtain airbag has not deployed, to prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect removed sunvisor and replace it if it has any cracks or damage:

   - Any cracks in the sunvisor stay base (A)
   - Any bends or cracks in the sunvisor stay shaft (B)
   - Any cracks in the sunvisor base (C)
   - Any cracks in the vanity mirror base (D)



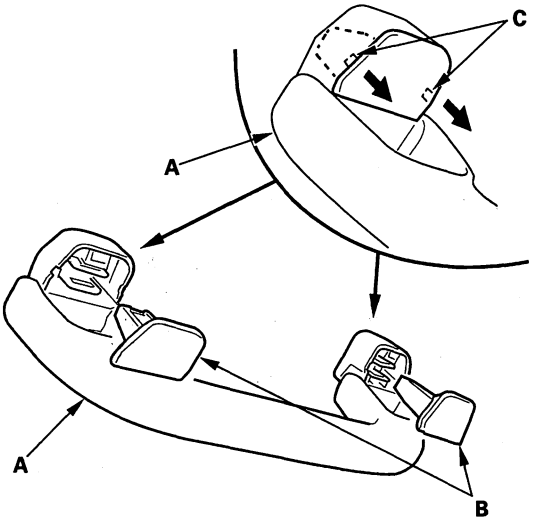
6. Install the sunvisor in the reverse order of removal, and make sure the vanity mirror light connector is plugged in properly.

Grab Handle Removal/Installation

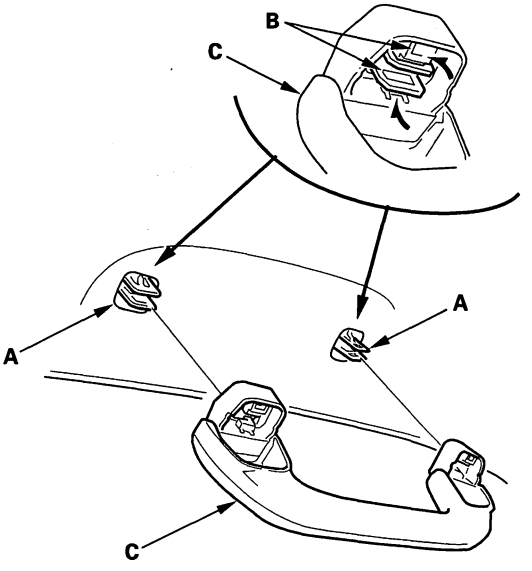
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE: Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Lower the grab handle (A), then pull out the caps (B) by prying up at the notches (C) with a small flat-tip screwdriver.



2. While pinching the clips (A), release the hooks (B), then remove the grab handle (C).



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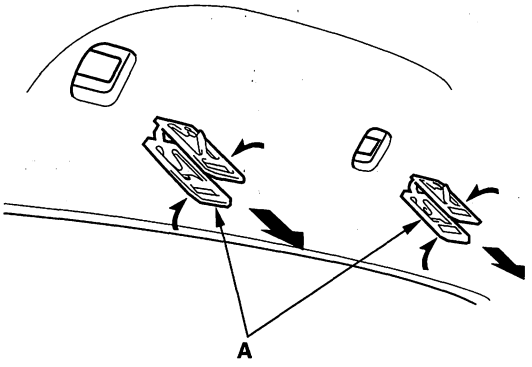
Grab Handle Removal/Installation (cont'd)

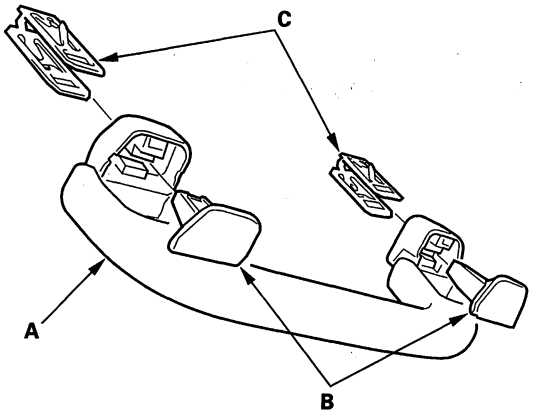
3. Using a pair of pliers, remove all of the clips (A) by pinching its hooks.



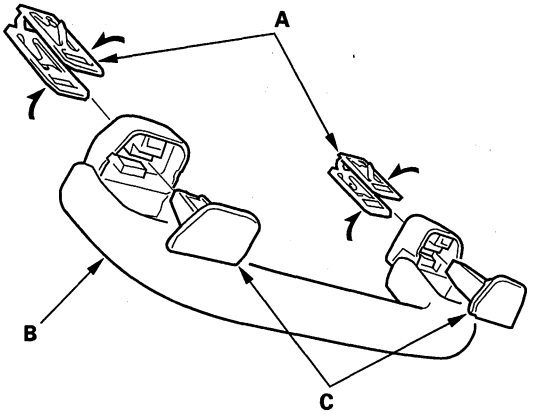
4. If the side curtain airbag has deployed, replace the grab handle with a new one (see page 24-134).

5. If the side curtain airbag has not deployed, to prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect removed pieces and replace them if they have any of these types of damage:

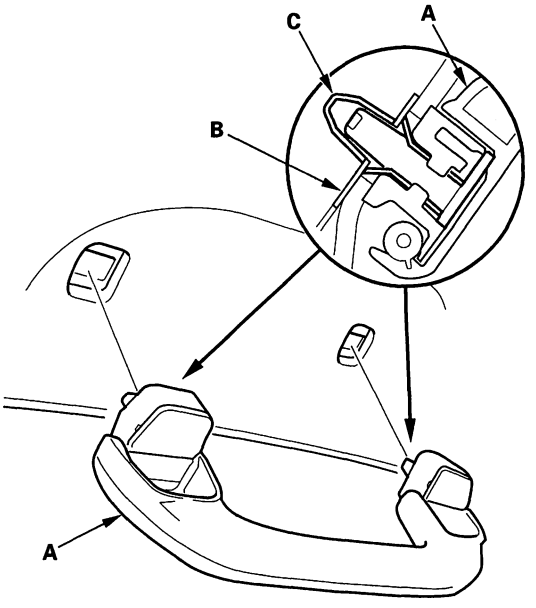
   - Any cracks or damage in the grab handle (A).
   - Any cracks or stress-whitening in the caps (B).



6. Install the clips (A) to the grab handle (B), then install the caps (C) fully into the clips.



7. Position the grab handle (A) on the bracket (B), and push on the grab handle until the clips (C) snap into place securely.



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Headliner Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

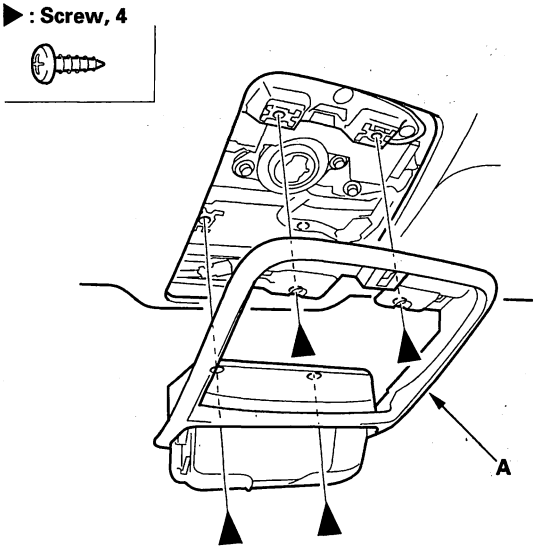
SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to bend and scratch the headliner.
- Be careful not to damage the dashboard and other interior trim.

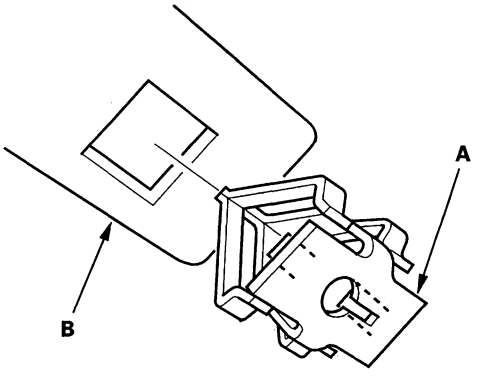
1. Remove these items:
   - A-pillar trim, both sides (see page 20-78)
   - Front seat belt upper anchor, both sides (see step 7 on page 24-4)
   - B-pillar lower trim, both sides (see page 20-82)
   - B-pillar upper trim, both sides (see page 20-82)
   - Quarter pillar trim, both sides (see page 20-85)
   - Sunvisors, both sides (see page 20-98)
   - Grab handles, four places (see page 20-99)
   - Rear individual map light (see page 22-240)
   - Rear ceiling light (see page 22-241)
   - Center second row seat belt cover (see step 1 on page 24-10)
   - RES display cover (for some models) (see page 23-215)
   - Roof console (see page 22-239)

2. Remove the screws, then remove the roof console bezel (A).

Fastener Locations
▶ : Screw, 4



3. If necessary, remove the remaining roof console clips (A) from the body and the moonroof frame (B).



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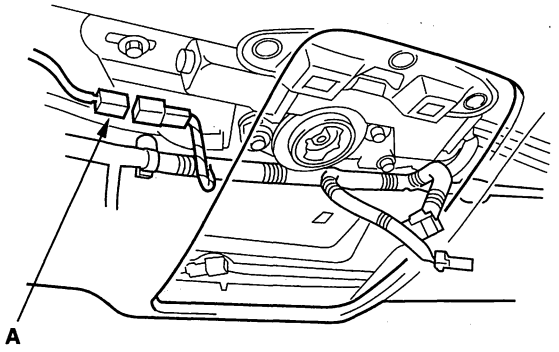
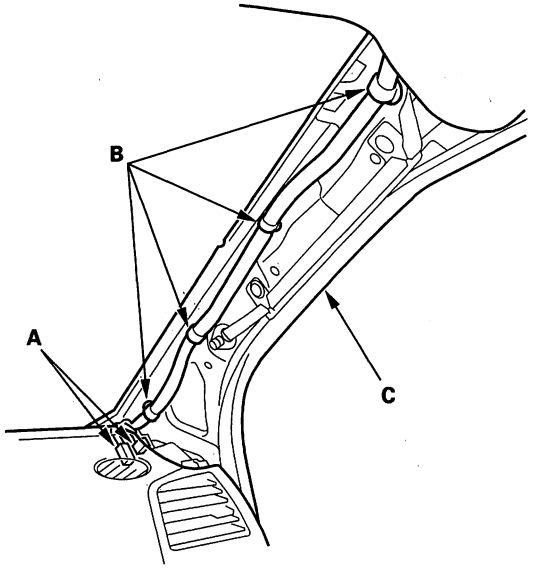
Protected by AR

Headliner Removal/Installation (cont'd)

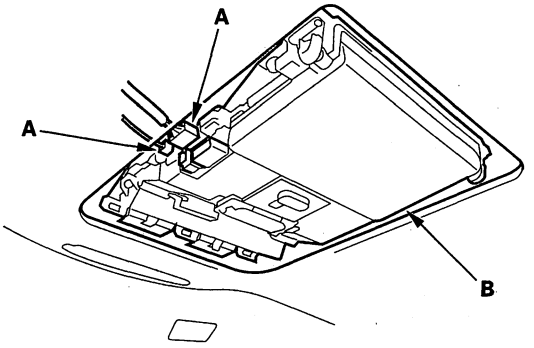
4. Disconnect the roof wire harness connector (A).



5. With rear entertainment system: Disconnect the rear entertainment system wire harness connectors (A) and detach the harness clips (B) from the left A-pillar (C).



6. With rear entertainment system: Disconnect the rear entertainment wire harness connectors (A) from the rear controller and display (B).

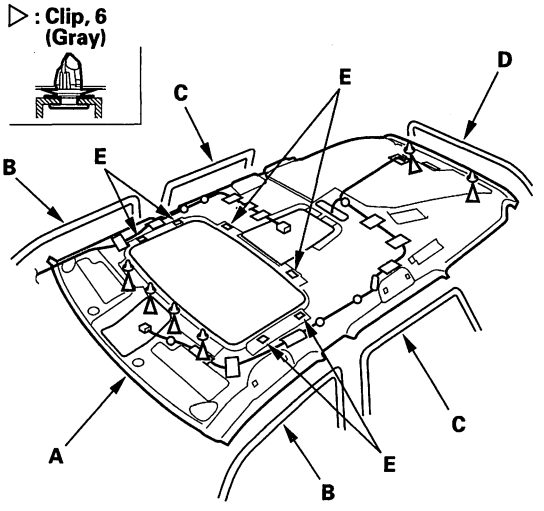


7. Lower the headliner (A). The vehicle with rear entertainment system is shown; and without rear entertainment system is similar.

-1 Remove the front door opening seals (B), rear door opening seals (C), and tailgate weatherstrip (D) from each roof portion.
-2 With the help of an assistant, detach the rear clips by pulling the rear portion of the headliner down.
-3 With the help of an assistant, release the fasteners (E) by lowering the headliner.

Fastener Locations

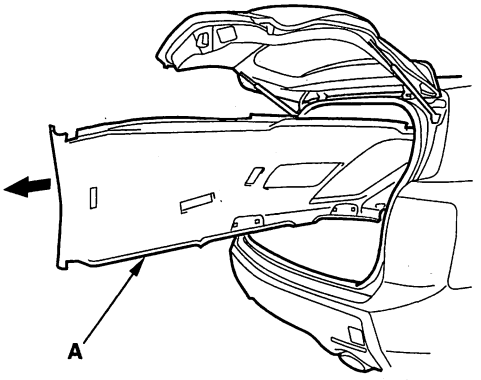
▷: Clip, 6 (Gray)



BACK

Protected by AR

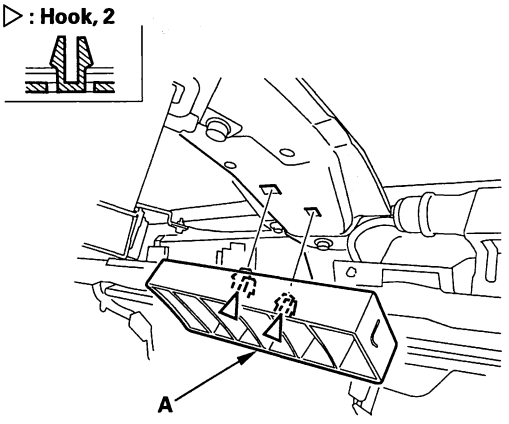
8. With the help of an assistant, pull the headliner (A) along with the roof wire harness and rear entertainment system wire harness (for some models) out through the tailgate opening. Do not bend the liner. Bending the liner will crease and damage it.



9. If necessary, detach the hooks, then remove the roof side pad (A).

Fastener Locations

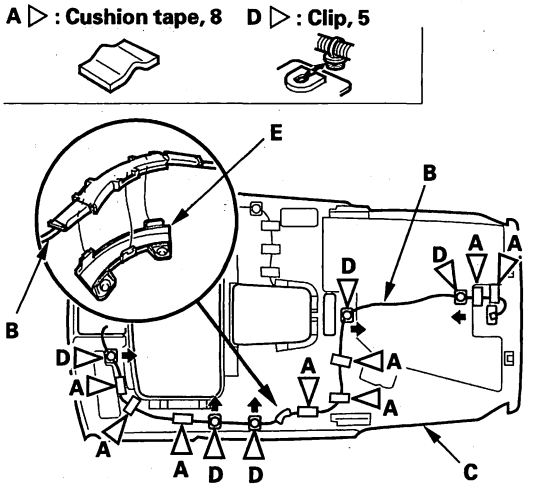
▷ : **Hook, 2**



10. If necessary, remove the cushion tapes (A) fastening the roof wire harness (B) to the headliner (C), detach the harness clips (D) and release the harness from the harness protector base (E), then remove them from the headliner.

Fastener Locations

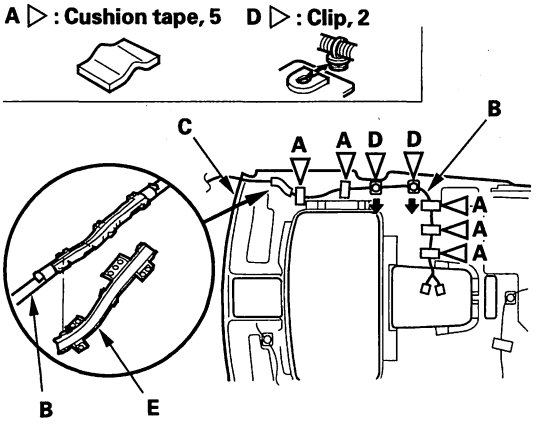
A ▷ : **Cushion tape, 8** D ▷ : **Clip, 5**



11. With rear entertainment system: If necessary, remove the cushion tape (A) fastening the rear entertainment system wire harness (B) to the headliner (C), detach the harness clips (D) and release the harness from the harness protector base (E), then remove them from the headliner.

Fastener Locations

A ▷ : **Cushion tape, 5** D ▷ : **Clip, 2**



(cont'd)

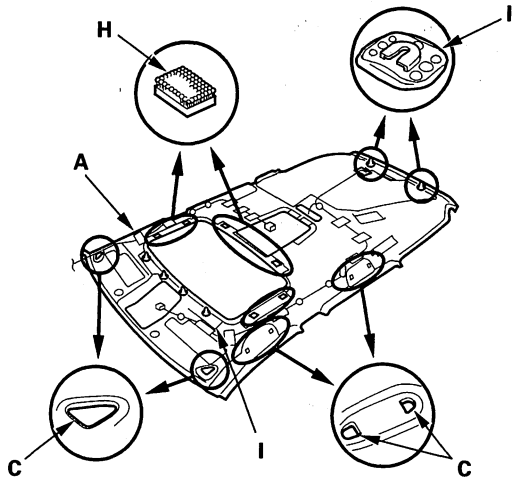
Protected by AR

Headliner Removal/Installation (cont'd)

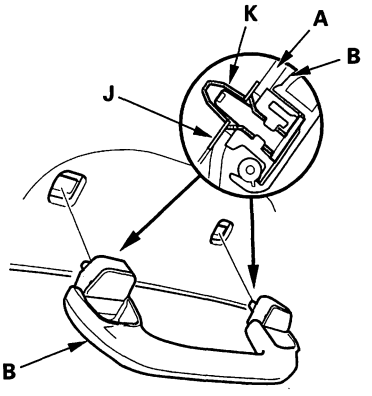
12. Install the headliner in the reverse order of removal, and note these items:

- If the side curtain airbag has deployed, replace the headliner and removed trim pieces with new ones (see page 24-134).
- To prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect removed pieces and replace them if they have any of these types of damage:
  - Any crease or tears in the headliner (A)
  - Any cracks or breakages in the grab handle (B)
  - Any damages around the grab handle holes (C) or sunvisor holes in the headliner
  - Any cracks in the sunvisor stay base (D)
  - Any bends or cracks in the sunvisor stay shaft (E)
  - Any cracks in the sunvisor base (F)
  - Any cracks or breakages in the vanity mirror base (G)
  - Any fasteners (H) and clip bases (I) which have come off the headliner
- When installing the grab handle, push on the handle against the bracket (J) until the clips (K) snap into place securely.
- Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
- Replace the removed cushion tape with new ones.
- Check that both sides of the headliner are securely attached to the trim.
- Make sure the headliner overlaps the trim pieces correctly (see page 24-136).
- When reinstalling the headliner through the tailgate opening, be careful not to fold or bend it. Also, be careful not to scratch the body.

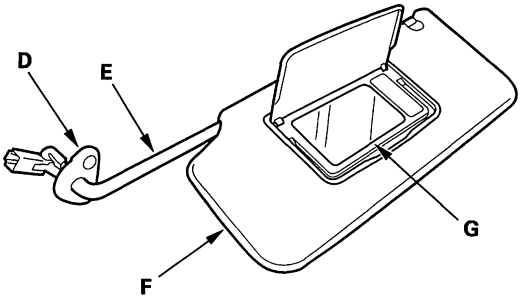
Headliner



Grab handle



Sunvisor



BACK

Protected by AR

Carpet Replacement

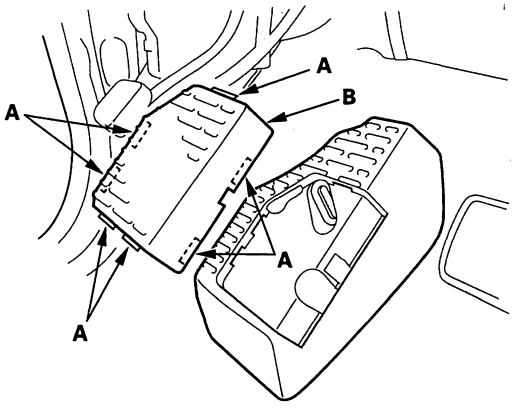
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to damage, wrinkle or twist the carpet.
- Be careful not to damage the dashboard and other interior trim pieces.

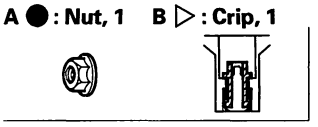
1. Remove these items:
   - Front seats, both sides (see page 20-141)
   - Second row seats, both sides (see page 20-156)
   - Third row seats, both sides (see page 20-179)
   - Front door sill trim, both sides (see page 20-76)
   - Rear door sill trim, both sides (see page 20-77)
   - Kick panels, both sides (see step 3 on page 20-76)
   - Driver's dashboard undercover (see page 20-120)
   - Passenger's dashboard undercover (see page 20-127)
   - Steering joint cover (see page 17-25)

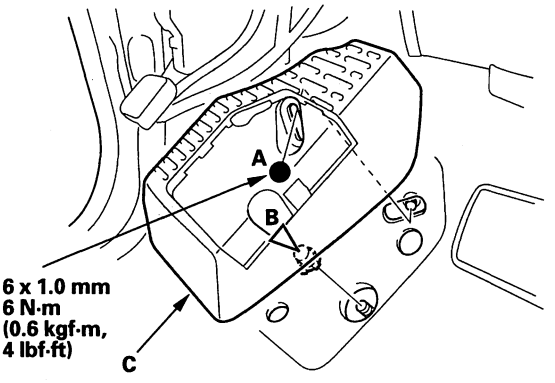
2. Detach the hooks (A), then remove the footrest plate (B).



3. Remove the nut (A). Using a 6 mm socket wrench, release the clip (B), then remove the footrest (C).

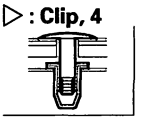
Fastener Locations
A ● : Nut, 1 B ▷ : Crip, 1

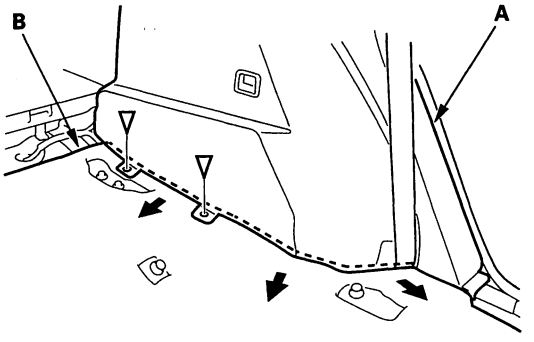




4. Remove the clips fastening both rear side trim panels (A). Pull out the edge of the carpet (B) from under the panels.

Fastener Locations
▷ : Clip, 4





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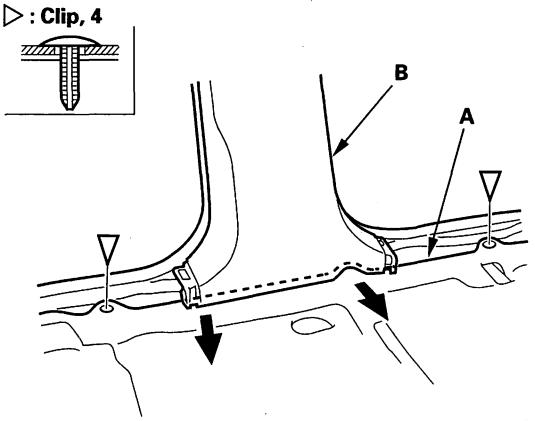
Protected by AR

Carpet Replacement (cont'd)

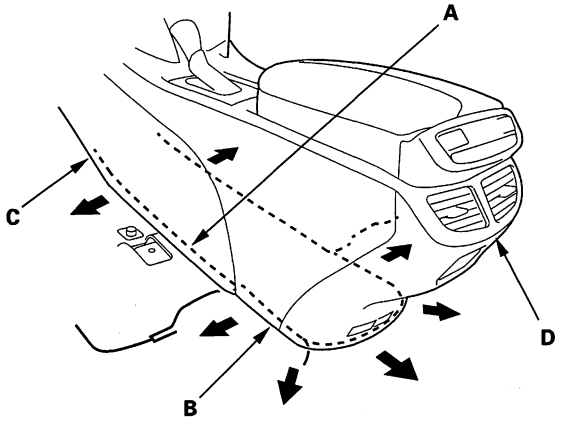
5. Remove the clips fastening the edge of the carpet (A) from both front door sill areas and both rear door sill areas. Pull out the edge of the carpet from under the B-pillar lower trim (B).

Fastener Locations

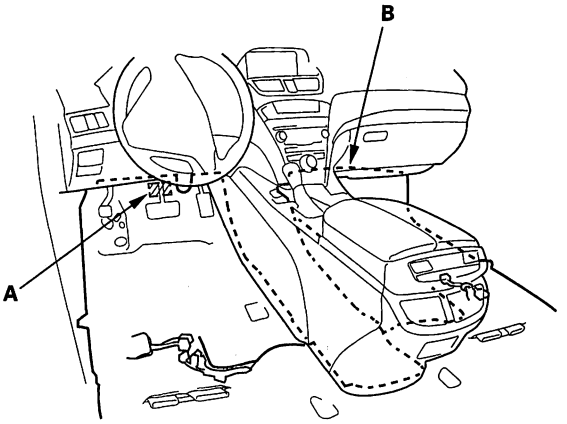
▷ : Clip, 4



6. Pull out the middle edge of the carpet (A) from under the center console (B), driver's/passenger's console trim (C), and console rear trim (D).



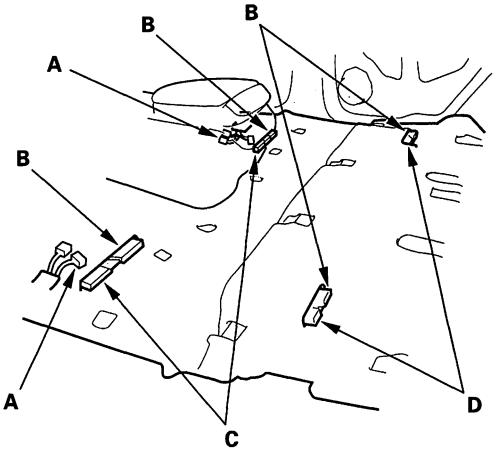
7. Release the fastener (A) on the front edge of the carpet (B), then pull back the carpet from under the dashboard.



8. Remove the carpet.

9. Install the carpet in the reverse order of removal, and note these items:

- Take care not to damage, wrinkle or twist the carpet.
- Make sure the seat harnesses (A) are routed correctly.
- Slip the slits (B) in the carpet over the rear heater duct (C) and the third row seat heater duct (D).
- Slip the carpet under the center console, both B-pillar lower trim, and both rear side trim panels properly.



BACK

Protected by AR

Center Console Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the front seat, dashboard, and related parts.

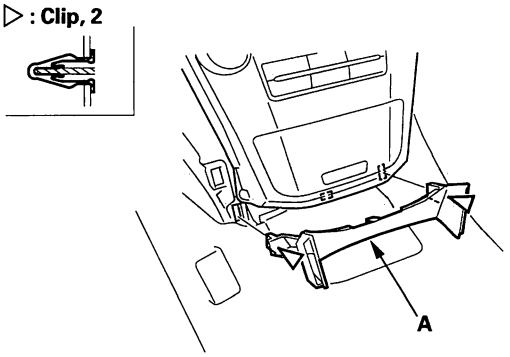
1. Make sure you have the anti-theft codes for the audio and the navigation system (if equipped).

2. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.

3. Remove these items:
   - Driver's inner dashboard trim (see page 20-118)
   - Passenger's dashboard trim (see page 20-123)
   - Console rear trim (see page 20-110)
   - Front seats, both sides (see page 20-141)

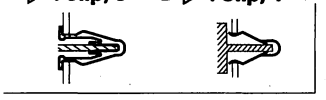
4. Detach the clips by pulling the console lower trim (A) back by hand, then remove it.

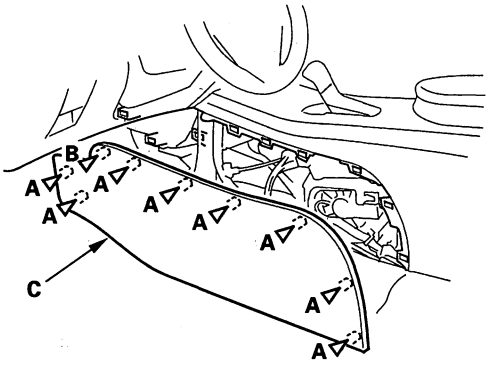
Fastener Locations
▷ : Clip, 2



5. Detach the clips (A, B) by pulling the driver's center console trim (C), then remove it.

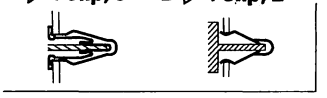
Fastener Locations
A ▷ : Clip, 8 B ▷ : Clip, 1

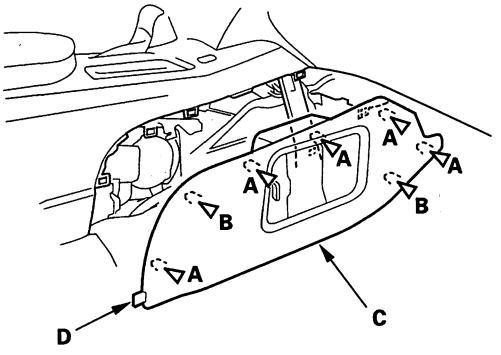




6. Detach the clips (A, B) by pulling the passenger's center console trim (C) out, and pull it forward to release its pin (D) from the center console, then remove it.

Fastener Locations
A ▷ : Clip, 5 B ▷ : Clip, 2





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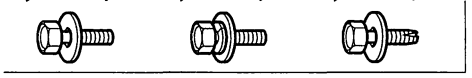
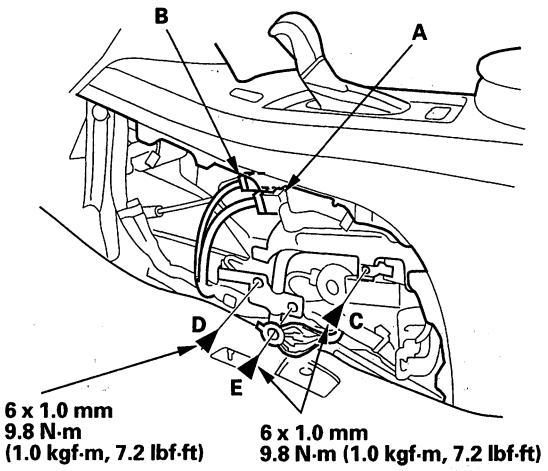
Center Console Removal/Installation (cont'd)

7. From driver's side, disconnect the parking pin shift connector (A) and shift lock solenoid connector (B). Remove the rear blower motor relay mounting bolt (C), second row seat heater relay mounting bolt (D) (for some models), and ground bolt (E).

Fastener Locations

C ▶ : Bolt, 1 D ▶ : Bolt, 1 E ▶ : Bolt, 1

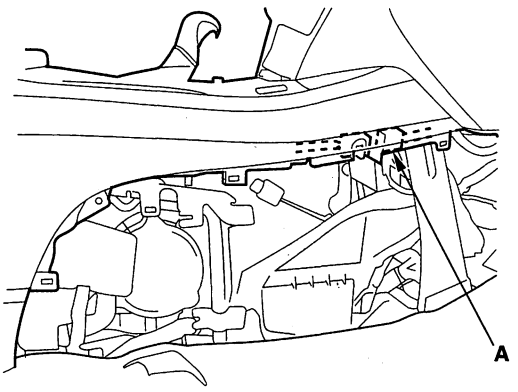




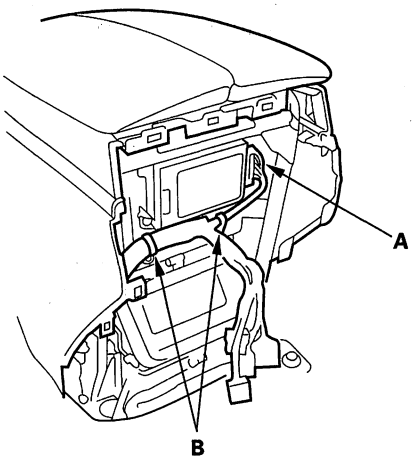
6 x 1.0 mm
9.8 N·m
(1.0 kgf·m, 7.2 lbf·ft)

6 x 1.0 mm
9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)

8. From passenger's side, disconnect the console subharness connector (A).



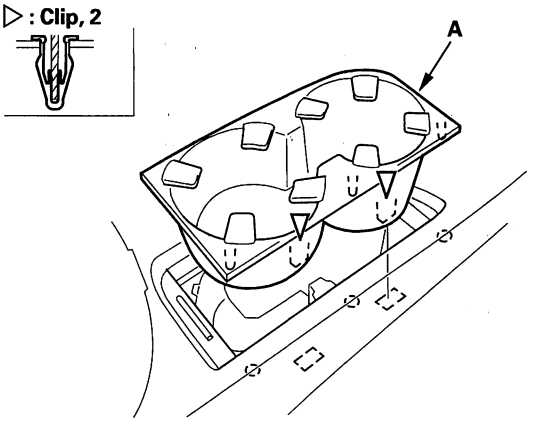
9. Disconnect the HandsFreeLink control unit connector (A), and detach the harness clips (B).



10. Open the beverage holder lid. Pull the beverage holder inner case (A) up by hand to detach the clips, then remove it.

Fastener Locations

▷ : Clip, 2



11. Shift the shift lever into the R position, then disconnect the A/T shift cable (see step 5 on page 14-309).

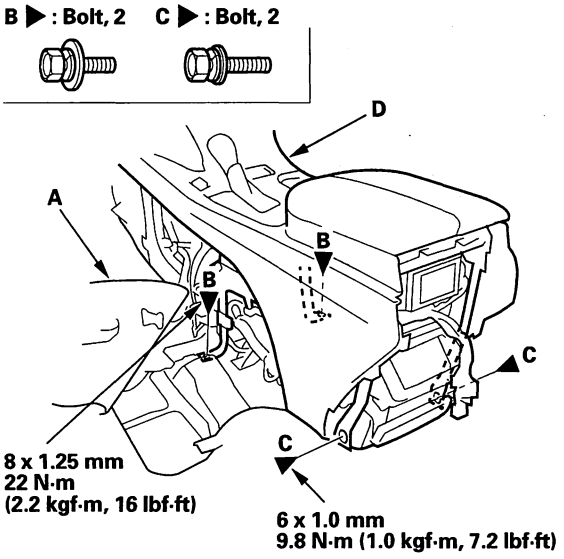
BACK

Protected by AR

12. Pull back the carpet (A) as needed, then remove the bolts (B, C) securing the center console (D).

Fastener Locations

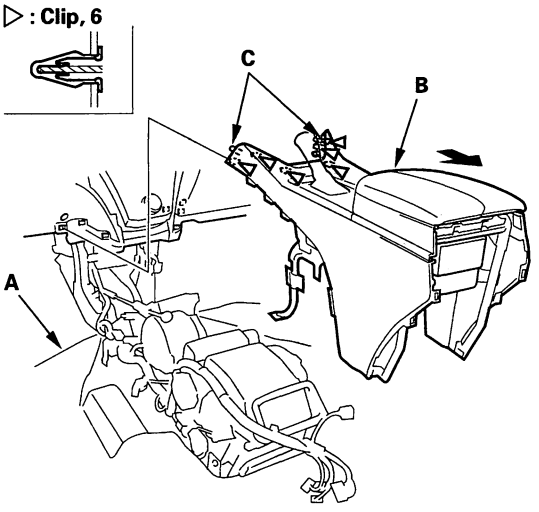
B ▶ : Bolt, 2 C ▶ : Bolt, 2



13. Pull back the carpet (A) as needed. Slide the center console (B) backward to detach the clips and pins (C) from the dashboard, lift the console up, then carefully remove it.

Fastener Locations

▷ : Clip, 6



14. Install the console in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.
- Before tightening the bolts, make sure the dashboard wire harness is not pinched.
- Make sure the connectors are plugged in properly.
- Reconnect the negative cable to the battery.
- Enter the anti-theft codes for the audio and navigation system (if equipped).
- Set the clock.
- Check for any DTCs that may have been set during repairs, and clear them.
- If necessary, adjust the shift cable (see page 14-311).
- Do the steering column position memorization (see page 17-28).

Protected by AR

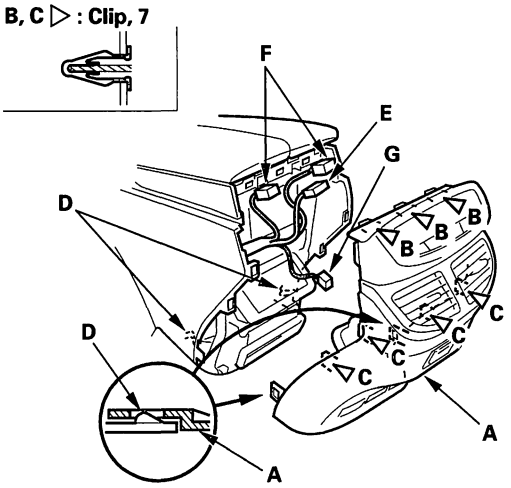
Center Console Rear Trim Removal/ Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the center console and related parts.

1. Starting at the top, gently pull out the console rear trim (A) to detach the clips (B), then pull out the trim to detach the remaining clips (C), and to release the lower tabs (D), disconnect the connectors, then remove the trim:
   - Rear heater-A/C passenger's control panel-unit connector (E)
   - With second row seat heater: Second row seat heater switch connectors (F)
   - Without rear entertainment system: Accessory power socket connector (G)
   - With rear entertainment system: Auxiliary jack connector (G)

Fastener Locations
B, C ▷ : Clip, 7



2. Install the trim in the reverse order of removal, and note these items:
   - Make sure all connectors are plugged in properly.
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

Center Console Rear Trim Disassembly/Reassembly

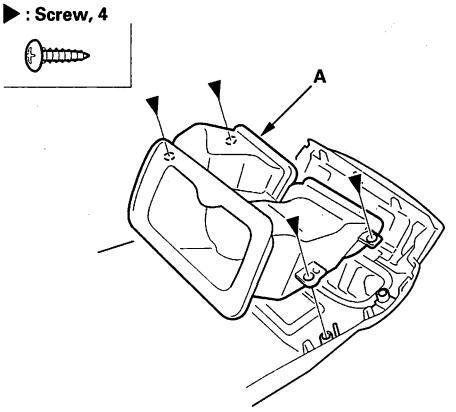
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the trim.

1. Remove the center console rear trim (see page 20-110).

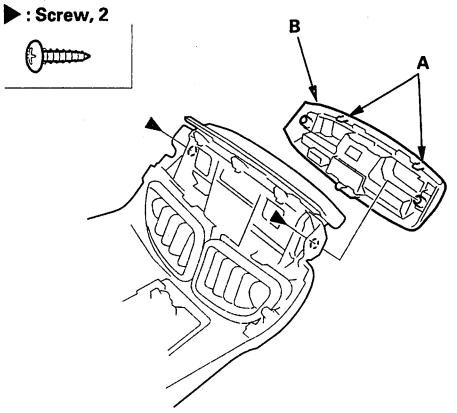
2. Remove the screws, then remove the center console duct (A).

Fastener Locations
▶ : Screw, 4



3. Remove the screws and release the hooks (A), then remove the HVAC trim (B).

Fastener Locations
▶ : Screw, 2



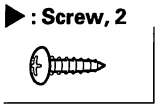
BACK

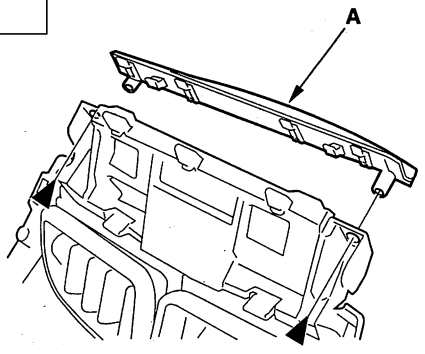
Protected by AR

4. Remove the screws, then remove the rear upper lid (A).

Fastener Locations

▶ : Screw, 2

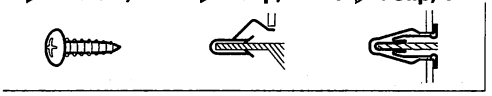


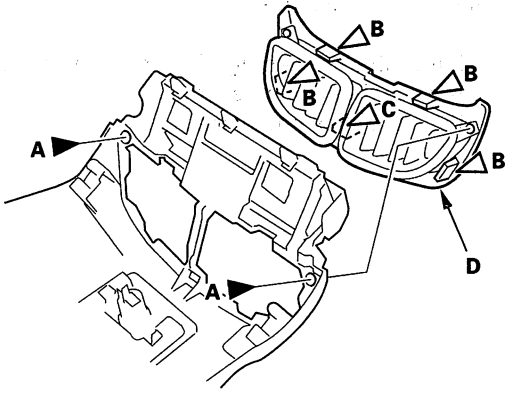


5. Remove the screws (A) and detach the clips (B, C), then remove the rear console vent/vent trim (D).

Fastener Locations

A ▶ : Screw, 2 B ▷ : Clip, 4 C ▷ : Clip, 1

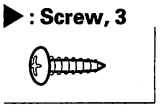


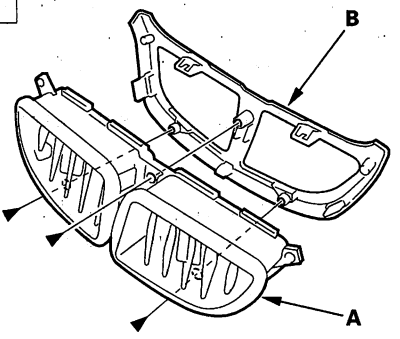


6. Remove the screws, then remove the rear console vent (A) from the rear console vent trim (B).

Fastener Locations

▶ : Screw, 3

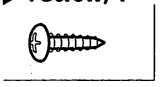


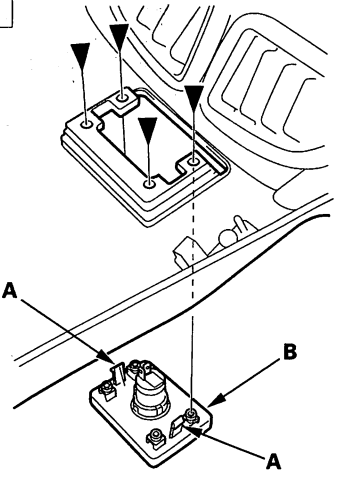


7. Without rear entertainment system: Remove the screws and release the hooks (A), then remove the accessory power socket panel (B).

Fastener Locations

▶ : Screw, 4





8. Reassemble the rear trim in the reverse order of disassembly, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.

Protected by AR

Console Armrest Removal/Installation

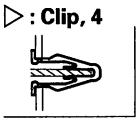
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

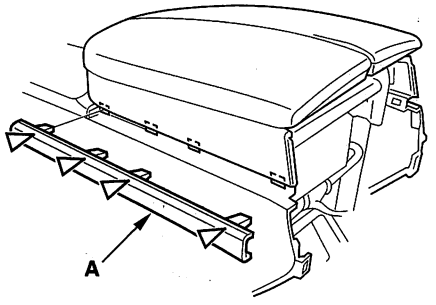
NOTE:
- Take care not to scratch the console.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the center console rear trim (see page 20-110).

2. Starting at the rear, pull out the wood panel (A) to detach the clips, then remove it.

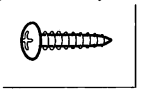
Fastener Locations
▷ : Clip, 4

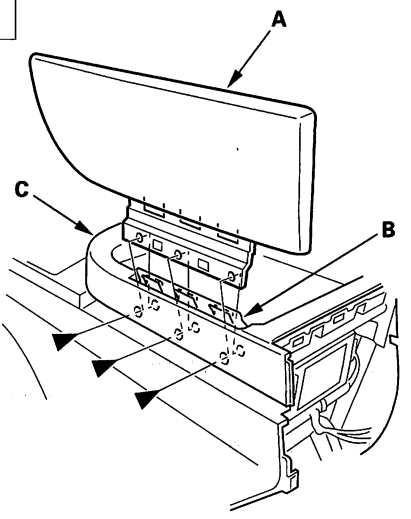




3. Remove the screws, then remove the armrest (A) from the space between the console frame (B) and the console latch trim (C).

Fastener Locations
▶ : Screw, 3





4. Install the armrest in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.

BACK

Protected by AR

Center Console Latch Panel Removal/Installation

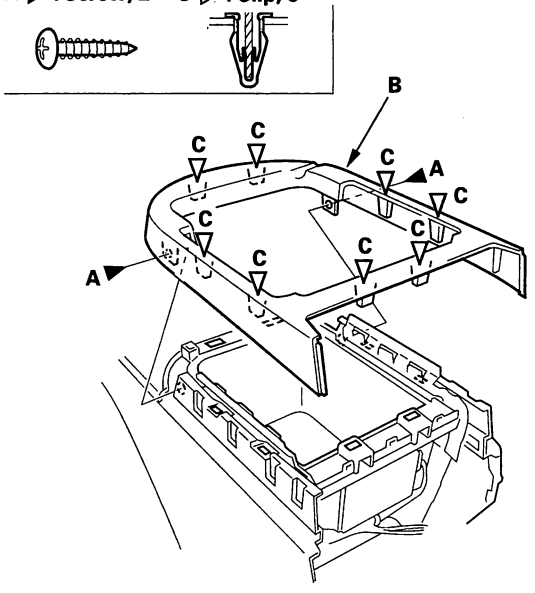
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Take care not to scratch the console.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the center console armrests from both sides (see page 20-112).

2. Remove the screws (A), and starting at the rear, pull out the center console latch panel (B) to detach the clips (C), then remove it .

Fastener Locations
A ▶ : Screw, 2 C ▷ : Clip, 8



3. Install the panel in the reverse order of removal, and note these items:

   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

Center Console Panel Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

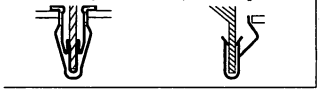
NOTE:
- Take care not to scratch the console.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

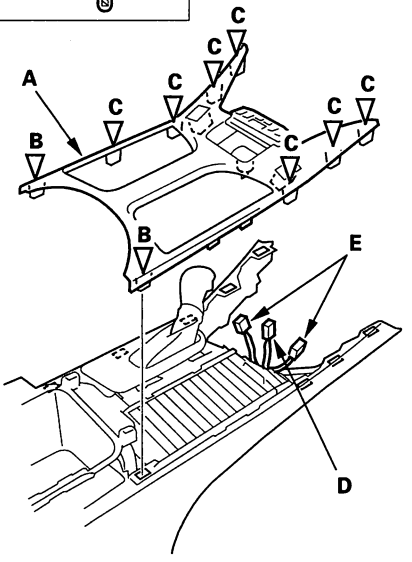
1. Remove the center console (see page 20-107).

2. Remove the center console latch panel (see page 20-113).

3. Pull the center console panel (A) out to detach the clips (B, C). Disconnect the accessory power socket connector (D) and seat heater switch connectors (E), then remove the panel.

Fastener Locations
B ▷ : Clip, 2 C ▷ : Clip, 7





(cont'd)

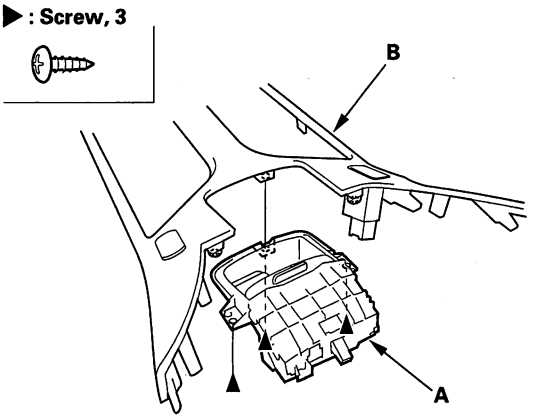
Protected by AR

Center Console Panel Removal/ Installation (cont'd)

4. If necessary, remove the screws, then remove the console pocket (A) from the console panel (B).

Fastener Locations

▶: Screw, 3



5. Install the panel in the reverse order of removal, and note these items:

- Make sure each connector is plugged in properly.
- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.

Center Console Beverage Holder Replacement

Special Tools Required

KTC trim tool set SOJATP2014 *

* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:

- Take care not to scratch the console.
- Use the appropriate tool from the KTC trim toll set to avoid damage when removing components.

1. Remove the center console (see page 20-107).

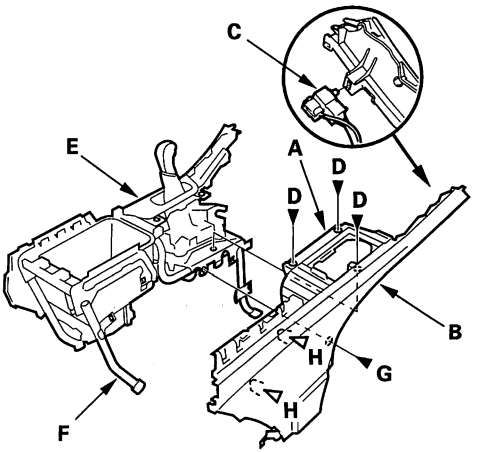
2. Remove the console panel (see page 20-113).

3. Remove the console beverage holder (A) and passenger's console panel (B) as an assembly:

-1 Detach the console subharness connector (C).
-2 Remove the screws (D) securing the console beverage holder to the A/T gear position indicator panel (E) and console frame (F).
-3 Remove the screws (G) securing the passenger's console panel to the console frame.
-4 Pull out the passenger's console panel to detach the clips (H).

Fastener Locations

D, G ▶: Screw, 4 H ▷: Clip, 2

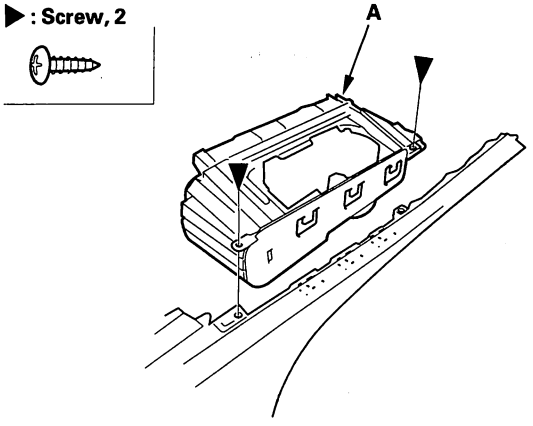


BACK

Protected by AR

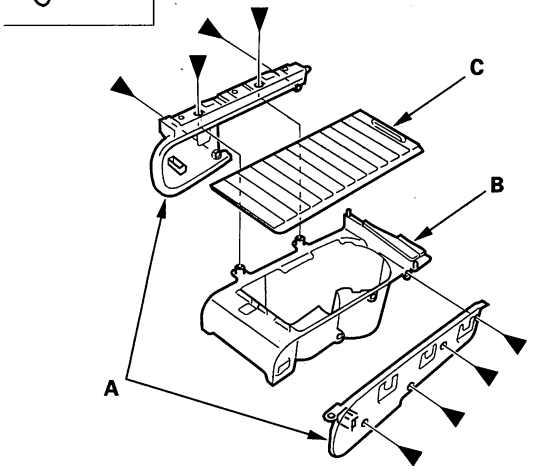
4. Remove the screws, then remove the center console beverage holder (A).

Fastener Locations
▶: Screw, 2



5. If necessary, separate both rails (A) from the outer case (B), then remove the shutter.

Fastener Locations
▶: Screw, 8



6. Install the beverage holder in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.

Special Tools Required
KTC trim tool set SOJATP2014
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

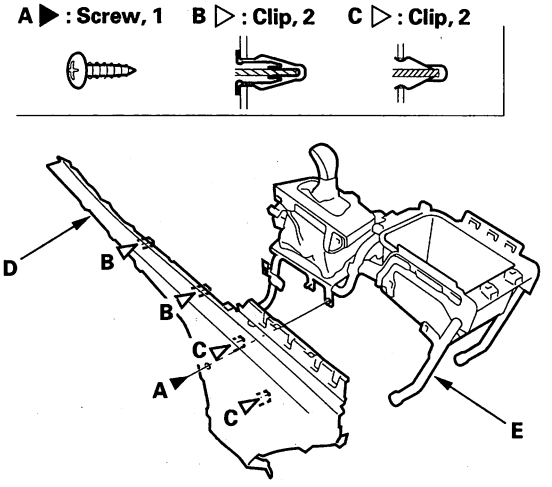
NOTE:
- Take care not to scratch the center console.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the center console (see page 20-107).

2. Remove the beverage holder and passenger's console panel as an assembly (see page 20-114).

3. Remove the screw (A), and detach the clips (B, C) by pulling the driver's console panel (D) back, then remove if from the console frame (E).

Fastener Locations
A ▶: Screw, 1 B ▷: Clip, 2 C ▷: Clip, 2



(cont'd)

Protected by AR

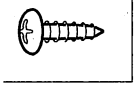
Center Console Box Replacement (cont'd)

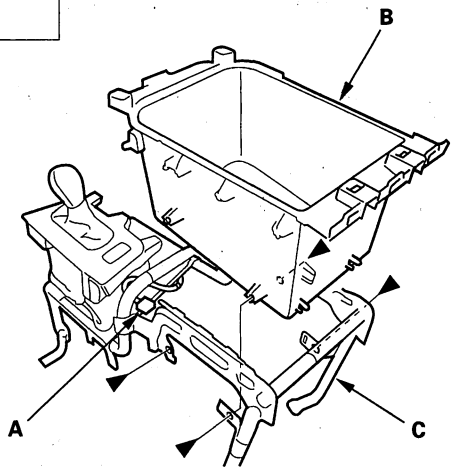
4. Remove the Hands Free Link control unit (see page 23-273).

5. Remove the screws, and if equipped with rear entertainment system, disconnect the AC power outlet connector (A), then remove the center console box (B) from the console frame (C).

Fastener Locations

▶ : Screw, 4





6. Install the box in the reverse order of removal, and note these items:

   - If equipped, make sure the AC power outlet connector is plugged in properly.
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

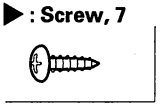
Center Console Side Pocket Replacement

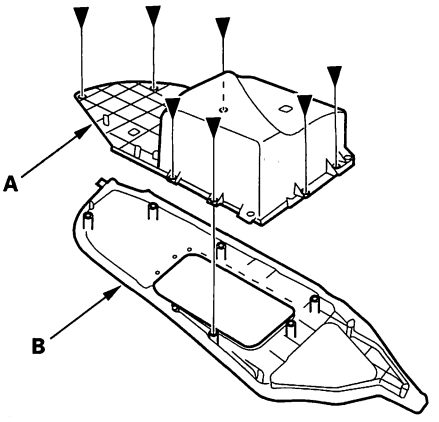
1. Remove the passenger's center console trim (see step 6 on page 20-107).

2. Remove the screws, then remove the console side pocket (A) from the passenger's center console trim (B).

Fastener Locations

▶ : Screw, 7

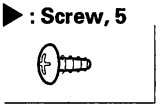


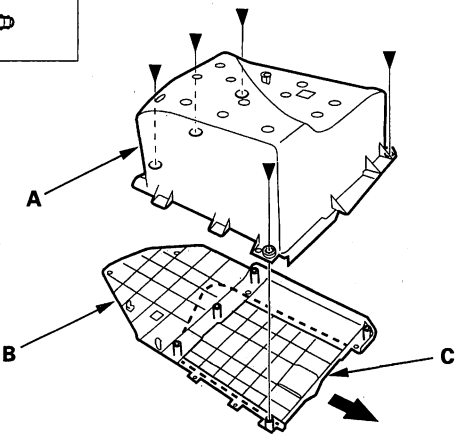


3. Separate the box (A) and rail (B), then slide the console side lid (C) out.

Fastener Locations

▶ : Screw, 5





4. Install the pocket in the reverse order of removal.

BACK

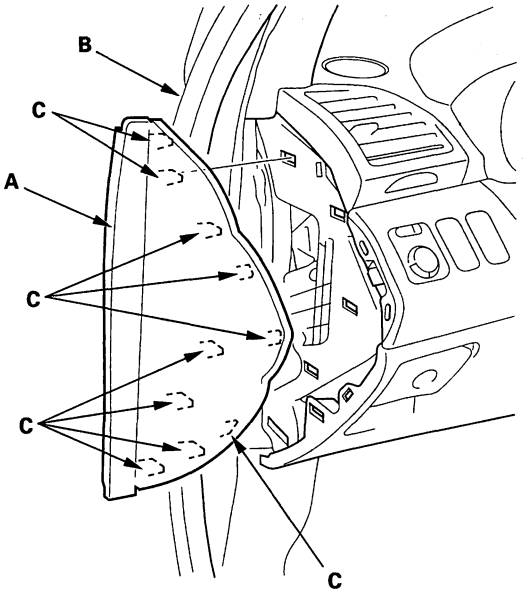
Protected by AR

Driver's Outer Dashboard Trim Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

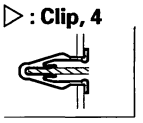
NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the dashboard and its related parts.

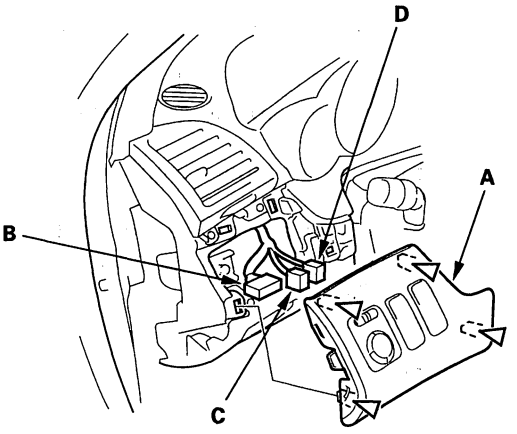
1. Open the front door, and remove the driver's dashboard side cover (A).
   1 Pull out the front door opening seal (B), as needed.
   2 Gently pull out the front edge of the side cover, and pry the rear edge with a trim tool to release the hooks (C), then remove the side cover.



2. Gently pull out the driver's outer dashboard trim (A) to detach the clips.

Fastener Locations
▷: **Clip, 4**





3. Disconnect the power mirror switch connector (B), VSA OFF switch connector (C), and if equipped, headlight washer switch connector (D), then remove the panel.

4. Install the trim in the reverse order of removal, and note these items:
   - Make sure each connector is plugged in properly.
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

Protected by AR

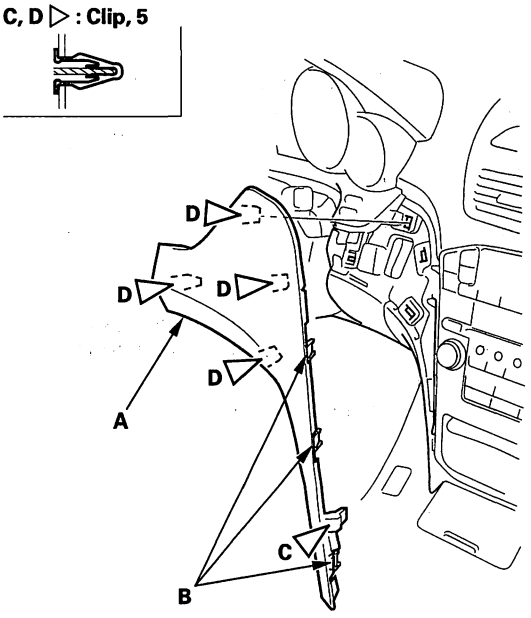
Driver's Inner Dashboard Trim Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Take care not to scratch the dashboard and its related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the driver's inner dashboard trim (A).
   -1 Gently pull out along the edge beside the audio unit by hand to release the lower hooks (B) and the clip (C).
   -2 Detach the upper clips (D).

Fastener Locations
C, D ▷ : Clip, 5



2. Install the trim in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Position the hooks first on installation, then move the clips into place.
   - Push the clips and hooks into place securely.

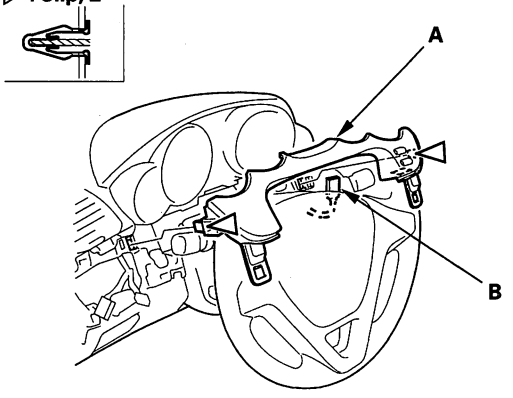
Instrument Fascia Removal/ Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Take care not to scratch the dashboard and its related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Tilt the steering column down, and telescope it out.
2. Remove these items.
   - Driver's outer dashboard trim (see page 20-117)
   - Driver's inner dashboard trim (see page 20-118)
3. Remove the instrument fascia (A).
   -1 Gently pull out the bottom to release the clips
   -2 Disconnect the select/reset switch connector (B).

Fastener Locations
▷ : Clip, 2



4. Install the instrument fascia in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Make sure the connector is plugged in properly.
   - Push the clips into place securely.

BACK

Protected by AR

Driver's Dashboard Lower Cover Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Take care not to scratch the dashboard and its related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Adjust the steering column upward.

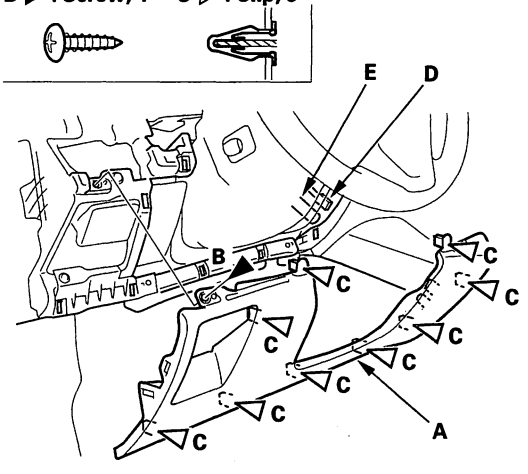
2. Remove these items:

   - Driver's outer dashboard trim (see page 20-117)
   - Driver's inner dashboard trim (see page 20-118)

3. Remove the driver's dashboard lower cover (A).

   1 Remove the screw (B).
   2 Pull out the bottom of the driver's dashboard lower cover to release the clips (C).
   3 Disconnect the humidity/in-car temperature sensor connector (D) and the air hose (E).

Fastener Locations
B ▶ : Screw, 1 C ▷ : Clip, 9



4. Install the cover in the reverse order of removal, and note these items:

   - Make sure the humidity/in-car temperature sensor connector is plugged in properly, and the air hose is connected properly.
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

Protected by AR

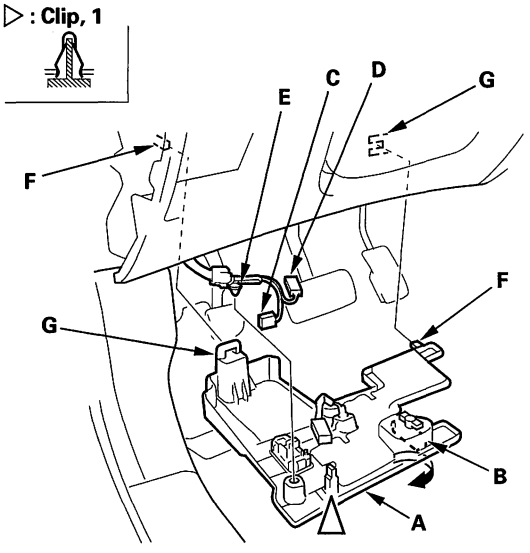
Driver's Dashboard Undercover Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the dashboard and its related parts.

1. Remove the driver's dashboard undercover (A).
   -1 Turn the lock knob (B) 90 °.
   -2 Gently pull down the rear edge to detach the clip.
   -3 Disconnect the footwell light connector (C) and ambient light connector (D), then detach the harness clip (E).
   -4 Pull the undercover away to release the pins (F) from the holders (G).

Fastener Location
▷ : Clip, 1



2. Install the undercover in the reverse order of removal, and note these items:
   - Replace the clip if it's damaged.
   - Push the clip into place securely.
   - Make sure that each connector is plugged in properly.
   - Make sure the pins on of the cover are securely seated.

Center Upper Panel Removal/ Installation

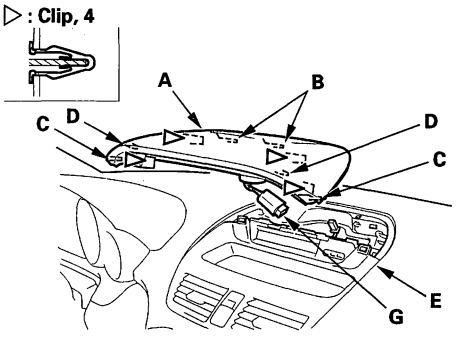
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Take care not to scratch the dashboard and its related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Hold the middle of the center upper panel (A), and pull the panel towards the rear of the vehicle to detach all of the clips from the dashboard, to release the hooks (B) and pins (C) from the dashboard, and to release the hooks (D) from the center panel (E) and/or the display unit (F) (with navigation system).

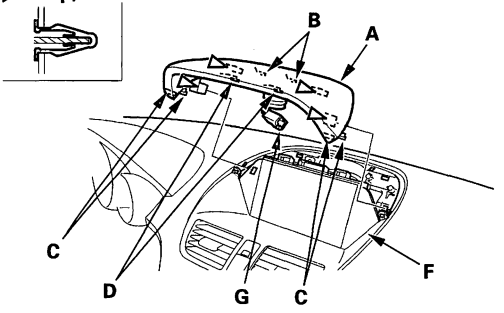
Without navigation system

Fastener Locations
▷ : Clip, 4



With navigation system

Fastener Locations
▷ : Clip, 4



2. Disconnect the center speaker connector (G), then remove the center upper panel.

BACK

Protected by AR

3. Install the cover in the reverse order removal, and note these items:

   - Make sure the center speaker connector is plugged in properly.
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips and hooks into place securely.

Dashboard Center Panel Removal/ Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

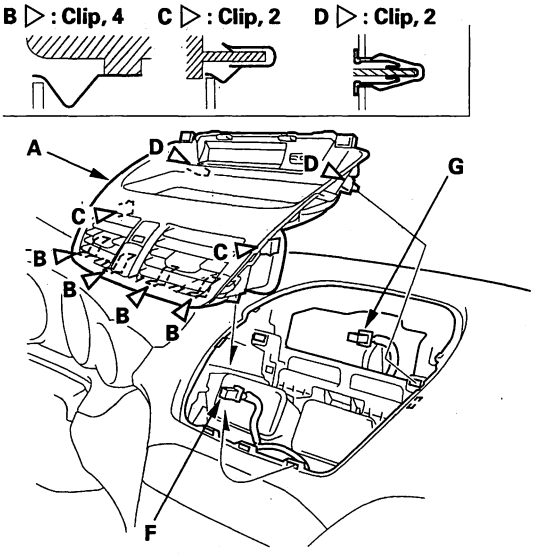
NOTE:
- Take care not to scratch the dashboard and its related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the center upper panel (see page 20-120).

2. Pull out the dashboard center panel (A) to detach the clips (B, C, D) and to release the hooks (E) (without navigation system), then remove the panel.

Without navigation system

Fastener Locations



(cont'd)

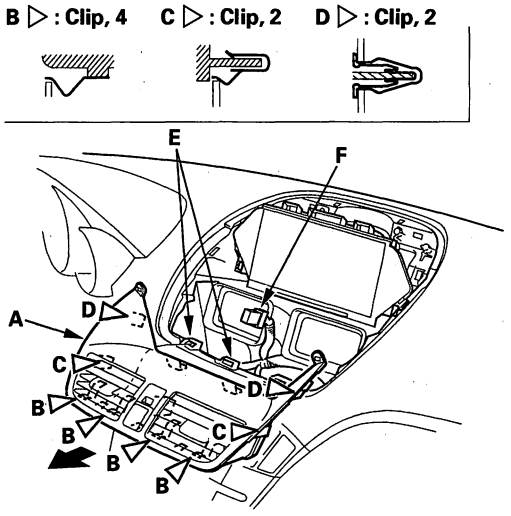
Protected by AR

Dashboard Center Panel Removal/Installation (cont'd)

With navigation system

Fastener Locations

B ▷ : Clip, 4 C ▷ : Clip, 2 D ▷ : Clip, 2



3. Disconnect the hazard warning switch/passenger's airbag off indicator connector (F), and on the models without navigation system, center information display connector (G).

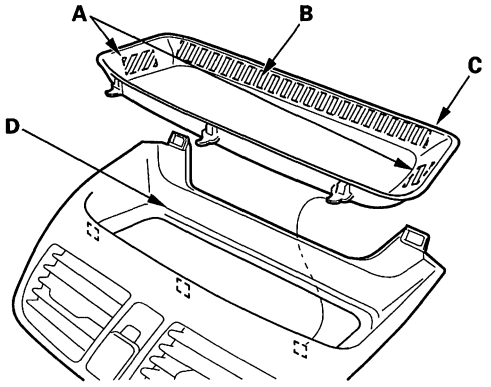
Without navigation system

4. Remove the center information display from the dashboard center panel (see page 22-343).

5. If necessary, peel three pieces of adhesive tape (A, B), then remove the tray mat (C), from the center tray (D).

Adhesive tape A: **Thickness 0.5 mm (0.02 in.)**
Width 15 mm (0.59 in.)
Length 50 mm (2.0 in.)

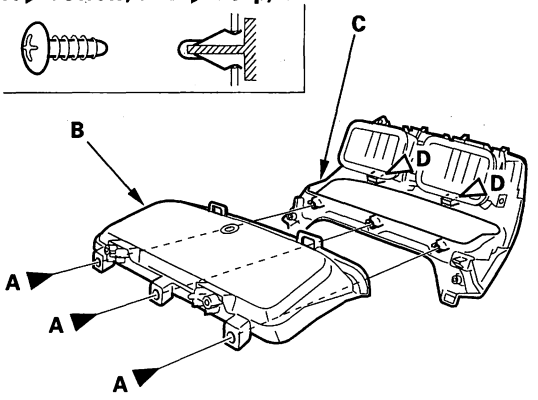
Adhesive tape B: **Thickness 0.5 mm (0.02 in.)**
Width 15 mm (0.59 in.)
Length 220 mm (8.66 in.)



6. If necessary, remove the screws (A) securing the center tray (B), then separate it from the dashboard center panel (C) by detaching the clips (D).

Fastener Locations

A ▶ : Screw, 3 D ▷ : Clip, 2



7. Install the panel in the reverse order of removal, and note these items:

- If the removed tray mat is to be reinstalled, remove all of old adhesive tape from the mat, and clean the back of the mat with isopropyl alcohol where the three pieces of new adhesive tape are to be attached. Attach the tray mat to the center tray with commercially available adhesive tape.
- Make sure all connectors are plugged in properly.
- If the clips are damaged or stress-whitened, replace them with new ones.
- Make sure the tabs located between the bottom clips line up with the slots in the dashboard correctly.
- Push the clips into place securely.

BACK

Protected by AR

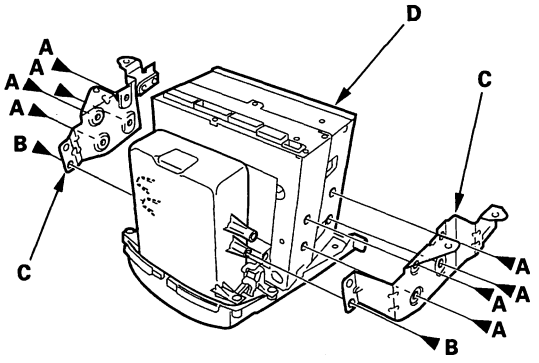
Center Pocket Removal/Installation

1. Remove the audio unit (see page 23-90).

2. Remove the bolts (A) and screws (B), then remove the radio brackets (C) from both sides of the audio unit (D).

Fastener Locations

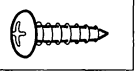
A ▶ : Bolt, 8 B ▶ : Screw, 2

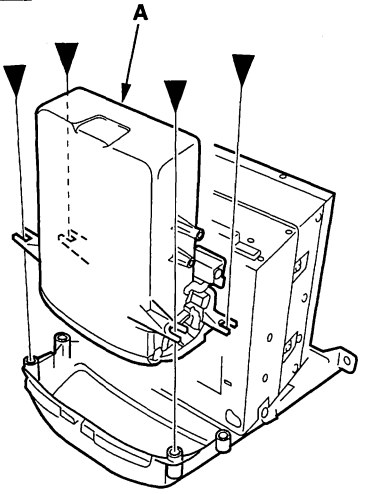


3. Remove the screws, then remove the center pocket (A).

Fastener Locations

▶ : Screw, 4





4. Install the center pocket in the reverse order of removal.

Passenger's Dashboard Trim Removal/Installation

Special Tools Required

KTC trim tool set SOJATP2014 *

* Available through the American Honda Tool and Equipment Program; call 888-424-6857

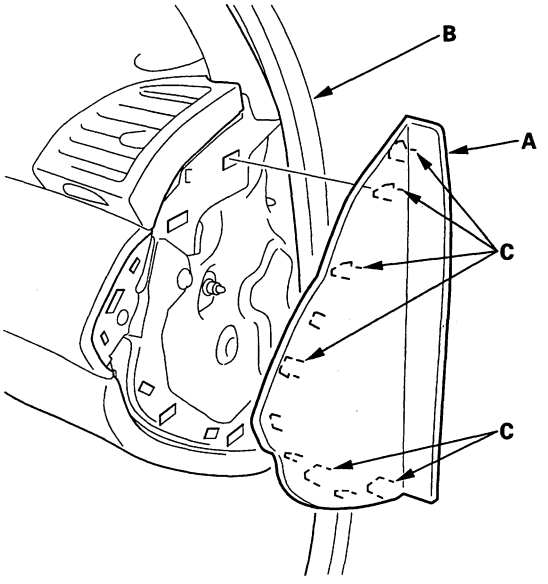
NOTE:

- Take care not to scratch the dashboard and its related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Open the front door, and remove the passenger's dashboard side cover (A).

   -1 Pull out the front door opening seal (B), as needed.

   -2 Gently pull out the front edge of the side cover, and pry the rear edge with a trim tool to release the hooks (C), then remove the side cover.



2. Open the glove box.

(cont'd)

Protected by AR

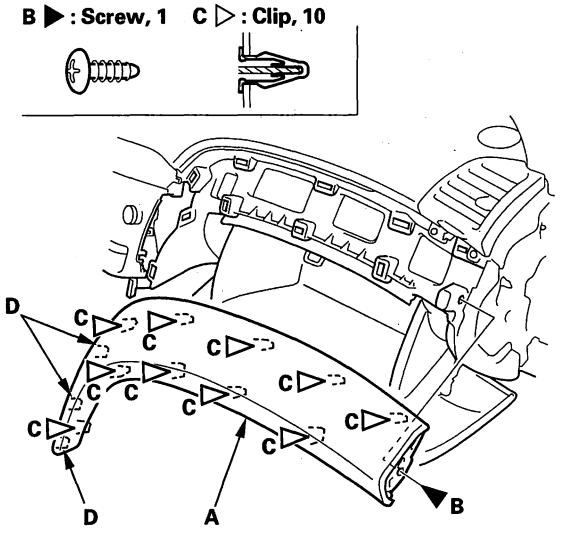
Passenger's Dashboard Trim Removal/Installation (cont'd)

3. Remove the passenger's dashboard trim (A).

   -1 Remove the screw (B).
   -2 Gently pull out the lower edge and the outside edge of the trim by hand to detach all of the clips (C) and hooks (D).

Fastener Locations

B ▶: Screw, 1 C ▷: Clip, 10



4. Install the trim in the reverse order of removal, and note these items:

   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Position the hooks first on installation, then move the clips into place.
   - Push the clips and hooks into place securely.

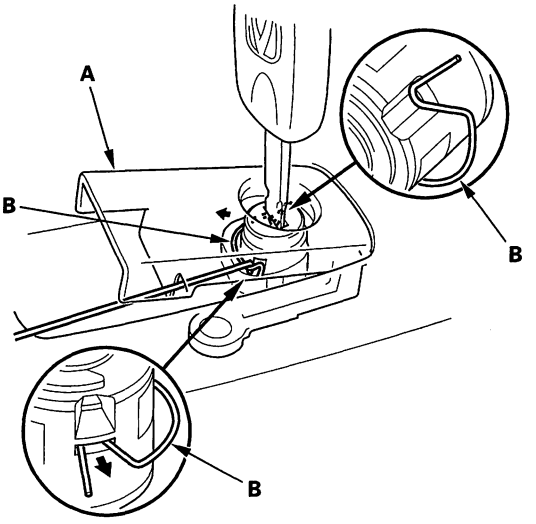
Glove Box Lock Cylinder Replacement

NOTE: Take care not to scratch the glove box.

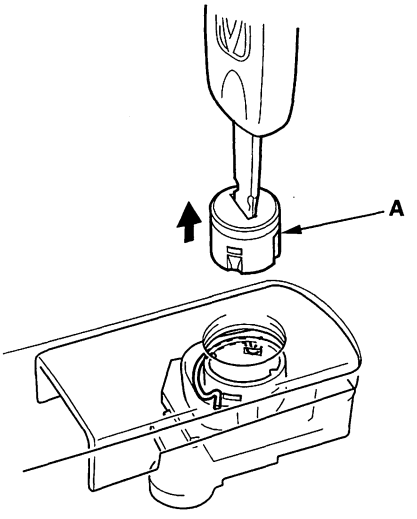
1. Remove the glove box (see page 20-125).

2. Lift the glove box handle (A), and use a hook-shaped tool to pull one end of the retainer (B) out of its slot.

   NOTE: Do not remove the retainer entirely. Leave one end of the retainer in its original position when removing the lock cylinder.



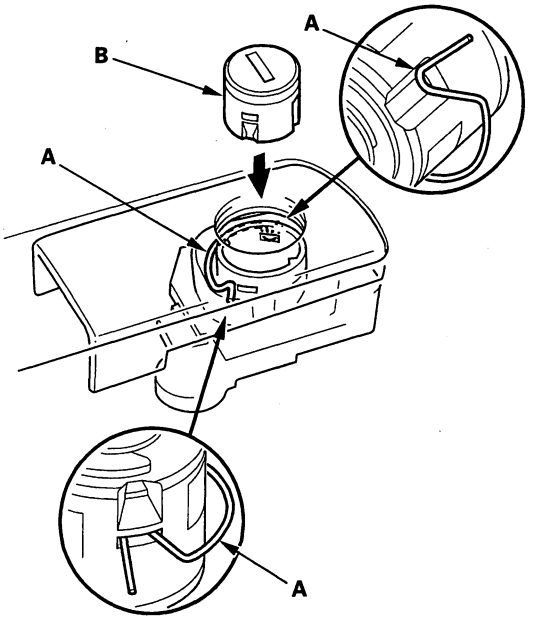
3. Remove the glove box lock cylinder (A).



BACK

Protected by AR

4. Reinstall the end of the retainer (A) in its slot, then reinstall the lock cylinder (B). Push the cylinder into place securely until the retainer snaps into place.

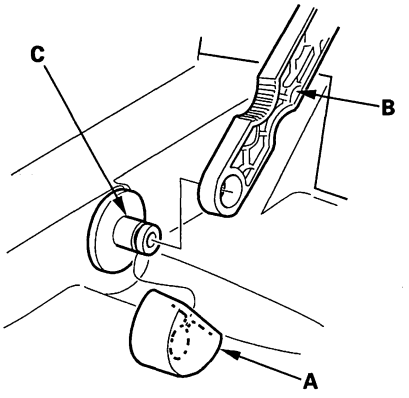


Glove Box Removal/Installation

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

NOTE: Take care not to scratch the dashboard and its related parts.

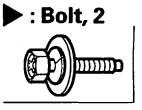
1. Remove the passenger's dashboard undercover (see page 20-127).
2. Open the glove box.
3. Remove the cap (A), then disconnect the glove box damper (B) from the pivot (C) on the glove box.

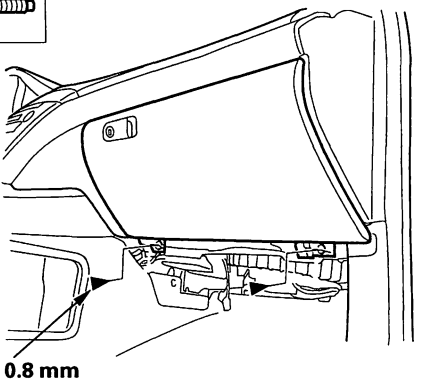


4. Close the glove box.
5. Remove the bolts.

Fastener Locations

▶ : Bolt, 2





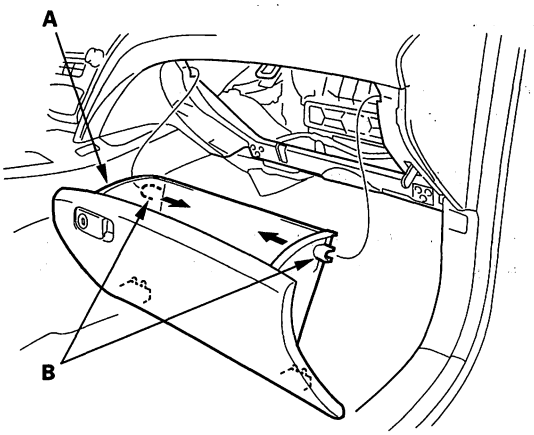
5 x 0.8 mm
5 N·m
(0.5 kgf·m, 4 lbf·ft)

(cont'd)

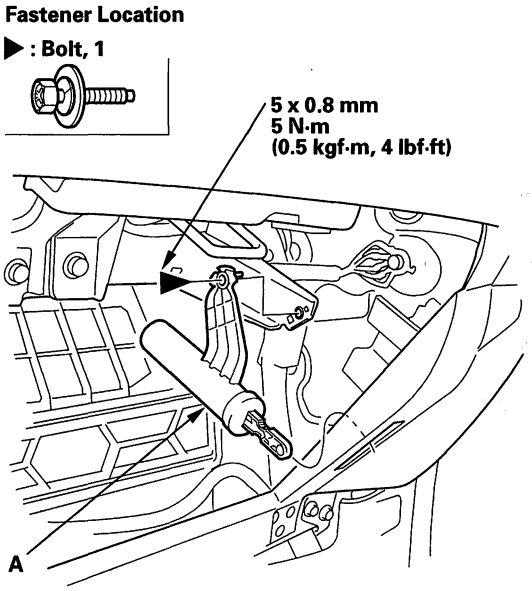
Protected by AR

Glove Box Removal/Installation (cont'd)

6. While holding the glove box (A), release the glove box stop (B) on each side from the dashboard by pushing them in, then remove the glove box.



7. Remove the bolt, then remove the glove box damper (A).



8. Install the glove box in the reverse order of removal.

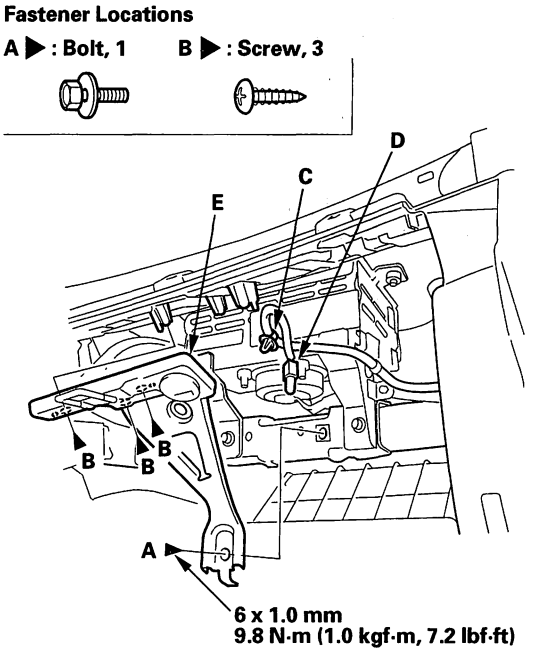
Glove Box Striker Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

NOTE: Take care not to scratch the dashboard and its related parts.

1. Remove the glove box (see page 20-125).

2. Remove the bolts (A) and screws (B), disconnect the glove box light bulb socket (C), and detach the harness clip (D), then remove the glove box striker (E).



3. Install the striker in the reverse order of removal. Make sure the glove box light bulb socket is connected securely.

BACK

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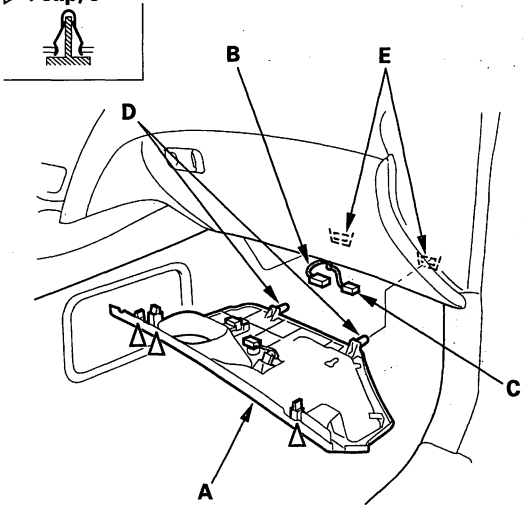
Passenger's Dashboard Undercover Removal/Installation

NOTE: Take care not to scratch the dashboard and its related parts.

1. Remove the Passenger's dashboard undercover (A).
   1 Gently pull down the rear edge to detach the clips.
   2 Disconnect the footwell light connector (B) and ambient light connector (C).
   3 Pull the undercover away to release the pins (D) from the holders (E).

Fastener Locations

▷ : **Clip, 3**



2. Install the undercover in the reverse order of removal, and note these items:
   - Replace any damaged clips.
   - Push the clips into place securely.
   - Make sure that each connector is plugged in properly.
   - Make sure the pins of the undercover are installed securely to the holders.

Dashboard Side Vent Removal/ Installation

Special Tools Required

KTC trim tool set SOJATP2014 *

* Available through the American Honda Tool and Equipment Program; call 888-424-6857

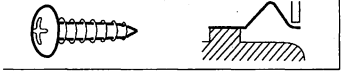
NOTE:
- Take care not to scrutch the dashboard and its related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- The driver's side vent is shown; the passenger's side vent is similar.

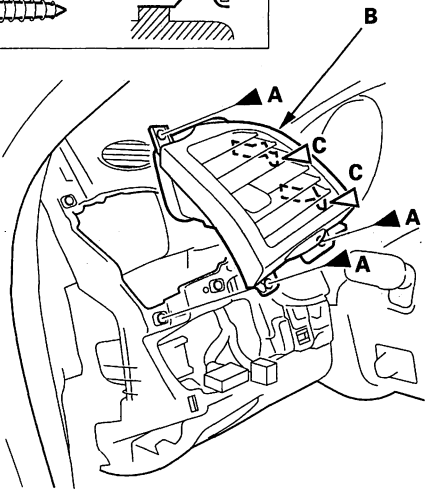
1. Remove these items:
   - A-pillar trim (see page 20-78).
   - Driver's side : Driver's dashboard outer trim (see page 20-117).
   - Passenger's side: Passenger's dashboard trim (see page 20-123).

2. Remove the screws (A).

Fastener Locations

A ▶ : **Screw, 3** C ▷ : **Clip, 2**





3. Pull out the side vent (B) to release the clip (C), then remove the vent.

4. Install the side vent in the reverse order of removal, and push the clip into place securely.

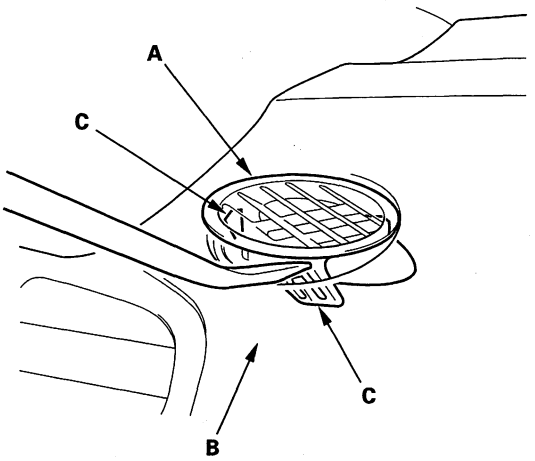
Protected by AR

Side Defogger Vent Trim Removal/ Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Take care not to scratch the dashboard and its related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- The driver's side deffoger vent trim is shown; the passenger's side deffoger vent trim is similar.

1. Insert the trim tool into a gap between the side defogger vent trim (A) and the dashboard (B), and release the hooks (C).



2. Install the side defogger vent trim in the reverse order of removal, and push the hooks into place securely.

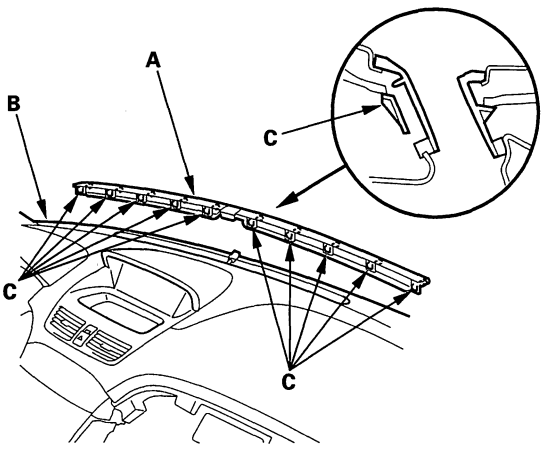
Front Defogger Vent Trim Removal/ Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Take care not to scratch the dashboard and its related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the sunlight sensor (see page 21-106).

2. Insert the trim tool into a gap between the front defogger vent trim (A) and the dashboard (B), and release all of the hooks (C).



3. Install the front defogger vent trim in the reverse order of removal, and push the hooks into place securely.

BACK

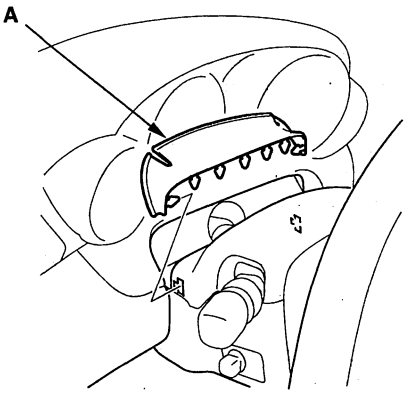
Protected by AR

Column Cover Removal/Installation

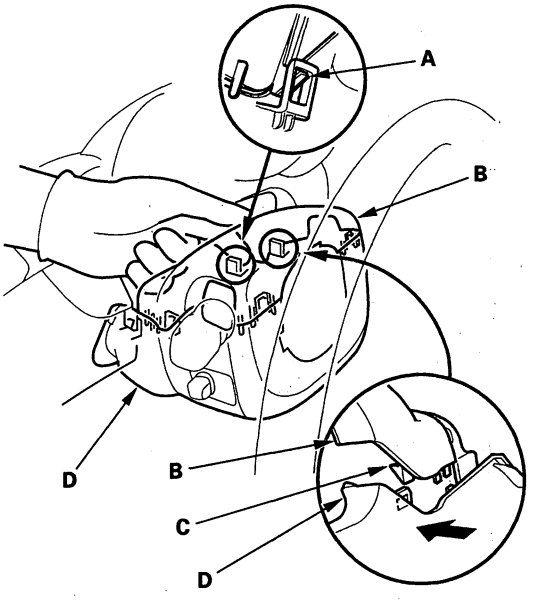
NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the column covers.
- Do not pry the cover surface with any tools.

1. Adjust the steering column to full tilt down position and to the full telescopic pull position.

2. Remove the cover (A).

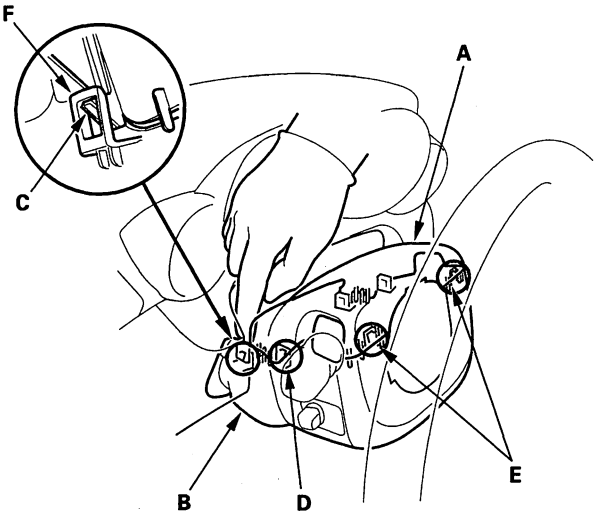


3. Release the tab (A) locating on the right side of the upper column cover (B) with your finger.



4. Release the left tab (C) of the upper column cover while pushing the lower column cover (D) from the right side.

5. With the right side of the upper column cover (A) slightly apart from the lower column cover (B), release the tab (C) located on the left side of the upper column cover with your finger.



6. Remove the cover by lightly pulling it up by releasing the left side tab (D) and the front tabs (E) of the upper column cover.

NOTICE

Carefully release the tabs, and note the hooks (F) may break when the upper column cover is pulled up too hard.

(cont'd)

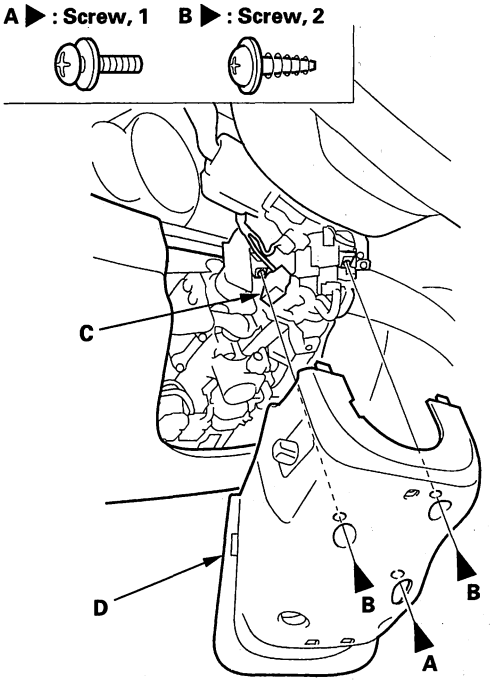
Protected by AR

Column Cover Removal/Installation (cont'd)

7. Remove the three screws (A, B) and disconnect the tilt/telescopic switch connector (C), then remove the lower column cover (D).

Fastener Locations

A ▶ : Screw, 1 B ▶ : Screw, 2



8. Install the upper and lower column cover in the reverse order of removal, and note these items:

   - Make sure the tilt/telescopic switch connector is plugged in properly.
   - Push the hooks into place securely.

Dashboard Replacement

Special Tools Required

KTC trim tool set SOJATP2014 *

* Available through the American Honda Tool and Equipment Program; call 888-424-6857

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the dashboard, body, and other related parts.
- Take care not to bend the brackets.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Make sure you have the anti-theft codes for the audio and the navigation system (if equipped).

2. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.

3. Remove these items from the dashboard:

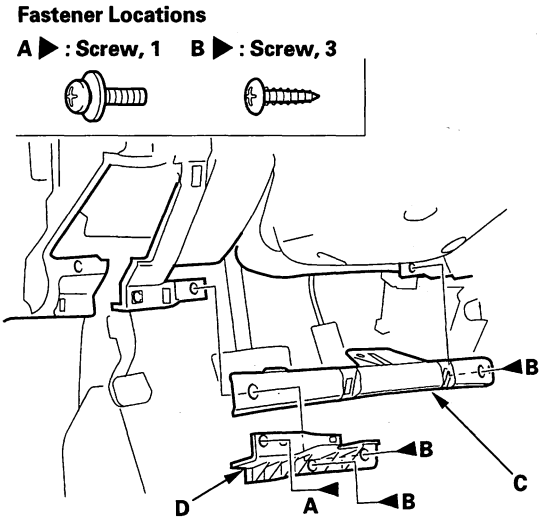
   - Driver's outer dashboard trim (see page 20-117)
   - Driver's dashboard lower cover (see page 20-119)
   - Driver's dashboard undercover (see page 20-120)
   - Passenger's dashboard undercover (see page 20-127)
   - Glove box and damper (see page 20-125)
   - Glove box striker (see page 20-126)
   - Center upper panel (see page 20-120)
   - Center panel (see page 20-121)
   - Center console (see page 20-107)
   - A-pillar trim, both sides (see page 20-78)
   - Tweeter, both sides (see page 23-92)
   - Instrument fascia (see page 20-118)
   - Gauge control module (see page 22-337)
   - Sunlight sensor (see page 21-106)
   - Display unit , with navigation system (see page 23-180)
   - GPS antenna (see page 23-180)

4. Adjust the steering column to full tilt down position and to the full telescopic pull position.

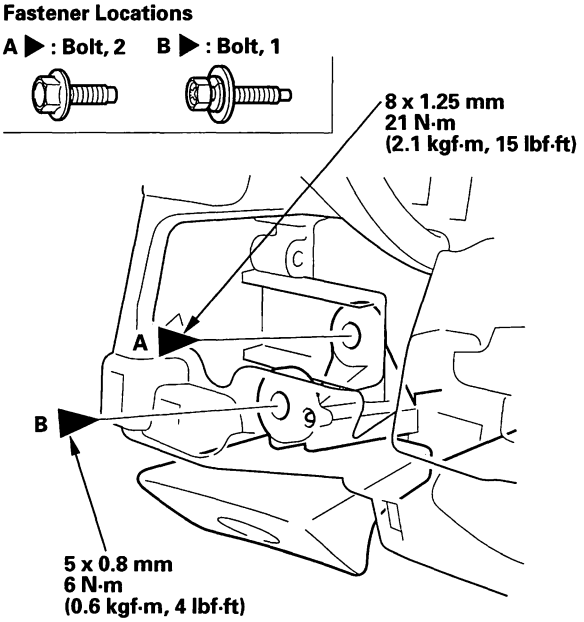
BACK

Protected by AR

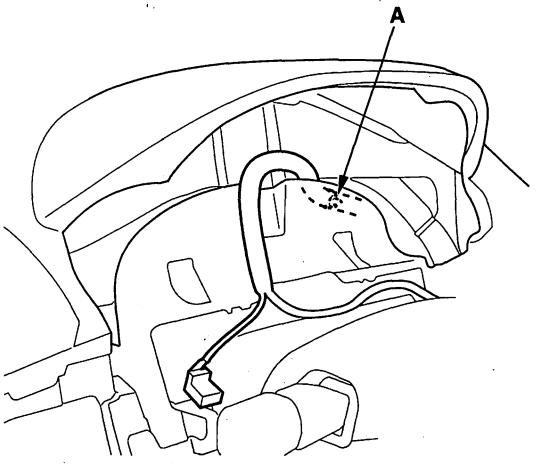
5. Remove the screws (A, B), then remove the driver's dashboard lower bracket (C) and the dashboard lower bracket (D).



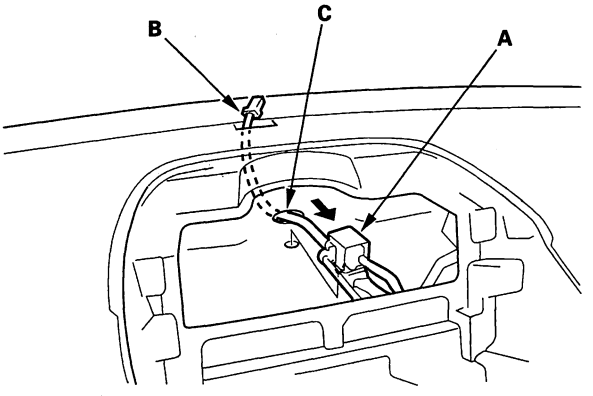
6. Remove the parking brake lever mounting bolts (A, B), then lower the lever.



7. From the front of the dashboard, detach the harness clip (A).



8. Detach the connectors (A) from the dashboard duct in the center upper panel opening. Tie a string to the sunlight sensor harness connector (B), then pull the connector out through the hole (C) in the dashboard.



(cont'd)

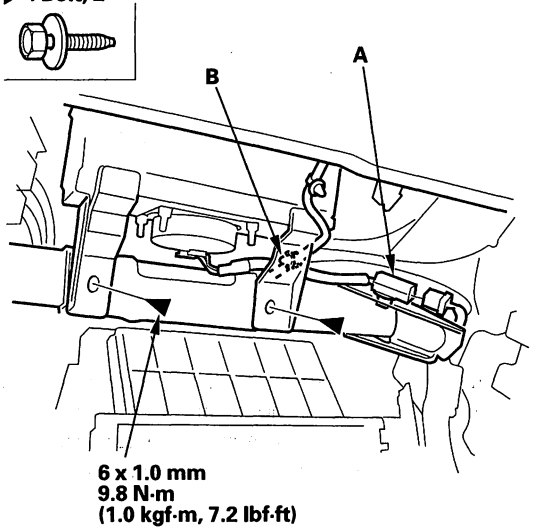
Protected by AR

Dashboard Replacement (cont'd)

9. Disconnect and detach the passenger's airbag connector (A) from the steering hanger beam, and detach the dashboard wire harness clip (B). Remove the passenger's airbag mounting bolts.

Fastener Locations

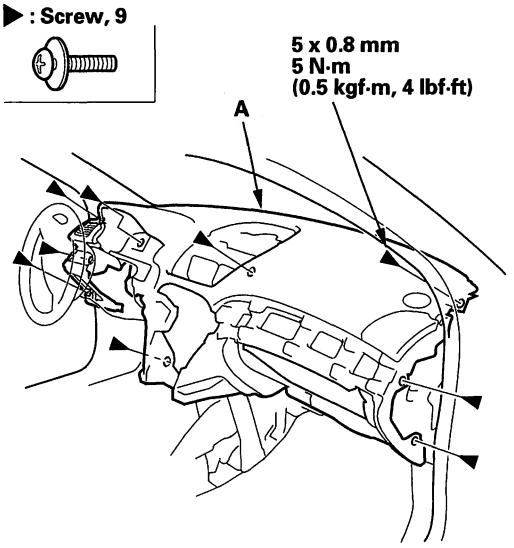
▶ : Bolt, 2



10. From the front of the dashboard, remove the screws securing the dashboard (A).

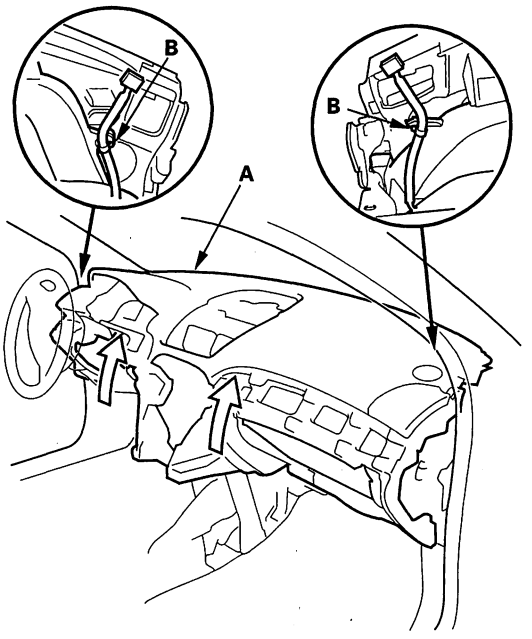
Fastener Locations

▶ : Screw, 9



11. Wrap the steering wheel with a shop towel to prevent damage.

12. Lift up on the dashboard (A). With an assistant holding the dashboard up, detach the dashboard wire harness clips (B) from both sides of the dashboard duct.



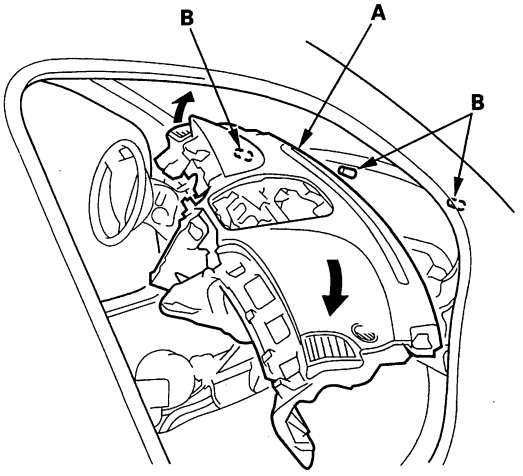
BACK

Protected by AR

13. With the help of an assistant, remove the dashboard (A).

    1. Lift up on the dashboard to release it from the guide pins (B).
    2. Lift up on the dashboard until the driver's outside portion will be higher than the steering column.
    3. While carefully moving the driver's outside portion of the dashboard over the steering column, rotate the dashboard toward the front passenger's door opening, and lower the passenger's side.
    4. Remove the dashboard through the passenger's door opening.

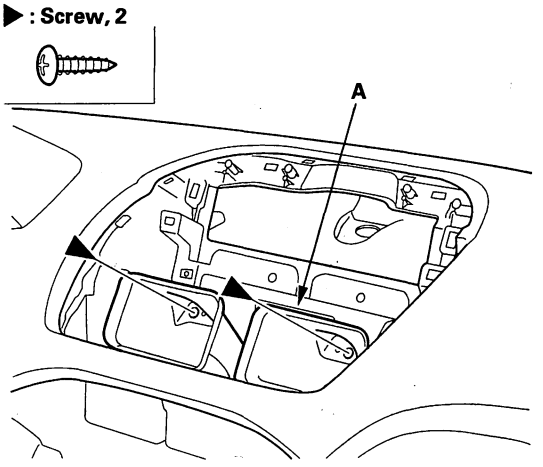
    NOTE: Lay the dashboard on its front or back. Do not rest it on the lower console opening or you may damage it.



14. From the front of the dashboard, remove the screws securing the dashboard duct (A).

Fastener Locations

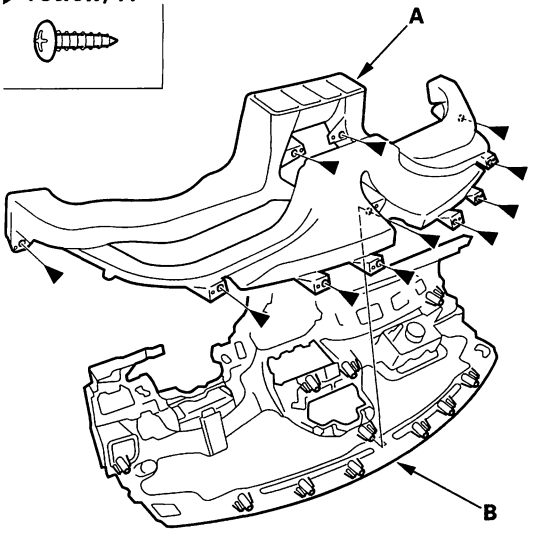
▶: Screw, 2



15. From the back of the dashboard, remove the dashboard duct (A) from the dashboard (B).

Fastener Locations

▶: Screw, 11



(cont'd)

Protected by AR

Dashboard Replacement (cont'd)

16. Install the dashboard in the reverse order of removal, and note these items:

    - Before tightening the bolts, make sure the dashboard wire harness is not pinched.
    - Make sure the dashboard fits onto the guide pins correctly.
    - Replace the passenger's airbag mounting bolts with new ones.
    - Make sure the connectors are plugged in properly.
    - Reconnect the negative cable to the battery.
    - Enter the anti-theft codes for the audio and navigation system (if equipped).
    - Set the clock.
    - Check for any DTCs that may have been set during repairs, and clear them.
    - Do the steering column position memorization (see page 17-28).

Dashboard/Steering Hanger Beam Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Have an assistant help you when removing and installing the dashboard.
- Take care not to scratch the dashboard, body and other related parts.

1. Make sure you have the anti-theft codes for the audio and the navigation system (if equipped).

2. Disconnect the negative cable form the battery, and wait at least 3 minutes before beginning work.

3. Remove these items:

    - Driver's dashboard lower cover (see page 20-119)
    - Driver's dashboard undercover (see page 20-120)
    - Passenger's dashboard undercover (see page 20-127)
    - Center console (see page 20-107)
    - Glove box (see page 20-125)
    - Driver's dashboard outer trim (see page 20-117)
    - Driver's dashboard lower bracket and dashboard lower bracket (see step 5 on page 20-131)
    - Kick panels, both sides (see page 20-76)
    - A-pillar trim, both sides (see page 20-78)
    - A-pillar corner trim (see page 20-206)
    - Steering column covers (see page 20-129)

BACK

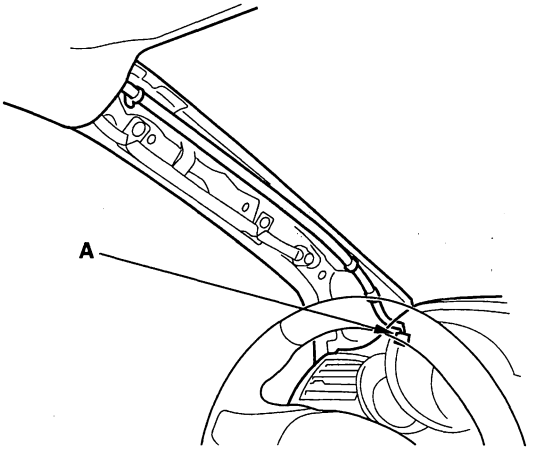
Protected by AR

4. Disconnect the combination switch connectors, ignition switch connectors, driver's airbag connector, cable reel connector, steering angle sensor connector, immobilizer control unit connector, tilt/telescopic motor connectors, and tilt/telescopic control unit connectors, detach the harness clips and remove the mounting bolts, then lower the steering column (see page 17-25). To prevent damage to the steering column, wrap it with a shop towel.

5. Remove the parking brake lever mounting bolt and screw, then lower the lever (see step 6 on page 20-131).

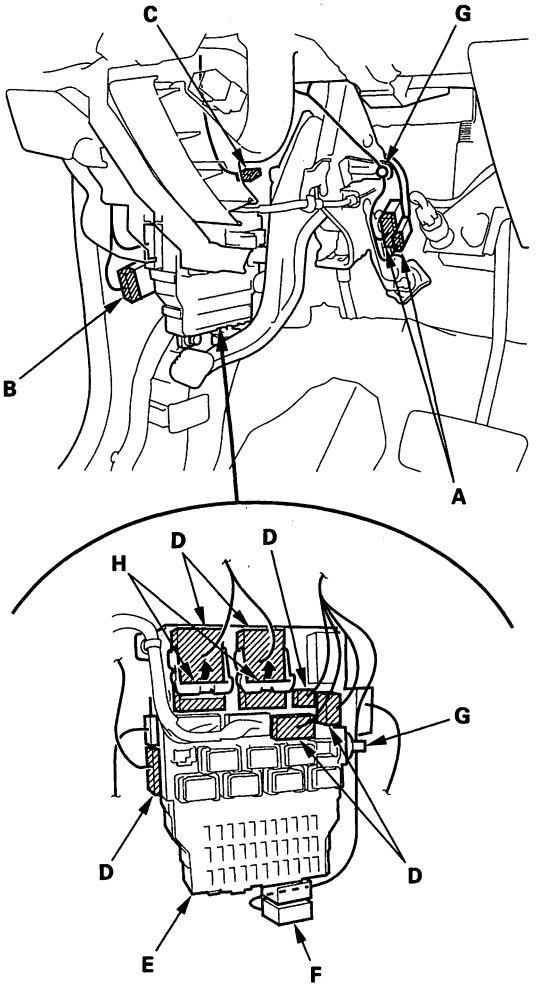
Driver's side

6. Disconnect the moonroof wire harness connector (A).



7. From under the dash, disconnect the engine compartment wire harness connectors (A), floor wire harness connector (B), parking brake switch connector (C), and dashboard wire harness connectors (D) from the driver's under-dash fuse/relay box (E), detach the fuse connector (F), and then release the wire harness clips (G).

NOTE: Lift the large wire harness connector locks (H) before trying to remove the connectors from the fuse/relay box.



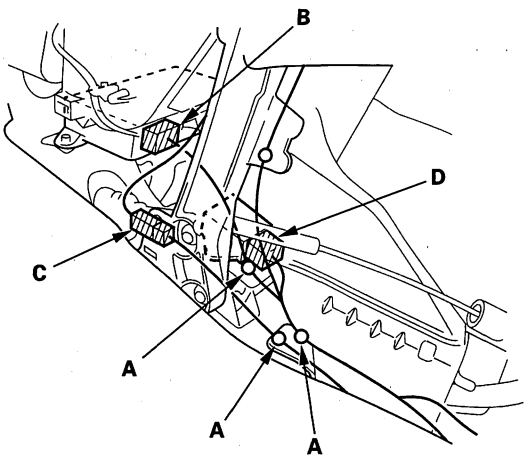
(cont'd)

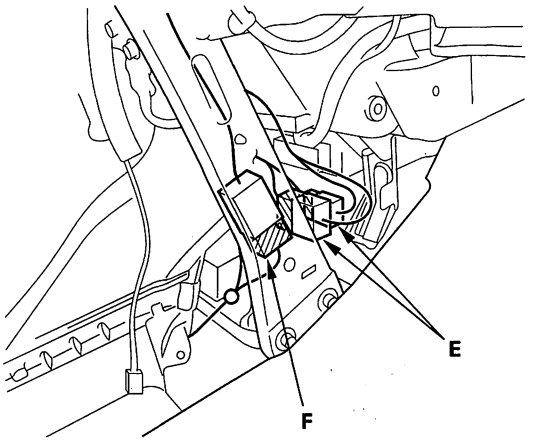
Protected by AR

Dashboard/Steering Hanger Beam Removal/Installation (cont'd)

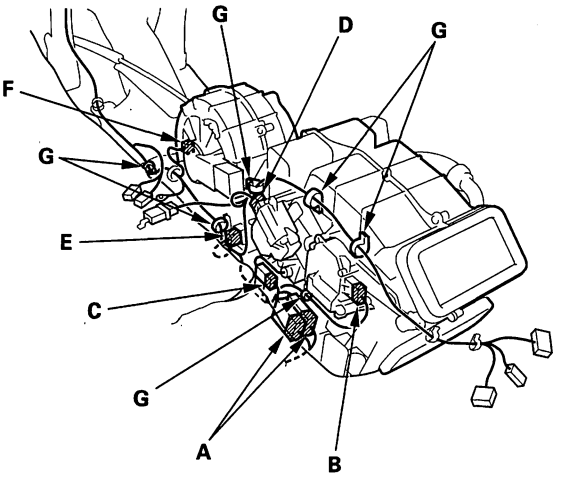
Middle portion

8. Detach the harness clips (A), and disconnect the SRS unit connectors (B), GPS antenna connectors (C) (with navigation system), yaw rate-lateral acceleration sensor connector (D), A/C subharness connectors (E), and floor wire harness connector (F).



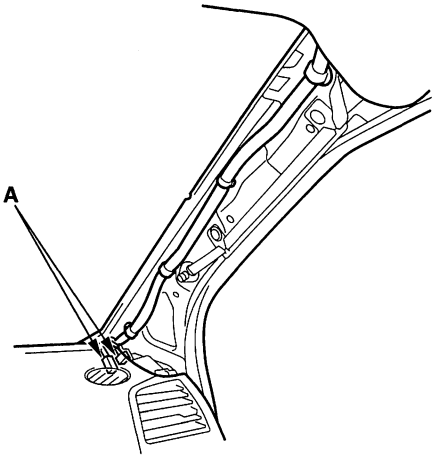


9. Disconnect the floor wire harness connector(s) (A), rear mode control motor connector (B), rear evaporator temperature sensor connector (C), rear air mix control motor connector (D), rear power transistor connector (E), rear blower motor connector (F). Detach the harness clips (G).



Passenger's side

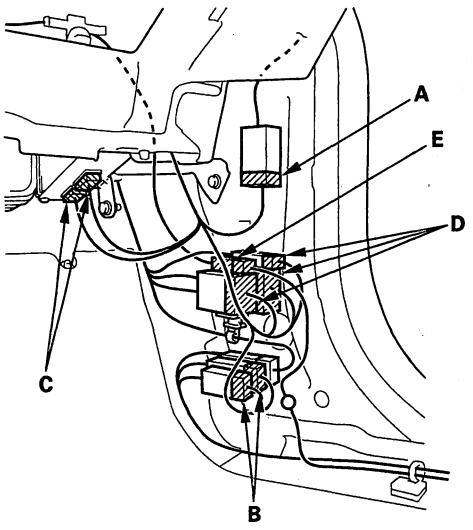
10. With rear entertainment system: Disconnect the rear entertainment system wire harness connectors (A).



BACK

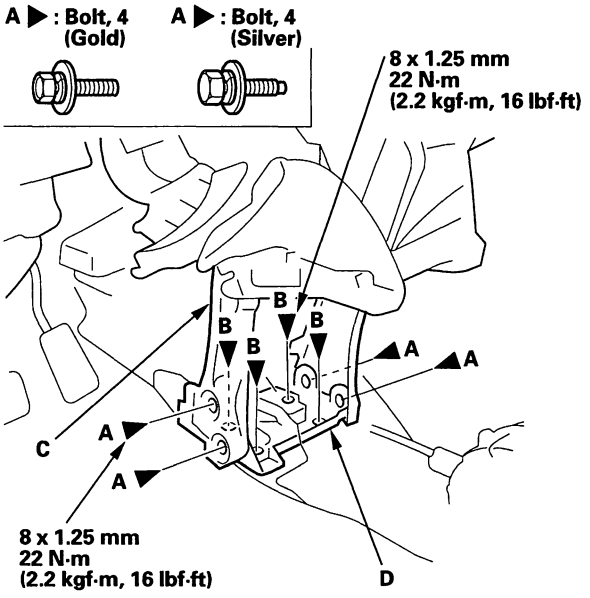
Protected by AR

11. From under the dash, disconnect the passenger's door wire harness connectors (A), the floor wire harness connector (B), audio amplifier connectors (C), engine compartment wire harness connector (D), and radio antenna connectors (E).



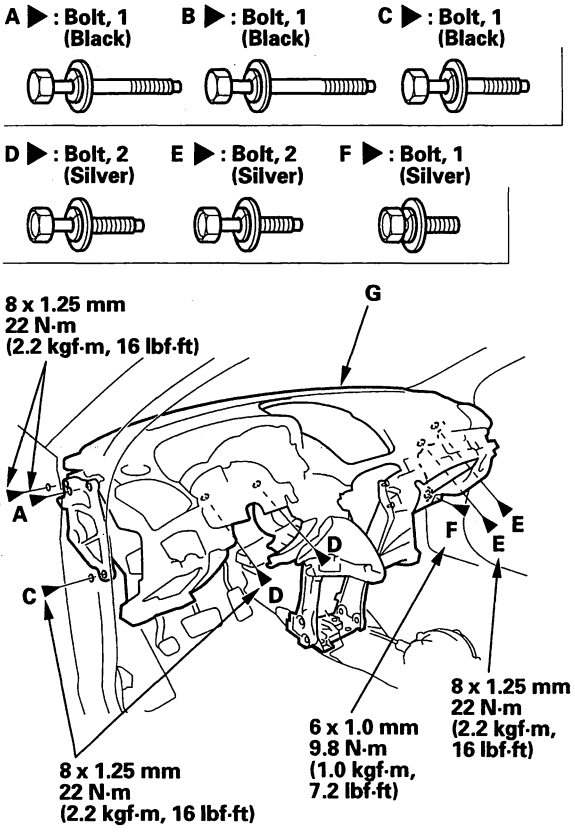
12. Remove the bolts (A, B) securing the dashboard (C) and center bracket (D).

Fastener Locations



13. Open the driver's door, and remove the bolts (A, B, C). Remove the remaining bolts (D, E, F) securing the dashboard (G).

Fastener Locations

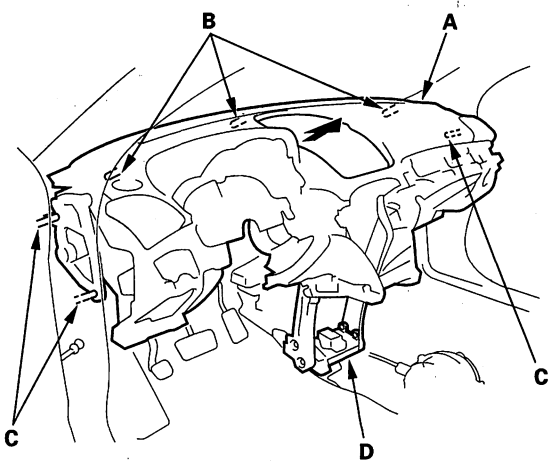


(cont'd)

Protected by AR

Dashboard/Steering Hanger Beam Removal/Installation (cont'd)

14. Lift up on the dashboard (A) to release it from the guide pins (B, C).



15. Carefully remove the dashboard through either front door opening.

    NOTE: Do not rest the dashboard on its lower center cover opening, or it may be damaged. Lay it on its front or back.

16. Remove the center bracket (D).

17. Install the dashboard in the reverse order of removal, and note these items:

    - Position the center bracket on the body, then reinstall the dashboard on the body. After tightening the dashboard mounting bolts, tighten the center bracket mounting bolts, and then tighten the center frame mounting bolts.
    - Make sure the dashboard fits onto the guide pins correctly.
    - Before tightening the bolts, make sure the wire harnesses are not pinched.
    - Make sure the connectors are plugged in properly.
    - Reconnect the negative cable to the battery.
    - Enter the anti-theft codes for the audio and navigation system (if equipped).
    - Set the clock.
    - Check for any DTCs that may have been set during repairs, and clear them.
    - Do the steering column position memorization (see page 17-28).

BACK

Protected by AR

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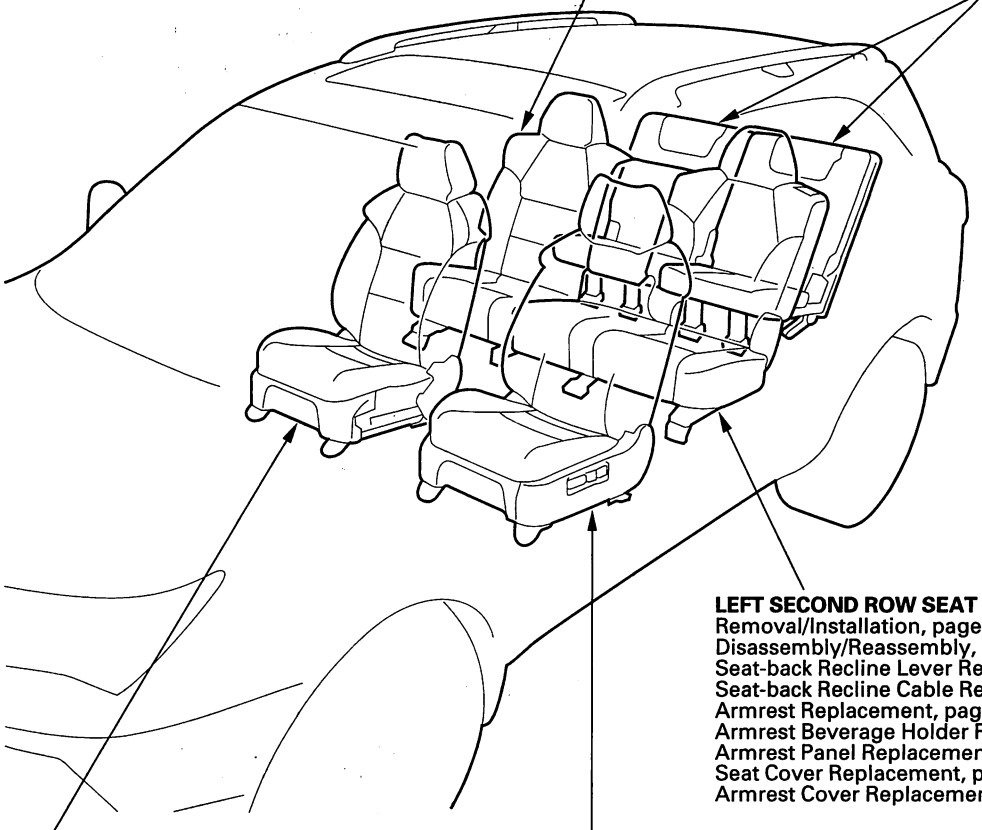

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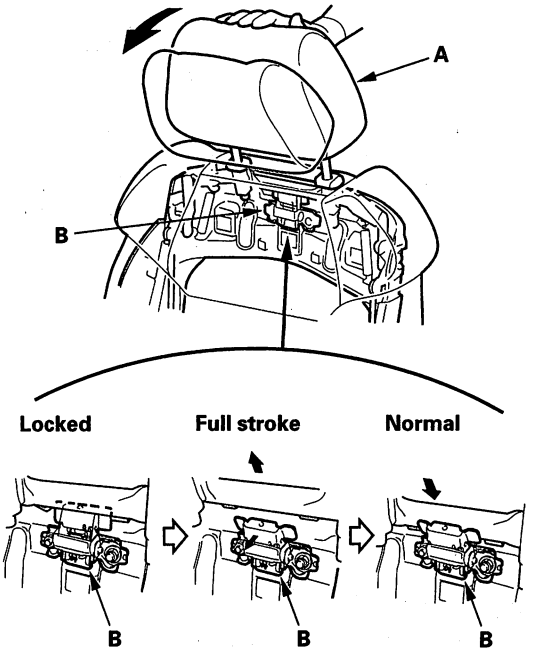
Front Seat Active Head Restraint Inspection

NOTE: If the vehicle has been in a collision, always inspect the active head restraint, even if they appear reusable, by doing the following procedure.

Resetting Head Restraint Position

1. Push the head restraint (A) forward fully from the locked position to return the inside inertia lock (B).



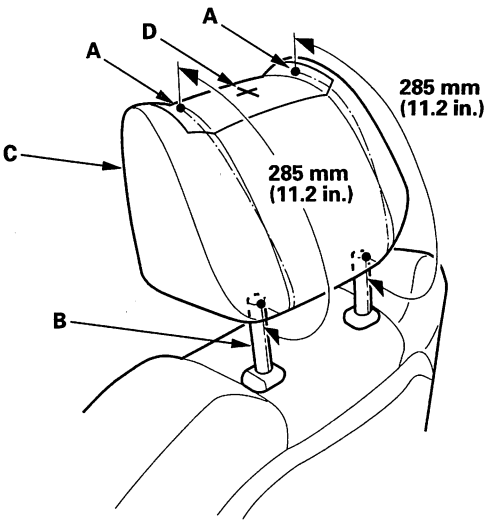
2. Slowly raise the head restraint into the normal position.

Inspection

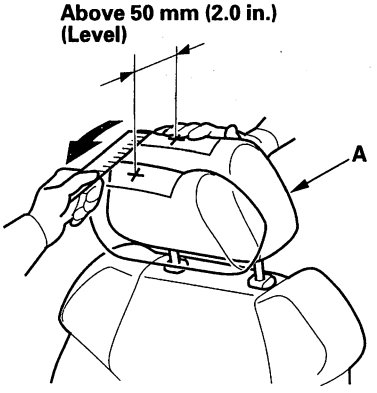
3. Fold the seat-back forward, then recline the seat-back to the first lock position, and adjust the head restraint to the highest position.

4. Apply masking tape on the top of the head restraint.

5. Make marks (A) on both sides at 285 mm (11.2 in.) upward from the roots of the head restraint frame (B) along the back of the head restraint (C) surface. Make a center of these points as a datum point (D).



6. Push the head restraint (A) forward, and check: With a scale, measure the level amount of the head restraint movement. The head restraint should move more than 50 mm (2.0 in.) without resistance. If it is less than 50 mm (2.0 in.), or the head restraint doesn't move smoothly, replace the seat-back frame (see page 20-150).



BACK

Protected by AR

Front Seat Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

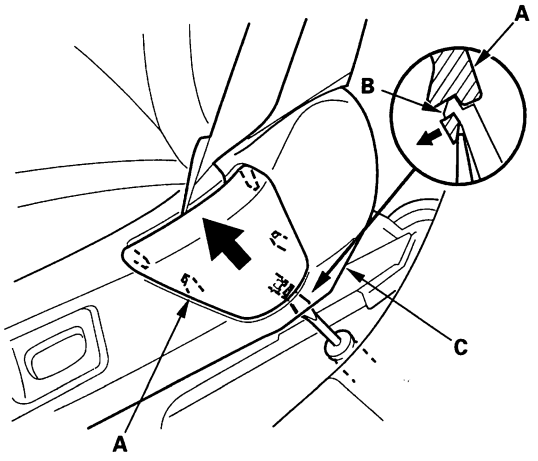
SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

NOTE:
- Put on gloves to protect your hands.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to scratch the body or tear the seat covers.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

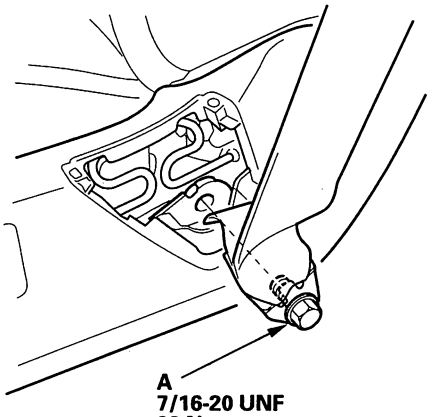
1. Make sure you have the anti-theft code for the audio or the navigation system (if equipped).

2. Tilt the steering wheel all the way up, and telescope it all the way in.

3. Slide the front seat all the way forward, and adjust the seat to its maximum height. Carefully pry up on the bottom of the anchor cover (A) to release the tab (B) with a small flat-tip screwdriver from below inside the recline cover (C), then remove it.

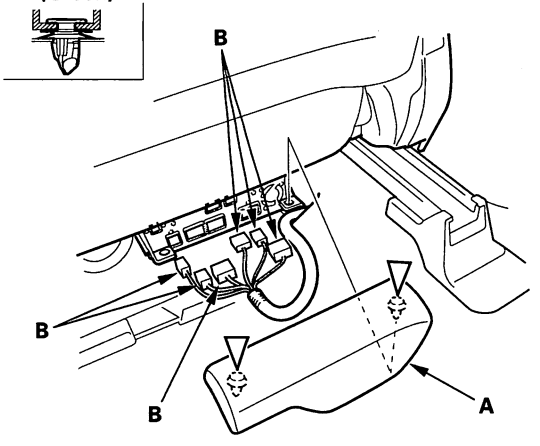


4. Adjust the seat to its minimum height, then remove the lower anchor bolt (A).



5. Driver's side with navigation system: Gently pull the navigation unit cover (A) up to detach the clips, then remove the cover.

Fastener Locations
▷: Clip, 2 (Green)



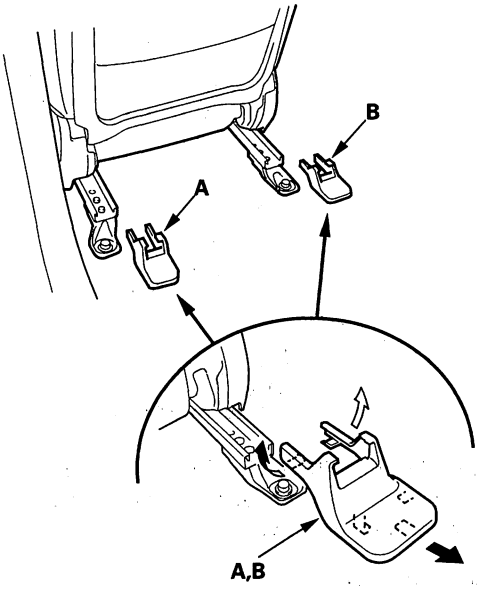
6. Driver's side with navigation system: Disconnect the navigation unit connectors (B).

(cont'd)

Protected by AR

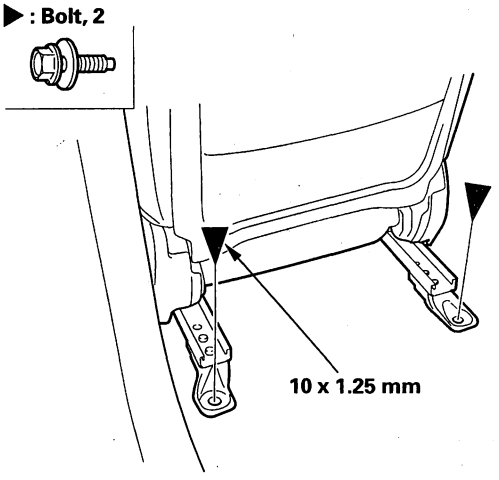
Front Seat Removal/Installation (cont'd)

7. Slide the seat all the way forward and remove the rear outer seat track end cover (A) and the rear inner seat track end cover (B).

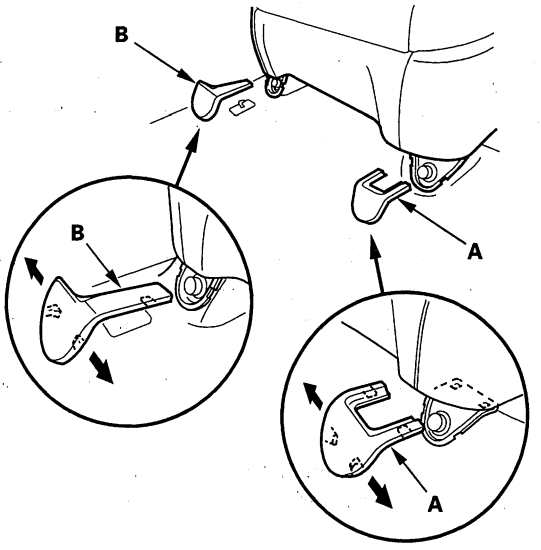


8. Remove the bolts.

Fastener Locations
▶ : Bolt, 2

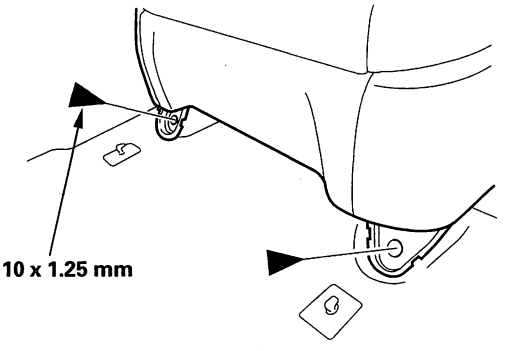


9. Slide the seat all the way back, and remove the front outer seat track end cover (A) and the front inner seat track end cover (B).



10. Remove the bolts.

Fastener Locations
▶ : Bolt, 2



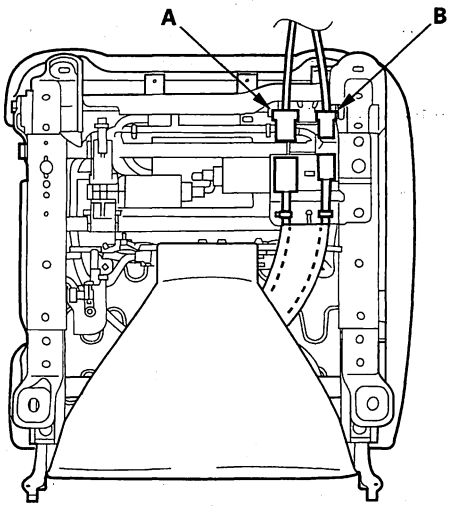
11. Disconnect the negative cable from the battery, and wait at least 3 minutes before removing the seat.

BACK

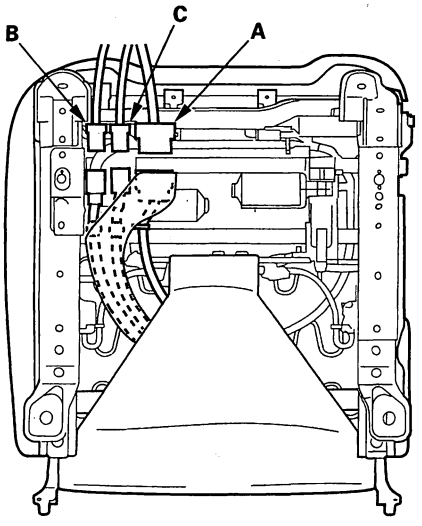
Protected by AR

12. Lift up the front seat, then disconnect the power seat harness connector (A) and the side airbag connector (B). Disconnect the ODS unit connector (C) on the passenger's seat.

Driver's seat



Passenger's seat



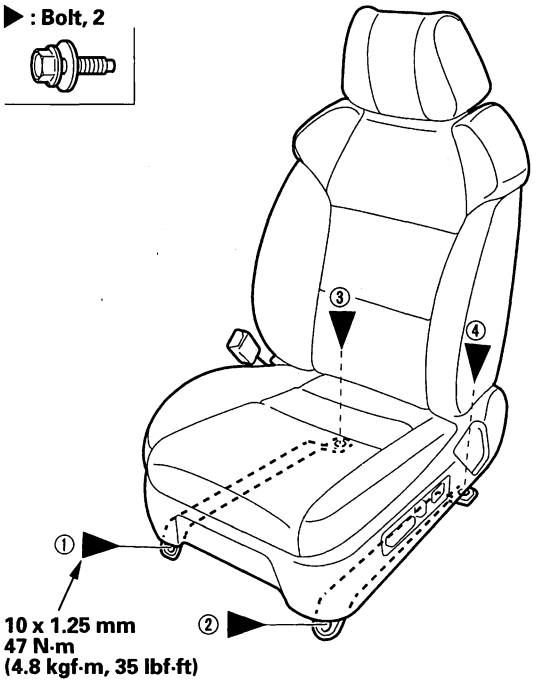
13. Remove the head restraint.

14. With the help of an assistant, carefully remove the front seat through the front door opening.

15. Install the seat in the reverse order of removal, and note these items:

- Apply medium strength type liquid thread lock to the seat mounting bolts before reinstallation.
- Tighten the seat mounting bolts to the specified torque in the sequence shown. Slide the seat all the way back and tighten ① and ②, then slide it forward and tighten ③ and ④. The driver's seat is shown; the passenger's seat is symmetrical.
- Make sure each connector is plugged in properly.
- Tighten the bolts by hand first, then tighten them to specification with a torque wrench.
- Reconnect the negative cable to the battery.
- Enter the anti-theft codes for the audio and navigation system (if equipped).
- Set the clock.
- Check for any DTCs that may have been set during repairs, and clear them.
- Do the steering column position memorization (see page 17-28).

Fastener Locations



Protected by AR

Front Seat Disassembly/Reassembly

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

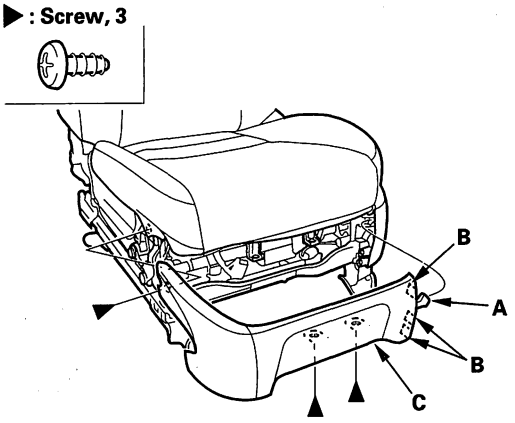
SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

NOTE:
- Put on gloves to protect your hands.
- Take care not to tear the seams or damage the seat covers.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- DTC codes will set if the ignition is turned ON (II) with the seats removed.

1. Remove the front seat (see page 20-141).

2. Remove the screws and release the hook (A), tabs (B), then remove the front cover (C).

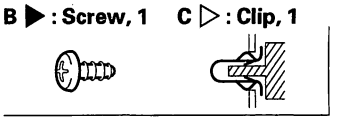
Fastener Locations
▶: Screw, 3

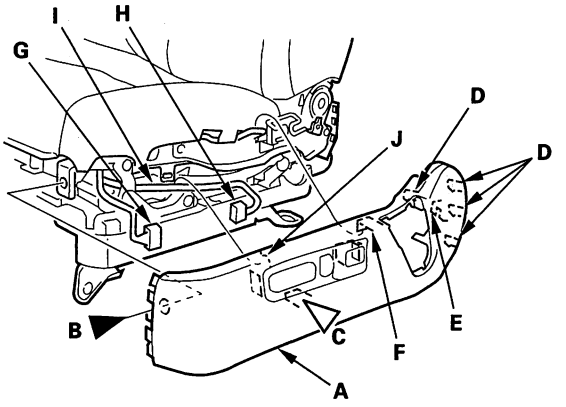


3. Remove the recline cover (A).

-1 Remove the screw (B) and detach the clips (C) and hooks (D).
-2 Pull up the cover, then detach the hooks (E, F).
-3 Disconnect the recline switch and up-down switch connector (G), and on the driver's seat, lumbar support switch connector (H).
-4 Remove the wire harness (I) from the hook (J).

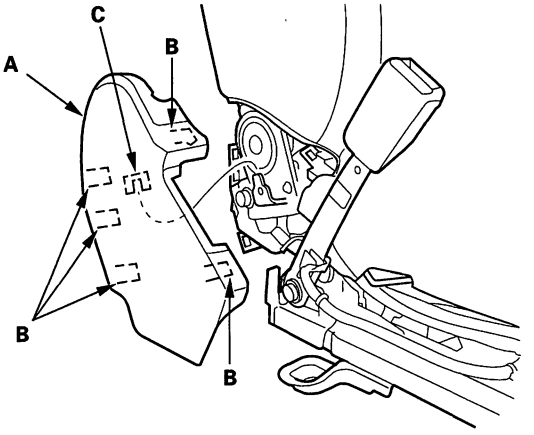
Fastener Locations
B ▶: Screw, 1 C ▷: Clip, 1





4. Remove the center cover (A).

-1 Release the hooks (B).
-2 Pull up the cover, then detach the hook (C).



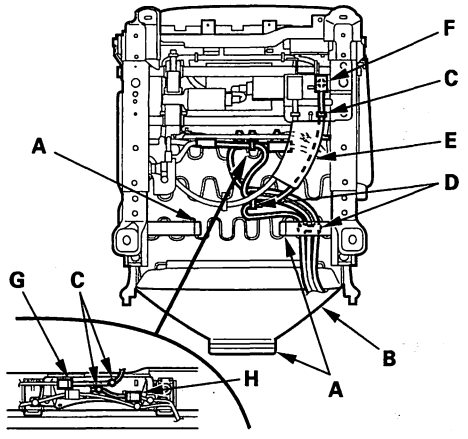
BACK

Protected by AR

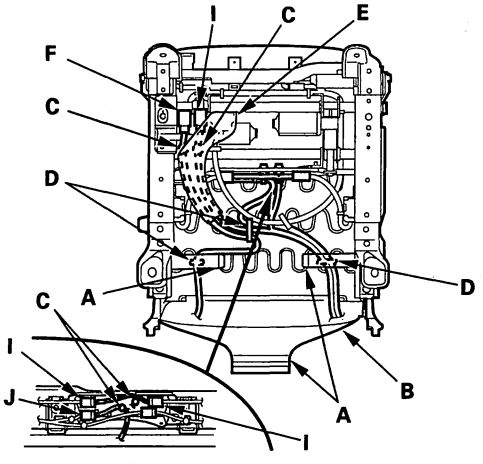
5. From under the seat cushion, release the hook strips (A) and pull the seat cushion cover (B) back. Disconnect or detach the connectors, detach the harness clips (C), release the wire ties (D), then pull out the harness(es) out through the harness sock (E).

   - Driver's seat
     - Side airbag connector (F)
     - Seat-back heater harness connector (G)
     - Recline motor/lumbar support motor harness connector (H)
   - Passenger's seat
     - Side airbag connector (F)
     - ODS unit harness connector (I)
     - Recline motor harness connector (J)

Driver's seat



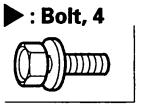
Passenger's seat

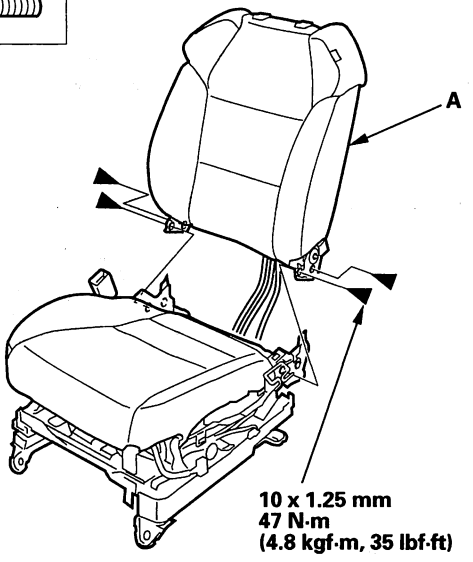


6. Remove bolts, then remove the seat-back (A).

Fastener Locations

▶ : Bolt, 4





7. Assemble the seat-back and seat cushion in the reverse order of disassembly, and note these items:

   - Passenger's seat: Calibrate the ODS unit (see page 24-34).
   - Check if the clips is damaged, and if necessary, replace it with a new one.
   - Push the clip and hooks on the covers into place securely.
   - Apply multipurpose grease to the moving parts of the seat track.
   - Replace the wire ties you removed with new ones.
   - Make sure each connector is plugged in properly.
   - To prevent wrinkles in the seat cushion cover, stretch the material evenly over the pad before securing the hook strips.

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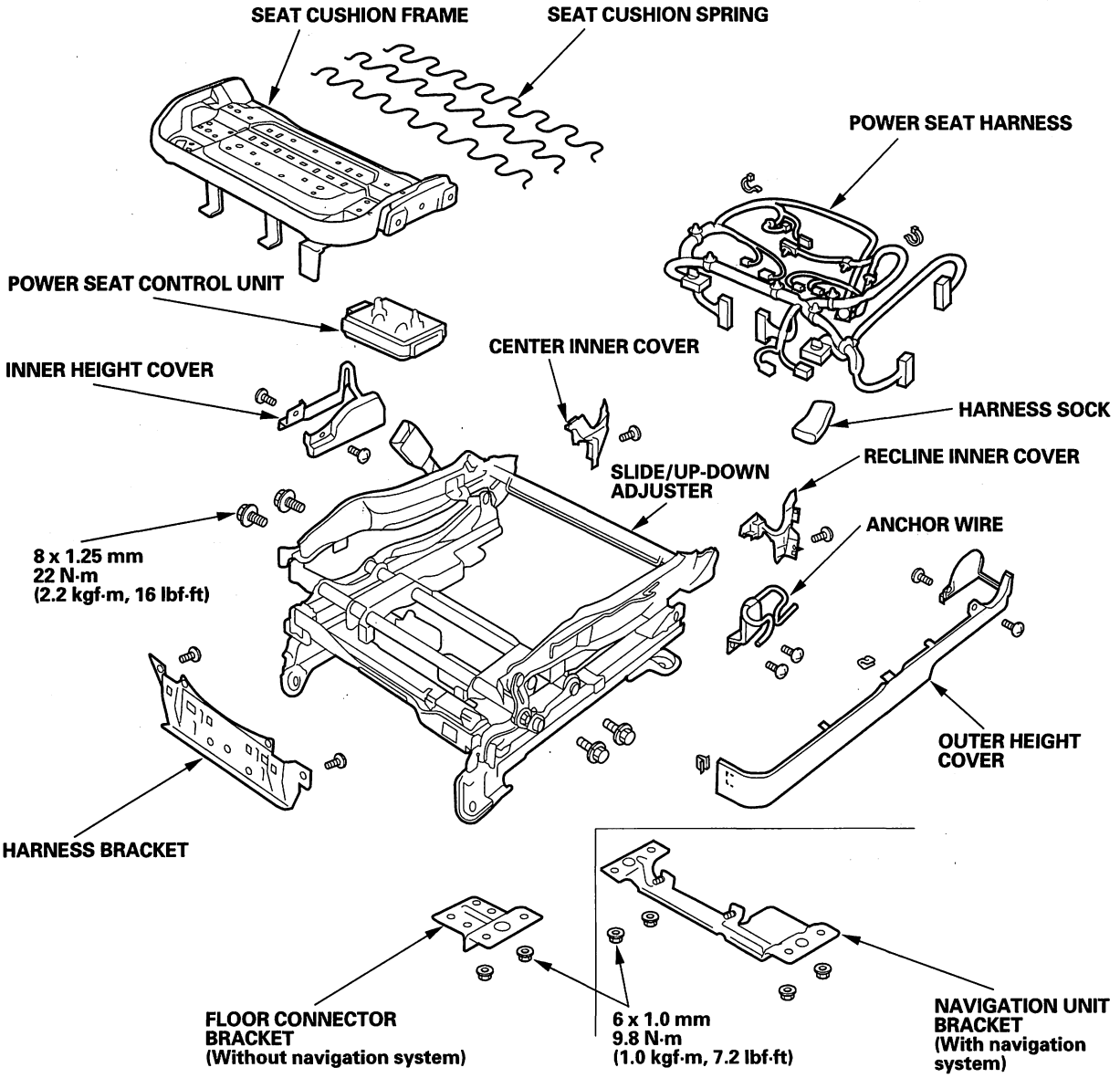
Front Seat Linkage Disassembly/Reassembly

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

Driver's Seat

- Check the operation of the driver's seat position sensor after any of these actions (see page 24-36):
  - Driver's seat position sensor replacement
  - Cover plate (front side of driver's seat slide rail) replacement

NOTE:
- Put on gloves to protect your hands.
- Apply multipurpose grease to the sliding portions and pivot portions of the seat tracks.



BACK

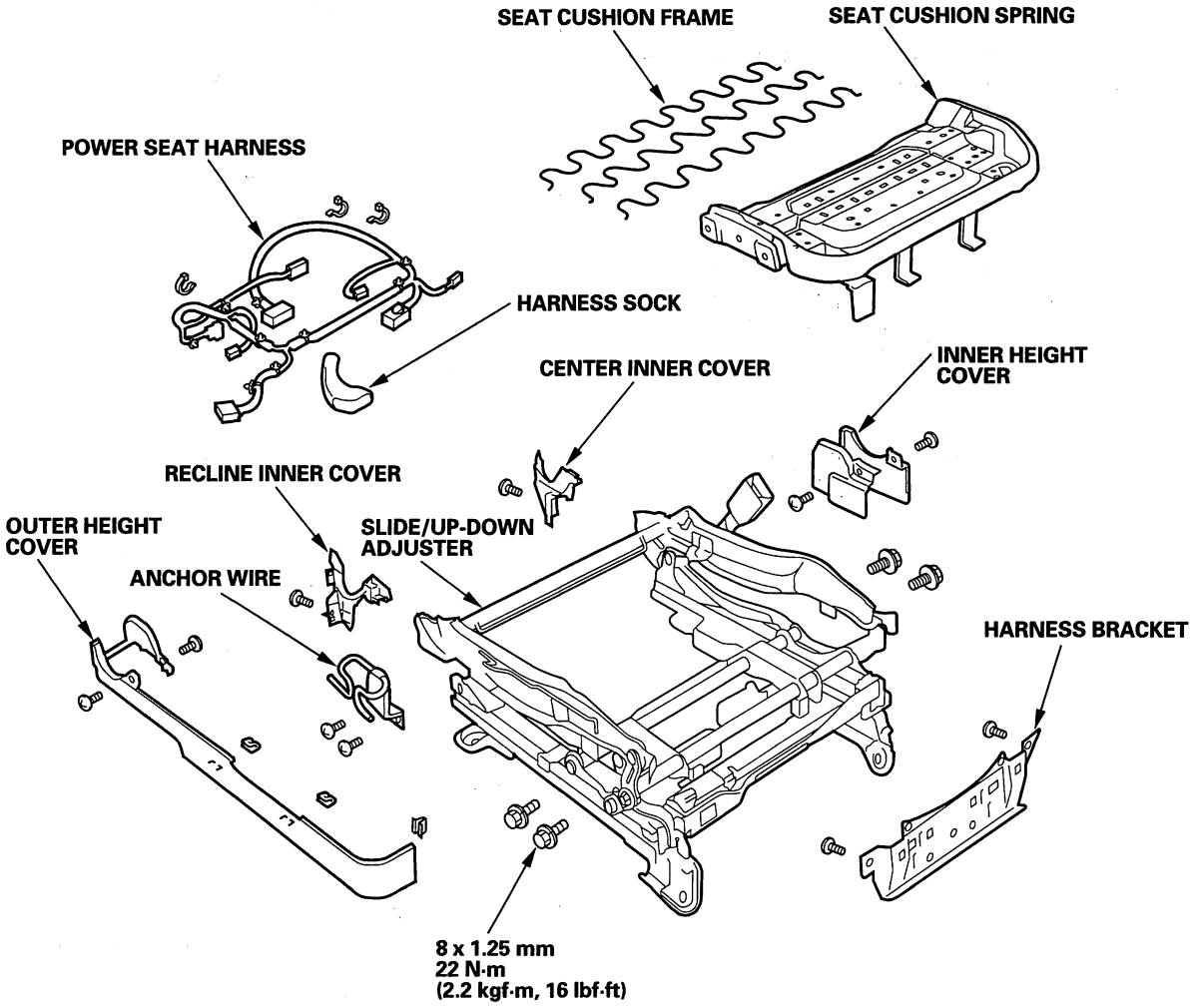
Protected by AR

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

Passenger's Seat

- Calibrate the ODS unit after any of these actions (see page 24-34):
  - Front passenger's seat replacement (including any seat components)
  - Replacement of the seat weight sensors
  - Replacement of the ODS unit

NOTE:
- Put on gloves to protect your hands.
- Apply multipurpose grease to the sliding portions of the seat tracks.



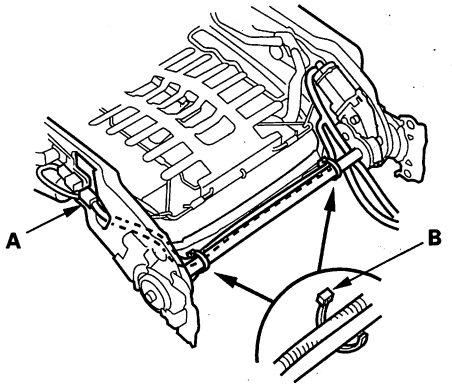
Protected by AR

Front Seat Recline Motor Replacement

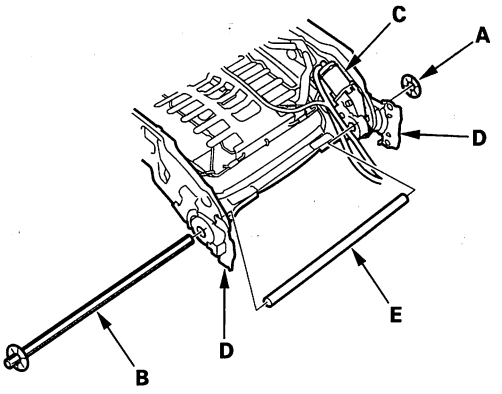
SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

NOTE: Put on gloves to protect your hands.

1. Remove the front seat (see page 20-141).
2. Remove these items:
   - Seat-back cover (see page 20-150)
   - Lumbar support motor cover (see step 5 on page 20-149)
3. Driver's seat: Disconnect the lumbar support motor connector (A), and remove the wire ties (B).

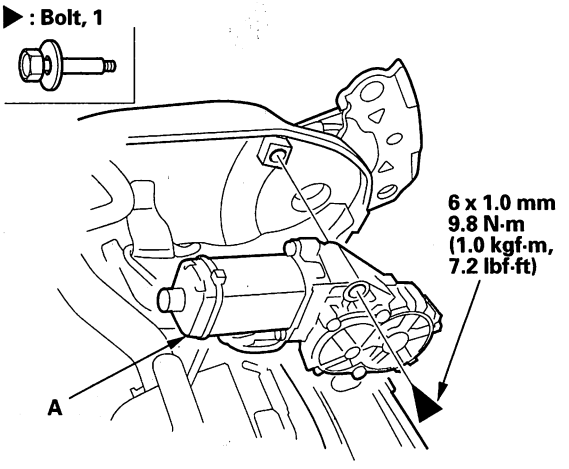


4. Release the push nut (A) from the motor side end of the connecting rod (B), gently tap on the motor side of the connecting rod to remove it from the recline motor (C) and both recline adjusters (D).



5. Remove the rod cover (E).
6. Remove the bolt, then remove the recline motor (A).

Fastener Location
▶ : Bolt, 1



7. Install the motor in the reverse order of removal, and note these items:
   - Passenger's seat: Calibrate the ODS unit (see page 24-34).
   - Replace the wire ties you removed with new ones.
   - Replace the push nut with a new one. Make sure the push nut is installed correctly.
   - Apply medium strength type liquid thread lock to the mounting bolt before reinstallation.

BACK

Protected by AR

Front Seat Lumbar Support Replacement

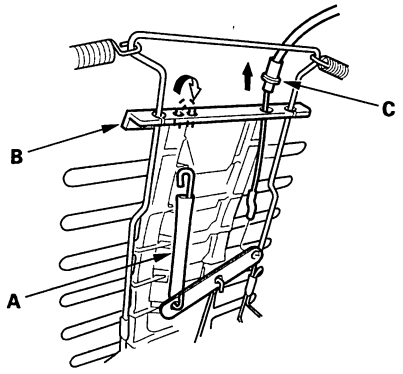
Driver's seat

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

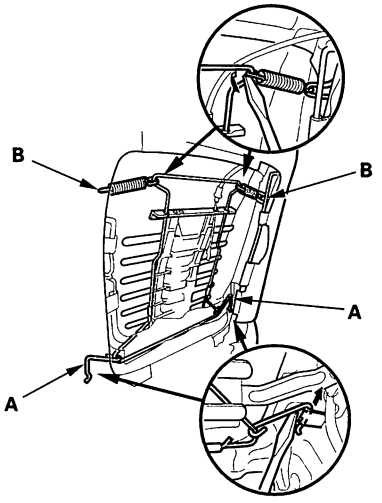
NOTE:
- Put on gloves to protect your hands.
- Take care not to bend the cable.
- Take care not to tear the seams or damage the seat covers.

1. Remove the back panel (see step 3 on page 20-151).

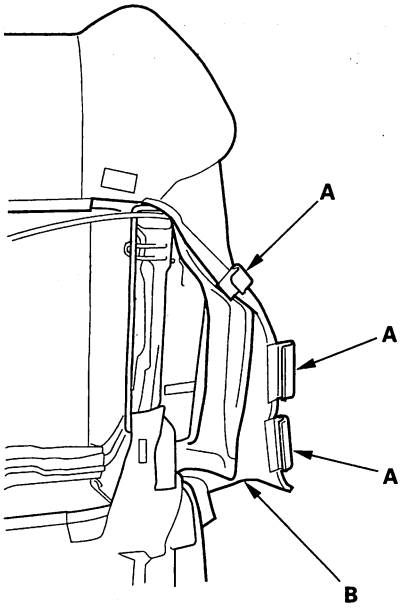
2. Release the hook of the yoke wire (A) from the top of the basket (B) to loosen the lumbar support cable (C), then disconnect it.



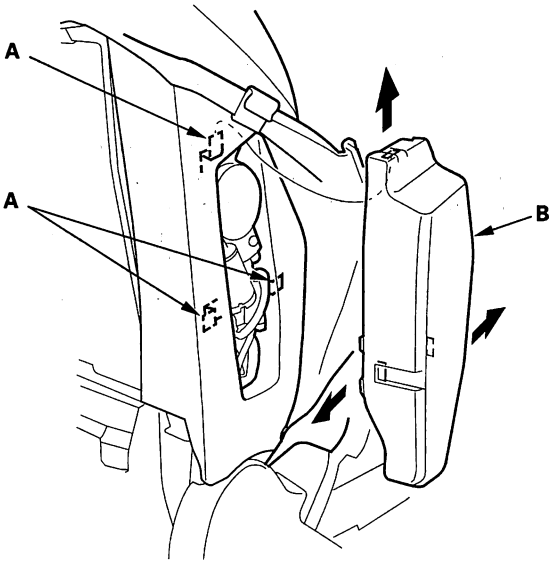
3. Release both lower springs (A) from inside the seat-back. Release the lumbar support from both upper springs (B).



4. Release the hook strips (A), then turn over the seat-back cover (B).



5. Release the hooks (A), then remove the lumbar support motor cover (B).

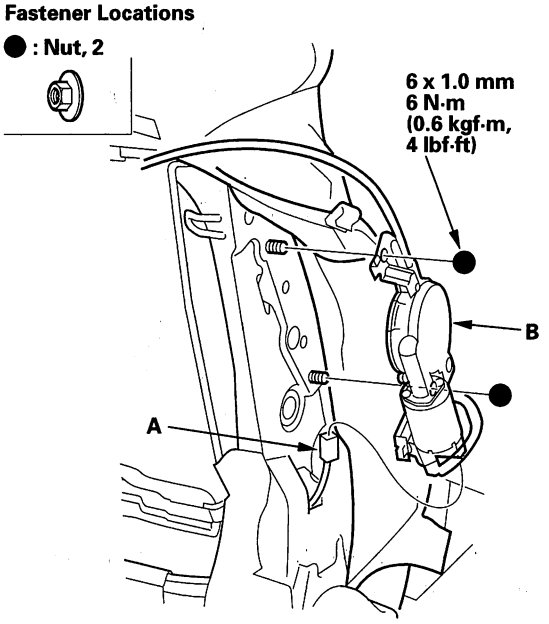


(cont'd)

Protected by AR

Front Seat Lumbar Support Replacement (cont'd)

6. Disconnect the power lumbar support motor connector (A) and remove the nuts, then remove the lumbar support motor (B).



7. Install the lumbar support in the reverse order of removal, and note these items:

- Make sure the connector is plugged in properly, and the cable is connected securely.
- To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing the hook strips.
- Replace the back panel clips with new ones.

Front Seat-back Cover Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

- Check the operation of the driver's seat position sensor after any of these actions (see page 24-36).
  – Driver's seat position sensor replacement
  – Cover plate (front side of driver's seat slide rail) replacement
- Calibrate the ODS unit after any of the these actions (see page 24-34).
  – Front passenger's seat replacement (including any seat components)
  – Replacement of the seat weight sensors
  – After a vehicle collision

NOTE:
- Put on gloves to protect your hands.
- Take care not to tear the seams of damage the seat covers.
- On the passenger's seat, do not touch the OPDS sensor in the seat-back pad, and keep it away from oil. Oil can corrode the sensor causing it to fail.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the front seat (see page 20-141).

2. Remove the seat-back (see page 20-144).

BACK

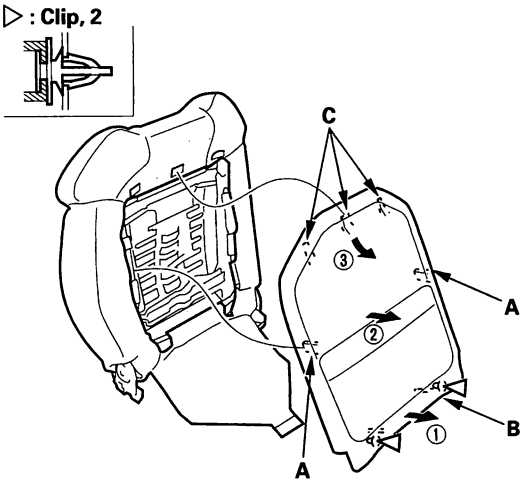
Protected by AR

3. Detach the clips, release the hooks (A) by pulling the bottom of the back panel (B) back, then gently pull down the panel to release the hooks (C) from the seat-back frame, and remove the panel.

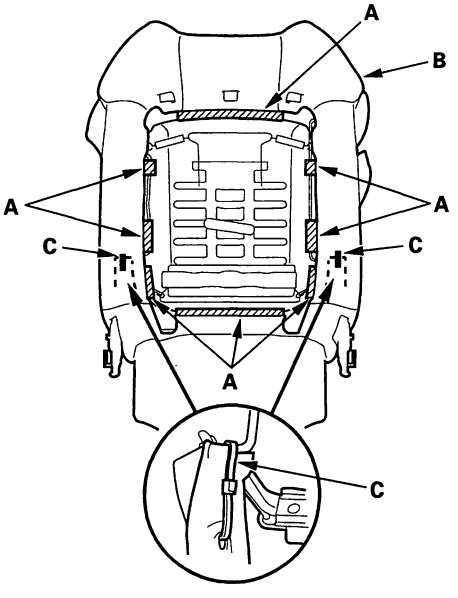
   NOTE: Detach the clips and hooks in the numbered sequence as shown.

Fastener Locations

▷ : Clip, 2

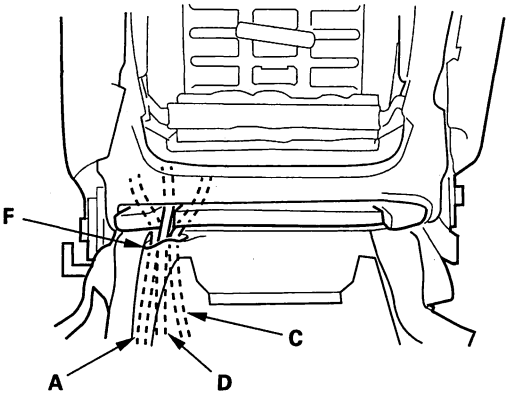


4. Release the hooks (A), then loosen the seat-back cover (B).

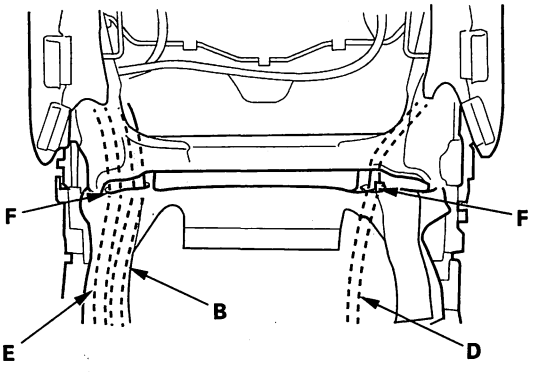


5. Pull the recline motor harness/lumbar support motor harness (A) (driver's seat) or recline motor harness (B) (passenger's seat), seat-back heater harness (C), side airbag harness (D) and the ODS unit harness (E) (passenger's seat) out through the holes (F) in the seat-back cover.

Driver's seat-back



Passenger's seat-back

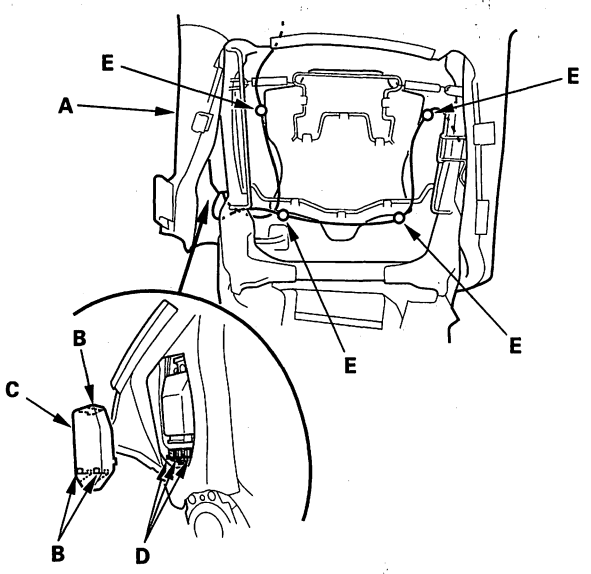


(cont'd)

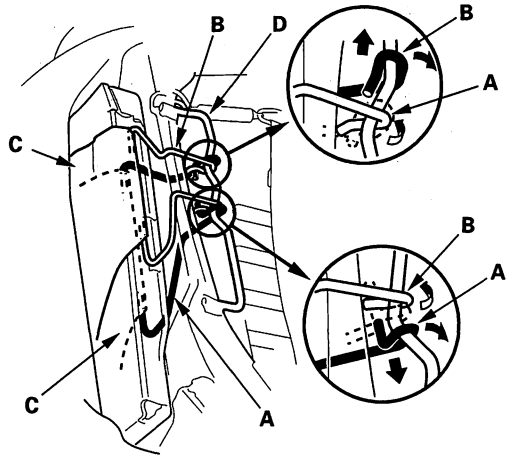
Protected by AR

Front Seat-back Cover Replacement (cont'd)

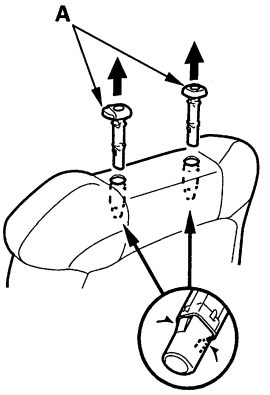
6. Passenger's seat: Turn over the seat-back cover (A), detach the hooks (B), then remove the ODS unit cover (C). Disconnect the OPDS sensor connectors (D), then detach the harness clips (E).



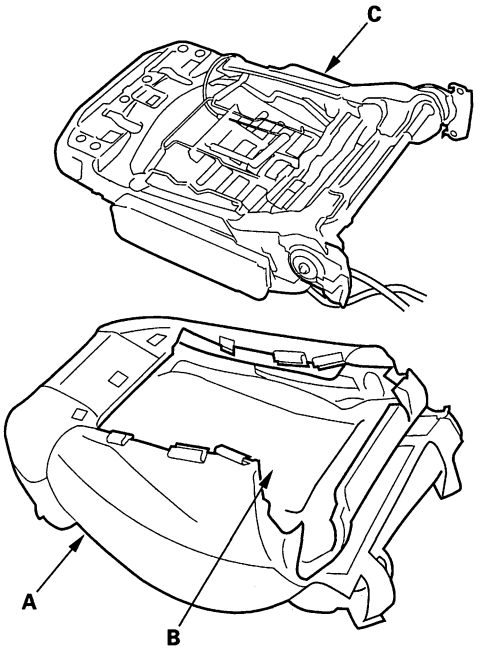
7. Release the front hook (A) and rear hook (B) of the reinforcing cloth (C) from seat-back frame (D).



8. Pull out the head restraint guides (A) while pinching the tabs on the end of the guides, and remove them.



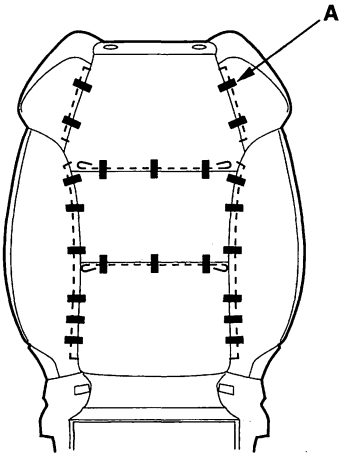
9. Remove the seat-back cover (A) and seat-back pad (B) from the seat-back frame (C).



BACK

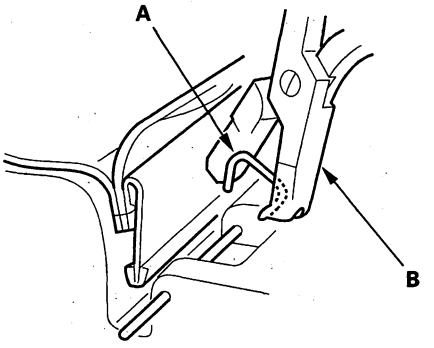
Protected by AR

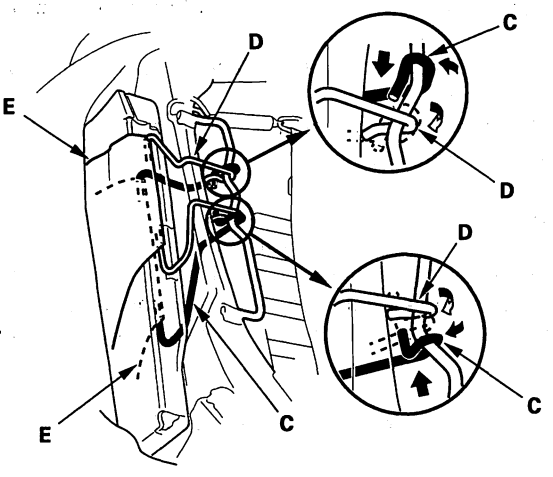
10. Pull back the edge of the seat-back cover all the way around, and release the clips (A), then remove the seat-back cover.



11. Install the cover in the reverse order of removal, and note these items:

- Reinitialize the ODS unit (see page 24-33).
- To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing the clips, hooks, and hook strips.
- Replace any clips you removed with new ones (A). Install them with commercially available upholstery ring pliers (B).
- Reinstall the front hook (C) and rear hook (D) of the reinforcing cloth (E) securely.
- Use only original Acura replacement seat-back covers.
- Make sure the recline motor harness/lumbar support motor harness (driver's seat) or recline motor harness (passenger's seat), side airbag harness, seat-back heater harness, and ODS unit harness (passenger's seat) are routed properly.
- Replace the back panel clips with new ones.





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Front Seat Cushion Cover Replacement

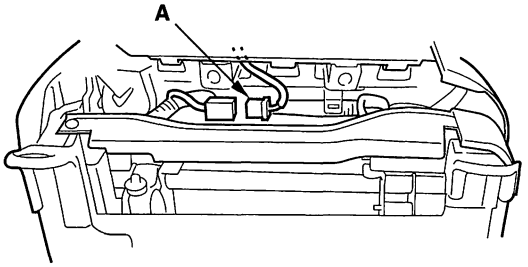
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

- Check the operation of the driver's seat position sensor after any of these actions (see page 24-36):
  – Driver's seat position sensor replacement
  – Cover plate (front side of driver's seat slide rail) replacement
- Calibrate the ODS unit after any of the these actions (see page 24-34):
  – Front passenger's seat replacement (including any seat components)
  – Replacement of the seat weight sensors
  – After a vehicle collision

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to tear the seams of damage the seat covers.

1. Remove the front seat (see page 20-141).
2. Remove the seat-back (see page 20-144).
3. From under the seat cushion, disconnect the seat cushion heater connector (A).

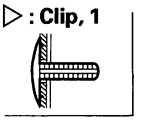


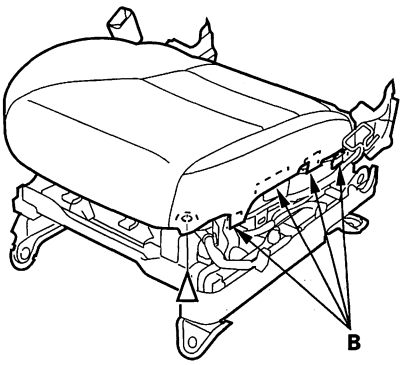
4. Remove the clips and wire tie (A) and release the hook strips (B) from both sides of the seat cushion.

Outside

Fastener Locations

▷: Clip, 1

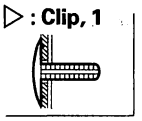


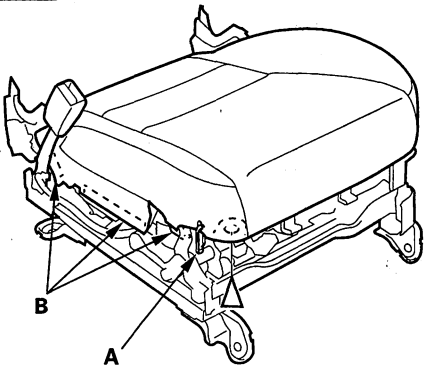


Inside

Fastener Locations

▷: Clip, 1

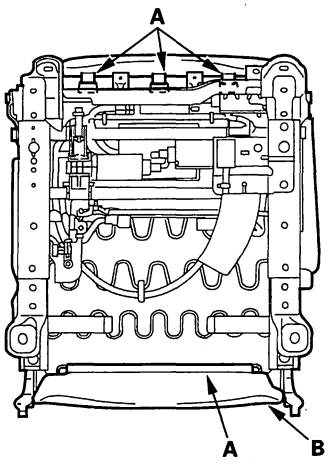




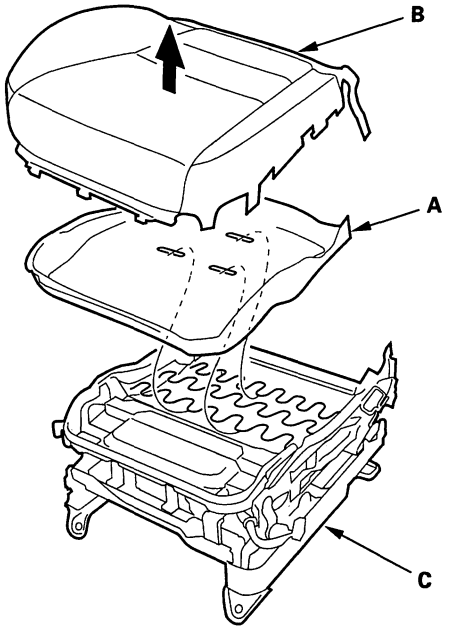
BACK

Protected by AR

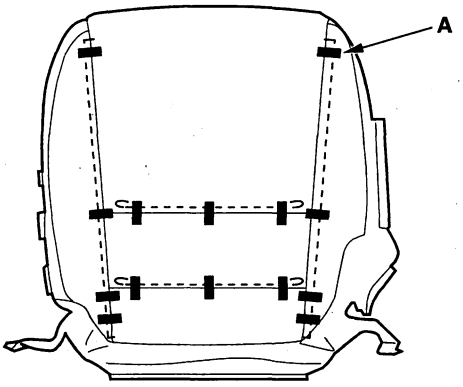
5. From under the seat cushion, release the hook strips (A), and pull back the seat cushion cover (B).



6. Remove the silencer (A) and seat cushion pad (B) from the seat cushion frame (C).

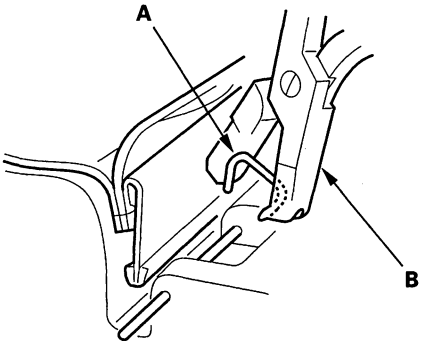


7. Pull back the edge of the seat cushion cover all the way around, and release the clips (A), then remove the seat cushion cover.



8. Install the cover in the reverse order of removal, and note these items:

- To prevent wrinkles when installing a seat cushion cover, make sure the material is stretched evenly over the pad before securing the clips and hook strips.
- Replace any clips you removed with new ones (A). Install them with commercially available upholstery ring pliers (B).



Protected by AR

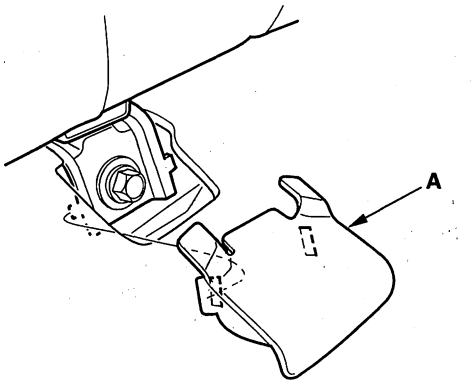
Second Row Seat Removal/Installation

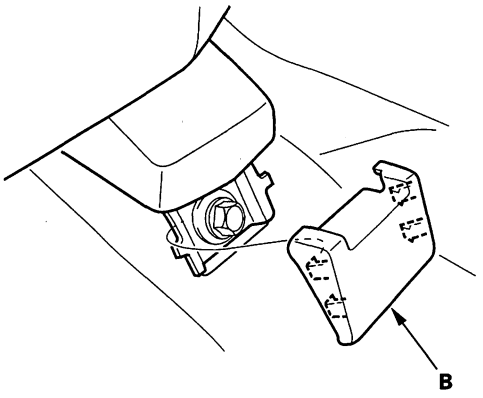
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the body or tear the seat covers.

1. Raise the seat-back.

2. Remove the front foot inner cover (A) and front foot outer cover (B) from the front of the seat tracks.

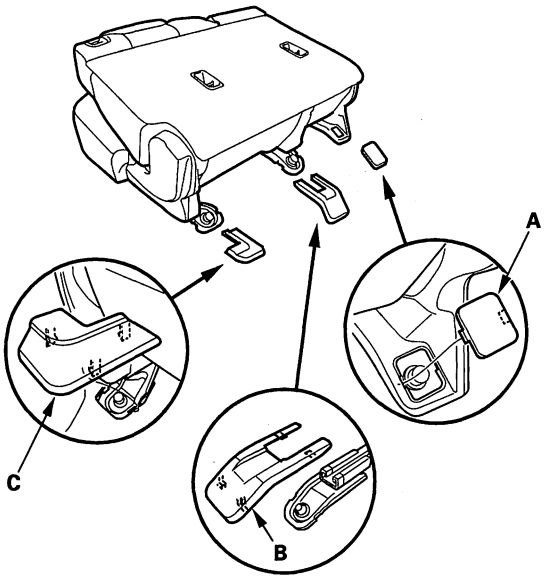




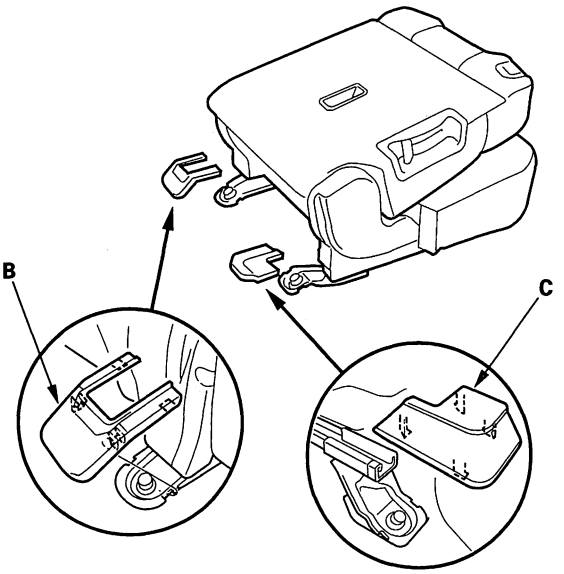
3. Fold the seat-back forward.

4. Remove the rear ISO fix bracket cover cap (A) (left second row seat), rear foot inner cover (B), and rear foot outer cover (C) from the back of the seat tracks.

Left seconds row seat



Right seconds row seat



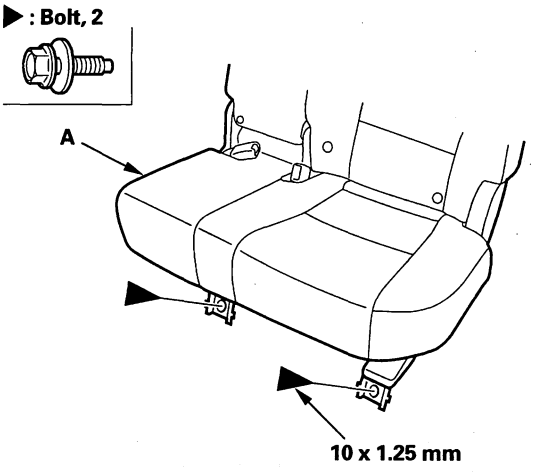
BACK

Protected by AR

5. From the front of the seat tracks, remove the bolts securing the second row seat (A).

Fastener Locations

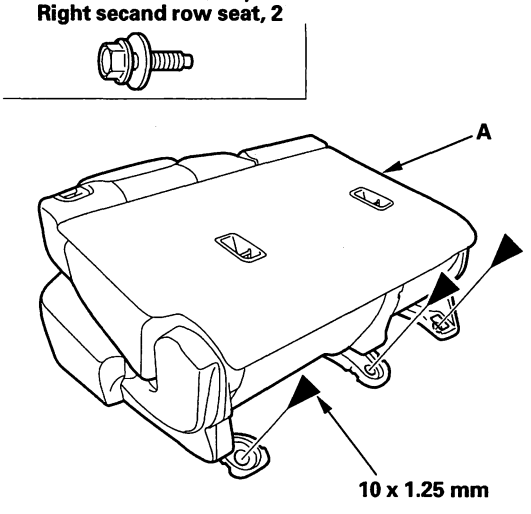
▶: Bolt, 2



6. From the back of the seat tracks, remove the bolts securing the second row seat (A).

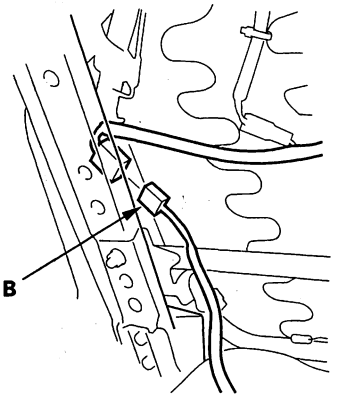
Fastener Locations

▶: Bolt,
Left secand row seat, 3
Right secand row seat, 2

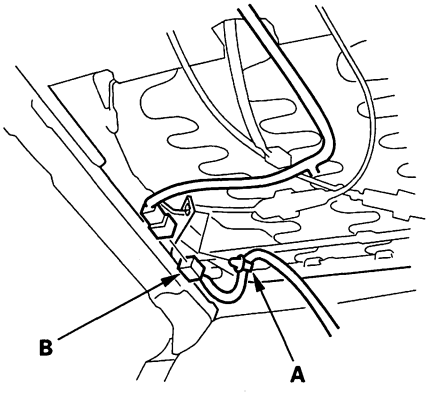


7. With seat heater: Lift up the front seat, then detach the harness clip (A), and disconnect the seat-back heater connector (B).

Left second row seat



Right second row seat



(cont'd)

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Second Row Seat Removal/ Installation (cont'd)

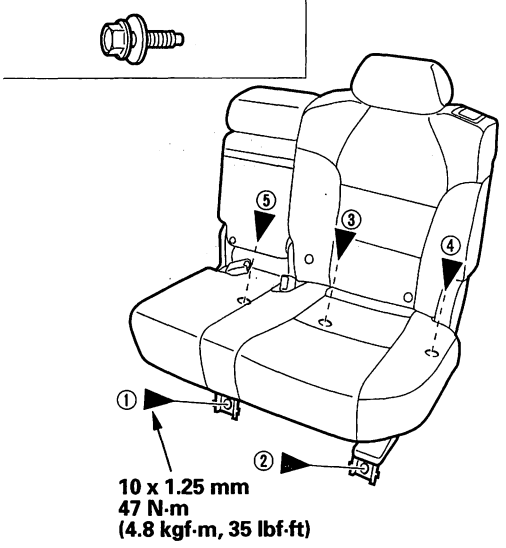
8. With the help of an assistant, carefully remove the second row seat through the rear door opening.

9. Install the seat in the reverse order of removal, and note these items:

   - Apply medium strength type liquid thread lock to the seat mounting bolts before reinstallation.
   - Tighten the seat mounting bolts to the specified torque in the sequence shown. Tighten ① and ②, then tighten ③ and ④, and on the left second row seat, also tighten ⑤.
   - If equipped, make sure the seat heater connector is plugged in properly.
   - Tighten the bolts by hand first, then tighten them to specification with a torque wrench.

Fastener Locations

▶: Bolt,
Left secand row seat, 5
Right secand row seat, 4



Second Row Seat Disassembly/ Reassembly

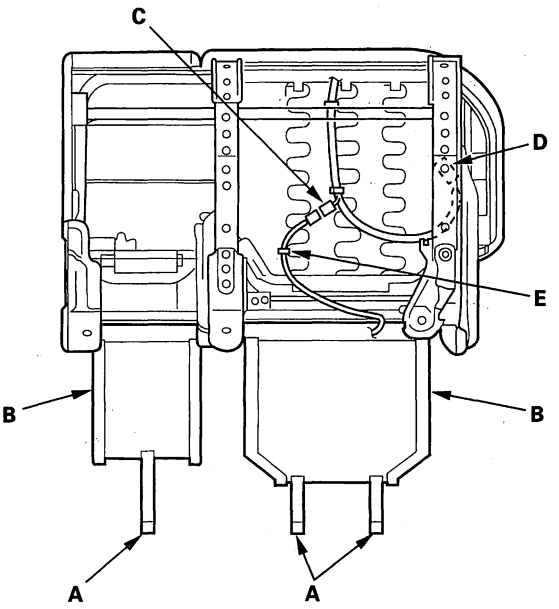
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

Left Second Row Seat

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the body or tear the seat covers.

1. Remove the second row seat (see page 20-156).

2. From under the seat cushion, release the hooks (A) of the back cover carpet (B) from the seat cushion frame, then pull then carpet back.



3. With seat heater: Disconnect the seat-back heater connector (C), detach the seat heater connector (D), and remove the wire ties (E).

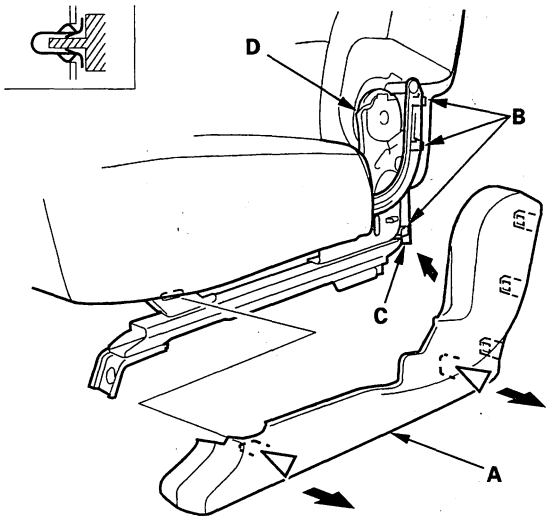
BACK

Protected by AR

4. Gently pull out the recline outer cover (A) to detach the clips and to release the hooks (B) of the recline inner cover (C), then remove the cover while releasing the inside edge of the cover from the recline adjuster (D).

Fastener Locations

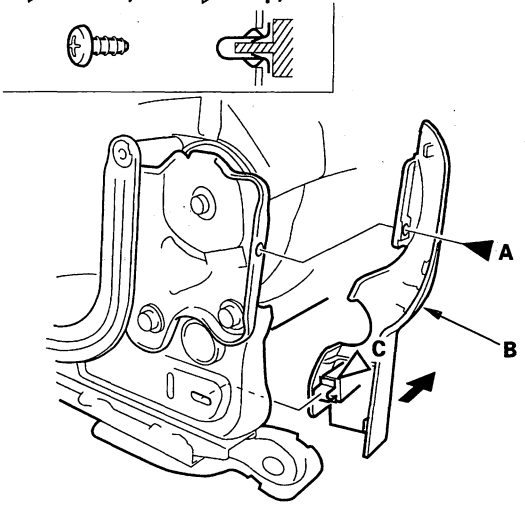
▷ : Clip, 2



5. Remove the screw (A), gently pull out the recline inner cover (B) to detach the clip (C), then remove it.

Fastener Locations

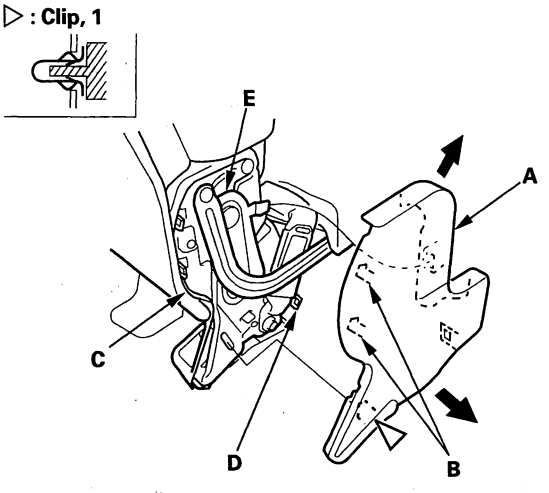
A ▶ : Screw, 1 C ▷ : Clip, 1



6. Gently pull out the ISO fix bracket outer cover (A) to detach the clip. Release the hooks (B) from the ISO fix bracket inner cover (C), and release the hook (D) of the inner cover from the outer cover, then remove the cover while releasing the inside edge of it from the ISO fix bracket (E).

Fastener Location

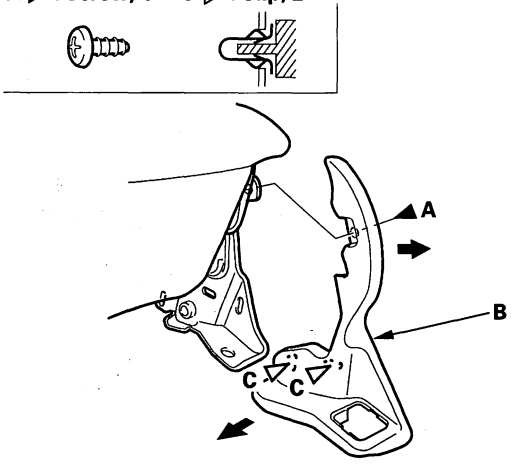
▷ : Clip, 1



7. Remove the screw (A) gently pull out the ISO fix bracket inner cover (B) to detach the clips (C), then remove it.

Fastener Locations

A ▶ : Screw, 1 C ▷ : Clip, 2



(cont'd)

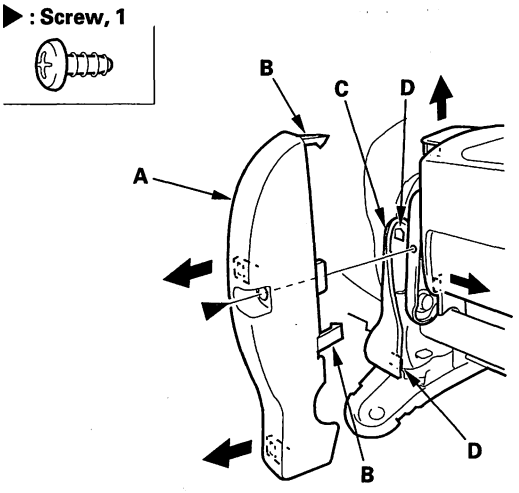
Protected by AR

Second Row Seat Disassembly/Reassembly (cont'd)

8. Remove the screw, gently pull out the rear center outer cover (A) to release the hook (B) from the center inner cover (C), and to release the hooks (D) of the inner cover from the outer cover, the remove it.

Fastener Location

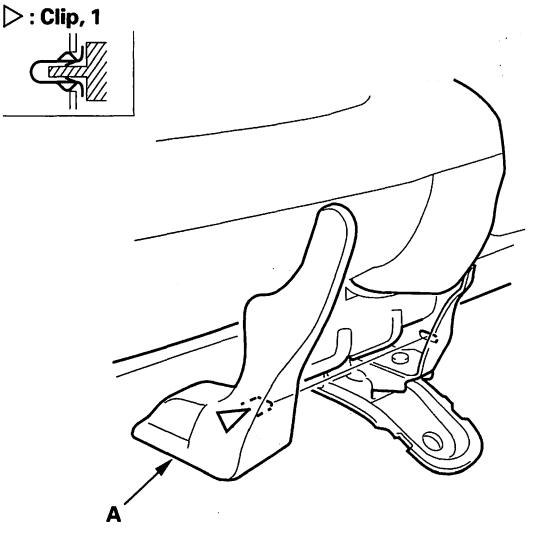
▶ : Screw, 1



9. Gently pull out the center inner cover (A) to detach the clip, then remove it.

Fastener Location

▷ : Clip, 1



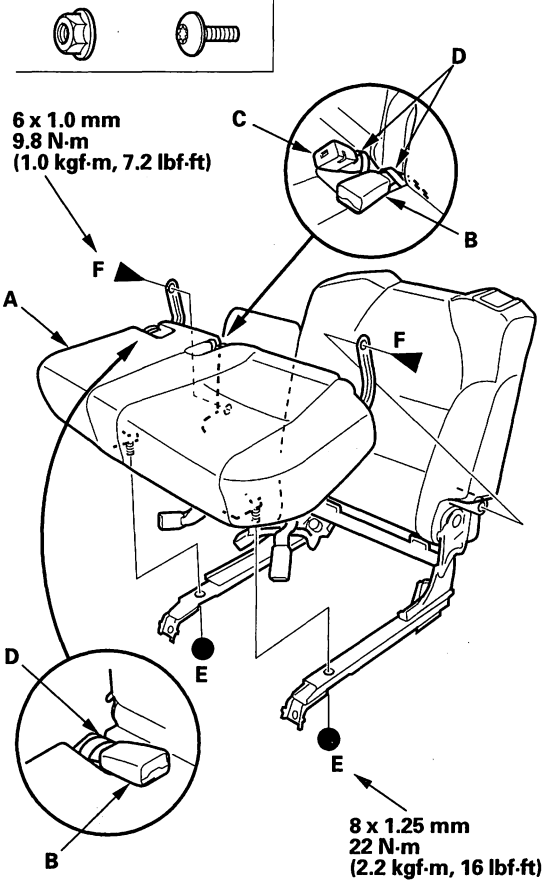
10. Remove the seat cuhsion (A).

-1 Remove the seat belt buckles (B) and seat belt detachable anchor (C) from the elastic straps (D).

-2 Remove the nuts (E). Using a T30 TORX bit, remove the bolts (F).

Fastener Locations

● : Nut, 2 ▶ : Bolt, 2



BACK

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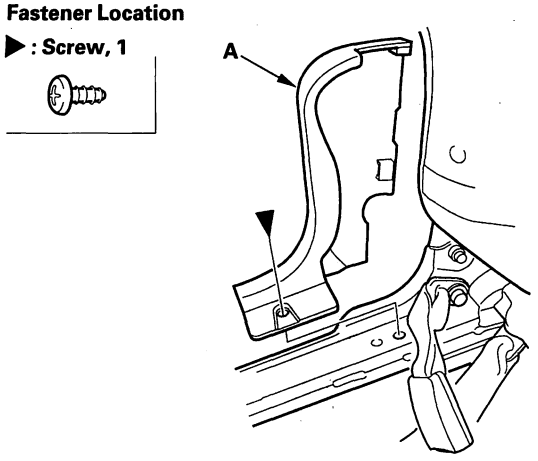
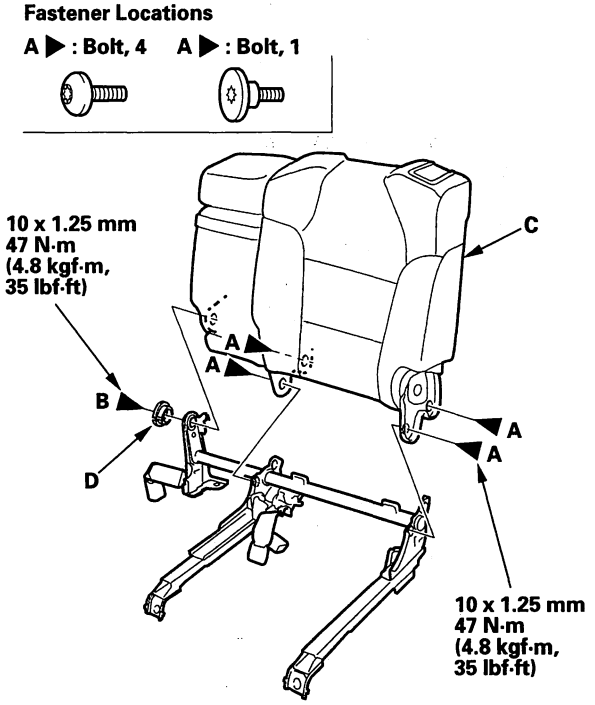
11. Remove the screw, then remove the front center outer cover (A).



12. Using a T40 TORX bit, remove the bolts (A, B), then remove the seat-back (C) and bushing (D).



13. Assemble the seat-back and seat cushion in the reverse order of disassembly, and note these items:

- If the bushing is damaged or stress-whitened, replace it with a new one.
- Replace any damaged clips with new ones.
- Push the clips into place securely.
- With seat heater: Replace the wire tie you removed with a new one.
- With seat heater: Make sure the seat-back heater connector is plugged in properly.

Protected by AR

Second Row Seat Disassembly/Reassembly (cont'd)

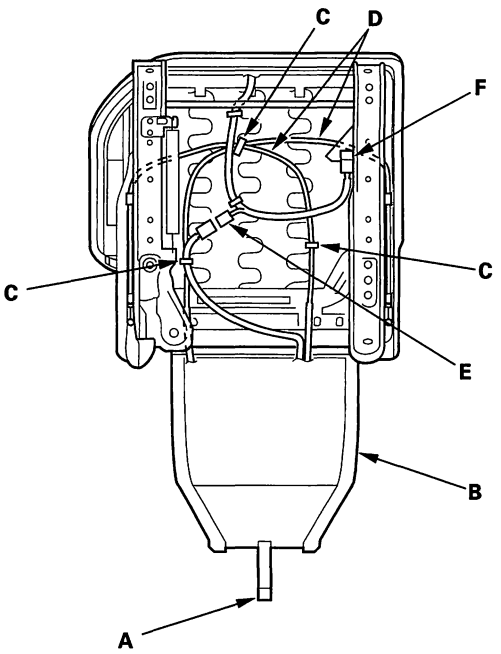
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

Right Second Row Seat

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the body or tear the seat covers.

1. Remove the second row seat (see page 20-156).

2. From under the seat cushion, release the hook (A) of the back cover carpet from the seat cushion frame, then pull the carpet (B) back.

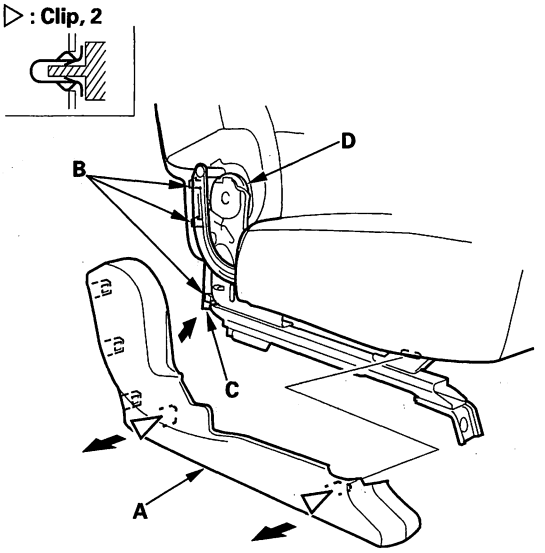


3. Release the wire ties (C) fastening the recline cables (D).

4. With seat heater: Disconnect the seat-back heater connector (E) and detach the seat heater connector (F).

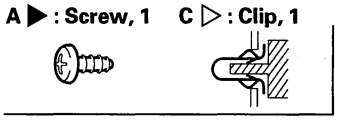
5. Gently pull out the recline outer cover (A) to detach the clips and to release the hooks (B) of the recline inner cover (C), then remove the cover while releasing the inside edge of the cover from the recline adjuster (D).

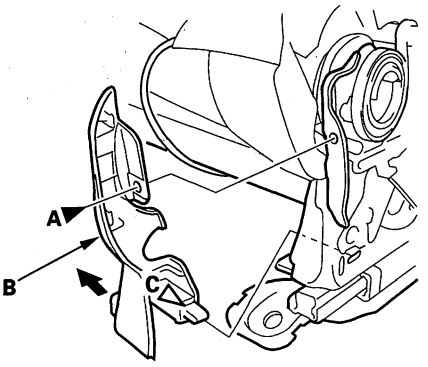
Fastener Locations
▷ : Clip, 2



6. Remove the screw (A), gently pull out the recline inner cover (B) to detach the clip (C), then remove it.

Fastener Locations
A ▶ : Screw, 1 C ▷ : Clip, 1





BACK

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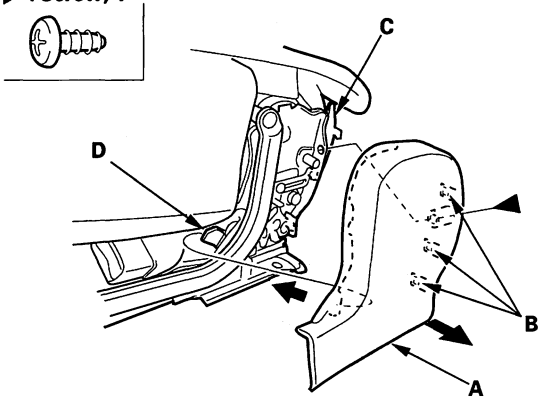
7. Gently pull out the center outer cover (A) to remove the screw and to release the hooks (B) from the center inner cover (C), then remove the cover while releasing the inside edge of it from the recline adjuster (D).

Fastener Location

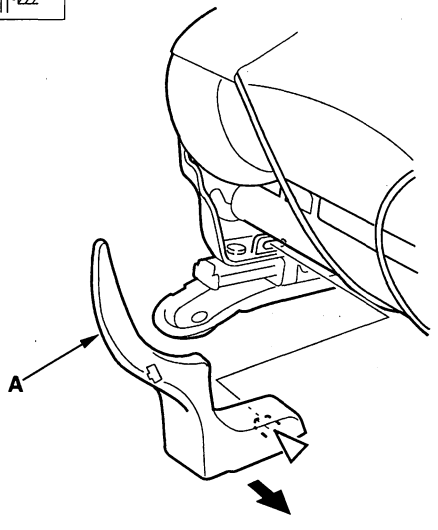
▶ : Screw, 1



8. Gently pull out the center inner cover (A) to detach the clip, then remove it.

Fastener Location

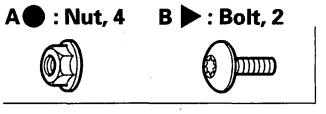
▷ : Clip, 1

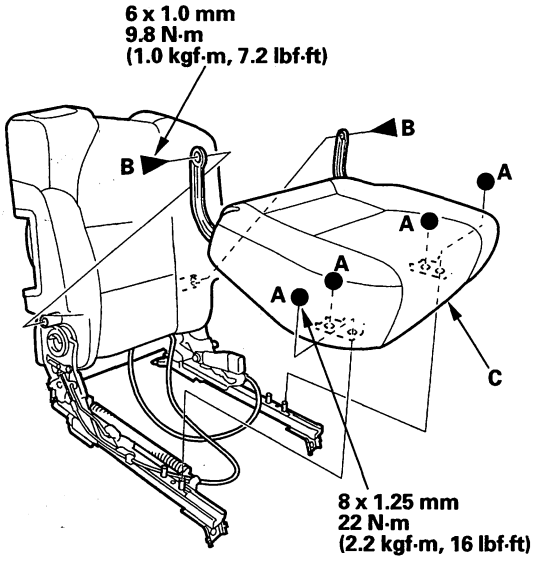


9. Remove the nuts (A). Using a T30 TORX bit, remove the bolts (B), then remove the seat cushion (C).

Fastener Locations

A● : Nut, 4 **B ▶ : Bolt, 2**





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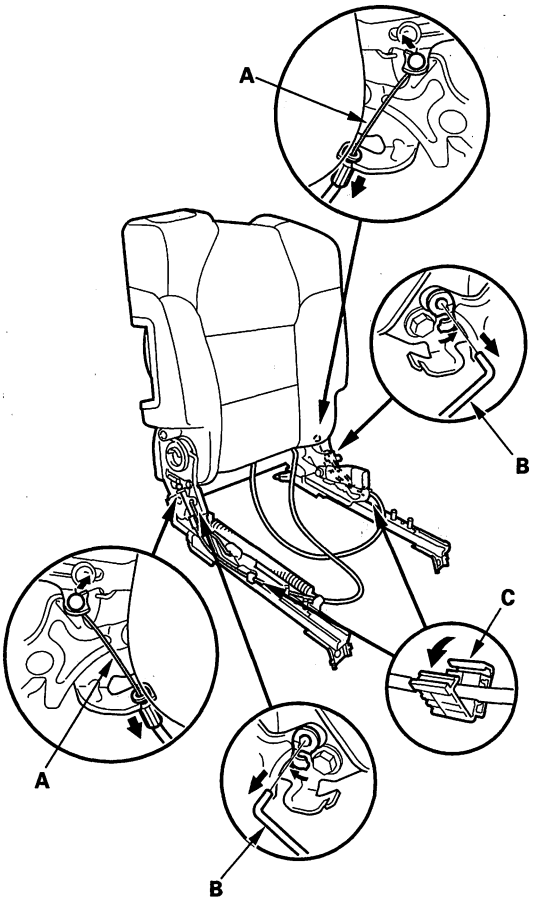
Protected by AR

Second Row Seat Disassembly/Reassembly (cont'd)

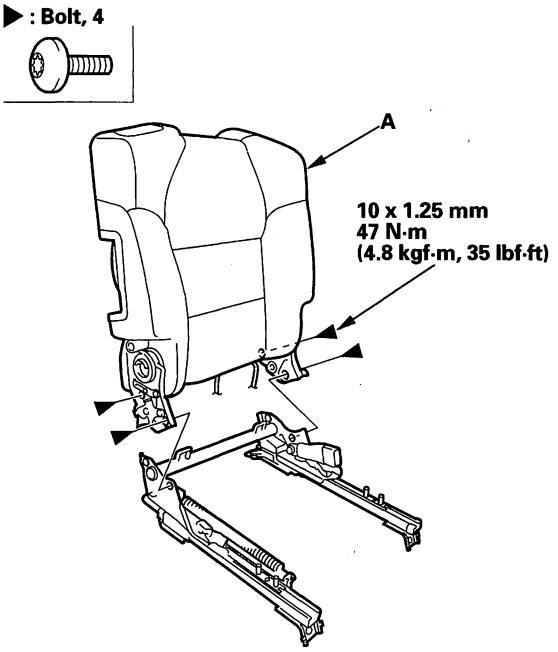
10. Disconnect the recliner cables (A) and the third row seat access rods (B) on both sides, then remove the cables from the clips (C).



11. Using a T40 TORX bit, remove the bolts, then remove the seat-back (A).

Fastener Locations

▶ : Bolt, 4



12. Assemble the seat-back and seat cushion in the reverse order of disassembly, and note these items:

- If the cable clips and rod fasteners are damaged or stress-whitened, replace them with new ones.
- Replace any damaged clips with new ones.
- Push the clips into place securely.
- Apply multipurpose grease to the moving parts of the seat track.
- Replace the wire ties you removed with new ones.
- Make sure each cable is connected securely.
- With seat heater: Make sure the seat-back heater connector is plugged in properly.

BACK

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Second Row Seat-back Recline Lever Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Put on gloves to protect your hands.
- Take care not to tear the seams or damage the seat covers.
- Take care not to kink the cables.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the second row seat (see page 20-156).

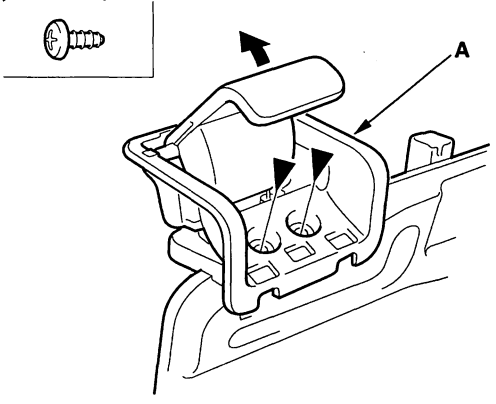
2. Remove the seat-back cover/pad from the seat-back frame (see page 20-171).

3. Right second row seat: Remove these items:

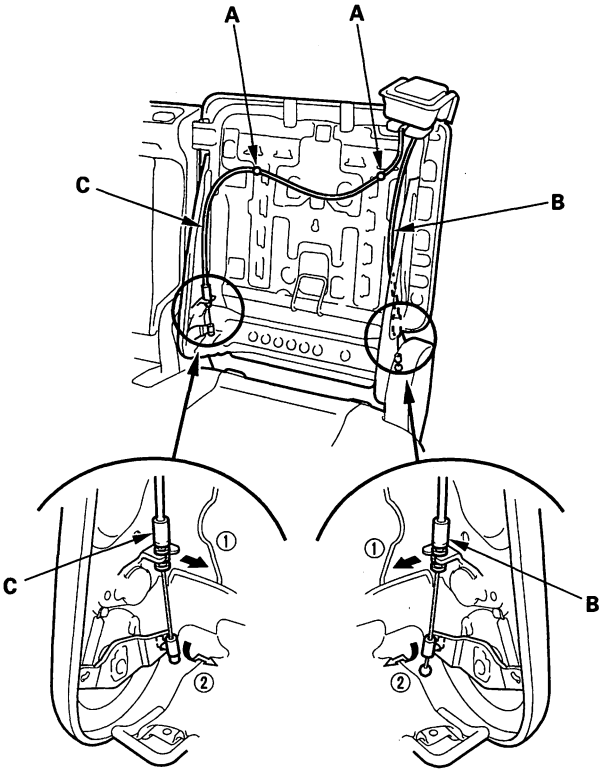
   - Recline outer cover (see step 4 on page 20-162)
   - Center outer cover (see step 6 on page 20-162)

4. Remove the screws securing the recline lever (A).

Fastener Locations
▶ : Screw, 2



5. Left second row seat: Detach the clips (A) and disconnect the recline outer cable (B) and the recline inner cable (C).



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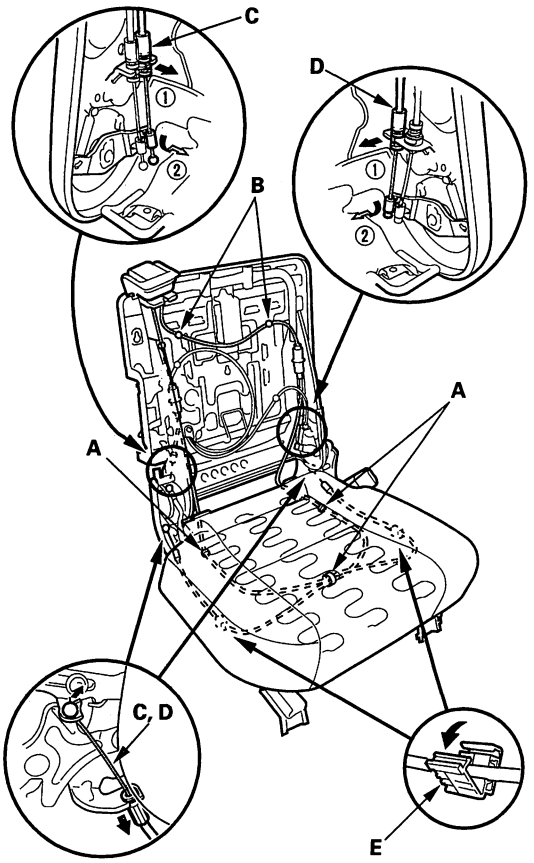
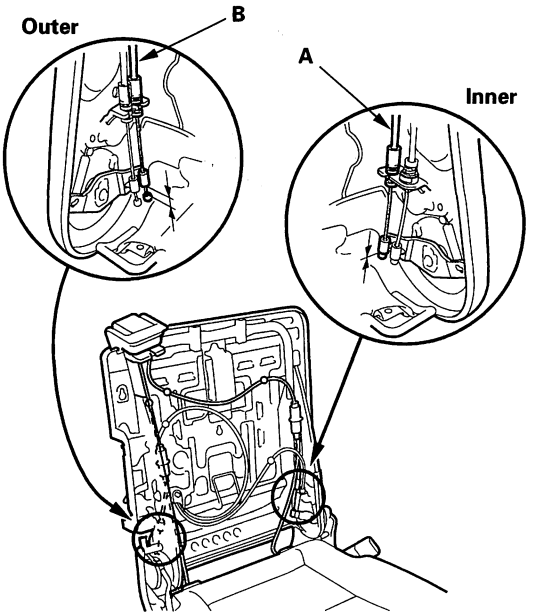
Second Row Seat-back Recline Lever Replacement (cont'd)

6. Right second row seat: remove the wire ties (A) and detach the clips (B), disconnect the recline outer cable (C) and the recline inner cable (D), then remove the cables from the clips (E).



7. Install the recline lever in the reverse order of removal, and note these items:

- Make sure each cable is connected securely.
- Fix at the middle groove in the end of the recline inner cable (A) securely to obtain no clearance between the cable end and the recline lever fitting.
- Fix at the middle groove in the end of the recline outer cable (B) securely to obtain a clearance between the cable end and the recline lever fitting.
- Check the seat-back fold down operation:
  – Left second row seat: When operating the recline lever, the inner recline adjuster is unlocked first, the outer recline adjuster is unlocked next, then the seat-back is folded down fully.
  – Right second row seat: When operating the recline lever, the inner recline adjuster is unlocked first, the outer recline adjuster is unlocked next, then the seat-back is folded down fully without any interference in movement, but the seat doesn't slide forward.
- The right second row seat is shown; the left second row seat is similar.



BACK

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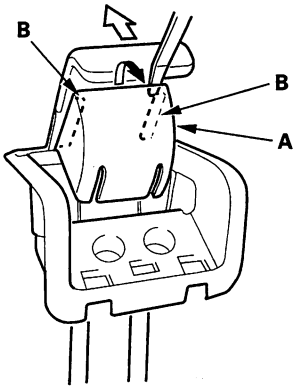
Second Row Seat-back Recline Cable Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

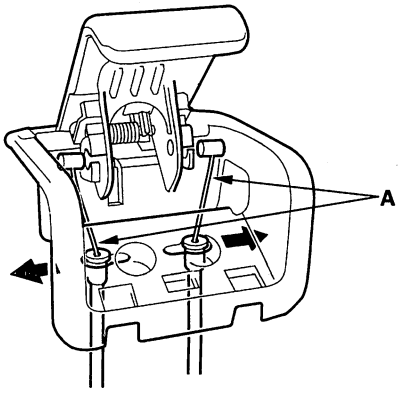
NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to bend the cable.

1. Remove the seat-back recline lever (see page 20-165).

2. Carefully pry out the cover (A) with a flat-tip screwdriver at the gap while holding the lever fully open. Release the tabs (B), then remove the cover.



3. Disconnect the recline cables (A).



4. Install the second row seat-back recline cables in the reverse order of removal, and make sure the cables are connected securely.

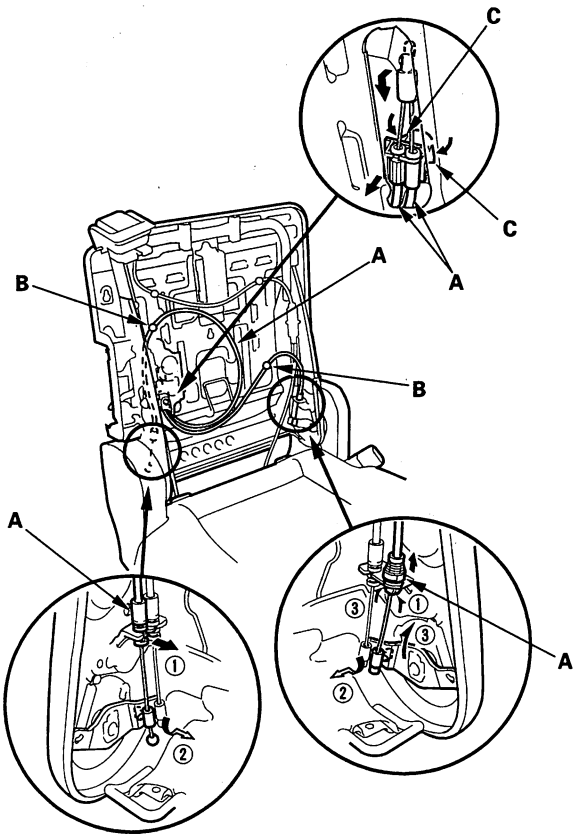
Third Row Seat Access Cable Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to bend the cable.

1. Remove the right second row seat (see page 20-156).

2. Remove the right second row seat-back cover/pad from the seat-back frame (see page 20-171).

3. Disconnect the third row seat access cable (A) and detach the clips (B), then remove the cable by pinching the hooks (C) of the holder.



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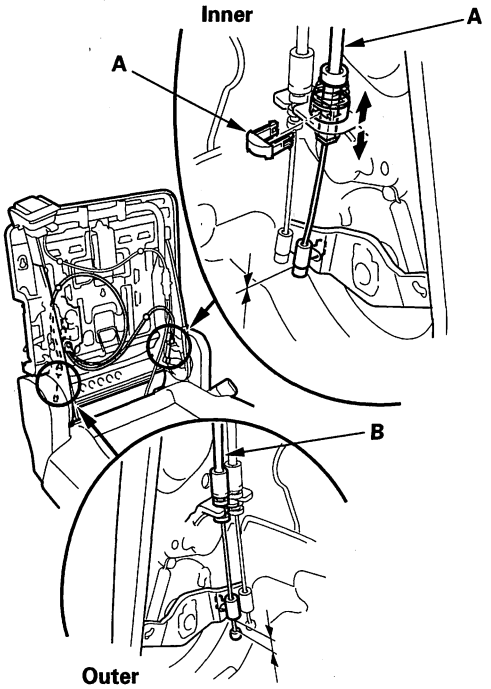
Third Row Seat Access Cable Replacement (cont'd)

4. Install the cable in the reverse order of removal, and note these items:

   - Make sure each cable is connected securely.
   - If necessary, remove the clip (A), then adjust the inner side end of the third row seat access cable (A) to obtain no clearance between the cable end and the recline lever fitting.
   - Fix at the middle groove in the outer side end of the third row seat access cable to obtain a clearance between the cable end and the recline lever fitting.
   - Check the third row seat access operation: When operating the third row seat access knob, the inner recline adjuster is unlocked first, the outer recline adjuster is unlocked next, then the seat-back is tilted forward and the seat is allowed to slide forward.



Second Row Seat Armrest Replacement

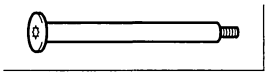
NOTE: Take care not to tear the seams or damage the seat covers.

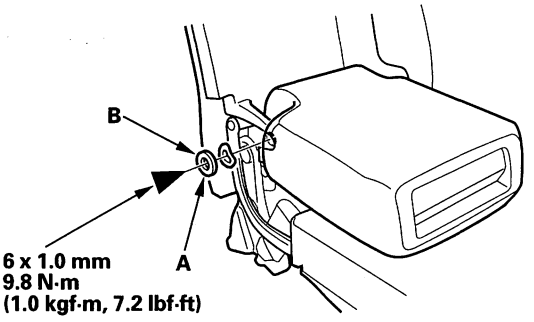
1. Remove the ISO fix bracket outer cover (see step 6 on page 20-157).

2. Using a T30 TORX bit, remove the bolt, then remove the washer (A) and wave washer (B).

Fastener Location

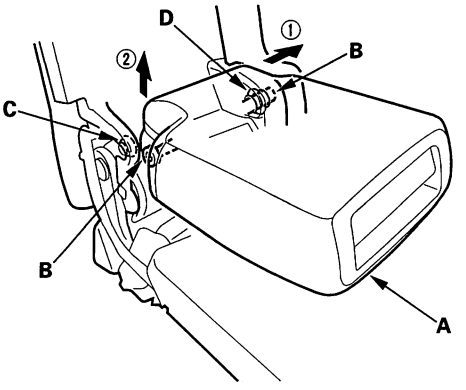
▶: Bolt, 1





3. Remove the armrest.

   -1 Slide the armrest (A) toward the left side of the vehicle.
   -2 Remove the pivot shaft (B) from the bushing (C) on the passenger's side of the vehicle by pulling up on the armrest, and remove the pivot shaft from the bushing (D) by pulling up on the armrest.



BACK

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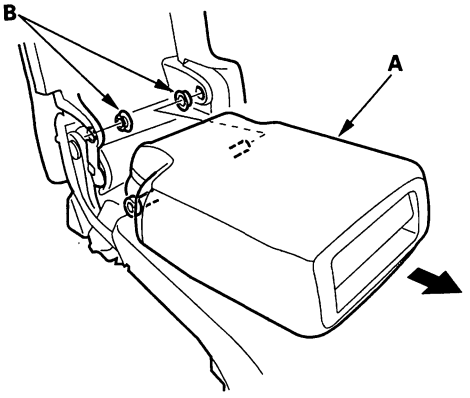
4. Remove the armrest (A) and bushings (B).



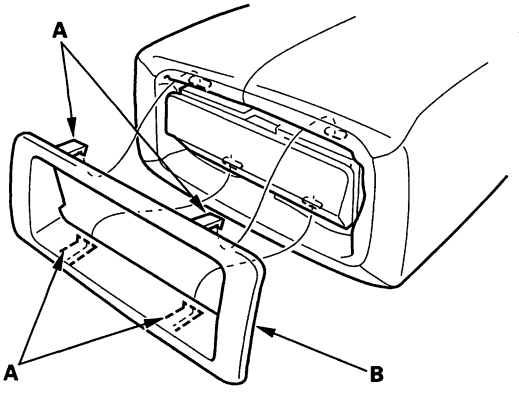
5. Install the armrest in the reverse order of removal, and check if the bushing are damaged or stress-whitened, and if necessary, replace them with new ones.

Second Row Seat Armrest Beverage Holder Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

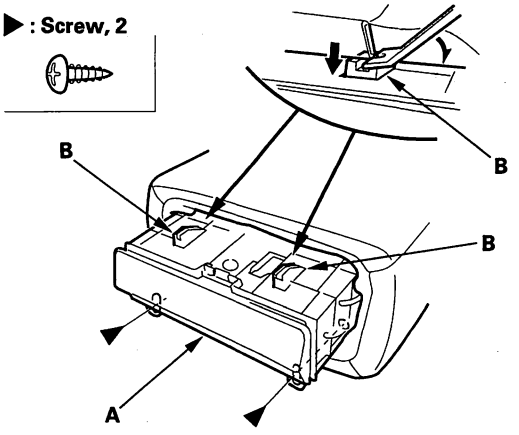
NOTE:
- Take care not to tear the seams or damage the seat covers.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.

1. Detach the hooks (A), then remove the beverage holder cover (B).



2. Remove the screws, then pull out on the beverage holder (A) to release the hooks (B).

Fastener Locations
▶ : Screw, 2



3. Install the beverage holder in the reverse order of removal.

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Second Row Seat Armrest Panel Replacement

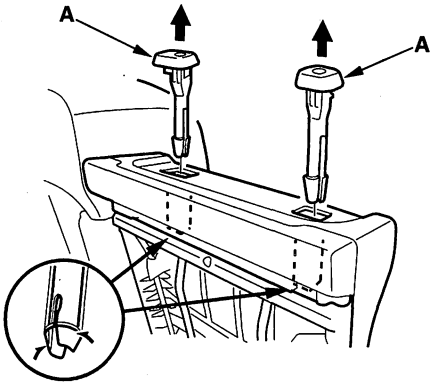
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to tear the seams or damage the seat covers.

1. Remove the armrest (see page 20-168).

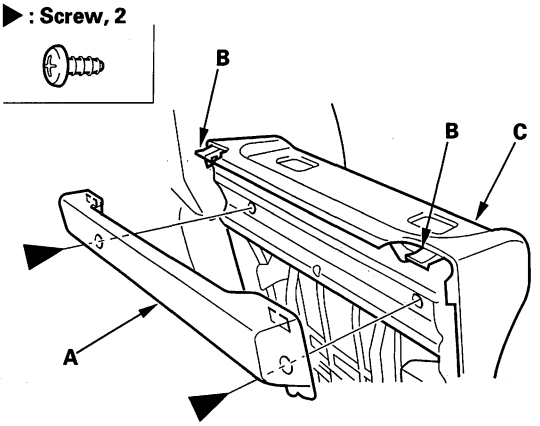
2. Remove the center head restraint.

3. Pull out the head restraint guides (A) while pinching the end of the guides, and remove them.

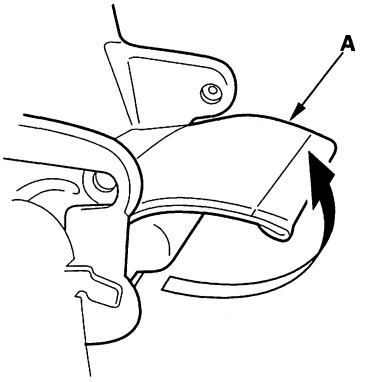


4. Remove the screws, gently pull out the rear armrest cover (A) to release the hooks (B) of the armrest panel (C), then remove the cover.

Fastener Locations
▶ : Screw, 2



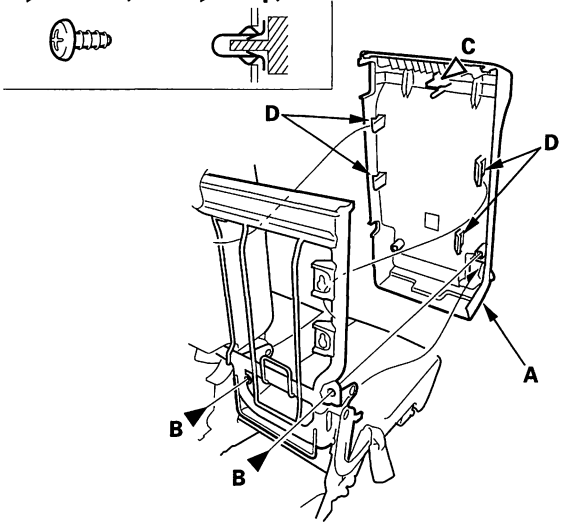
5. Pull back the ISO fix trim (A).



6. Remove the armrest panel (A).

-1 Remove the screws (B).
-2 Gently pull out the armrest panel to detach the clip (C) and to release the hooks (D).

Fastener Locations
B ▶ : Screw, 2 C ▷ : Clip, 1



7. Install the armrest panel in the reverse order of removal, and note these items:

- Replace the clip if it's damaged.
- Push the clip and hooks on the panel into place securely.

BACK

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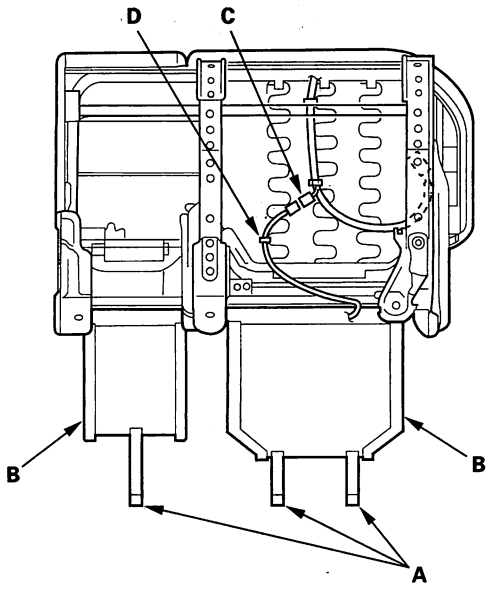
Second Row Seat Cover Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to tear the seams or damage the seat covers.

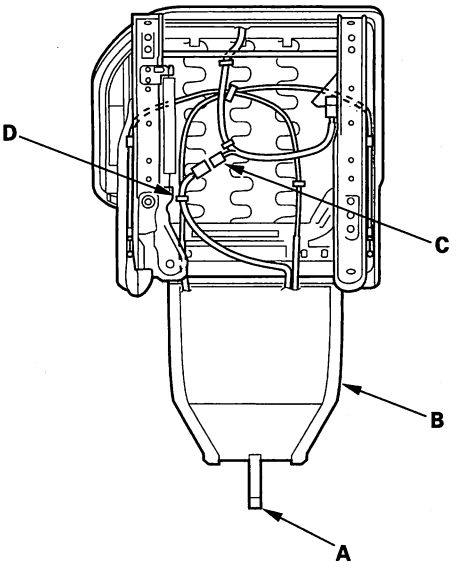
Seat-back Cover

1. Remove the second row seat (see page 20-156).
2. Remove the head restraint.
3. From under the seat cushion, release the hooks (A) of the back cover carpet (B) from the seat cushion frame, then pull the carpet back.

Left second row seat



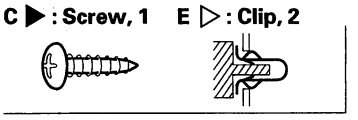
Right second row seat

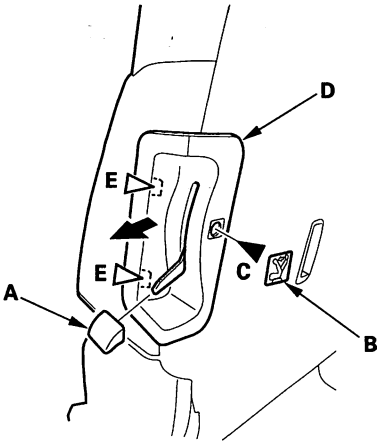


4. With seat heater; Disconnect the seat cushion heater connector (C) and remove the wire tie (D).
5. Remove the third row seat access knob (A). Peel off the label (B) and remove the screw (C), then remove the third row seat access trim (D) by detaching the clips (E).

Fastener Locations

C ▶ : Screw, 1 E ▷ : Clip, 2





(cont'd)

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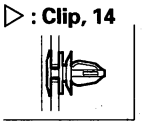
Second Row Seat Cover Replacement (cont'd)

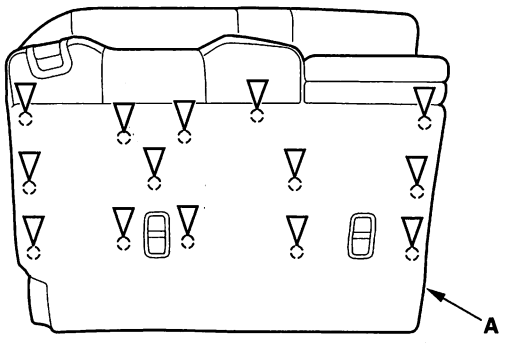
6. Fold the seat-back forward fully, detach the clips, and remove the back cover (A).

Left seat-back

Fastener Locations

▷ : Clip, 14

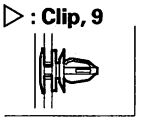


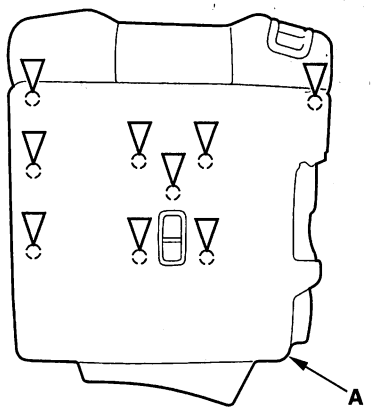


Right seat-back

Fastener Locations

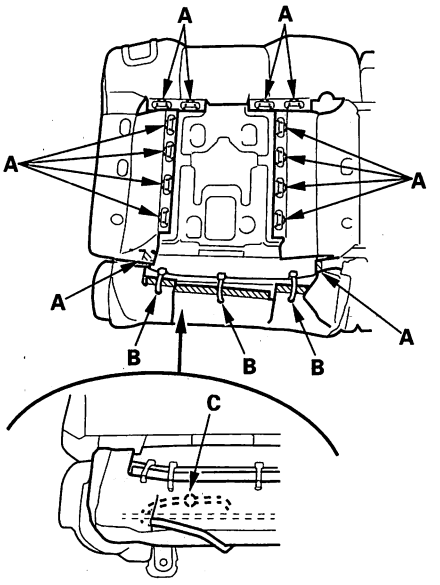
▷ : Clip, 9



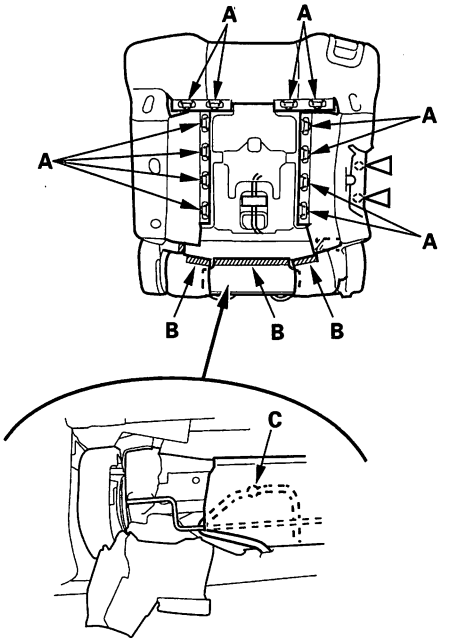


7. Release all of the hooks (A) and remove the wire ties (B) from the back of the seat-back, then pull back the seat-back cover. If equipped, detach the seat-back heater harness clip (C) from the seat-back frame.

Left seat-back



Right seat-back



BACK

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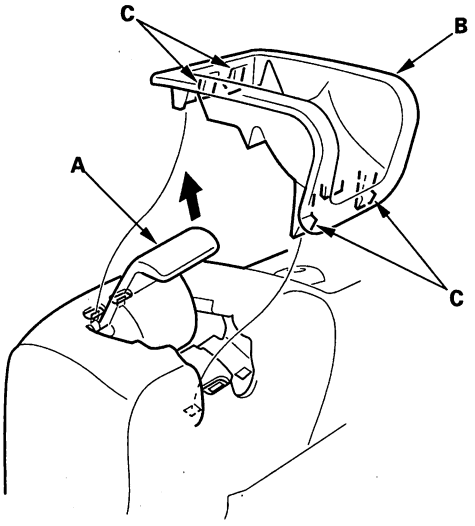
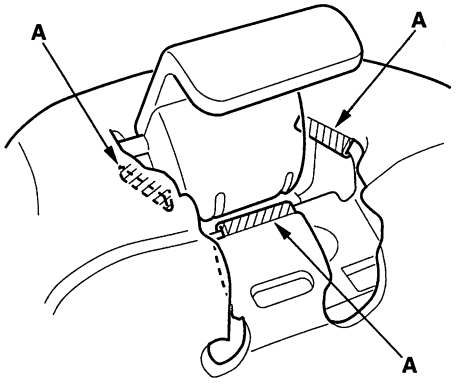
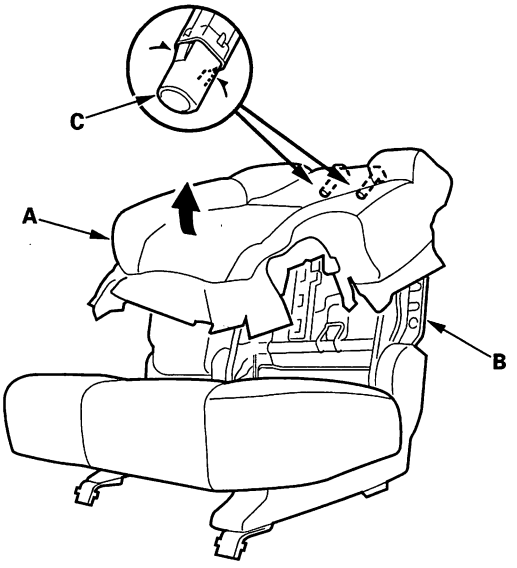
8. While pulling the recline lever (A), gently pull out the recliner lever upper housing (B) to release the hooks (C), then remove it.



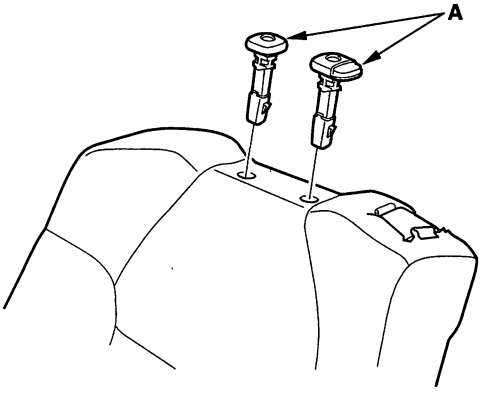
9. Release the hook strips (A).



10. Pull out the seat-back pad (A) from the seat-back frame (B), then pinch the end of the head restraint guides (C) to remove them.



11. Pull out the head restraint guides (A).



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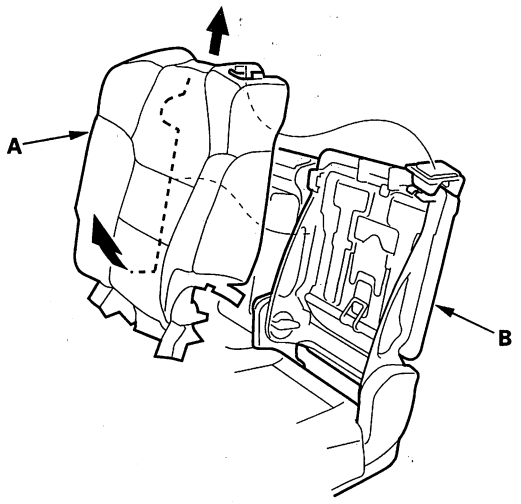
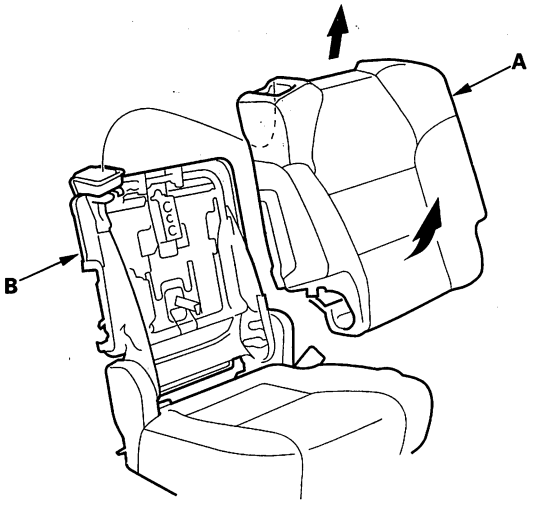
Second Row Seat Cover Replacement (cont'd)

12. Remove the seat-back cover/pad (A) from the seat-back frame (B).

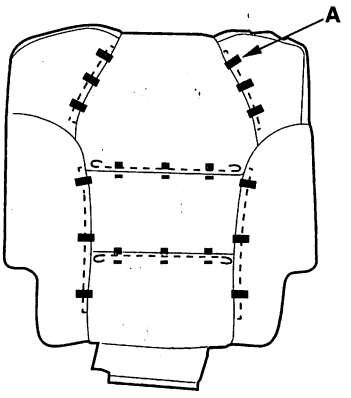
Left seat-back



Right seat-back



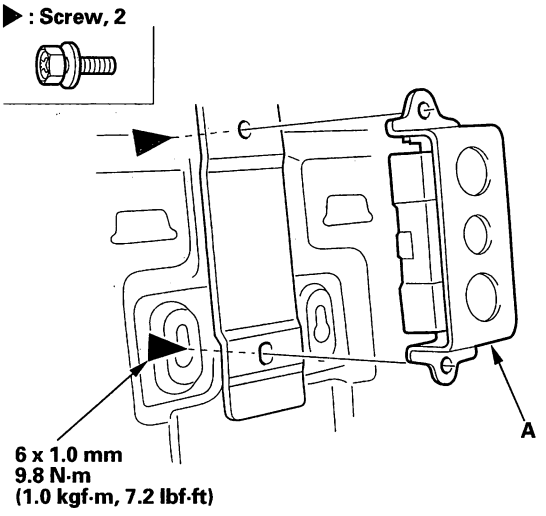
13. Pull back the edge of the seat-back cover all the way around, and release the clips (A), then remove the seat-back cover.



14. Right second row seat: If necessary, remove the seat-back damper (A) from the seat-back frame.

Fastener Locations

▶: Screw, 2



BACK

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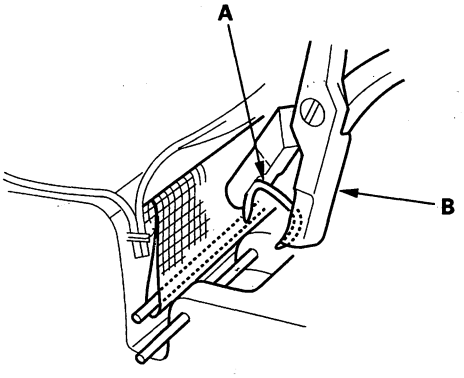
15. Install the seat-back cover in the reverse order of removal, and note these items:

    - To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing the hooks, hook strips, and clips.
    - Replace any clips (A) you removed with new ones using commercially available upholstery ring pliers (B).
    - Replace the wire ties you removed with new ones.
    - With seat heater: Make sure the seat heater connector is plugged in properly.



Seat Cushion Cover

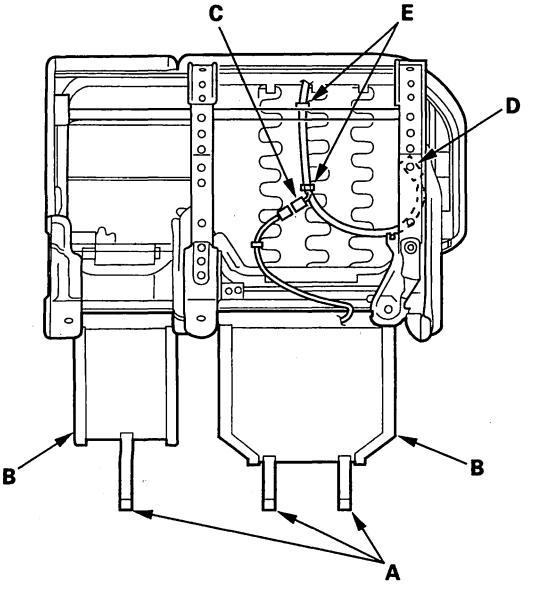
1. Remove the second row seat (see page 20-156).

2. Remove the recline outer cover:

    - Left second row seat (see step 4 on page 20-159).
    - Right second row seat (see step 5 on page 20-162).

3. From under the seat cushion, release the hooks (A) of the back cover carpet (B) from the seat cushion frame, then pull the carpet back.

Left second row seat



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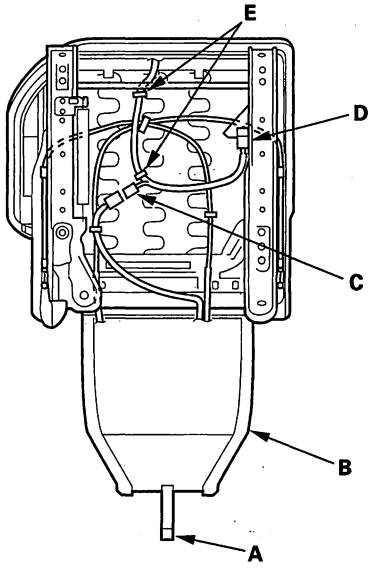
Second Row Seat Cover Replacement (cont'd)

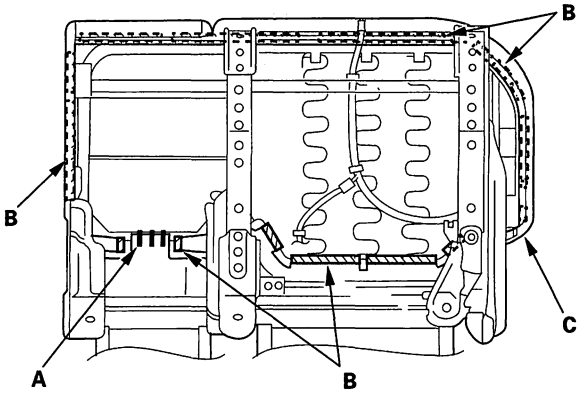
Right second row seat



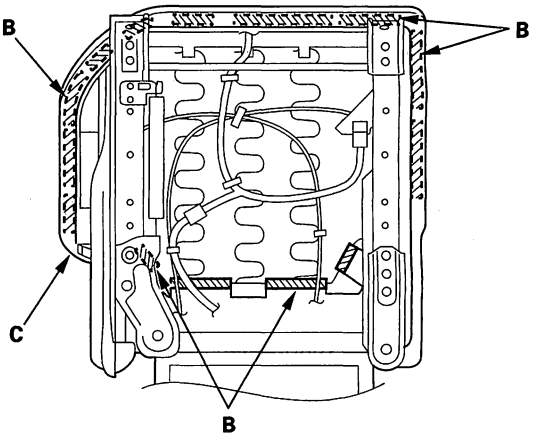
4. With seat heater: Disconnect the seat-back heater connector (C), detach the seat heater connector (D), and remove the wire ties (E).

5. Release all of the clips (A) and hook strips (B) from under the seat cushion (C).

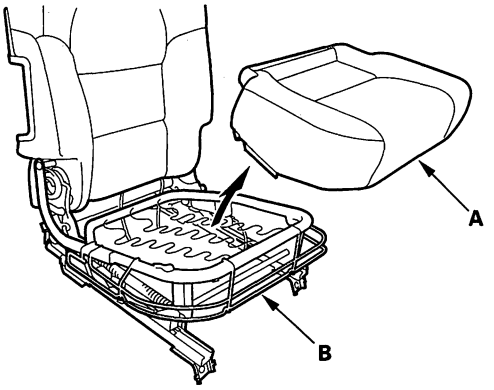
Left seat cushion



Right seat cushion



6. Remove the seat cushion cover/pad (A) from the seat cushion frame (B).



BACK

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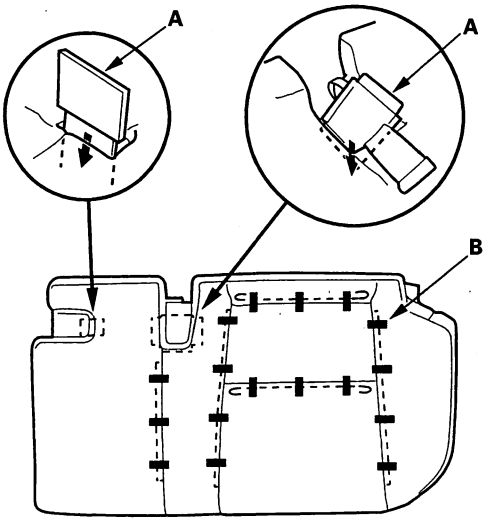
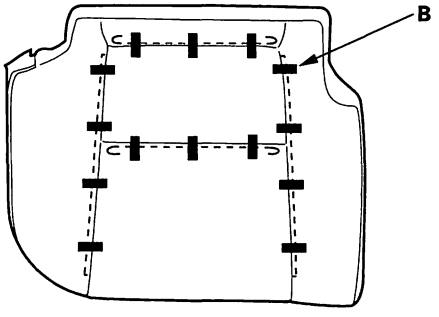
7. Pass the retainers (A) through the slots in the seat-back pad (left seat cushion). Pull back the edge of the seat cushion cover all the way around, and release the clips (B), then remove the seat cushion cover.

Left seat cushion

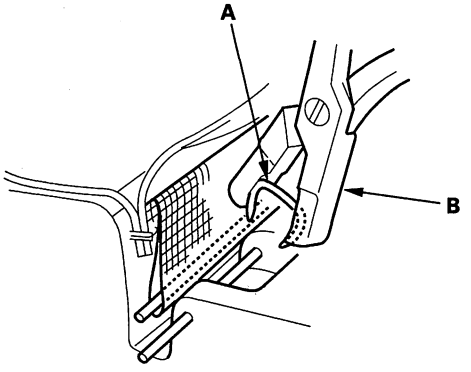


Right seat cushion



8. Install the seat-back cover in the reverse order of removal, and note these items:

- To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing the hooks, hook strips, and clips.
- Replace any clips (A) you removed with new ones using commercially available upholstery ring pliers (B).
- Replace the wire ties you removed with new ones.
- With seat heater: Make sure the seat-back heater connector is plugged in properly.



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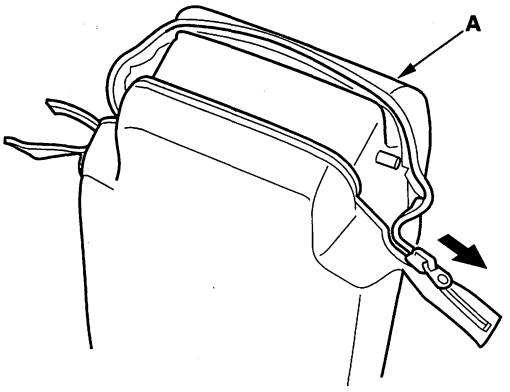
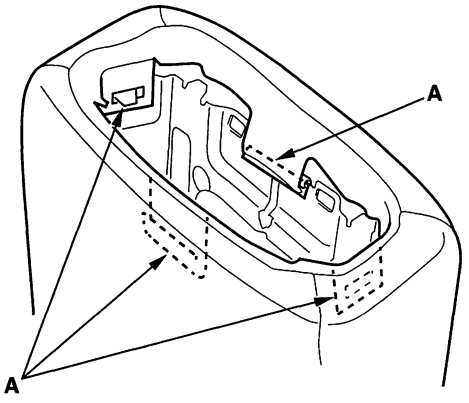
Second Row Seat Armrest Cover Replacement

NOTE: Take care not to tear the seams or damage the seat covers.

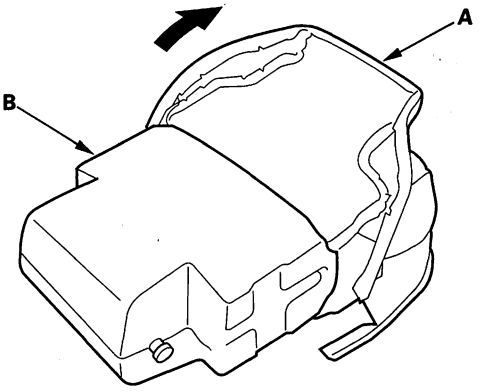
1. Remove the armrest (see page 20-168).
2. Remove the armrest beverage holder from the armrest (see page 20-169).
3. Unzip the armrest cover (A).



4. Release the hooks (A).



5. Pull back the armrest cover (A) all the way around, then separate the armrest cover and pad (B).



6. Install the cover in the reverse order of removal, and to prevent wrinkles, make sure the material is stretched evenly over the pad before securing the hooks.

BACK

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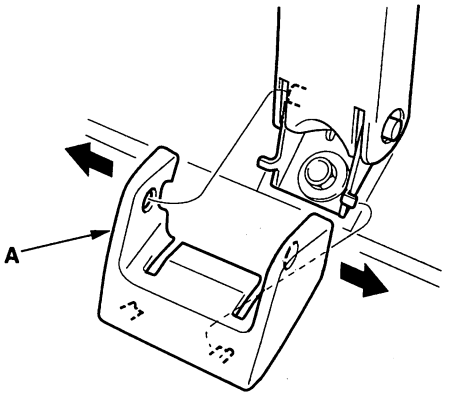
Third Row Seat Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the body or tear the seat covers.

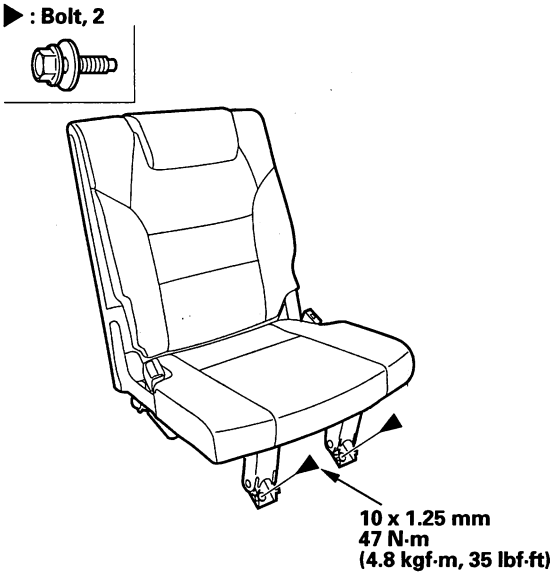
1. Detach the third row seat-belt from the detachable anchor.

2. Remove the front mounting bolt covers (A) from both front links.



3. Remove the front mounting bolts.

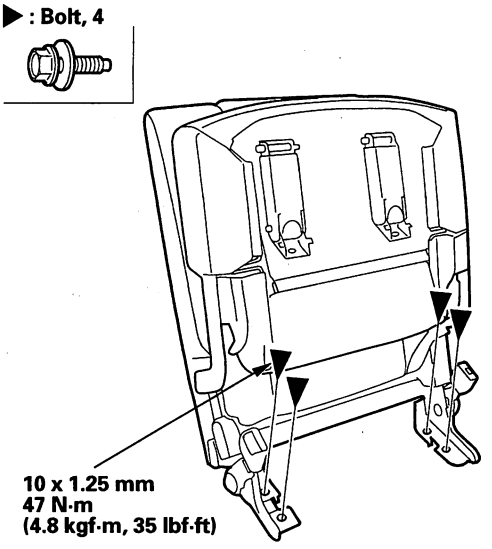
Fastener Locations
▶ : Bolt, 2



4. Lift the seat cushion up.

5. Remove the rear mounting bolts while holding the seat cushion.

Fastener Locations
▶ : Bolt, 4



6. With the help of an assistant, remove the third row seat through the tailgate opening.

7. Install the seat in the reverse order of removal, and apply medium strength type liquid thread lock to the seat mounting bolts before reinstallation.

Protected by AR

Third Row Seat Disassembly/Reassembly

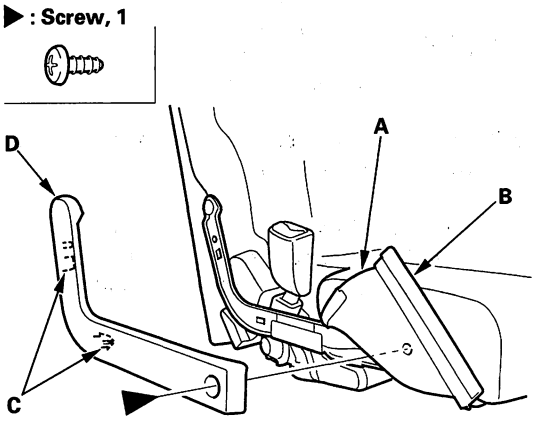
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the body or tear the seat covers.

1. Remove the third row seat (see page 20-179).

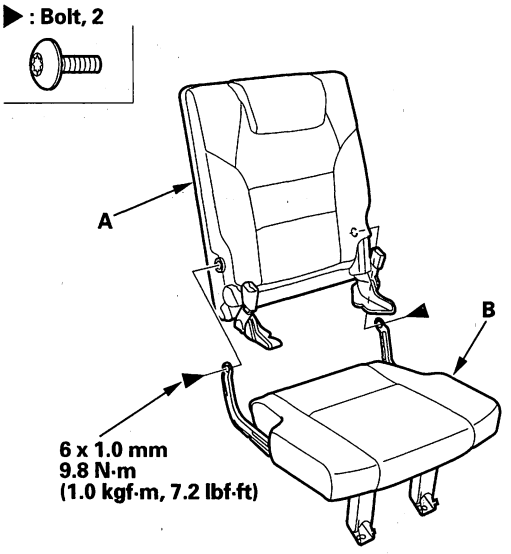
2. Release the hook (A) from under the seat cushion, and pull back the seat cushon cover (B) as needed. Remove the screw and Release the hooks (C), then remove the pivot bolt cover (D) from both sides of the seat.

Fastener Location
▶ : Screw, 1

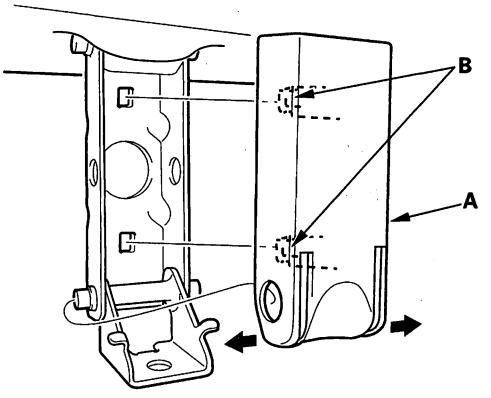


3. Using a T30 TORX bit, remove the pivot bolt securing the seat-back (A) and sat cushion (B), then separate them.

Fastener Locations
▶ : Bolt, 2



4. If necessary, remove the front link cover (A) by releasing the hooks (B).



5. Install the seat-back in the reverse order of removal, and note these items:

- To prevent wrinkles in the seat cushion cover, make sure the material is stretched evenly over the pad before securing the hook strip.
- Push the hooks into place securely.

BACK

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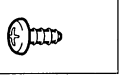
Third Row Seat Latch Replacement

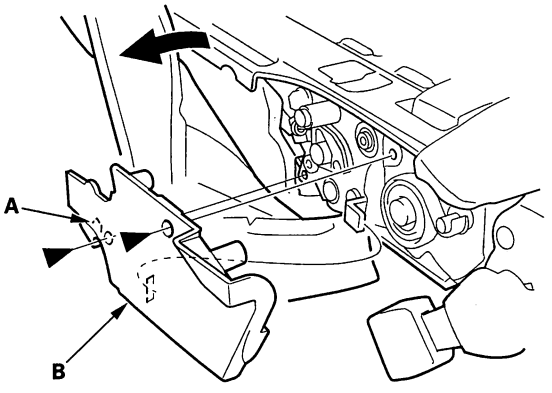
NOTE:
- Put on gloves to protect your hands.
- Take care not to bend the seat-back recline cable.
- The left third row seat is shown, the right third row seat is similar.

1. Remove the left third row seat or right third row seat (see page 20-179).
2. Remove the seat-back (see page 20-180).
3. Remove the screws securing the seat-back recline lever (see step 3 on page 20-183).
4. Remove the back cover (see step 4 on page 20-184), then release the hooks from behind the seat-back, as needed (see step 5 on page 20-185).
5. Remove the screw and release the hook (A), then remove the outer latch cover (B).

Fastener Locations

▶ : Screw, 2

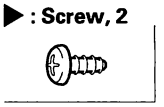


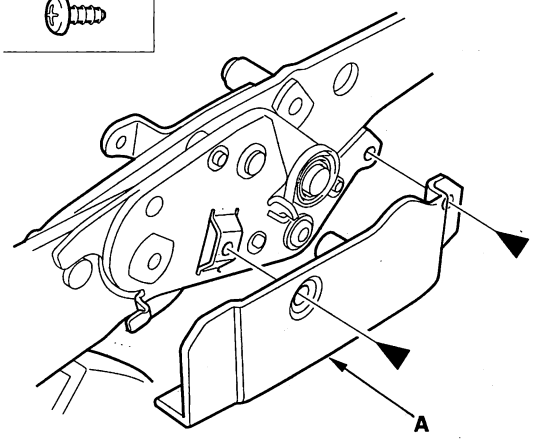


6. If necessary, remove the screws, then remove the inner latch cover (A).

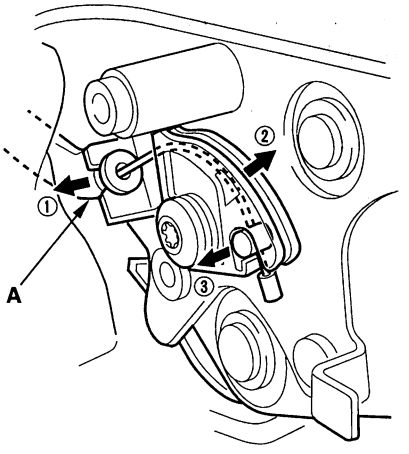
Fastener Locations

▶ : Screw, 2





7. Disconnect the seat-back recline cable (A).



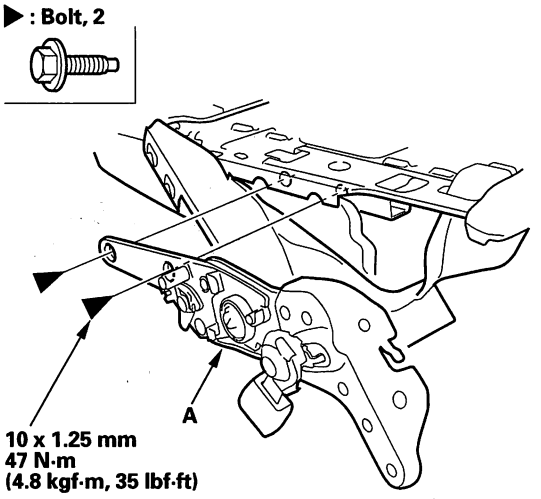
(cont'd)

Protected by AR

Third Row Seat Latch Replacement (cont'd)

8. Remove the bolts, then remove the latch (A).

Fastener Locations
▶ : Bolt, 2



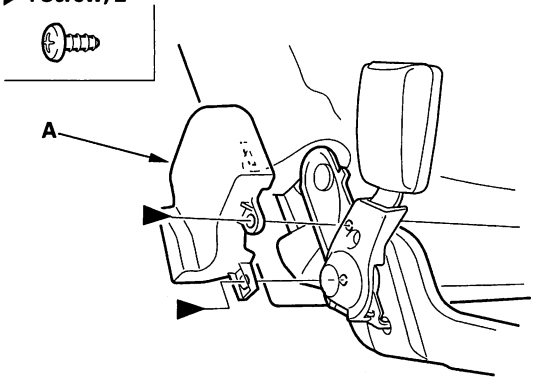
9. Install the latch in the reverse order of removal, and note these items:
   - Make sure the seat-back recline cable is connected securely.
   - Make sure the seat unlatches properly and latches securely.

Third Row Seat Pivot Replacement

NOTE:
- Put on gloves to protect your hands.
- The left third row seat is shown; the right third row seat is similar.

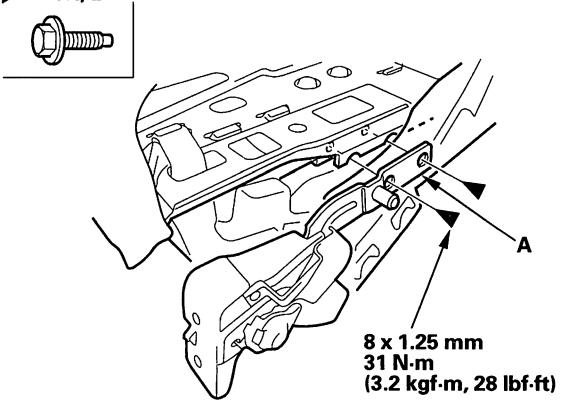
1. Remove the right third row seat (see page 20-179).
2. Remove the seat-back (see page 20-180).
3. Remove the screws securing the seat-back recline lever (see step 3 on page 20-183).
4. Remove the back cover (see step 4 on page 20-184), then release the hooks from behind the seat-back, as needed (see step 5 on page 20-185).
5. If necessary, remove the screw, then remove the pivot cover (A).

Fastener Locations
▶ : Screw, 2



6. Remove the bolts, then remove the seat pivot (A).

Fastener Locations
▶ : Bolt, 2



7. Install the pivot in the reverse order of removal.

BACK

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Third Row Seat-back Recline Lever Replacement

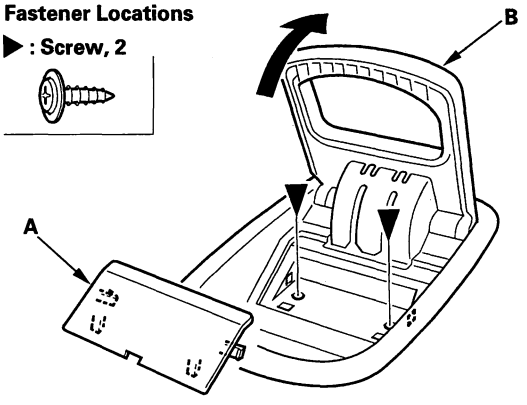
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to kink the seat-back recline cable.

1. Remove the left third row seat or right third row seat (see page 20-179).

2. Remove the seat-back (see page 20-180).

3. Pry out the lid (A), and remove the screws securing the third row seat-back recline lever (B).

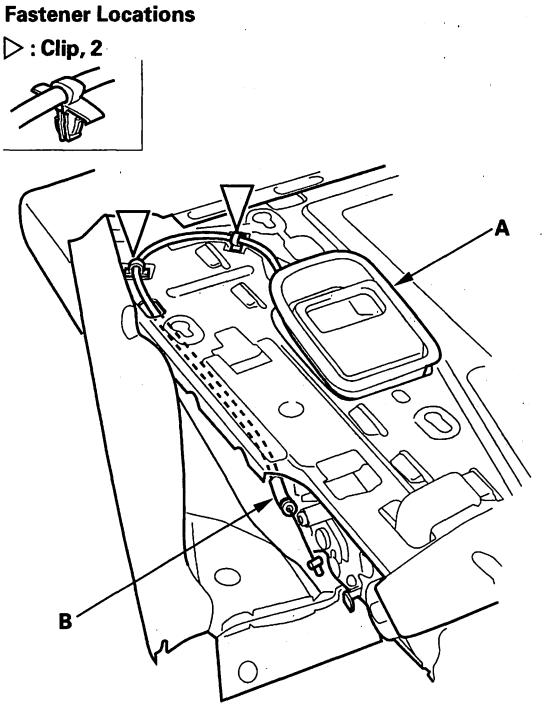


4. Remove the back cover (see step 4 on page 20-184), then release the hooks from behind the seat-back, as needed (see step 5 on page 20-185).

5. Remove the outer latch cover (see step 5 on page 20-181).

6. Disconnect the seat-back recline cable (see step 7 on page 20-181).

7. Remove the clips, then remove the seat-back recline lever (A) with the recline cable (B).



8. Install the lever in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Make sure the recline cable is connected securely.
- Make sure the seat unlatches properly and latches securely.

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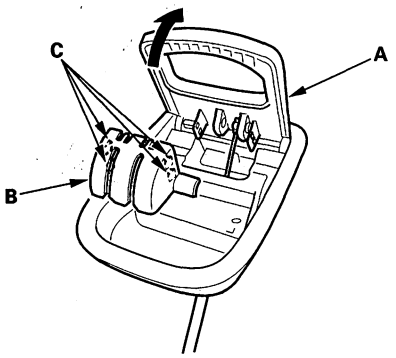
Third Row Seat-back Recline Cable Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

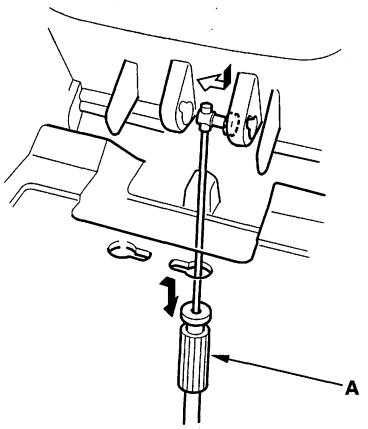
NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to kink the cable.

1. Remove the third row seat-back recline lever (see page 20-183).

2. While holding the lever (A) open, carefully pry out the cover (B) with trim tool to release the tabs (C), then remove the cover.



3. Disconnect the recline cable (A).



4. Install the third row seat-back recline cable in the reverse order of removal, and note these items:

   - Make sure the cable is connected securely.
   - Make sure the seat unlatches properly and latches securely.

Third Row Seat Cover Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the interior trim.
- Take care not to tear the seams or damage the seat covers.

Seat-back Cover

1. Remove the third row seat (see page 20-179).

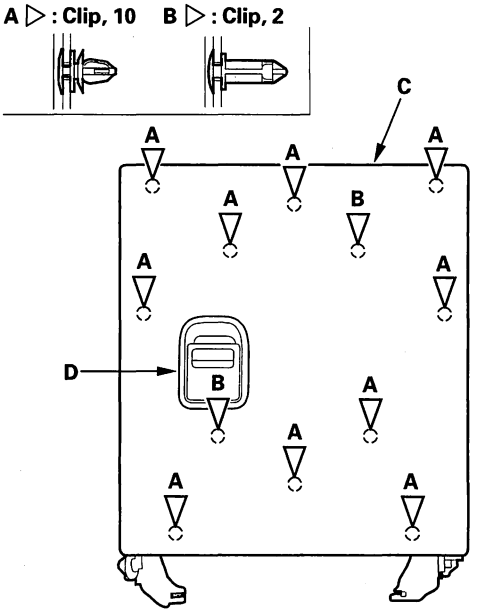
2. Remove these items.

   - Seat cushion (see page 20-180)
   - Head restraint

3. Remove the screws securing the seat-back recline lever (see step 3 on page 20-183).

4. Detach the clips (A, B), and remove the back cover (C) from the frame, then turn the cover to pass the recline lever (D) through a hole in the cover.

Fastener Locations
A ▷: Clip, 10 B ▷: Clip, 2



BACK

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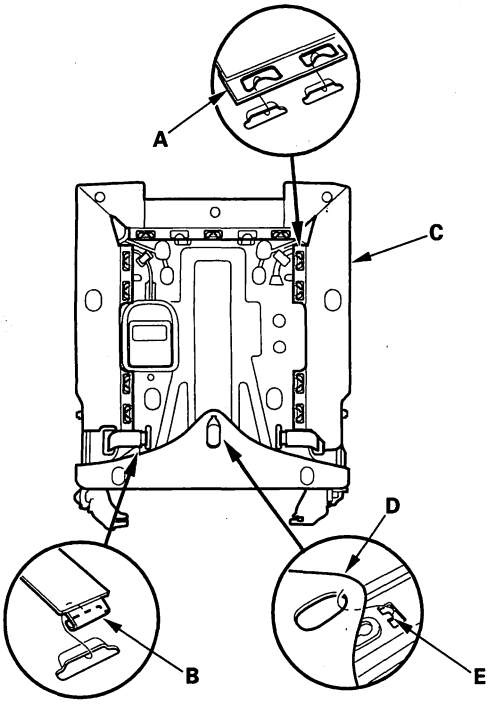
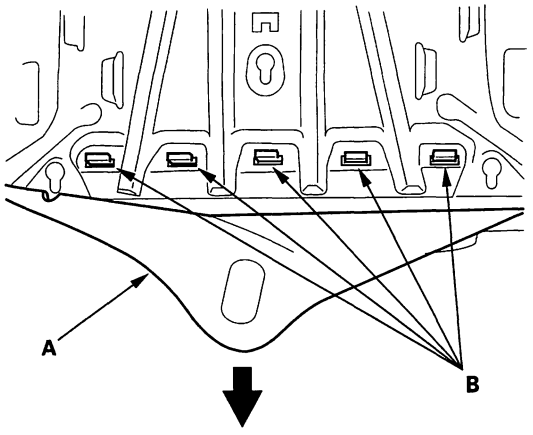
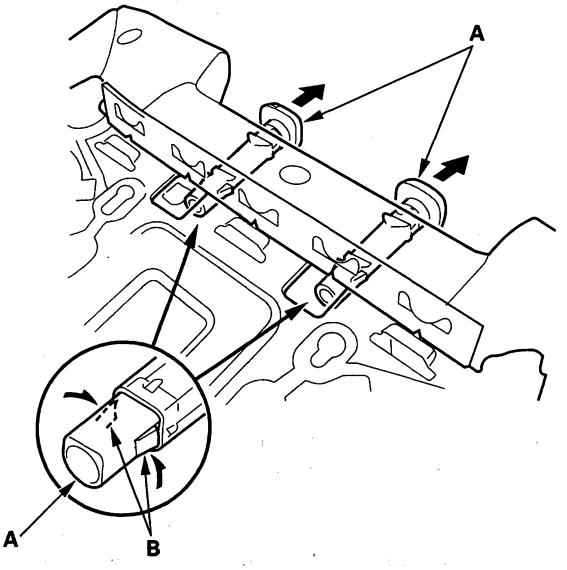
5. Release all of the hooks (A, B) from behind the seat-back (C). Unhook the edge of the seat-back cover (D) from the hook (E) of the seat-back frame.



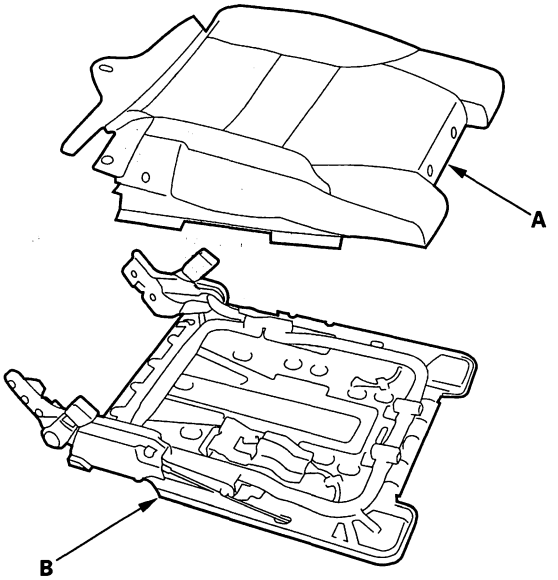
6. Pull the seat-back cover (A) back, and release the hooks (B).



7. Pull out the head restraint guides (A) while pinching the tabs (B) on the end of the guides, and remove them.



8. Remove the seat-back cover/pad (A) from the seat-back frame (B).



(cont'd)

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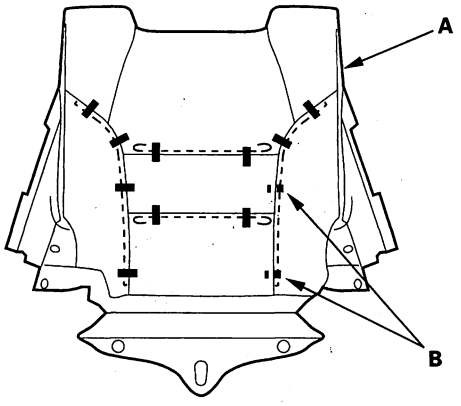
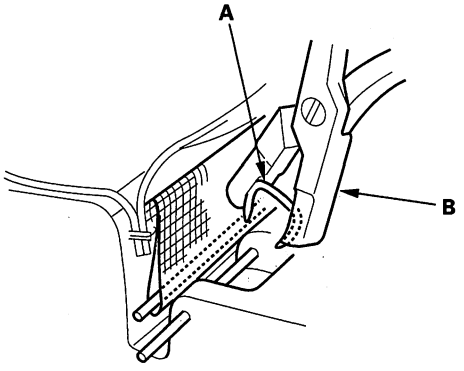
Third Row Seat Cover Replacement (cont'd)

9. Pull back the edge of the seat-back cover (A) all the way around, then release all of the clips (B). Remove the seat-back cover.



10. Install the seat-back cover in the reverse order of removal, and note these items:

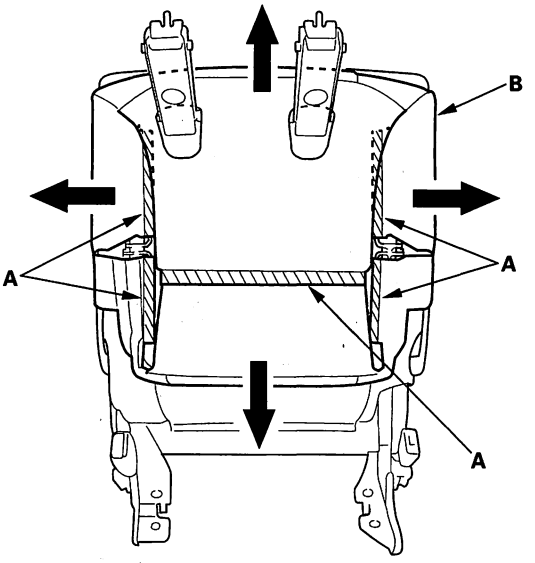
- To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing the hook and clips.
- Replace any clips (A) you removed with new ones using commercially available upholstery ring pliers (B).



Seat Cushion Cover

1. Remove both front mounting bolts (see page 20-179).

2. Release the hook strips (A) from under the seat cushion (B).



3. Remove the pivot bolt cover from both sides (see step 2 on page 20-180).

BACK

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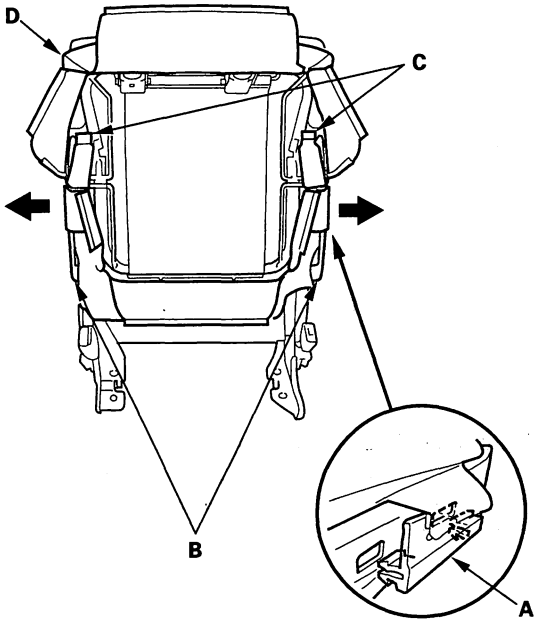
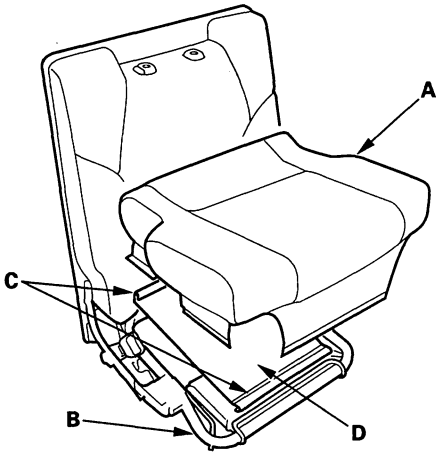
4. Detach the retainers (A) from both sides of the link (B), and release all of the hook strips (C) from under the seat cushion (D).

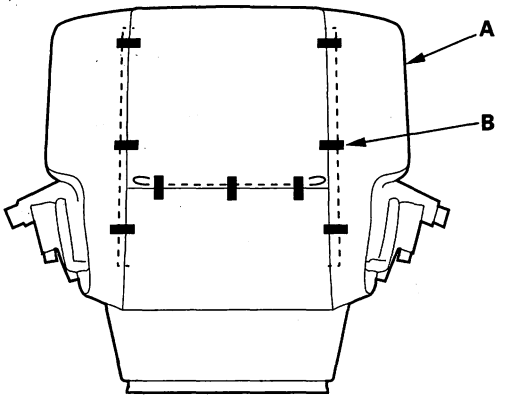


5. Remove the seat cushion cover/pad (A) from the seat cushion frame (B).



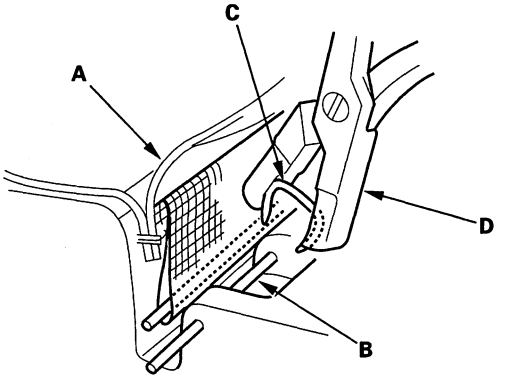
6. If necessary, release the hooks (C), then remove the suspension mat (D).

7. Pull back the edge of the seat cushion cover (A) all the way around, release all of the clips (B), under the right seat cushion cover, then remove the seat cushion cover.



8. Install the seat cushion cover in the reverse order of removal, and note these items:

   - To prevent wrinkles, make sure the material is stretched evenly over the pad before securing all the clips.
   - Replace all of the clips fastening the seat-back cover (A) and pad wire (B) with new ones (C) using commercially available upholstery ring pliers (D).



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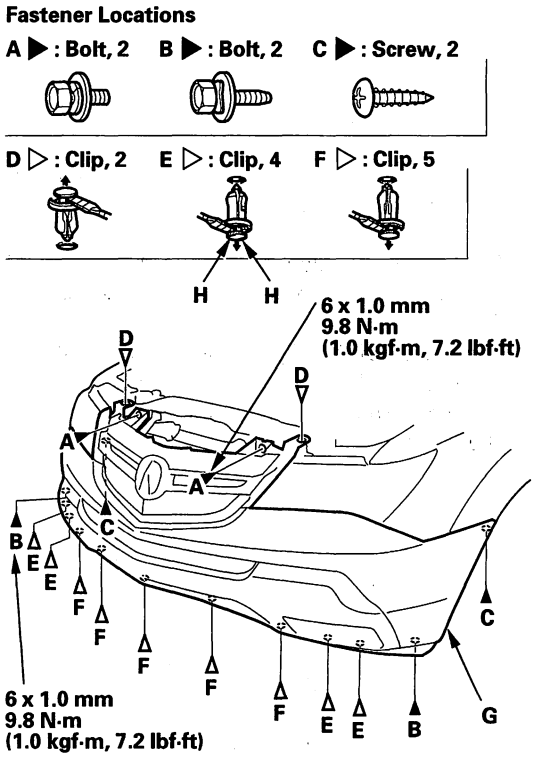
Front Bumper Removal/Installation

NOTE:
- Put on gloves to protect your hands.
- Have an assistant help you when removing and installing the front bumper.
- Take care not to scratch the front bumper and body.

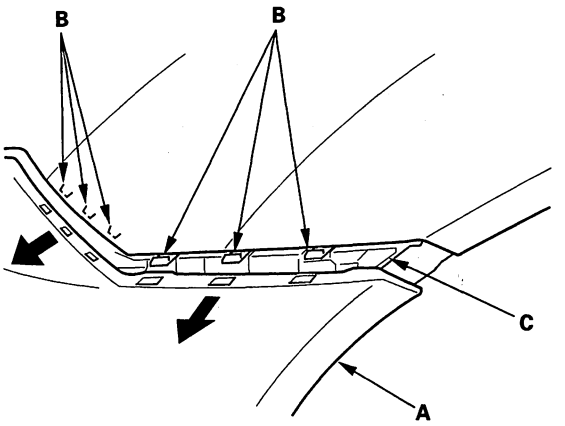
1. Remove the front bulkhead cover (see page 20-203).

2. Remove the bolts (A, B), screws (C), and clips (D, E, F) securing the front bumper (G).

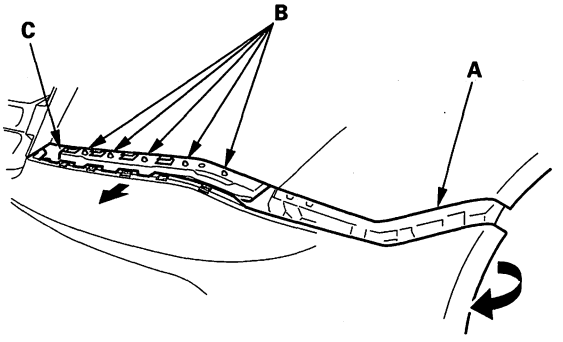
   NOTE: To remove the clips E, pry the inner clip up at the edge near the line (H) on its head.



3. Pull on the front bumper (A) at the wheel arch areas to release it from the hooks (B) on the side spacers (C).



4. With the help of an assistant, while pulling the wheel arch portion away from the side spacer (A), pull the front bumper to release the bumper from the hooks (B) on the corner upper beam (C).



BACK

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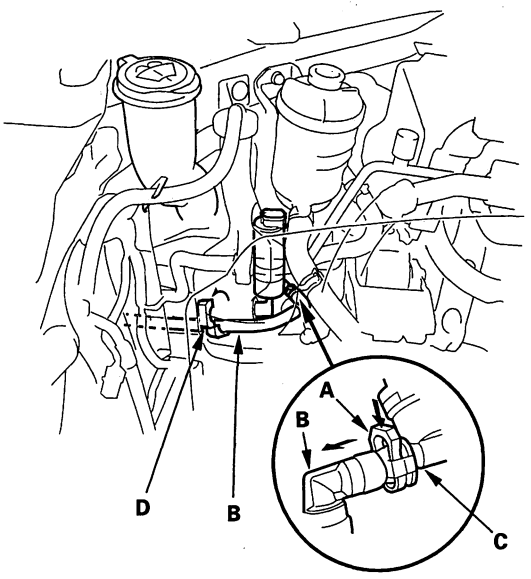
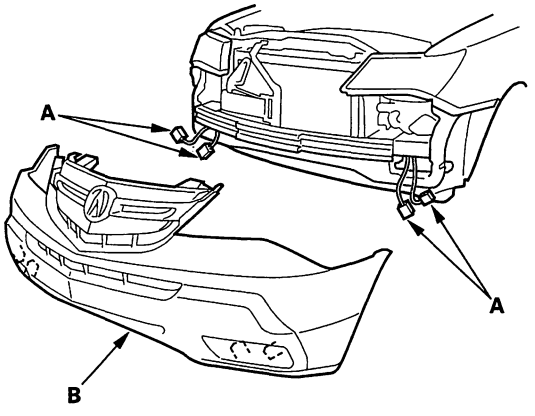
5. With headlight washer: While pushing the retainer (A), pull the headlight washer tube (B) to disconnect it from a nozzle (C) of the washer motor. Release the washer tube from the tube clip (D).



6. With the help of an assistant, disconnect the front fog light connectors (A), then remove the front bumper (B).



7. Install the bumper in the reverse order of removal, and note these items:

- Make sure the front fog light connectors are plugged in properly, and the headlight washer tube is connected properly.
- Make sure the front bumper engages the hooks (of both center upper beams and side spacers) on each side securely.
- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips and hooks into place securely.

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Front Bumper Skid Trim Replacement

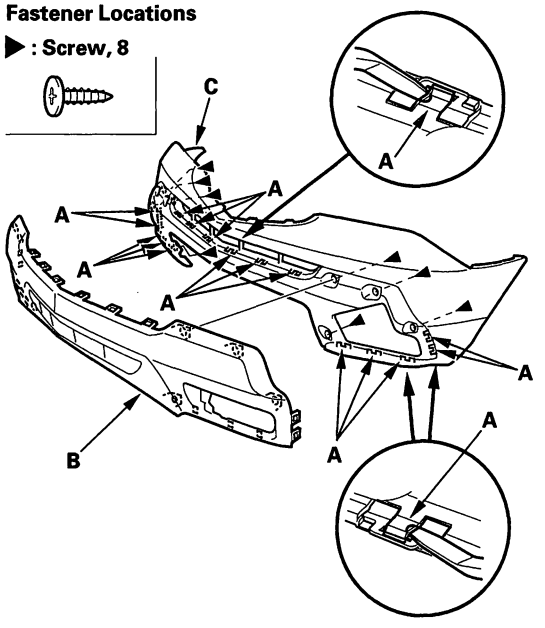
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the front bumper
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the front bumper (see page 20-188).

2. Remove all of the screws. Pry all of the hooks (A) up with a trim tool, then remove the front bumper skid trim (B) from the front bumper (C).

Fastener Locations
▶ : Screw, 8



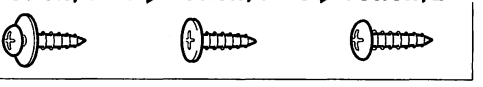
3. Install the trim in the reverse order of removal, and push the hooks into place securely.

Rear Bumper Removal/Installation

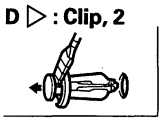
NOTE:
- Put on gloves to protect your hands.
- Have an assistant help you when removing and installing the rear bumper.
- Take care not to scratch the rear bumper and body.

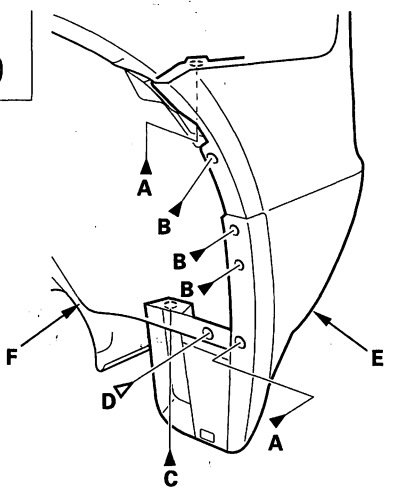
1. From the rear wheel arches on both sides, remove the screws (A, B, C) and clips (D) securing the rear bumper (E), and rear fender cover (F).

Fastener Locations
A ▶ : Screw, 4 B ▶ : Screw, 6 C ▶ : Screw, 2



D ▷ : Clip, 2





BACK

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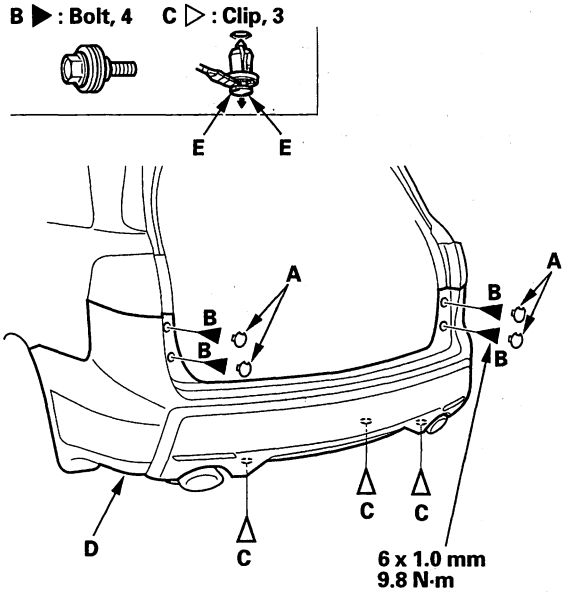
2. Remove the caps (A). Remove the bolts (B) and clips (C) securing the rear bumper (D).

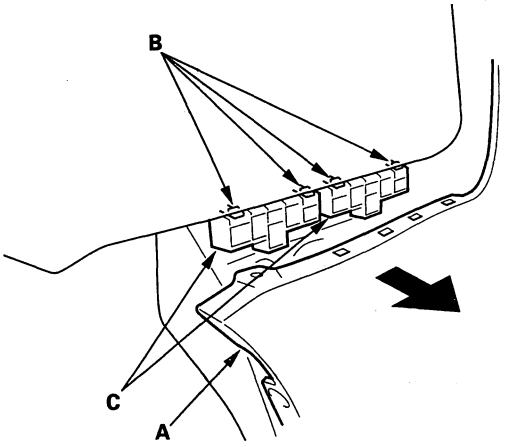
   NOTE: To remove the clips, pry the inner clip up at the edge near the line (E) on its head.

Fastener Locations

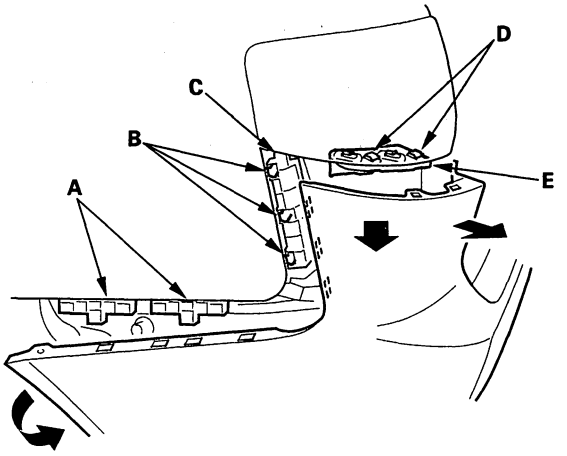
B ▶ : Bolt, 4 C ▷ : Clip, 3



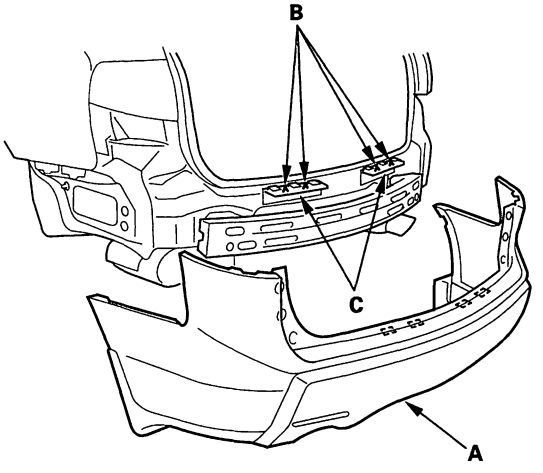
3. Pull on the rear bumper (A) at the wheel arch areas to release it from the hooks (B) on the side spacers (C).



4. With the help of an assistant, while pulling the wheel arch portion away from the side spacers (A), pull the rear bumper to release the bumper from the hooks (B) on the side upper spacer (C), and from the hooks (D) on the side bracket (E).



5. With the help of an assistant, pull out on the rear bumper to release the bumper (A) from the hooks (B) on both upper brackets (C).



(cont'd)

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Rear Bumper Removal/Installation (cont'd)

6. Install the bumper in the reverse order of removal, and note these items:

   - Make sure the rear bumper engages the hooks (of both the side bracket, side spacers, and side upper spacers) on each side securely.
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips and hooks into place securely.

Rear Bumper Skid Trim Replacement

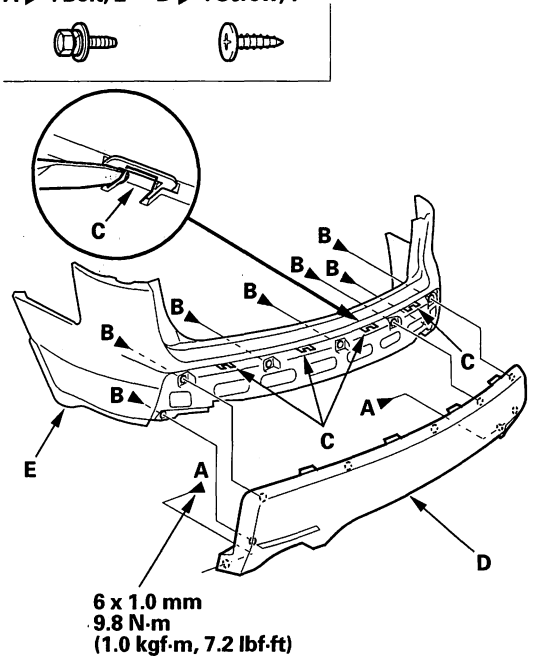
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the front bumper.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the rear bumper (see page 20-190).

2. Remove all of the bolts (A) and screws (B). Pry all of the hooks (C) up with a trim tool, then remove the rear bumper skid trim (D) from the rear bumper (E).

Fastener Locations
A ▶ : Bolt, 2 B ▶ : Screw, 7



3. Install the trim in the reverse order of removal, and push the hooks into place securely.

BACK

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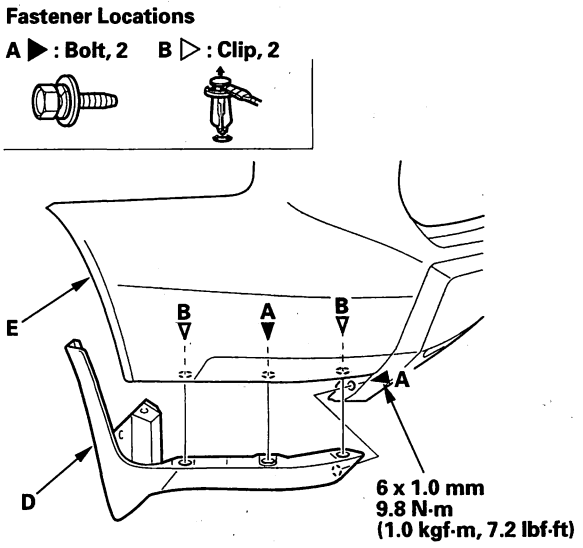
Rear Bumper Air Spoiler Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the rear bumper.

1. Remove the rear bumper (see page 20-190).

2. Remove the bolts (A) and clips (B) then remove the rear bumper air spoiler (D) from the rear bumper (E). Take care not to scratch the rear bumper.

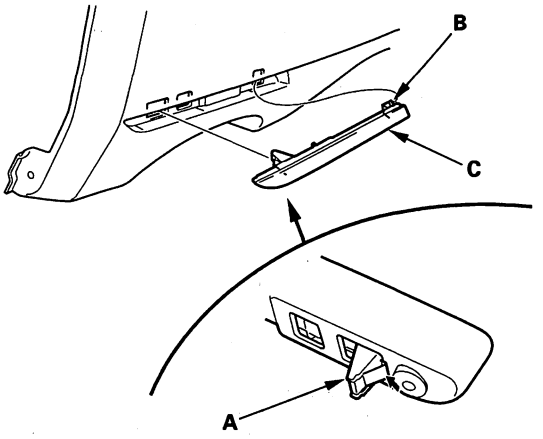


3. Install the spoiler in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

Rear Bumper Reflector Replacement

NOTE:
- Put on gloves to prevent damage.
- Take care not to scratch the rear bumper and body.

1. Push out the clip (A), release the hook (B), then remove the rear bumper reflector (C).



2. Reattach the hook to the rear bumper first, and push the clip into place securely.

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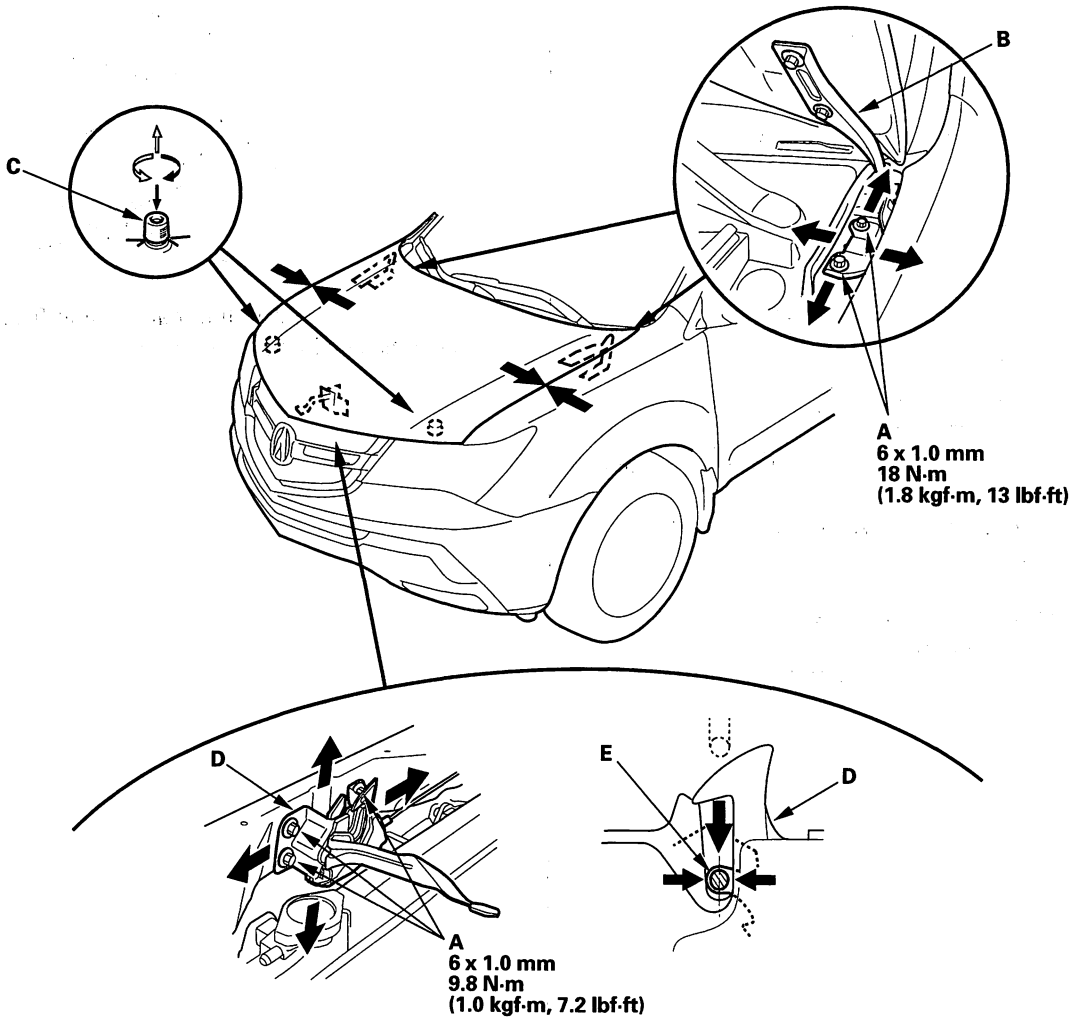
Hood

Hood Adjustment

1. Remove these items:
   - Front bulkhead cover (see page 20-203)
   - Hood support strut, both sides (see page 20-195)
2. Slightly loosen each bolt (A).
3. Adjust the hood alignment in this sequence:
   - Adjust the hood right and left, as well as forward and rearward, by using the elongated holes in the hood hinges (B).
   - Turn the hood edge cushions (C), as necessary, to make the hood fit flush with the body at the front and side edges.



4. Adjust the hood latch (D) to obtain the proper height at the forward edge, and move the hood latch right or left until the striker (E) is centered in the hood latch.
5. Tighten the bolts to the specified torque.

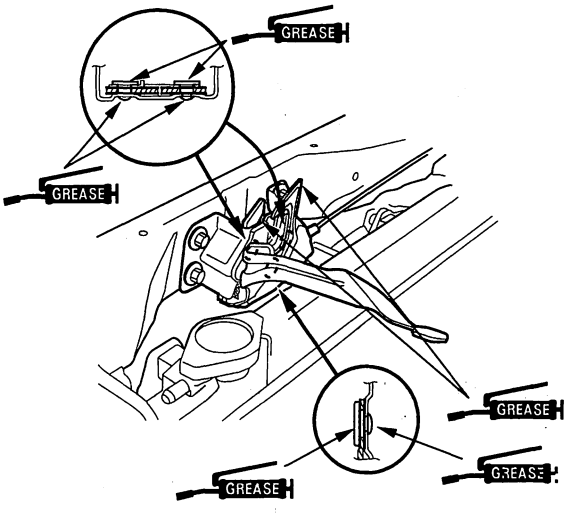
BACK

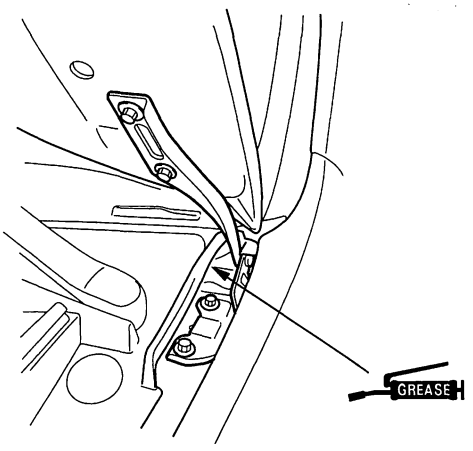
Protected by AR

6. Check that the hood opens properly and closes securely.

7. Apply touch-up paint to the hinge mounting bolts and around the hinges, and let the paint dry.

8. Apply multipurpose grease to the hood latch and hood hinges as indicated by the arrows.



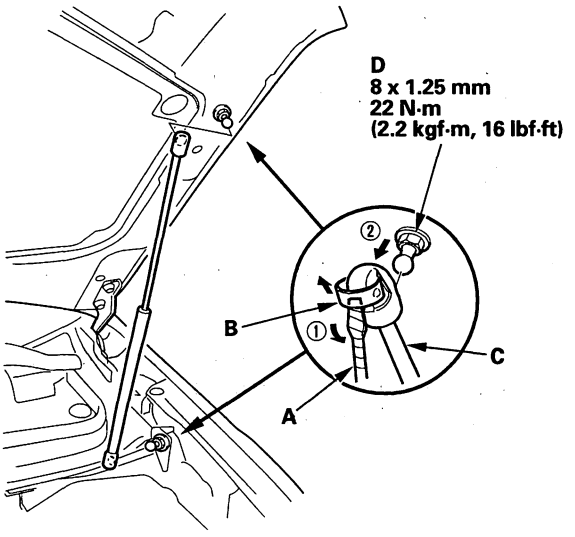


9. Reinstall all of the removed parts.

Hood Support Strut Replacement

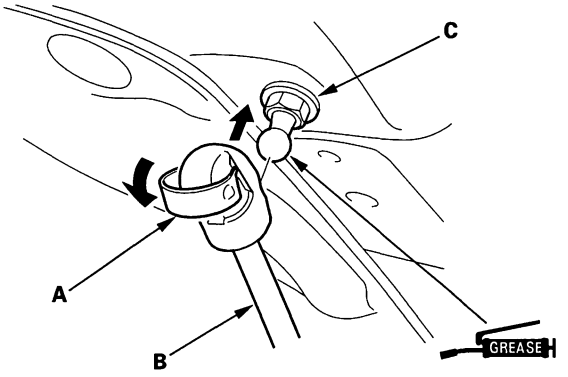
1. With the help of an assistant, use a flat-tip screwdriver (A) to pry the support strut clips (B) of the support strut (C) on the hood and body, then release the support strut from the pivot bolts (D). Do not remove the clips from the support strut.

   NOTE: Use eye protection when doing this procedure.



2. Apply multipurpose grease to each pivot.

3. Set the clips (A) on the original position, then reattach the support strut (B) on the pivot bolts (C) by pushing on the support strut.



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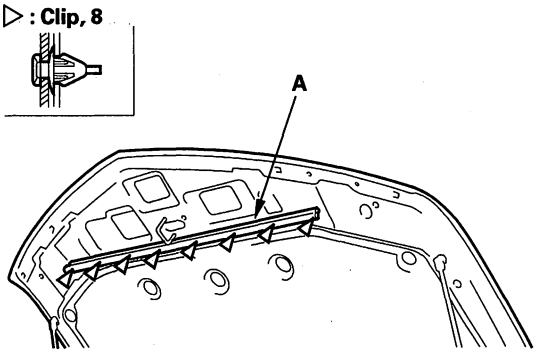
Hood

Hood Seal Replacement

1. Using a clip remover, detach the clips, then remove the hood seal (A). Take care not to scratch the hood.

Fastener Locations

▷ : Clip, 8



2. Install the seals in the reverse order of removal, and note these items:

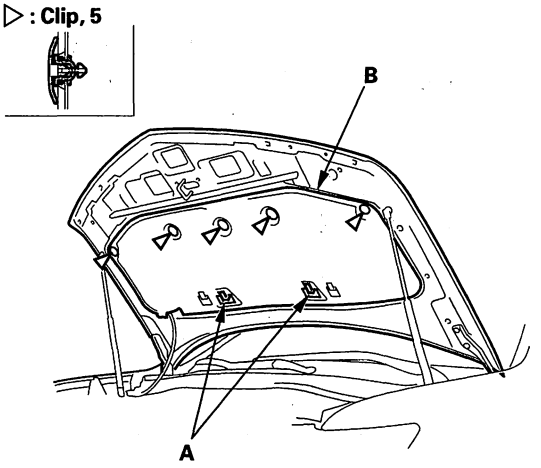
- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.

Hood Insulator Replacement

1. Using a clip remover, detach the clips. Release the hooks (A), then remove the hood insulator (B). Take care not to scratch the hood.

Fastener Locations

▷ : Clip, 5



2. Install the insulator in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.

BACK

Protected by AR

Tailgate Adjustment

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

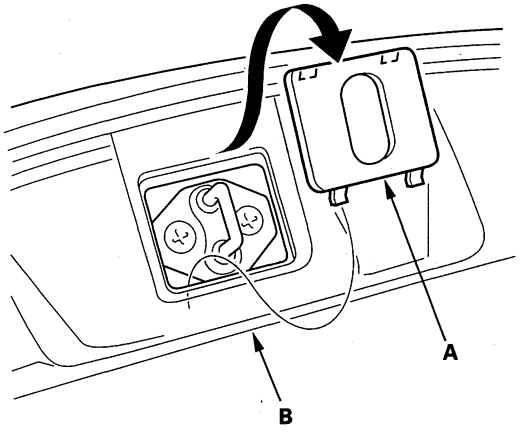
1. With power tailgate: Make sure you have the anti-theft code for the audio and the navigation system (if equipped).

2. With power tailgate: Disconnect the negative cable from the battery.

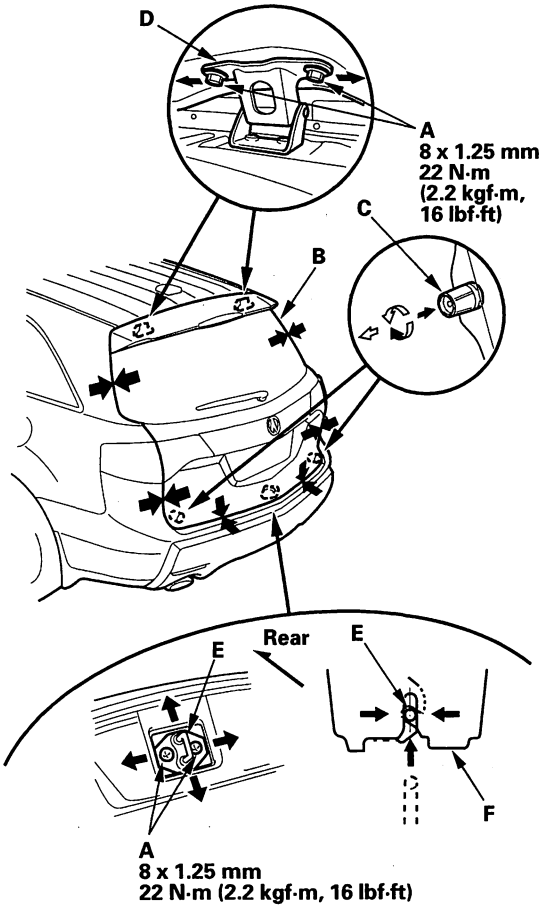
   NOTE: Open the tailgate by using the emergency lever while adjusting the tailgate (see page 20-229).

3. Remove the Support strut from each side (see page 20-198).

4. Remove the striker cap (A) from the rear trim panel (B).



5. Slightly loosen each bolt (A).



6. Adjust the tailgate (B) alignment in the following sequence:

   - Adjust the tailgate right and left, using the elongated holes in the tailgate hinges (C).
   - Turn the tailgate edge cushions (D), in or out as necessary, to make the tailgate fit flush with the body at the side edges.
   - Adjust the fit between the tailgate and tailgate opening by moving the striker (E), and adjust the striker right or left until it is centered in the tailgate latch (F).

(cont'd)

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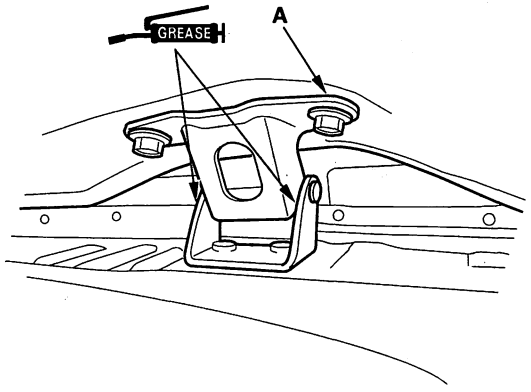
Tailgate Adjustment (cont'd)

7. Tighten each bolt securely.
8. Check that the tailgate opens properly and locks securely.
9. Reinstall the support struts securely.
10. Apply touch-up paint to the hinge mounting bolts and around the hinges, and let the paint dry.
11. Apply multipurpose grease to the pivot portion of the tailgate hinges (A) as indicated by the arrows.



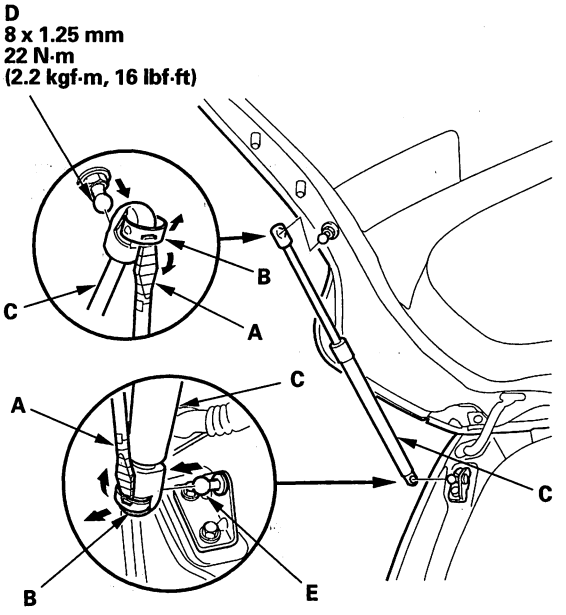
12. Reinstall all of the removed parts.
13. With power tailgate: Reconnect the negative cable to the battery.

    NOTE:
    - Enter the anti-theft code for the audio and the navigation system (if equipped).
    - Set the clock.
    - Check for any DTCs that may have been set during repairs, and clear them.
    - Do the steering column position memorization (see page 17-28).

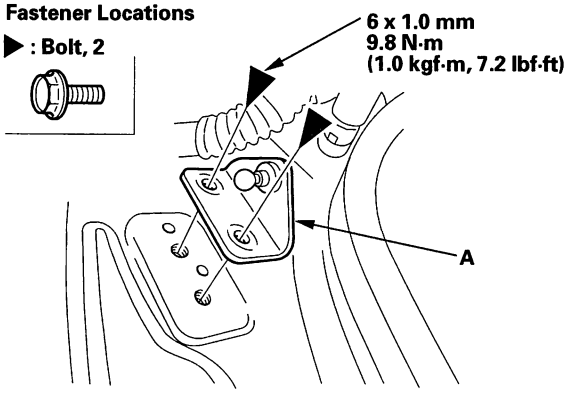
Tailgate Support Strut Replacement

1. With the help of an assistant, use a flat-tip screwdriver (A) to pry the support strut clips (B) from each end of the support strut (C) at the tailgate and body, then release the support strut from the pivot bolt (D) and from the pivot bracket (E). Do not remove the clips from the support strut.

   NOTE: Use eye protection when doing this procedure.



2. Remove the bolts, then remove the pivot bracket (A).

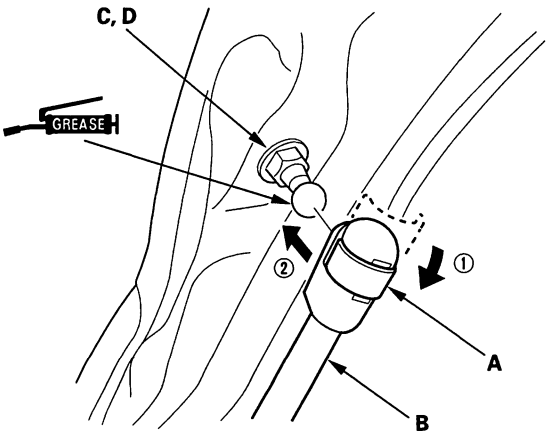


3. Reinstall the pivot bracket.

BACK

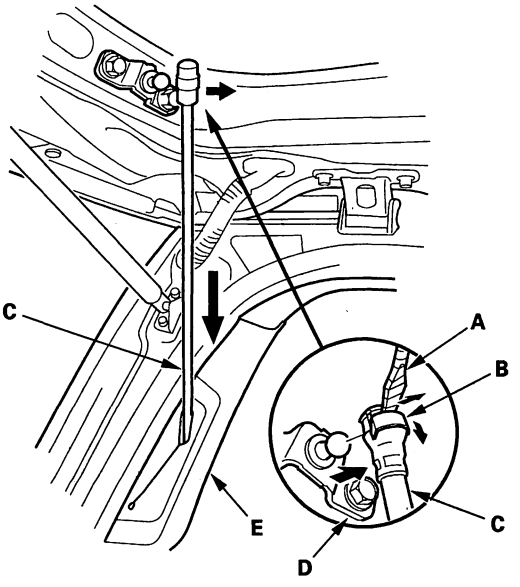
Protected by AR

4. Set the clips (A) on the original position, then reattach the support strut (B) on the pivot bolt (C) and pivot bracket (D) by pushing the support strut onto the pivot.



1. With: power tailgate: Remove the left tailgate side trim (see page 20-96).

2. With power tailgate: Use a flat-tip screwdriver (A) to pry the clip (B) downward from the power tailgate motor rod (C), then release the rod from the pivot bracket (D) and push it in the quarter pillar trim (E). Do not remove the clip from the rod.



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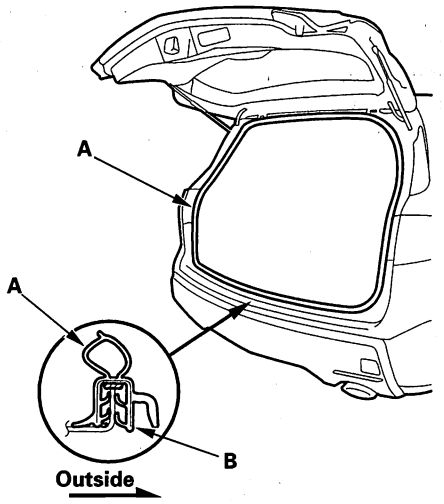
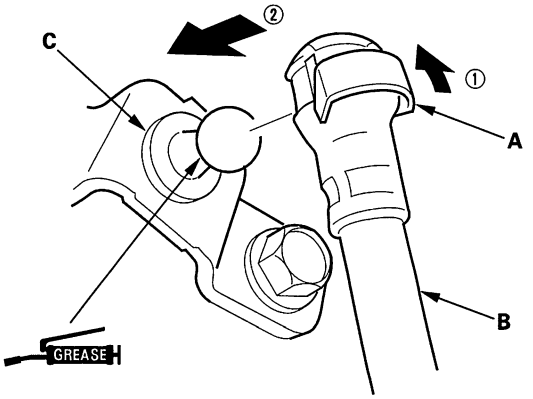
Tailgate Weatherstrip Replacement (cont'd)

3. Remove the tailgate weatherstrip (A) by pulling it out.



4. Locate the painted alignment mark (B) on the tailgate weatherstrip. Align the painted mark with the alignment tab in the center of the tailgate opening, and install the tailgate weatherstrip all the way around. Make sure there are no wrinkles in the weatherstrip.

5. With power tailgate: Set the clip (A) on the original position, then reattach the power tailgate motor rod (B) on the pivot bracket (C) by pushing the rod onto the pivot.



6. With power tailgate: Reinstall the left tailgate side trim (see page 20-96).

7. Check for water leaks.

BACK

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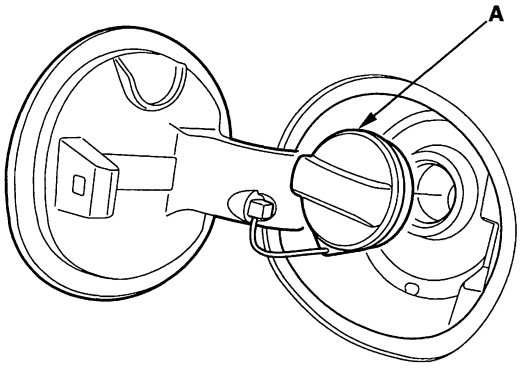
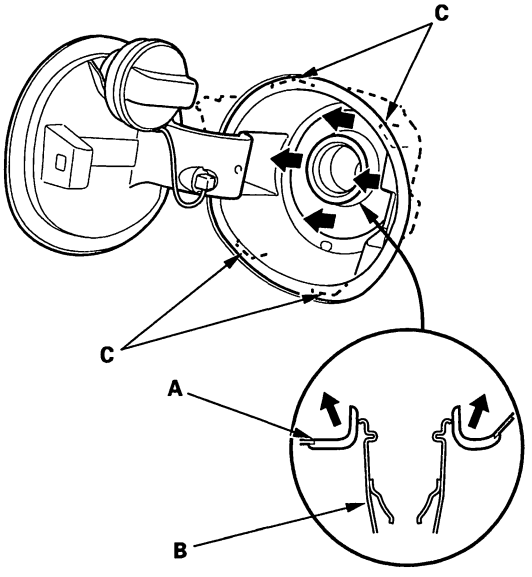
Fuel Fill Door/Adapter Replacement

NOTE: Take care not to scratch the body.

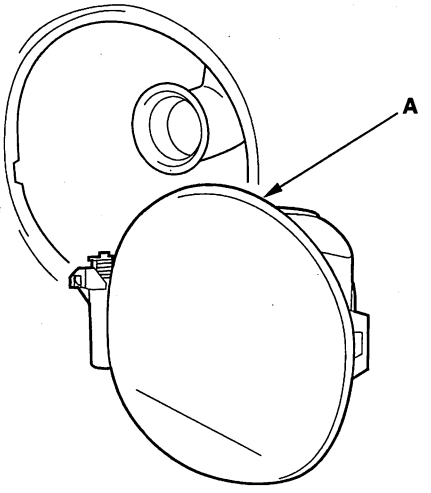
1. Remove the fuel fill door latch (see page 20-226).
2. Remove the fuel filler cap (A) by turning it counterclockwise.



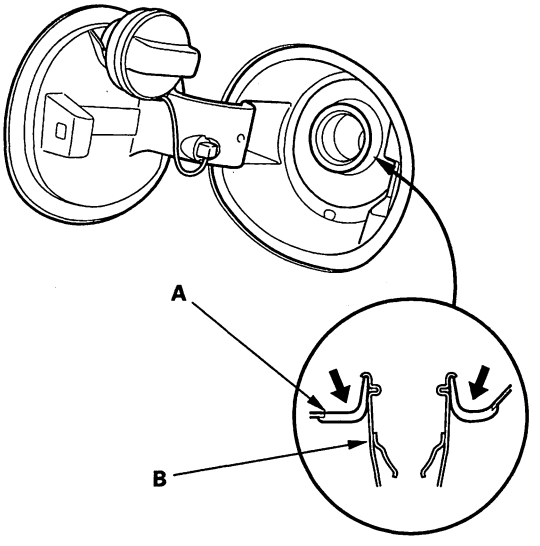
3. From inside the wheelhouse, carefully push up the adapter lip (A) around the fuel filler pipe (B), and release the hooks (C) from the edge of the body hole by hand.



4. Remove the fuel fill door/adapter (A) from the body.



5. Install the fuel fill door/adapter in the reverse order of removal, and make sure the adapter lip (A) is fully seated on the fuel fill pipe (B).



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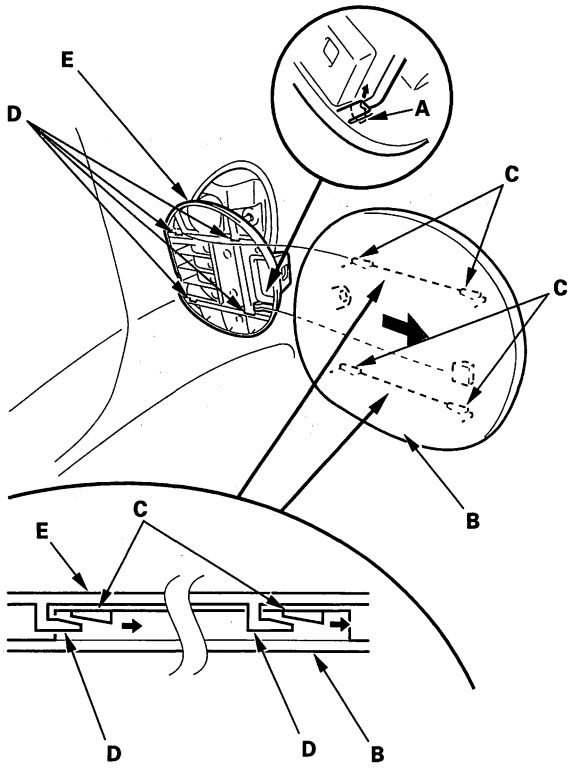
Fuel Fill Door

Fuel Fill Door Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Take care not to scratch the body.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. While prying the hook (A) up with a trim tool, slide the fuel fill door (B) back to release four wedges (C) from the hooks (D) of the fuel fill door hinge (E), then remove the fuel fill door.



2. Install the door in the reverse order of removal, and note these items:

   - Make sure the hooks are installed securely.
   - Make sure there is no gap between the fuel fill door and hinge.

BACK

Protected by AR

Front Bulkhead Cover Replacement

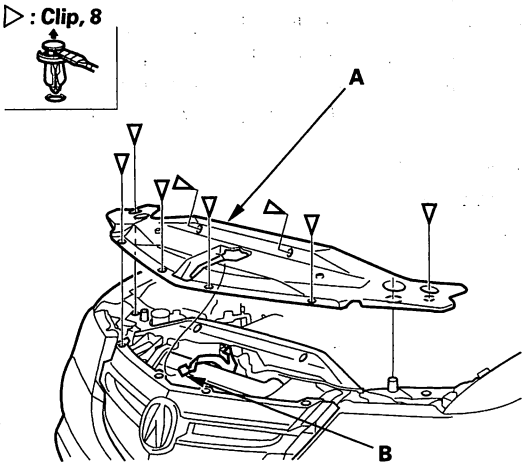
NOTE: Take care not to scratch the front bumper and body.

1. Remove the front bulkhead cover (A).

   -1 Remove the clips.
   -2 Pass the hood latch knob (B) through the hole in the cover.

Fastener Locations

▷: Clip, 8



2. Install the cover in the reverse order of removal, and note these items:

   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

Front Grille Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

Grille Replacement

NOTE: Take care not to scratch the front bumper and body.

1. Remove the front bulkhead cover (see page 20-203).

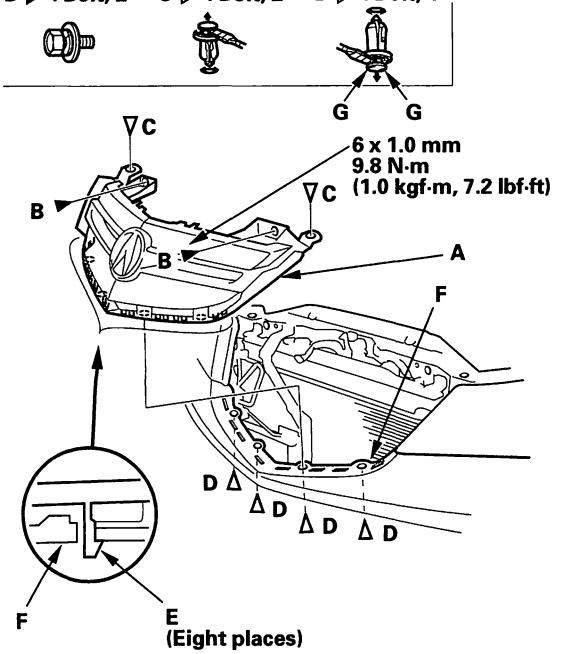
2. Remove the front grille (A).

   -1 Remove the bolts (B) and clips (C, D).
   -2 Release the hooks (E) of the gr ille from the front bumper (F) by pulling the grille upward.

   NOTE: To remove the clips D, pry the inner clip up at the edge near the line (G) on its head.

Fastener Locations

B ▶: Bolt, 2 C ▷: Bolt, 2 D ▷: Bolt, 4



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Protected by AR

Front Grille Replacement (cont'd)

3. Install the grille in the reverse order of removal, and note these items:

   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips and hooks into place securely.

Trim Replacement

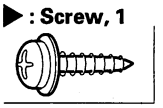
NOTE:
- Take care not to scratch the front grille.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

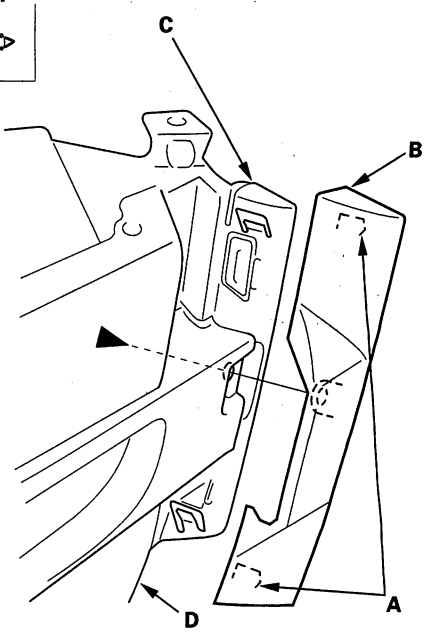
1. Remove the front grille.

2. Remove the screw. From behind the grille, pry up on the hooks (A) with a trim tool, then remove the front grille trim (B), and the front grille seal (C) from the front grille base (D). The left front grille trim is shown; the right front grille trim is similar.

Fastener Location

▶ : Screw, 1





3. Install the trim in the reverse order of removal, and push the hooks into place securely.

BACK

Protected by AR

Cowl Cover Replacement

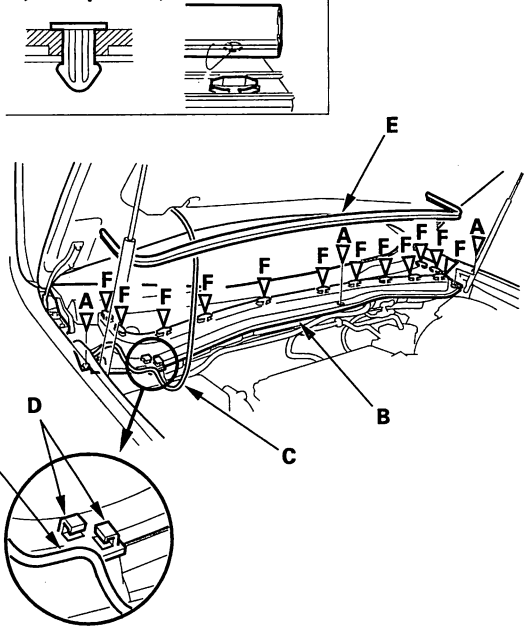
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Take care not to scratch the cowl cover and body.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.

1. Remove the windshield wiper arms (see page 22-305).

2. Using a trim tool, remove the clips (A) from the cowl cover (B).

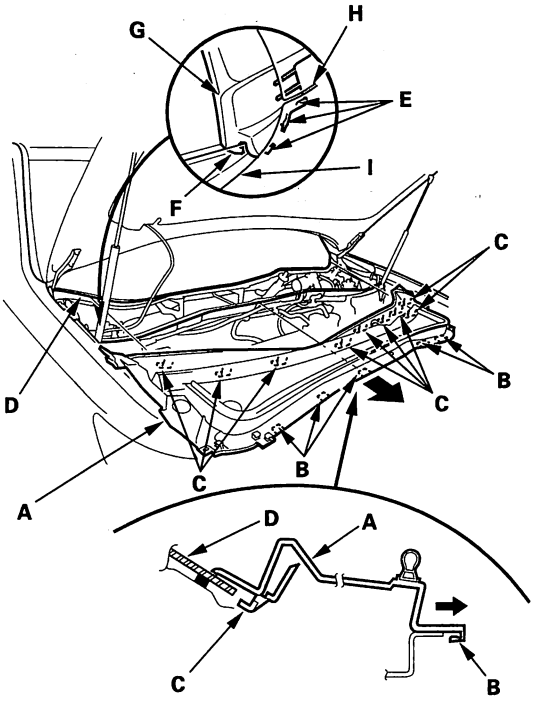
Fastener Locations
A ▷ : Clip, 3 F ▷ : Hook, 12



3. Release the windshield wiper washer tube (C) from the hooks (D).

4. If necessary, remove the hood rear seal (E) from all of the hooks (F).

5. Pull the cowl cover (A) forward to release the hooks (B, C) of it from the windshield (D) and body. From both hood hinge portions, release the hooks (E, F) of the hood hinge cover (G) from the front fender (H) and the roof molding (I).



6. Remove the cowl cover.

7. Install the cover in the reverse order of removal, and note these items:

   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

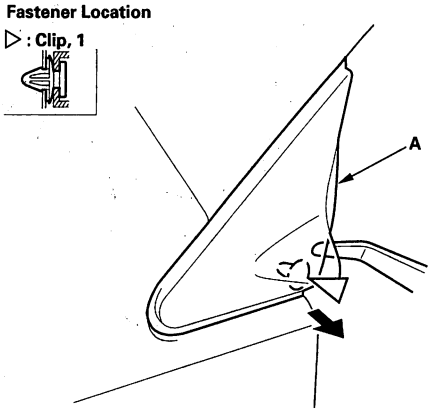
Protected by AR

A-Pillar Corner Trim Replacement

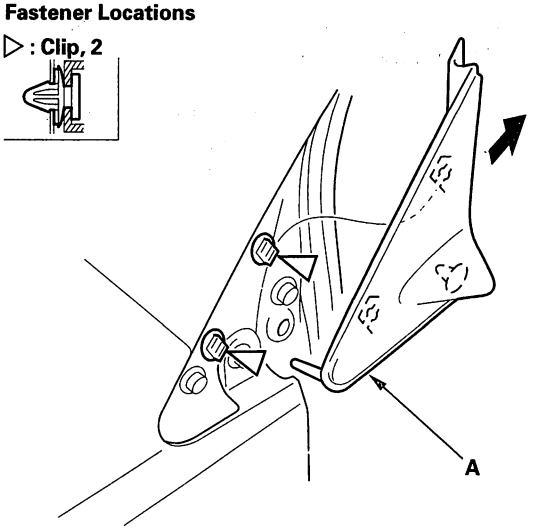
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Take care not to scratch the trim and body.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

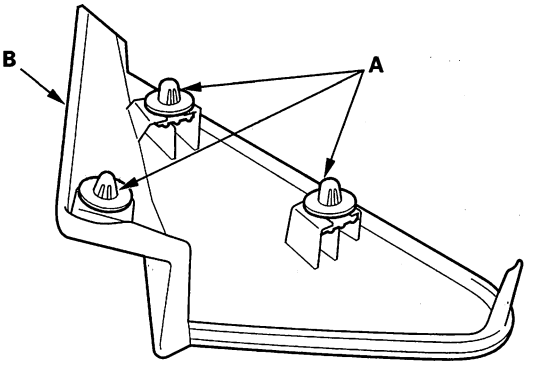
1. Open the front door.
2. Using a trim tool, detach the bottom clip of the A-pillar corner trim (A).



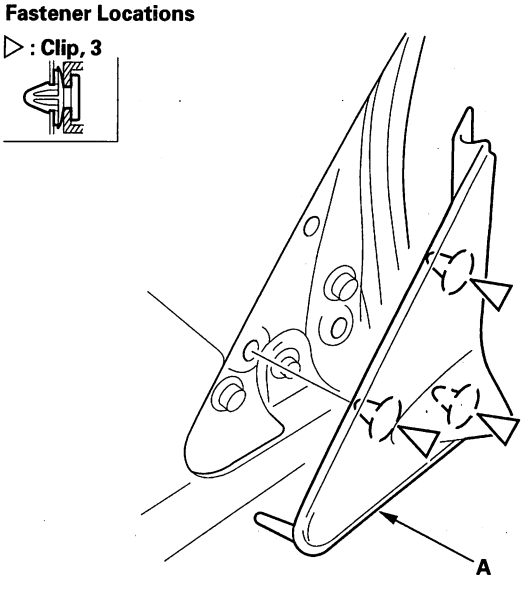
3. Gently slide the A-pillar corner trim (A) up along the A-pillar to release it from the clips.



4. Using a trim tool, remove the clips from the body.
5. If the clips are damaged or stress-whitened, replace them with new ones.
6. Install the clips (A) on the A-pillar corner trim (B).



7. Hold the A-pillar corner trim (A) up, and fit the clips into the holes in the body, then push on the trim until the clips snap into place securely.



BACK

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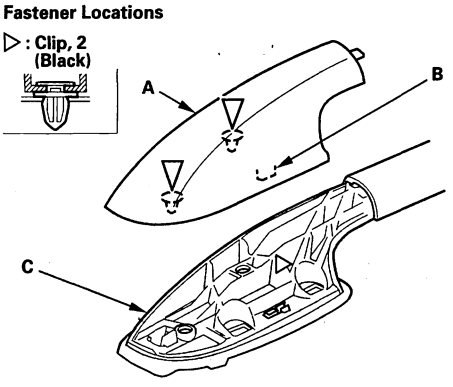
Roof Rail Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

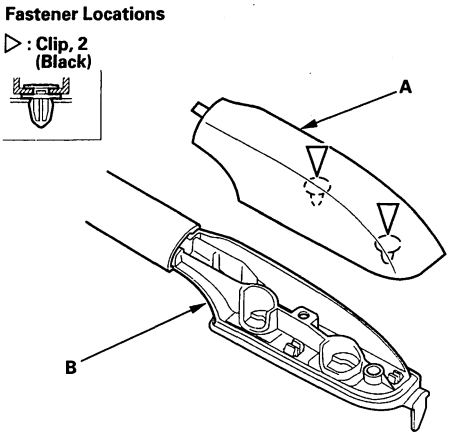
For Some Models

NOTE:
- Take care not to scratch the covers, roof rail, and the body.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- When using a flat-tip screwdriver, wrap it with protective tape to prevent damage.

1. Pry up on the front cover (A) with a trim tool to detach the clips and rib (B) from the front bracket (C), then remove the cover by pulling the cover forward.

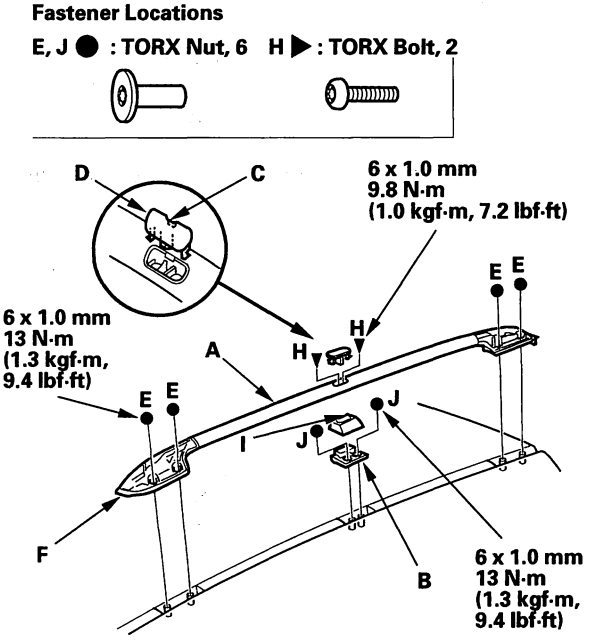


2. Pry up on the rear cover (A) with a trim tool to detach the clips from the rear bracket (B), then remove the cover by pulling the cover rearward.



3. Remove the roof rail (A) and the center bracket (B).

-1 Using a trim tool, pry the notch (C), then remove the roof rail bar cap (D).
-2 Using a T30 TORX bit, remove the nuts (E) from the front bracket (F) and the rear bracket (G).
-3 Using a T30 TORX bit, remove the bolts (H), then remove the roof rail.
-4 Remove the center cover (I), and using a T30 TORX bit, remove the nuts (J), then remove the center bracket.



4. Install the roof rail in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.

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Roof Molding Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

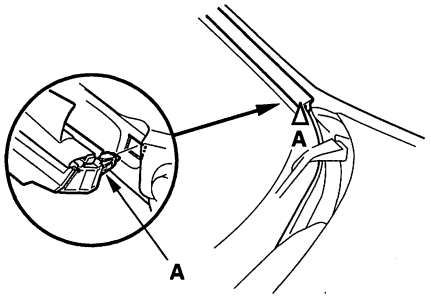
Molding Removal

NOTE:
- Put on gloves to protect your hands.
- Take care not to damage the windshield.
- Do not use any metallic tools to remove the windshield portion of the roof molding, or you may chip the edge of the windshield and some cracks in the windshield will occur.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to bend the roof molding.

1. For some models: Remove the roof rail (see page 20-207).

2. Detach the bottom clip (A) at the lower corner of the windshield.

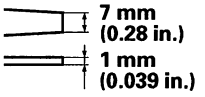
Fastener Location
A ▷: Clip, 1 (Left: Yellow, Right: Pink)

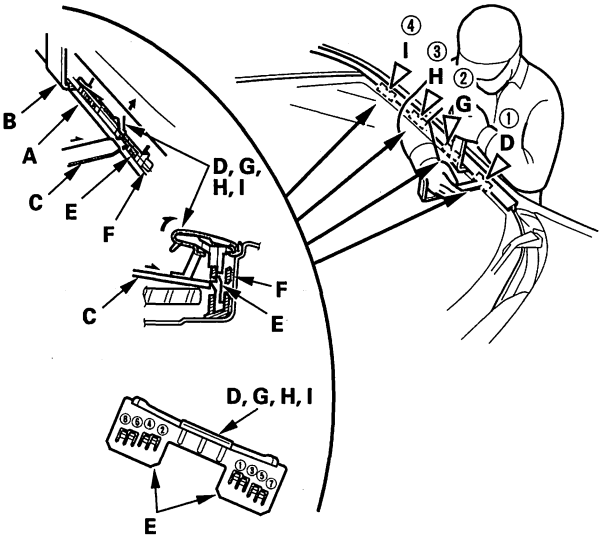


3. Remove the windshield portion of the roof molding (A).

1 Carefully insert the large trim tool (B) and plastic spatula (C) in under the molding next to the lower clip (D).
2 While pulling the clip portion of the molding up by hand, push each of the eight small hook (E) in numbered sequence shown to release the clip from the clip (F) on the A-pillar. Do not try to pry up the clip if it is hard to release from the clip on the A-pillar.
3 Gradually work your way up to release each of the upper clips (G, H, I).

Fastener Locations
D ▷: Clip (Blue)
G ▷: Clip (Green)
H ▷: Clip (Yellow)
I ▷: Clip (Orange)





BACK

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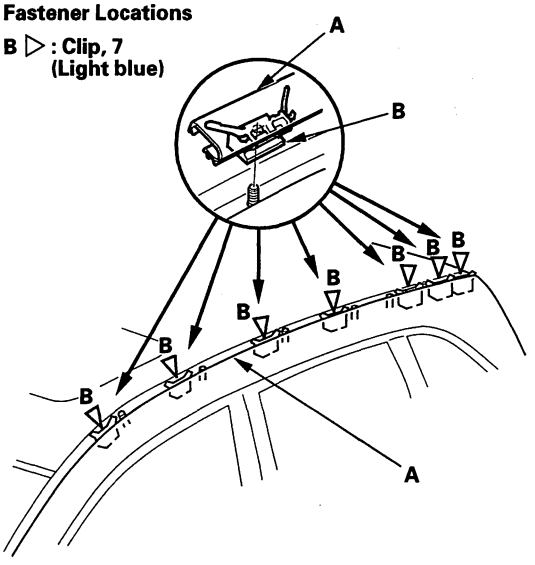
4. Start from the front to the rear, carefully insert a trim tool in under the roof molding(s) (A) next to each of the clips (B), and pry the molding(s) up to release it with the clip from the stud bolt on the body, then remove the roof portion of the molding(s).

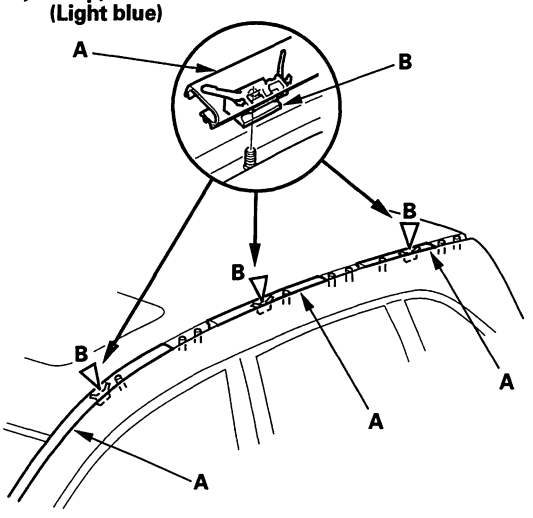
Without roof rail

Fastener Locations
B ▷ : Clip, 7 (Light blue)



With roof rail

Fastener Locations
B ▷ : Clip, 3 (Light blue)



5. If the clips are damaged or stress-whitened, replace them with new ones.

(cont'd)

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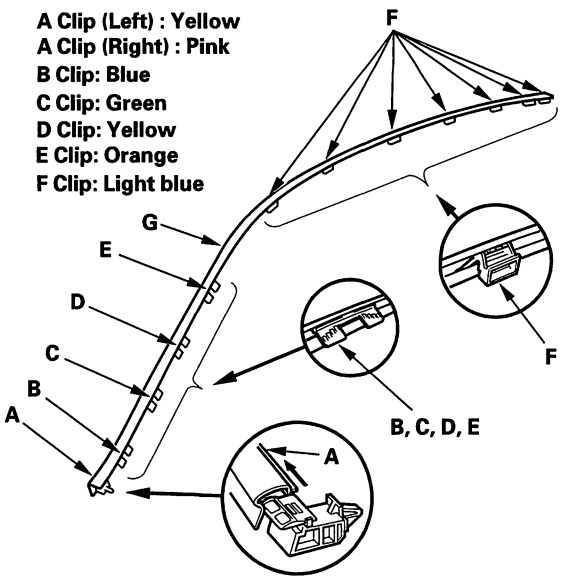
Roof Molding Replacement (cont'd)

Molding Installation

1. Install the clips (A, B, C, D, E, F) on the roof molding(s) (G).

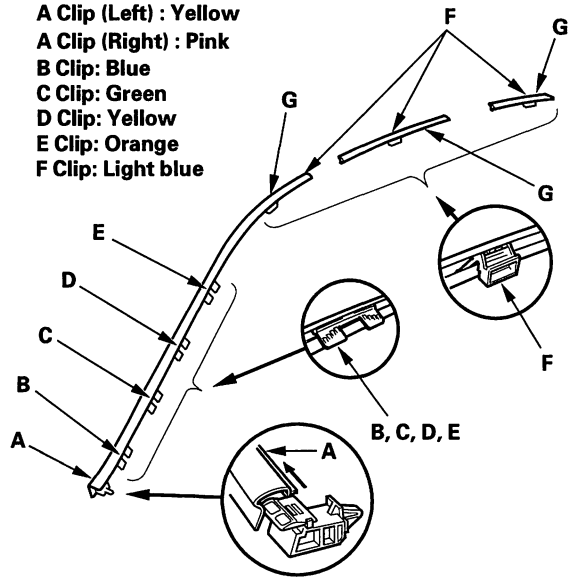
Without roof molding

A Clip (Left) : Yellow
A Clip (Right) : Pink
B Clip: Blue
C Clip: Green
D Clip: Yellow
E Clip: Orange
F Clip: Light blue



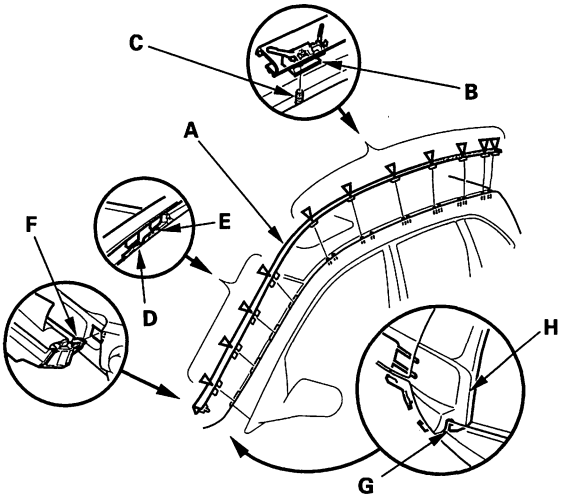
With roof molding

A Clip (Left) : Yellow
A Clip (Right) : Pink
B Clip: Blue
C Clip: Green
D Clip: Yellow
E Clip: Orange
F Clip: Light blue



2. Install the roof molding(s) (A).
   1. Hold the roof molding(s) up on the roof, and align each clip to the stud bolts.
   2. From the rear to the front, fit the clips (B) to the stud bolts (C), then push on the molding until they snap into place.
   3. From the top to the bottom, push the clips (D) in the windshield portion of the roof molding until they snap into place to the clip (E) on the A-pillar.
   4. Push the bottom clip (F) to the front fender into place.
   5. Set the hook (G) of the hood hinge cover (H).

Without roof rail



BACK

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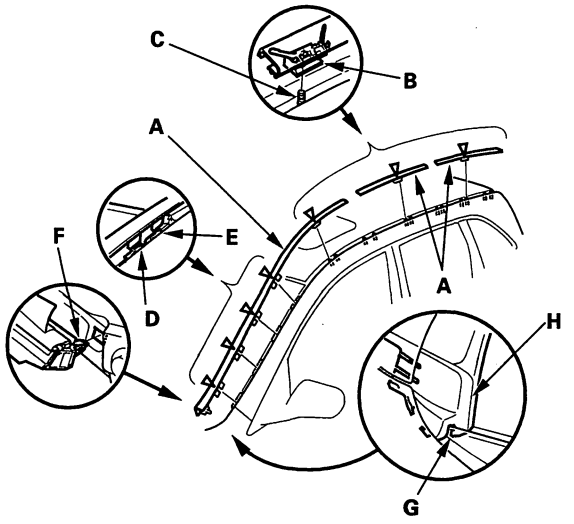
With roof rail

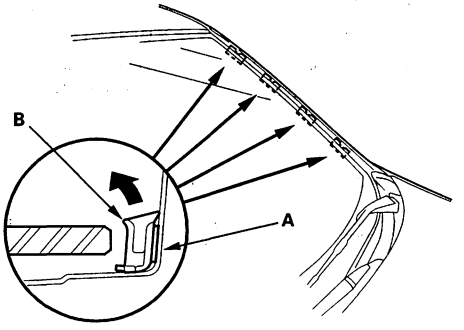


3. Push the clip portions into place securely and reinstall the roof rail (see page 20-207), if equipped.

Body Side Clip Replacement

1. Gradually scrape off the adhesive tape (A) under the clips (B) while heating it with a heat gun to 212 —248 °F (100 —120 °C).

   NOTE:
   - To prevent damage, do not heat the painted surface around the clips too much.
   - To keep the exterior resin parts near the A-pillar from being overheated by the heat gun, wrap them with aluminum foil.

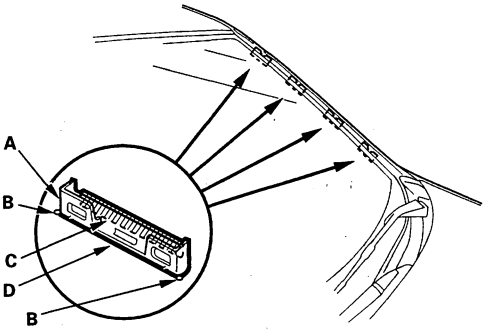


2. Clean the body bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.

3. Install the clips (A).

   -1 Peel the adhesive backing away from the clips.
   -2 Line up the clips with the alignment marks (B) on the body, and attach the clips with adhesive tape (C).
   -3 Apply two-part epoxy adhesive (D) around the edge of the clips as shown.

   Adhesive tape: Thickness 1 mm (0.04 in.)
   Width 8 mm (0.32 in.)



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Side Sill Panel Replacement

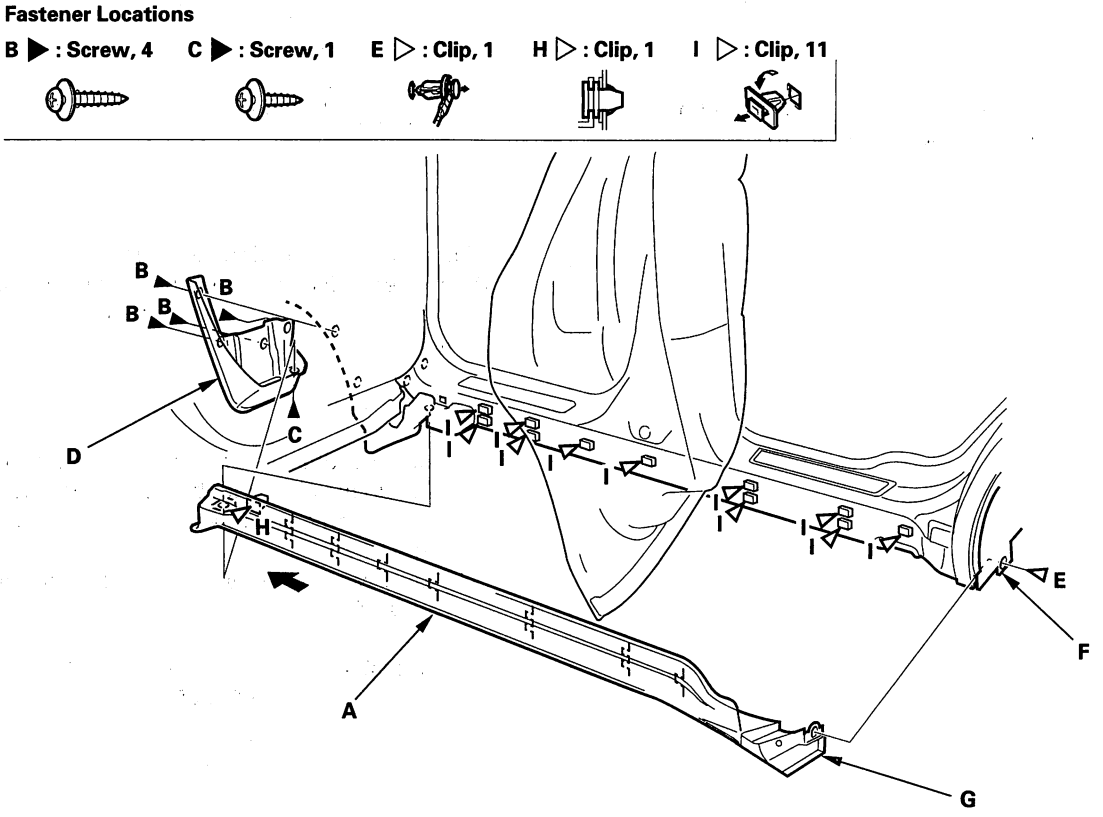
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE: Take care not to scratch the body.

1. Open the front door and rear door.

2. Remove the side sill panel (A).

   -1 Remove the screws (B, C), then remove the splash guard (D).
   -2 Remove the clips (E). fastening the rear fender cover (F) and the rear strake (G).
   -3 Use the trim tool to pry out the front clips (H), then release the front of the side sill panel from the body.
   -4 While pulling the front portion of the side sill panel away from the body, side the panel forward and remove it. The side clips (I) will stay in the body.
   -5 Remove the side clips by turning them 45 °.



3. If the clips are damaged or stress-whitened, replace them with new ones.

4. Install the side clips on the side sill panel.

5. Hold the panel up, and fit the front clip and all the side clips into the holes in the body, then push on the panel until the side clips snap into place.

6. Reinstall the front inner fender and front splash guard.

BACK

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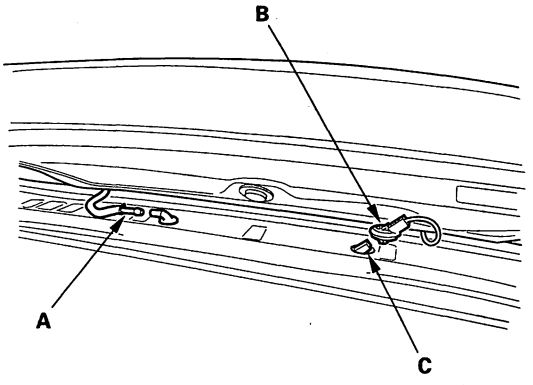
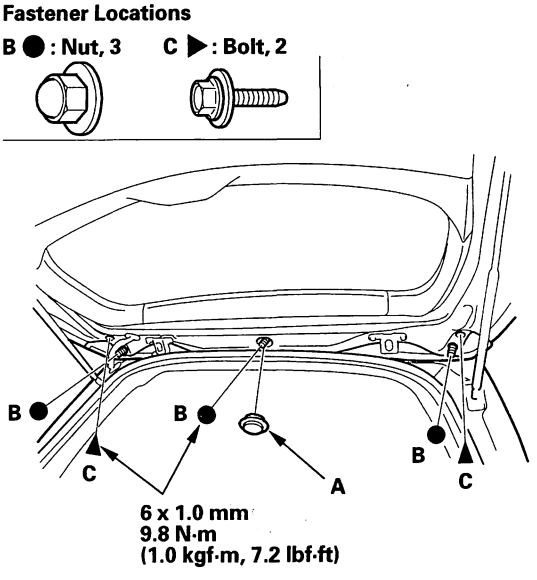
Tailgate Spoiler Trim Replacement

NOTE: Take care not to scratch the tailgate and body.

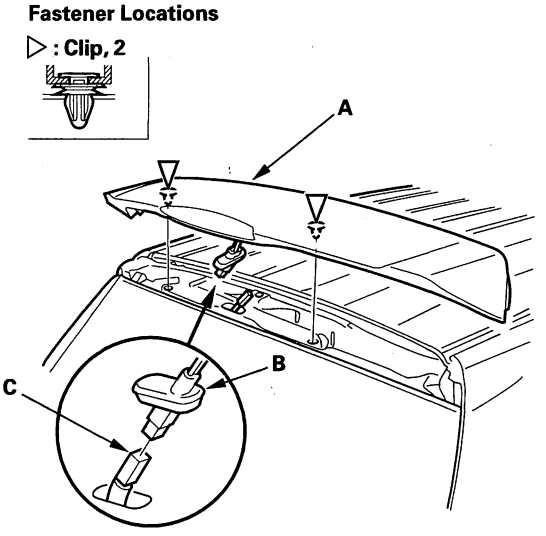
1. Open the tailgate. Disconnect the rear window washer tube (A). Remove the radio antenna connector grommet (B) from the tailgate, and disconnect the radio antenna connector (C).



2. Remove the access cap (A) from the tailgate, and remove the nuts (B) and bolts (C) securing the tailgate spoiler trim.



3. Gently close the tailgate, and lift up on the tailgate spoiler trim (A) to detach the clips.



4. Remove the high mount brake light connector grommet (B) from the tailgate, and disconnect the high mount brake light connector (C), then remove the tailgate spoiler trim.

5. Install the trim in the reverse order of removal, and note these items:

- Make sure the radio antenna connector and high mount brake light connector are plugged in properly and the rear window washer tube is connected properly.
- Make sure the radio antenna connector grommet and high mount brake light connector grommet are installed securely.
- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.

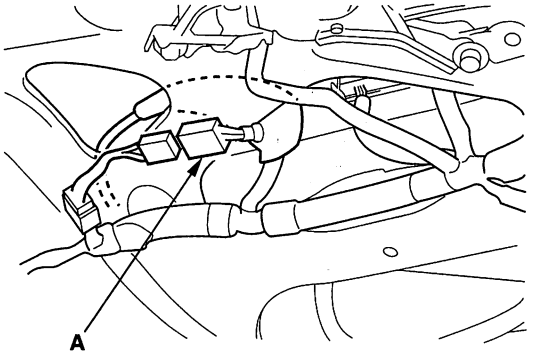
Protected by AR

Rear License Trim Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the tailgate.

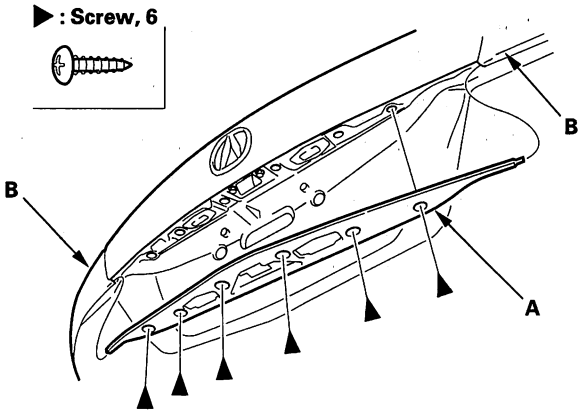
1. With navigation system: Remove the tailgate lower trim panel (see page 20-96).

2. With navigation system: From inside the tailgate, disconnect the rear camera unit connector (A).

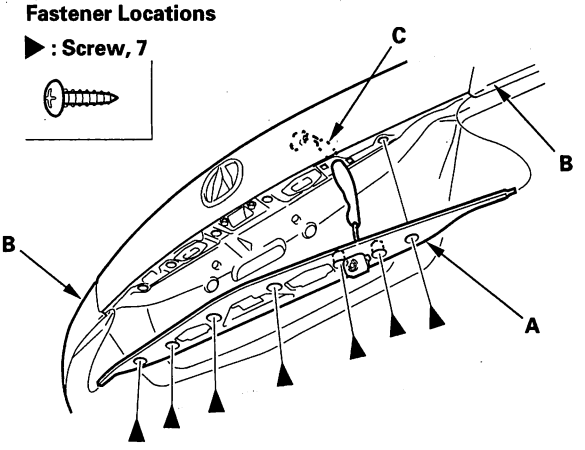


3. Remove the screws, and release both ends of the rear license trim (A) from the inner taillights (B), then remove the trim. If equipped, pull the rear camera unit harness (C) out.

Fastener Locations
▶ : Screw, 6

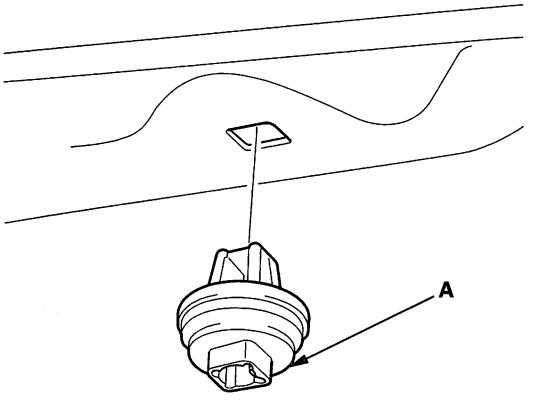


Fastener Locations
▶ : Screw, 7



4. Remove the screw grommets (A) from the tailgate.

NOTE:
- If the screw grommets cracked excessively, replace them with new ones.
- If the screw grommets are damaged or stress-whitened, replace them with new ones.
- If a new rear license trim will be installed, remove all of remaining screw grommets on the tailgate and discard them. The screw grommets have been installed to the new rear license trim with screws.



BACK

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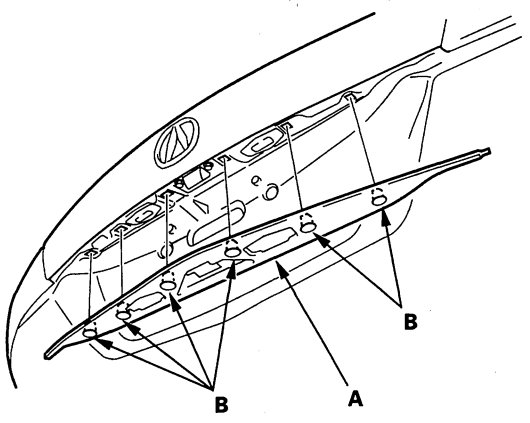
5. Install the trim in the reverse order of removal, and note these items:

   - With navigation system: Make sure the rear camera unit connector is plugged in properly.
   - If a new rear license trim assembly (A) is to be installed, hold the trim up, and fit all the screw grommets (B) into the holes in the tailgate, then push on the trim until the grommets snap into place.

New rear license trim installation



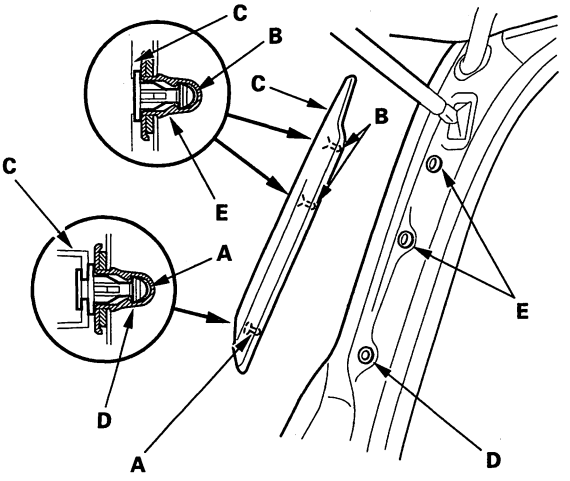
Rear Gutter Cover Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the body.

1. Open the tailgate.

2. Use a trim tool to detach the clip (A) and pins (B) of the rear gutter cover (C).



3. If the clip and grommets (D, E) are damaged or stress-whitened, replace them with new ones.

4. Install the corer in the reverse order of removal, and push the clip and pins into place securely.

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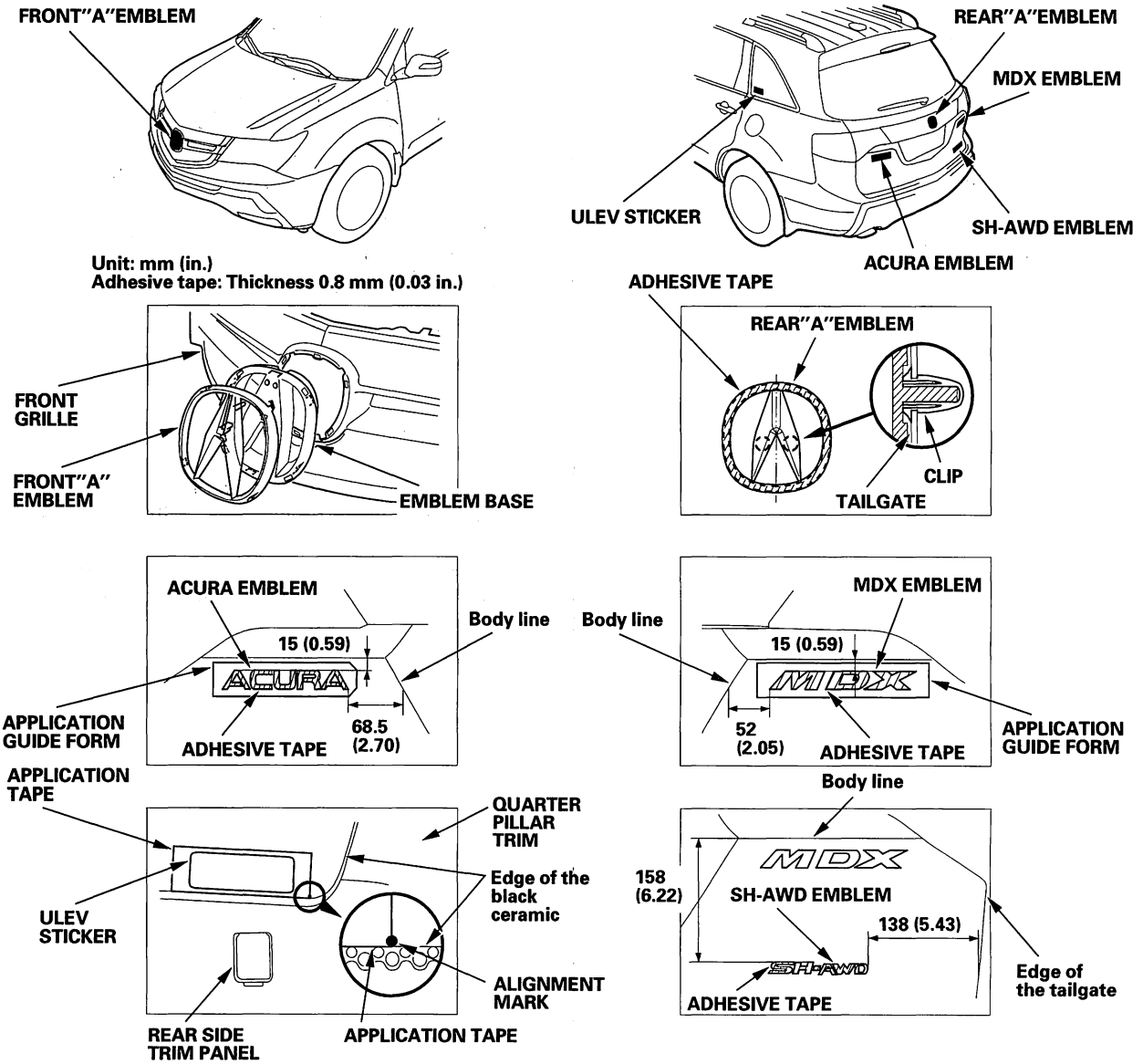
Exterior Trim

Emblem/Sticker Replacement

NOTE: When removing the emblems, take care not to scratch the body.

1. To remove the front "A" emblem, remove the front grille (see page 20-203).
2. Clean the body surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.
3. Apply the emblems where shown.
   - ACURA/MDX emblems: Remove the adhesive backing. Put the ACURA/MDX emblems with the application guide foam on the tailgate as shown, then press the emblem into place. Remove the film and application guide foam.
   - When installing the ULEV sticker on the inside surface of the left quarter glass, align the sticker with the edge of the black ceramic as shown, then press the sticker into place, and remove the application tape.



BACK

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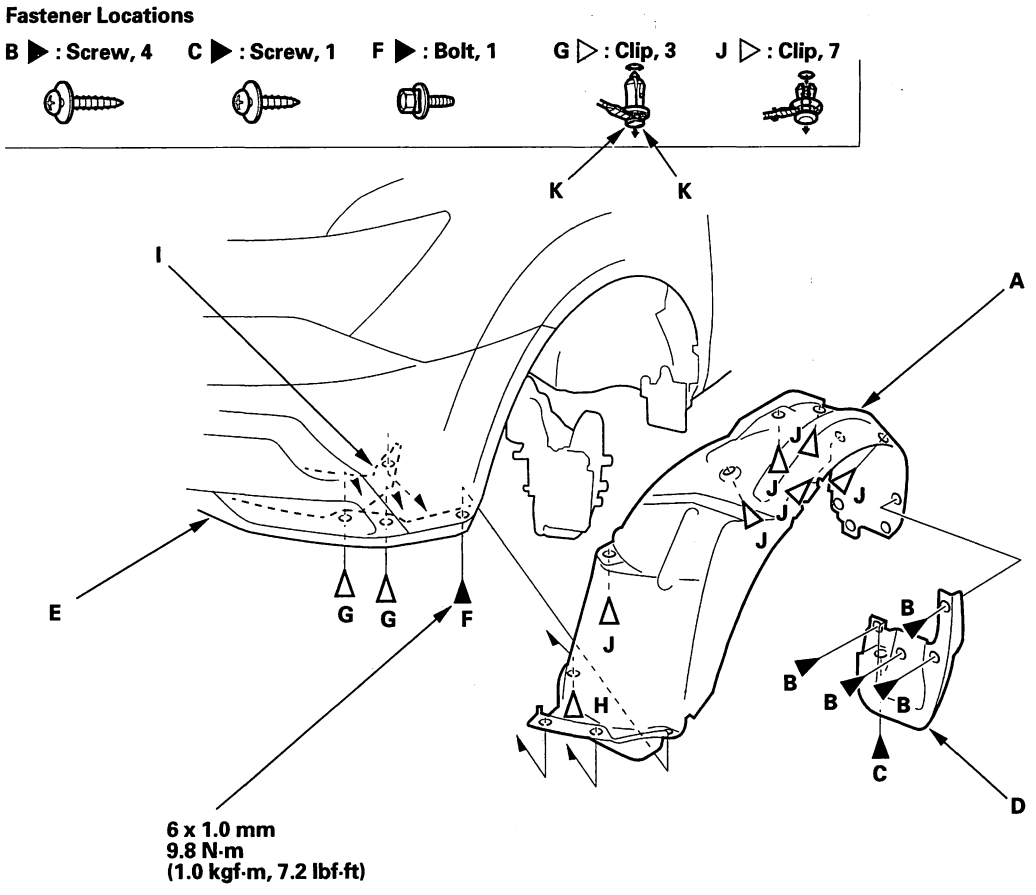
Front Inner Fender Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the body.

1. Remove the front inner fender (A).

   1 On the back of the wheel arch, remove the screws (B, C), then remove the splash guard (D).
   2 From under the front bumper (E), remove the bolt (F) and clips (G) securing the front bumper and front inner fender.
   3 From the wheel arch, remove the clips (H) securing the front splash shield (I) and front inner fender, and remove the clip (J) securing the front inner fender on the body.
   4 Pull out the front inner fender.

   NOTE: To remove the clips G and H, pry the inner clip up at the edge near the line (K) on its head.



2. Install the inner fender in the reverse order of removal, and note these items:

   - If the clips are damaged or stress-whitened, replace them with new one.
   - Push the clips into place securely.

Protected by AR

Fenderwell

Splash Shield Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the body.

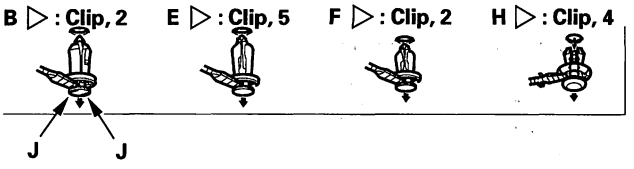
1. Remove the splash shield (A).

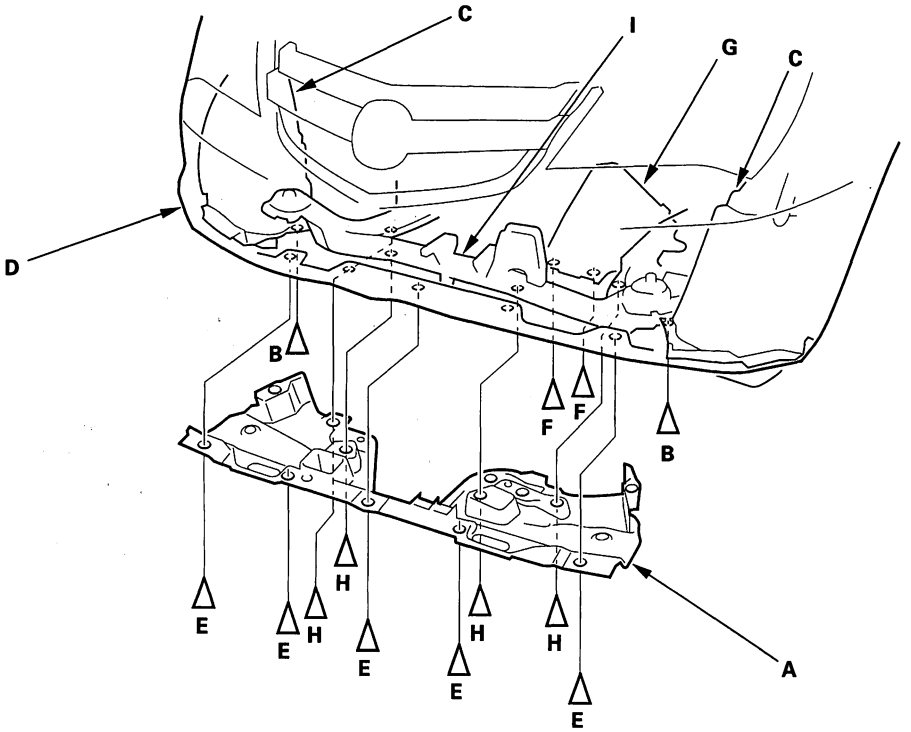
   -1 Remove the clips (B) that secure the front inner fender (C) and splash shield.
   -2 From under the front bumper (D), remove the clips (E).
   -3 From under the body, remove the clips (F) that secure the front undercover (G) and splash shield, and remove the clips (H) that secure the splash shield on the front suspension subframe (I).
   -4 Pull the splash shield out.

   NOTE: To remove the clips B, pry the inner clip up at the edge near the line (J) on its head.

Fastener Locations

B ▷ : Clip, 2 E ▷ : Clip, 5 F ▷ : Clip, 2 H ▷ : Clip, 4





2. Install the splash shield in the reverse order of removal, and note these items:

   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

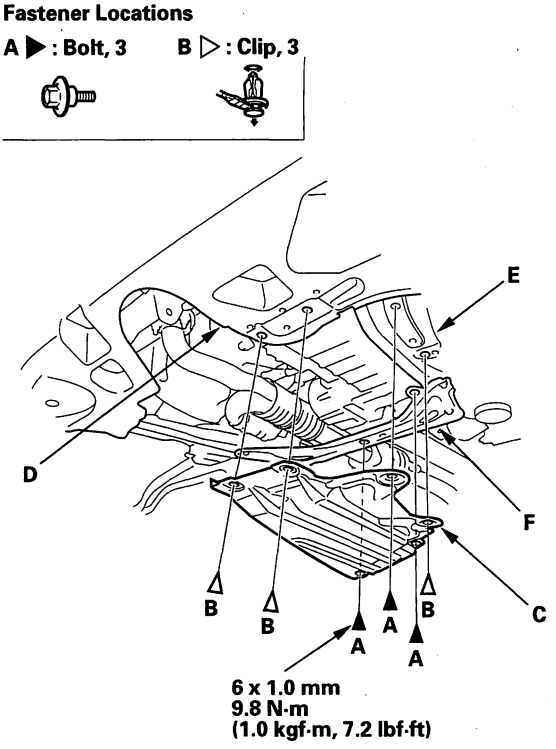
BACK

Protected by AR

Front Undercover Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the body.

1. Remove the bolts (A), and clips (B), then remove the front undercover (C) from the splash shield (D), front suspension subframe (E), and front subframe stiffener (F).

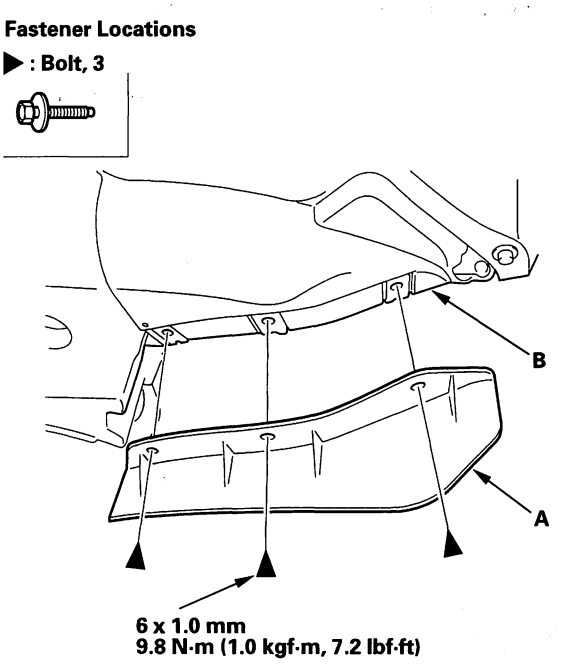


2. Install the undercover in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

Front Strake Replacement

NOTE: Take care not to scratch the body.

1. Remove the bolts, then remove the front strake (A) from the front inner fender (B).



2. Install the strake in the reverse order of removal.

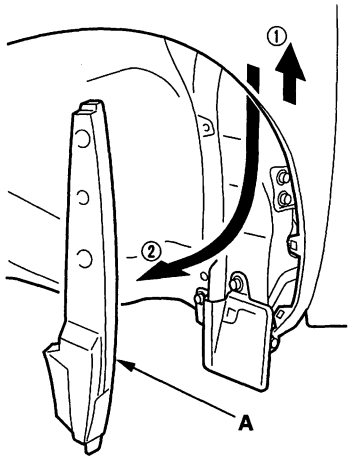
Protected by AR

Front Fender Fairing Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the body.

1. Remove the front inner fender as needed (see page 20-217).

2. Pull out and remove the front fender fairing (A).



3. Install the fender fairing in the reverse order of removal.

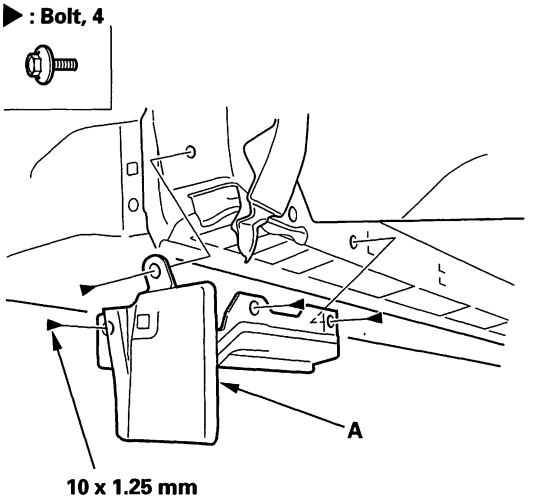
Left Front Splash Guard Reinforcement Replacement

1. Remove these items:
   - Left front inner fender, as needed (see page 20-217)
   - Left side sill panel (see page 20-212)

2. Remove the bolts, then remove the left front splash guard reinforcement (A). Take care not to scratch the body.

Fastener Locations

▶ : Bolt, 4



10 x 1.25 mm
38 N·m
(3.9 kgf·m, 28 lbf·ft)

3. Install the reinforcement in the reverse order of removal.

BACK

Protected by AR

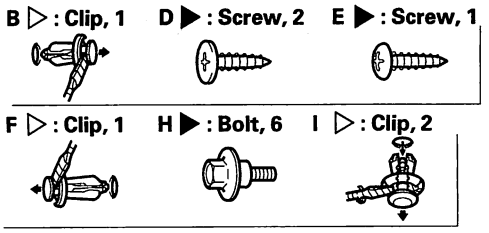
Rear Fender Cover Replacement

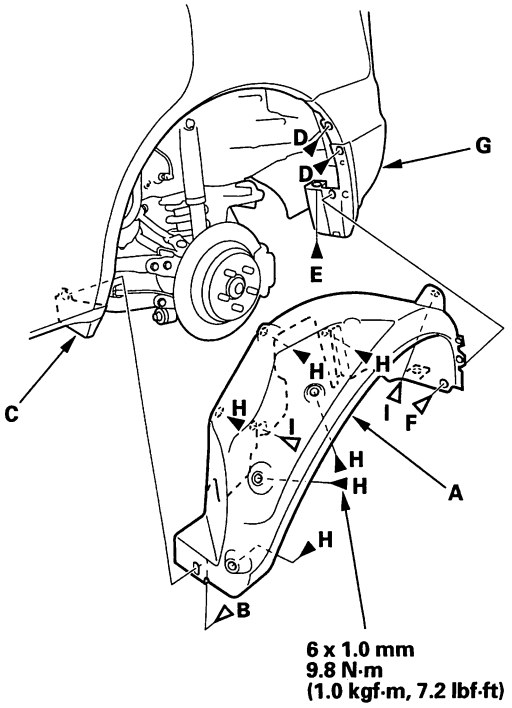
NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the body and related parts.

1. Remove the rear fender cover (A).
   1. Remove the clip (B) that secure the fender cover and the rear strake (C) from the front of the rear wheel arch.
   2. Remove the screws (D, E) and clip (F) that secure the rear bumper (G) and fender cover from the rear of the rear wheel arch.
   3. Remove the bolts (H) and clip(s) (I) from the rear wheel arch.
   4. Pull out the rear fender cover.

Left

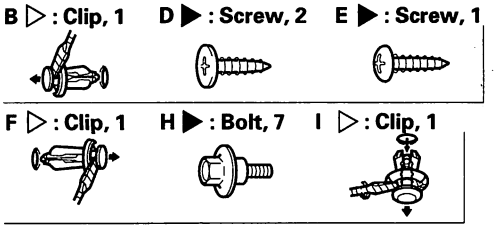
Fastener Locations

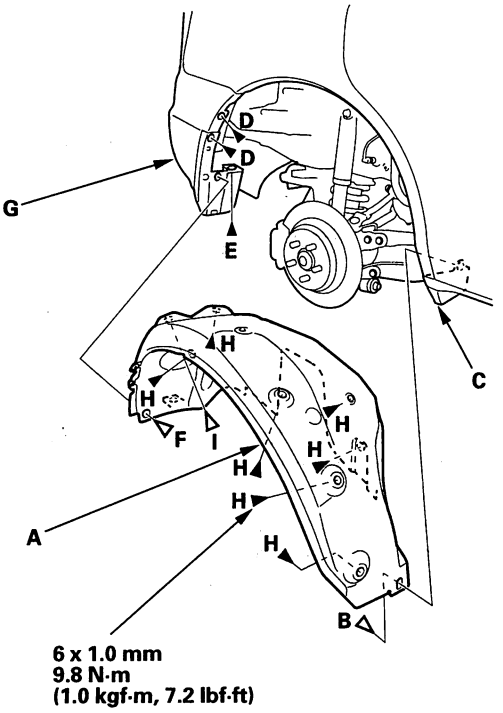




Right

Fastener Locations





2. Install the fender cover in the reverse order of removal, and note these items:
   - If the clip are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

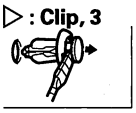
Protected by AR

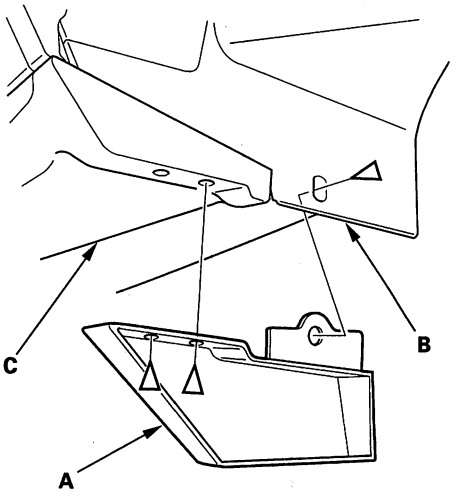
Rear Strake Replacement

1. Remove the clips, then remove the rear strake (A) from the rear fender cover (B) and side sill panel (C).

Fastener Locations

▷: Clip, 3





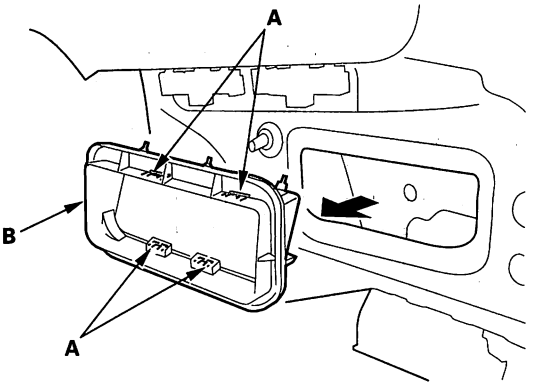
2. Install the strake in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.

Rear Air Outlet Replacement

1. Remove the rear bumper (see page 20-190).

2. Detach the hooks (A), then remove the rear air outlet (B). Take care not to scratch the body.



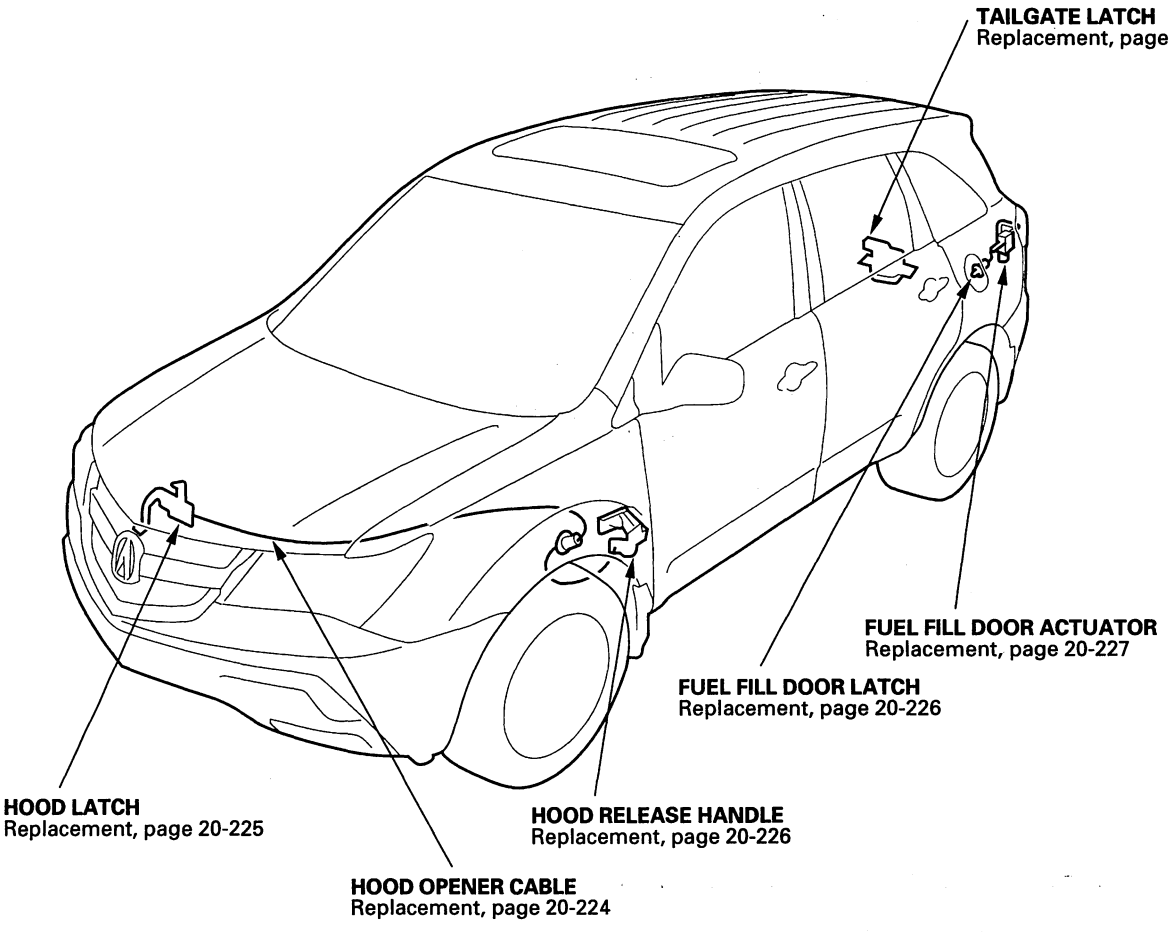
3. Install the air outlet by pushing on the hook portions until the hooks snap into place.

BACK

Protected by AR

Openers

Component Location Index



Protected by AR

Hood Opener Cable Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the body and related parts.

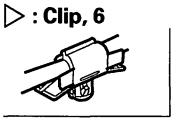
1. Remove these items:

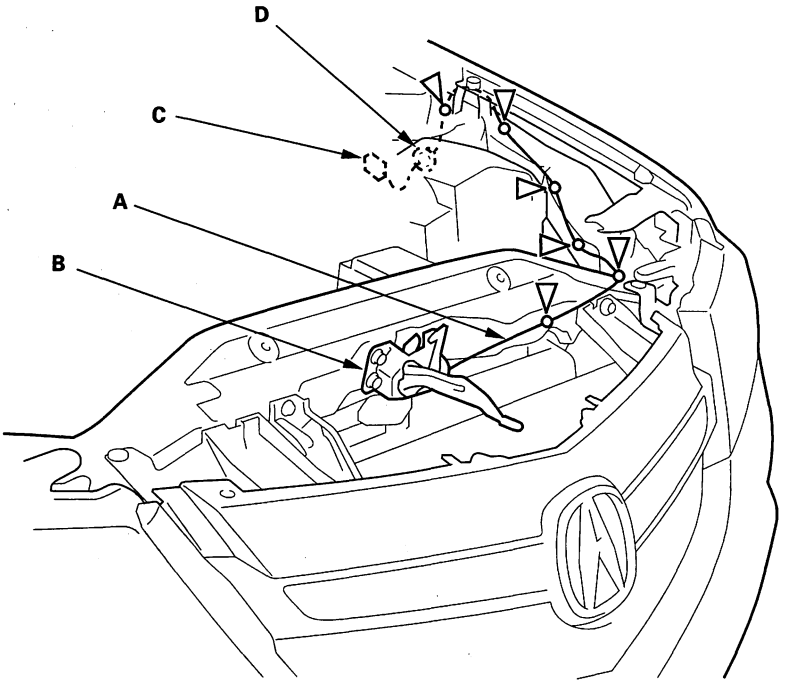
   - Front bulkhead cover (see page 20-203)
   - Front inner fender, left side as needed (see page 20-217)
   - Driver's dashboard undercover (see page 20-120)
   - Kick panel, driver's side (see page 20-76)

2. Disconnect the hood opener cable (A) from the hood latch (B) (see page 20-225).

Fastener Locations

▷ : **Clip, 6**





3. Remove the hood release handle (C) (see page 20-226), and disconnect the hood opener cable.

4. Using a clip remover, detach the clips, and remove the grommet (D) from the body, then remove the hood opener cable from the vehicle. Take care not to kink the cable.

5. Install the cable in the reverse order of removal.

   NOTE: If the clips are damaged or stress-whitened, replace them with new ones.

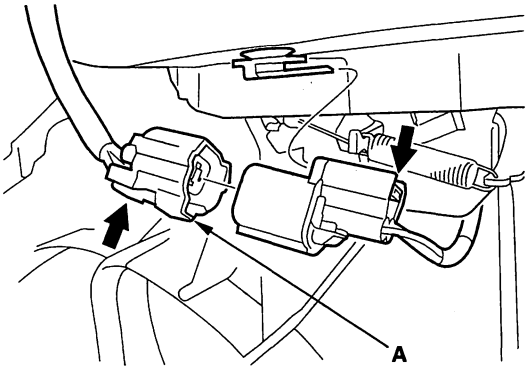
BACK

Protected by AR

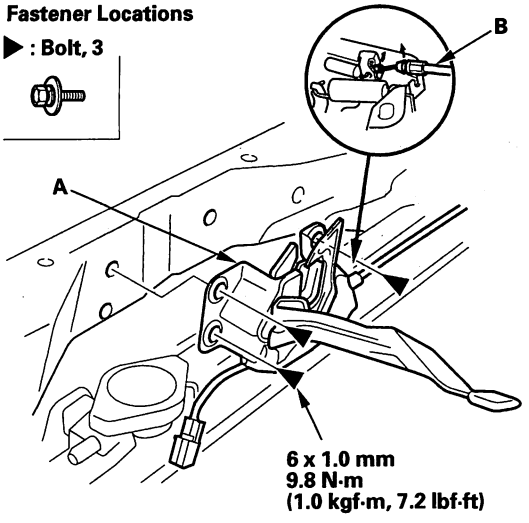
Hood Latch Replacement

1. Remove the front bulkhead cover (see page 20-203).

2. Disconnect the hood latch switch connector (A), then remove the connector clip from the body.



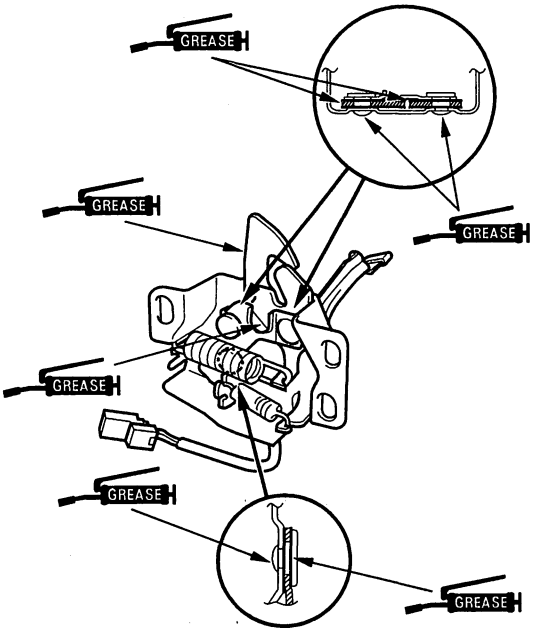
3. Remove the bolts, then remove the hood latch (A) from the body.



4. Disconnect the hood opener cable (B) from the hood latch. Take care not to kink the cable.

5. Install the latch in the reverse order of removal, and note these items:

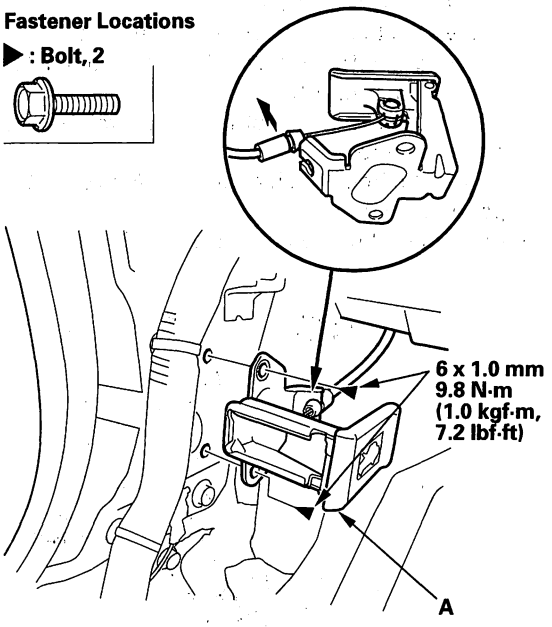
- Apply multipurpose grease to the hood latch as indicated by the arrows.
- Make sure the hood opener cable is connected properly and the hood latch switch connector is plugged in properly.
- Make sure the cable actuates the latch before you close the hood.
- Adjust the hood latch alignment (see step 4 on page 20-194).
- Make sure the hood opens properly and locks securely.



Protected by AR

Hood Release Handle Replacement

1. Remove the driver's kick panel (see page 20-76).
2. Remove the bolts, then remove the hood release handle (A).

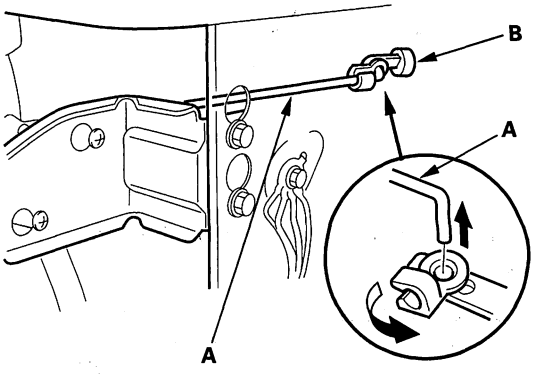


3. Disconnect the hood opener cable (B) from the hood release handle. Take care not to kink the cable.
4. Install the hood release handle in the reverse order of removal, and note these items:
   - Make sure the hood opener cable is connected properly.
   - Make sure the hood opens properly.

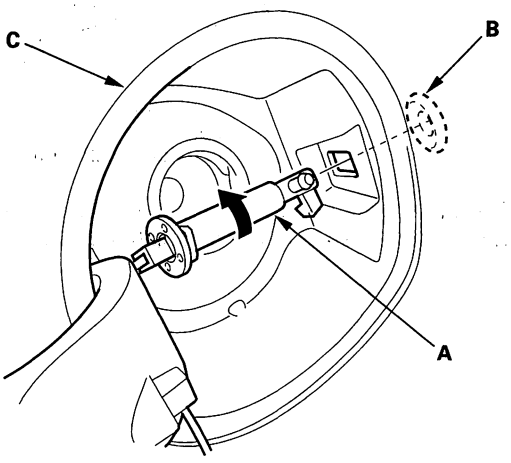
Fuel Fill Door Latch Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the rear bumper.

1. Remove these items:
   - Left rear side trim panel (see page 20-92).
   - Left rear fender cover (see page 20-221).
2. From inside the vehicle, disconnect the actuator rod (A) from the fuel fill door latch (B).



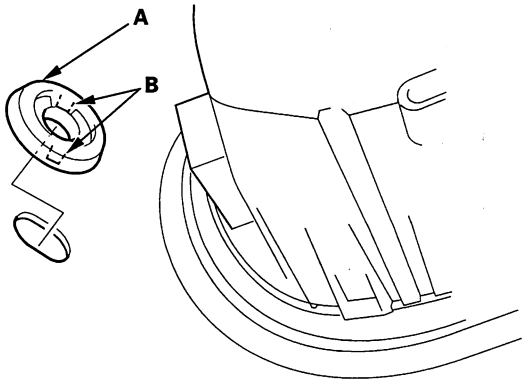
3. Remove the fuel door latch (A).
   1. Turn the latch 45 ° counterclockwise.
   2. First pull out the end of the latch from the grommet (B).
   3. Remove the latch from the fuel fill door adapter (C).



BACK

Protected by AR

4. If necessary, remove the grommet (A) by releasing the tabs (B) from inside the vehicle.



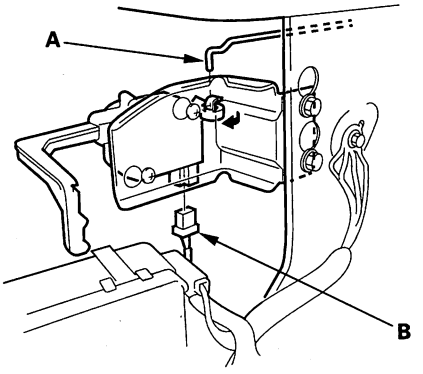
5. Install the fuel door latch in the reverse order of removal, and note these items:

   - Install the grommet with the arrow mark on the grommet pointing up.
   - Make sure the fuel fill door opens properly and locks securely.

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the rear bumper.

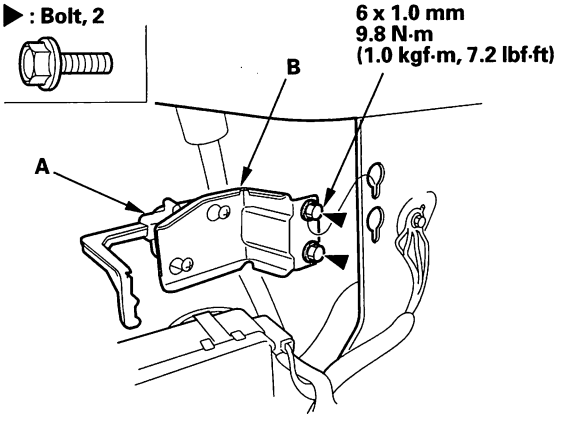
1. Remove the left rear side trim panel (see page 20-92).

2. Disconnect the actuator rod (A) and the actuator connector (B).



3. Loosen the bolts, then remove the actuator (A) and the bracket (B) together by sliding it upward.

Fastener Locations



4. Install the fuel door actuator in the reverse order of removal, and note these items:

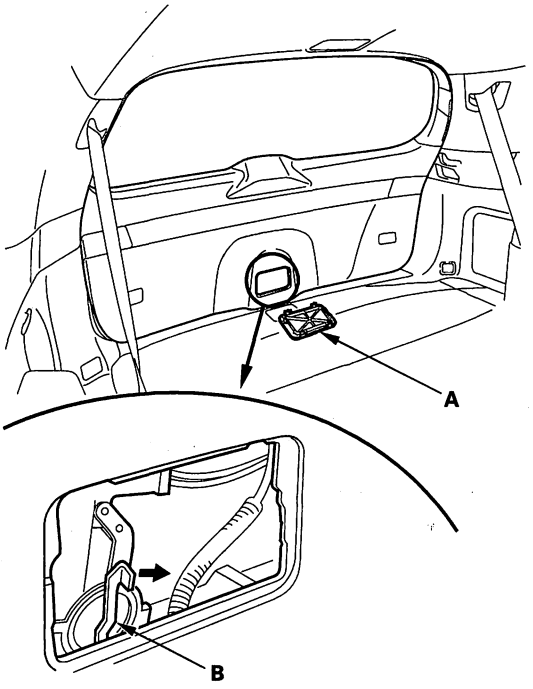
   - Make sure the actuator connector is plugged in properly, and the rod is connected securely.
   - Make sure the fuel fill door opens properly and locks securely.

Protected by AR

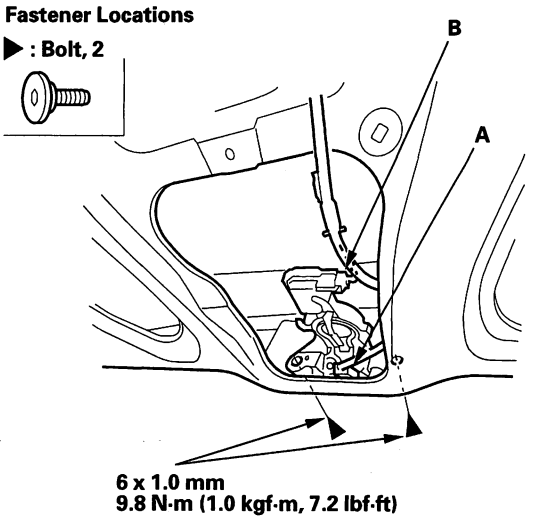
Tailgate Latch Replacement

Without Power Tailgate

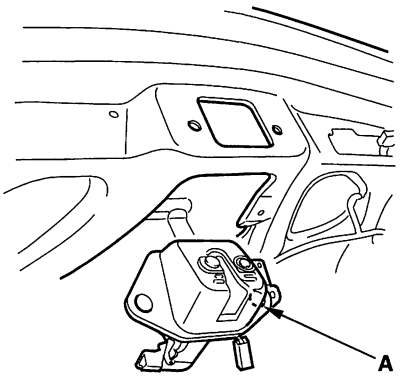
- Put on gloves to protect your hands.
- If the tailgate latch can't be unlocked by using the keyless entry transmitter or the inside/outside tailgate switches, or by unlocking the driver's door lock, remove the maintenance lid (A) from the tailgate lower trim panel, then turn the emergency lever (B) clockwise as shown.



1. Remove the tailgate lower trim panel (see page 20-96).
2. Disconnect the tailgate latch switch connector (A) and tailgate actuator connector (B).



3. Remove the bolts.
4. Pull the tailgate latch (A) out, then remove it



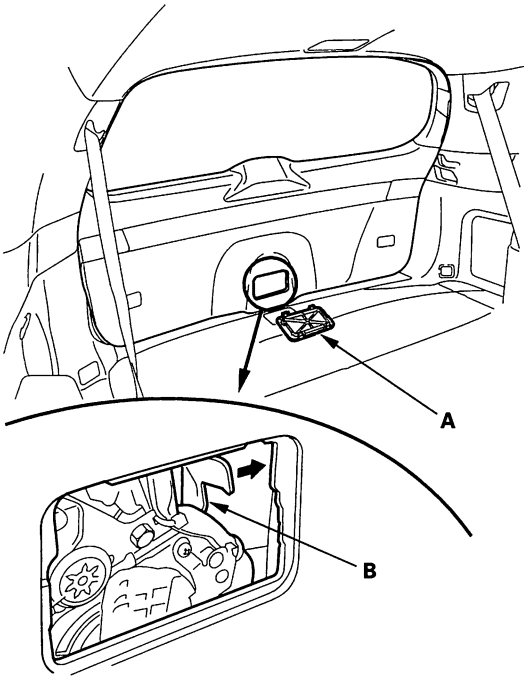
5. Install the latch in the reverse order of removal, and note these items:
   - Make sure the connectors are plugged in properly.
   - Make sure the tailgate opens properly and locks securely.

BACK

Protected by AR

With Power Tailgate

- Put on gloves to protect your hands.
- If the tailgate latch can't be unlocked by using the keyless entry transmitter or the inside/outside tailgate switches, remove the maintenance lid (A) from the tailgate lower trim panel, then turn the emergency lever (B) clockwise as shown.

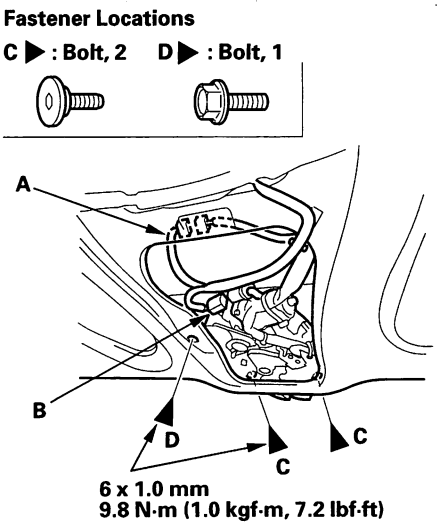


1. Make sure you have the anti-theft code for the audio and the navigation system (if equipped), and then disconnect the negative cable from the battery.

   NOTE: If you remove the tailgate latch while the negative battery cable is still connected, the vehicle goes into the failsafe mode.

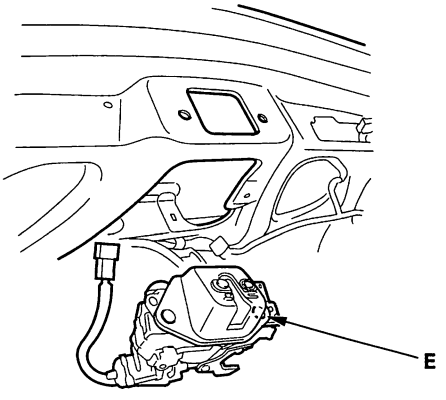
2. Remove the tailgate lower trim panel (see page 20-96).

3. Disconnect the tailgate latch connector (A) and actuator connector (B).



4. Remove the bolts (C, D).

5. Pull the tailgate latch (E) out, then remove it.



(cont'd)

Protected by AR

Tailgate Latch Replacement (cont'd)

6. Install the latch in the reverse order of removal, and note these items:

   - Make sure the connectors are plugged in properly.
   - Reconnect the negative cable to the battery.
   - Enter the anti-theft code for the audio and the navigation system (if equipped).
   - Check for any DTCs that may have been set during repairs, and clear them.
   - Do the steering column position memorization (see page 17-28).
   - Set the clock.
   - Make sure the tailgate opens properly and locks securely.

BACK

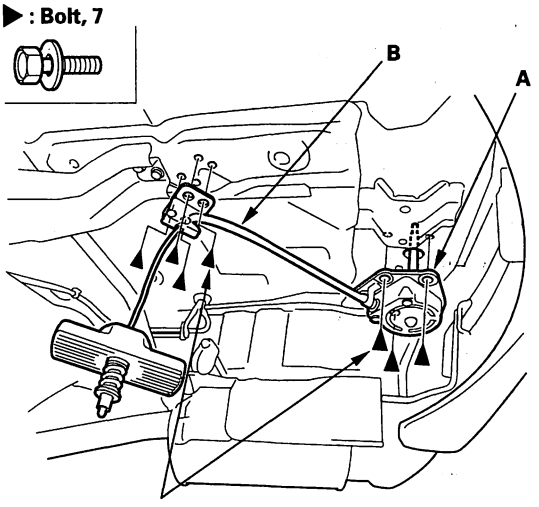
Protected by AR

Spare Tire Hoist Replacement

1. Remove the spare tire.
2. Remove the bolts, then remove the spare tire hoist (A). Take care not to bend the cable (B).

Fastener Locations

▶ : Bolt, 7



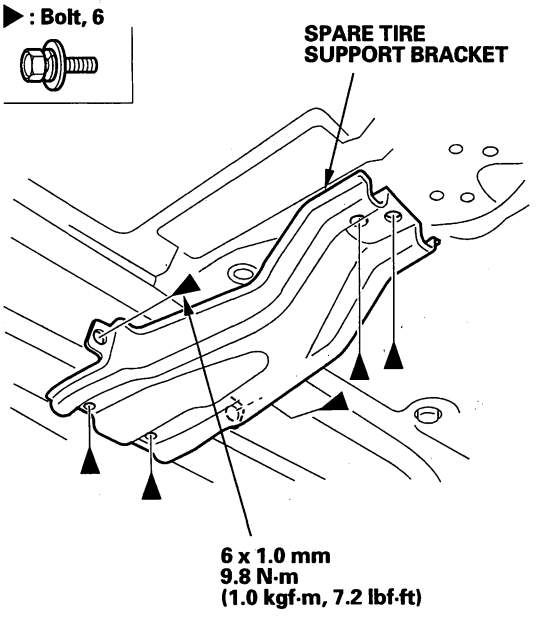
3. Install the hoist in the reverse order of removal.

Spare Tire Support Bracket Replacement

Spare Tire Support Bracket Torque

Fastener Locations

▶ : Bolt, 6

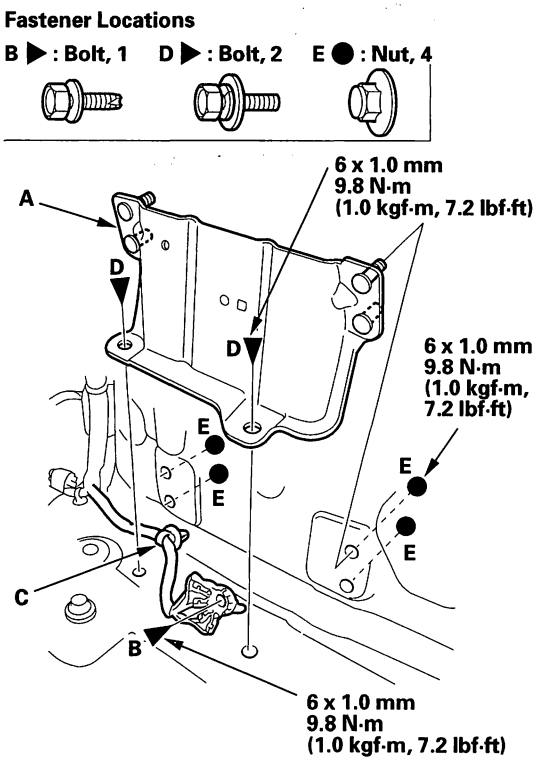


Protected by AR

Rear Wheelhouse Gusset Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the body and related parts.

1. Remove these items:
   - Rear side trim panel (see page 20-92)
   - Third row seat (see page 20-179)
2. Pull the carpet back as needed.
3. Remove the rear wheelhouse gusset (A).
   1 Remove the ground bolt (B) and release the harness clip (C).
   2 Remove the bolts (D).
   3 From outside the vehicle, remove the nuts (E).

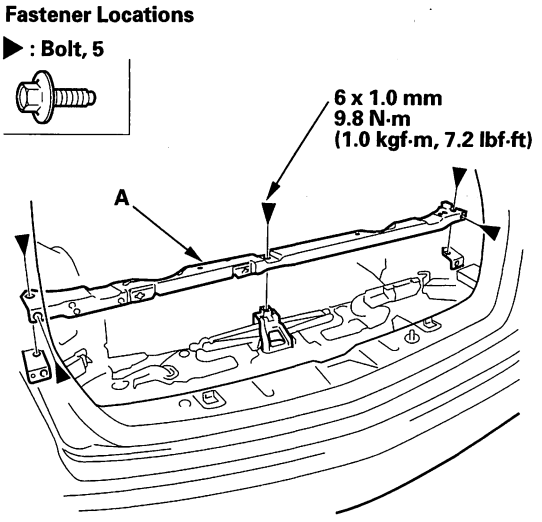


4. Install the gusset in the reverse order of removal.

Cargo Lid Support Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the body and related parts.

1. Remove these items:
   - Rear side trim panel, both sides (see page 20-92)
   - Rear side trim panel support bracket (see step 11 on page 20-94)
   - Cargo rear trim panel (see page 20-90)
   - XM receiver (see page 23-96)
   - Active damper control unit (see page 18-118)
2. Remove the clips fastening the rear differential breather box (see page 15-73).
3. Remove the bolts, then remove the cargo lid support (A).



4. Install the support in the reverse order of removal.

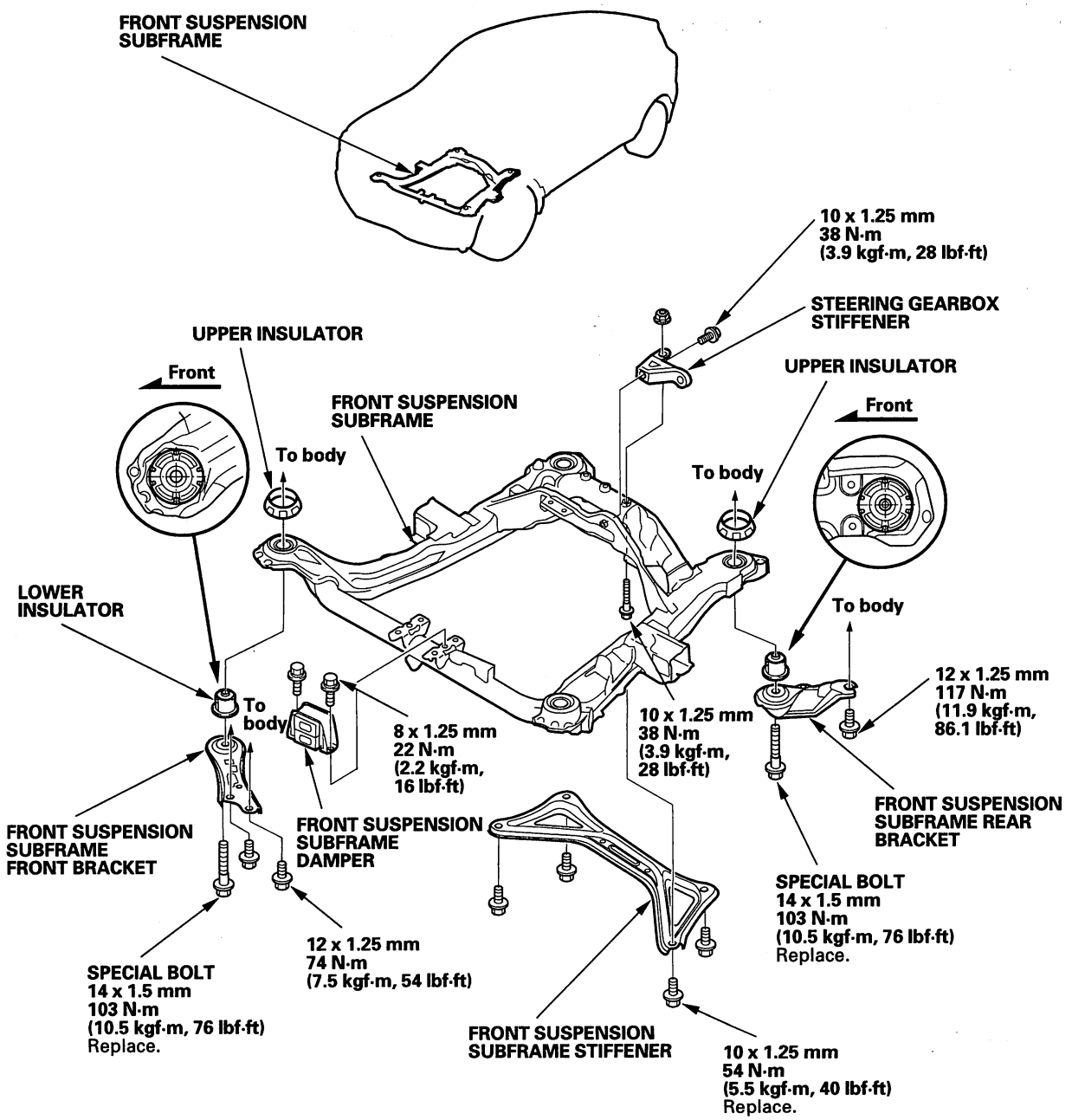
BACK

Protected by AR

Subframe Replacement

Front Subframe Torque

After removing the subframe mounting bolts and front subframe stiffener mounting bolts, be sure to replace them with new ones.



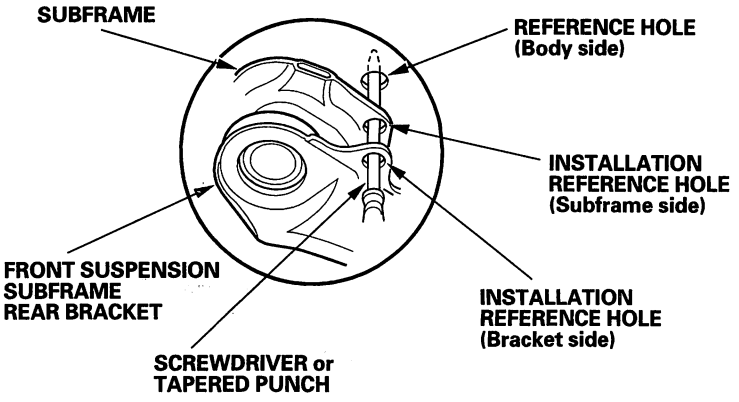
(cont'd)

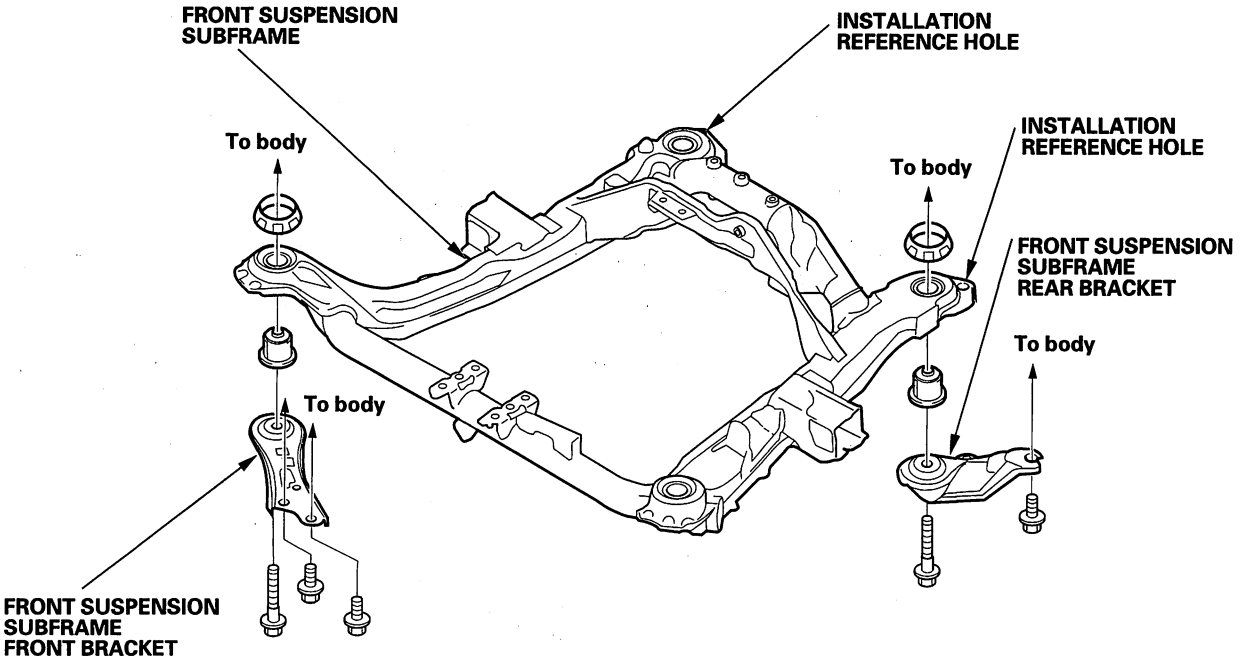
Protected by AR

Subframe Replacement (cont'd)

Front Subframe Alignment

NOTE:
- After mounting the subframe and brackets loosely, align all of the installation reference holes in the subframe, in the subframe front bracket, and in the body using a screwdriver or tapered punch as a guide, then tighten the bolts.
- After reinstalling all removed parts, check and adjust the front wheel alignment (see page 18-5).





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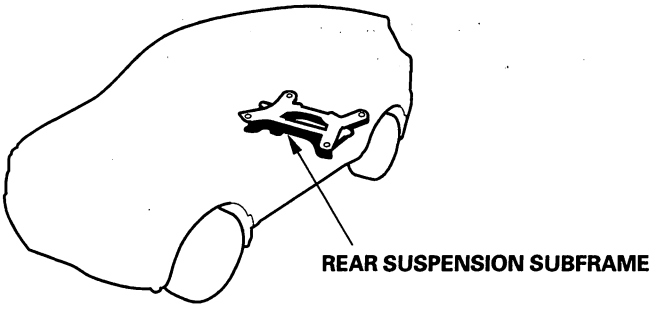
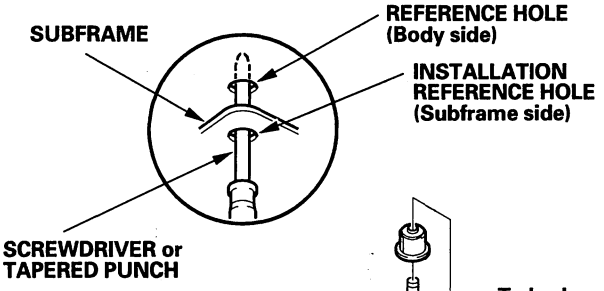
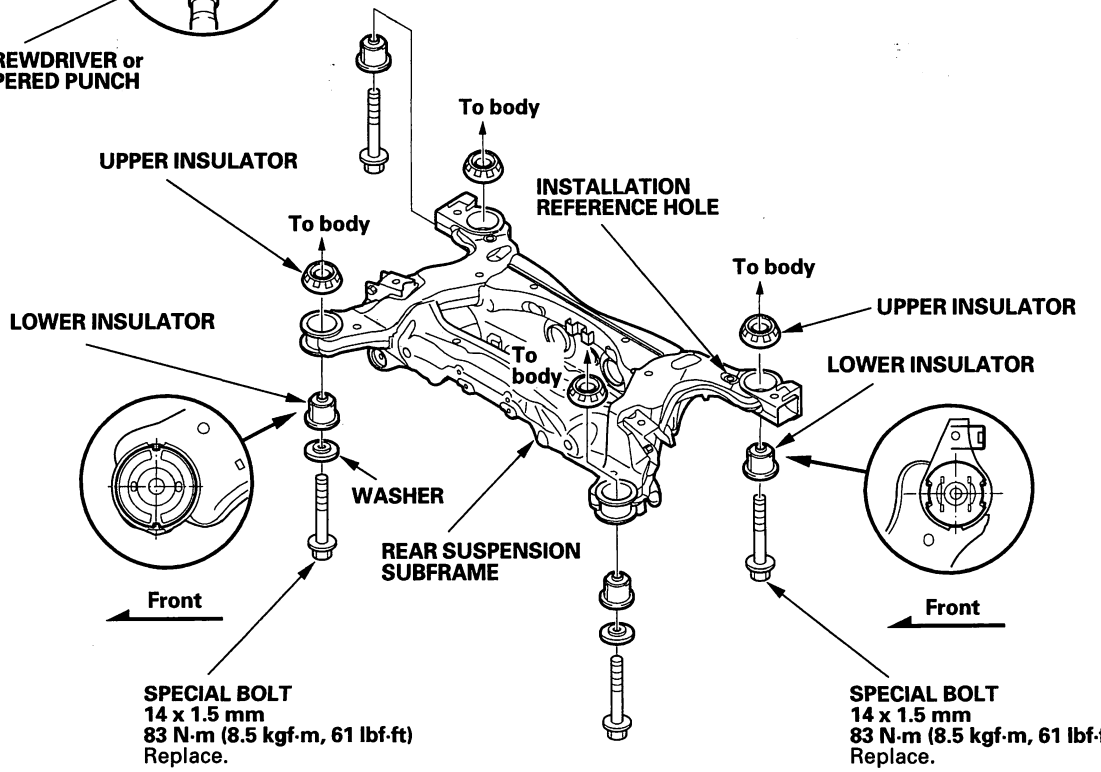
Rear Subframe Torque

NOTE:
- When installing, align both installation reference holes in the subframe with the reference holes in the body using a screwdriver or tapered punch as a guide.
- After removing the subframe mounting bolts, be sure to replace them with new ones.



Reference hole alignment





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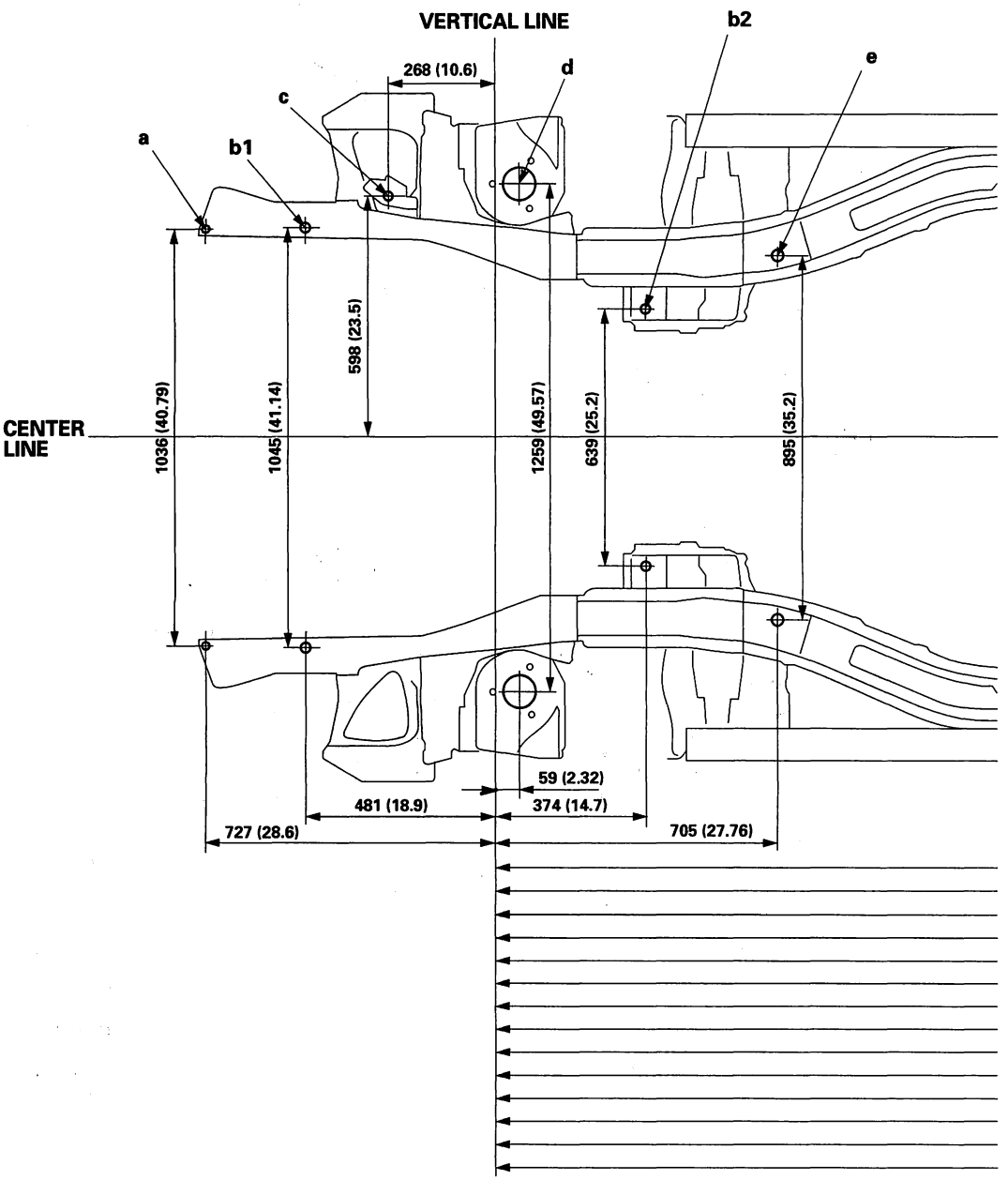
Frame Repair Chart

Top View

Unit: mm (in.)
ø: Inner diameter

a	For bumper beam mount ø11 (0.43)
b1	For front subframe mount ø15 (0.59) forward
b2	For front subframe mount ø15 (0.59) rearward
c	For engine side mount ø13 (0.51)
d	Front damper center hole ø80 (3.15)
e	Side frame gusset locating hole ø28 (1.1)



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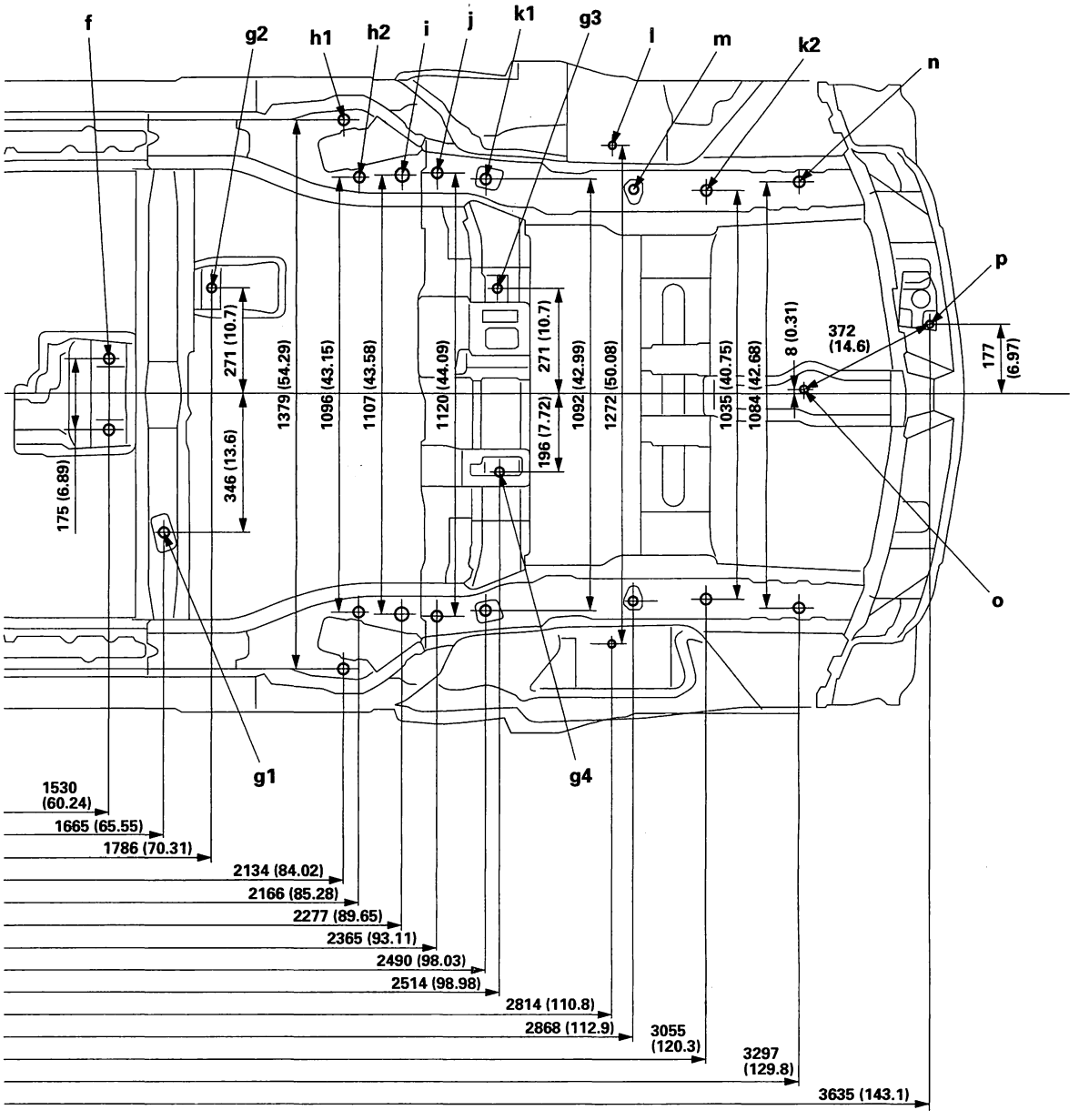
f	For propeller shaft mount ø12 (0.47)	j	Rear frame locating hole ø23 (0.91) forward
g1	For fuel tank mount ø15 (0.59) left side forward	k1	For rear subframe mount ø16 (0.63) forward
g2	For fuel tank mount ø15 (0.59) right side forward	k2	For rear subframe mount ø16 (0.63) rearward
g3	For fuel tank mount ø15 (0.59)right side rearward	l	For rear damper mount center
g4	For fuel tank mount ø15 (0.59) left side rearward	m	Lower arm stopper bracket locating hole ø11 (0.43)
h1	For trailing arm mount ø17 (0.67) outside	n	Rear frame locating hole ø25 (0.98) rearward
h2	For trailing arm mount ø17 (0.67) center side	o	For spare tire hoist mount ø9 (0.35) forward
i	Floor frame extension locating hole ø25 (0.98)	p	For spare tire hoist mount ø9 (0.35) rearward



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Frame Repair Chart (cont'd)

Side View

Unit: mm (in.)

ø: Inner diameter

a For bumper beam mount ø11 (0.43)

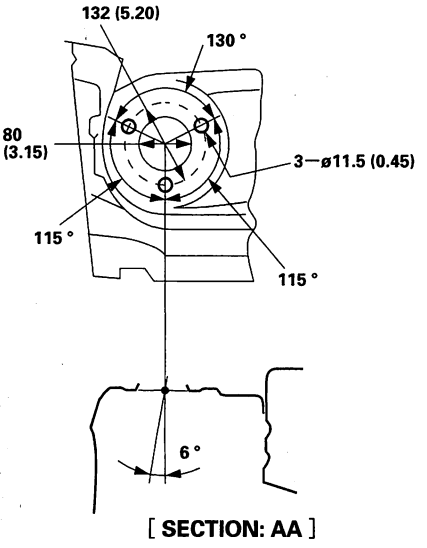
b1 For front subframe mount ø15 (0.59) forward

b2 For front subframe mount ø15 (0.59) rearward

c For engine side mount ø13 (0.51)

d Front damper center hole ø80 (3.15)

e Side frame gusset locating hole ø28 (1.1)



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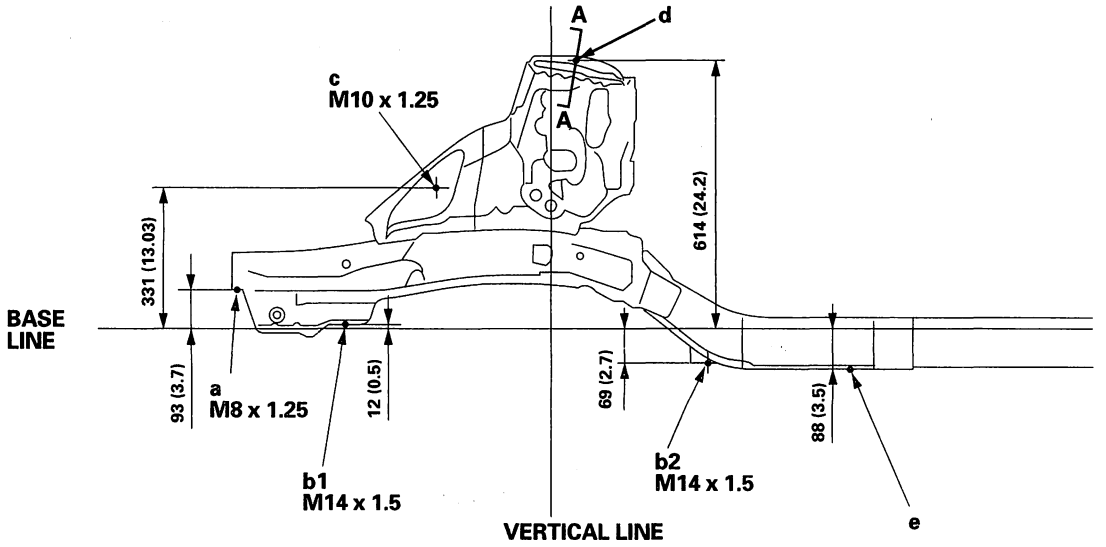

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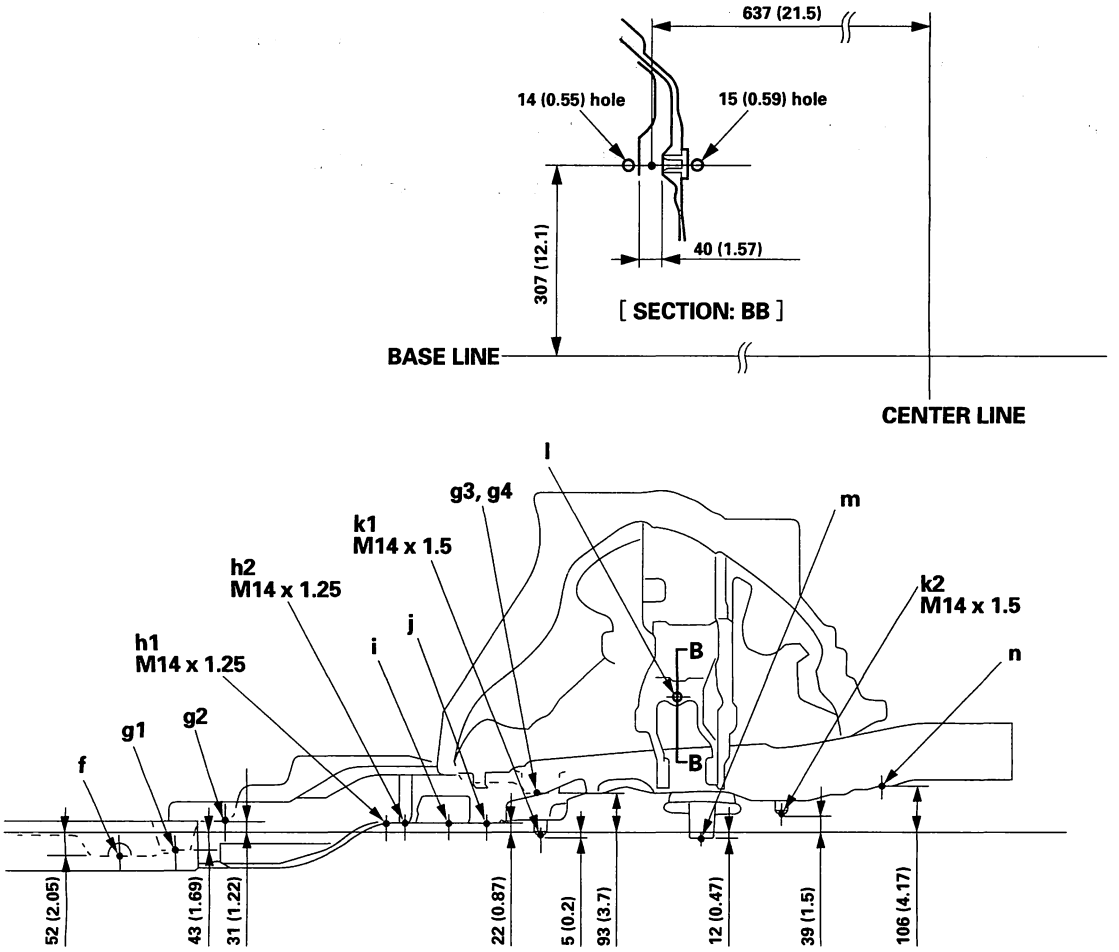
f	For propeller shaft mount ø12 (0.47)
g1	For fuel tank mount ø15 (0.59) left side forward
g2	For fuel tank mount ø15 (0.59) right side forward
g3	For fuel tank mount ø15 (0.59)right side rearward
g4	For fuel tank mount ø15 (0.59) left side rearward
h1	For trailing arm mount ø17 (0.67) outside
h2	For trailing arm mount ø17 (0.67) center side
i	Floor frame extension locating hole ø25 (0.98)
j	Rear frame locating hole ø23 (0.91) forward
k1	For rear subframe mount ø16 (0.63) forward
k2	For rear subframe mount ø16 (0.63) rearward
l	For rear damper mount center
m	Lower arm stopper bracket locating hole ø11 (0.43)
n	Rear frame locating hole ø25 (0.98) rearward



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SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If HVAC maintenance is required)

The Acura MDX SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done only by an authorized Acura dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Acura dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags and/or side airbags.
- Do not bump or impact the SRS unit, front impact sensors, side impact sensors, or roll rate sensor when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.

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HVAC (Heating, Ventilation, and Air Conditioning)

HVAC (Heating, Ventilation, and Air Conditioning)

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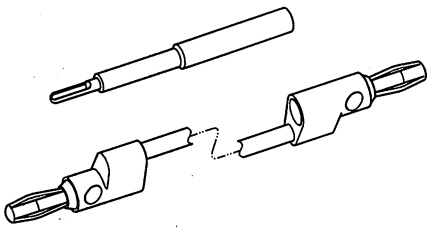
Special Tools

Ref. No.	Tool Number	Description	Qty
①	07SAZ-001000A	Backprobe Set	2



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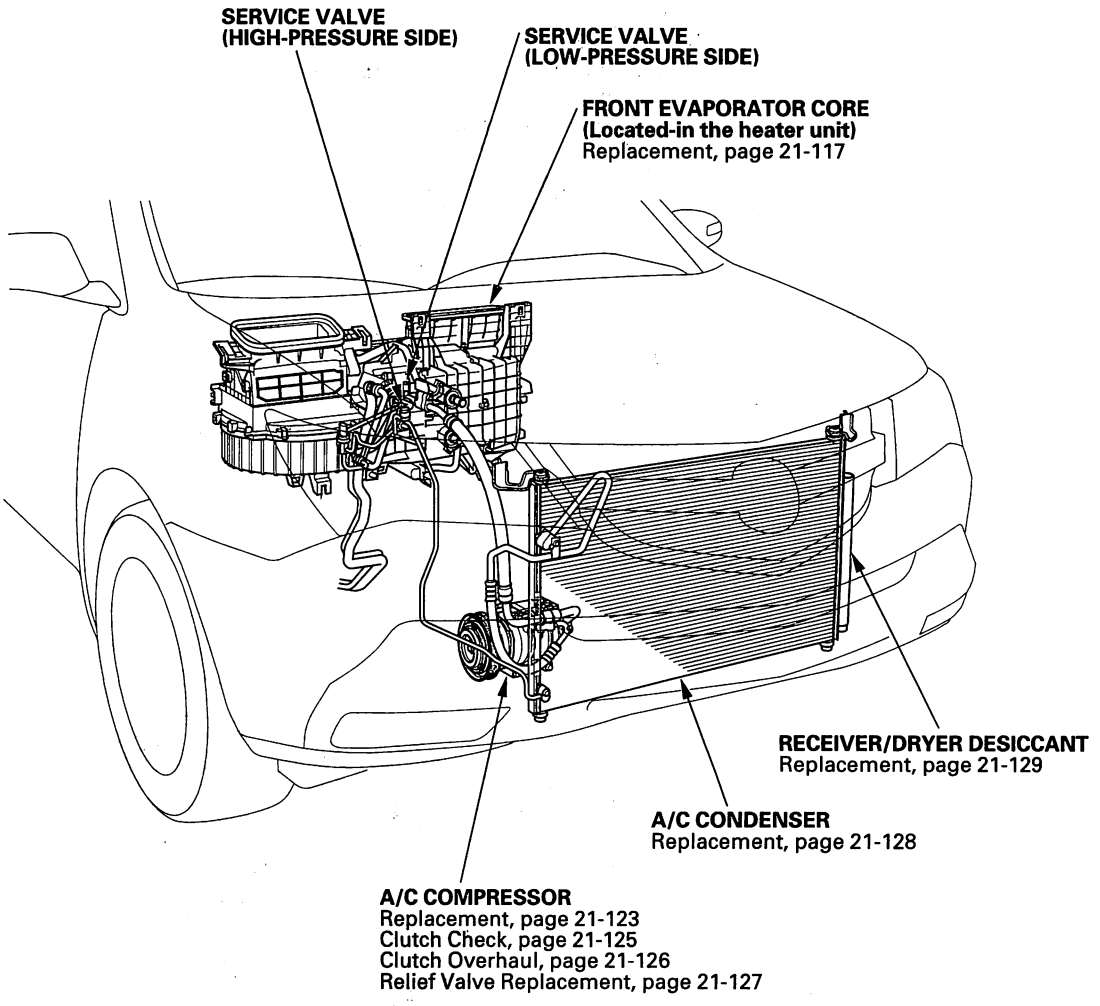
Component Location Index



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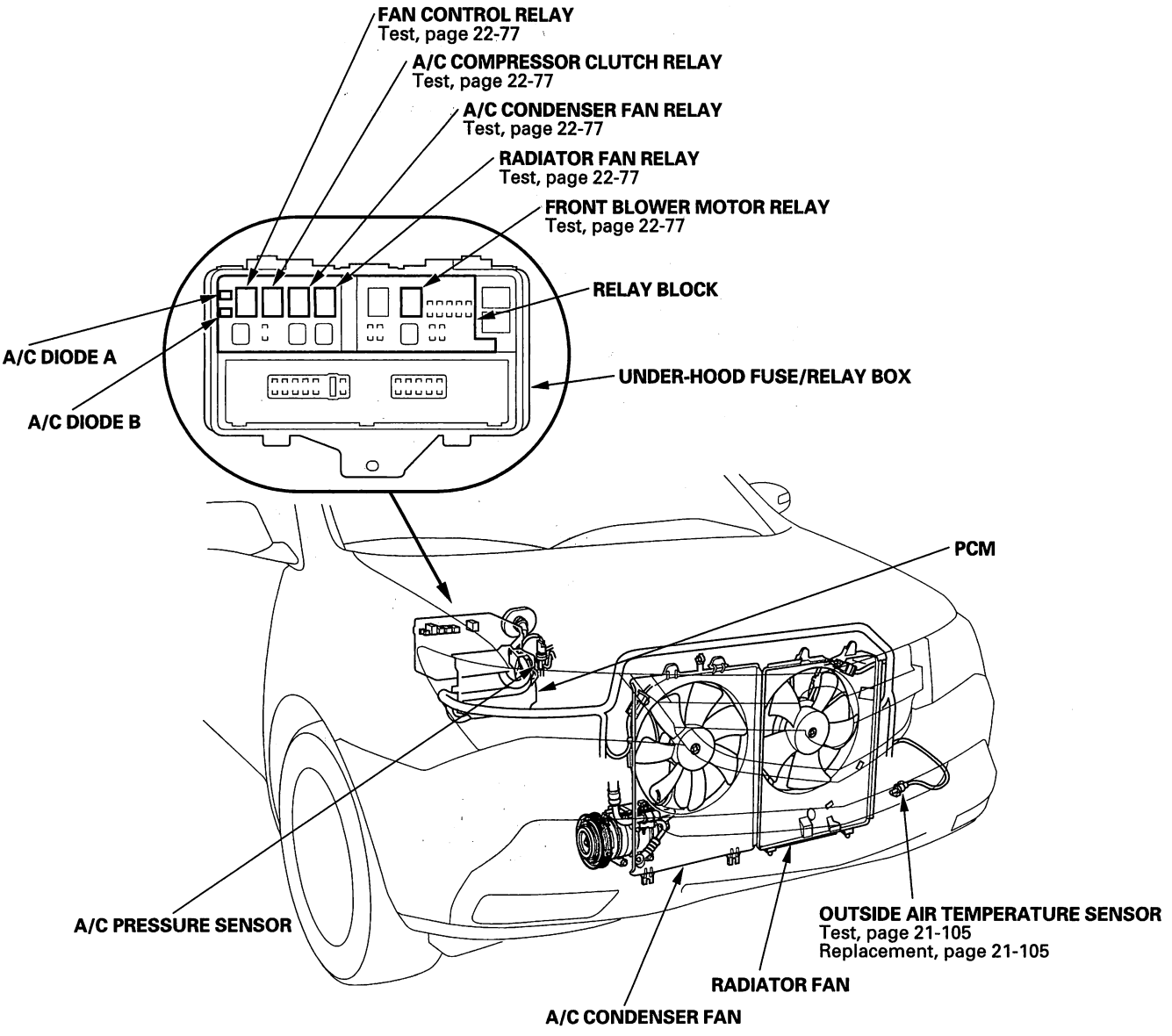

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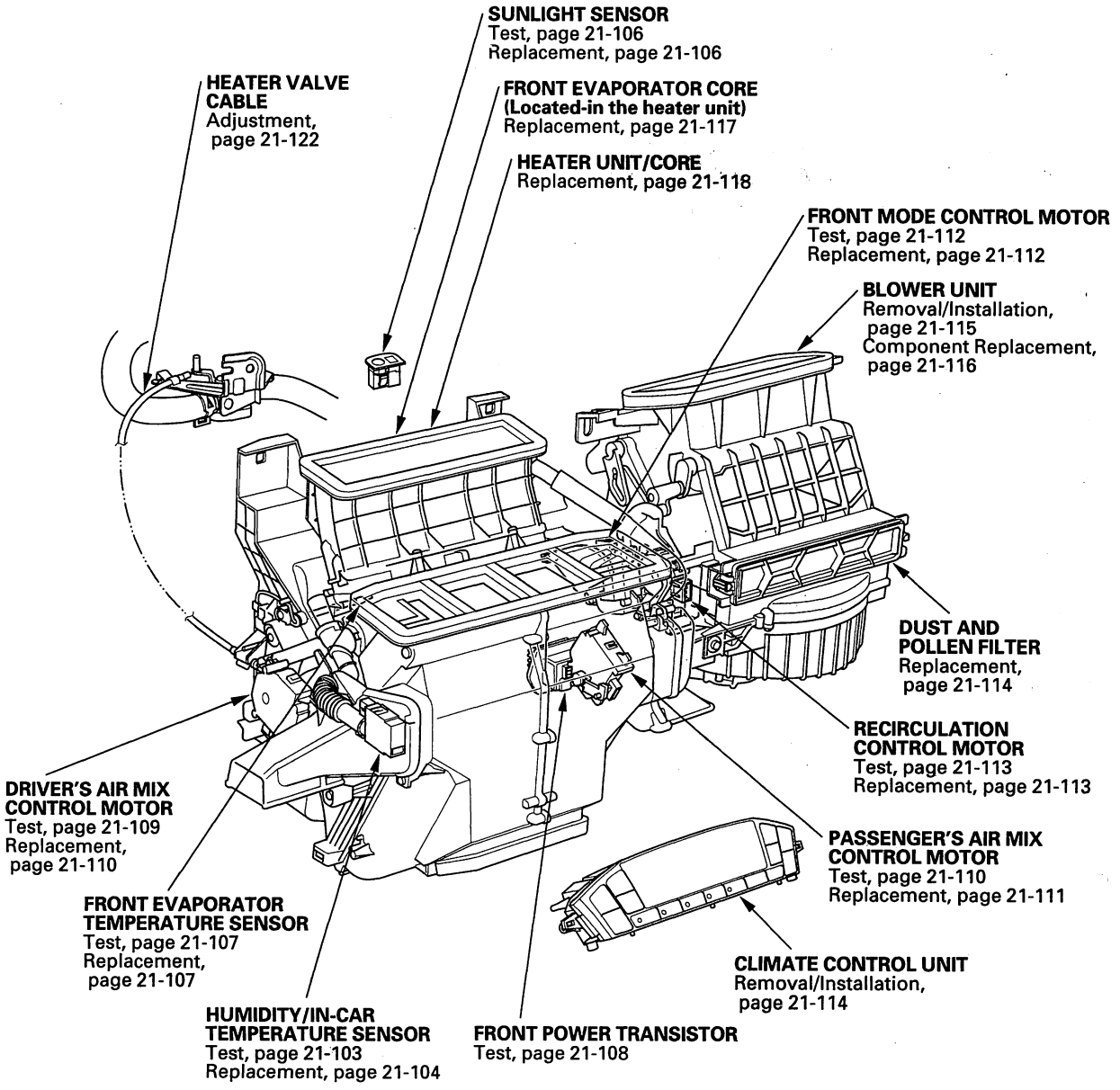

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A/C Service Tips and Precautions

⚠ WARNING

- Compressed air mixed with the R-134a forms a combustible vapor.
- The vapor can burn or explode causing serious injury.
- Never use compressed air to pressure test R-134a service equipment or vehicle air conditioning systems.

⚠ CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

The air conditioning system uses HFC-134a (R-134a) refrigerant and polyalkyleneglycol (PAG) refrigerant oil, which are not compatible with CFC-12 (R-12) refrigerant and mineral oil. Do not use R-12 refrigerant or mineral oil in this system, and do not attempt to use R-12 servicing equipment; damage to the air conditioning system or your servicing equipment will result.
Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove R-134a from the air conditioning system.

If accidental system discharge occurs, ventilate work area before resuming service.

R-134a service equipment or vehicle air conditioning systems should not be pressure tested or leak tested with compressed air.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

- Always disconnect the negative cable from the battery whenever replacing air conditioning parts.
- Keep moisture and dirt out of the system. When disconnecting any lines, plug or cap the fittings immediately; don't remove the caps or plugs until just before you reconnect each line.
- Before connecting any hose or line, apply a few drops of refrigerant oil to the O-ring.
- When tightening or loosening a fitting, use a second wrench to support the matching fitting.
- When discharging the system, use an R-134a refrigerant recovery/recycling/charging station; don't release refrigerant into the atmosphere.

A/C Refrigerant Oil Replacement

Recommended PAG oil: DENSO ND-OIL 8

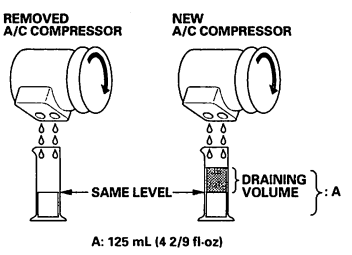
- P/N 38897-PR7-A01AH: 120 mL (4 fl·oz)
- P/N 38899-PR7-A01: 40 mL (1 1/3 fl·oz)

Add the recommended refrigerant oil in the amount listed if you replace any of the following parts.

- To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint; if it gets on the paint, wash it off immediately.

A/C condenser (including Dryer Desiccant) .....50 mL (1 2/3 fl·oz)
Front Evaporator .....40 mL (1 1/3 fl·oz)
Rear Evaporator .....30 mL (1 fl·oz)
Line or hose .....10 mL (1/3 fl·oz)
Receiver/Dryer
Desiccant .....10 mL (1/3 fl·oz)
Leakage repair .....25 mL (5/6 fl·oz)
A/C compressor .....For A/C compressor replacement, subtract the volume of oil drained from the removed A/C compressor from 125 mL (4 2/9 fl·oz), and drain the calculated volume of oil from the new A/C compressor: 125 mL (4 2/9 fl·oz) — Volume of removed A/C compressor = Volume to drain from new A/C compressor.

NOTE: Even if no oil is drained from the removed A/C compressor, don't drain more than 50 mL (1 2/3 fl·oz) from the new A/C compressor.



A: 125 mL (4 2/9 fl·oz)

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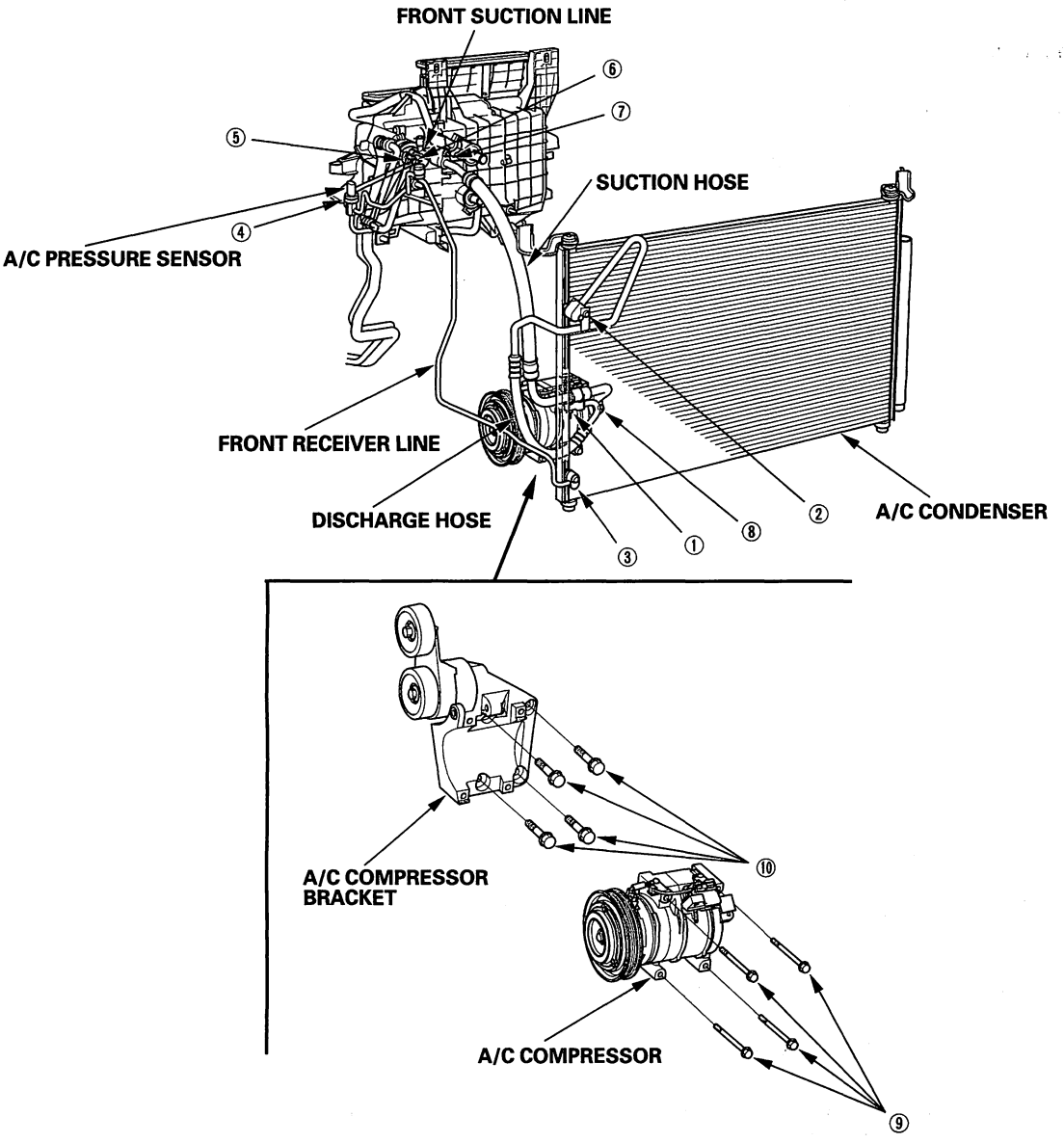
Front A/C Line Replacement



① Discharge hose to the A/C compressor (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
② Discharge hose to the A/C condenser (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
③ Front receiver line to the A/C condenser (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
④ A/C pressure sensor to the front receiver line (11 x 1.0 mm): 10.8 N·m (1.1 kgf·m, 8.0 lbf·ft)
⑤ Front receiver line to the front evaporator (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
⑥ Front suction line to the front evaporator (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
⑦ Front suction line to the suction hose (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
⑧ Suction hose to the A/C compressor (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
⑨ A/C compressor to the A/C compressor bracket (8 x 1.25 mm): 22 N·m (2.2 kgf·m, 16.2 lbf·ft)
⑩ A/C compressor to the engine block (10 x 1.25 mm): 45 N·m (4.6 kgf·m, 33.2 lbf·ft)

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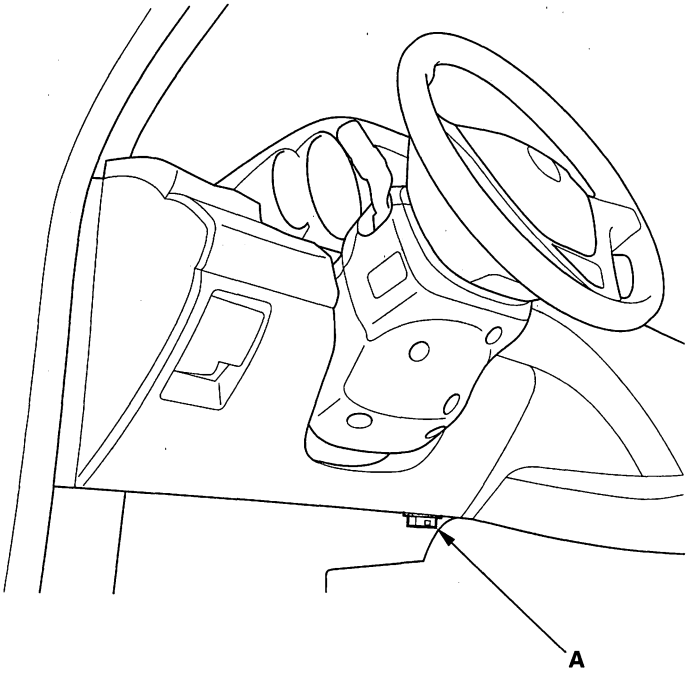
General Troubleshooting Information

How to Check for DTCs with the HDS

1. Make sure the ignition switch is OFF.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Turn the ignition switch ON (II).
4. Make sure the HDS communicates with the vehicle and the climate control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-223).
5. Select HVAC/CLIMATE CONTROL in the BODY ELECTRICAL menu.
6. Select DTCs in the HVAC/CLIMATE CONTROL menu.
7. Check for DTCs. If any DTCs are indicated, write down the DTCs, then go to the indicated DTC troubleshooting. If no DTCs are indicated, refer to symptom troubleshooting.

   NOTE:
   - After troubleshooting, clear the DTCs with the HDS.
   - For specific operations, refer to the user's manual that came with the HDS.

BACK

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How to Use the Self-diagnostic Function with the HDS

1. Make sure the ignition switch is OFF.
2. Connect the HDS to the data link connector (DLC).
3. Turn the ignition switch ON (II).
4. Make sure the HDS communicates with the vehicle and the climate control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-223).
5. Select HVAC/CLIMATE CONTROL in the BODY ELECTRICAL menu.
6. Select INSPECTION in the HVAC/CLIMATE CONTROL menu.
7. Select CLIMATE CONTROL SELF TEST in the INSPECTION menu.
8. Check for DTCs. If any DTCs are indicated, write down the DTCs, then go to the indicated DTC troubleshooting.

NOTE:
- After troubleshooting, clear the DTCs with the HDS.
- For specific operations, refer to the user's manual that came with the HDS.

(cont'd)

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General Troubleshooting Information (cont'd)

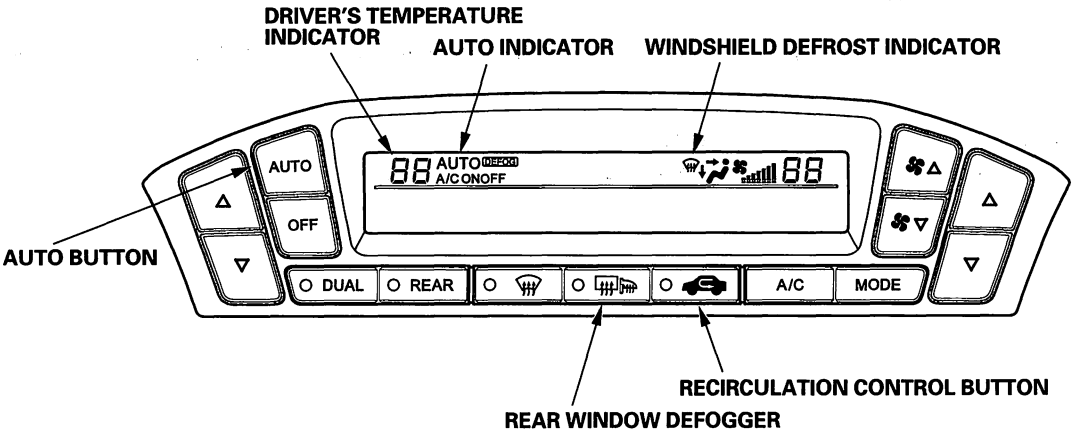
How to Use the Self-diagnostic Function without the HDS

The climate control unit has a self-diagnostic function. To run the self-diagnostic function, do the following:

1. Turn the ignition switch OFF and then ON (II).

2. Press and hold the OFF button, then press the RECIRCULATION CONTROL button five times within 10 seconds. Release the OFF and RECIRCULATION CONTROL buttons; then the self-diagnostic begins.

   NOTE:
   - The blower motor will run at various speeds regardless of what the panel is displaying.
   - If there is any problem in the system, the system flashes "88 AUTO WINDSHIELD DEFROST"or alternately flashes "88 AUTO WINDSHIELD DEFROST" and one or more of the 14 segments (A through P). Refer to checking for DTCs.
   - If there are no problems detected, the segments will not illuminate, and the system will appear to be turned off.



Canceling the Self-diagnostic Function

3. Turn the ignition switch OFF to cancel the self-diagnostic function. After completing repair work, run the self-diagnostic function again to make sure that there are no other DTCs.

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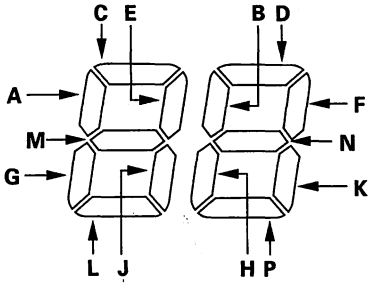
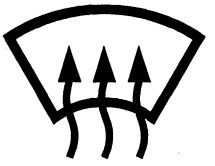
Checking for DTCs

The temperature display indicates single or multiple DTCs. If indicator segments A, B, C, E, G, J, M, N, AUTO, and WINDSHIELD DEFROST are on at the same time, there may be an open in the common ground wire. If no DTCs are present, the indicator remains blank.

DRIVER'S TEMPERATURE INDICATOR **AUTO INDICATOR** **WINDSHIELD DEFROST INDICATOR**





DTC (Driver's Temperature Indicator Segment, AUTO, and WINDSHIELD DEFROST Indicator)	Detection Item
A and AUTO	An open in the in-car temperature sensor circuit (see page 21-41)
B and AUTO	A short in the in-car temperature sensor circuit (see page 21-43)
C and AUTO	An open in the outside air temperature sensor circuit (see page 21-44)
D and AUTO	A short in the outside air temperature sensor circuit (see page 21-45)
E and AUTO	An open in the sunlight sensor circuit (see page 21-46)
F and AUTO	A short in the sunlight sensor circuit (see page 21-47)
G and AUTO	An open in the front evaporator temperature sensor circuit (see page 21-48)
H and AUTO	A short in the front evaporator temperature sensor circuit (see page 21-50)
J and AUTO	An open in the driver's air mix control motor circuit (see page 21-51)
K and AUTO	A short in the driver's air mix control motor circuit (see page 21-52)
L and AUTO	A problem in the driver's air mix control linkage, door, or motor circuit (see page 21-55)
M and AUTO	An open in the passenger's air mix control motor circuit (see page 21-56)
N and AUTO	A short in the passenger's air mix control motor circuit (see page 21-57)
P and AUTO	A problem in the passenger's air mix control linkage, door, or motor circuit (see page 21-60)

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General Troubleshooting Information (cont'd)

DTC (Driver's Temperature Indicator Segment, AUTO, and WINDSHIELD DEFROST Indicator)	Detection Item
AUTO	Climate control unit lost communication with gauge control module (ECT message) (see page 21-32)
A	An open or short in the front mode control motor circuit (see page 21-62)
B	A problem in the front mode control linkage, doors, or motor circuit (see page 21-64)
C	A problem in the front blower motor circuit (see page 21-65)
F	An open in the rear air mix control motor circuit (see page 21-69)
G	A short in the rear air mix control motor circuit (see page 21-70)
H	A problem in the rear air mix control linkage, door, or motor circuit (see page 21-73)
J	An open or short in the recirculation control motor circuit (see page 21-36)
K	A problem in the recirculation control linkage, door, or motor circuit (see page 21-88)
M	A problem in the rear blower motor circuit (see page 21-38)
N	An open in the rear evaporator temperature sensor circuit (see page 21-33)
P	A short in the rear evaporator temperature sensor circuit (see page 21-34)
A and WINDSHIELD DEFROST	An open in the humidity sensor circuit (see page 21-76), a short in the humidity sensor circuit (see page 21-77)
B and WINDSHIELD DEFROST	An open in the A/C pressure sensor circuit (see page 21-81), a short in the A/C pressure sensor circuit (see page 21-83)

Displaying Sensor Inputs at the Climate Control Unit

The climate control unit has a mode that displays sensor inputs it receives. This mode shows you what the climate control unit is receiving from each of the sensors, one at a time, and it can help you determine if a sensor is faulty.

Check these items before using the sensor input display mode

1. Turn the ignition switch ON (II), and check the recirculation door function; press the recirculation button to switch from FRESH to RECIRC. The air volume and sound should change slightly.

2. Set the temperature control knob to the desired test temperature. When selecting the test temperature, note these items:

   - "Lo" temperature setting will default to MAX COOL, VENT, and RECIRC.
   - "Hi" temperature setting will default to MAX HOT, FLOOR, and FRESH.
   - 58 through 86 °F settings will use the automatic climate control logic.

3. Turn the ignition switch OFF.

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To run the sensor input display mode, follow these steps

1. Turn the ignition switch OFF.
2. Press and hold both the AUTO and RECIRCULATION CONTROL buttons, then start the engine.
3. After the engine starts, release both buttons. The display panel control unit will flash the sensor number and then the value for that sensor. Record the value displayed.
4. To advance to the next sensor, press the REAR WINDOW DEFOGGER button.

Sensor	Item	Displayed Value
1	In-car Temperature	℃
2	Outside Air Temperature	℃
3	Solar Radiation Sensor Value: Dark = 00, Flashlight = 04, Cloudy = 10, Sunny = 65	kcal/m²·h
4	Front Evaporator Outlet Air Temperature	℃
5	Driver's and Passenger's Air Mix Opening (Low value indicates cooler air distribution, higher value indicates warmer air distribution)	% of opening
6	Vent Temperature Air Out (TAO)	℃
7	Vehicle Speed (Vehicle must be driven to display speed)	km/h
8	A/C Pressure	10kPa
9	Rear Air Mix Opening	% of opening
A	Rear Vent Temperature Air Out (TAO)	℃
B	Rear Evaporator Outlet Air Temperature	℃
C	Humidity Sensor Value	% rh
D	Fog Margin	℃
E	Solar Radiation azimuth (With navigation system)	10°
F	Solar Radiation angle of elevation (With navigation system)	10°

NOTE:
- The sensor values will be displayed in degrees Celsius (℃) or an alphanumeric code. Use the chart to convert the value to degrees Fahrenheit (℉).
- If the sensor value displays "Er" this indicates there is an open or short in the circuit or sensor. Check for DTCs using the HDS, or refer to checking DTCs by DTC indication.
- If necessary, compare the sensor input display to a known-good vehicle under the same test conditions.
- If the sensor is out of the normal range, refer to the sensor test or substitute a known-good sensor, and recheck.

5. To cancel the sensor input display mode, press the AUTO button or turn the ignition switch OFF.

(cont'd)

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General Troubleshooting Information (cont'd)

Celsius to Fahrenheit Conversion Table

℃	℉	℃	℉	℃	℉	℃	℉	℃	℉
0	32	10	50	20	68	30	86	40	104
1	34	11	52	21	70	31	88	41	106
2	36	12	54	22	72	32	90	42	108
3	37	13	55	23	73	33	91	43	109
4	39	14	57	24	75	34	93	44	111
5	41	15	59	25	77	35	95	45	113
6	43	16	61	26	79	36	97	46	115
7	45	17	63	27	81	37	99	47	117
8	46	18	64	28	82	38	100	48	118
9	48	19	66	29	84	39	102	49	120

℃	℉	℃	℉	℃	℉	℃	℉	℃	℉
50	122	60	140	70	158	80	176	90	194
51	124	61	142	71	160	81	178	91	196
52	126	62	144	72	162	82	180	92	198
53	127	63	145	73	163	83	181	93	199
54	128	64	147	74	165	84	183	94	201
55	131	65	149	75	167	85	185	95	203
56	133	66	151	76	169	86	187	96	205
57	135	67	152	77	170	87	188	97	207
58	136	68	154	78	172	88	190	98	208
59	139	69	158	79	174	89	192	99	210

Alphanumeric Conversion Table

Display Reading (Alphanumeric)	℃	℉	%
A1 thru A9	−1 thru −9	30 thru 16	−1 thru −9
B0 thru B9	−10 thru −19	14 thru −2	−10 thru −19
C0 thru C9	−20 thru −29	−4 thru −20	−20 thru −29
D0 thru D9	−30 thru −39	−22 thru −38	−30 thru −39
E0 thru E9	−40 thru −49	−40 thru −58	−40 thru −49
F0 thru F9	———	———	+100 thru +109

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DTC Troubleshooting Index

Checking the DTCs by HDS

DTC	Detection Item or Symptom	ECU	DTC type	Page
B1200	Communication bus line error (bus-off)	Climate control unit	Loss of communication	(see page 22-129)
B1202	Climate control unit internal error	Climate control unit	Internal error	(see page 21-32)
B1205	Climate control unit lost communication with gauge control module (VSP/NE message)	Climate control unit	Loss of communication	(see page 21-32)
B1206	Climate control unit lost communication with gauge control module (ECT message)	Climate control unit	Loss of communication	(see page 21-32)
B1207	Climate control unit lost communication with gauge control module (ILLUMI message)	Climate control unit	Loss of communication	(see page 21-32)
B1213	An open in the rear evaporator temperature sensor circuit	Climate control unit	Signal error	(see page 21-33)
B1214	A short in the rear evaporator temperature sensor circuit	Climate control unit	Signal error	(see page 21-34)
B1215	An open or short in the recirculation control motor circuit	Climate control unit	Signal error	(see page 21-36)
B1223	A problem in the rear blower motor circuit	Climate control unit	Signal error	(see page 21-38)
B1225	An open in the in-car temperature sensor circuit	Climate control unit	Signal error	(see page 21-41)
B1226	A short in the in-car temperature sensor circuit	Climate control unit	Signal error	(see page 21-43)
B1227	An open in the outside air temperature sensor circuit	Climate control unit	Signal error	(see page 21-44)
B1228	A short in the outside air temperature sensor circuit	Climate control unit	Signal error	(see page 21-45)
B1229	An open in the sunlight sensor circuit	Climate control unit	Signal error	(see page 21-46)
B1230	A short in the sunlight sensor circuit	Climate control unit	Signal error	(see page 21-47)
B1231	An open in the front evaporator temperature sensor circuit	Climate control unit	Signal error	(see page 21-48)
B1232	A short in the front evaporator temperature sensor circuit	Climate control unit	Signal error	(see page 21-50)
B1233	An open in the driver's air mix control motor circuit	Climate control unit	Signal error	(see page 21-51)
B1234	A short in the driver's air mix control motor circuit	Climate control unit	Signal error	(see page 21-52)
B1235	A problem in the driver's air mix control linkage, door, or motor circuit	Climate control unit	Signal error	(see page 21-55)
B1236	An open in the passenger's air mix control motor circuit	Climate control unit	Signal error	(see page 21-56)
B1237	A short in the passenger's air mix control motor circuit	Climate control unit	Signal error	(see page 21-57)
B1238	A problem in the passenger's air mix control linkage, door, or motor circuit	Climate control unit	Signal error	(see page 21-60)

(cont'd)

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DTC Troubleshooting Index (cont'd)

Checking the DTCs by HDS

DTC	Detection Item or Symptom	ECU	DTC type	Page
B1239	An open or short in the front mode control motor circuit	Climate control unit	Signal error	(see page 21-62)
B1240	A problem in the front mode control linkage, doors, or motor circuit	Climate control unit	Signal error	(see page 21-64)
B1241	A problem in the front blower motor circuit	Climate control unit	Signal error	(see page 21-65)
B1244	An open in the rear air mix control motor circuit	Climate control unit	Signal error	(see page 21-69)
B1245	A short in the rear air mix control motor circuit	Climate control unit	Signal error	(see page 21-70)
B1246	A problem in the rear air mix control linkage, door, or motor circuit	Climate control unit	Signal error	(see page 21-73)
B2965	Climate control unit lost communication with rear climate control panel	Climate control unit	Loss of communication	(see page 21-74)
B2967	An open in the humidity sensor circuit	Climate control unit	Signal error	(see page 21-76)
B2968	A short in the humidity sensor circuit	Climate control unit	Signal error	(see page 21-77)
B2969	Climate control unit lost communication with combination switch control unit (WIPSW message)	Climate control unit	Loss of communication	(see page 21-80)
B2970	Climate control unit lost communication with relay control module (RM message)	Climate control unit	Loss of communication	(see page 21-81)
B2979	An open in the A/C pressure sensor circuit	Climate control unit	Signal error	(see page 21-81)
B2980	A short in the A/C pressure sensor circuit	Climate control unit	Signal error	(see page 21-83)
B2981	Climate control unit lost communication with navigation unit	Climate control unit	Loss of communication	(see page 21-86)
B2983	A problem in the recirculation control linkage, door, or motor circuit	Climate control unit	Signal error	(see page 21-88)
B2991	Climate control unit lost communication with audio unit	Climate control unit	Loss of communication	(see page 21-89)

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Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Rear mode control doors do not change between ceiling vents (cool) and floor vents (hot)	Rear mode control motor circuit troubleshooting (see page 21-91)	• HVAC DTCs (see page 21-8) • Blown fuse No. 30 (10 A) in the under-dash fuse/relay box • Cleanliness and tightness of all terminals
Blower, heater controls, and A/C do not work	Climate control unit troubleshooting (see page 21-93)	• HVAC DTCs (see page 21-8) • Blown fuse No. 30 (10 A) in the under-dash fuse/relay box • Poor ground at G506 (see page 22-67) • Cleanliness and tightness of all terminals
Both fans do not run at low speed with the A/C on (but the A/C compressor runs with the A/C on)	Radiator and A/C condenser fan low speed circuit troubleshooting (see page 21-94)	• HVAC DTCs (see page 21-8) • Blown fuse No. 15 (30 A) in the relay block, and No. 30 (10 A) in the under-dash fuse/relay box • Poor ground at G301 (see page 22-67) • Cleanliness and tightness of all terminals
The A/C condenser fan does not run at high speed (but both fans run at low speed and the A/C compressor operates with the A/C on)	A/C condenser fan high speed circuit troubleshooting (see page 21-98)	• HVAC DTCs (see page 21-8) • Cleanliness and tightness of all terminals
Both fans do not run at high speed with the A/C on (but both fans run at low speed and the A/C compressor operates with the A/C on)	ECT troubleshooting: ECT sensor 2 circuit low voltage (see page 11-175), ECT sensor 2 circuit high voltage (see page 11-177)	• Powertrain DTCs (see page 11-3) • Cleanliness and tightness of all terminals
The A/C compressor clutch does not engage (but both fans run with the A/C on)	A/C compressor clutch circuit troubleshooting (see page 21-100)	• HVAC DTCs (see page 21-8) • Blown fuse No. 7 (7.5 A) in the relay block, and No. 30 (10 A) in the under-dash fuse/relay box • Cleanliness and tightness of all terminals
Blower fan(s) runs slower than expected in cold weather	ECT troubleshooting: ECT sensor 2 circuit low voltage (see page 11-175), ECT sensor 2 circuit high voltage (see page 11-177) NOTE: It is normal for the blower(s) to run slowly until the engine coolant temperature begins to rise. If the blower continues to run slowly for an abnormal length of time, continue to troubleshoot the problem.	Powertrain DTCs (see page 11-3)
HDS does not communicate with the climate control unit or the vehicle	Troubleshoot the DLC circuit (see page 11-223)	

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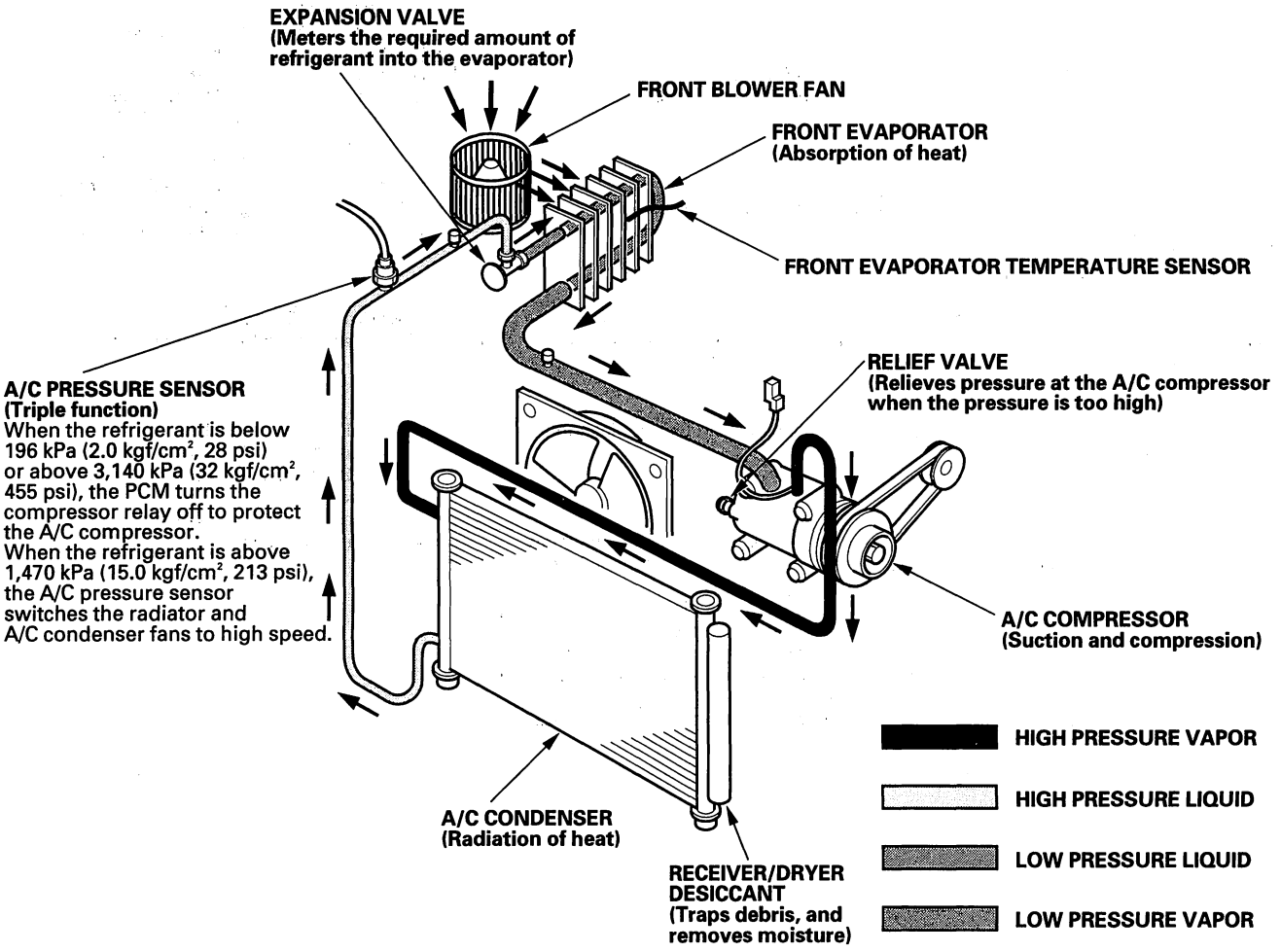
System Description

The air conditioning system removes heat from the passenger compartment by transferring heat from the ambient air to the evaporator. The evaporator cools the air with the refrigerant that is circulating through the evaporator. The refrigerant expands in the evaporator, and the evaporator becomes very cold and absorbs the heat from the ambient air. The blower fan pushes air across the evaporator where the heat is absorbed, and then it blows the cool air into the passenger compartment.



This vehicle uses HFC-134a (R-134a) refrigerant, which does not contain chlorofluorocarbons. Pay attention to the following service items:

- Do not mix refrigerants CFC-12 (R-12) and HFC-134a (R-134a). They are not compatible.
- Use only the recommended polyalkyleneglycol (PAG) refrigerant oil (DENSO ND-OIL 8) designed for the R-134a A/C compressor. Intermixing the recommended (PAG) refrigerant oil with any other refrigerant oil will result in A/C compressor failure.
- All A/C system parts (A/C compressor, discharge line, suction line, evaporator, A/C condenser, receiver/dryer, expansion valve, O-rings for joints) are designed for refrigerant R-134a. Do not exchange with R-12 parts.
- Use a halogen gas leak detector designed for refrigerant R-134a.
- R-12 and R-134a refrigerant servicing equipment are not interchangeable. Use only a recovery/recycling/charging station that is U.L.-listed and is certified to meet the requirements of SAE J2210 to service the R-134a air conditioning systems.
- Always recover refrigerant R-134a with an approved recovery/recycling/charging station before disconnecting any A/C fitting.

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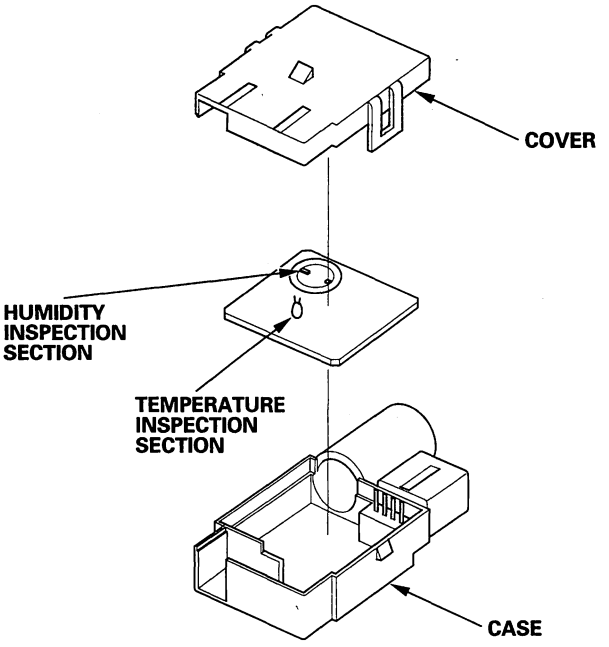
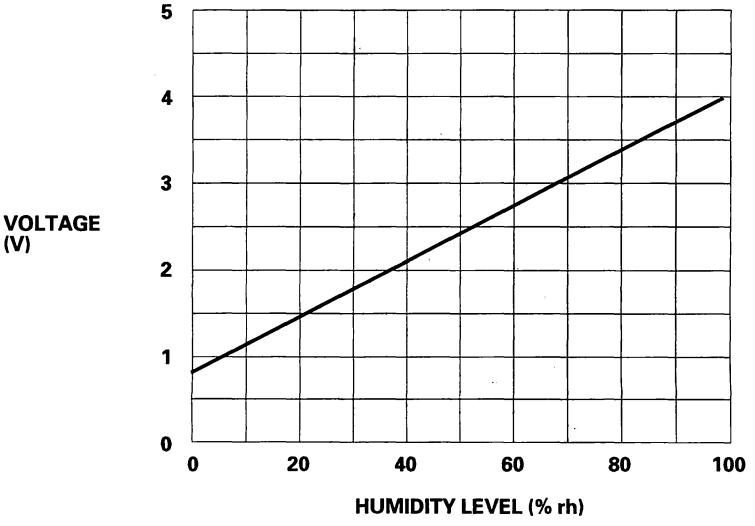
Humidity/In-car Temperature Sensor

The humidity sensor consists of two sensors. One is the humidity detection part and the other is the in-car temperature detection part. When the climate control unit receives the signals of the in-car condition from the humidity sensor, and judges that the humidity in the vehicle is very low, the climate control unit adjusts the compressor. Engine power loss is kept to a minimum.



Humidity/In-car Temperature Sensor Quality

The capacitance of the humidity sensor changes by the adsorption and the evaporation of moisture. The resistance change of the humidity sensor changes the output voltage.



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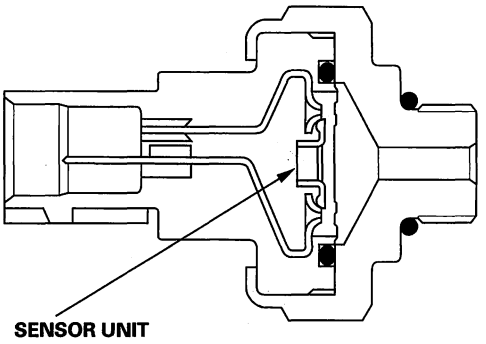
System Description (cont'd)

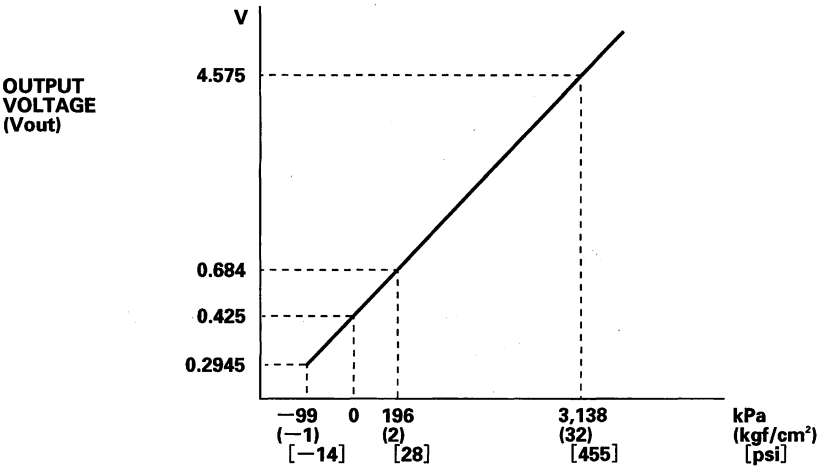
A/C Pressure Sensor

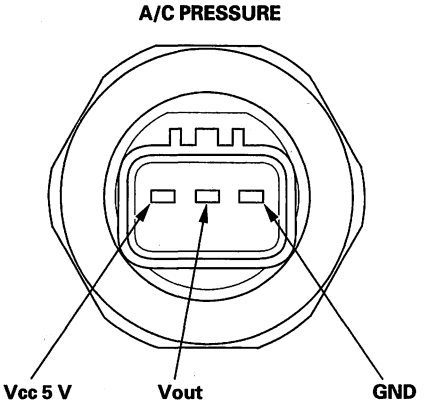
The A/C pressure sensor converts A/C pressure into electrical signals to the PCM.

NOTE: The pressures can be monitored using the HDS PGM-FI Data List.



The response of the A/C pressure sensor is shown in the graph.





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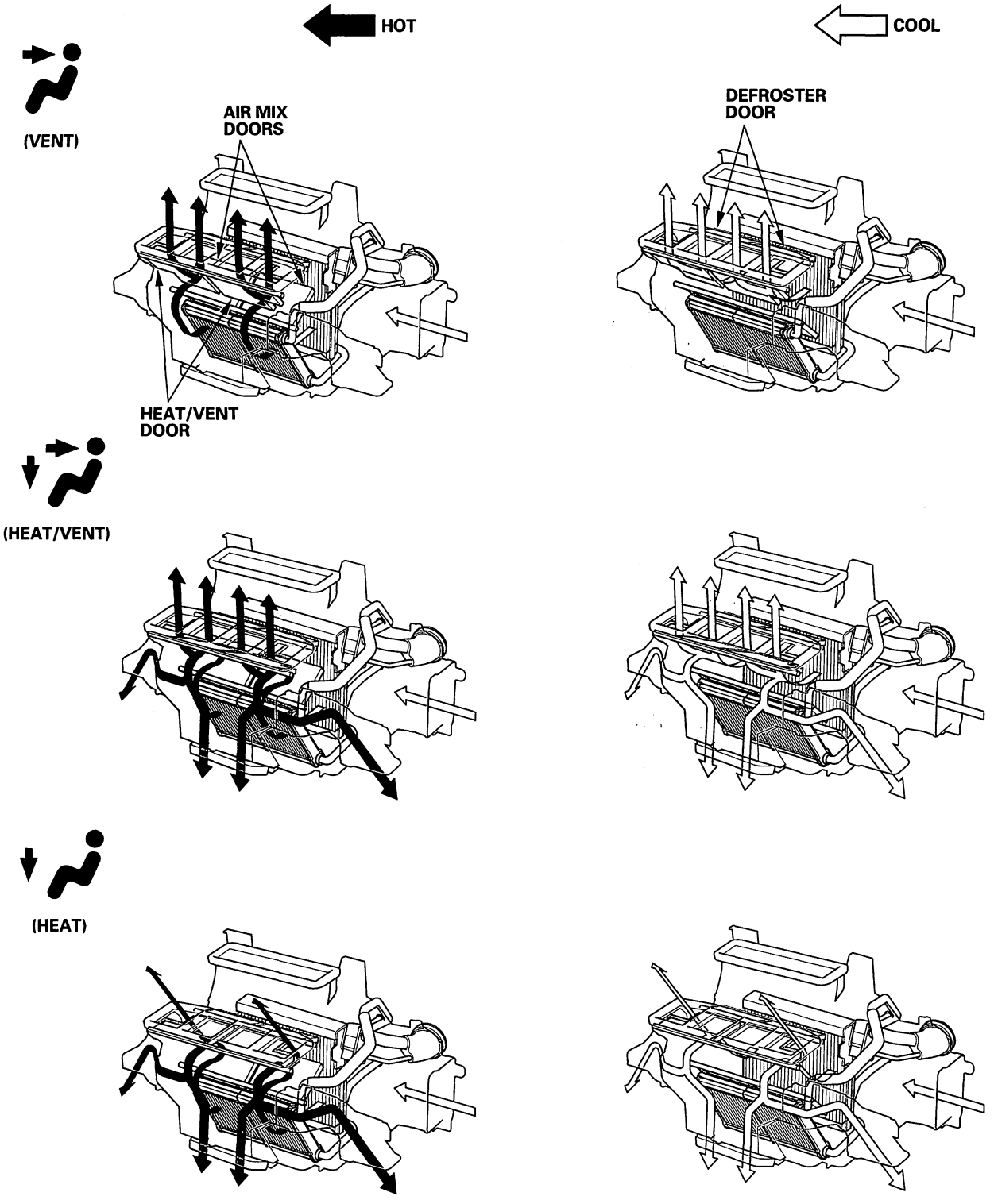
Climate Control Door Positions



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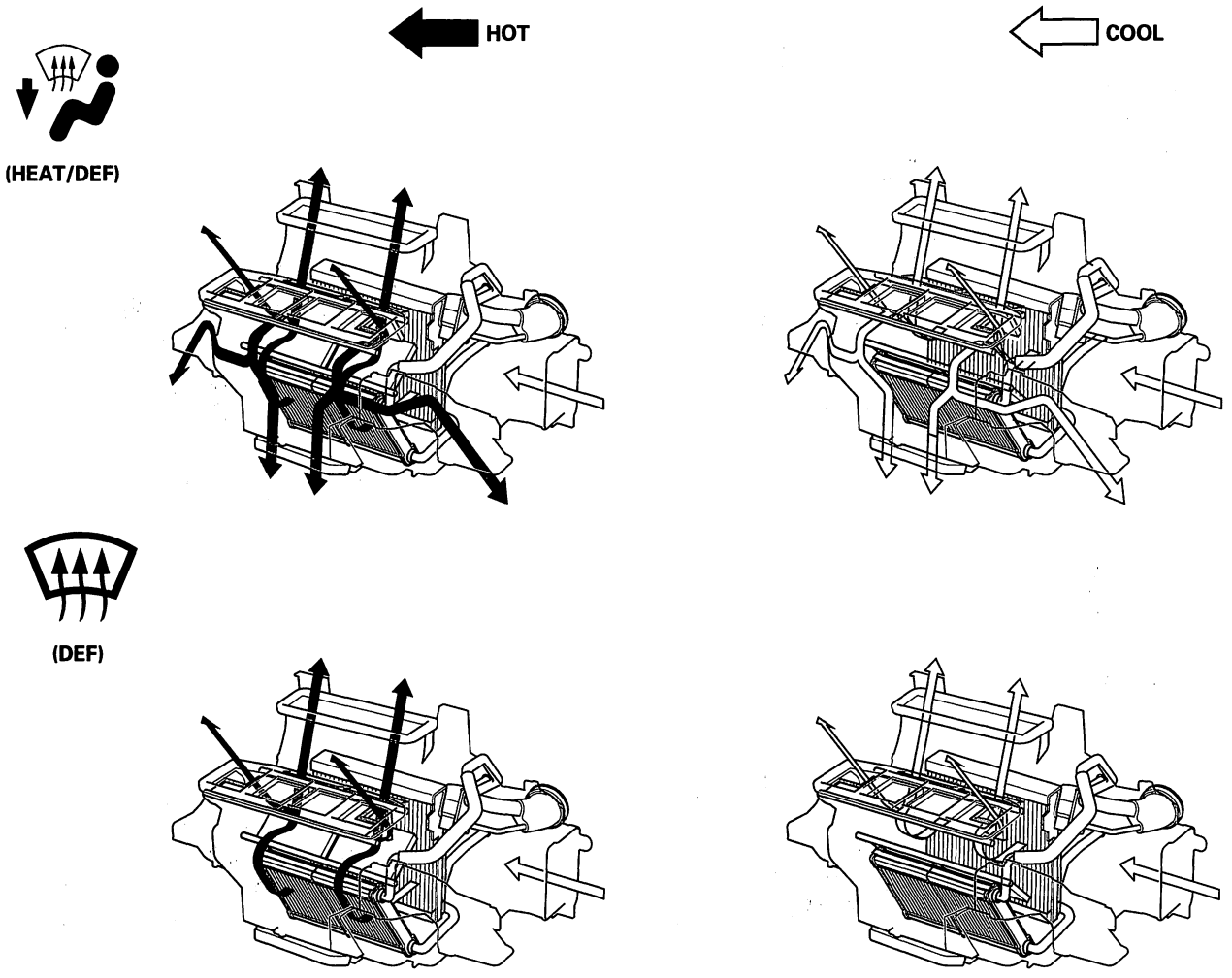
System Description (cont'd)



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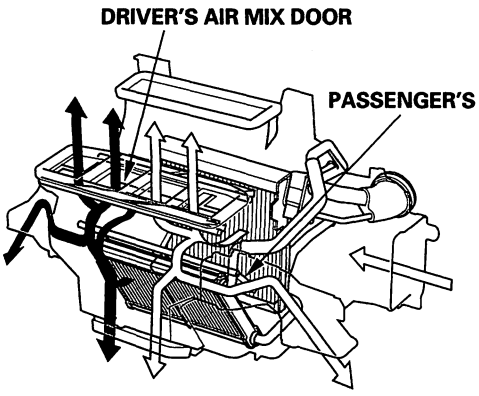
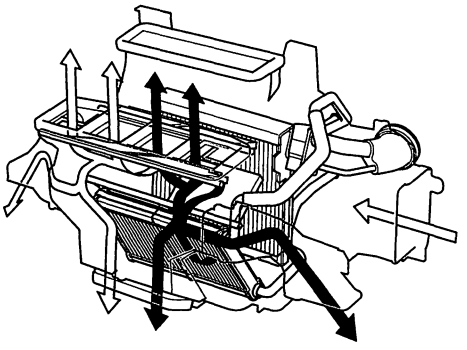
Dual Air Mix Control System

Driver's side: HOT
Passenger's side: COOL



Driver's side: COOL
Passenger's side: HOT



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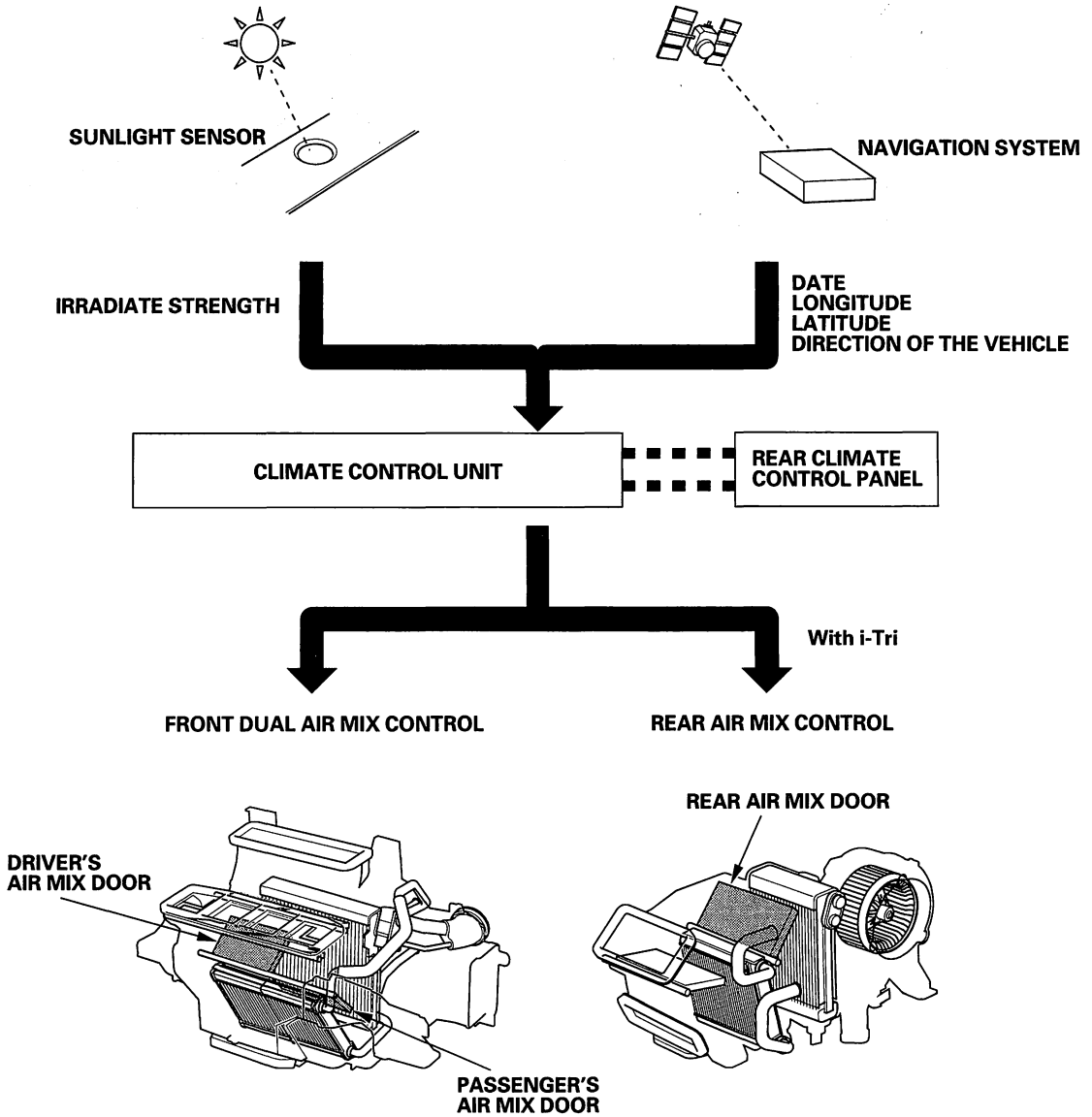
System Description (cont'd)

i-Dual and i-Tri Climate Control System (With navigation system)

The "i-Dual" climate control system automatically controls the temperature and the vent mode of the air direction to the driver's and passenger's side, depending on the angle of the sun, and the direction of the vehicle. It calculates information such as date, time, longitude, and latitude from the navigation system, as well as the radiant strength of the sun from the sunlight sensor, to determine the appropriate mode position and temperature to be directed to each side. The "i-Tri" climate control system is an addition of the automatic controls with the temperature and the vent mode of the air direction to the rear section to the "i-Dual" climate control system.



In the event that the navigation system malfunctions, or when driving in areas where the navigation system cannot determine the vehicle position (non-coverage areas, tunnels, etc.), the climate control system will operate the same as a vehicle without a navigation system.

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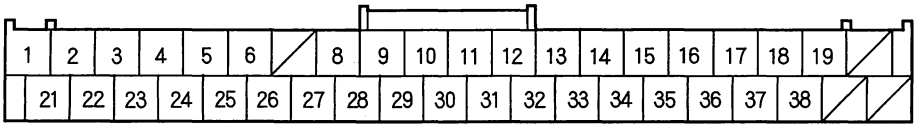
Climate Control Unit Inputs and Outputs

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

CONNECTOR A

Cavity	Wire color	Signal	
1	WHT	BACK UP	INPUT
2	YEL	NAVIGATION UNIT (SI)*	INPUT
3	YEL	IG2 (Power)	INPUT
4	LT GRN	B-CAN	INPUT/OUTPUT
5	LT BLU	IN-CAR TEMPERATURE SENSOR	OUTPUT
6	GRY	COMMON POTENTIAL 5V	OUTPUT
8	RED	SENSOR COMMON GROUND	INPUT
9	BLU	FRONT BLOWER FEEDBACK	INPUT
10	RED	FRONT POWER TRANSISTOR CONTROL	OUTPUT
11	PUR	DRIVER'S AIR MIX POTENTIAL	OUTPUT
12	PNK	DRIVER'S AIR MIX HOT	OUTPUT
13	LT BLU	DRIVER'S AIR MIX COOL	OUTPUT
14	LT GRN	PASSENGER'S AIR MIX HOT	OUTPUT
15	YEL	PASSENGER'S AIR MIX COOL	OUTPUT
16	GRN	FRONT MODE DEF	OUTPUT
17	ORN	FRONT MODE VENT	OUTPUT
18	YEL	FRESH	OUTPUT
19	ORN	RECIRCULATE	OUTPUT
21	BLU	NAVIGATION UNIT (CLK)*	OUTPUT
22	RED	NAVIGATION UNIT (SO)*	OUTPUT
23	LT BLU	ILLUMI (+)	INPUT
24	BRN	FRONT EVAPORATOR TEMPERATURE SENSOR	OUTPUT
25	PUR	ACC	INPUT
26	LT GRN	A/C PRESSURE SENSOR	OUTPUT
27	YEL	HUMIDITY SENSOR	OUTPUT
28	PNK	OUTSIDE AIR TEMPERATURE SENSOR	OUTPUT
29	PUR	SUNLIGHT SENSOR	OUTPUT
30	BLU	PASSENGER'S AIR MIX POTENTIAL	OUTPUT
31	WHT	FRONT MODE CONTROL MODE 1	OUTPUT
32	LT GRN	FRONT MODE CONTROL MODE 2	OUTPUT
33	PUR	FRONT MODE CONTROL MODE 3	OUTPUT
34	BLU	FRONT MODE CONTROL MODE 4	OUTPUT
35	WHT	RECIRCULATION CONTROL MODE 1	OUTPUT
36	BLK	RECIRCULATION CONTROL MODE 2	OUTPUT
37	BLK	GROUND (G506)	OUTPUT
38	GRN	RECIRCULATION CONTROL MODE 3	OUTPUT

*: With navigation system

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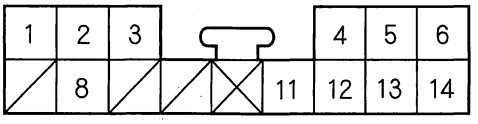
System Description (cont'd)

Climate Control Unit Inputs and Outputs

CLIMATE CONTROL UNIT CONNECTOR B (14P)



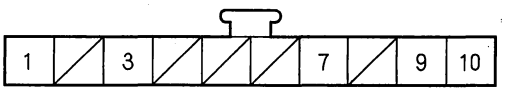
Wire side of female terminals

CONNECTOR B

Cavity	Wire color	Signal	
1	GRN	REAR AIR MIX COOL	OUTPUT
2	PNK	REAR AIR MIX HOT	OUTPUT
3	YEL	REAR MODE HEAT	INPUT
4	BLK	REAR MODE VENT	INPUT
5	PUR	REAR AIR MIX POTENTIAL	OUTPUT
6	LT BLU	REAR EVAPORATOR TEMPERATURE SENSOR	OUTPUT
8	BLU	AUDIO UNIT (HVAC BUS)	INPUT/OUTPUT
11	ORN	REAR CLIMATE CONTROL PANEL (A/C BUS RX)	INPUT/OUTPUT
12	GRN	REAR CLIMATE CONTROL PANEL (A/C BUS TX)	INPUT/OUTPUT
13	RED	REAR BLOWER FEEDBACK	INPUT
14	BLU	REAR POWER TRANSISTOR CONTROL	OUTPUT

Rear Climate Control Unit Inputs and Outputs

REAR CLIMATE CONTROL PANEL 10P CONNECTOR



Wire side of female terminals

Cavity	Wire color	Signal	
1	YEL	IG2 (Power)	INPUT
3	BLK	GROUND (G506)	OUTPUT
7	LT BLU	ILLUMI (+)	INPUT
9	GRN	CLIMATE CONTROL UNIT (A/C BUS TX)	INPUT/OUTPUT
10	ORN	CLIMATE CONTROL UNIT (A/C BUS RX)	INPUT/OUTPUT

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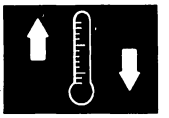

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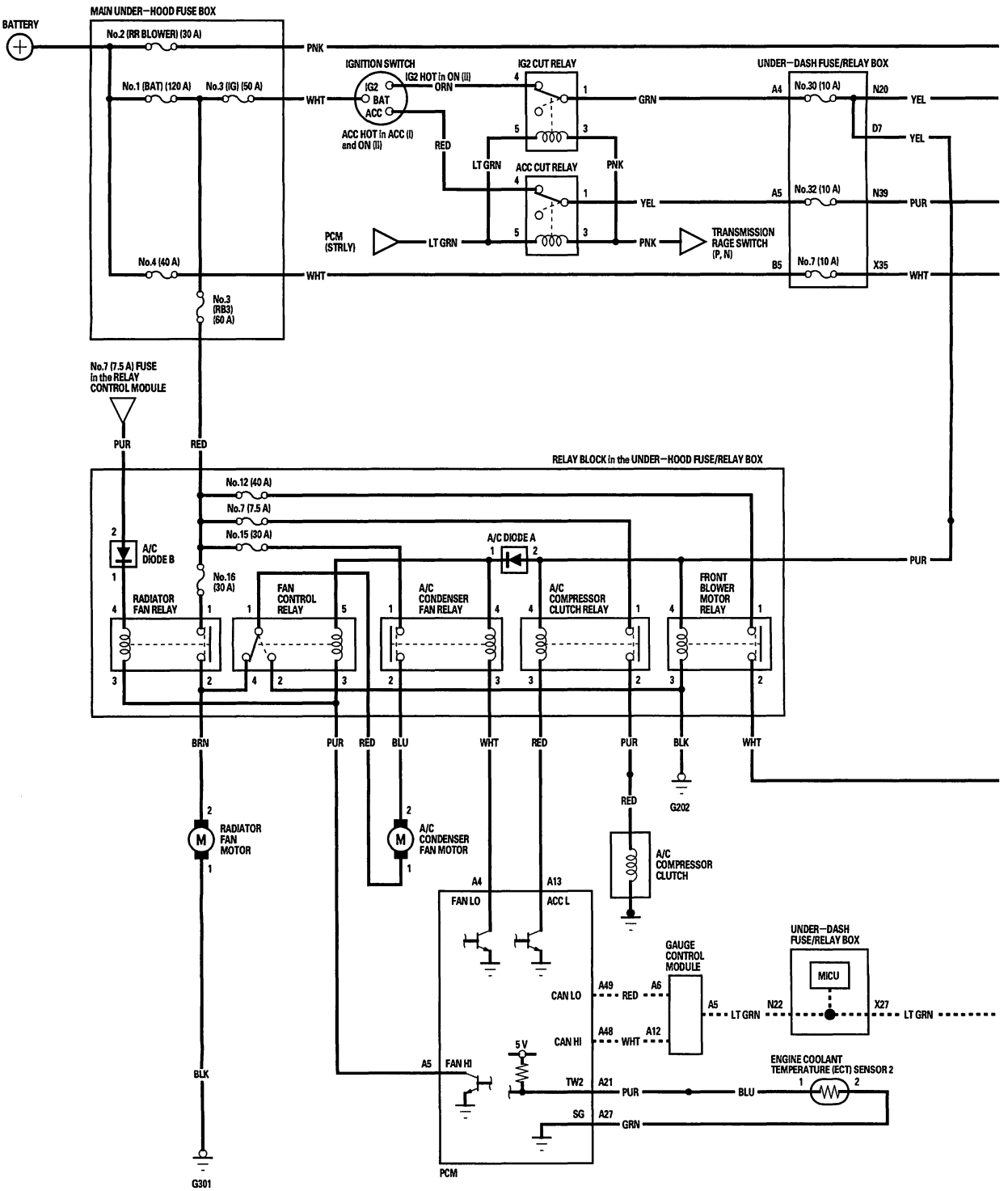
Climate Control

Circuit Diagram



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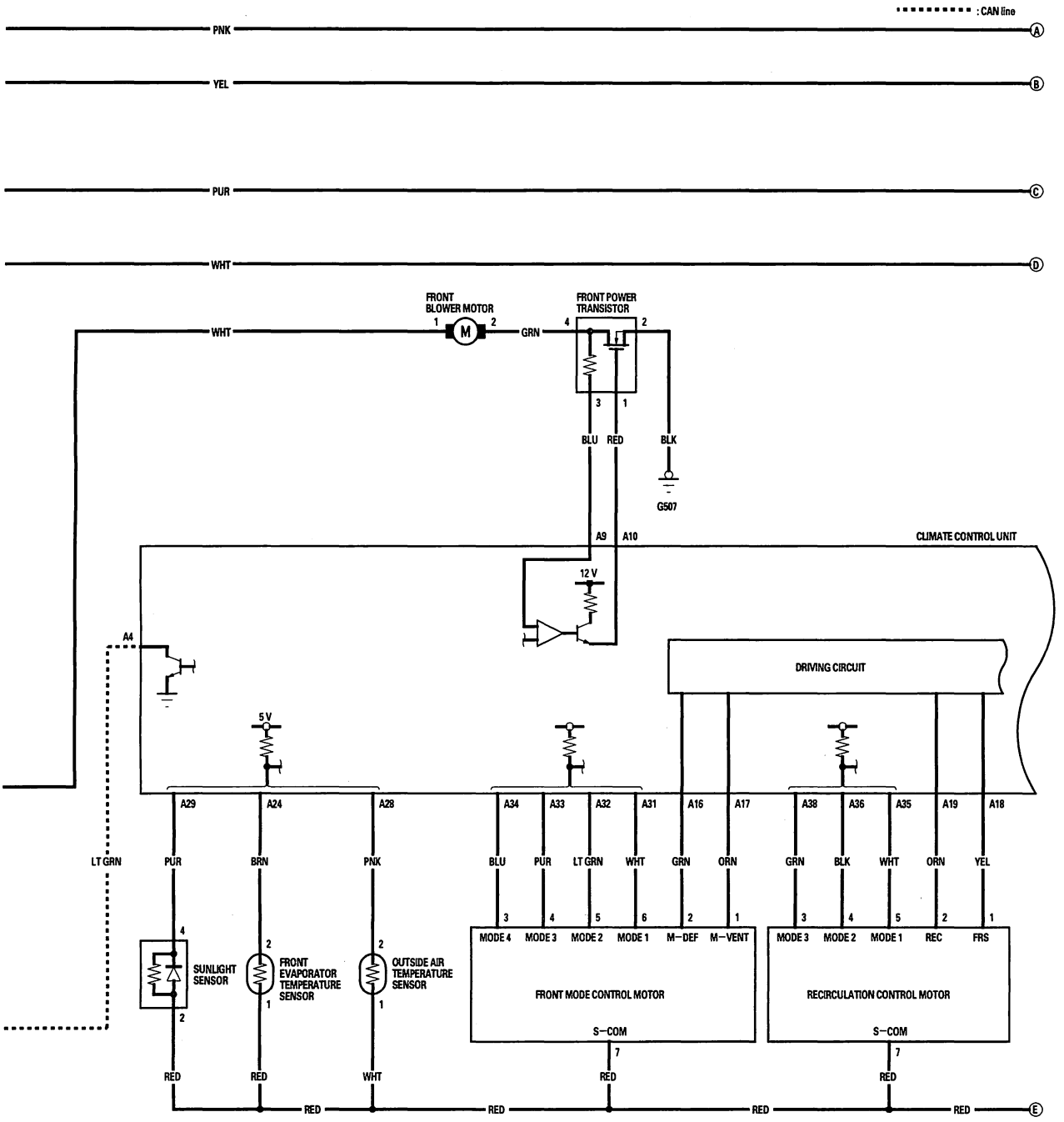

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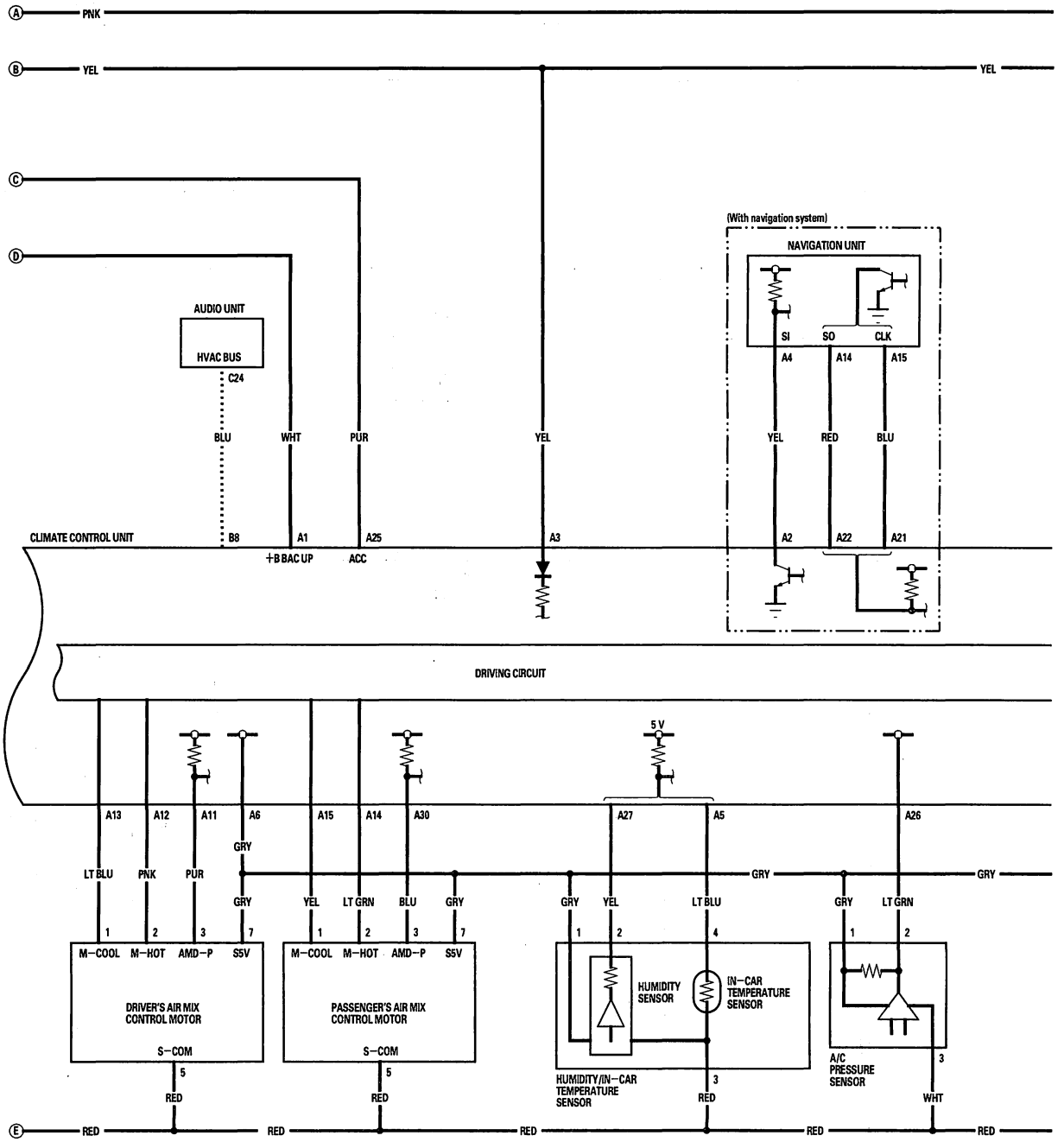
Circuit Diagram (cont'd)



BACK

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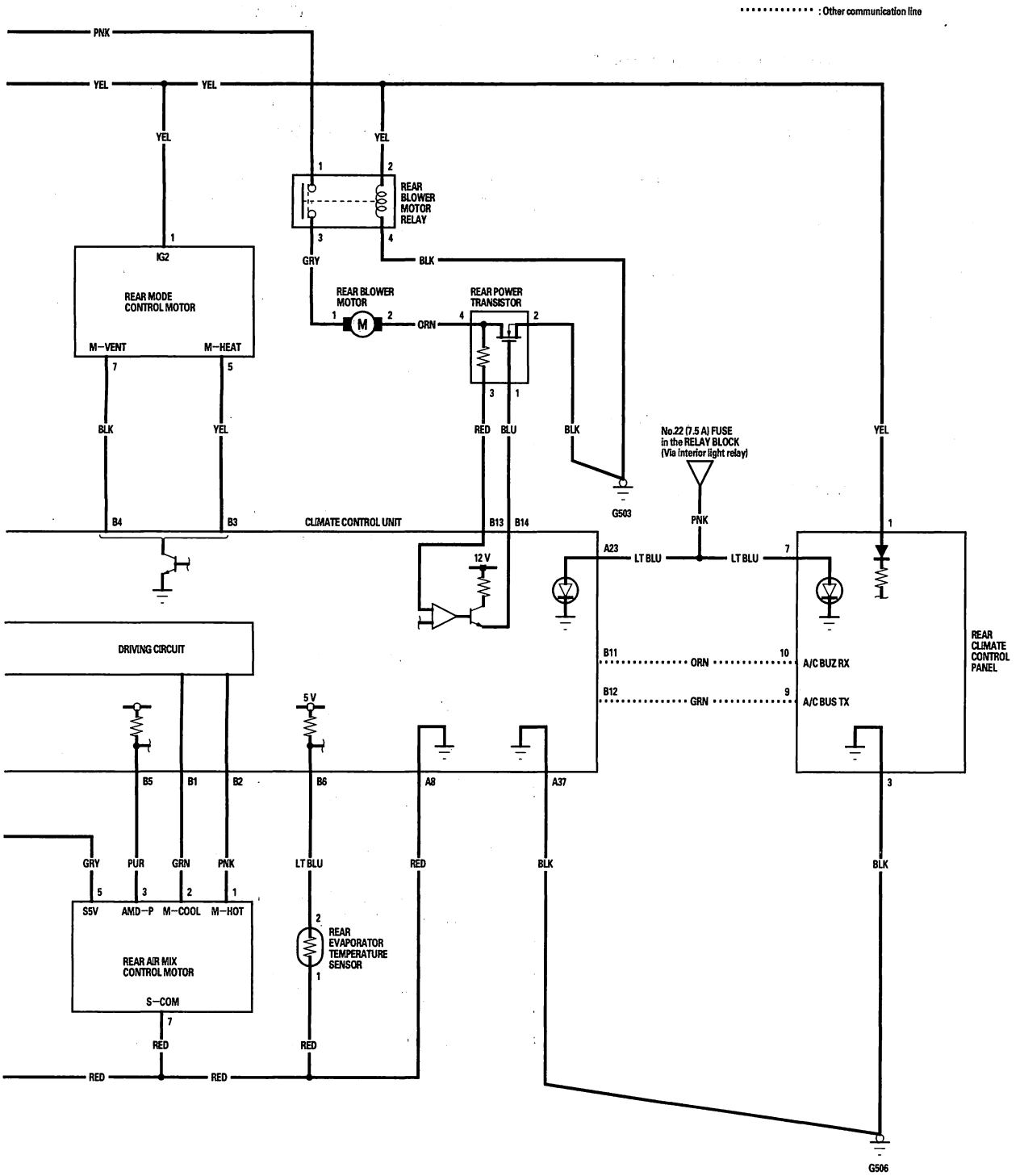

BACK

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DTC Troubleshooting

DTC B1202: Climate Control Unit Internal Error

NOTE: Check the battery condition (see page 22-76) and the charging system (see page 4-28).

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Wait for 6 seconds or more.
4. Do the self-diagnostic with the HDS (see page 21-9).
5. Check for DTCs.

   Is DTC B1202 indicated?

   YES—The climate control unit is faulty, replace the climate control unit. ■

   NO—Intermittent failure, the climate control unit is OK at this time. ■

DTC B1205: Climate Control Unit Lost Communication with Gauge Control Module (VSP/NE message)

DTC B1206 or DTC indicator AUTO: Climate Control Unit Lost Communication with Gauge Control Module (ECT message)

DTC B1207: Climate Control Unit Lost Communication with Gauge Control Module (ILLUMI message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-can diagnosis test mode A (see page 22-112).

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Wait for 6 seconds or more.
4. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
5. Check the DTCs.

   Is DTC B1205, and/or B1206 or AUTO, and/or B1207 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, check for loose wires or poor connections on the climate control unit connector A (40P). ■

6. Check for DTCs using the HDS.

   Are any of the following DTCs indicated; B1011, B1060, B2160, B1357, B1805, B1408, or B2157?

   YES—Do the gauge control module input test (see page 22-334). ■

   NO—Do the climate control unit troubleshooting (see page 21-93). ■

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DTC B1213 or DTC indicator N: An Open in the Rear Evaporator Temperature Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1213 or N indicated?

   YES—Go to step 5.

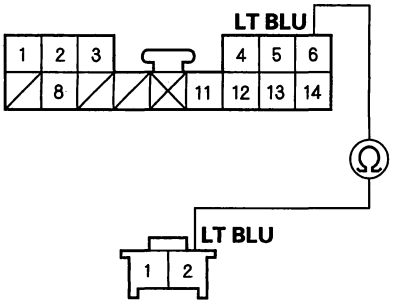
   NO—Intermittent failure, check for loose wires or poor connections on the rear evaporator temperature sensor circuit. ■
5. Turn the ignition switch OFF.
6. Remove the rear evaporator temperature sensor (see page 21-141), and test it (see page 21-141).

   Is the rear evaporator temperature sensor OK?

   YES—Go to step 7.

   NO—Replace the rear evaporator temperature sensor. ■
7. Disconnect climate control unit connector B (14P).
8. Check for continuity between climate control unit connector B (14P) terminal No. 6 and the rear evaporator temperature sensor 2P connector terminal No. 2.

CLIMATE CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals



REAR EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the climate control unit and the rear evaporator temperature sensor. ■

(cont'd)

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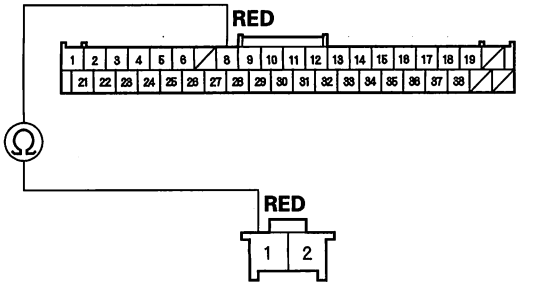
DTC Troubleshooting (cont'd)

9. Check for continuity between climate control unit connector A (40P) terminal No. 8 and the rear evaporator temperature sensor 2P connector terminal No. 1.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



REAR EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector A (40P), B (14P), and at the rear evaporator temperature sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the rear evaporator temperature sensor. ■

DTC B1214 or DTC indicator P: A Short in the Rear Evaporator Temperature Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1214 or P indicated?

   YES—Go to step 5.

   NO—Intermittent failure. ■
5. Turn the ignition switch OFF.
6. Remove the rear evaporator temperature sensor (see page 21-141), and test it (see page 21-141).

   Is the rear evaporator temperature sensor OK?

   YES—Go to step 7.

   NO—Replace the rear evaporator temperature sensor. ■
7. Disconnect climate control unit connector A (40P) and B (14P).

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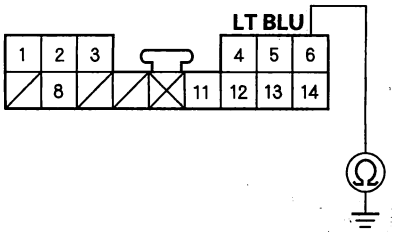
8. Check for continuity between climate control unit connector B (14P) terminal No. 6 and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

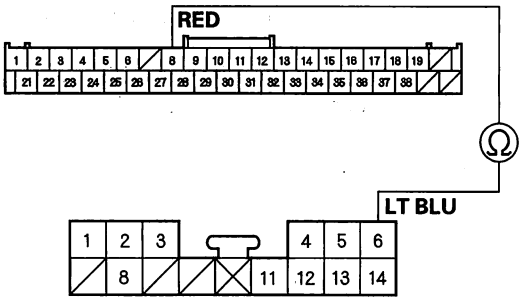
Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the rear evaporator temperature sensor. ■

NO—Go to step 9.

9. Check for continuity between climate control unit connector A (40P) terminal No. 8 and climate control unit connector B (14P) No. 6.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



CLIMATE CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the climate control unit and the rear evaporator temperature sensor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

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DTC Troubleshooting (cont'd)

DTC B1215 or DTC indicator J: An Open or Short in the Recirculation Control Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1215 or J indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the recirculation control motor circuit.■
5. Turn the ignition switch OFF.
6. Test the recirculation control motor (see page 21-113).

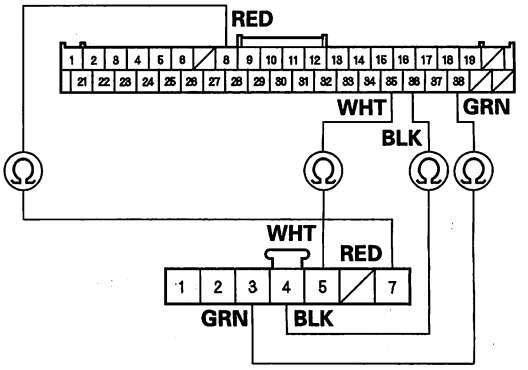
   Is the recirculation control motor OK?

   YES—Go to step 7.

   NO—Replace the recirculation control motor (see page 21-113).■
7. Disconnect the recirculation control motor 7P connector.
8. Disconnect climate control unit connector A (40P).
9. Check for continuity between the following terminals of climate control unit connector A (40P) and the recirculation control motor 7P connector.

40P:	7P:
No. 8	No. 7
No. 35	No. 5
No. 36	No. 4
No. 38	No. 3

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



RECIRCULATION CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire(s) between the climate control unit and the recirculation control motor.■

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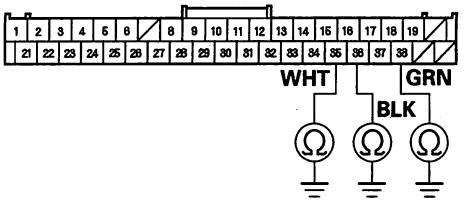
10. Check for continuity between body ground and climate control unit connector A (40P) terminals No. 35, 36, and 38 individually.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the climate control unit and the recirculation control motor. ■

NO—Go to step 11.

11. Check for continuity between climate control unit connector A (40P) terminals as follows.

From terminal	To terminals
35	36, 38
36	38

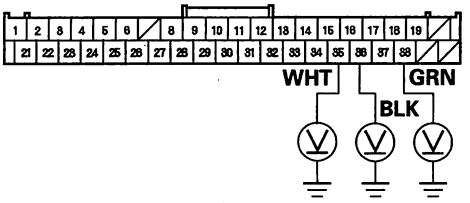
Is there continuity between any of the terminals?

YES—Repair the short in the wires. ■

NO—Go to step 12.

12. Turn the ignition switch ON (II), and check the same terminals for voltage to body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire(s) between the climate control unit and the recirculation control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Check for loose wires or poor connections at climate control unit connector A (40P) and at the recirculation control motor 7P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

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DTC Troubleshooting (cont'd)

DTC B1223 or DTC indicator M: A Problem in the Rear Blower Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1223 or M indicated?

   YES—Go to step 5.

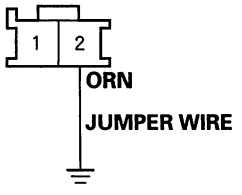
   NO—Intermittent failure, check for loose wires or poor connections on the rear blower motor circuit. ■
5. Turn the ignition switch OFF.
6. Check the No. 2 (RR BLOWER) (30 A) fuse in the under-hood fuse box, and the No. 30 (10 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 7.

   NO—Replace the fuse(s), and recheck. If fuse(s) blow again, check for a short in the No. 2 (RR BLOWER) (30 A) and No. 30 (10 A) fuse(s) circuit. ■
7. Connect the rear blower motor 2P connector terminal No. 2 to body ground with a jumper wire.

REAR BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

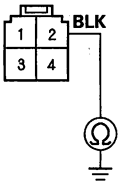
8. Turn the ignition switch ON (II).

   Does the rear blower motor run?

   YES—Go to step 9.

   NO—Go to step 24.
9. Turn the ignition switch OFF.
10. Disconnect the jumper wire.
11. Disconnect the rear power transistor 4P connector.
12. Check for continuity between the rear power transistor 4P connector terminal No. 2 and body ground.

REAR POWER TRANSISTOR 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Check for an open in the wire between the rear power transistor and body ground. If the wire is OK, check for poor ground at G503 (see page 22-67). ■

13. Connect the rear power transistor 4P connector terminals No. 2 and No. 4 with a jumper wire.

REAR POWER TRANSISTOR 4P CONNECTOR

Wire side of female terminals

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14. Turn the ignition switch ON (II).

Does the rear blower motor run at high speed?

YES—Go to step 15.

NO—Repair open in the ORN wire between the rear power transistor and the rear blower motor. ■

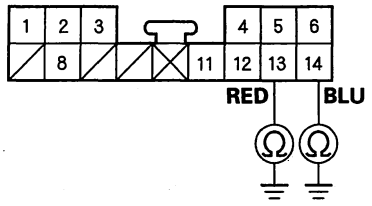
15. Turn the ignition switch OFF.

16. Disconnect the jumper wire.

17. Disconnect climate control unit connector B (14P).

18. Check for continuity between body ground and climate control unit connector B (14P) terminals No. 13 and No. 14 individually.

CLIMATE CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there continuity?

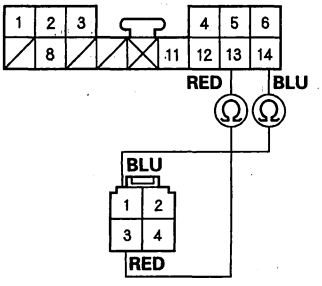
YES—Repair short to body ground in the wire(s) between the climate control unit and the rear power transistor. ■

NO—Go to step 19.

19. Check for continuity between the following terminals of climate control unit connector B (14P) and the rear power transistor 4P connector.

14P:	4P:
No. 13	No. 3
No. 14	No. 1

CLIMATE CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals



REAR POWER TRANSISTOR 4P CONNECTOR
Wire side of female terminals

Is there continuity?

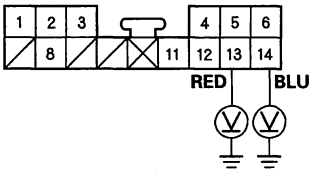
YES—Go to step 20.

NO—Repair open in the wire(s) between the climate control unit and the rear power transistor. ■

20. Turn the ignition switch ON (II).

21. Measure the voltage between body ground and climate control unit connector B (14P) terminals No. 13 and No. 14 individually.

CLIMATE CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire(s). ■

NO—Go to step 22.

(cont'd)

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DTC Troubleshooting (cont'd)

22. Reconnect climate control unit connector B (14P).

23. Test the rear power transistor (see page 21-142).

Is the rear power transistor OK?

YES—Check for loose wires or poor connections at climate control unit connector B (14P) and at the rear power transistor 4P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

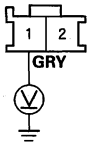
NO—Replace the rear power transistor (see page 21-142). ■

24. Disconnect the jumper wire.

25. Disconnect the rear blower motor 2P connector.

26. Measure the voltage between the rear blower motor 2P connector terminal No. 1 and body ground.

REAR BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Replace the rear blower motor (see page 21-145). ■

NO—Go to step 27.

27. Turn the ignition switch OFF.

28. Remove the rear blower motor relay from the dashboard wire harness, and test it (see page 22-77).

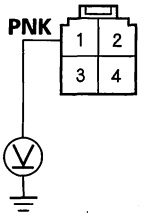
Is the relay OK?

YES—Go to step 29.

NO—Replace the rear blower motor relay. ■

29. Measure the voltage between the rear blower motor relay 4P socket terminal No. 1 and body ground.

REAR BLOWER MOTOR RELAY 4P SOCKET



Wire side of female terminals

Is there battery voltage?

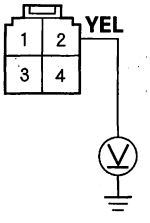
YES—Go to step 30.

NO—Repair open in the wire between the No. 2 (RR BLOWER) (30 A) in the under-hood fuse box and rear blower motor relay. ■

30. Turn the ignition switch ON (II).

31. Measure the voltage between the rear blower motor relay 4P socket terminal No. 2 and body ground.

REAR BLOWER MOTOR RELAY 4P SOCKET



Wire side of female terminals

Is there battery voltage?

YES—Go to step 32.

NO—Repair open in the wire between the No. 30 (10 A) fuse in the under-dash fuse/relay box and the rear blower motor relay. ■

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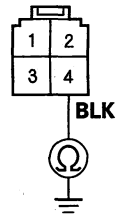
32. Turn the ignition switch OFF.

33. Check for continuity between the rear blower motor relay 4P socket terminal No. 4 and body ground.

REAR BLOWER MOTOR RELAY 4P SOCKET



Wire side of female terminals

Is there continuity?

YES—Repair open in the GRY wire between the rear blower motor relay and the blower motor. ■

NO—Check for an open in the wire between the rear blower motor relay and body ground. If the wire is OK, check for poor ground at G503 (see page 22-67). ■

DTC B1225 or DTC indicator A and AUTO: An Open in the In-car Temperature Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1225 or A and AUTO indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the in-car temperature sensor circuit. ■
5. Turn the ignition switch OFF.
6. Remove the humidity/in-car temperature sensor (see page 21-104), and test it (see page 21-103).

   Is the in-car temperature sensor OK?

   YES—Go to step 7.

   NO—Replace the humidity/in-car temperature sensor. ■
7. Disconnect climate control unit connector A (40P).

(cont'd)

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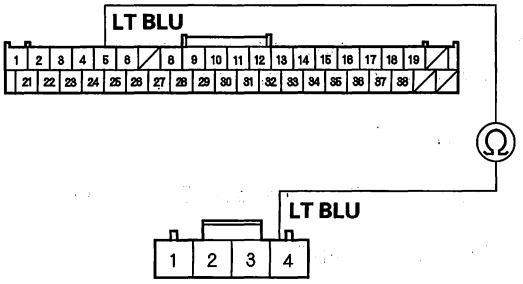
DTC Troubleshooting (cont'd)

8. Check for continuity between climate control unit connector A (40P) terminal No. 5 and the humidity/in-car temperature sensor 4P connector terminal No. 4.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



HUMIDITY/IN-CAR TEMPERATURE SENSOR 4P CONNECTOR
Wire side of female terminals

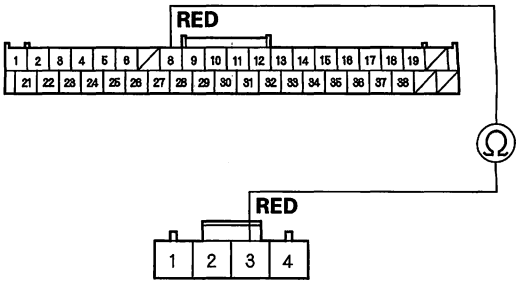
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the climate control unit and the in-car temperature sensor. ■

9. Check for continuity between climate control unit connector A (40P) terminal No. 8 and the humidity/in-car temperature sensor 4P connector terminal No. 3.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



HUMIDITY/IN-CAR TEMPERATURE SENSOR 4P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector A (40P) and at the humidity/in-car temperature sensor 4P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the in-car temperature sensor. ■

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DTC B1226 or DTC indicator B and AUTO: A Short in the In-car Temperature Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1226 or B and AUTO indicated?

   YES—Go to step 5.

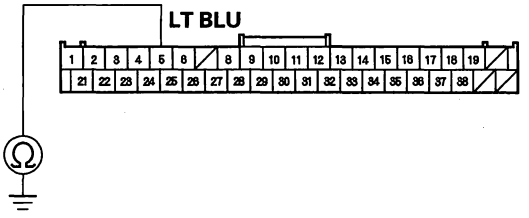
   NO—Intermittent failure.■
5. Turn the ignition switch OFF.
6. Remove the humidity/in-car temperature sensor (see page 21-104), and test it (see page 21-103).

   Is the in-car temperature sensor OK?

   YES—Go to step 7.

   NO—Replace the humidity/in-car temperature sensor.■
7. Disconnect climate control unit connector A (40P).
8. Check for continuity between climate control unit connector A (40P) terminal No. 5 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

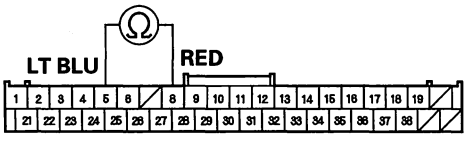
Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the in-car temperature sensor.■

NO—Go to step 9.

9. Check for continuity between climate control unit connector A (40P) terminals No. 5 and No. 8.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the climate control unit and the in-car temperature sensor.■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit.■

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DTC Troubleshooting (cont'd)

DTC B1227 or DTC indicator C and AUTO: An Open in the Outside Air Temperature Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1227 or C and AUTO indicated?

   YES—Go to step 5.

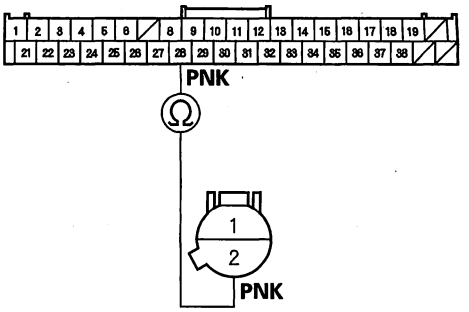
   NO—Intermittent failure, check for loose wires or poor connections on the outside air temperature sensor circuit. ■
5. Turn the ignition switch OFF.
6. Remove the outside air temperature sensor (see page 21-105), and test it (see page 21-105).

   Is the outside air temperature sensor OK?

   YES—Go to step 7.

   NO—Replace the outside air temperature sensor. ■
7. Disconnect climate control unit connector A (40P).
8. Check for continuity between climate control unit connector A (40P) terminal No. 28 and the outside air temperature sensor 2P connector terminal No. 2.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



OUTSIDE AIR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the climate control unit and the outside air temperature sensor. ■

BACK

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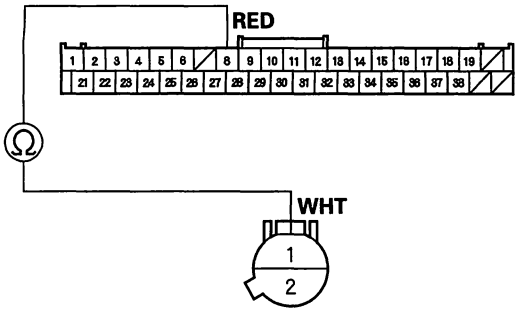
9. Check for continuity between climate control unit connector A (40P) terminal No. 8 and the outside air temperature sensor 2P connector terminal No. 1.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



OUTSIDE AIR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector A (40P) and at the outside air temperature sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the outside air temperature sensor. ■

DTC B1228 or DTC indicator D and AUTO: A Short in the Outside Air Temperature Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1228 or D and AUTO indicated?

   YES—Go to step 5.

   NO—Intermittent failure. ■
5. Turn the ignition switch OFF.
6. Remove the outside air temperature sensor (see page 21-105), and test it (see page 21-105).

   Is the outside air temperature sensor OK?

   YES—Go to step 7.

   NO—Replace the outside air temperature sensor. ■
7. Disconnect climate control unit connector A (40P).

(cont'd)

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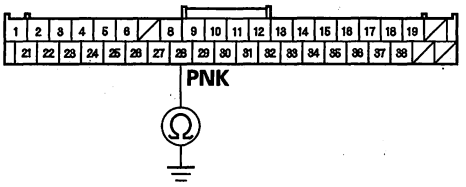
DTC Troubleshooting (cont'd)

8. Check for continuity between climate control unit connector A (40P) terminal No. 28 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

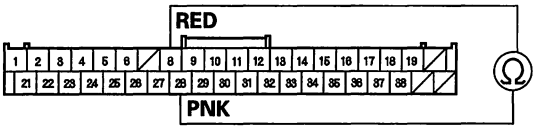
Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the outside air temperature sensor. ■

NO—Go to step 9.

9. Check for continuity between climate control unit connector A (40P) terminals No. 8 and No. 28.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the climate control unit and the outside air temperature sensor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

DTC B1229 or DTC indicator E and AUTO: An Open in the Sunlight Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

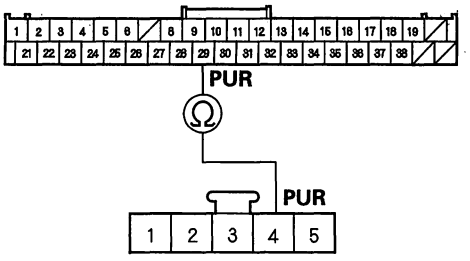
Is DTC B1229 or E and AUTO indicated?

YES—Go to step 5.

NO—Intermittent failure, check for loose wires or poor connections on the sunlight sensor circuit. ■

5. Turn the ignition switch OFF.
6. Disconnect the sunlight sensor 5P connector.
7. Disconnect climate control unit connector A (40P).
8. Check for continuity between climate control unit connector A (40P) terminal No. 29 and the sunlight sensor 5P connector terminal No. 4.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



SUNLIGHT SENSOR 5P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the climate control unit and the sunlight sensor. ■

BACK

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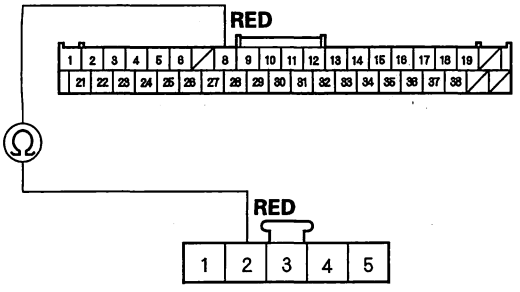
9. Check for continuity between climate control unit connector A (40P) terminal No. 8 and the sunlight sensor 5P connector terminal No. 2.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



SUNLIGHT SENSOR 5P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the climate control unit and the sunlight sensor. ■

10. Reconnect the sunlight sensor 5P connector.

11. Reconnect climate control unit connector A (40P).

12. Test the sunlight sensor (see page 21-106).

Is the sunlight sensor OK?

YES—Check for loose wires or poor connections at climate control unit connector A (40P) and at the sunlight sensor 5P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Replace the sunlight sensor (see page 21-106). ■

DTC B1230 or DTC indicator F and AUTO: A Short in the Sunlight Sensor Circuit

1. Clear the DTC with the HDS.

2. Turn the ignition switch OFF and then ON (II).

3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).

4. Check for DTCs.

Is DTC B1230 or F and AUTO indicated?

YES—Go to step 5.

NO—Intermittent failure. ■

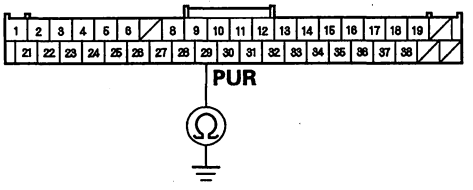
5. Turn the ignition switch OFF.

6. Disconnect the sunlight sensor 5P connector.

7. Disconnect climate control unit connector A (40P).

8. Check for continuity between climate control unit connector A (40P) terminal No. 29 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the sunlight sensor. ■

NO—Go to step 9.

(cont'd)

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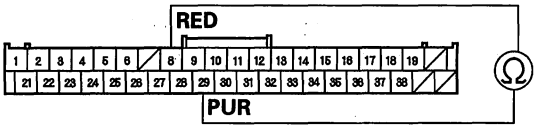
DTC Troubleshooting (cont'd)

9. Check for continuity between climate control unit connector A (40P) terminals No. 8 and No. 29.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the climate control unit and the sunlight sensor. ■

NO—Go to step 10.

10. Reconnect the sunlight sensor 5P connector.
11. Reconnect climate control unit connector A (40P).
12. Test the sunlight sensor (see page 21-106).

Is the sunlight sensor OK?

YES—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Replace the sunlight sensor (see page 21-106). ■

DTC B1231 or DTC indicator G and AUTO: An Open in the Front Evaporator Temperature Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

Is DTC B1231 or G and AUTO indicated?

YES—Go to step 5.

NO—Intermittent failure, check for loose wires or poor connections on the front evaporator temperature sensor circuit. ■

5. Turn the ignition switch OFF.
6. Remove the front evaporator temperature sensor (see page 21-107), and test it (see page 21-107).

Is the front evaporator temperature sensor OK?

YES—Go to step 7.

NO—Replace the front evaporator temperature sensor. ■

7. Disconnect climate control unit connector A (40P).

BACK

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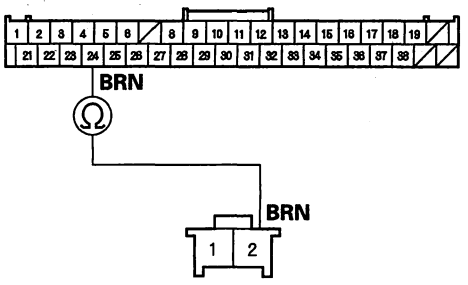
8. Check for continuity between climate control unit connector A (40P) terminal No. 24 and the front evaporator temperature sensor 2P connector terminal No. 2.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



FRONT EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

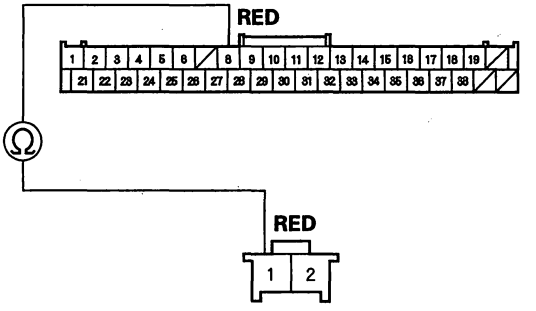
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the climate control unit and the front evaporator temperature sensor. ■

9. Check for continuity between climate control unit connector A (40P) terminal No. 8 and the front evaporator temperature sensor 2P connector terminal No. 1.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



FRONT EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector A (40P) and at the front evaporator temperature sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the front evaporator temperature sensor. ■

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DTC Troubleshooting (cont'd)

DTC B1232 or DTC indicator H and AUTO: A Short in the Front Evaporator Temperature Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1232 or H and AUTO indicated?

   YES—Go to step 5.

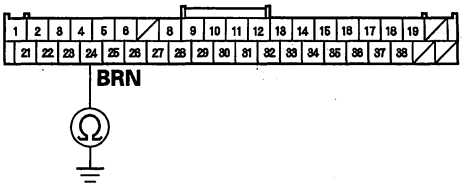
   NO—Intermittent failure. ■
5. Turn the ignition switch OFF.
6. Remove the front evaporator temperature sensor (see page 21-107), and test it (see page 21-107).

   Is the front evaporator temperature sensor OK?

   YES—Go to step 7.

   NO—Replace the front evaporator temperature sensor. ■
7. Disconnect climate control unit connector A (40P).
8. Check for continuity between climate control unit connector A (40P) terminal No. 24 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

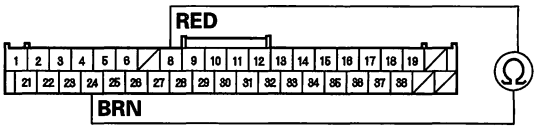
Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the front evaporator temperature sensor. ■

NO—Go to step 9.

9. Check for continuity between climate control unit connector A (40P) terminals No. 8 and No. 24.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the climate control unit and the front evaporator temperature sensor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

BACK

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DTC B1233 or DTC indicator J and AUTO: An Open in the Driver's Air Mix Control Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1233 or J and AUTO indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the driver's air mix control motor circuit. ■
5. Turn the ignition switch OFF.
6. Test the driver's air mix control motor (see page 21-109).

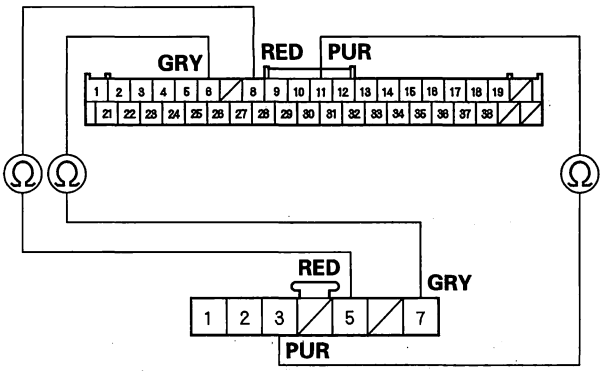
   Is the driver's air mix control motor OK?

   YES—Go to step 7.

   NO—Replace the driver's air mix control motor (see page 21-110). ■
7. Disconnect the driver's air mix control motor 7P connector.
8. Disconnect climate control unit connector A (40P).
9. Check for continuity between the following terminals of climate control unit connector A (40P) and the driver's air mix control motor 7P connector.

40P:	7P:
No. 6	No. 7
No. 8	No. 5
No. 11	No. 3

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



DRIVER'S AIR MIX CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector A (40P) and at the driver's air mix control motor 7P connector. If the connections are good, substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire(s) between the climate control unit and the driver's air mix control motor. ■

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DTC Troubleshooting (cont'd)

DTC B1234 or DTC indicator K and AUTO: A Short in the Driver's Air Mix Control Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1234 or K and AUTO indicated?

   YES—Go to step 5.

   NO—Intermittent failure. ■
5. Check for DTCs.

   Are these DTCs also present; B1237 or N and AUTO, and/or B1245 or G, and/or B2968 or A and WINDSHIELD DEFROST, and/or B2980 or B and WINDSHIELD DEFROST?

   YES—Go to step 13.

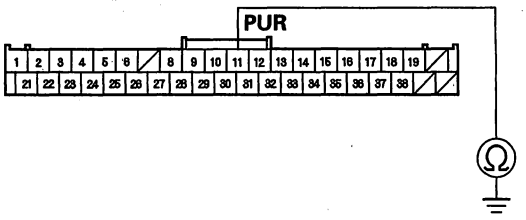
   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Test the driver's air mix control motor (see page 21-109).

   Is the driver's air mix control motor OK?

   YES—Go to step 8.

   NO—Replace the driver's air mix control motor (see page 21-110). ■
8. Disconnect the driver's air mix control motor 7P connector.
9. Disconnect climate control unit connector A (40P).
10. Check for continuity between body ground and climate control unit connector A (40P) terminal No. 11.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

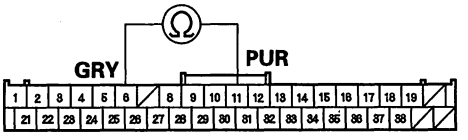
Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the driver's air mix control motor. ■

NO—Go to step 11.

11. Check for continuity between climate control unit connector A (40P) terminals No. 6 and No. 11.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair the short in the wires. ■

NO—Go to step 12.

BACK

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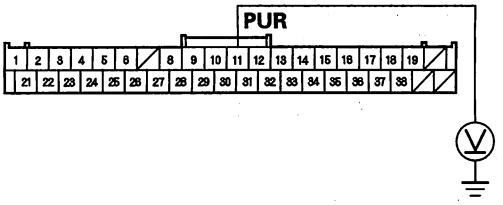
12. Turn the ignition switch ON (II), and measure the voltage between climate control unit connector A (40P) terminal No. 11 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire between the climate control unit and the driver's air mix control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

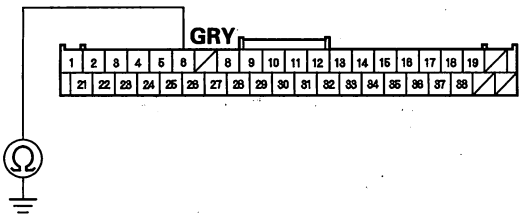
13. Turn the ignition switch OFF, and disconnect the climate control unit.

14. Disconnect these items:

- Driver's air mix control motor
- Passenger's air mix control motor
- Rear air mix control motor
- Humidity/in-car temperature sensor
- A/C pressure sensor

15. Check for continuity between climate control unit connector A (40P) terminal No. 6 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

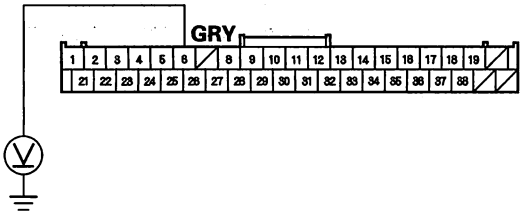
Is there continuity?

YES—Repair short to body ground in the wire. ■

NO—Go to step 16.

16. Turn the ignition switch ON (II), and check the same terminal for voltage to body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire. This short may have also damaged the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Go to step 17.

(cont'd)

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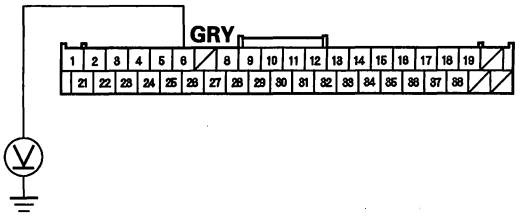
DTC Troubleshooting (cont'd)

17. Turn the ignition switch OFF.

18. Reconnect climate control unit connector (40P).

19. Turn the ignition switch ON (II), and measure the voltage between climate control unit connector A (40P) terminal No. 6 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there about 5 volts?

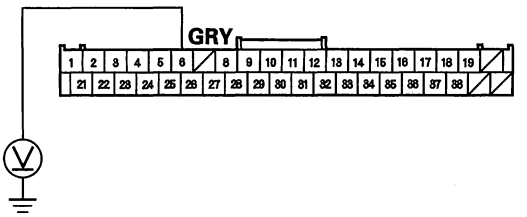
YES—Go to step 20.

NO—Check for a loose wire or poor connection at climate control unit connector A (40P). If the connection is good, substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit.■

20. While checking the same terminal for voltage to ground, reconnect these items individually and note the voltage reading each time:

- Driver's air mix control motor
- Passenger's air mix control motor
- Rear air mix control motor
- Humidity/in-car temperature sensor
- A/C pressure sensor

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Does the voltage remain at about 5 volts?

YES—Substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit.■

NO—Replace the component that caused the voltage drop.■

BACK

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DTC B1235 or DTC indicator L and AUTO: A Problem in the Driver's Air Mix Control Linkage, Door, or Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1235 or L and AUTO indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the driver's air mix control motor circuit. ■
5. Turn the ignition switch OFF.
6. Test the driver's air mix control motor (see page 21-109).

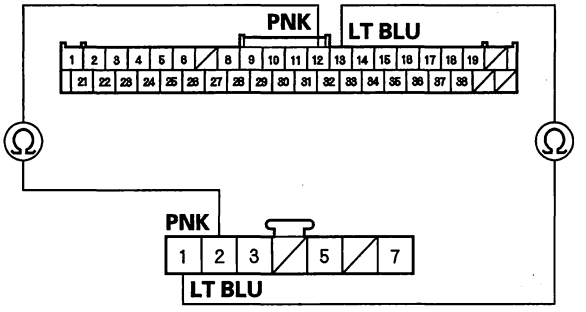
   Is the driver's air mix control motor OK?

   YES—Go to step 7.

   NO—Replace the driver's air mix control motor (see page 21-110), or repair the driver's air mix control linkage or door. ■
7. Disconnect the driver's air mix control motor 7P connector.
8. Disconnect climate control unit connector A (40P).
9. Check for continuity between the following terminals of climate control unit connector A (40P) and the driver's air mix control motor 7P connector.

40P:	7P:
No. 12	No. 2
No. 13	No. 1

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



DRIVER'S AIR MIX CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire(s) between the climate control unit and the driver's air mix control motor. ■

(cont'd)

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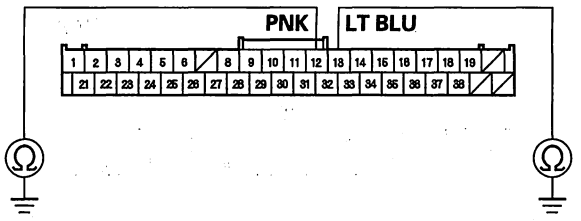
DTC Troubleshooting (cont'd)

10. Check for continuity between body ground and climate control unit connector A (40P) terminals No. 12 and No. 13 individually.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the climate control unit and the driver's air mix control motor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

DTC B1236 or DTC indicator M and AUTO: An Open in the Passenger's Air Mix Control Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1236 or M and AUTO indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the passenger's air mix control motor circuit. ■
5. Turn the ignition switch OFF.
6. Test the passenger's air mix control motor (see page 21-110).

   Is the passenger's air mix control motor OK?

   YES—Go to step 7.

   NO—Replace the passenger's air mix control motor (see page 21-111). ■
7. Disconnect the passenger's air mix control motor 7P connector.
8. Disconnect climate control unit connector A (40P).

BACK

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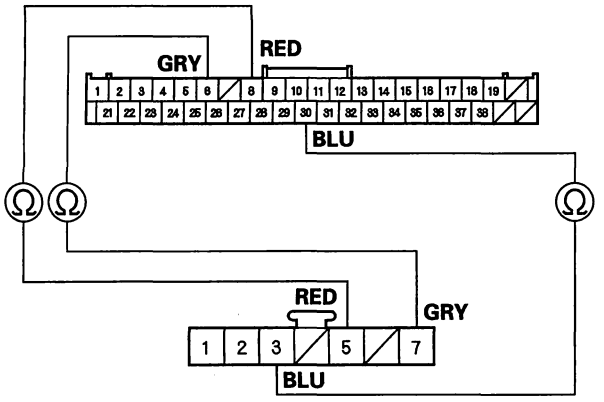
9. Check for continuity between the following terminals of climate control unit connector A (40P) and the passenger's air mix control motor 7P connector.

40P:	7P:
No. 6	No. 7
No. 8	No. 5
No. 30	No. 3

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



PASSENGER'S AIR MIX CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector A (40P) and at the passenger's air mix control motor 7P connector. If the connections are good, substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire(s) between the climate control unit and the passenger's air mix control motor. ■

DTC B1237 or DTC indicator N and AUTO: A Short in the Passenger's Air Mix Control Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1237 or N and AUTO indicated?

   YES—Go to step 5.

   NO—Intermittent failure. ■
5. Check for DTCs.

   Are these DTCs also present; B1234 or K and AUTO, and/or B1245 or G, and/or B2968 or A and WINDSHIELD DEFROST, and/or B2980 or B and WINDSHIELD DEFROST?

   YES—Go to step 13.

   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Test the passenger's air mix control motor (see page 21-110).

   Is the passenger's air mix control motor OK?

   YES—Go to step 8.

   NO—Replace the passenger's air mix control motor (see page 21-111). ■
8. Disconnect the passenger's air mix control motor 7P connector.
9. Disconnect climate control unit connector A (40P).

(cont'd)

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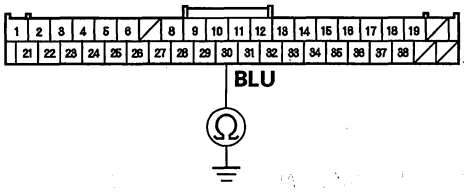
DTC Troubleshooting (cont'd)

10. Check for continuity between body ground and climate control unit connector A (40P) terminal No. 30.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

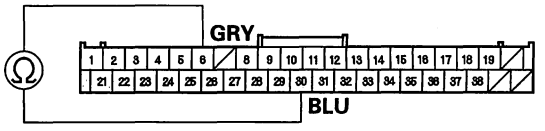
Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the passenger's air mix control motor. ■

NO—Go to step 11.

11. Check for continuity between climate control unit connector A (40P) terminals No. 6 and No. 30.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

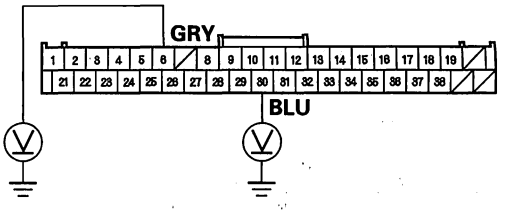
Is there continuity?

YES—Repair the short in the wires. ■

NO—Go to step 12.

12. Turn the ignition switch ON (II), and measure the voltage between climate control unit connector A (40P) terminal No. 30 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire(s) between the climate control unit and the passenger's air mix control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

13. Turn the ignition switch OFF, and disconnect the climate control unit.

14. Disconnect these items:

- Driver's air mix control motor
- Passenger's air mix control motor
- Rear air mix control motor
- Humidity/in-car temperature sensor
- A/C pressure sensor

BACK

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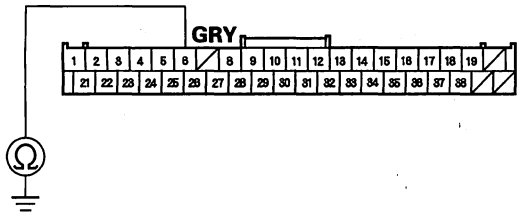
15. Check for continuity between climate control unit connector A (40P) terminal No. 6 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

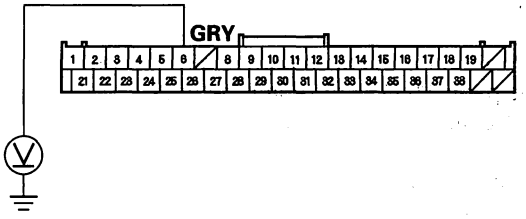
Is there continuity?

YES—Repair short to body ground in the wire. ■

NO—Go to step 16.

16. Turn the ignition switch ON (II), and check the same terminal for voltage to body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire. This short may have also damaged the climate control unit. Repair the short to power before replacing the climate control unit. ■

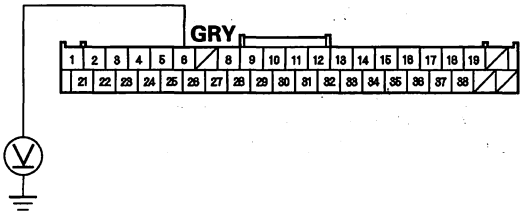
NO—Go to step 17.

17. Turn the ignition switch OFF.

18. Reconnect climate control unit connector (40P).

19. Turn the ignition switch ON (II), and measure the voltage between climate control unit connector A (40P) terminal No. 6 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there about 5 volts?

YES—Go to step 20.

NO—Check for a loose wire or poor connection at climate control unit connector A (40P). If the connection is good, substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

(cont'd)

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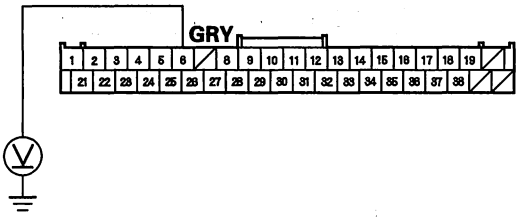
DTC Troubleshooting (cont'd)

20. While checking the same terminal for voltage to ground, reconnect these items individually and note the voltage reading each time:

    - Driver's air mix control motor
    - Passenger's air mix control motor
    - Rear air mix control motor
    - Humidity/in-car temperature sensor
    - A/C pressure sensor

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Does the voltage remain at about 5 volts?

YES—Substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Replace the component that caused the voltage drop. ■

DTC B1238 or DTC indicator P and AUTO: A Problem in the Passenger's Air Mix Control Linkage, Door, or Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1238 or P and AUTO indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the passenger's air mix control motor circuit. ■
5. Turn the ignition switch OFF.
6. Test the passenger's air mix control motor (see page 21-110).

   Is the passenger's air mix control motor OK?

   YES—Go to step 7.

   NO—Replace the passenger's air mix control motor (see page 21-111), or repair the passenger's air mix control linkage or door. ■
7. Disconnect the passenger's air mix control motor 7P connector.
8. Disconnect climate control unit connector A (40P).

BACK

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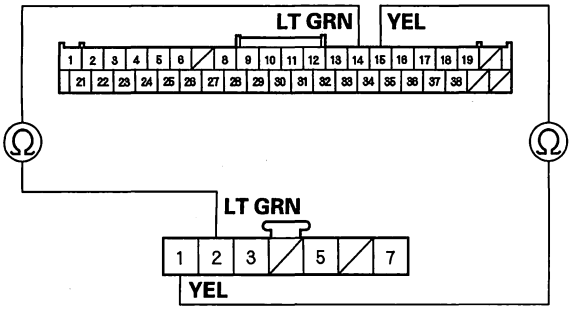
9. Check for continuity between the following terminals of climate control unit connector A (40P) and the passenger's air mix control motor 7P connector.

40P:	7P:
No. 14	No. 2
No. 15	No. 1

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



PASSENGER'S AIR MIX CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

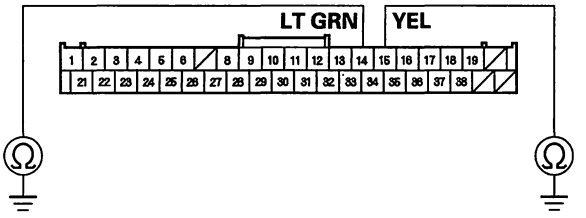
Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire(s) between the climate control unit and the passenger's air mix control motor.■

10. Check for continuity between body ground and climate control unit connector A (40P) terminals No. 14 and No. 15 individually.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the climate control unit and the passenger's air mix control motor.■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit.■

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DTC Troubleshooting (cont'd)

DTC B1239 or DTC indicator A: An Open or Short in the Front Mode Control Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1239 or A indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the front mode control motor circuit. ■
5. Turn the ignition switch OFF.
6. Test the front mode control motor (see page 21-112).

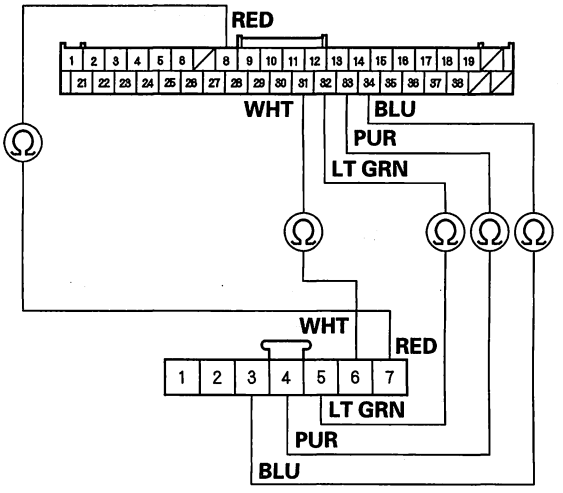
   Is the front mode control motor OK?

   YES—Go to step 7.

   NO—Replace the front mode control motor (see page 21-112). ■
7. Disconnect the front mode control motor 7P connector.
8. Disconnect climate control unit connector A (40P).
9. Check for continuity between the following terminals of climate control unit connector A (40P) and the front mode control motor 7P connector.

40P:	7P:
No. 8	No. 7
No. 31	No. 6
No. 32	No. 5
No. 33	No. 4
No. 34	No. 3

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



FRONT MODE CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire(s) between the climate control unit and the front mode control motor. ■

BACK

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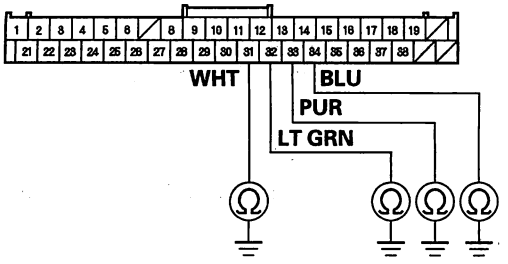
10. Check for continuity between body ground and climate control unit connector A (40P) terminals No. 31, 32, 33, and 34 individually.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the climate control unit and the front mode control motor. ■

NO—Go to step 11.

11. Check for continuity between climate control unit connector A (40P) terminals as follows.

From terminal	To terminals
31	32, 33, 34
32	33, 34
33	34

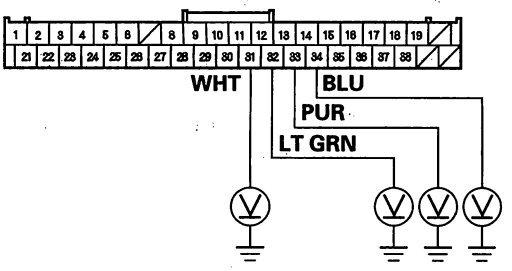
Is there continuity between any of the terminals?

YES—Repair the short in the wires. ■

NO—Go to step 12.

12. Turn the ignition switch ON (II), and check the same terminals for voltage to body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire(s) between the climate control unit and the front mode control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Check for loose wires or poor connections at climate control unit connector A (40P) and at the front mode control motor 7P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

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DTC Troubleshooting (cont'd)

DTC B1240 or DTC indicator B: A Problem in the Front Mode Control Linkage, Doors, or Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1240 or B indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the mode control motor circuit. ■
5. Turn the ignition switch OFF.
6. Test the front mode control motor (see page 21-112).

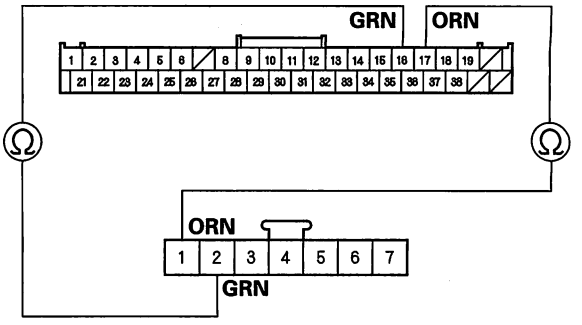
   Is the front mode control motor OK?

   YES—Go to step 7.

   NO—Replace the front mode control motor (see page 21-112), or repair the front mode control linkage or doors. ■
7. Disconnect the front mode control motor 7P connector.
8. Disconnect climate control unit connector A (40P).
9. Check for continuity between the following terminals of climate control unit connector A (40P) and the front mode control motor 7P connector.

40P:	7P:
No. 16	No. 2
No. 17	No. 1

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



FRONT MODE CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire(s) between the climate control unit and the front mode control motor. ■

BACK

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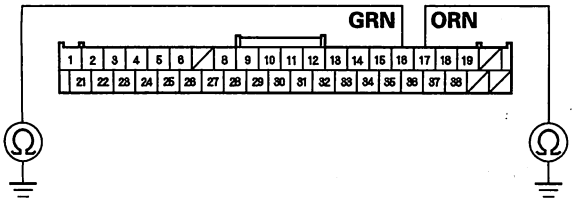
10. Check for continuity between body ground and climate control unit connector A (40P) terminals No. 16 and No. 17 individually.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the climate control unit and the front mode control motor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

DTC B1241 or DTC indicator C: A Problem in the Front Blower Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1241 or C indicated?

   YES—Go to step 5.

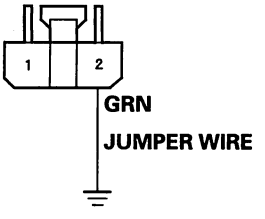
   NO—Intermittent failure, check for loose wires or poor connections on the front blower motor circuit. ■
5. Turn the ignition switch OFF.
6. Check the No. 12 (40 A) fuse in the relay block, and the No. 30 (10 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 7.

   NO—Replace the fuse(s), and recheck. If fuse(s) blow again, check for a short in the No. 12 (40 A) and No. 30 (10 A) fuse(s) circuit. ■
7. Connect the front blower motor 2P connector terminal No. 2 to body ground with a jumper wire.

FRONT BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

(cont'd)

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DTC Troubleshooting (cont'd)

8. Turn the ignition switch ON (II).

   Does the front blower motor run?

   YES—Go to step 9.

   NO—Go to step 24.

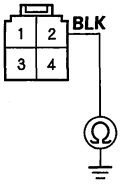
9. Turn the ignition switch OFF.

10. Disconnect the jumper wire.

11. Disconnect the front power transistor 4P connector.

12. Check for continuity between the front power transistor 4P connector terminal No. 2 and body ground.

FRONT POWER TRANSISTOR 4P CONNECTOR



Wire side of female terminals

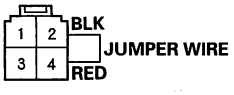
Is there continuity?

YES—Go to step 13.

NO—Check for an open in the wire between the front power transistor and body ground. If the wire is OK, check for poor ground at G507 (see page 22-67).■

13. Connect the front power transistor 4P connector terminals No. 2 and No. 4 with a jumper wire.

FRONT POWER TRANSISTOR 4P CONNECTOR



Wire side of female terminals

14. Turn the ignition switch ON (II).

    Does the front blower motor run at high speed?

    YES—Go to step 15.

    NO—Repair open in the GRN wire between the front power transistor and the front blower motor.■

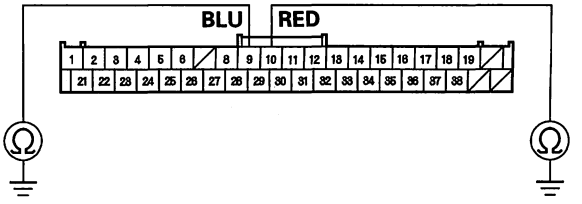
15. Turn the ignition switch OFF.

16. Disconnect the jumper wire.

17. Disconnect climate control unit connector A (40P).

18. Check for continuity between body ground and climate control unit connector A (40P) terminals No. 9 and No. 10 individually.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the climate control unit and the front power transistor.■

NO—Go to step 19.

BACK

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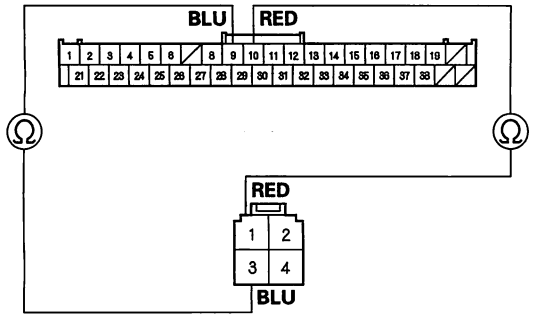
19. Check for continuity between the following terminals of climate control unit connector A (40P) and the front power transistor 4P connector.

40P:	4P:
No. 9	No. 3
No. 10	No. 1

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



FRONT POWER TRANSISTOR 4P CONNECTOR
Wire side of female terminals

Is there continuity?

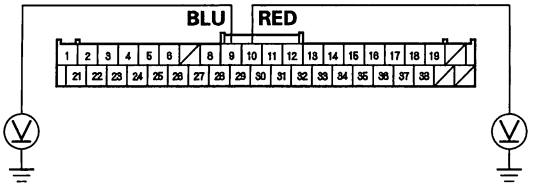
YES—Go to step 20.

NO—Repair open in the wire(s) between the climate control unit and the front power transistor. ■

20. Turn the ignition switch ON (II).

21. Measure the voltage between body ground and climate control unit connector A (40P) terminals No. 9 and No. 10 individually.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire(s). ■

NO—Go to step 22.

22. Reconnect climate control unit connector A (40P).

23. Test the front power transistor (see page 21-108).

Is the front power transistor OK?

YES—Check for loose wires or poor connections at climate control unit connector A (40P) and at the front power transistor 4P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

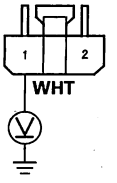
NO—Replace the front power transistor (see page 21-108). ■

24. Disconnect the jumper wire.

25. Disconnect the front blower motor 2P connector.

26. Measure the voltage between the front blower motor 2P connector terminal No. 1 and body ground.

FRONT BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Replace the front blower motor (see page 21-116). ■

NO—Go to step 27.

27. Turn the ignition switch OFF.

28. Remove the front blower motor relay from the relay block, and test it (see page 22-77).

Is the relay OK?

YES—Go to step 29.

NO—Replace the front blower motor relay. ■

(cont'd)

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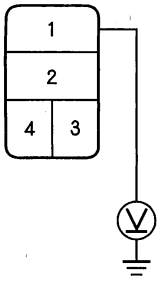
DTC Troubleshooting (cont'd)

29. Measure the voltage between the front blower motor relay 4P socket terminal No. 1 and body ground.

FRONT BLOWER MOTOR RELAY 4P SOCKET



Is there battery voltage?

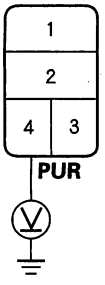
YES—Go to step 30.

NO—Replace the relay block (see page 22-71). ■

30. Turn the ignition switch ON (II).

31. Measure the voltage between the front blower motor relay 4P socket terminal No. 4 and body ground.

FRONT BLOWER MOTOR RELAY 4P SOCKET



Is there battery voltage?

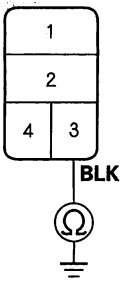
YES—Go to step 32.

NO—Repair open in the wire between the No. 30 (10 A) fuse in the under-dash fuse/relay box and the front blower motor relay. ■

32. Turn the ignition switch OFF.

33. Check for continuity between the front blower motor relay 4P socket terminal No. 3 and body ground.

FRONT BLOWER MOTOR RELAY 4P SOCKET



Is there continuity?

YES—Repair open in the WHT wire between the front blower motor relay and the blower motor. ■

NO—Check for an open in the wire between the front blower motor relay and body ground. If the wire is OK, check for poor ground at G202 (see page 22-67). ■

BACK

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DTC B1244 or DTC indicator F: An Open in the Rear Air Mix Control Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1244 or F indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the rear air mix control motor circuit.■
5. Turn the ignition switch OFF.
6. Test the rear air mix control motor (see page 21-143).

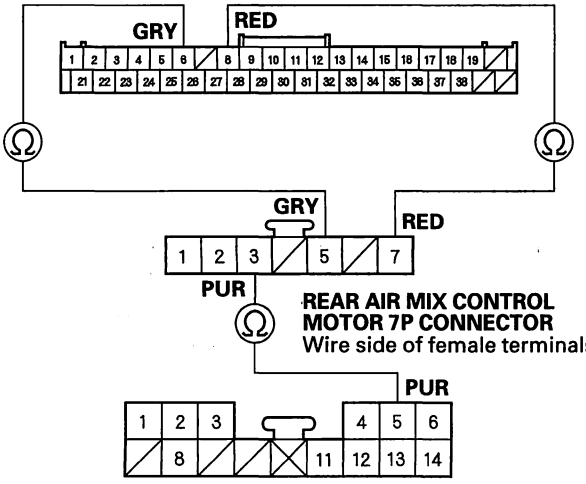
   Is the rear air mix control motor OK?

   YES—Go to step 7.

   NO—Replace the rear air mix control motor (see page 21-143).■
7. Disconnect the rear air mix control motor 7P connector.
8. Disconnect climate control unit connector A (40P) and B (14P).
9. Check for continuity between the following terminals of climate control unit connector A (40P), B (14P), and the rear air mix control motor 7P connector.

40P:	7P:
No. 6	No. 5
No. 8	No. 7
14P:	7P:
No. 5	No. 3

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



CLIMATE CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector A (40P), B (14P), and at the rear air mix control motor 7P connector. If the connections are good, substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit.■

NO—Repair open in the wire(s) between the climate control unit and the rear air mix control motor.■

Protected by AR

DTC Troubleshooting (cont'd)

DTC B1245 or DTC indicator G: A Short in the Rear Air Mix Control Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1245 or G indicated?

   YES—Go to step 5.

   NO—Intermittent failure.■
5. Check for DTCs.

   Are these DTCs also present; B1234 or K and AUTO, and/or B1237 or N and AUTO, and/or B2968 or A and WINDSHIELD DEFROST, and/or B2980 or B and WINDSHIELD DEFROST?

   YES—Go to step 13.

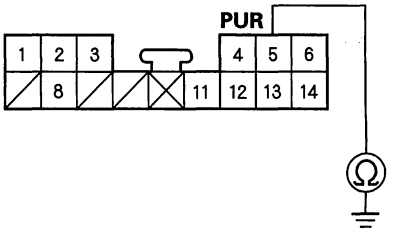
   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Test the rear air mix control motor (see page 21-143).

   Is the rear air mix control motor OK?

   YES—Go to step 8.

   NO—Replace the rear air mix control motor (see page 21-143).■
8. Disconnect the rear air mix control motor 7P connector.
9. Disconnect climate control unit connector A (40P) and B (14P).
10. Check for continuity between climate control unit connector B (14P) terminal No. 5 and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

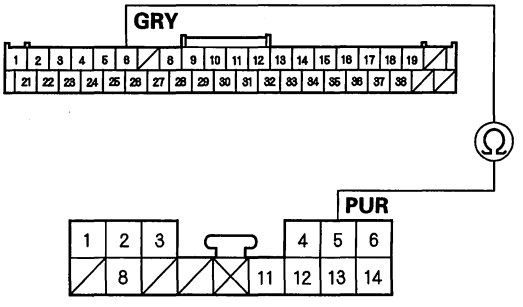
Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the rear air mix control motor.■

NO—Go to step 11.

11. Check for continuity between climate control unit connector A (40P) terminal No. 6 and climate control unit connector B (14P) terminal No. 5.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



CLIMATE CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals

Is there continuity?

YES—Repair the short in the wires.■

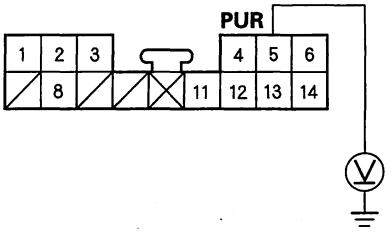
NO—Go to step 12.

BACK

Protected by AR

12. Turn the ignition switch ON (II), and measure the voltage between climate control unit connector B (14P) terminal No. 5 and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire between the climate control unit and the rear air mix control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

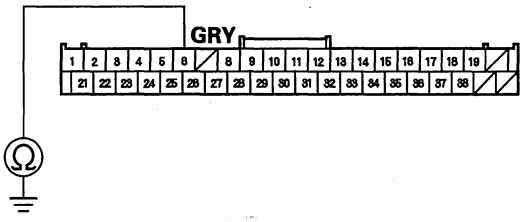
13. Turn the ignition switch OFF, and disconnect the climate control unit.

14. Disconnect these items:

- Driver's air mix control motor
- Passenger's air mix control motor
- Rear air mix control motor
- Humidity/in-car temperature sensor
- A/C pressure sensor

15. Check for continuity between climate control unit connector A (40P) terminal No. 6 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

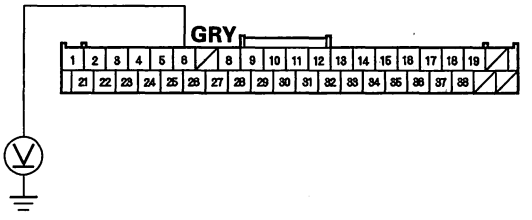
Is there continuity?

YES—Repair short to body ground in the wire. ■

NO—Go to step 16.

16. Turn the ignition switch ON (II), and check the same terminal for voltage to body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire. This short may have also damaged the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Go to step 17.

(cont'd)

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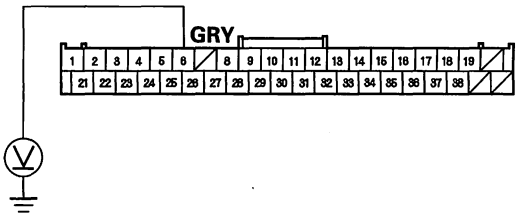
DTC Troubleshooting (cont'd)

17. Turn the ignition switch OFF.

18. Reconnect climate control unit connector (40P).

19. Turn the ignition switch ON (II), and measure the voltage between climate control unit connector A (40P) terminal No. 6 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there about 5 volts?

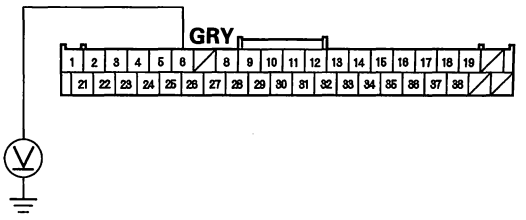
YES—Go to step 20.

NO—Check for a loose wire or poor connection at climate control unit connector A (40P). If the connection is good, substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

20. While checking the same terminal for voltage to ground, reconnect these items individually and note the voltage reading each time:

- Driver's air mix control motor
- Passenger's air mix control motor
- Rear air mix control motor
- Humidity/in-car temperature sensor
- A/C pressure sensor

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Does the voltage remain at about 5 volts?

YES—Substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Replace the component that caused the voltage drop. ■

BACK

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DTC B1246 or DTC indicator H: A Problem in the Rear Air Mix Control Linkage, Door, or Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1246 or H indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the rear air mix control motor circuit.■
5. Turn the ignition switch OFF.
6. Test the rear air mix control motor (see page 21-143).

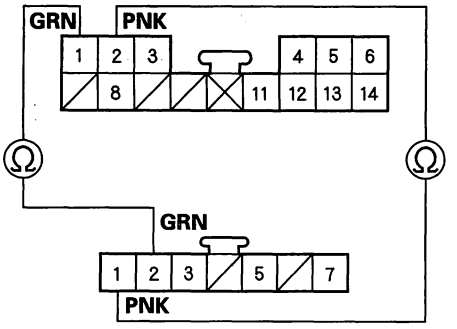
   Is the rear air mix control motor OK?

   YES—Go to step 7.

   NO—Replace the rear air mix control motor (see page 21-143), or repair the rear air mix control linkage or door.■
7. Disconnect the rear air mix control motor 7P connector.
8. Disconnect climate control unit connector B (14P).
9. Check for continuity between the following terminals of climate control unit connector B (14P) and the rear air mix control motor 7P connector.

14P:	7P:
No. 1	No. 2
No. 2	No. 1

CLIMATE CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals



REAR AIR MIX CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire(s) between the climate control unit and the rear air mix control motor.■

(cont'd)

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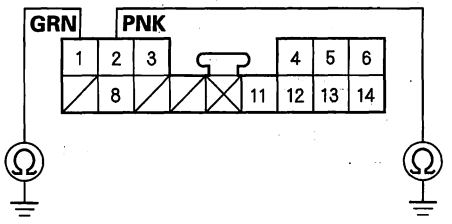
DTC Troubleshooting (cont'd)

10. Check for continuity between body ground and climate control unit connector B (14P) terminals No. 1 and No. 2 individually.

CLIMATE CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the climate control unit and the rear air mix control motor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

DTC B2965: Climate Control Unit Lost Communication with Rear Climate Control Panel

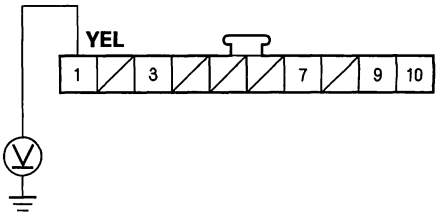
1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9).
4. Check for DTCs.

   Is DTC B2965 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the rear climate control panel and climate control unit circuit. ■
5. Turn the ignition switch OFF.
6. Disconnect the rear climate panel 10P connector.
7. Turn the ignition switch ON (II).
8. Measure the voltage between the rear climate control panel 10P connector terminal No. 1 and body ground.

REAR CLIMATE CONTROL PANEL 10P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 9.

NO—Repair open in the wire between the No. 30 (10 A) fuse in the under-dash fuse/relay box and the rear climate control panel. ■

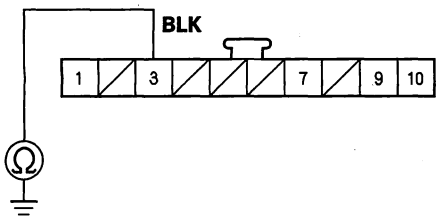
BACK

Protected by AR

9. Turn the ignition switch OFF.

10. Check for continuity between the rear climate control panel 10P connector terminal No. 3 and body ground.

REAR CLIMATE CONTROL PANEL 10P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 11.

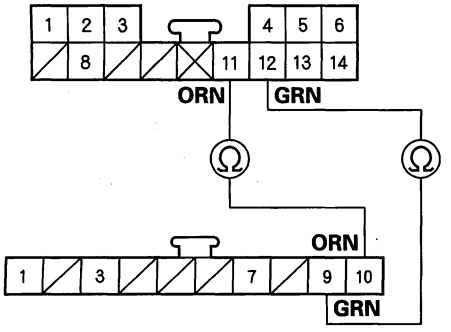
NO—Check for an open in the wire between the rear climate control panel and body ground. If the wire is OK, check for poor ground at G506 (see page 22-67).■

11. Disconnect climate control unit connector B (14P).

12. Check for continuity between the following terminals of climate control unit connector B (14P) and the rear climate control panel 10P connector.

14P:	10P:
No. 11	No. 10
No. 12	No. 9

CLIMATE CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals



REAR CLIMATE CONTROL PANEL 10P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire(s) between the climate control unit and the rear climate control panel.■

(cont'd)

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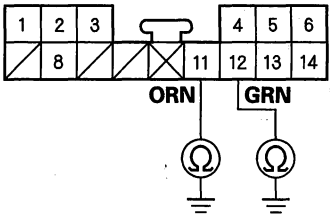
DTC Troubleshooting (cont'd)

13. Check for continuity between body ground and climate control unit connector B (14P) terminals No. 11 and No. 12 individually.

CLIMATE CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

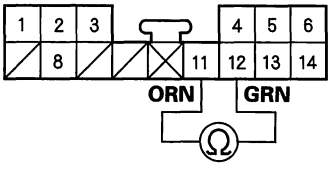
Is there continuity?

YES—Repair short to body ground in the wire(s) between the climate control unit and the rear climate control panel. ■

NO—Go to step 14.

14. Check for continuity between climate control unit connector B (14P) terminals No. 11 and No. 12.

CLIMATE CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the climate control unit and the rear climate control panel. ■

NO—Substitute a known-good rear climate control panel, and recheck. If the symptom/indication goes away, replace the original rear climate control panel. ■

DTC B2967 or DTC indicator A and WINDSHIELD DEFROST: An Open in the Humidity Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B2967 or A and WINDSHIELD DEFROST indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the humidity sensor circuit. ■
5. Turn the ignition switch OFF.
6. Remove the humidity/in-car temperature sensor (see page 21-104), and test it (see page 21-103).

   Is the humidity sensor OK?

   YES—Go to step 7.

   NO—Replace the humidity/in-car temperature sensor. ■
7. Disconnect the humidity/in-car temperature sensor 4P connector.
8. Disconnect climate control unit connector A (40P).

BACK

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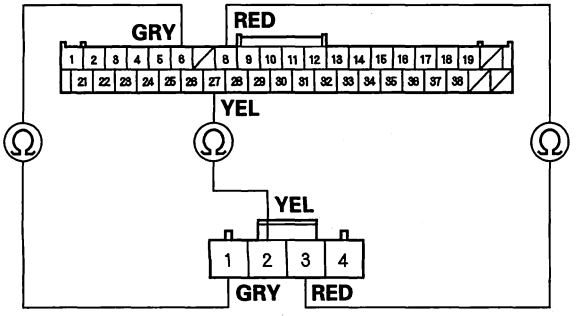
9. Check for continuity between the following terminals of climate control unit connector A (40P) and humidity/in-car temperature sensor 4P connector.

40P:	4P:
No. 6	No. 1
No. 8	No. 3
No. 27	No. 2

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



HUMIDITY/IN-CAR TEMPERATURE SENSOR 4P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector A (40P) and at the humidity/in-car temperature sensor 4P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit.■

NO—Repair open in the wire(s) between the climate control unit and the humidity sensor.■

DTC B2968 or DTC indicator A and WINDSHIELD DEFROST: A Short in the Humidity Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B2968 or A and WINDSHIELD DEFROST indicated?

   YES—Go to step 5.

   NO—Intermittent failure.■
5. Check for DTCs.

   Are these DTCs also present; B1234 or K and AUTO, and/or B1237 or N and AUTO, and/or B1245 or G, and/or B2980 or B and WINDSHIELD DEFROST?

   YES—Go to step 13.

   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Remove the humidity/in-car temperature sensor (see page 21-104), and test it (see page 21-103).

   Is the humidity sensor OK?

   YES—Go to step 8.

   NO—Replace the humidity/in-car temperature sensor.■
8. Disconnect the humidity/in-car temperature sensor 4P connector.
9. Disconnect climate control unit connector A (40P).

(cont'd)

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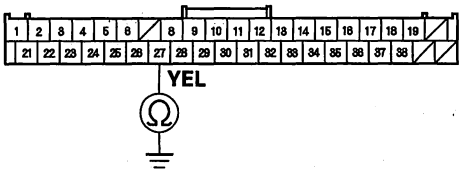
DTC Troubleshooting (cont'd)

10. Check for continuity between body ground and climate control unit connector A (40P) terminal No. 27.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

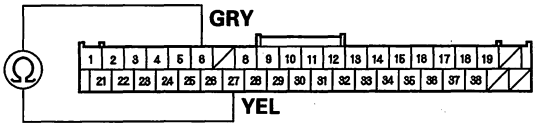
Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the humidity sensor. ■

NO—Go to step 11.

11. Check for continuity between climate control unit connector A (40P) terminals No. 6 and No. 27.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

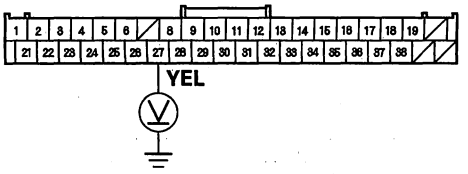
Is there continuity?

YES—Repair the short in the wires. ■

NO—Go to step 12.

12. Turn the ignition switch ON (II), and measure the voltage between climate control unit connector A (40P) terminal No. 27 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire between the climate control unit and the humidity sensor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

13. Turn the ignition switch OFF, and disconnect the climate control unit.

14. Disconnect these items:

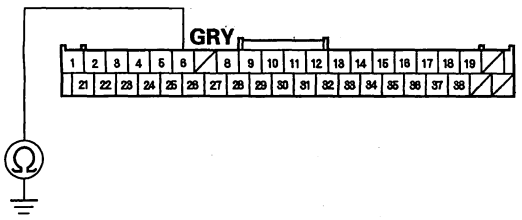
- Driver's air mix control motor
- Passenger's air mix control motor
- Rear air mix control motor
- Humidity/in-car temperature sensor
- A/C pressure sensor

BACK

Protected by AR

15. Check for continuity between climate control unit connector A (40P) terminal No. 6 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

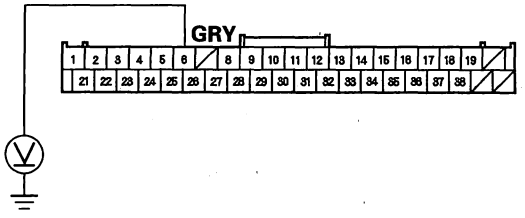
Is there continuity?

YES—Repair short to body ground in the wire. ■

NO—Go to step 16.

16. Turn the ignition switch ON (II), and check the same terminal for voltage to body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire. This short may have also damaged the climate control unit. Repair the short to power before replacing the climate control unit. ■

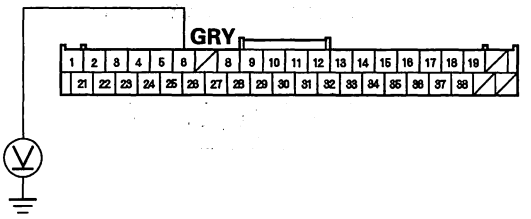
NO—Go to step 17.

17. Turn the ignition switch OFF.

18. Reconnect climate control unit connector (40P).

19. Turn the ignition switch ON (II), and measure the voltage between climate control unit connector A (40P) terminal No. 6 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there about 5 volts?

YES—Go to step 20.

NO—Check for a loose wire or poor connection at climate control unit connector A (40P). If the connection is good, substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

(cont'd)

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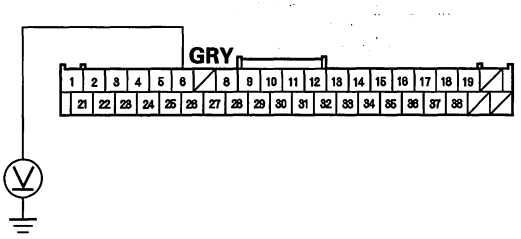
DTC Troubleshooting (cont'd)

20. While checking the same terminal for voltage to ground, reconnect these items individually and note the voltage reading each time:

    - Driver's air mix control motor
    - Passenger's air mix control motor
    - Rear air mix control motor
    - Humidity/in-car temperature sensor
    - A/C pressure sensor

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Does the voltage remain at about 5 volts?

YES—Substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Replace the component that caused the voltage drop. ■

DTC B2969: Climate Control Unit Lost Communication with Combination Switch Control Unit (WIPSW message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in the B-can system diagnosis test mode A (see page 22-112).

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Wait for 6 seconds or more.
4. Do the self-diagnostic with the HDS (see page 21-9).
5. Check the DTCs.

   Is DTC B2969 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, check for loose wire or poor connection on the climate control unit connector A (40P). ■

6. Check for DTCs with the HDS.

   Are any of the following DTCs indicated; B1958, B1063, or B1156 indicated?

   YES—Do the wiper/washer switch (combination switch control unit) input test (see page 22-300). ■

   NO—Do the climate control unit troubleshooting (see page 21-93). ■

BACK

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DTC B2970: Climate Control Unit Lost Communication with Relay Control Module (RM message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in the B-can system diagnosis test mode A (see page 22-112).

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Wait for 6 seconds or more.
4. Do the self-diagnostic with the HDS (see page 21-9).
5. Check the DTCs.

   Is DTC B2970 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, check for loose wire or poor connection on the climate control unit connector A (40P). ■
6. Check for DTCs with the HDS.

   Are any of the following DTCs indicated; B1005, B1959, B2162 or B1158 indicated?

   YES—Do the relay control module input test (see page 22-334). ■

   NO—Do the climate control unit troubleshooting (see page 21-93). ■

DTC B2979 or DTC indicator B and WINDSHIELD DEFROST: An Open in the A/C Pressure Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B2979 or B and WINDSHIELD DEFROST indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the A/C pressure sensor circuit. ■
5. Turn the ignition switch OFF.
6. Disconnect the A/C pressure sensor 3P connector.
7. Disconnect climate control unit connector A (40P).

(cont'd)

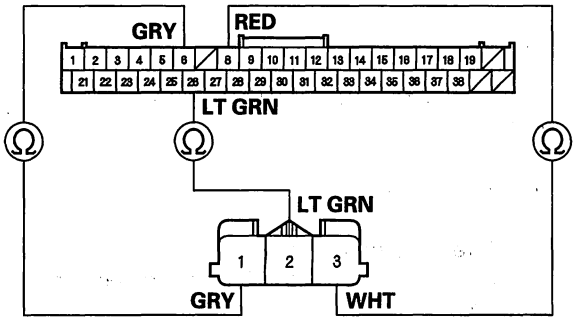
Protected by AR

DTC Troubleshooting (cont'd)

8. Check for continuity between the following terminals of climate control unit connector A (40P) and the A/C pressure sensor 3P connector.

40P:	3P:
No. 6	No. 1
No. 8	No. 3
No. 26	No. 2

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



A/C PRESSURE SENSOR 3P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 9.

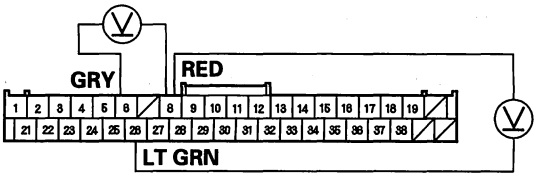
NO—Repair open in the wire(s) between the climate control unit and the A/C pressure sensor. ■

9. Reconnect climate control unit connector A (40P).

10. Turn the ignition switch ON (II).

11. Measure the voltage between climate control unit connector A (40P) terminals No. 6 and No. 8, and between climate control unit connector A (40P) terminals No. 8 and No. 26.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there about 5 volts?

YES—Replace the A/C pressure sensor. ■

NO—Check for loose wires or poor connections at climate control unit connector A (40P) and at the A/C pressure sensor 3P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

BACK

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DTC B2980 or DTC indicator B and WINDSHIELD DEFROST: A short in the A/C Pressure Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B2980 or B and WINDSHIELD DEFROST indicated?

   YES—Go to step 5.

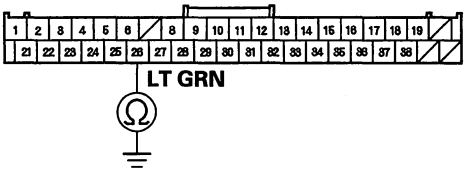
   NO—Intermittent failure. ■
5. Check for DTCs.

   Are these DTCs also present; B1234 or K and AUTO, and/or B1237 or N and AUTO, and/or B1245 or G, and/or B2968 or A and WINDSHIELD DEFROST?

   YES—Go to step 16.

   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Disconnect the A/C pressure sensor 3P connector.
8. Disconnect climate control unit connector A (40P).
9. Check for continuity between body ground and climate control unit connector A (40P) terminal No. 26.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

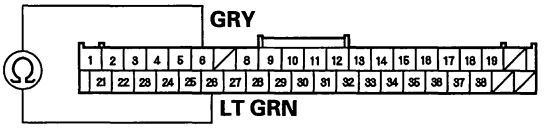
Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the A/C pressure sensor. ■

NO—Go to step 10.

10. Check for continuity between climate control unit connector A (40P) terminals No. 6 and No. 26.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair the short in the wires. ■

NO—Go to step 11.

(cont'd)

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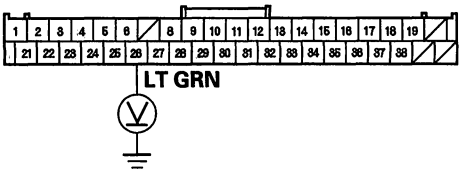
DTC Troubleshooting (cont'd)

11. Turn the ignition switch ON (II), and measure the voltage between body ground and climate control unit connector A (40P) terminal No. 26.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire between the climate control unit and A/C pressure sensor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Go to step 12.

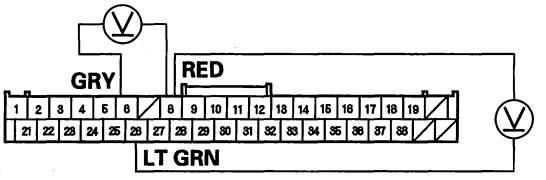
12. Turn the ignition switch OFF.

13. Reconnect climate control unit connector A (40P).

14. Turn the ignition switch ON (II).

15. Measure the voltage between climate control unit connector A (40P) terminals No. 6 and No. 8, and between climate control unit connector A (40P) terminals No. 8 and No. 26.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there about 5 volts?

YES—Replace the A/C pressure sensor. ■

NO—Check for loose wires or poor connections at climate control unit connector A (40P) and at the A/C pressure sensor 3P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

16. Turn the ignition switch OFF, and disconnect the climate control unit.

17. Disconnect these items:

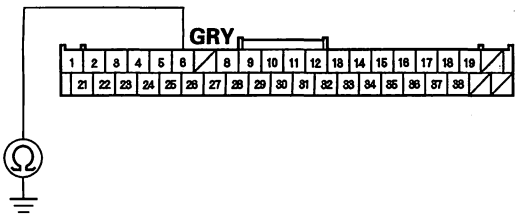
- Driver's air mix control motor
- Passenger's air mix control motor
- Rear air mix control motor
- Humidity/in-car temperature sensor
- A/C pressure sensor

BACK

Protected by AR

18. Check for continuity between climate control unit connector A (40P) terminal No. 6 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

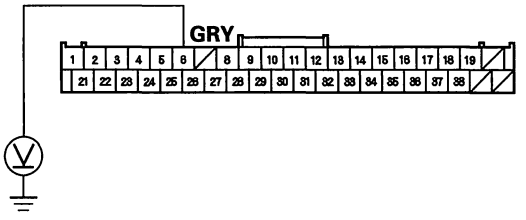
Is there continuity?

YES—Repair short to body ground in the wire. ■

NO—Go to step 19.

19. Turn the ignition switch ON (II), and check the same terminal for voltage to body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire. This short may have also damaged the climate control unit. Repair the short to power before replacing the climate control unit. ■

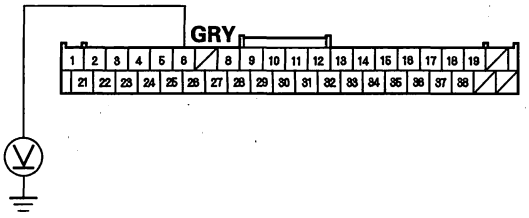
NO—Go to step 20.

20. Turn the ignition switch OFF.

21. Reconnect climate control unit connector (40P).

22. Turn the ignition switch ON (II), and measure the voltage between climate control unit connector A (40P) terminal No. 6 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there about 5 volts?

YES—Go to step 23.

NO—Check for a loose wire or poor connection at climate control unit connector A (40P). If the connection is good, substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

(cont'd)

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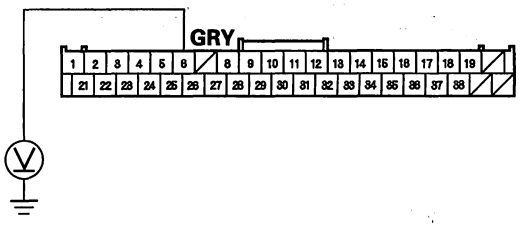
DTC Troubleshooting (cont'd)

23. While checking the same terminal for voltage to ground, reconnect these items individually and note the voltage reading each time:

    - Driver's air mix control motor
    - Passenger's air mix control motor
    - Rear air mix control motor
    - Humidity/in-car temperature sensor
    - A/C pressure sensor

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Does the voltage remain at about 5 volts?

YES—Substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Replace the component that caused the voltage drop. ■

DTC B2981: Climate Control Unit Lost Communication with Navigation Unit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9).
4. Check the DTCs.

   Is DTC B2981 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the navigation unit and climate control unit circuit. ■

5. Turn the ignition switch OFF.
6. Disconnect navigation unit connector A (20P).
7. Disconnect climate control unit connector A (40P).

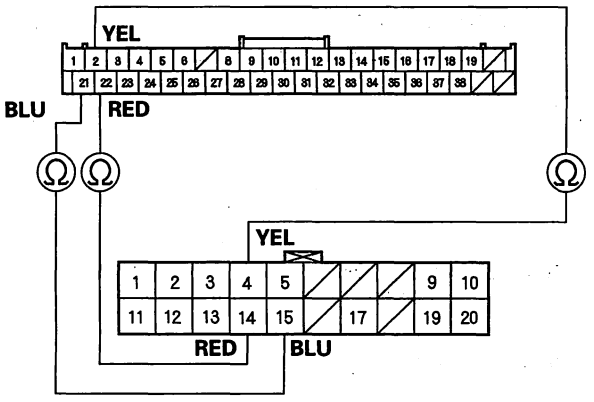
BACK

Protected by AR

8. Check for continuity between the following terminals of climate control unit connector A (40P) and navigation unit connector A (20P).

40P:	20P:
No. 2	No. 4
No. 21	No. 15
No. 22	No. 14

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



NAVIGATION UNIT CONNECTOR A (20P)
Wire side of female terminals

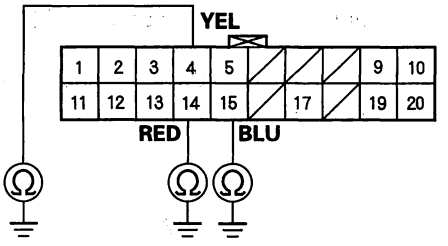
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire(s) between the climate control unit and the navigation unit. ■

9. Check for continuity between body ground and navigation unit connector A (20P) terminals No. 4, 14, and 15 individually.

NAVIGATION UNIT CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the climate control unit and the navigation unit. ■

NO—Go to step 10.

10. Check for continuity between navigation unit connector A (20P) terminals as follows.

From terminal	To terminals
4	14, 15
14	15

Is there continuity between any of the terminals?

YES—Repair the short in the wires. ■

NO—Substitute a known-good navigation unit, and recheck. If the symptom goes away, replace the original navigation unit. If the symptom remains, substitute a known-good climate control unit and recheck. If the symptom goes away, replace the original climate control unit. ■

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DTC Troubleshooting (cont'd)

DTC B2983 or DTC indicator K: A problem in the Recirculation Control Linkage, Door, or Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check the DTCs.

   Is DTC B2983 or K indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the recirculation control motor circuit.■
5. Turn the ignition switch OFF.
6. Test the recirculation control motor (see page 21-113).

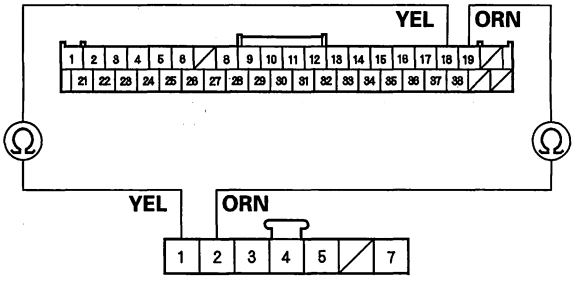
   Is the recirculation control motor OK?

   YES—Go to step 7.

   NO—Replace the recirculation control motor (see page 21-113), or repair the recirculation control linkage or door.■
7. Disconnect the recirculation control motor 7P connector.
8. Disconnect climate control unit connector A (40P).
9. Check for continuity between the following terminals of climate control unit connector A (40P) and the recirculation control motor 7P connector.

40P:	7P:
No. 18	No. 1
No. 19	No. 2

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



RECIRCULATION CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

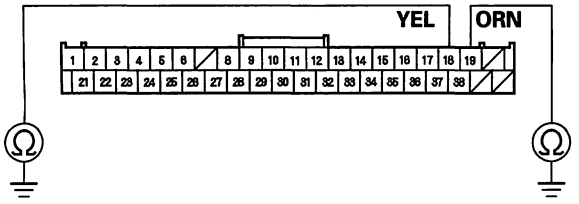
NO—Repair open in the wire(s) between the climate control unit and the recirculation control motor.■

BACK

Protected by AR

10. Check for continuity between body ground and climate control unit connector A (40P) terminals No. 18 and 19 individually.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the climate control unit and the recirculation control motor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

DTC B2991: Climate Control Unit Lost Communication with Audio Unit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9).
4. Check for DTCs.

   Is DTC B2991 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the rear climate control panel and climate control unit circuit. ■
5. Turn the ignition switch OFF.
6. Disconnect climate control unit connector B (14P).
7. Disconnect audio unit connector C (24P).

(cont'd)

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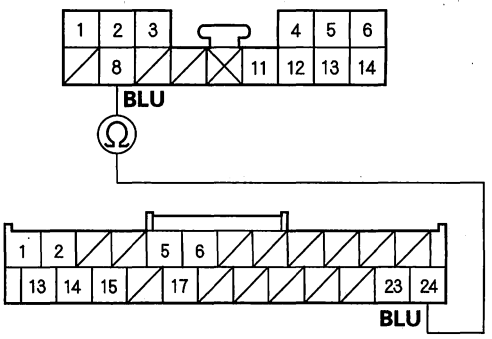
DTC Troubleshooting (cont'd)

8. Check for continuity between climate control unit connector B (14P) terminal No. 8 and audio unit connector C (24P) terminal No. 24.

CLIMATE CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals



AUDIO UNIT CONNECTOR C (24P)
Wire side of female terminals

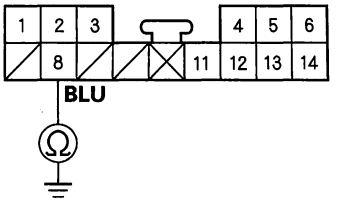
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the climate control unit and the audio unit.■

9. Check for continuity between climate control unit connector B (14P) terminal No. 8 and body ground.

CLIMATE CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the audio unit.■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. If the symptom/indication remains, substitute a known-good audio unit. If the symptom/indication goes away, replace the original audio unit.■

BACK

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Rear Mode Control Motor Circuit Troubleshooting

1. Check the No. 30 (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 2.

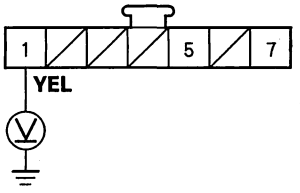
   NO—Replace the fuse, and recheck. If the fuse blows again, check for a short in the No. 30 (10 A) fuse circuit. ■

2. Disconnect the rear mode control motor 7P connector.

3. Turn the ignition switch ON (II).

4. Measure the voltage between the rear mode control motor 7P connector No. 1 and body ground.

REAR MODE CONTROL MOTOR 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 5.

NO—Repair open in the wire between the No. 30 (10 A) fuse in the under-dash fuse/relay box and the rear mode control motor. ■

5. Turn the ignition switch OFF.

6. Test the rear mode control motor (see page 21-144).

   Is the rear mode control motor OK?

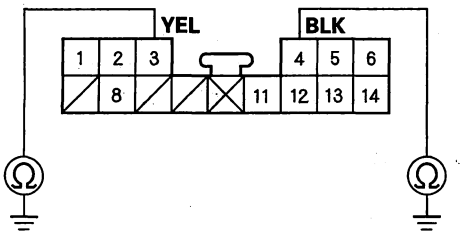
   YES—Go to step 7.

   NO—Replace the rear mode control motor (see page 21-144), or repair the rear mode control linkage or door. ■

7. Disconnect climate control unit connector B (14P).

8. Check for continuity between body ground and climate control unit connector B (14P) terminals No. 3 and No. 4 individually.

CLIMATE CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the climate control unit and the rear mode control motor. ■

NO—Go to step 9.

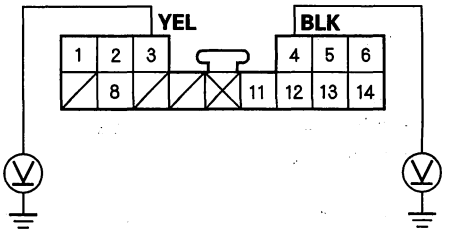
(cont'd)

Protected by AR

Rear Mode Control Motor Circuit Troubleshooting (cont'd)

9. Turn the ignition switch ON (II), and check the same wires for voltage to body ground.

CLIMATE CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire(s) between the climate control unit and the rear mode control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

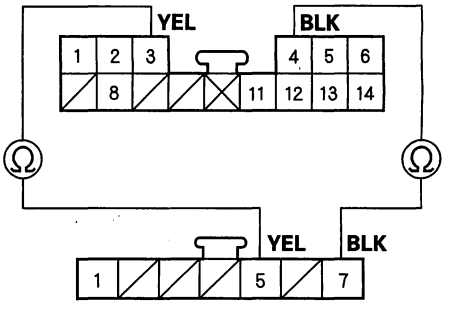
NO—Go to step 10.

10. Turn the ignition switch OFF.

11. Check for continuity between the following terminals of climate control unit connector B (14P) and the rear mode control motor 7P connector.

14P:	7P:
No. 3	No. 5
No. 4	No. 7

CLIMATE CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals



REAR MODE CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector B (14P) and at the rear mode control motor 7P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire(s) between the climate control unit and the rear mode control motor. ■

BACK

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Climate Control Unit Troubleshooting

1. Check the No. 30 (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

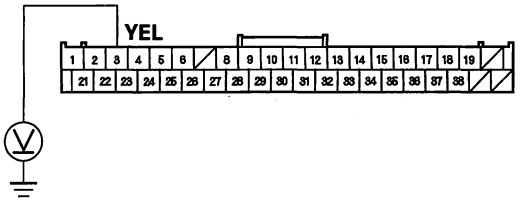
   YES—Go to step 2.

   NO—Replace the fuse, and recheck. If the fuse blows again, check for a short in the No. 30 (10 A) fuse circuit. ■

2. Turn the ignition switch ON (II).

3. Measure the voltage between climate control unit connector A (40P) terminal No. 3 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there battery voltage?

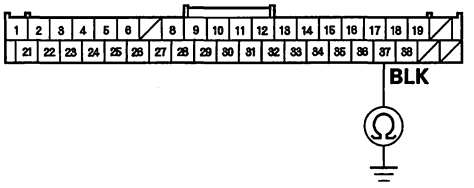
YES—Go to step 4.

NO—Repair open in the wire between the No. 30 (10 A) fuse in the under-dash fuse/relay box and the climate control unit. ■

4. Turn the ignition switch OFF.

5. Check for continuity between climate control unit connector A (40P) terminal No. 37 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Go to step 6.

NO—Check for an open in the wire between the climate control unit and body ground. If the wire is OK, check for poor ground at G506 (see page 22-67). ■

6. Disconnect climate control unit connector A (40P).

7. Disconnect the under-dash fuse/relay box connector X (39P).

(cont'd)

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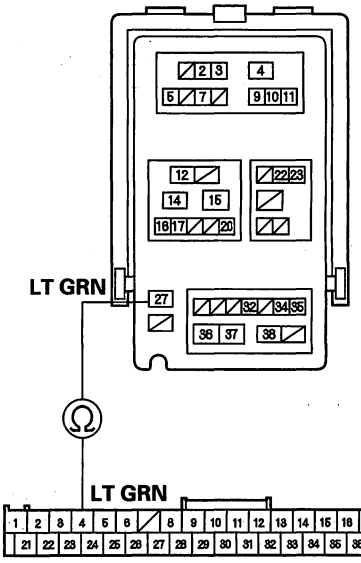
Climate Control Unit Troubleshooting (cont'd)

8. Check for continuity between under-dash fuse/relay box connector X (39P) terminal No. 27 and climate control unit connector A (40P) terminal No. 4.

UNDER-DASH FUSE/RELAY BOX CONNECTOR X (39P)
Wire side of female terminals



CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals

Is there continuity?

YES—Check for loose wires and poor connections at climate control unit connector A (40P). If connections are good, substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the MICU and the climate control unit. ■

Radiator and A/C Condenser Fan Low Speed Circuit Troubleshooting

NOTE:
- Do not use this troubleshooting procedure if the A/C compressor is inoperative. Refer to the symptom troubleshooting index.
- Before performing symptom troubleshooting, check for powertrain DTCs (see page 11-3).

1. Check the No. 15 (30 A) fuse in the relay block, and the No. 30 (10 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

   NO—Replace the fuse(s), and recheck. If the fuse(s) blow again, check for a short in the No. 15 (30 A) and No. 30 (10 A) fuse(s) circuit. ■

2. Remove the A/C condenser fan relay from the relay block, and test it (see page 22-77).

   Is the relay OK?

   YES—Go to step 3.

   NO—Replace the A/C condenser fan relay. ■

3. Connect the HDS to the DLC.
4. Turn the ignition switch ON (II).
5. Turn on the A/C.
6. Check the FAN LOW CTRL in the PGM-FI Data List with the HDS.

   Is the FAN LOW CTRL on?

   YES—Go to step 7.

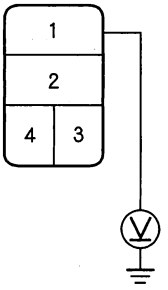
   NO—Substitute a known-good PCM (see page 11-8), and retest. If the symptom/indication goes away with a known-good PCM, replace the original PCM (see page 11-244). ■

BACK

Protected by AR

7. Measure the voltage between the A/C condenser fan relay 4P socket terminal No. 1 and body ground.

A/C CONDENSER FAN RELAY 4P SOCKET



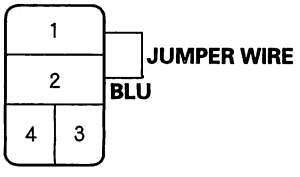
Is there battery voltage?

YES—Go to step 8.

NO—Replace the relay block (see page 22-71).■

8. Connect the A/C condenser fan relay 4P socket terminals No. 1 and No. 2 with a jumper wire.

A/C CONDENSER FAN RELAY 4P SOCKET



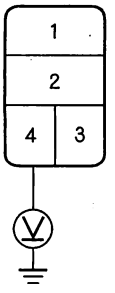
Do the A/C condenser and radiator fans run on low?

YES—Go to step 9.

NO—Go to step 18.

9. Disconnect the jumper wire.
10. Turn the ignition switch ON (II).
11. Measure the voltage between the A/C condenser fan relay 4P socket terminal No. 4 and body ground.

A/C CONDENSER FAN RELAY 4P SOCKET



Is there battery voltage?

YES—Go to step 12.

NO—Go to step 36.

12. Turn the ignition switch OFF.
13. Reinstall the A/C condenser fan relay.
14. Jump the SCS line with the HDS.

    NOTE: This step must be done to protect the powertrain control module (PCM) from damage.

15. Disconnect PCM connector A (49P).

(cont'd)

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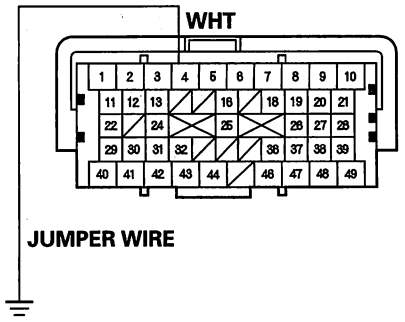
Radiator and A/C Condenser Fan Low Speed Circuit Troubleshooting (cont'd)

16. Connect the PCM connector A (49P) terminal No. 4 to body ground with a jumper wire.

PCM CONNECTOR A (49P)



Terminal side of female terminals

17. Turn the ignition switch ON (II).

Do the A/C condenser and radiator fans run on low?

YES—Check for loose wires or poor connections at PCM connector A (49P) terminal No. 4. If the connections are good, substitute a known-good PCM, and recheck. If the symptom/indication goes away, replace the original PCM (see page 11-244). ■

NO—Repair open in the wire between the A/C condenser fan relay and the PCM. ■

18. Disconnect the jumper wire.

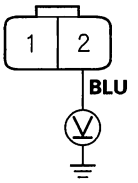
19. Reinstall the A/C condenser fan relay.

20. Disconnect the A/C condenser fan 2P connector.

21. Turn the ignition switch ON (II), then set the A/C button and fan control button ON.

22. Measure the voltage between the A/C condenser fan 2P connector terminal No. 2 and body ground.

A/C CONDENSER FAN 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 23.

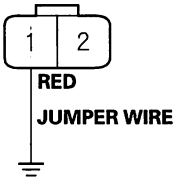
NO—Repair open in the wire between the A/C condenser fan relay and the A/C condenser fan. ■

23. Set the A/C button and fan control button OFF, then turn the ignition switch OFF.

24. Reconnect the A/C condenser fan 2P connector.

25. Connect the A/C condenser fan 2P connector terminal No. 1 to body ground with a jumper wire.

A/C CONDENSER FAN 2P CONNECTOR



Wire side of female terminals

26. Turn the ignition switch ON (II), then set the A/C button and fan control button ON.

Does the A/C condenser fan run?

YES—Go to step 27.

NO—Replace the A/C condenser fan motor (see page 10-10). ■

BACK

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27. Set the A/C button and fan control button OFF, then turn the ignition switch OFF.

28. Disconnect the jumper wire.

29. Remove the fan control relay from the relay block, and test it (see page 22-78).

    Is the relay OK?

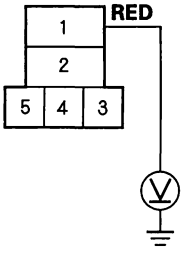
    YES—Go to step 30.

    NO—Replace the fan control relay.■

30. Turn the ignition switch ON (II), then set the A/C button and fan control button ON.

31. Measure the voltage between the fan control relay 5P socket terminal No. 1 and body ground.

FAN CONTROL RELAY 5P SOCKET



Is there battery voltage?

YES—Go to step 32.

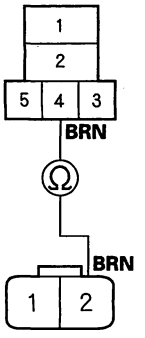
NO—Repair open in the wire between the A/C condenser fan and the fan control relay.■

32. Set the A/C button and fan control button OFF, then turn the ignition switch OFF.

33. Disconnect the radiator fan 2P connector.

34. Check for continuity between the fan control relay 5P socket terminal No. 4 and the radiator fan 2P connector terminal No. 2.

FAN CONTROL RELAY 5P SOCKET



RADIATOR FAN 2P CONNECTOR
Wire side of female terminals

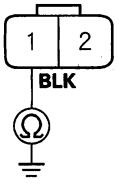
Is there continuity?

YES—Go to step 35.

NO—Repair open in the wire between the fan control relay and the radiator fan.■

35. Check for continuity between the radiator fan 2P connector terminal No. 1 and body ground.

RADIATOR FAN 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the radiator fan motor (see page 10-10).■

NO—Check for an open in the wire between the radiator fan and body ground. If the wire is OK, check for poor ground at G301 (see page 22-67).■

(cont'd)

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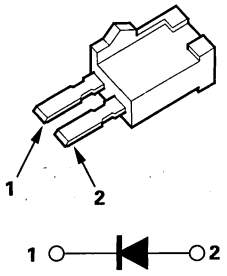
Radiator and A/C Condenser Fan Low Speed Circuit Troubleshooting (cont'd)

36. Turn the ignition switch OFF.

37. Remove A/C diode A from the relay block.

38. Using the diode setting (⊣◀⊸) on a DVOM, check for current flow in both directions between the A/C diode A terminals No. 1 and No. 2.

A/C DIODE A



Is there current flow in only one direction?

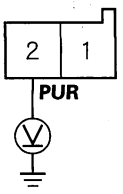
YES—Go to step 39.

NO—Replace A/C diode A.■

39. Turn the ignition switch ON (II).

40. Measure the voltage between the A/C diode A 2P socket terminal No. 2 and body ground.

A/C DIODE A 2P SOCKET



Is there battery voltage?

YES—Replace the relay block (see page 22-71).■

NO—Repair open in the wire between the No. 30 (10 A) fuse in the under-dash fuse/relay box and A/C diode A.■

A/C Condenser Fan High Speed Circuit Troubleshooting

NOTE:
- Do not use this troubleshooting procedure if the radiator fan and/or the A/C compressor is inoperative. Refer to the symptom troubleshooting index.
- Before doing any symptom troubleshooting, check for powertrain DTCs (see page 11-3).

1. Remove the fan control relay from the relay block, and test it (see page 22-78).

   Is the relay OK?

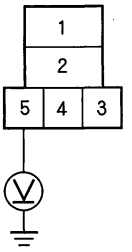
   YES—Go to step 2.

   NO—Replace the fan control relay.■

2. Turn the ignition switch ON (II).

3. Measure the voltage between the fan control relay 5P socket terminal No. 5 and body ground.

FAN CONTROL RELAY 5P SOCKET



Is there battery voltage?

YES—Go to step 4.

NO—Replace the relay block (see page 22-71).■

4. Turn the ignition switch OFF.

BACK

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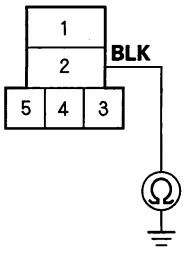
5. Check for continuity between the fan control relay 5P socket terminal No. 2 and body ground.

FAN CONTROL RELAY 5P SOCKET



Is there continuity?

YES—Go to step 6.

NO—Check for an open in the wire between the fan control relay and body ground. If the wire is OK, check for poor ground at G202 (see page 22-67). ■

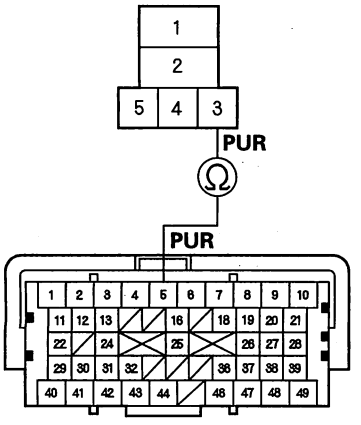
6. Jump the SCS line with the HDS.

NOTE: This step must be done to protect the powertrain control module (PCM) from damage.

7. Disconnect PCM connector A (49P).

8. Check for continuity between the fan control relay 5P socket terminal No. 3 and PCM connector A (49P) terminal No. 5.

FAN CONTROL RELAY 5P SOCKET



PCM CONNECTOR A (49P)
Terminal side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at PCM connector A (49P) terminal No. 5. If the connections are good, substitute a known-good PCM, and recheck. If the symptom/indication goes away, replace the original PCM (see page 11-244). ■

NO—Repair open in the wire between the fan control relay and the PCM. ■

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A/C Compressor Clutch Circuit Troubleshooting

NOTE:
- It is normal for the A/C compressor to turn off under certain conditions, such as low idle, high engine coolant temperature, hard acceleration, or high/low pressure.
- Do not use this troubleshooting procedure if the fans are also inoperative with the A/C on. Refer to the symptom troubleshooting index.
- Before doing any symptom troubleshooting, check for powertrain DTCs (see page 11-3).

1. Check the No. 7 (7.5 A) fuse in the relay block, and the No. 30 (10 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

   NO—Replace the fuse(s) and recheck. If the fuse(s) blow again, check for a short in the No. 7 (7.5 A) and No. 30 (10 A) fuse(s) circuit. ■

2. Connect the HDS to the DLC.

3. Start the engine.

4. Turn on the A/C.

5. Check the A/C CLUTCH in the PGM-FI Data List with the HDS.

   Is the A/C CLUTCH on?

   YES—Go to step 7.

   NO—Go to step 6.

6. Using the HDS, confirm the following values in the PGM-FI Data List at idle.

A/C SWITCH	ON
A/C PRESSURE SENSOR	196—3,138 kPa (2—32 kgf/cm²) [28—455 psi]

   Are all the values within specifications?

   YES—Go to step 7.

   NO—Troubleshoot the value that is not within the specifications. ■

7. Remove the A/C compressor clutch relay from the relay block, and test it (see page 22-77).

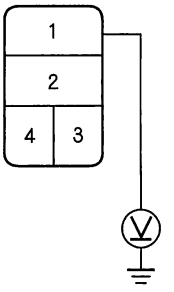
   Is the relay OK?

   YES—Go to step 8.

   NO—Replace the A/C compressor clutch relay. ■

8. Measure the voltage between the A/C compressor clutch relay 4P socket terminal No. 1 and body ground.

A/C COMPRESSOR CLUTCH RELAY 4P SOCKET



   Is there battery voltage?

   YES—Go to step 9.

   NO—Replace the relay block (see page 22-71). ■

BACK

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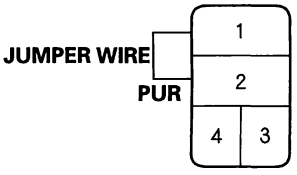
9. Connect the A/C compressor clutch relay 4P socket terminals No. 1 and No. 2 with a jumper wire.

A/C COMPRESSOR CLUTCH RELAY 4P SOCKET



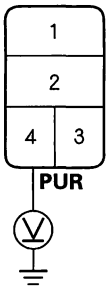
Does the A/C compressor clutch click?

YES—Go to step 10.

NO—Go to step 19.

10. Disconnect the jumper wire.
11. Turn the ignition switch ON (II).
12. Measure the voltage between the A/C compressor clutch relay 4P socket terminal No. 4 and body ground.

A/C COMPRESSOR CLUTCH RELAY 4P SOCKET



Is there battery voltage?

YES—Go to step 13.

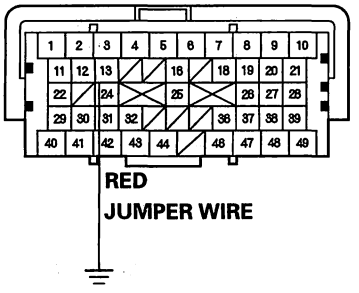
NO—Repair open in the wire between the No. 30 (10 A) fuse in the under-dash fuse/relay box and the A/C compressor clutch relay. ■

13. Turn the ignition switch OFF.
14. Reinstall the A/C compressor clutch relay.
15. Jump the SCS line with the HDS.

NOTE: This step must be done to protect the powertrain control module (PCM) from damage.

16. Disconnect PCM connector A (49P).
17. Connect PCM connector A (49P) terminal No. 13 to body ground with a jumper wire.

PCM CONNECTOR A (49P)



Terminal side of female terminals

18. Turn the ignition switch ON (II).

Does the A/C compressor click?

YES—Check for loose wires or poor connections at PCM connector A (49P). If the connections are good, check the PCM grounds. If the grounds are good, substitute a known-good PCM, and recheck. If the symptom/indication goes away, replace the original PCM (see page 11-244). ■

NO—Repair open in the wire between the A/C compressor clutch relay and the PCM. ■

(cont'd)

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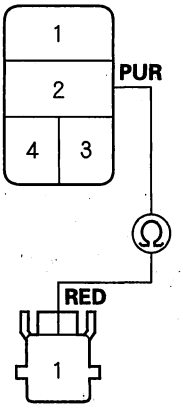
A/C Compressor Clutch Circuit Troubleshooting (cont'd)

19. Disconnect the jumper wire.

20. Disconnect the A/C compressor clutch 1P connector.

21. Check for continuity between the A/C compressor clutch relay 4P socket terminal No. 2 and the A/C compressor clutch 1P connector terminal No. 1.

A/C COMPRESSOR CLUTCH RELAY 4P SOCKET



A/C COMPRESSOR CLUTCH 1P CONNECTOR
Wire side of female terminal

Is there continuity?

YES—Check the A/C compressor clutch clearance, and the compressor clutch field coil (see page 21-125). Repair as needed. ■

NO—Repair open in the wire between the A/C compressor clutch relay and the A/C compressor clutch. ■

BACK

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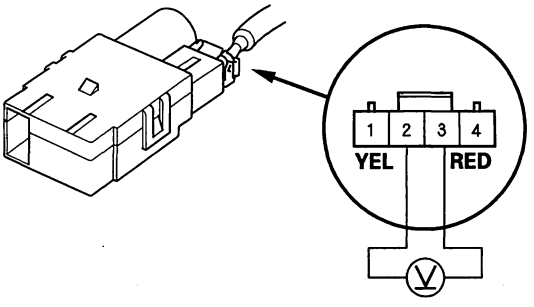
Humidity/In-car Temperature Sensor Test

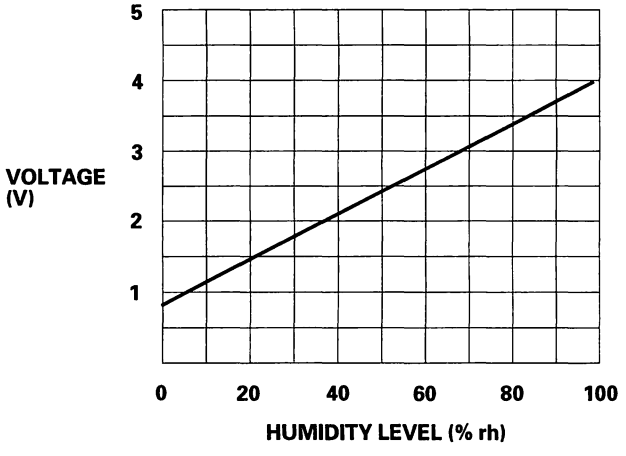
Humidity Sensor Test

1. Remove the humidity/in-car temperature sensor (see page 21-104).

2. Connect the humidity/in-car temperature sensor 4P connector.

3. Turn the ignition switch ON (II). Measure the voltage between the terminals with the (+) probe on the No. 2 terminal and the (−) probe on the No. 3 terminal with the connector connected.





4. If the voltage is not as specified, replace the humidity/in-car temperature sensor (see page 21-104).

(cont'd)

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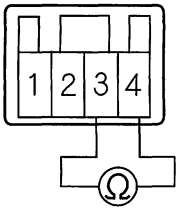
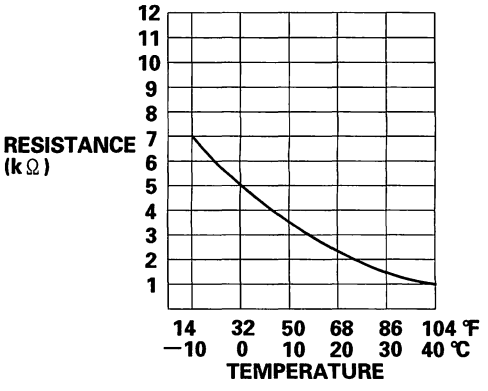
Humidity/In-car Temperature Sensor Test (cont'd)

In-car Temperature Sensor Test

1. Remove the humidity/in-car temperature sensor (see page 21-104).
2. Connect the humidity/in-car temperature sensor 4P connector.
3. Test the humidity/in-car temperature sensor while holding it in front of the dashboard center vent.
   - Measure the resistance with the system set to Max Cool.
   - Measure the resistance with the system set to Max Hot.
4. Compare the resistance reading between the No. 4 and No. 3 terminals of the humidity/in-car temperature sensor with the specifications shown in the graph; the resistance should be within the specifications.

HUMIDITY/IN-CAR TEMPERATURE SENSOR

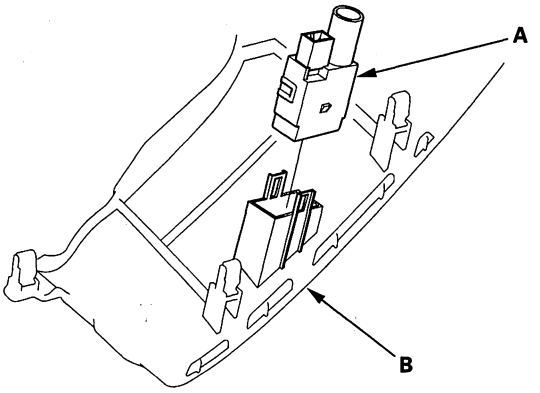




5. If the resistance is not as specified, replace the humidity/in-car temperature sensor (see page 21-104).

Humidity/In-car Temperature Sensor Replacement

1. Remove the driver's dashboard lower cover (see page 20-119).
2. Remove the humidity/in-car temperature sensor (A) from the driver's dashboard lower cover (B).



3. Install the sensor in the reverse order of removal. Be sure to connect the air hose securely.

BACK

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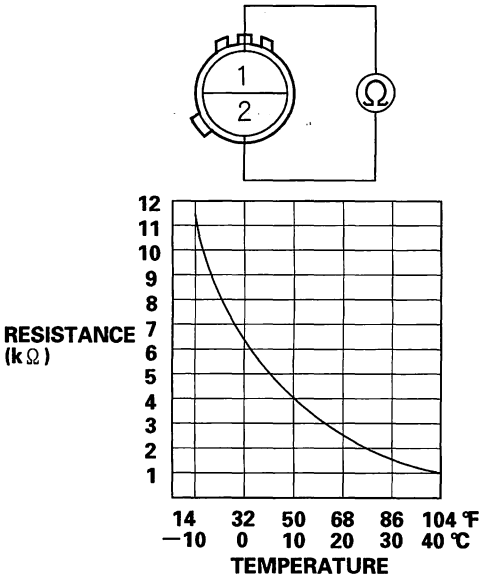
Outside Air Temperature Sensor Test

1. Remove the outside air temperature sensor (see page 21-105).
2. Dip the sensor in ice water, and measure the resistance. Then pour warm water on the sensor, and check for a change in resistance.
3. Compare the resistance reading between the No. 1 and No. 2 terminals of the outside air temperature sensor with the specifications shown in the graph; the resistance should be within the specifications.

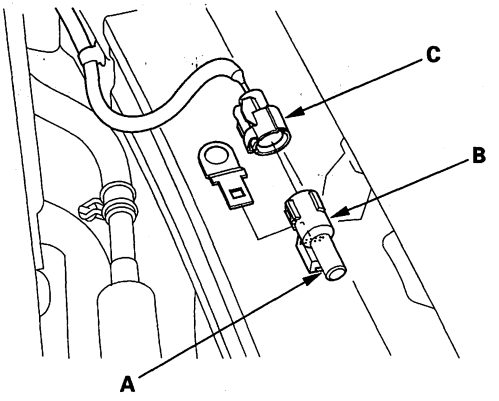
OUTSIDE AIR TEMPERATURE SENSOR



4. If the resistance is not as specified, replace the outside air temperature sensor (see page 21-105).

Outside Air Temperature Sensor Replacement

1. Remove the bulkhead cover (see page 20-203).
2. Lift the tab (A) to release the lock, then remove the outside air temperature sensor (B) from the back of the front bumper. Disconnect the 2P connector (C) from the outside air temperature sensor.



3. Install the sensor in the reverse order of removal.

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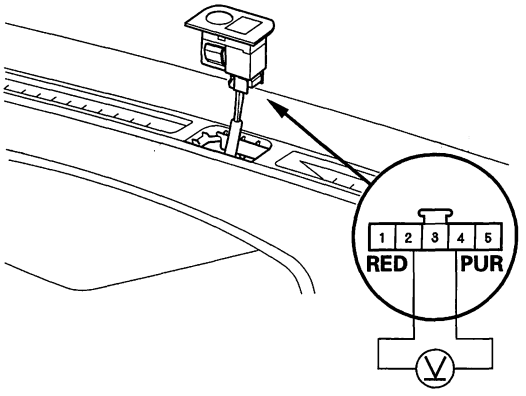
Sunlight Sensor Test

1. Remove the sunlight sensor from the dashboard (see page 21-106).
2. Connect the sunlight sensor 5P connector.
3. Turn the ignition switch ON (II). Measure the voltage between the terminals with the (+) probe on the No. 4 terminal and the (−) probe on the No. 2 terminal with the connector connected.

   NOTE: The voltage readings will not change under the light of a flashlight or a fluorescent lamp.

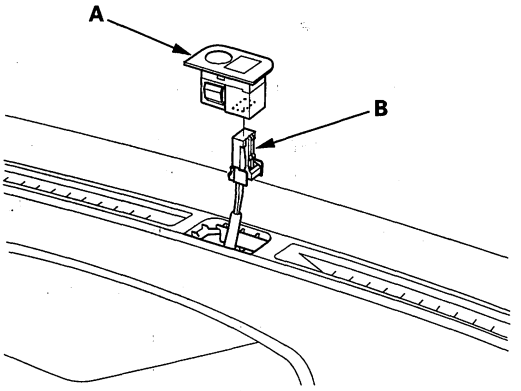
   Voltage should be:
   - 3.6—3.7 V or more with the sensor out of direct sunlight.
   - 3.3—3.5 V or less with the sensor in direct sunlight.



4. If the voltage is not as specified, replace the sunlight sensor (see page 21-106).

Sunlight Sensor Replacement

1. Remove the sunlight sensor (A) from the dashboard, then disconnect the 5P connector (B). Be careful not to damage the sensor and the dashboard.



2. Install the sensor in the reverse order of removal.

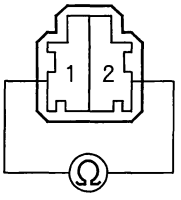
BACK

Protected by AR

Front Evaporator Temperature Sensor Test

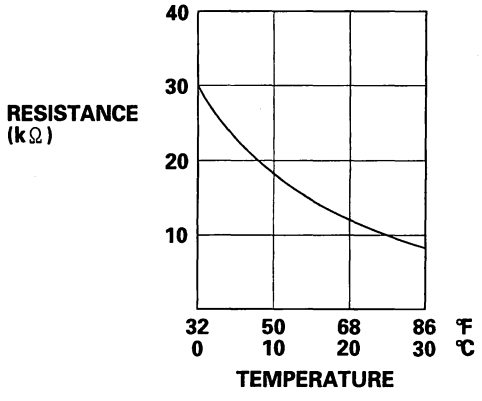
1. Remove the evaporator front temperature sensor (see page 21-107).
2. Dip the sensor in ice water, and measure the resistance between its terminals.

FRONT EVAPORATOR TEMPERATURE SENSOR



Terminal side of male terminals

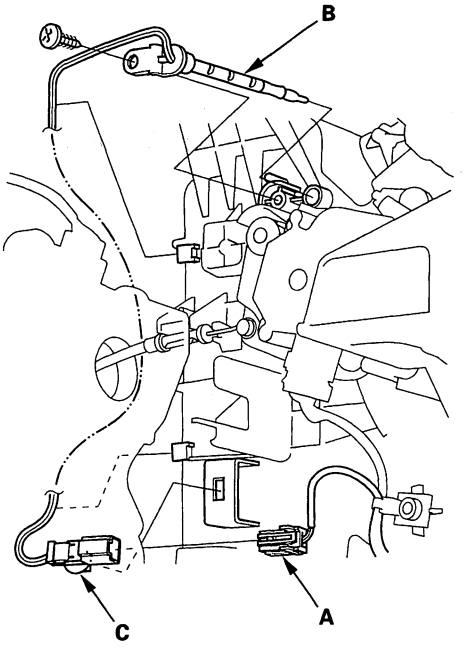
3. Then pour warm water on the sensor, and check for a change in resistance.
4. Compare the resistance readings with the specifications shown in the graph; the resistance should be within the specifications.



5. If the resistance is not as specified, replace the front evaporator temperature sensor (see page 21-107).

Front Evaporator Temperature Sensor Replacement

1. Remove the driver's dashboard undercover (see page 20-120).
2. Remove the TPMS control unit (see page 18-162).
3. Disconnect the connector (A) from the front evaporator temperature sensor (B), then remove the connector clip (C). Remove the self-tapping screw and the front evaporator temperature sensor.



4. Install the sensor in the reverse order of removal.

Protected by AR

Front Power Transistor Test

1. Remove the passenger's dashboard undercover (see page 20-127).

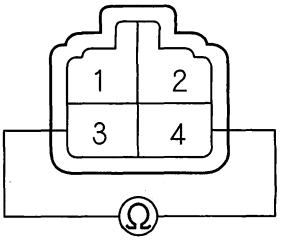
2. Disconnect the 4P connector from the front power transistor.

3. Measure the resistance between the No. 3 and No. 4 terminals of the front power transistor. It should be about 1.5 kΩ.

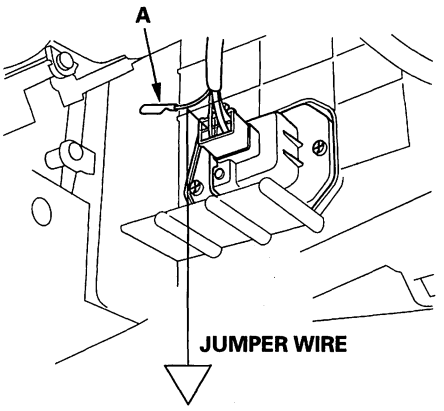
   - If the resistance is within the specifications, go to step 4.
   - If the resistance is not within the specifications, replace the front power transistor.

   NOTE: Also check the front blower motor. Front power transistor failure can be caused by a defective front blower motor.

FRONT POWER TRANSISTOR



4. Carefully release the lock tab on the No. 1 terminal (RED) (A) in the 4P connector, then remove the terminal and insulate it from body ground.



5. Reconnect the 4P connector to the front power transistor.

6. Make sure the RED wire is completely isolated, then supply 12 V to the No. 1 cavity with a jumper wire.

7. Turn the ignition switch ON (II), and check that the front blower motor runs.

   - If the front blower motor does not run, replace the front power transistor.

     NOTE: A faulty front blower motor can cause the front power transistor to fail. If the front power transistor is replaced, also check the front blower motor for binding, and replace it if necessary.

   - If the front blower motor runs, the front power transistor is OK.

BACK

Protected by AR

Driver's Air Mix Control Motor Test

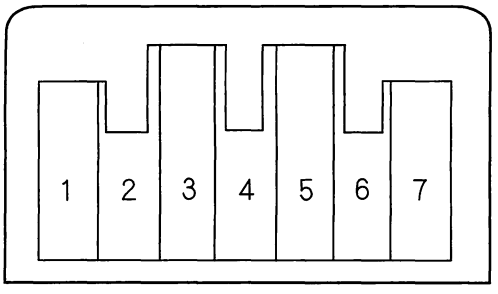
NOTE: Before testing, check for HVAC DTCs (see page 21-8).

1. Disconnect the 7P connector from the driver's air mix control motor.

   NOTICE
   Incorrectly applying power and ground to the driver's air mix control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 1 terminal of the driver's air mix control motor, and ground the No. 2 terminal; the driver's air mix control motor should run, and stop at Max Cool. If it doesn't, reverse the connections; the driver's air mix control motor should run, and stop at Max Hot. When the driver's air mix control motor stops running, disconnect battery power immediately.

DRIVER'S AIR MIX CONTROL MOTOR



3. If the driver's air mix control motor did not run in step 2, remove it, then check the driver's air mix control linkage and door for smooth movement.

   - If the linkage and door move smoothly, replace the driver's air mix control motor (see page 21-110).
   - If the linkage or door sticks or binds, repair them as needed.
   - If the driver's air mix control motor runs smoothly, go to step 4.

4. Measure the resistance between the No. 5 and No. 7 terminals. It should be between 4.2 to 7.8 kΩ.

5. Reconnect the driver's air mix control motor 7P connector, then turn the ignition switch ON (II).

6. Using the backprobe set, measure the voltage between the No. 3 and No. 7 terminals.

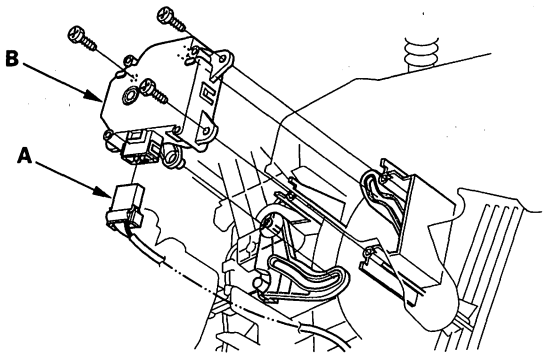
   Max Cool: about 0.5 V
   Max Hot: about 4.5 V

7. If either the resistance or voltage readings are not as specified, replace the driver's air mix control motor (see page 21-110).

Protected by AR

Driver's Air Mix Control Motor Replacement

1. Remove the driver's dashboard undercover (see page 20-120).
2. Disconnect the 7P connector (A) from the driver's air mix control motor (B). Remove the self-tapping screws and the driver's air mix control motor from the heater unit.



3. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

Passenger's Air Mix Control Motor Test

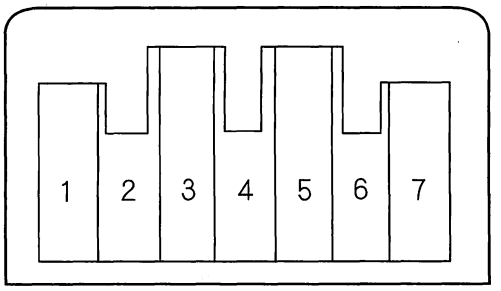
NOTE: Before testing, check for HVAC DTCs (see page 21-8).

1. Disconnect the 7P connector from the passenger's air mix control motor.

NOTICE
Incorrectly applying power and ground to the passenger's air mix control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 1 terminal of the passenger's air mix control motor, and ground the No. 2 terminal; the passenger's air mix control motor should run, and stop at Max Cool. If it doesn't, reverse the connections; the passenger's air mix control motor should run, and stop at Max Hot. When the passenger's air mix control motor stops running, disconnect battery power immediately.

PASSENGER'S AIR MIX CONTROL MOTOR



3. If the passenger's air mix control motor did not run in step 2, remove it, then check the passenger's air mix control linkage and door for smooth movement.
   - If the linkage and door move smoothly, replace the passenger's air mix control motor (see page 21-111).
   - If the linkage or door sticks or binds, repair them as needed.
   - If the passenger's air mix control motor runs smoothly, go to step 4.

BACK

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4. Measure the resistance between the No. 5 and No. 7 terminals. It should be between 4.2 to 7.8 kΩ.

5. Reconnect the passenger's air mix control motor 7P connector, then turn the ignition switch ON (II).

6. Using the backprobe set, measure the voltage between the No. 3 and No. 7 terminals.

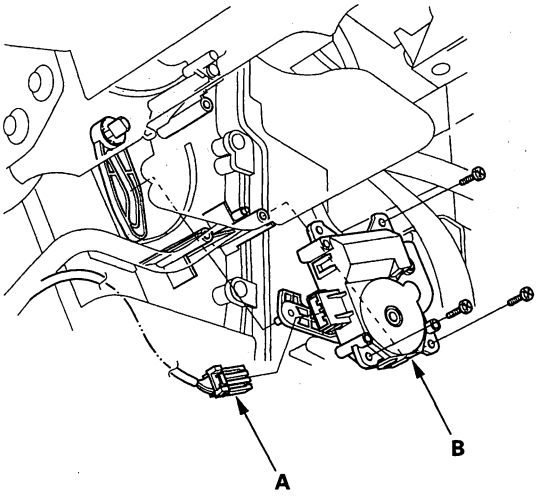
   Max Cool: about 1.5 V
   Max Hot: about 4.5 V

7. If either the resistance or voltage readings are not as specified, replace the passenger's air mix control motor (see page 21-111).

Passenger's Air Mix Control Motor Replacement

1. Remove the glove box (see page 20-125).

2. Disconnect the 7P connector (A) from the passenger's air mix control motor (B). Remove the self-tapping screws and the passenger's air mix control motor from the heater unit.



3. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

Protected by AR

Front Mode Control Motor Test

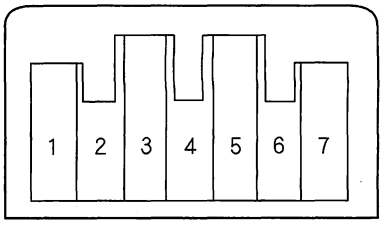
NOTE: Before testing, check for HVAC DTCs (see page 21-8).

1. Disconnect the 7P connector from the front mode control motor.

   NOTICE
   Incorrectly applying power and ground to the front mode control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 1 terminal of the front mode control motor, and ground the No. 2 terminal; the front mode control motor should run smoothly, and stop at Vent. If it doesn't, reverse the connections; the front mode control motor should run smoothly, and stop at Defrost. When the front mode control motor stops running, disconnect battery power immediately.

FRONT MODE CONTROL MOTOR



3. If the front mode control motor did not run in step 2, remove it, then check the front mode control linkage and doors for smooth movement.

   - If the linkage and doors move smoothly, replace the front mode control motor (see page 21-112).
   - If the linkage or doors stick or bind, repair them as needed.
   - If the front mode control motor runs smoothly, go to step 4.

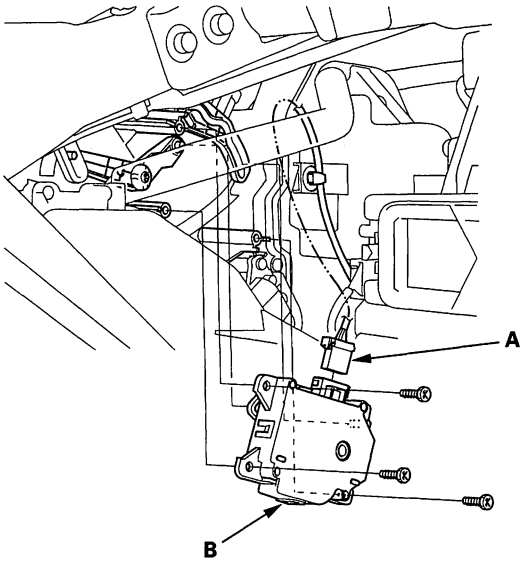
4. Use a digital multimeter with an output of 1 mA or less at the 20 kΩ range. With the front mode control motor running as in step 2, check for continuity between the No. 3, 4, 5, and 6 terminals and the No. 7 terminal individually. There should be continuity for a moment at each terminal as the motor moves past the switch's terminal.

5. If there is no continuity for a moment at each terminal, replace the front mode control motor (see page 21-112).

Front Mode Control Motor Replacement

1. Remove the glove box (see page 20-125).

2. Disconnect the 7P connector (A) from the front mode control motor (B). Remove the self-tapping screws and the front mode control motor from the heater unit.



3. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

BACK

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Recirculation Control Motor Test

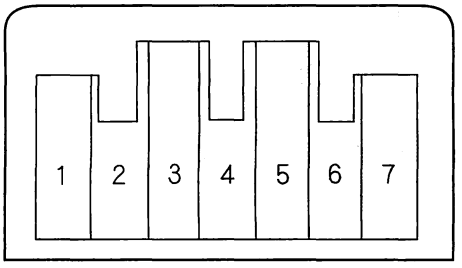
NOTE: Before testing, check for HVAC DTCs (see page 21-8).

1. Disconnect the 7P connector from the recirculation control motor.

   NOTICE
   Incorrectly applying power and ground to the recirculation control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 1 terminal of the recirculation control motor, and ground the No. 2 terminal; the recirculation control motor should run smoothly, and stop at Fresh. If it doesn't, reverse the connections; the recirculation control motor should run smoothly, and stop at Recirculate. When the recirculation control motor stops running, disconnect battery power immediately.

RECIRCULATION CONTROL MOTOR



3. If the recirculation control motor did not run in step 2, remove it, then check the recirculation control linkage and door for smooth movement.

   - If the linkage and door move smoothly, replace the recirculation control motor (see page 21-113).
   - If the linkage or door stick or bind, repair them as needed.
   - If the recirculation control motor runs smoothly, go to step 4.

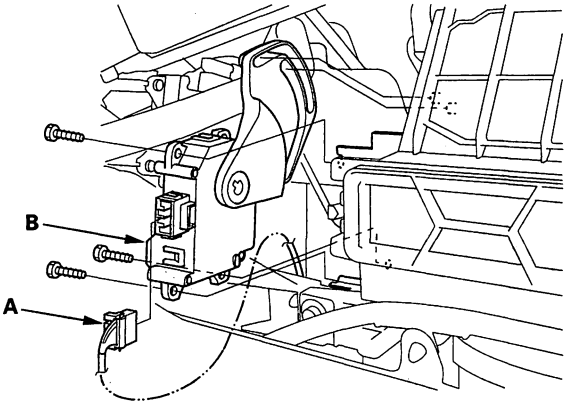
4. Use a digital multimeter with an output of 1 mA or less at the 20 kΩ range. With the recirculation control motor running as in step 2, check for continuity between the No. 3, 4, and 5 terminals and the No. 7 terminal individually. There should be continuity for a moment at each terminal as the motor moves past the switch's terminal.

5. If there is no continuity for a moment at each terminal, replace the recirculation control motor (see page 21-113).

Recirculation Control Motor Replacement

1. Remove the glove box (see page 20-125).

2. Disconnect the 7P connector (A) from the recirculation control motor (B). Remove the self-tapping screws and the recirculation control motor from the heater unit.



3. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

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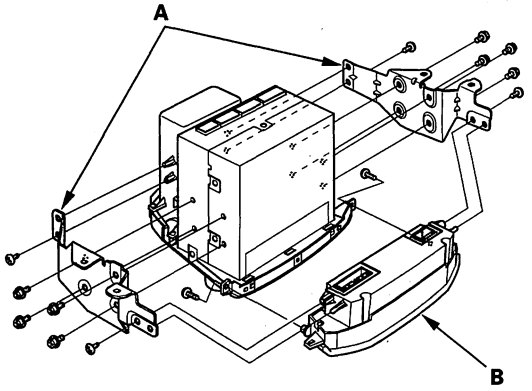
Climate Control Unit Removal/ Installation

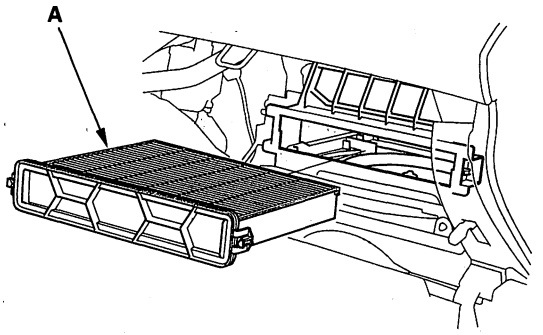
1. Remove the audio unit (see page 23-90).
2. Remove the self-tapping screws, bolt, brackets (A), and the climate control unit (B).



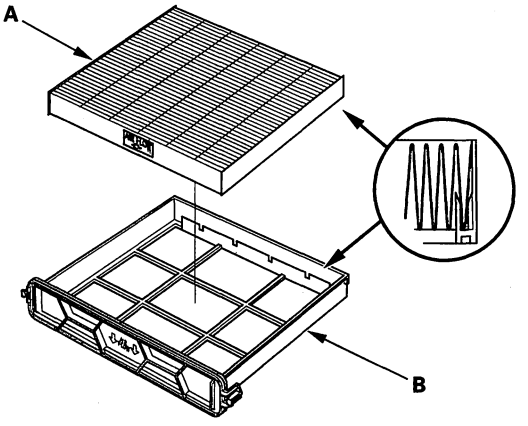
3. Install the control unit in the reverse order of removal. After installation, operate the various functions to see whether works properly.
4. Run the self-diagnostic function to confirm that there are no problems in the system (see page 21-10).

Dust and Pollen Filter Replacement

1. Open the glove box. Remove the glove box stop on right side, then let the glove box hang down (see page 20-125).
2. Remove the dust and pollen filter assembly (A) from the evaporator.



3. Remove the filter (A) from the housing (B), and replace the filter.



4. Install the filter in the reverse order of removal. Make sure that there is no air leaking out of the blower unit.

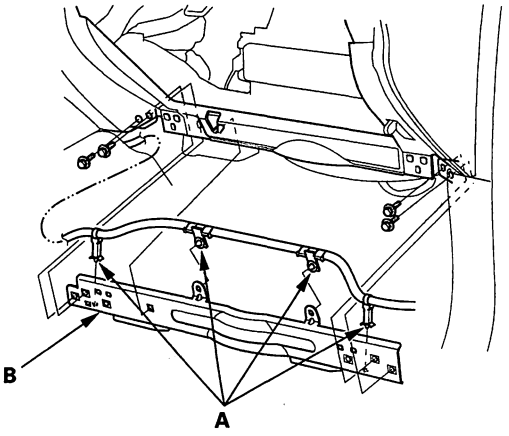
BACK

Protected by AR

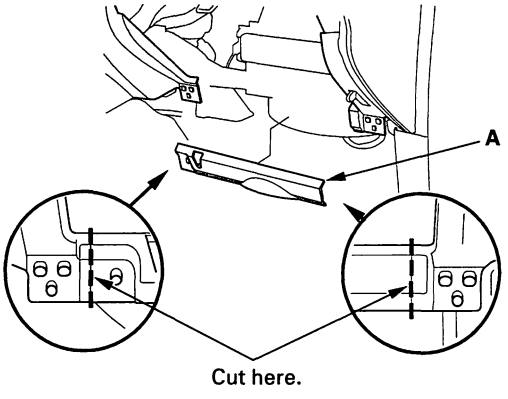
Blower Unit Removal/Installation

1. Remove the glove box (see page 20-125).

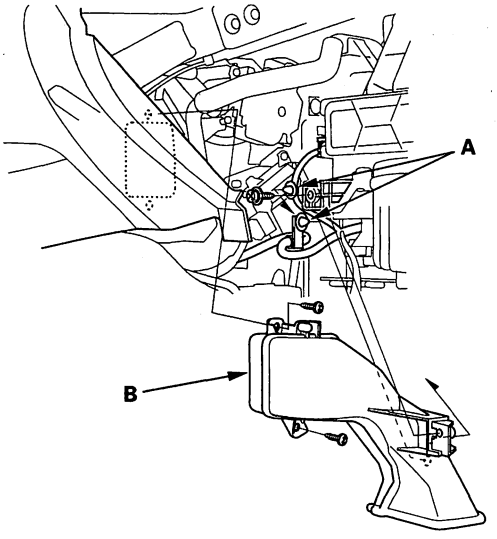
2. Remove the harness clips (A), the bolts, and the glove box frame (B).



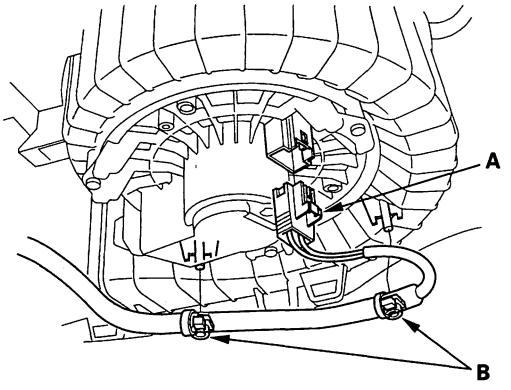
3. Cut the plastic cross brace (A) in the glove box opening with diagonal cutters in the area shown, and discard it.



4. Remove the wire harness clips (A), the self-tapping screws, and the passenger's heater duct (B).



5. Disconnect the connector (A) from the front blower motor. Remove the wire harness clips (B).



(cont'd)

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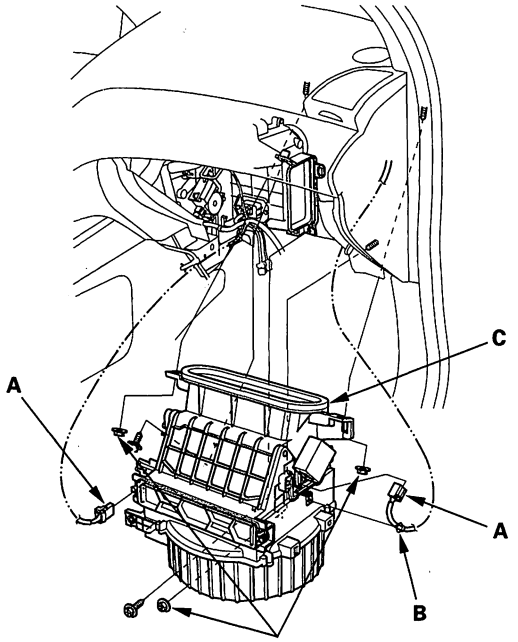
Blower Unit Removal/Installation (cont'd)

6. Disconnect the connectors (A) from the recirculation control motor and adaptive front lighting control unit, then remove the harness clip (B). Remove the self-tapping screws, the mounting nuts, and the blower unit (C).

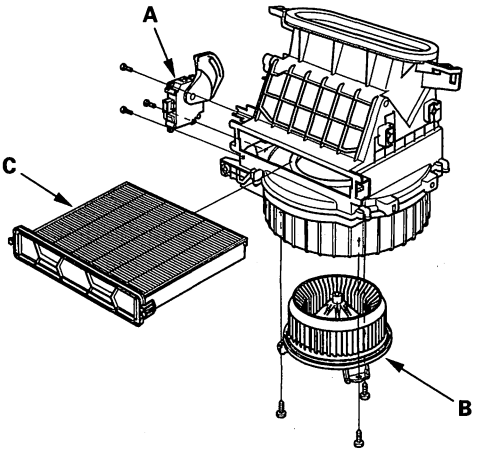


7. Install the unit in the reverse order of removal. Make sure that there is no air leakage.

Blower Unit Component Replacement

Note these items when overhauling the blower unit:

- The recirculation control motor (A), front blower motor (B) and the dust and pollen filter (C) can be replaced without removing the blower unit.
- Before reassembly, make sure that the recirculation control linkage and door move smoothly without binding.
- After reassembly, make sure the recirculation control motor runs smoothly (see page 21-113).



BACK

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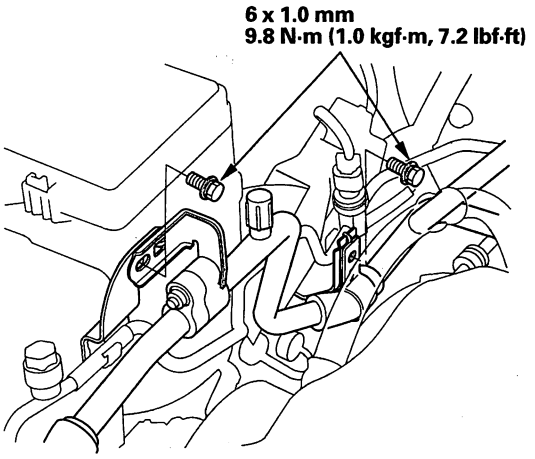
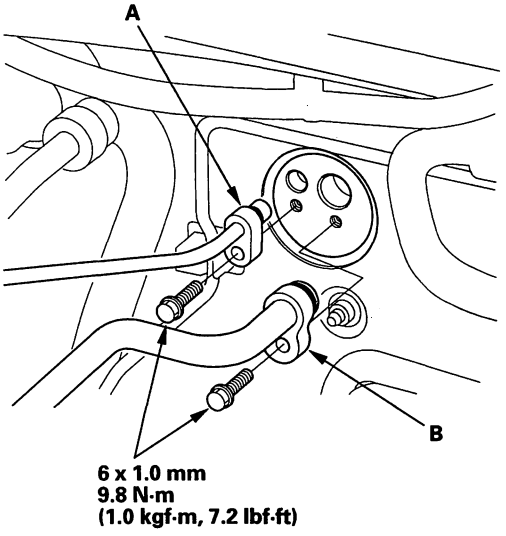
Front Evaporator Core Replacement

1. Recover the refrigerant with a recovery/recycling/charging station (see page 21-130).

2. Remove the bolts.

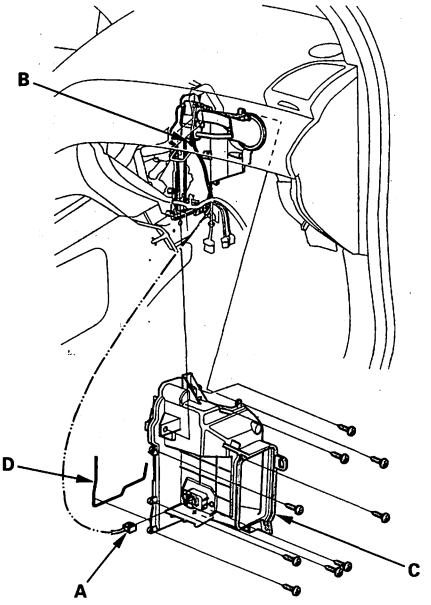


3. Remove the bolts, then disconnect the front receiver line (A) and the front suction line (B) from the front evaporator core.

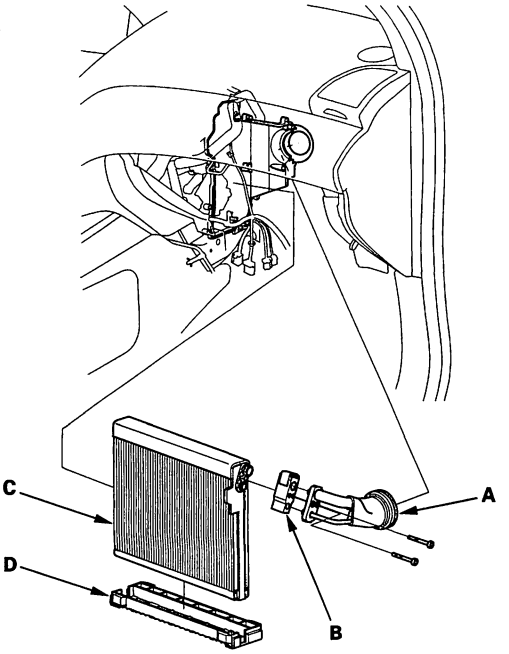


4. Remove the blower unit (see page 21-115).

5. Disconnect the connector (A) from the front power transistor, then remove the harness clip (B). Remove the self-tapping screws, the expansion valve cover (C), and the seal (D).



6. Remove the bolts, the inlet and outlet pipes (A), and expansion valve (B). Carefully pull out the front evaporator core (C), then remove the plate (D).



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Front Evaporator Core Replacement (cont'd)

7. Install the core in the reverse order of removal, and note these items:

   - If you're installing a new front evaporator core, add refrigerant oil (DENSO ND-OIL 8) (see page 21-6).
   - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
   - Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
   - Make sure that there is no air leakage.
   - Charge the system (see page 21-132).

Heater Unit/Core Replacement

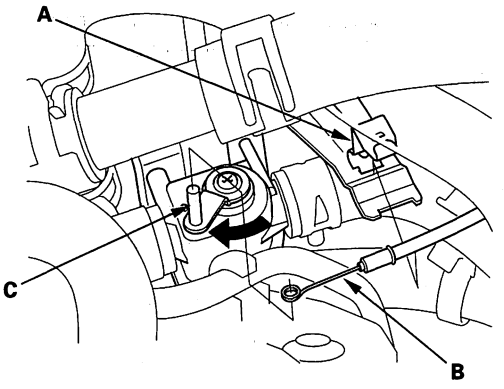
SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

1. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).

2. Make sure the ignition is OFF, then disconnect the negative cable from the battery.

3. Disconnect the front receiver line and front suction line from the front evaporator core (see page 21-117).

4. From under the hood, open the cable clamp (A), then disconnect the heater valve cable (B) from the heater valve arm (C). Turn the heater valve arm to the fully opened position as shown.



5. When the engine is cool, drain the engine coolant from the radiator (see page 10-6).

BACK

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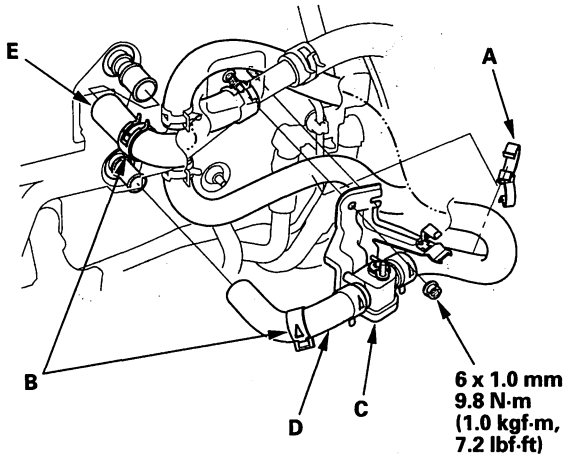
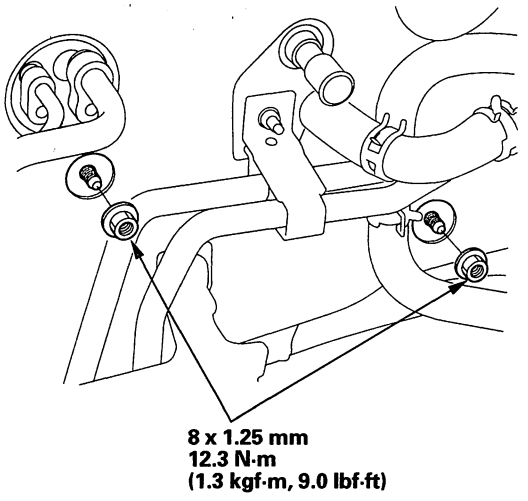
6. Remove the clamp (A). Slide the hose clamps (B) back. Remove the nut and the water valve (C), then disconnect the inlet heater hose (D) and the outlet heater hose (E) from the heater unit.
Engine coolant will run out when the hoses are disconnected; drain it into a clean drip pan. Be sure not to let coolant spill on the electrical parts or the painted surfaces. If any coolant spills, rinse it off immediately.

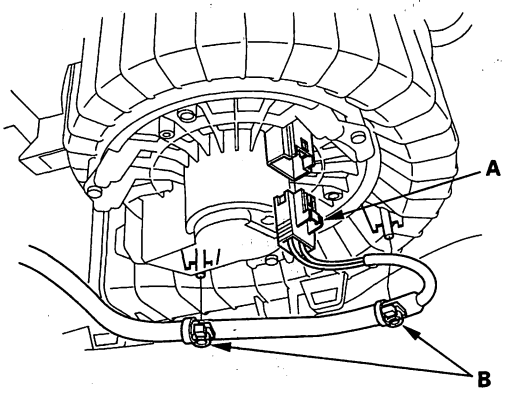


7. Remove the mounting nuts from the heater unit. Take care not to damage or bend the fuel lines or brake lines, etc.

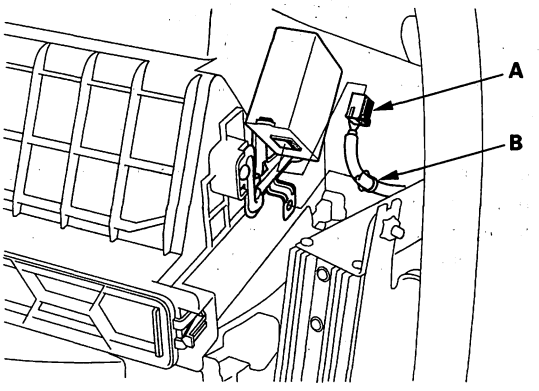


8. Remove the dashboard (see page 20-130).

9. Disconnect the connector (A) from the front blower motor. Remove the wire harness clips (B).



10. Disconnect the connector (A) from the adaptive front lighting control unit, then remove the harness clip (B).



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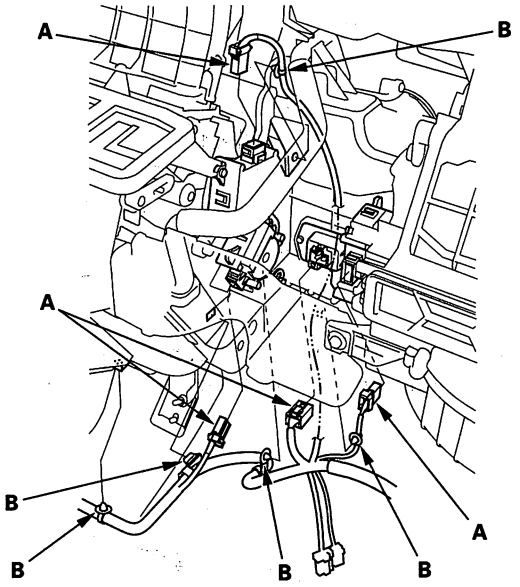
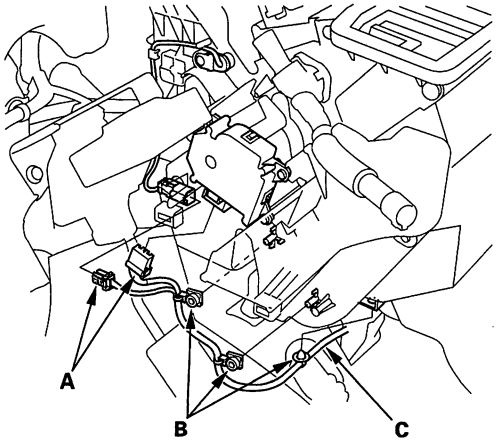
Heater Unit/Core Replacement (cont'd)

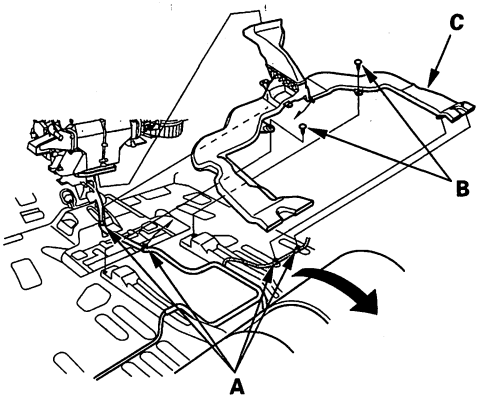
11. Disconnect the connectors (A) from the front mode control motor, the passenger's air mix control motor, the recirculation control motor, and the front power transistor. Remove the wire harness clips (B).



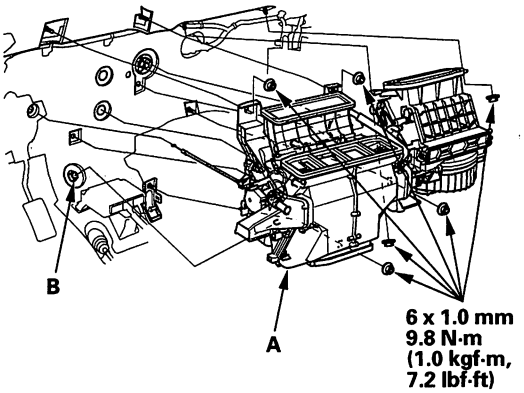
12. Disconnect the connectors (A) from the driver's air mix control motor and the front evaporator temperature sensor. Remove the wire harness clips (B) and the wire harness (C).



13. Turn over the carpet. Remove the wire harness clips (A), the rear heater duct mounting clips (B), and the rear heater duct (C).



14. Remove the mounting nuts. Slide the blower-heater unit (A), then remove the drain hose (B) and blower-heater unit.



BACK

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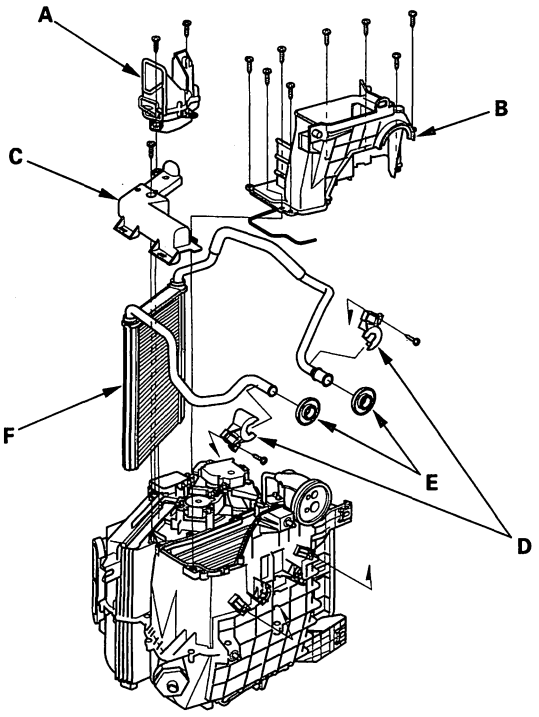
15. Remove the self-tapping screws and the passenger's heater duct (A). Remove the self-tapping screws and the expansion valve cover (B). Remove the self-tapping screw and the front heater core cover (C). Remove the self-tapping screws, the heater pipe brackets (D), the grommets (E), and carefully pull out the front heater core (F).



16. Install the front heater core, and the front evaporator core in the reverse order of removal.

17. Install the heater unit in the reverse order of removal, and note these items:

- Do not interchange the inlet and outlet heater hoses, and install the hose clamps securely.
- Refill the cooling system with engine coolant (see page 10-6).
- Adjust the heater valve cable (see page 21-122).
- Make sure that there is no coolant leakage.
- Make sure that there is no air leakage.
- Refer to the front evaporator core replacement (see page 21-117).
- Reset the power window control unit (see page 22-259).
- Do the steering column position memorization (see page 17-28).
- Enter the anti-theft codes for the audio system and the navigation system (if equipped).
- Set the clock.

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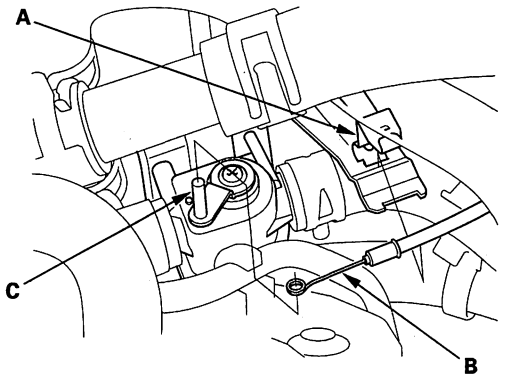
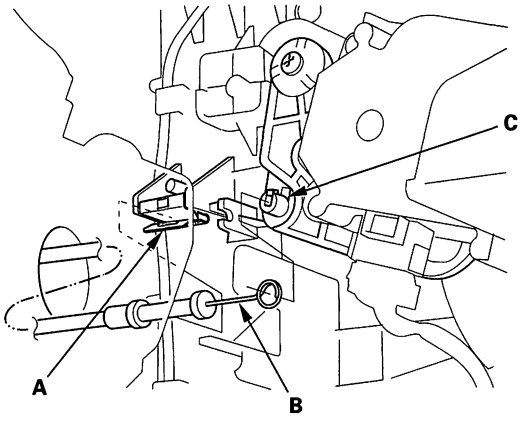
Heater Valve Cable Adjustment

1. From under the hood, open the cable clamp (A), then disconnect the heater valve cable (B) from the heater valve arm (C).



2. From under the dash, disconnect the heater valve cable housing from the cable clamp (A), and disconnect the heater valve cable (B) from the driver's air mix control linkage (C).

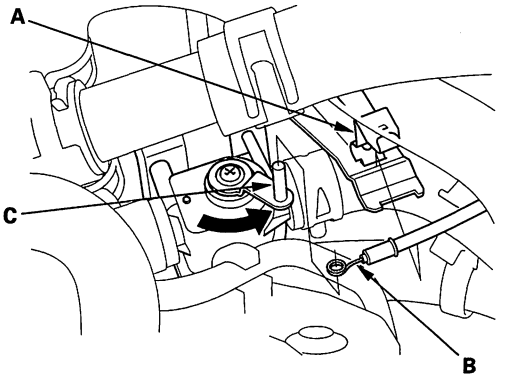


3. Set the temperature control dial to Max Cool (Lo) with the ignition switch ON (II).

4. Attach the heater valve cable (B) to the driver's air mix control linkage (C) as shown step 2. Snap the heater valve cable housing into the cable clamp (A).

   NOTE: Make sure the ring-end of the cable is pushed all the way to the base of the pin on driver's air mix control linkage.

5. From under the hood, turn the heater valve arm (C) to the fully closed position as shown, and hold it. Attach the heater valve cable (B) to the heater valve arm, and gently pull on the heater valve cable housing to take up any slack, then install the heater valve cable housing into the cable clamp (A).



BACK

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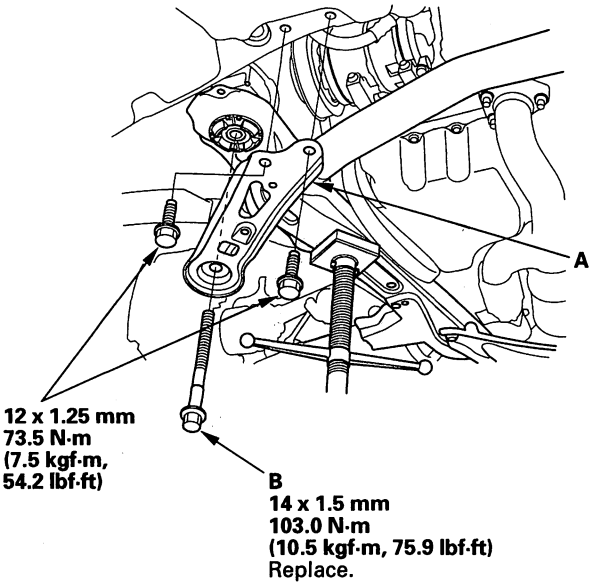
A/C Compressor Replacement

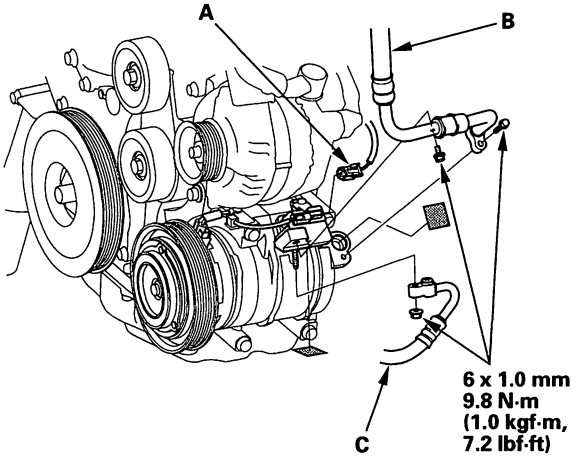
NOTE: Do not install the A/C compressor into a system unless you are completely sure that the system is free of contamination. Installing the A/C compressor into a contaminated system can result in premature A/C compressor failure.

1. If the A/C compressor is marginally operable, run the engine at idle speed, and let the air conditioning work for a few minutes, then shut the engine off.
2. Recover the refrigerant with a recovery/recycling/charging station (see page 21-130).
3. Remove the drive belt (see page 4-33).
4. Remove the front splash shield (see page 20-218).
5. Remove the front undercover (see page 20-219).
6. Support the front subframe with the engine support. Remove the bolts and the front subframe stiffener (A).

   NOTE: Install the new front subframe mounting bolt (B).



7. Disconnect the A/C compressor clutch connector (A). Remove the bolts and the nut, then disconnect the suction hose (B) and discharge hose (C) from the A/C compressor. Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.



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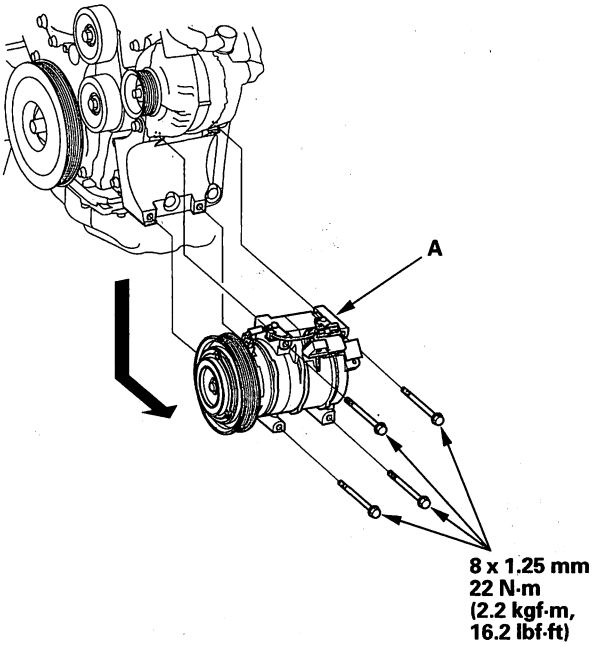
A/C Compressor Replacement (cont'd)

8. Remove the mounting bolts and the A/C compressor (A). Be careful not to damage the radiator fins when removing the compressor.



9. Install the A/C compressor in the reverse order of removal, and note these items:

- Inspect the A/C lines for any signs of contamination.
- If you're installing a new A/C compressor, you must calculate the amount of refrigerant oil to be removed from it (see page 21-6). A new A/C compressor comes with a full charge of oil.
- Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
- Use refrigerant oil (DENSO ND-OIL 8) for HFC-134a DENSO piston type A/C compressor only.
- To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
- Be careful not to damage the radiator fins when installing the compressor and the A/C condenser fan shroud.
- Charge the system (see page 21-132).

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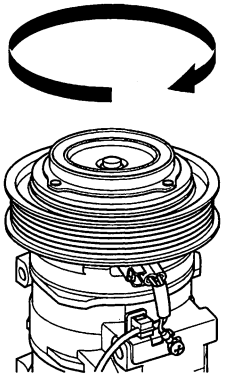
A/C Compressor Clutch Check

1. Check the pressure plate for discoloration, peeling, or other damage. If there is damage, replace the clutch set (see page 21-126).

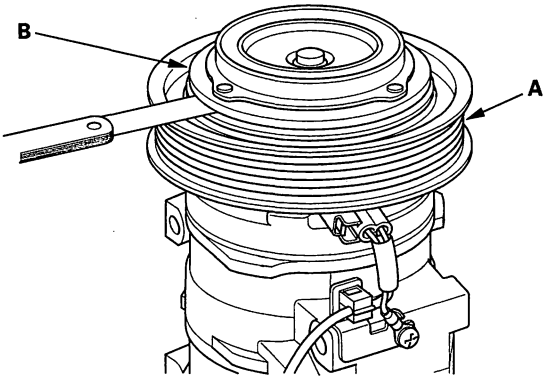
2. Check the pulley bearing play and drag by rotating the pulley by hand. Replace the clutch set with a new one if it is noisy or has excessive play/drag (see page 21-126).



3. Measure the clearance between the pulley (A) and the pressure plate (B) all the way around. If the clearance is not within specified limits, remove the pressure plate (see page 21-126) and add or remove shims as needed to increase or decrease clearance.

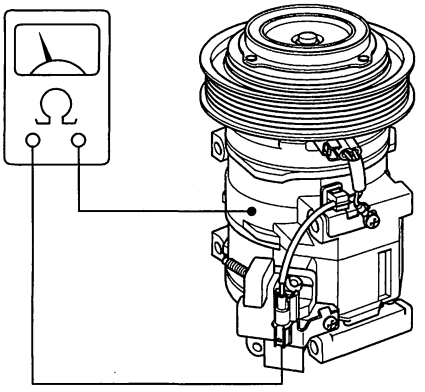
   Clearance: 0.30—0.60 mm (0.012—0.024 in.)

   NOTE: The shims are available in three thicknesses: 0.1 mm, 0.3 mm, and 0.5 mm.



4. Measure the resistance of the field coil. If the resistance is not within specifications, replace the field coil (see page 21-126).

   Field Coil Resistance: 3.9—4.3 Ω at 68°F (20 °C)



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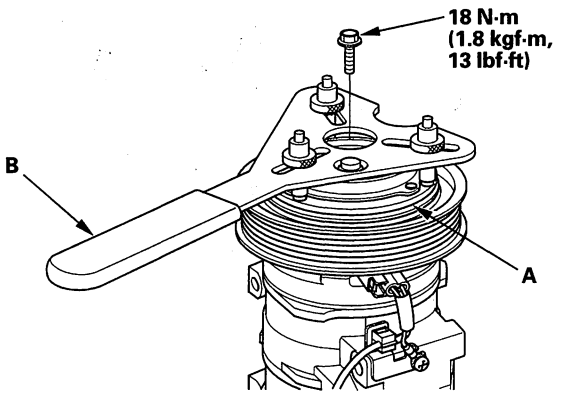
A/C Compressor Clutch Overhaul

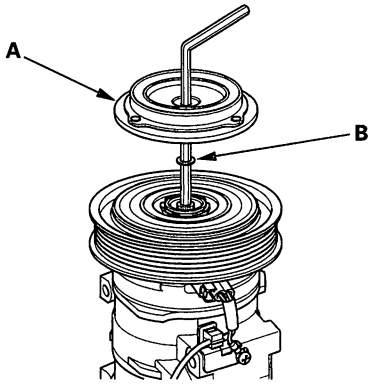
Special Tools Required
A/C clutch holder, Robinair 10204 or Kent-Moore J37872, or Honda Tool and Equipment KMT-J33939, commercially available

1. Remove the center bolt while holding the pressure plate (A) with a commercially available A/C clutch holder (B).

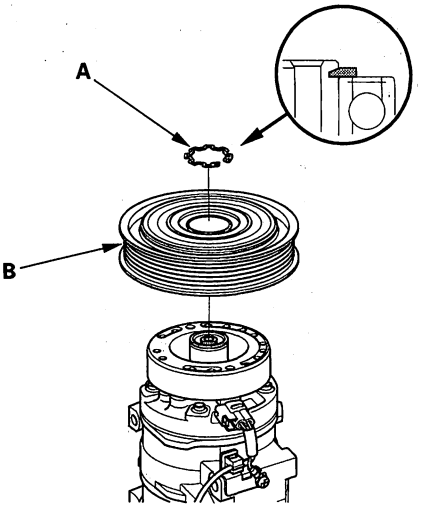


2. Remove the pressure plate (A) and shim(s) (B), taking care not to lose the shim(s). If the clutch needs adjustment, increase or decrease the number and thickness of shims as necessary, then reinstall the pressure plate, and recheck its clearance (see page 21-125).

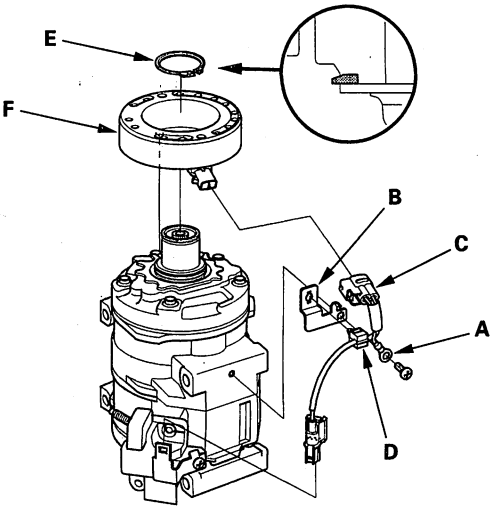
   NOTE: The shims are available in three thicknesses: 0.1 mm, 0.3 mm, and 0.5 mm.



3. If you are replacing the field coil, remove the snap ring (A) with snap ring pliers, then remove the pulley (B). Be careful not to damage the pulley or the A/C compressor.



4. Remove the screw from the field coil ground terminal (A) and bracket (B). Disconnect the connector (C) from the field coil, then remove the wire harness clip (D). Remove the snap ring (E) with snap ring pliers, then remove the field coil (F). Be careful not to damage the field coil or the A/C compressor.



BACK

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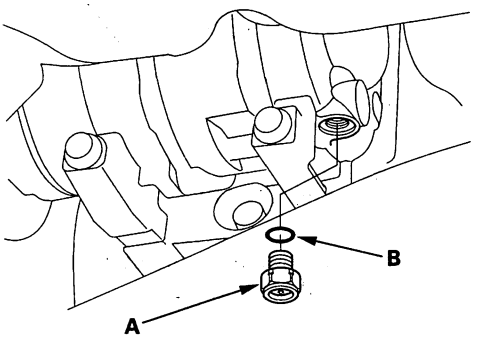
5. Reassemble the clutch in the reverse order of disassembly, and note these items:

   - Install the field coil with the wire side facing down, and align the boss on the field coil with the hole in the A/C compressor.
   - Clean the pulley and A/C compressor sliding surfaces with contact cleaner or other non-petroleum solvent.
   - Install new snap rings, note the installation direction, and make sure they are fully seated in the groove.
   - Make sure that the pulley turns smoothly after it's reassembled.
   - Route and clamp the wires properly or they can be damaged by the pulley.

A/C Compressor Relief Valve Replacement

1. Recover the refrigerant with a recovery/recycling/charging station (see page 21-130).
2. Remove the front splash shield (see page 20-218).
3. Remove the front undercover (see page 20-219).
4. Remove the relief valve (A) and the O-ring (B). Plug the opening to keep foreign matter from entering the system and the A/C compressor oil from running out.



5. Clean the mating surfaces.
6. Replace the O-ring with a new one at the relief valve, and apply a thin coat of refrigerant oil before installing it.
7. Remove the plug, and install and tighten the relief valve.
8. Charge the system (see page 21-132).

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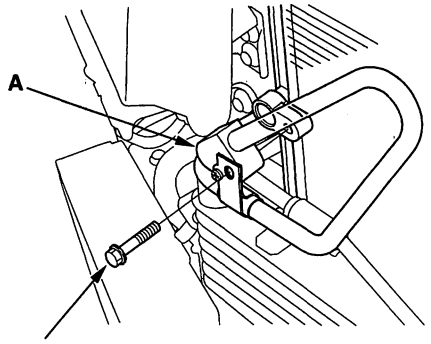
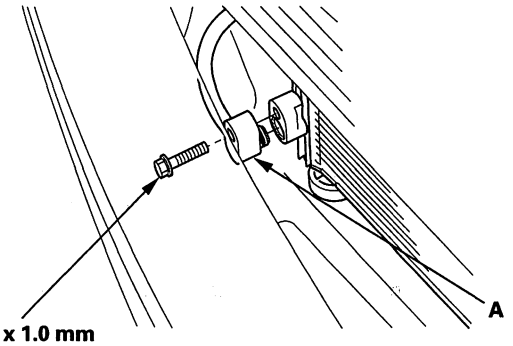
A/C Condenser Replacement

1. Recover the refrigerant with a recovery/recycling charging station (see page 21-130).
2. Remove the front bumper (see page 20-188).
3. Remove the bolt, then disconnect the discharge hose (A) from the A/C condenser.



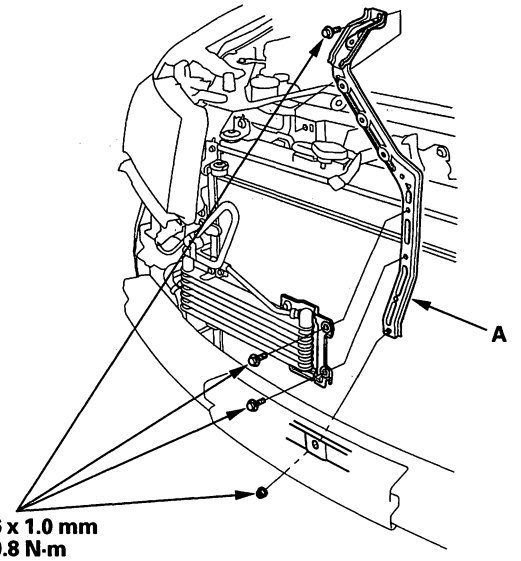
6 x 1.0 mm
9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)

4. Remove the bolt, then disconnect the front receiver line (A) from the A/C condenser.



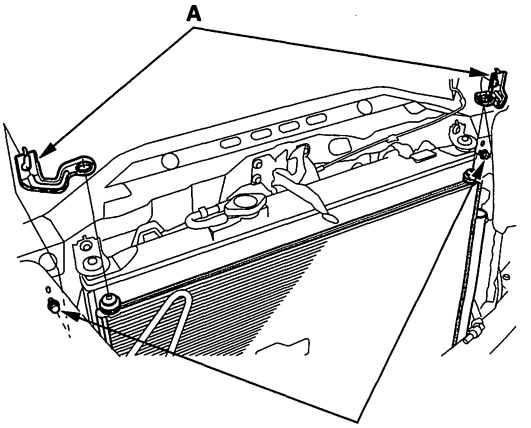
6 x 1.0 mm
9.8 N·m
(1.0 kgf·m, 7.2 lbf·ft)

5. Remove the bolts, nut, and the ATF cooler bracket (A).



6 x 1.0 mm
9.8 N·m
(1.0 kgf·m, 7.2 lbf·ft)

6. Loosen the bolts, then remove the A/C condenser upper mount brackets (A).



6 x 1.0 mm
9.8 N·m
(1.0 kgf·m, 7.2 lbf·ft)

7. Remove the hood latch (see page 20-225).

BACK

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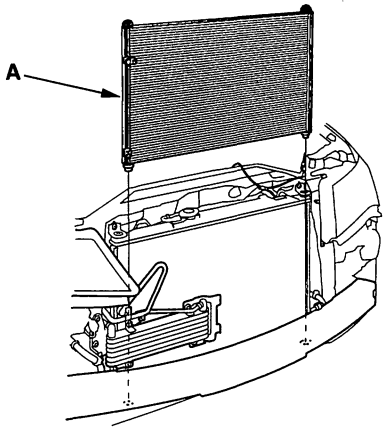
8. Remove the A/C condenser (A) by lifting it up. Be careful not to damage the radiator and A/C condenser fins when removing the A/C condenser.



9. Install the A/C condenser in the reverse order of removal, and note these items:

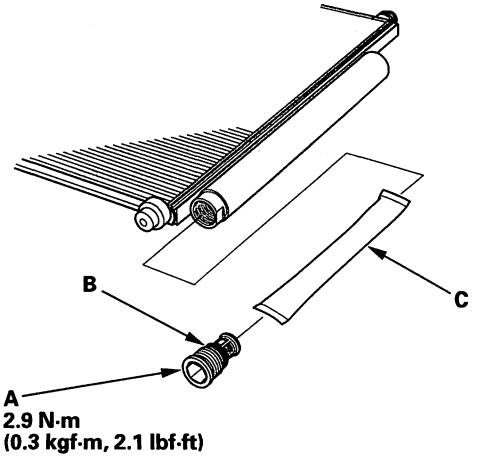
- If you're installing a new A/C condenser, add refrigerant oil (DENSO ND-OIL 8) (see page 21-6).
- Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
- Be careful not to damage the radiator or the A/C condenser fins when installing the A/C condenser.
- Charge the system (see page 21-132).
- Adjust the hood latch (see page 20-194).

Receiver/Dryer Desiccant Replacement

NOTE: Install the receiver/dryer as quickly as possible to prevent the system from absorbing moisture from the air.

1. Remove the A/C condenser (see page 21-128).

2. Remove the cap (A) from the bottom of the A/C condenser. Remove the O-ring (B) and the desiccant (C).



3. Install the receiver/dryer in the reverse order of removal, and note these items:

- Replace the O-rings with new ones, and apply a thin coat of refrigerant oil (DENSO ND-OIL 8) before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
- Install the cap to the specified torque. It is made of resin and can be easily stripped.

Protected by AR

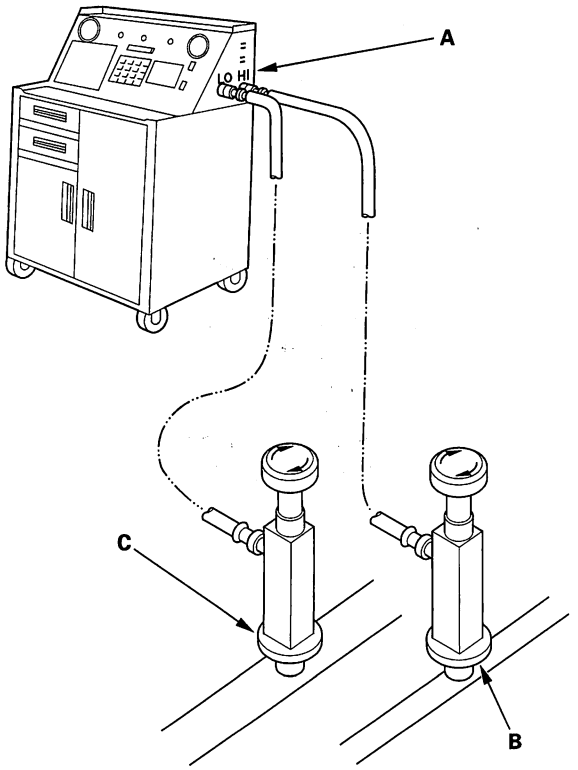
Refrigerant Recovery

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

NOTE:
- If accidental system discharge occurs, ventilate the work area before resuming service.
- Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.



2. Measure the amount of refrigerant oil removed from the A/C system after the recovery process is completed. Be sure to put the same amount of new refrigerant oil back into the A/C system before charging.

BACK

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System Evacuation

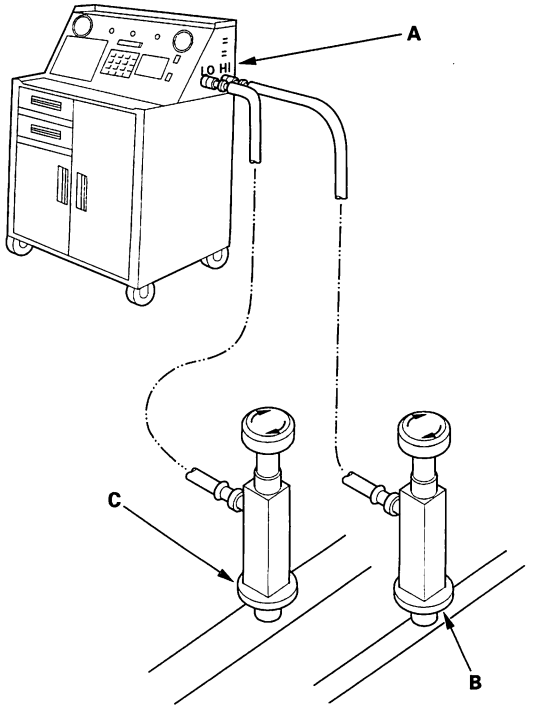
⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

NOTE:
- If accidental system discharge occurs, ventilate the work area before resuming service.
- Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. When an A/C System has been opened to the atmosphere, such as during installation or repair, it must be evacuated using an R-134a refrigerant recovery/recycling/charging station. If the system has been open for several days, the receiver/dryer should be replaced, and the system should be evacuated for several hours.

2. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions. Evacuate the system.



3. If the low-pressure does not reach more than 93.3 kPa (700 mmHg, 27.6 in.Hg) in 15 minutes, there is probably a leak in the system. Partially charge the system, and check for leaks (see step 3 on page 21-133).

BACK

Protected by AR

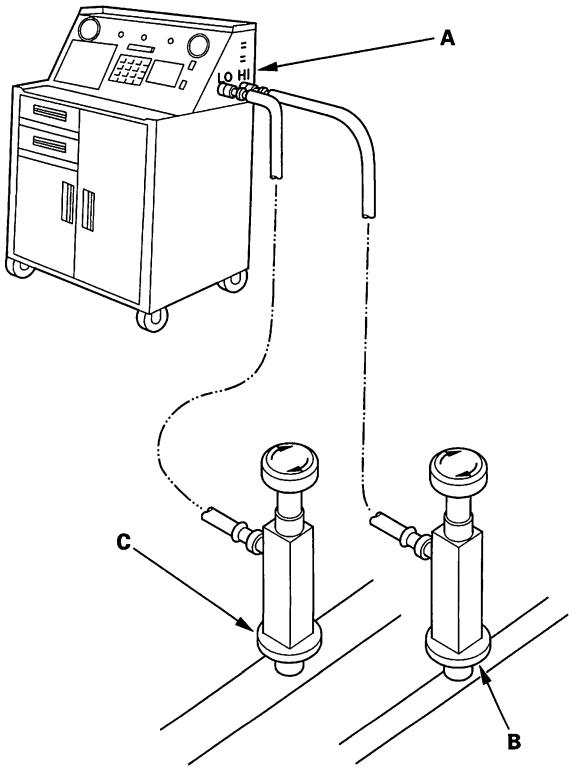
System Charging

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

NOTE:
- If accidental system discharge occurs, ventilate the work area before resuming service.
- Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.



2. Evacuate the system (see page 21-131).
3. Add the same amount of new refrigerant oil to the system that was removed during recovery. Use only DENSO ND-OIL 8 refrigerant oil.
4. Charge the system with the specified amount of R-134a refrigerant. Do not overcharge the system; the A/C compressor will be damaged.

   Select the appropriate units of measure for your refrigerant charging station.

   Refrigerant Capacity:
   600 to 650 g
   0.60 to 0.65 kg
   1.32 to 1.43 lbs
   21.2 to 22.9 oz
5. Check for refrigerant leaks (see page 21-133).
6. Check the system performance (see page 21-134).

BACK

Protected by AR

Refrigerant Leak Test

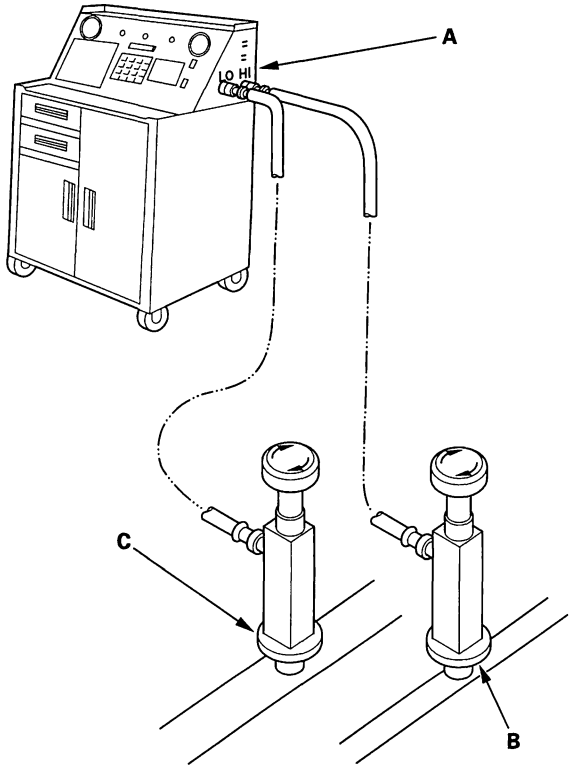
Special Tools Required
Leak detector, Honda Tool and Equipment YGK-H-10PM or commercially available

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

NOTE:
- If accidental system discharge occurs, ventilate the work area before resuming service.
- Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.



2. Open the high pressure valve to charge the system to the specified capacity, then close the supply valve, and disconnect the charging station fittings.

   Select the appropriate units of measurement for your refrigerant charging station.

   Refrigerant Capacity:
   600 to 650 g
   0.60 to 0.65 kg
   1.32 to 1.43 lbs
   21.2 to 22.9 oz

3. Check the system for leaks using an R-134a refrigerant leak detector with an accuracy of 14 g (0.5 oz) per year or better.

4. If you find leaks that require the system to be opened (to repair or replace hoses, fittings, etc.), do a recovery of the system.

5. After checking and repairing leaks, the system must be evacuated.

Protected by AR

A/C System Test

Performance Test

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

The performance test will help determine if the A/C system is operating within specifications.

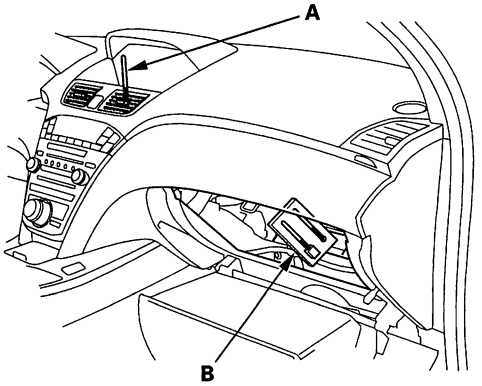
NOTE:
- If accidental system discharge occurs, ventilate the work area before resuming service.
- Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect an R-134a refrigerant recovery/recycling/charging station to the high-pressure service port and the low-pressure service port, following the equipment manufacturer's instructions.

2. Determine the relative humidity and air temperature.

3. Open the glove box. Remove the glove box stop on right side, then let the glove box hang down (see page 20-125).

4. Insert a thermometer (A) in the center vent.



5. Place a thermometer (B) near the blower unit's recirculation inlet duct.

6. Test conditions:

   - Avoid direct sunlight.
   - Open hood.
   - Open front doors.
   - Set the temperature control switch to Max Cool, the mode control switch to Vent, and the recirculation control switch to Recirculate.
   - Turn the A/C switch ON and the fan switch to Max.
   - Run the engine at 1,500 rpm.
   - No driver or passengers in vehicle.

7. After running the air conditioning for 10 minutes under the above test conditions, read the delivery temperature from the thermometer in the center vent, the intake temperature near the blower unit, and the discharge (high) and suction (low) pressures on the A/C gauges.

BACK

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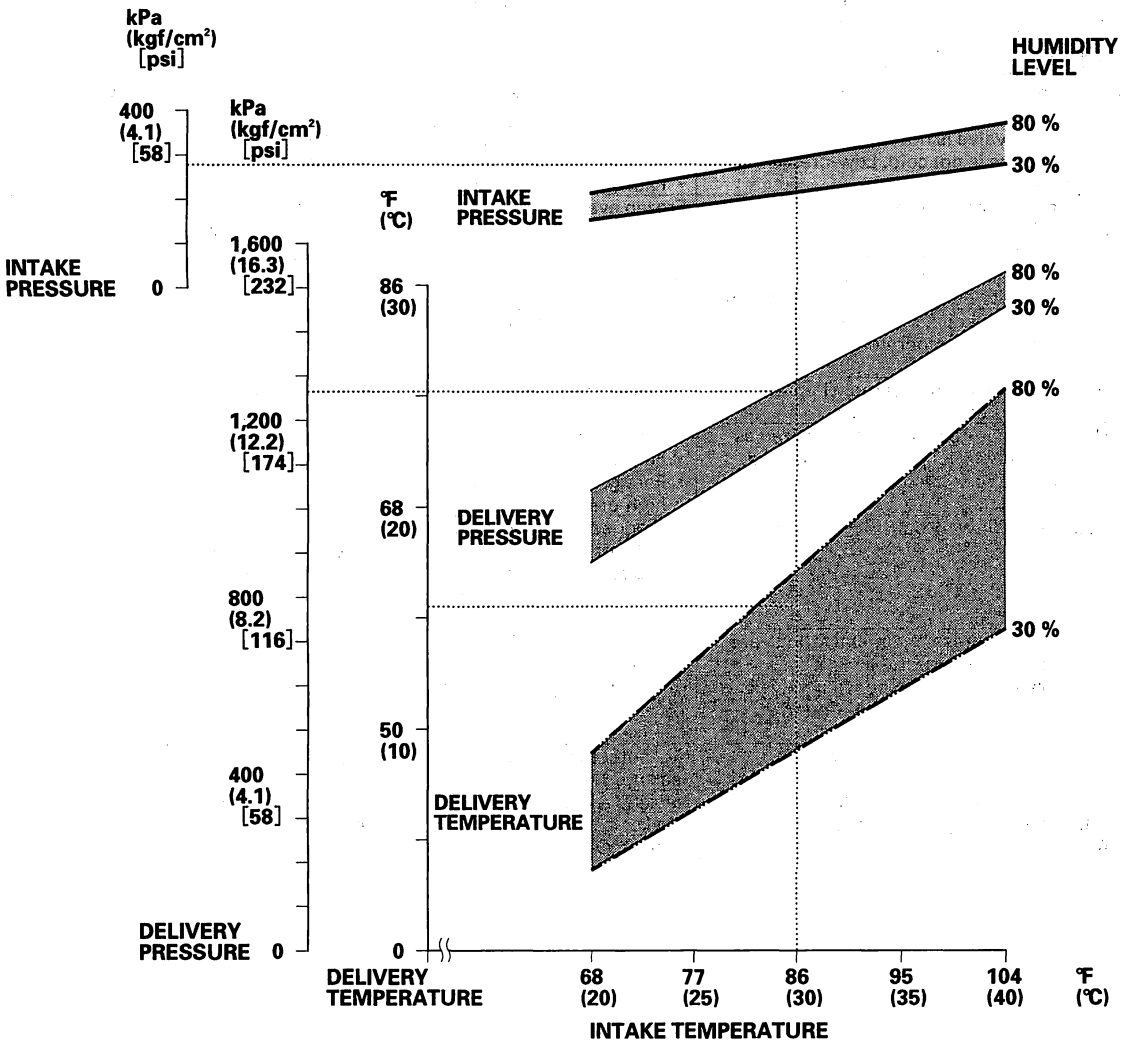
8. Refer to the inspection data.

Inspection data

Example	Intake temperature (dry):	86 ℉ (30 ℃) Humidity level 70 %
	Intake temperature (wet):	77.9 ℉ (25.5 ℃)
	Delivery temperature:	59.9 ℉ (15.5 ℃)
	Delivery pressure:	1,265 kPa (12.9 kgf/cm²) (184 psi)
	Intake pressure:	280 kPa (2.9 kgf/cm²) (41 psi)
Results:	Within normal range	



(cont'd)

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A/C System Test (cont'd)

Pressure Test

Test results	Related symptoms	Probable cause	Remedy
Discharge (high) pressure abnormally high	After stopping A/C compressor, pressure drops about 196 kPa (2.0 kgf/cm², 28 psi) quickly, and then falls gradually.	Air in system	Recover, evacuate (see page 21-130), and recharge with specified amount (see page 21-132).
	Reduced or no airflow through A/C condenser.	• Clogged condenser or radiator fins • A/C condenser or radiator fan not working properly	• Clean. • Check voltage and fan rpm. • Check fan direction.
	Line to A/C condenser is excessively hot.	Restricted flow of refrigerant in system	Restricted lines.
Discharge pressure abnormally low	High and low-pressures are balanced soon after stopping A/C compressor. Low side is higher than normal.	• Faulty A/C compressor discharge valve • Faulty A/C compressor seal	Replace the A/C compressor.
	Outlet of expansion valve is not frosted, low-pressure gauge indicates vacuum.	• Faulty expansion valve • Moisture in system	• Replace. • Recover, evacuate, and recharge with specified amount.
Suction (low) pressure abnormally low	Expansion valve is not frosted, and low-pressure line is not cold. Low-pressure gauge indicates vacuum.	• Frozen expansion valve (Moisture in system) • Faulty expansion valve	• Recover, evacuate, and recharge with specified amount. • Replace the expansion valve.
	Discharge temperature is low, and the airflow from vents is restricted.	Frozen evaporator	Run the fan with A/C compressor off, then check evaporator temperature sensor.
	Expansion valve is frosted.	Clogged expansion valve	Clean or replace.
	Receiver/dryer outlet is cool, and inlet is warm (should be warm during operation).	Clogged receiver/dryer	Replace.
Suction pressure abnormally high	Low-pressure hose and service port are cooler than the temperature around evaporator.	Expansion valve open too long	Repair or replace.
	Suction pressure is lowered when A/C condenser is cooled by water.	Excessive refrigerant in system	Recover, evacuate, and recharge with specified amount.
	High and low-pressures are equalized as soon as the A/C compressor is stopped, and both gauges fluctuate while running.	• Faulty gasket • Faulty high-pressure valve • Foreign particle stuck in high-pressure valve	Replace the A/C compressor.
Suction and discharge pressures abnormally high	Reduced airflow through A/C condenser.	• Clogged A/C condenser or radiator fins • A/C condenser or radiator fan not working properly	• Clean. • Check voltage and fan rpm. • Check fan direction.
Suction and discharge pressures abnormally low	Low-pressure hose and metal fittings are cooler than evaporator.	Clogged or kinked low-pressure hose parts	Repair or replace.
	Temperature around expansion valve is too low compared with that around receiver/dryer.	Clogged high-pressure line	Repair or replace.
Refrigerant leaks	A/C compressor clutch is dirty.	A/C compressor shaft seal leaking	Replace the A/C compressor.
	A/C compressor bolt(s) are dirty.	Leaking around bolt(s)	Tighten bolt(s) or replace A/C compressor.
	A/C compressor gasket is wet with oil.	Gasket leaking	Replace the A/C compressor.
	A/C fitting is dirty.	Leaking O-ring	Clean the A/C fitting and replace the O-ring.

BACK

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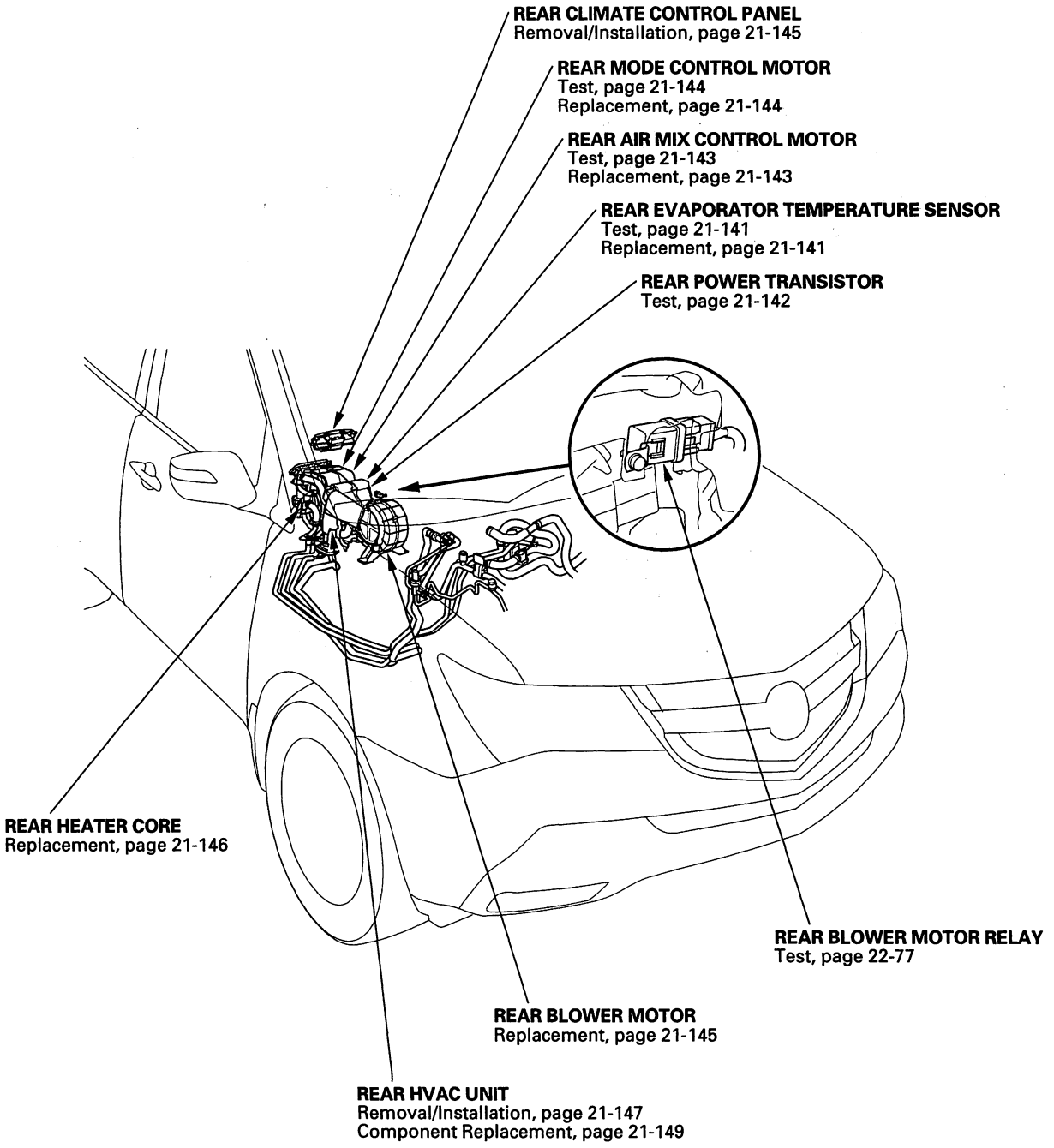
Rear Climate Control

Component Location Index



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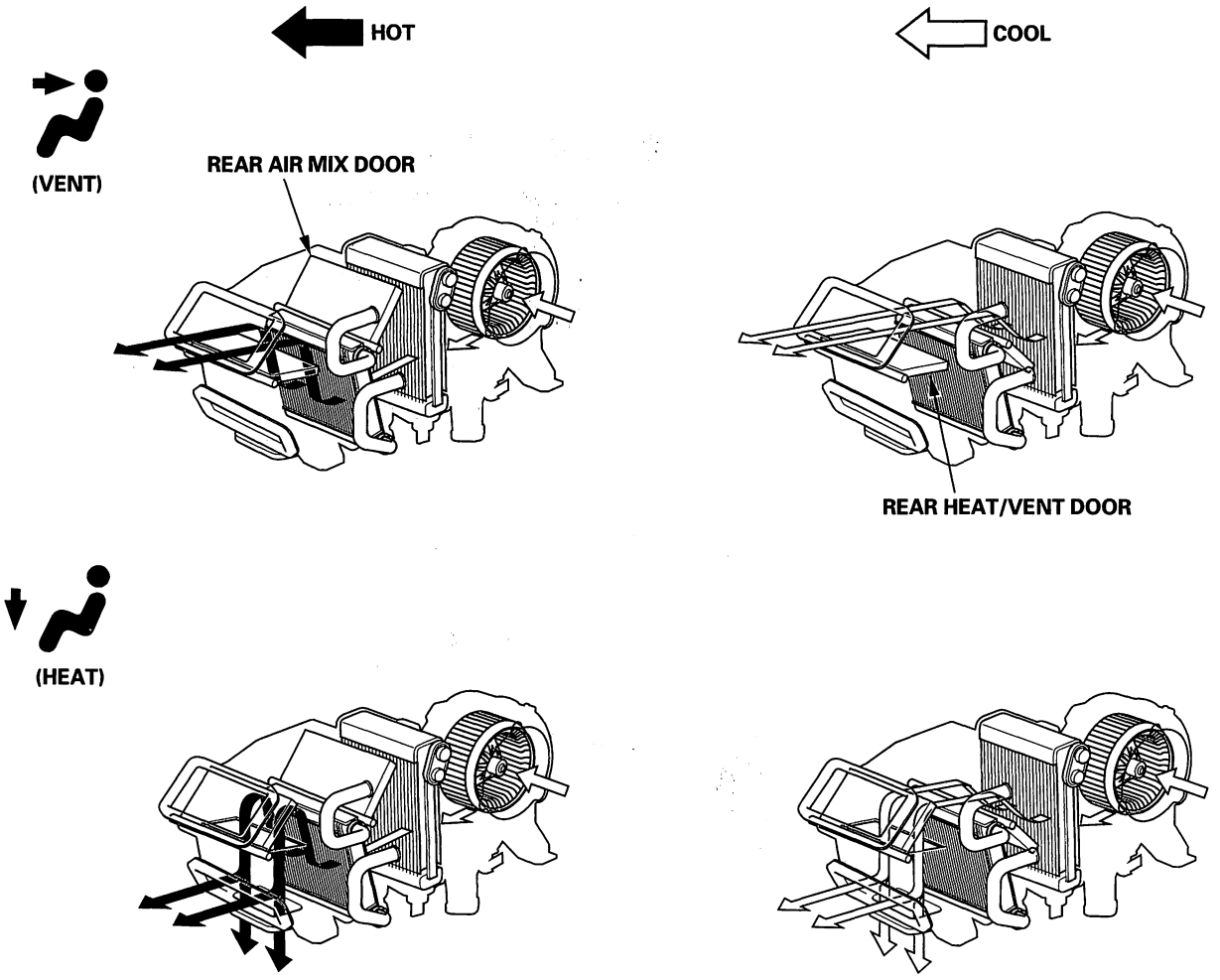
Rear Climate Control

System Description

Rear Climate Control Door Positions



BACK

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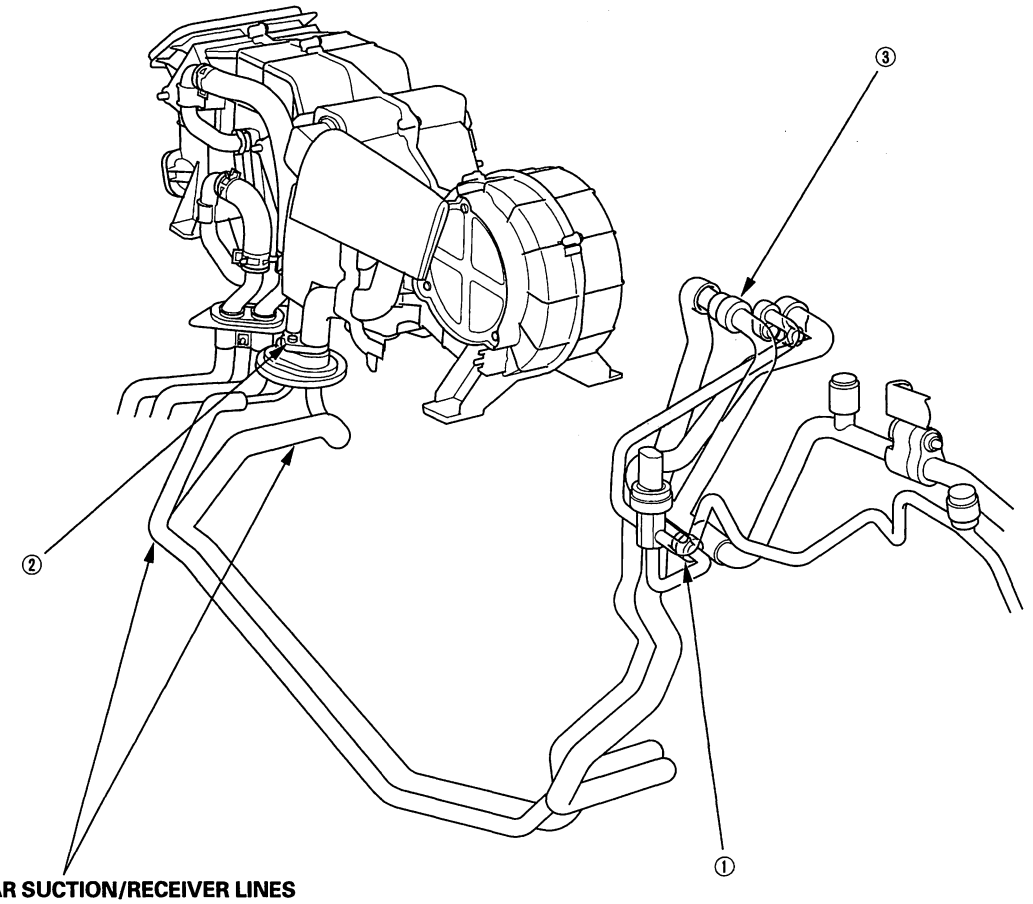
Rear A/C Line Replacement



REAR SUCTION/RECEIVER LINES

① Front receiver line to the rear receiver line (16 x 1.5 mm): 13.2 N·m (1.4 kgf·m, 9.8 lbf·ft)
② Rear suction/receiver lines to rear evaporator (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
③ Front suction line to rear suction line (24 x 1.5 mm): 31.9 N·m (3.3 kgf·m, 23.5 lbf·ft)

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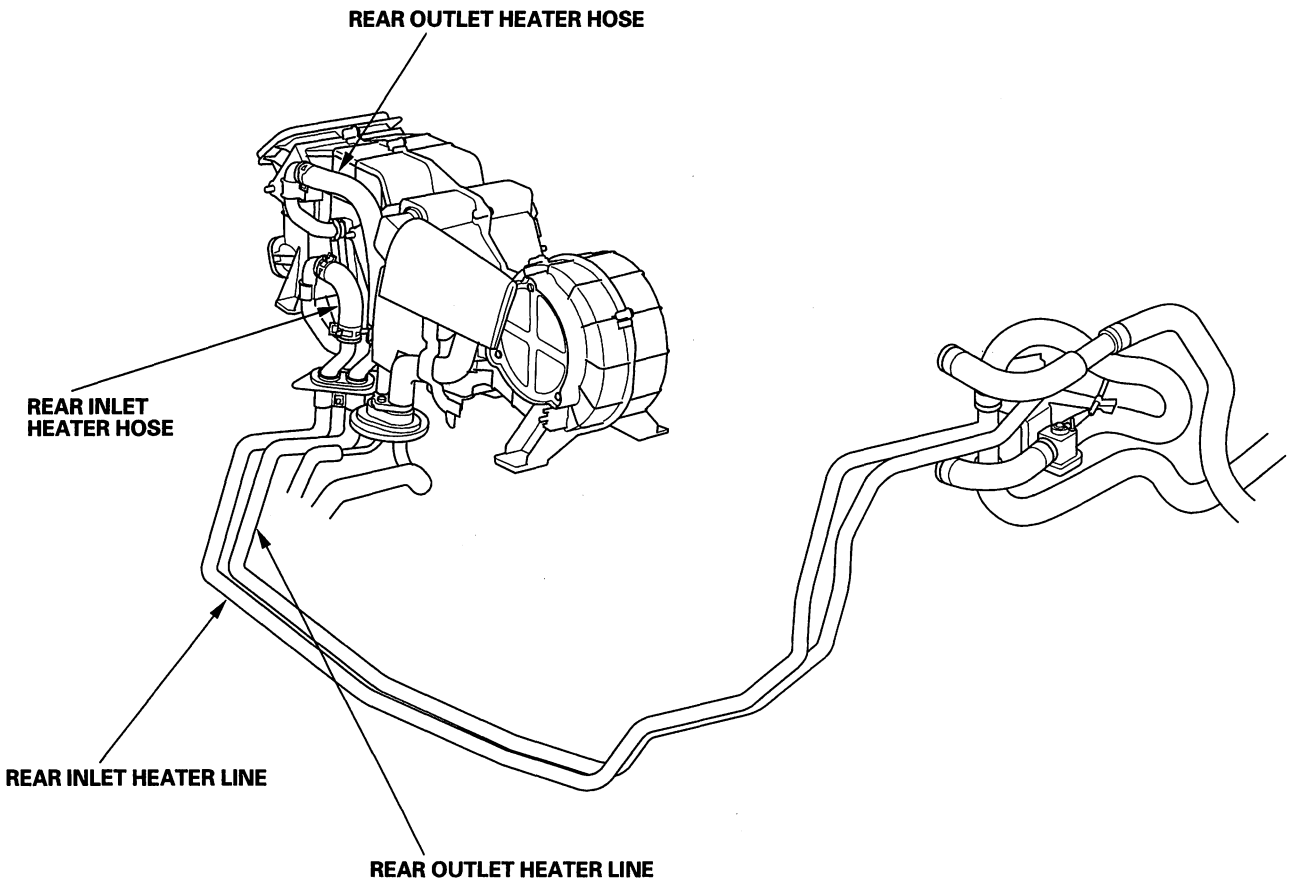
Rear Climate Control

Rear Heater Line Replacement



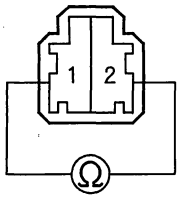
BACK

Protected by AR

Rear Evaporator Temperature Sensor Test

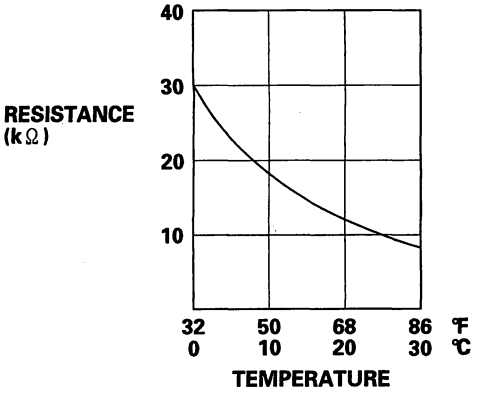
1. Remove the rear evaporator temperature sensor (see page 21-141).
2. Dip the sensor in ice water, and measure the resistance between its terminals.

REAR EVAPORATOR TEMPERATURE SENSOR



Terminal side of male terminals

3. Then pour warm water on the sensor, and check for a change in resistance.
4. Compare the resistance readings with the specifications shown in the graph; the resistance should be within the specifications.

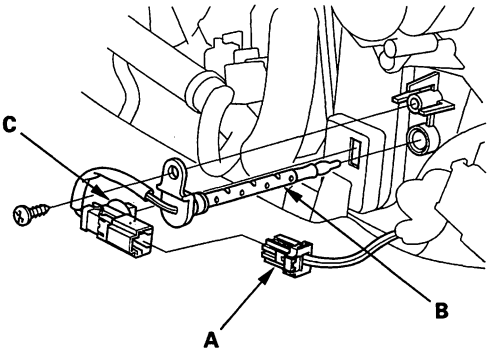


5. If the resistance is not as specified, replace the rear evaporator temperature sensor (see page 21-141).

Rear Evaporator Temperature Sensor Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

1. Remove the center console (see page 20-107).
2. Disconnect the 2P connector (A) from the rear evaporator temperature sensor (B), then remove the connector clip (C). Remove the self-tapping screw and the rear evaporator temperature sensor from the rear HVAC unit.



3. Install the sensor in the reverse order of removal.

Protected by AR

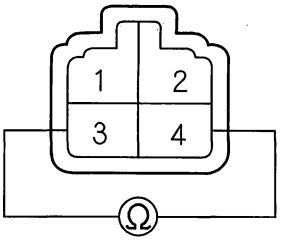
Rear Power Transistor Test

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

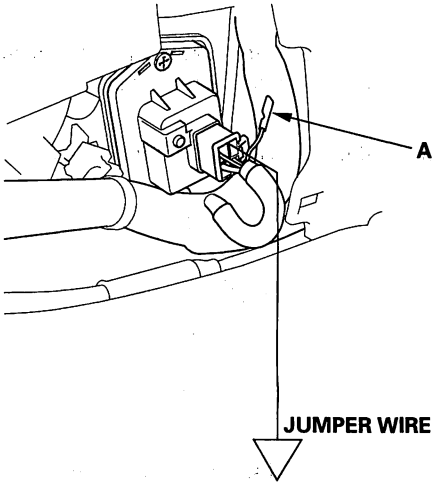
1. Remove the driver's seat (see page 20-141).
2. Remove the driver's center console trim (see page 20-107).
3. Disconnect the 4P connector from the rear power transistor.
4. Measure the resistance between the No. 3 and No. 4 terminals of the rear power transistor. It should be about 1.5 kΩ.
   - If the resistance is within the specifications, go to step 5.
   - If the resistance is not within the specifications, replace the rear power transistor.

   NOTE: Also check the rear blower motor. Rear power transistor failure can be caused by a defective rear blower motor.

REAR POWER TRANSISTOR



5. Carefully release the lock tab on the No. 1 terminal (BLU) (A) in the 4P connector, then remove the terminal and insulate it from body ground.



(To 12 V Power source on vehicle)

6. Reconnect the 4P connector to the rear power transistor.
7. Make sure the BLU wire is completely isolated, then supply 12 V to the No. 1 cavity with a jumper wire.
8. Turn the ignition switch ON (II), and check that the rear blower motor runs.
   - If the rear blower motor does not run, replace the rear power transistor.

     NOTE: A faulty rear blower motor can cause the rear power transistor to fail. If the rear power transistor is replaced, also check the rear blower motor for binding, and replace it if necessary.

   - If the rear blower motor runs, the rear power transistor is OK.

BACK

Protected by AR

Rear Air Mix Control Motor Test

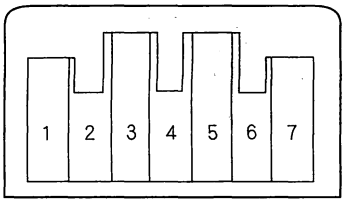
NOTE: Before testing, check for HVAC DTCs (see page 21-8).

1. Disconnect the 7P connector from the rear air mix control motor.

   NOTICE
   Incorrectly applying power and ground to the rear air mix control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 1 terminal of the rear air mix control motor, and ground the No. 2 terminal; the rear air mix control motor should run, and stop at Max Hot. If it doesn't, reverse the connections; the rear air mix control motor should run, and stop at Max Cool. When the rear air mix control motor stops running, disconnect battery power immediately.

REAR AIR MIX CONTROL MOTOR



3. If the rear air mix control motor did not run in step 2, remove it, then check the rear air mix control linkage and door for smooth movement.

   - If the linkage and door move smoothly, replace the rear air mix control motor (see page 21-143).
   - If the linkage or door sticks or binds, repair them as needed.
   - If the rear air mix control motor runs smoothly, go to step 4.

4. Measure the resistance between the No. 5 and No. 7 terminals. It should be between 4.2 to 7.8 kΩ.

5. Reconnect the rear air mix control motor 7P connector, then turn the ignition switch ON (II).

6. Using the backprobe set, measure the voltage between the No. 3 and No. 7 terminals.

   Max Cool: about 0.5 V
   Max Hot: about 4.5 V

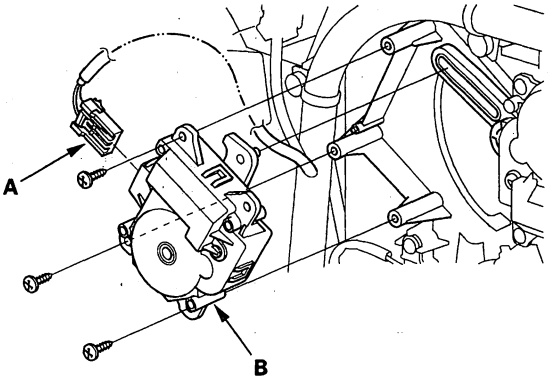
7. If either the resistance or voltage readings are not as specified, replace the rear air mix control motor (see page 21-143).

Rear Air Mix Control Motor Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

1. Remove the center console (see page 20-107).

2. Disconnect the 7P connector (A) from the rear air mix control motor (B). Remove the self-tapping screws and the rear air mix control motor from the HVAC unit.



3. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

Protected by AR

Rear Climate Control

Rear Mode Control Motor Test

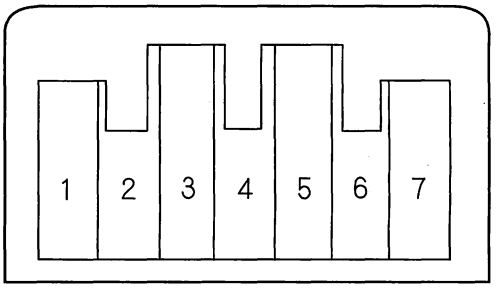
NOTE: Before testing, check for HVAC DTCs (see page 21-8).

1. Disconnect the 7P connector from the rear mode control motor.

   NOTICE
   Incorrectly applying power and ground to the rear mode control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 1 terminal of the rear mode control motor, and ground the No. 5 and No. 7 terminals; the rear mode control motor should run smoothly. To avoid damaging the rear mode control motor, do not reverse power and ground. Disconnect the No. 5 or No. 7 terminals from ground; the rear mode control motor should stop at Vent (when the No. 5 terminal is disconnected) or Heat (when the No. 7 terminal is disconnected). Don't cycle the rear mode control motor for a long time.

REAR MODE CONTROL MOTOR



3. If the rear mode control motor did not run in step 2, remove it, then check the rear mode control linkage and door for smooth movement.

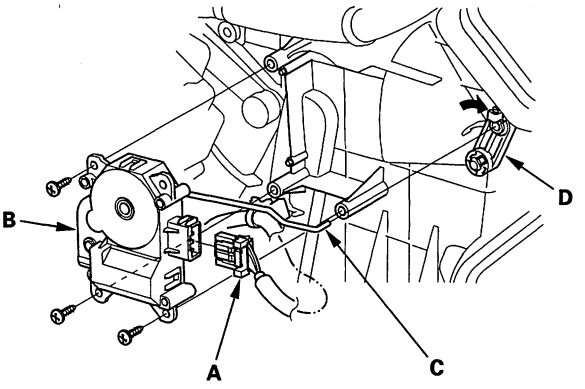
   - If the linkage and door move smoothly, replace the rear mode control motor (see page 21-144).
   - If the linkage or door stick or bind, repair them as needed.

Rear Mode Control Motor Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

1. Remove the center console (see page 20-107).

2. Disconnect the 7P connector (A) from the rear mode control motor (B). Remove the rod (C) of the rear mode control motor from the rear mode control linkage (D). Remove the self-tapping screws and the rear mode control motor from the rear HVAC unit.



3. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

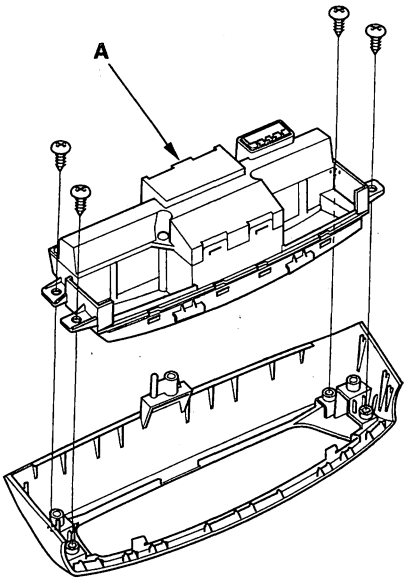
BACK

Protected by AR

Rear Climate Control Panel Removal/Installation

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

1. Remove the HVAC trim (see page 20-110).
2. Remove the self-tapping screws and the rear climate control panel (A).

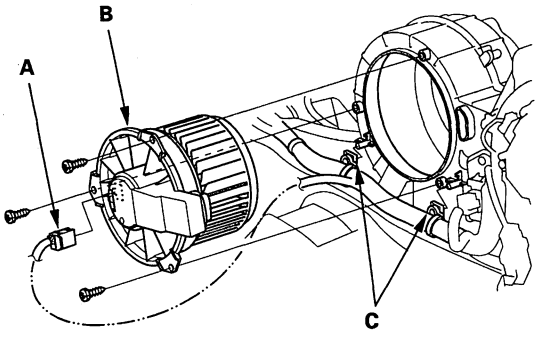


3. Install the control panel in the reverse order of removal. After installation, operate the various functions to see whether works properly.
4. Run the self-diagnostic function to confirm that there are no problems in the system (see page 21-10).

Rear Blower Motor Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

1. Remove the center console (see page 20-107).
2. Disconnect the 2P connector (A) from the rear blower motor (B), then remove the wire harness clips (C). Remove the self-tapping screws and the rear blower motor from the rear HVAC unit.



3. Install the motor in the reverse order of removal.

Protected by AR

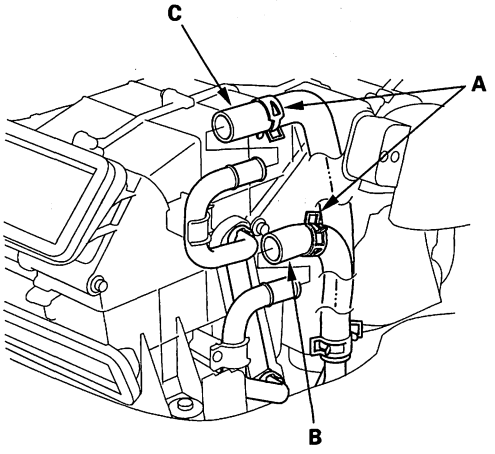
Rear Heater Core Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

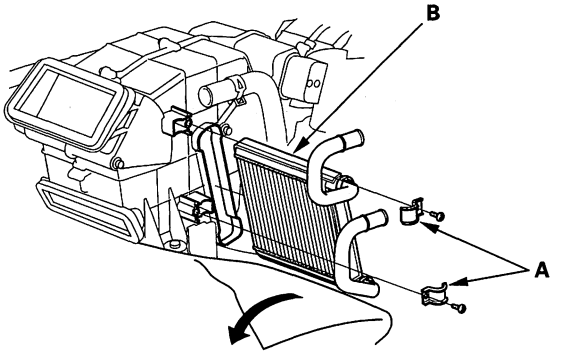
1. When the engine is cool, drain the engine coolant from the radiator (see page 10-6).

2. Remove the center console (see page 20-107).

3. Slide the hose clamps (A) back, then disconnect the rear inlet heater hose (B) and the rear outlet heater hose (C) from the rear heater core. Note the orientation of the hose.
   Engine coolant will run out when the hoses are disconnected; drain it into a clean drip pan. Be sure not to let coolant spill on the electrical parts or the painted surfaces. If any coolant spills, rinse it off immediately.



4. Turn over the carpet. Remove the self-tapping screws and the clamps (A). Carefully pull out the rear heater core (B) without bending lines.



5. Install the unit in the reverse order of removal, and note these items:

   - Do not interchange the inlet and outlet heater hoses, and install the hose clamps securely.
   - Refill the cooling system with engine coolant (see page 10-6).
   - Make sure that there is no coolant leakage.
   - Make sure that there is no air leakage.

BACK

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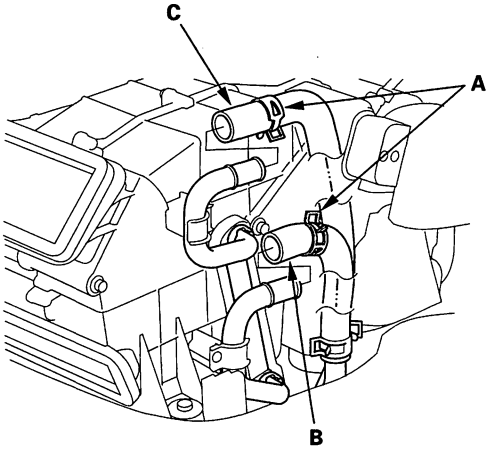
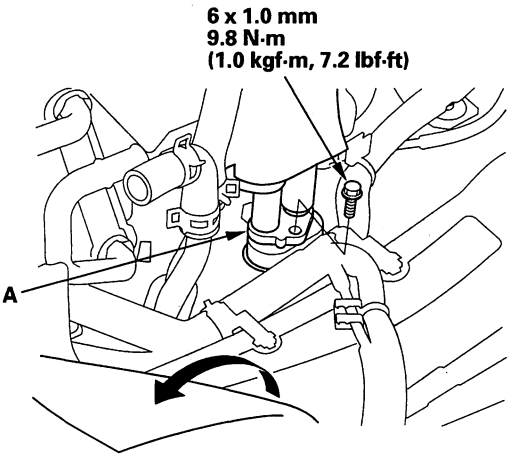
Rear HVAC Unit Removal/Installation

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

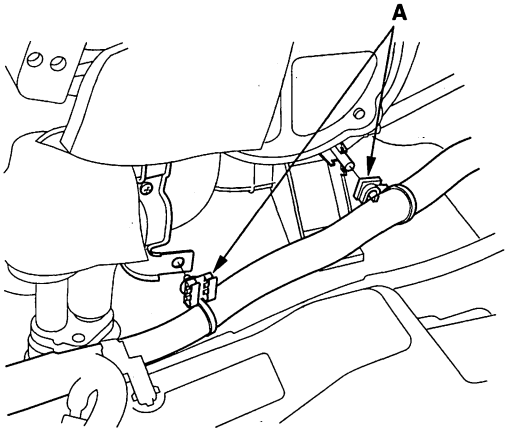
1. When the engine is cool, drain the engine coolant from the radiator (see page 10-6).
2. Recover the refrigerant with a recovery/recycling/charging station (see page 21-130).
3. Remove the center console (see page 20-107).
4. Slide the hose clamps (A) back, then disconnect the rear inlet heater hose (B) and the rear outlet heater hose (C) from the rear heater core. Note the orientation of the hose.
   Engine coolant will run out when the hoses are disconnected; drain it into a clean drip pan. Be sure not to let coolant spill on the electrical parts or the painted surfaces. If any coolant spills, rinse it off immediately.



5. Turn over the carpet. Remove the bolt, then disconnect the rear suction/receiver lines (A).



6. Remove the harness clips (A).



(cont'd)

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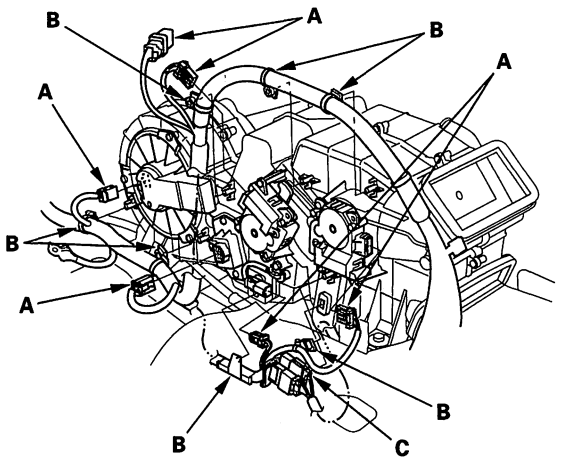
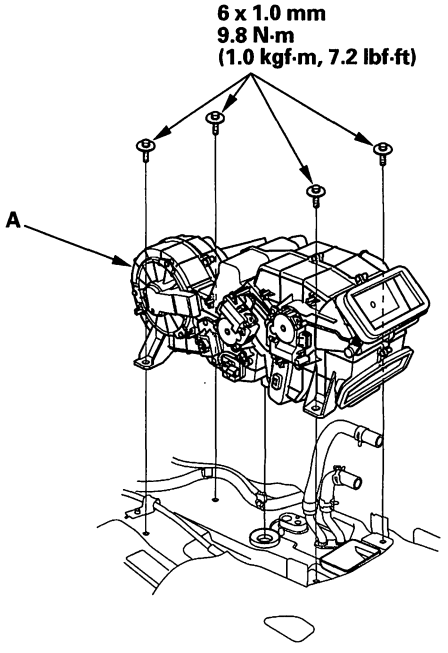
Rear HVAC Unit Removal/Installation (cont'd)

7. Disconnect the connectors (A) from the rear mode control motor, the rear air mix control motor, rear evaporator temperature sensor, rear power transistor, and rear blower motor, then remove the harness clips (B) and connector clip (C).



8. Remove the mounting bolts and rear HVAC unit (A). Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.



9. Install the rear heater core, and the rear evaporator core in the reverse order of removal.

10. Install the unit in the reverse order of removal, and note these items:

- Do not interchange the inlet and outlet heater hoses, and install the hose clamps securely.
- Refill the cooling system with engine coolant (see page 10-6).
- Make sure that there is no coolant leakage.
- Make sure that there is no air leakage.
- If you're installing a new rear evaporator, add refrigerant oil (DENSO ND-OIL 8) (see page 21-6).
- Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
- Immediately after using the oil, replace the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint; If the refrigerant oil contacts the paint, wash it off immediately.
- Charge the system (see page 21-132).

BACK

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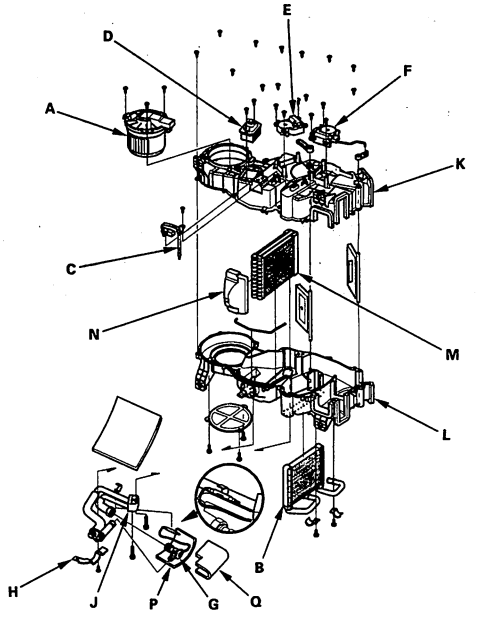
Rear HVAC Unit Component Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-18), and the precautions and procedures (see page 24-20) before doing repairs or service.

NOTE: The rear blower motor (A), the rear heater core (B), the rear evaporator sensor (C), the rear power transistor (D), the rear air mix control motor (E), the rear mode control motor (F), and the rear expansion valve (G) can be replaced without removing the rear HVAC unit.

1. Remove the self-tapping screw and the rear evaporator sensor. Remove the self-tapping screw and the clamp (H), then remove the bolts and the rear evaporator lines (J) with the rear expansion valve. If necessary, remove the rear expansion valve. Use a second wrench to hold the other fitting on the valve so the rear evaporator lines won't twist. Leave the first fitting loosely connected so you can use it to hold the valve while you loosen the second fitting.



2. If necessary, remove the rear blower motor (see page 21-145), the rear heater core (see page 21-146), the rear power transistor, the rear air mix control motor (see page 21-143), and the rear mode control motor (see page 21-144).

3. Remove the self-tapping screws, and carefully separate the left housing (K) from the right housing (L). Remove the rear evaporator core (M) and plate (N).

4. Reassemble the unit in the reverse order of disassembly, and note these items;

   - Replace all O-rings with new ones at each fitting and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
   - Make sure no air is leaking from the left upper housing and the right upper housing fitting and from the upper housings and the lower housing fitting.
   - Install the capillary tube (P) directly against the outlet line, and wrap it with electrical tape (Q).
   - Before reassembly, make sure that the rear air mix control linkage and door move smoothly without binding.
   - Before reassembly, make sure that the rear mode control linkage and door move smoothly without binding.
   - After reassembly, make sure the rear air mix control motor runs smoothly (see page 21-143).
   - After reassembly, make sure the rear mode control motor runs smoothly (see page 21-144).
   - Make sure that there is no coolant leakage.

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SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If electrical maintenance is required)

The Acura MDX SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done only by an authorized Acura dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Acura dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags and/or side airbags.
- Do not bump or impact the SRS unit, front impact sensors, side impact sensors, or roll rate sensor when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.

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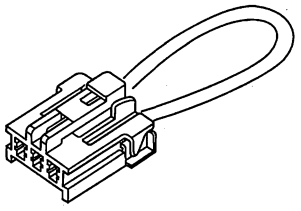
Special Tools

Ref. No.	Tool Number	Description	Qty
①	07WAZ-001010A	MPCS (MCIC) Service Connector	1
②	07TAZ-001020A	Back Probe Adaptor	1



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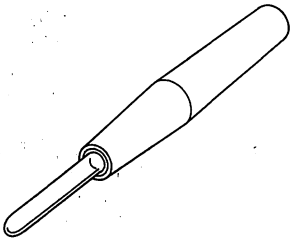

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General Troubleshooting Information

Tips and Precautions

Before Troubleshooting

1. Check applicable fuses in the appropriate fuse/relay box.

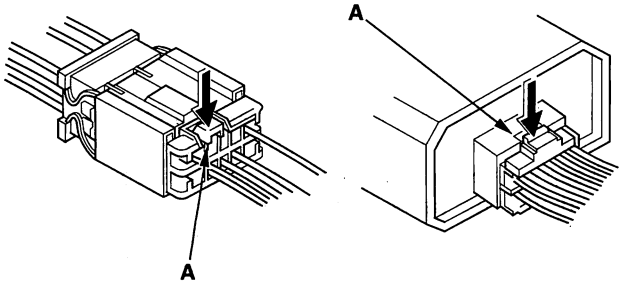
2. Check the battery for damage, state of charge, and clean and tight connections.

NOTICE

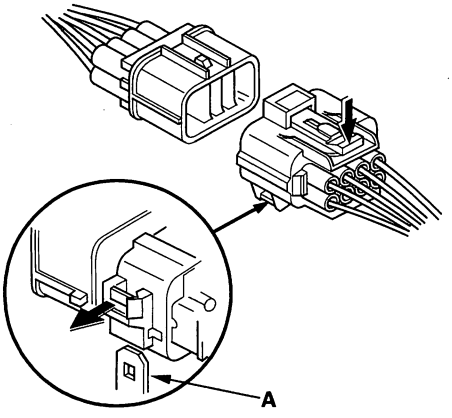
- Do not quick-charge a battery unless the battery ground cable has been disconnected, otherwise you will damage the alternator diodes.
- Do not attempt to crank the engine with the battery ground cable loosely connected or you will severely damage the wiring.

Handling Connectors

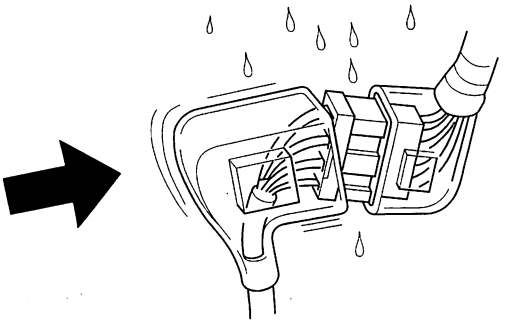
- Make sure the connectors are clean and have no loose wire terminals.
- Make sure multiple cavity connectors are packed with dielectric grease (except watertight connectors).
- All connectors have push-down release type locks (A).



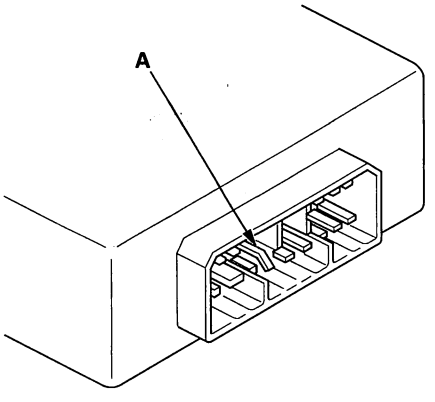
- Some connectors have a clip on their side used to attach them to a mount bracket on the body or on another component. This clip has a pull type lock.
- Some mounted connectors cannot be disconnected unless you first release the lock and remove the connector from its mount bracket (A).



- Never try to disconnect connectors by pulling on their wires; pull on the connector halves instead.
- Always reinstall plastic covers.



- Before connecting connectors, make sure the terminals (A) are in place and not bent.



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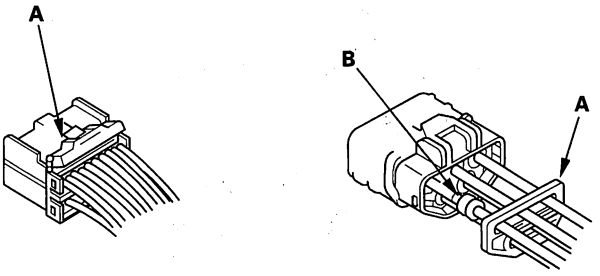
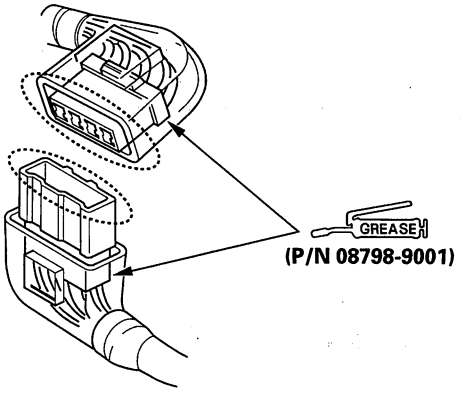
General Troubleshooting Information (cont'd)

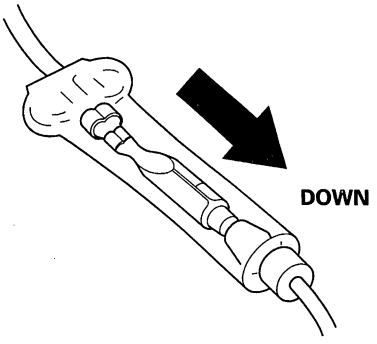
- Check for loose retainer (A) and rubber seals (B).



- The backs of some connectors are packed with dielectric grease. Add grease if necessary. If the grease is contaminated, replace it.

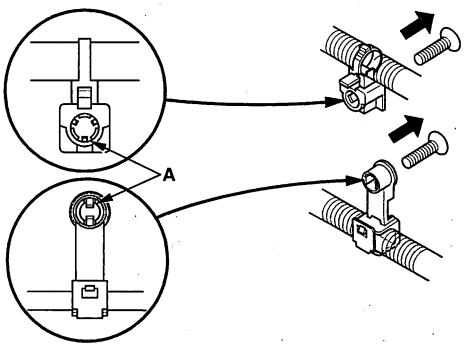


- Insert the connector all the way and make sure it is securely locked.
- Position wires so that the open end of the cover faces down.

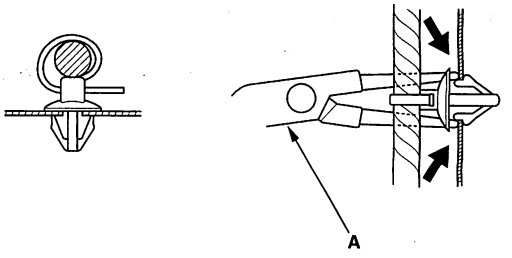


Handling Wires and Harnesses

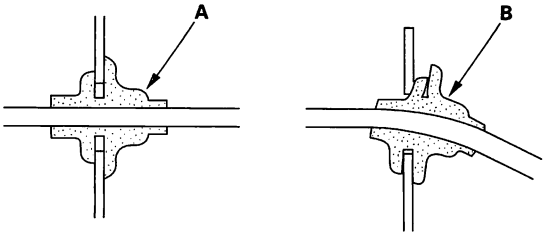
- Secure wires and wire harnesses to the frame with their respective wire ties at the designated locations.
- Remove clips carefully; don't damage their locks (A).



- Slip pliers (A) under the clip base and through the hole at an angle, then squeeze the expansion tabs to release the clip.



- After installing harness clips, make sure the harness doesn't interfere with any moving parts.
- Keep wire harnesses away from exhaust components and other hot parts, from sharp edges of brackets and holes, and from exposed screws and bolts.
- Seat grommets in their grooves properly (A). Do not leave grommets distorted (B).



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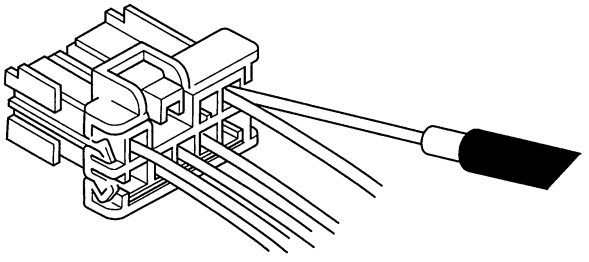
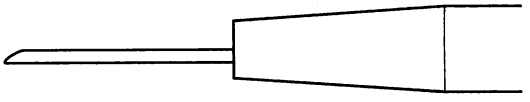
Testing and Repairs

- Do not use wires or harnesses with broken insulation. Replace them or repair them by wrapping the break with electrical tape.
- Never attempt to modify, splice, or repair SRS wiring. If there is an open or damage is SRS wiring or terminals, replace the harness.
- After installing parts, make sure that no wires are pinched under them.
- When using electrical test equipment, follow the manufacturer's instructions and those described in this manual.
- If possible, insert the probe of the tester from the wire side (except waterproof connector).



- Use back probe adaptor 07TAZ-001020A.



- Refer to the instructions in the Honda Terminal Kit for identification and replacement of connector terminals.

Five-step Troubleshooting

1. Verify The Complaint:
   Turn on all the components in the problem circuit to verify the client complaint. Note the symptoms. Do not begin disassembly or testing until you have narrowed down the problem area.

2. Analyze The Schematic:
   Look up the schematic for the problem circuit. Determine how the circuit is supposed to work by tracing the current paths from the power feed through the circuit components to ground. If several circuits fail at the same time, the fuse or a ground is a likely cause.

   Based on the symptoms and your understanding of the circuit operation, identify one or more possible causes of the problem.

3. Isolate The Problem By Testing The Circuit:
   Make circuit tests to check the diagnosis you made in step 2. Keep in mind that a logical, simple procedure is the key to efficient troubleshooting. Test for the most likely cause of failure first. Try to make tests at points that are easily accessible.

4. Fix The Problem:
   Once the specific problem is identified, make the repair. Be sure to use proper tools and safe procedures.

5. Make Sure The Circuit Works:
   Turn on *all* components in the repaired circuit in all modes to make sure you've fixed the entire problem. If the problem was a blown fuse, be sure to test all of the circuits on the fuse. Make sure no new problems turn up and the original problem does not recur.

(cont'd)

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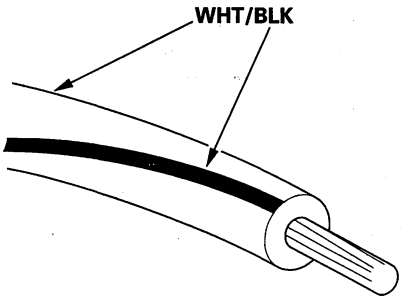
General Troubleshooting Information (cont'd)

Wire Color Codes

The following abbreviations are used to identify wire colors in the circuit schematics:

WHT	White
YEL	Yellow
BLK	Black
BLU	Blue
GRN	Green
RED	Red
ORN	Orange
PNK	Pink
BRN	Brown
GRY	Gray
PUR	Purple
LT BLU	Light Blue
LT GRN	Light Green

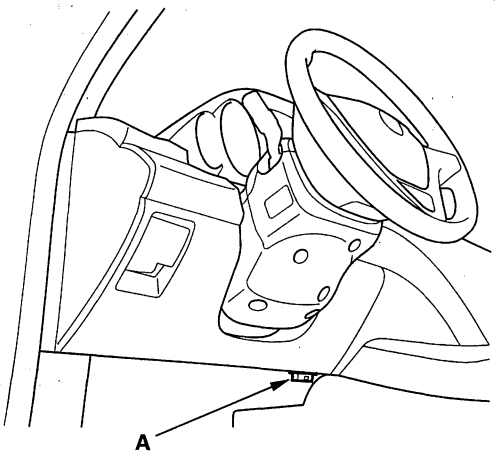
The wire insulation has one color or one color with another color stripe. The second color is the stripe.



How to Check for DTCs with the Honda Diagnostic System (HDS)

NOTE: For specific operations, refer to the user's manual that came with the Honda Diagnostic System (HDS).

1. Connect the HDS to the data link connector (A) located under the driver's side of the dashboard.



2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle, if it doesn't, troubleshoot the DLC circuit (see page 11-223).
4. Enter the BODY ELECTRICAL then select the TEST MODE menu.
5. Check for DTCs with the HDS.
6. If any DTCs are indicated, note them, and go to the indicated DTC troubleshooting.

BACK

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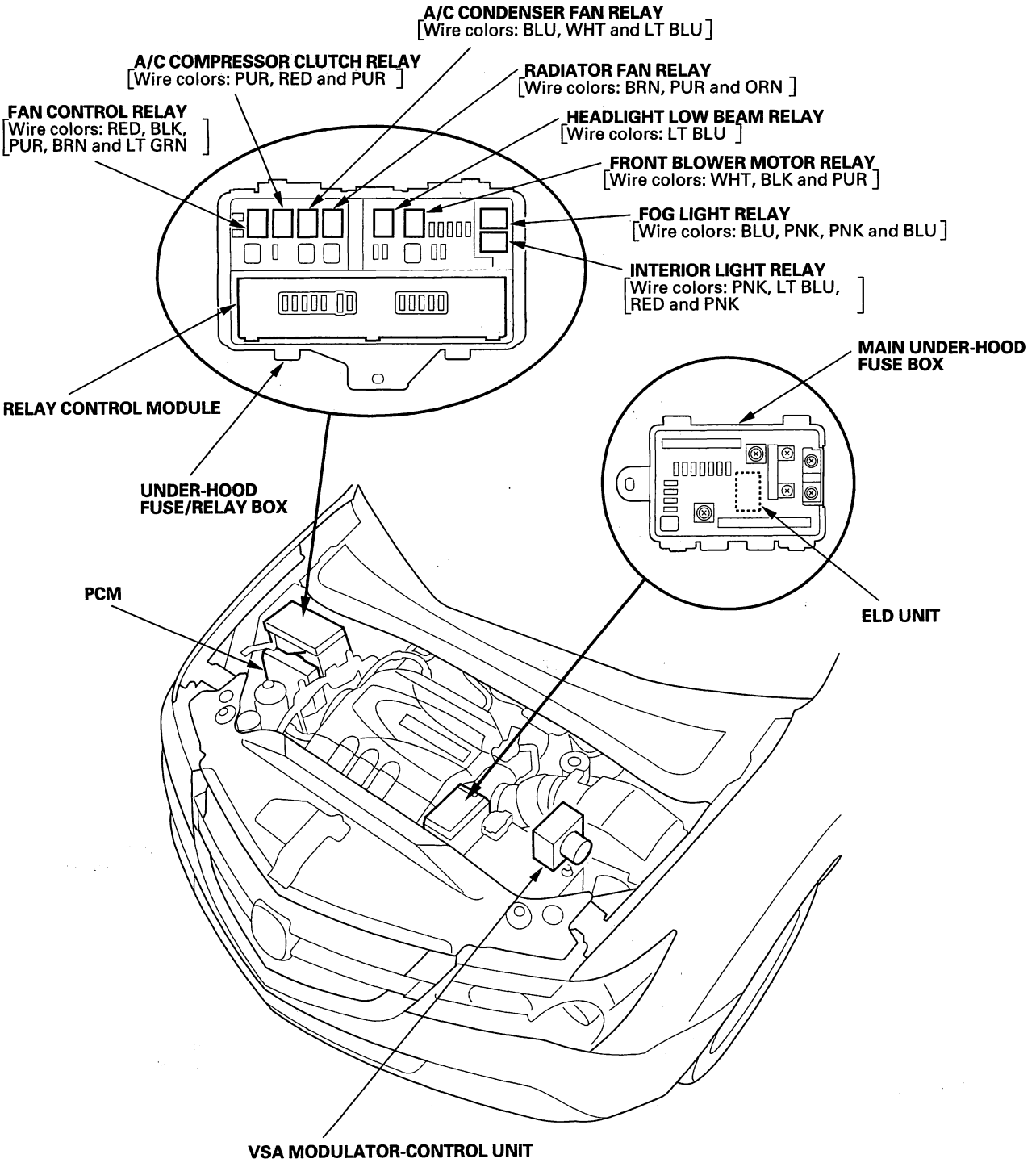
Relay and Control Unit Locations

Engine Compartment



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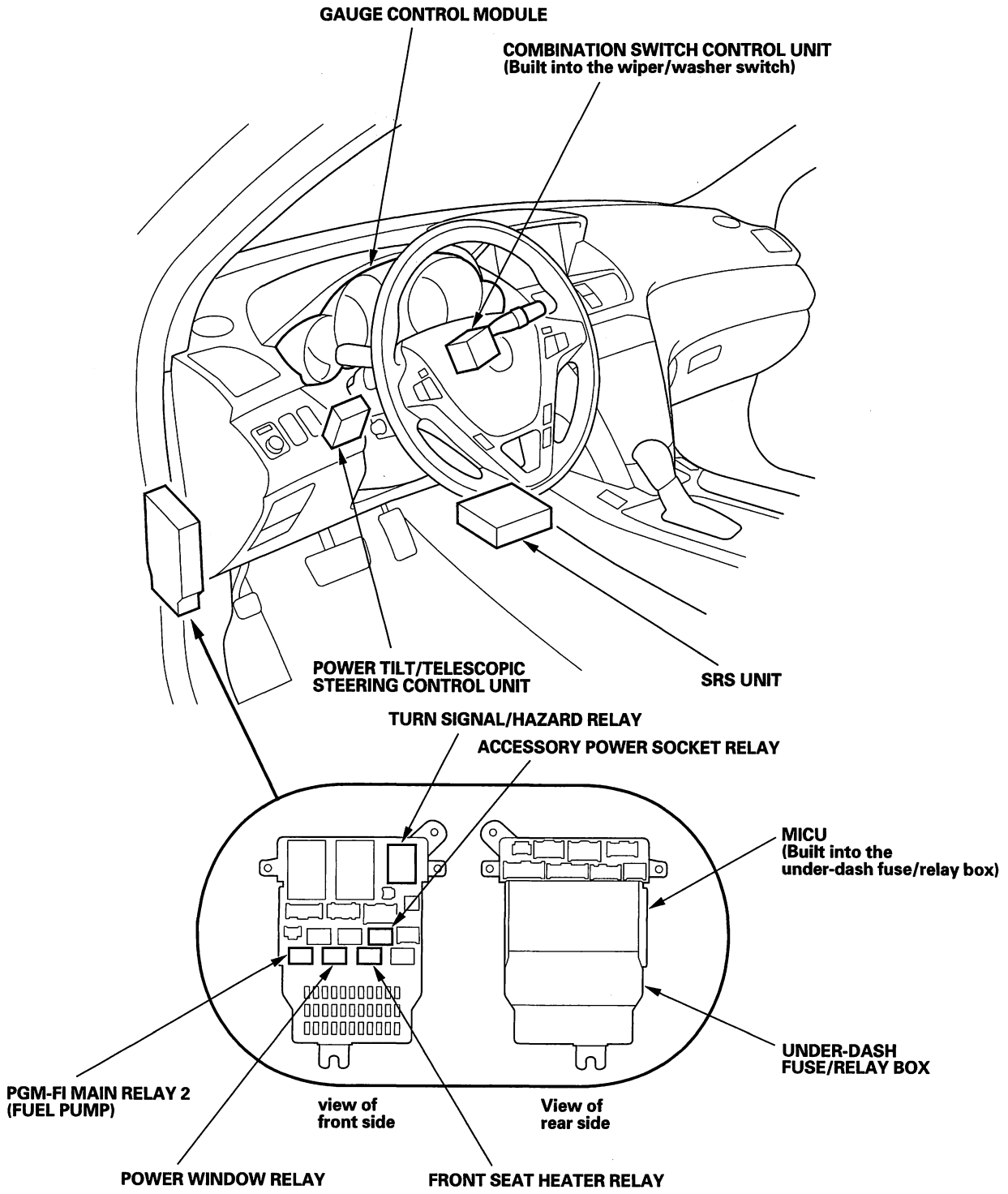
Relay and Control Unit Locations

Dashboard



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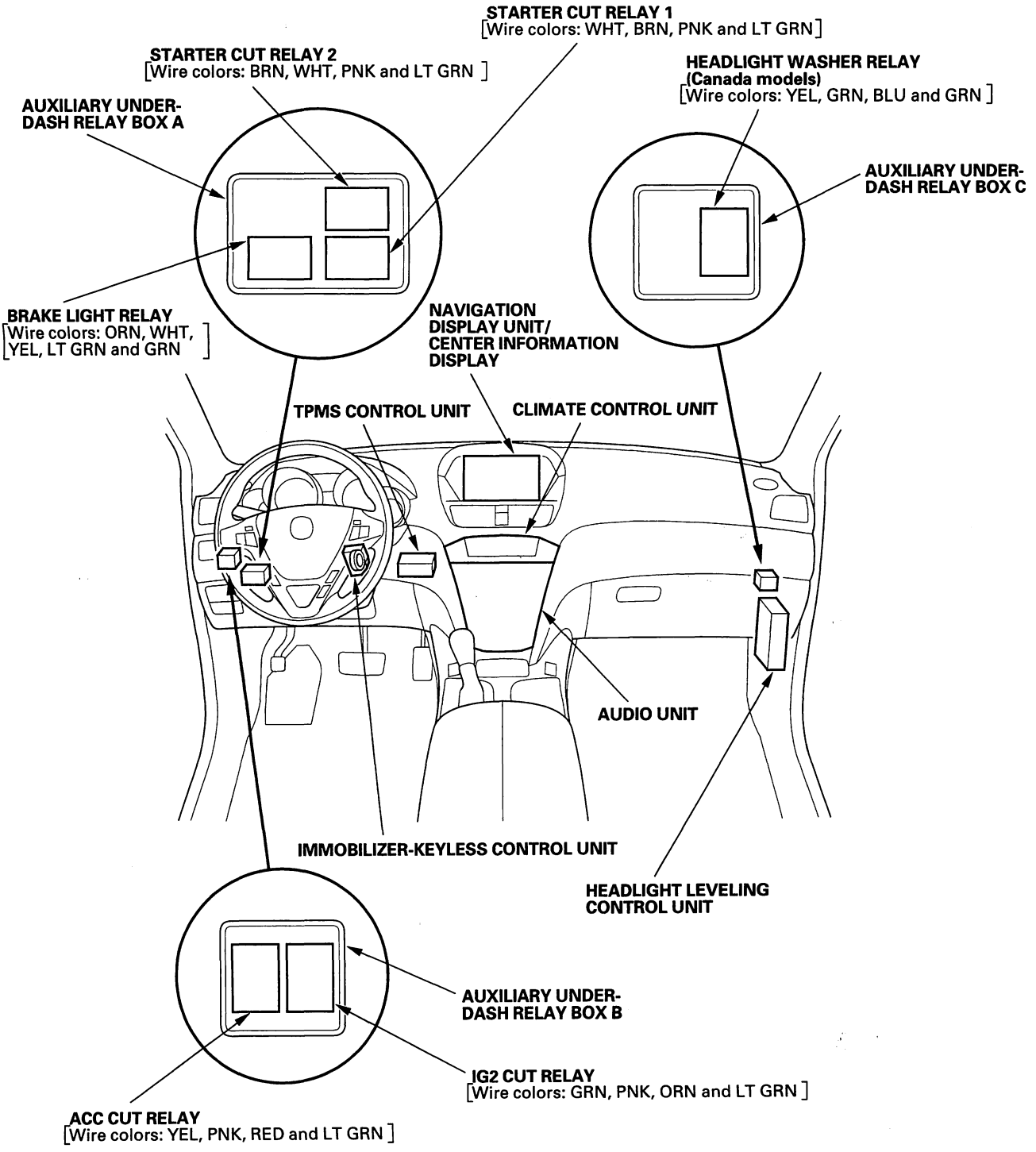

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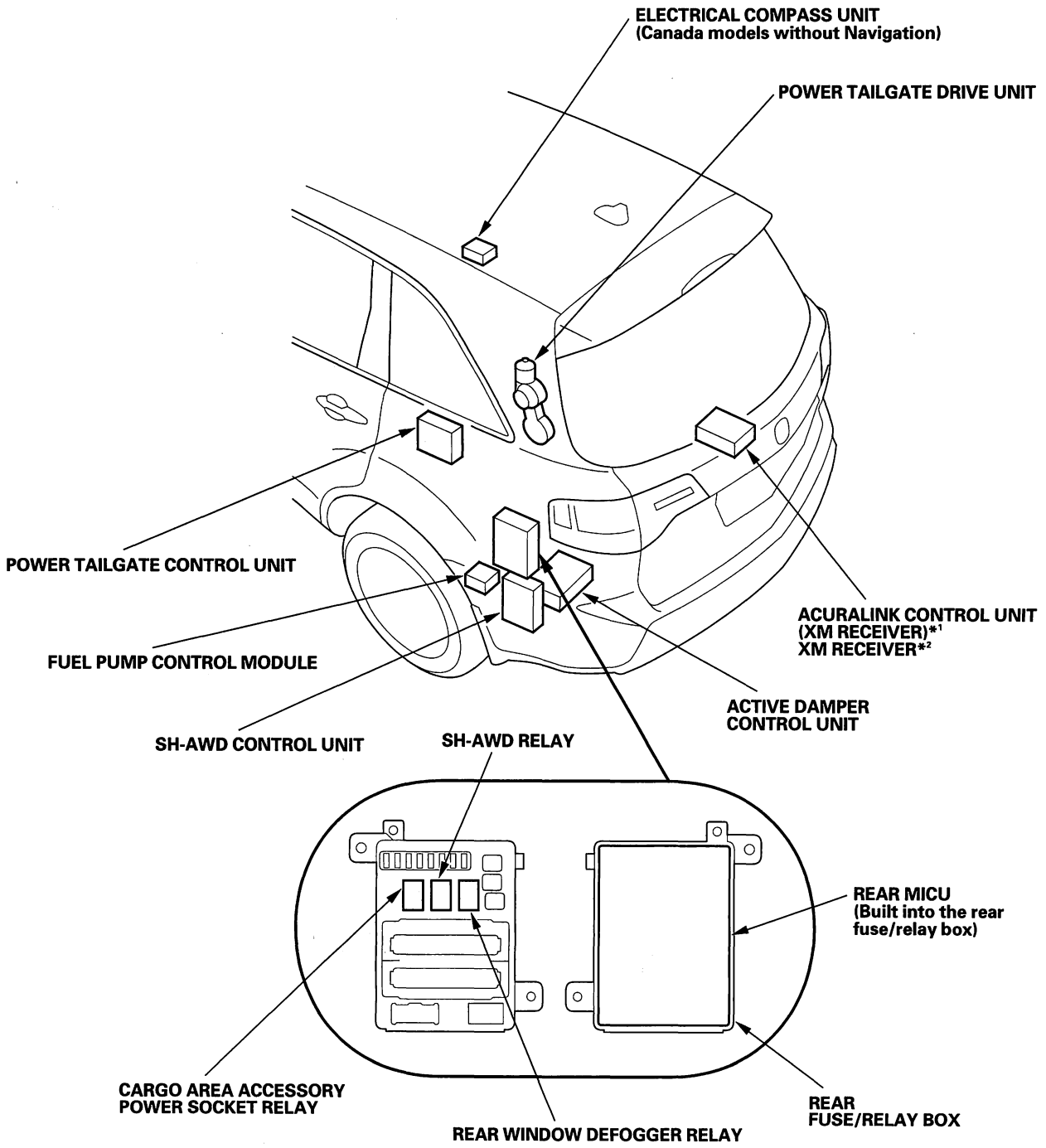
Relay and Control Unit Locations

Rear



*1 : USA models
*2 : Canada models and USA models without Acuralink

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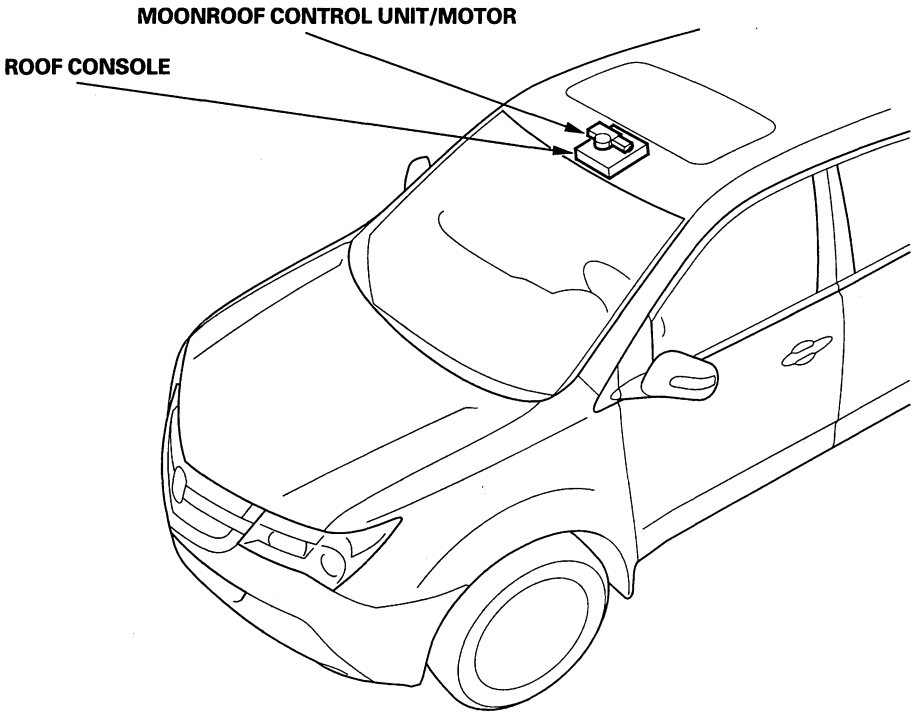
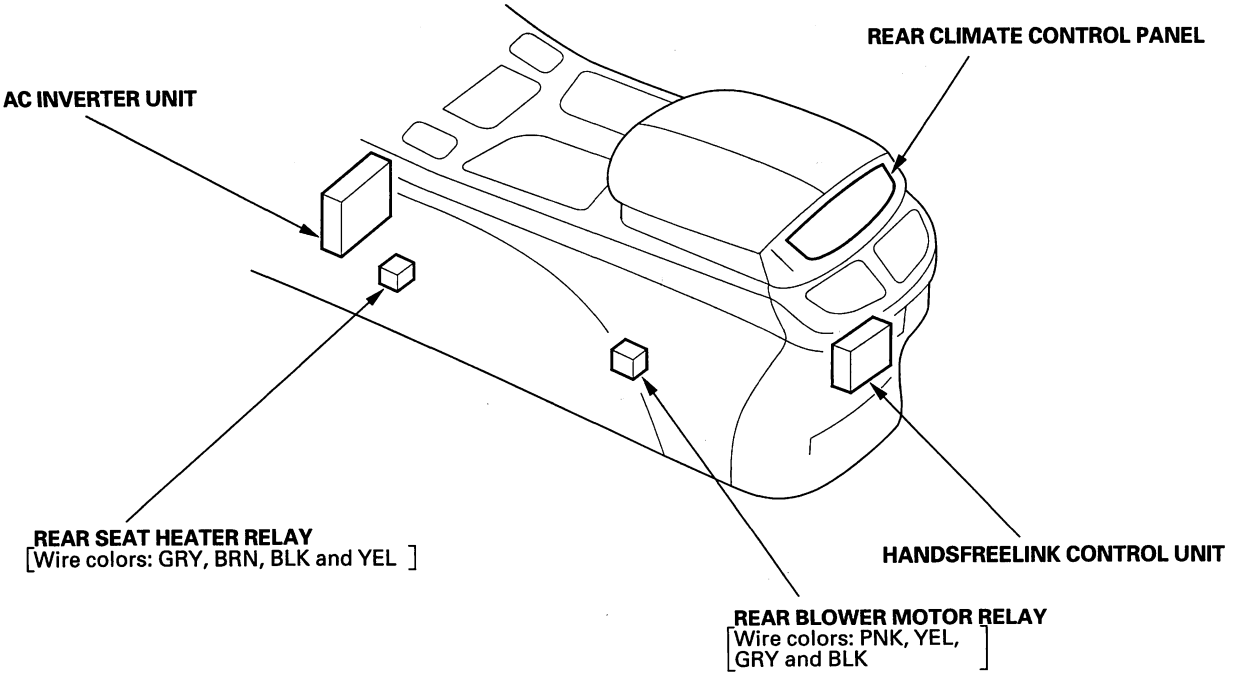
Roof and Console





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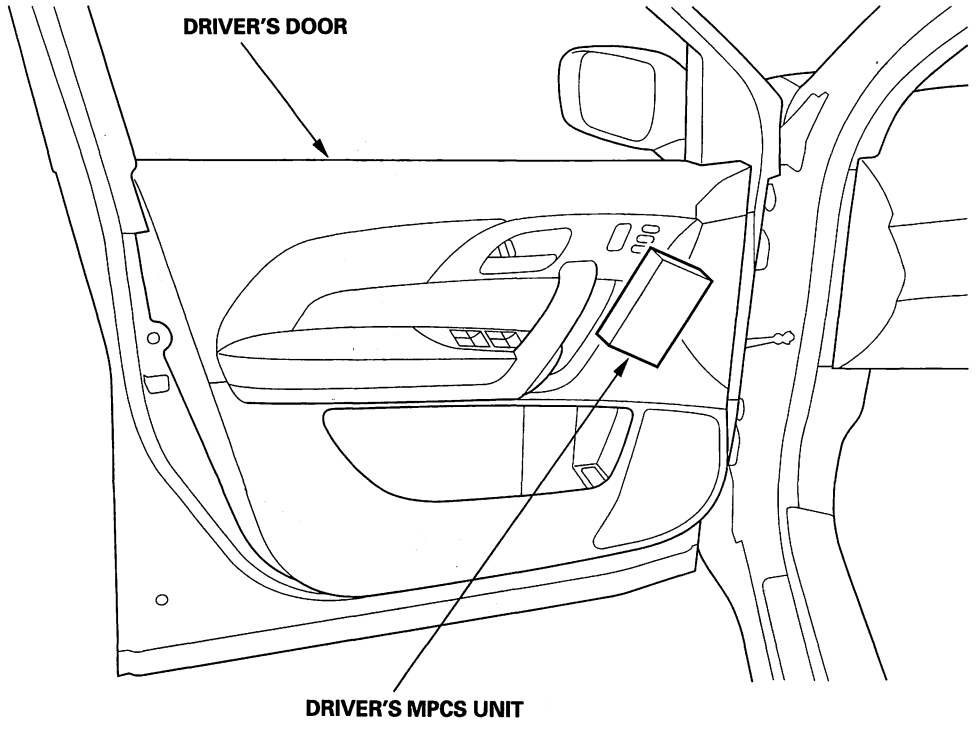
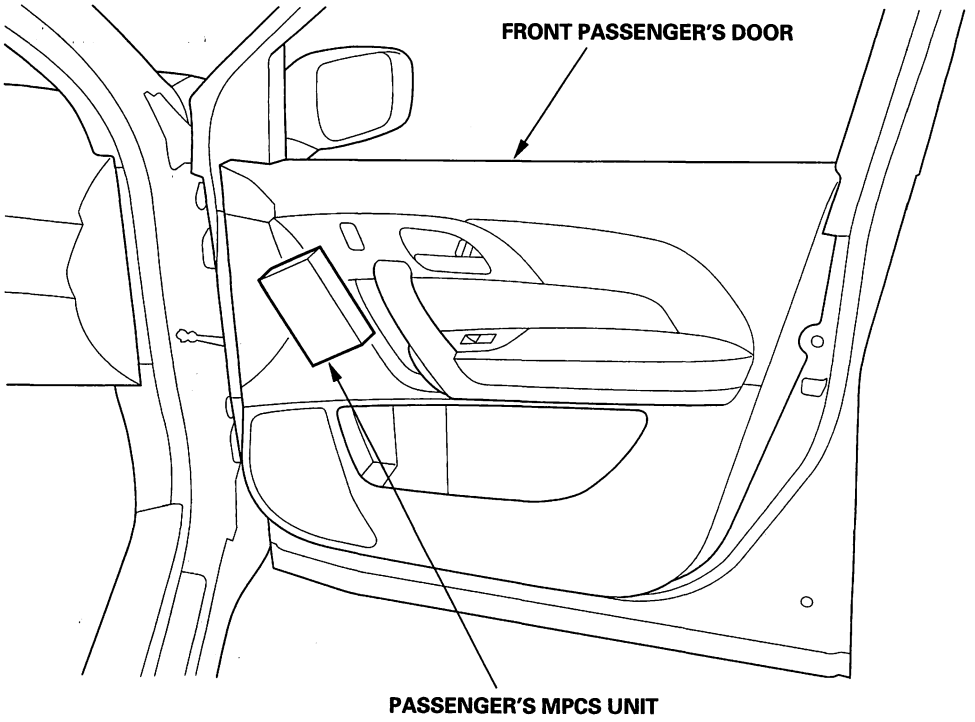
Relay and Control Unit Locations

Door





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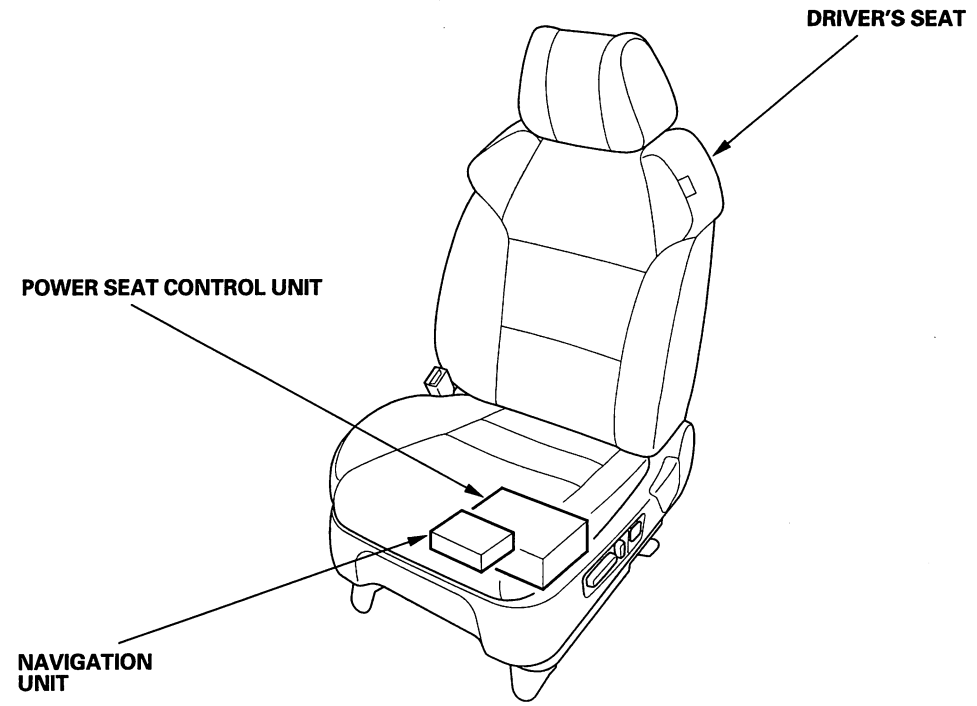
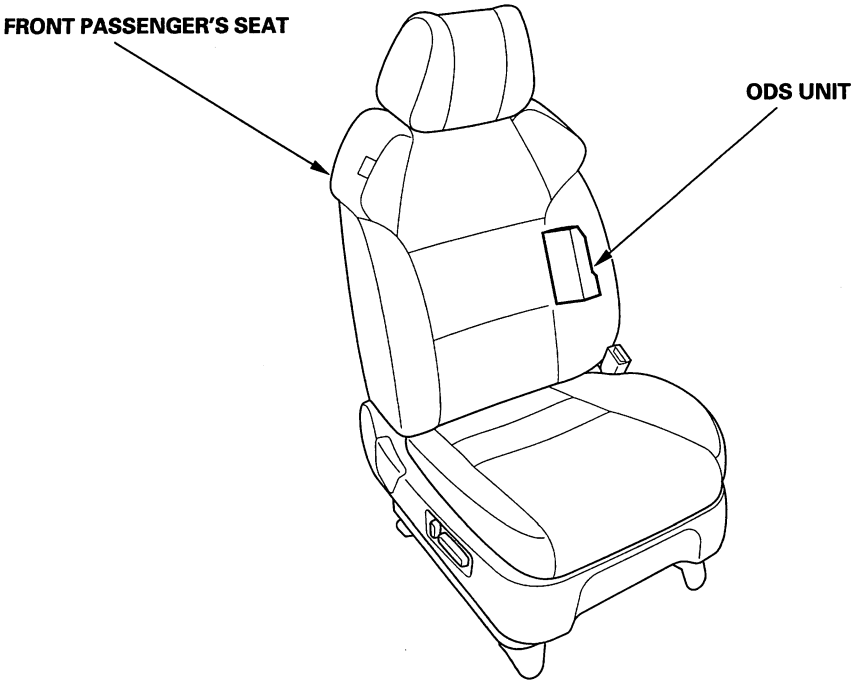
Seat





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Connectors and Harnesses

Connector Index

Identification numbers have been assigned to in-line connectors, junction connectors, and terminals. The number is preceded by the letter "C" for connectors "G" for ground terminals or "T" for non-ground terminals.

Harness	Location			
	Engine Compartment	Dashboard	Others (Floor, Door, Tailgate, and Roof)	Notes
A/C wire harness		C502, C503		(see page 22-56)
Battery ground cable	(−), G1			(see page 22-15)
CKP sensor subharness	C151			(see page 22-16)
Console subharness		C901, C902		(see page 22-47)
Dashboard wire harness (View of driver's side)		C304, C305, C501, C510, through C518, C601 G501, G502		(see page 22-26)
Dashboard wire harness (Center console)		C505	C602, C603 G503	(see page 22-30)
Dashboard wire harness (View of passenger's side)		C201, C202, C203, C502, C503, C521, through C530, C604, C605, C606, C771, C901, C951 G504, G506, G507		(see page 22-32)
Driver's door power mirror wire harness			C753	(see page 22-48)
Driver's door subharness		C751		(see page 22-48)
Driver's door wire harness A			C752, C753	(see page 22-48)
Driver's door wire harness B		C751	C752	(see page 22-48)
Driver's seat subharness			C931	(see page 22-54)
Driver's seat wire harness			C609, C931	(see page 22-54)
ECT sensor subharness	C205			(see page 22-20)
Engine ground cable A	T2, G2			(see page 22-15)
Engine ground cable B	T3, G3			(see page 22-15)
Engine wire harness (Right side)	C101, C103, C104, C105, C151, C152, T101, T102 G101			(see page 22-16)
Engine wire harness (Left side)	C102, C153 T103, T104			(see page 22-18)
Floor wire harness (Left branch)		C303, C601 G601	C602, C603, C609, C611, C612, C613, C781 G602, G603, G604	(see page 22-34)
Floor wire harness (Right branch)		C204, C604, C605, C606	C608, C610, C614, C615, C616, C617, C791 G605, G606	(see page 22-38)
Front passenger's door power mirror wire harness			C773	(see page 22-50)
Front passenger's door subharness			C772, C773	(see page 22-50)
Front passenger's door wire harness		C771	C772	(see page 22-50)
Front passenger's seat wire harness			C610	(see page 22-55)
Knock sensor subharness	C152			(see page 22-16)
Left engine compartment wire harness	C102, C301 G302, G303	C206, C207, C303, C304, C305		(see page 22-24)
Left rear door wire harness			C781	(see page 22-52)
Left tailgate wire harness			C701, C702	(see page 22-42)
Middle tailgate wire harness			C702, C703	(see page 22-42)
ODS unit harness			C616	(see page 22-55)
Rear wire harness			C611, C614, C701, C704, T701 G701, G702	(see page 22-40)
Rear subframe wire harness			C613, G651	(see page 22-44)
RES wire harness		C951		(see page 22-46)
Right engine compartment wire harness (Front of engine compartment)	C101, C205, C212, C301 G201, G301			(see page 22-20)
Right engine compartment wire harness (Dash to rear of engine compartment)	G202	C201 through C204, C206 through C211 G401		(see page 22-22)
Right rear door wire harness			C791	(see page 22-53)
Right tailgate wire harness			C703, C704	(see page 22-43)
Roof subharness			C851	(see page 22-45)
Roof wire harness		C501	C851, C852, C853	(see page 22-45)
Shift solenoid subharness	C153			(see page 22-18)
Starter cable	(+), T1, T4			(see page 22-15)
Shift solenoid wire harness	C104			(see page 22-18)

BACK

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Connector to Harness Index

Starter Cable

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
T1	6		Left side of engine compartment	Main under-hood fuse box	
T4	5		Left side of engine compartment	Starter motor	
(+)	9		Battery	Battery positive terminal	

Battery Ground Cable

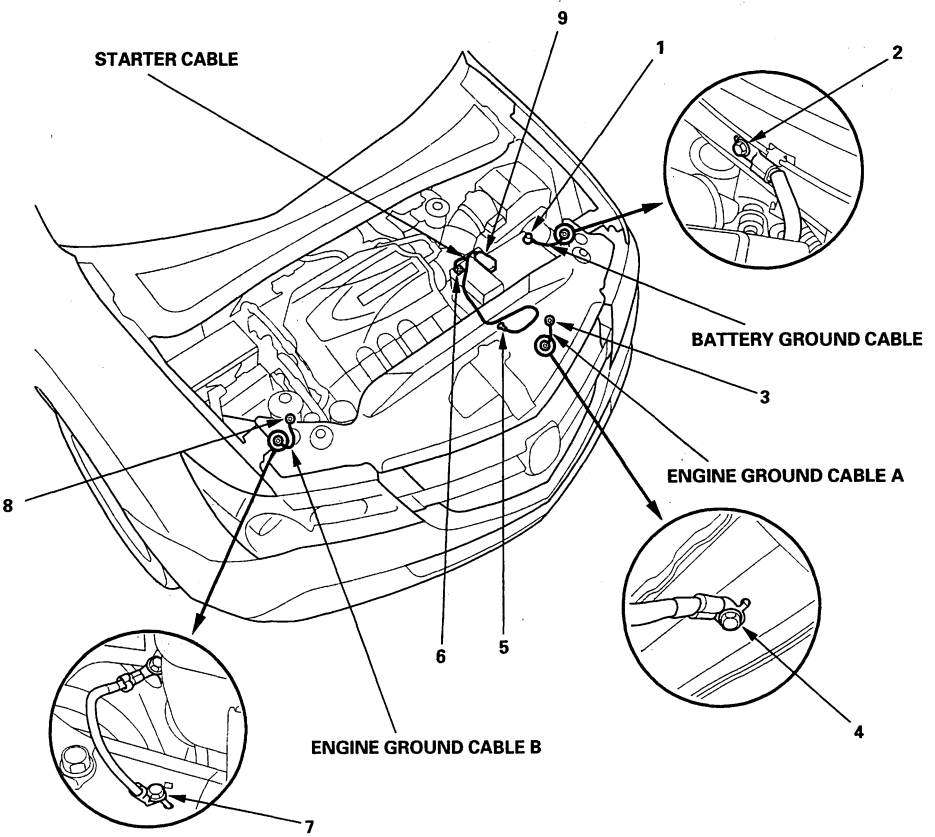
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
(−)	1		Left side of engine compartment	Battery negative terminal	
G1	2		Left side of engine compartment	Body ground, via battery ground cable	

Engine Ground Cable A

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
T2	3		Left side of engine compartment	Transmission housing	
G2	4		Left side of engine compartment	Body ground, via battery ground cable A	

Engine Ground Cable B

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
T3	8		Right side of engine compartment	Engine mount bracket	
G3	7		Right side of engine compartment	Body ground, via battery ground cable B	



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Connector to Harness Index (cont'd)

Engine Wire Harness (Center to Right Side)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/C compressor clutch	28	1	Right side of engine compartment		
Alternator	27	4	Middle of engine compartment		
CMP sensor	34	3	Right side of engine		
EGR valve and position sensor	16	6	Left side of engine compartment		
ECT sensor 1	15	2	Middle of engine		
EVAP canister purge valve	13	2	Left side of engine compartment		
Front A/F sensor (Bank 2, Sensor 1)	19	6	Exhaust manifold (front bank)		
Front secondary heated oxygen sensor (secondary HO2S) (Bank 2, Sensor 2)	18	4	Exhaust manifold (front bank)		
Ignition coil No. 1	3	3	Middle of engine		
Ignition coil No. 2	5	3	Middle of engine		
Ignition coil No. 3	7	3	Middle of engine		
Ignition coil No. 4	25	3	Middle of engine		
Ignition coil No. 5	23	3	Middle of engine		
Ignition coil No. 6	21	3	Middle of engine		
Injector No. 1	9	2	Middle of engine		
Injector No. 2	10	2	Middle of engine		
Injector No. 3	11	2	Middle of engine		
Injector No. 4	24	2	Middle of engine		
Injector No. 5	22	2	Middle of engine		
Injector No. 6	20	2	Middle of engine		
Intake manifold turning (IMT) actuator	33	5	Middle of engine compartment		
Oil pressure switch	29	1	Middle of engine compartment		
PCM connector B	37	49	Right side of engine compartment		
PCM connector C	36	49	Right side of engine compartment		
Rear A/F sensor (Bank 1, Sensor 1)	12	6	Exhaust manifold (rear bank)		
Rear secondary heated oxygen sensor (secondary HO2S) (Bank 1, Sensor 2)	14	4	Exhaust manifold (rear bank)		
Rocker arm oil control solenoid	1	1	Right side of engine		
Rocker arm oil pressure switch	32	1	Right side of engine		
C101	35	12	Right side of engine compartment	Right engine compartment wire harness (see page 22-20)	
C103 (Junction connector)	4	24	Middle of engine compartment		
C104 (Junction connector)	6	24	Middle of engine compartment		
C105 (Junction connector)	8	24	Middle of engine compartment		
C151	2	6	Middle of engine compartment	CKP sensor subharness	
C152	30	1	Right side of engine compartment	Knock sensor subharness	
T101	17		Right side of engine compartment	Main under-hood fuse box	
T102	26		Right side of engine compartment	Alternator	
G101	39		Right side of engine	Body ground, via engine wire harness ground cable	

CKP Sensor Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
CKP sensor A/B	38	6	Right side of engine compartment		
C151	2	6	Right side of engine compartment	Engine wire harness	

Knock Sensor Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Knock sensor	31	1	Middle of engine compartment		
C152	30	1	Middle of engine compartment	Engine wire harness	

BACK

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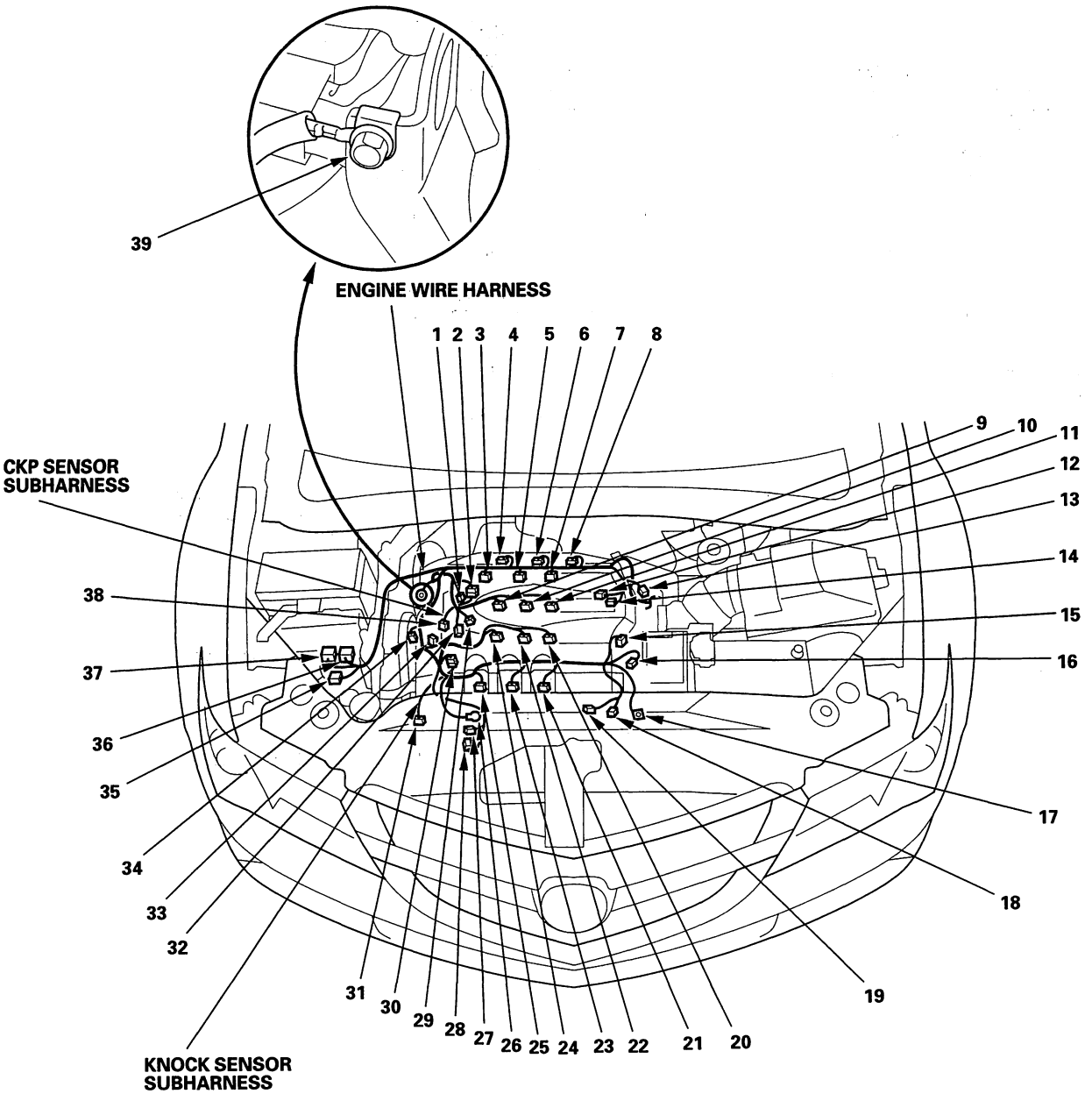

BACK

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Connector to Harness Index (cont'd)

Engine Wire Harness (Left Side)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/C clutch pressure control valve A	12	2	Transmission housing		
A/C clutch pressure control valve B	13	2	Transmission housing		
A/C clutch pressure control valve C	10	2	Transmission housing		
ATF temperature sensor	15	2	Transmission housing		
Engine mount control solenoid	6	2	Left side of engine compartment		
Input shaft (mainshaft) speed sensor	19	3	Transmission housing		
Manifold absolute pressure (MAP) sensor	5	3	Right side of engine compartment		
Mass air flow (MAF)/Intake air temperature (IAT) sensor	7	5	Right side of engine compartment		
Output shaft (countershaft) speed sensor	17	3	Transmission housing		
Starter solenoid	21	1	Left side of engine compartment		
Throttle actuator and throttle position sensor	4	6	Left side of engine compartment		
Transmission range switch	16	10	Transmission housing		
2nd clutch transmission fluid pressure switch	3	1	Transmission housing		
3rd clutch transmission fluid pressure switch	18	1	Transmission housing		
4th clutch transmission fluid pressure switch	9	1	Transmission housing		
C102	8	1	Left side of engine compartment	Left engine compartment wire harness (see page 22-24)	
C153	20	5	On the transmission housing	Shift solenoid wire harness	
T103 (Thermal joint) (SG2)	1		Left side of engine compartment		
T104 (Thermal joint) (LG2)	2		Left side of engine compartment		

Shift Solenoid Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Shift solenoid valve A	22	1	In the transmission		
Shift solenoid valve B	14	1	In the transmission		
Shift solenoid valve C	23	1	In the transmission		
Shift solenoid valve D	11	1	In the transmission		
C153	20	5	On the transmission housing	Engine wire harness	

BACK

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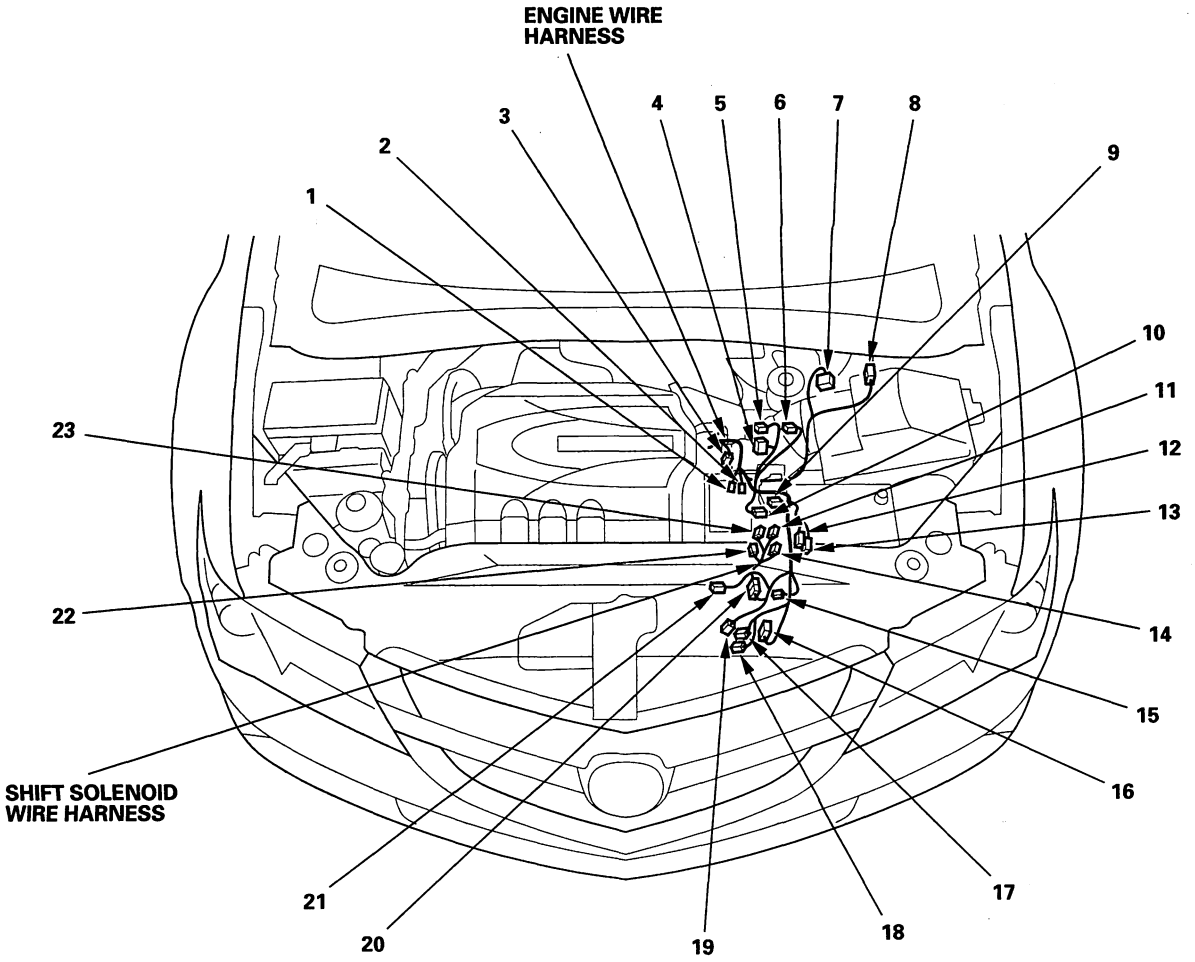

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Connector to Harness Index (cont'd)

Right Engine Compartment Wire Harness (Front of Engine Compartment)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/C condenser fan motor	24	2	Front of engine compartment		
Headlight washer motor	5	2	Behind right side of front bumper		Canada
Hood switch	23	2	Front of engine compartment		
Horn (High)	26	1	Front of engine compartment		
Horn (Low)	31	1	Front of engine compartment		
Left daytime running light	17	2	Behind left side of front bumper		
Left fog light	16	2	Behind left side of front bumper		
Left front parking light	10	2	Behind left headlight		
Left front side marker light	9	2	Behind left headlight		
Left-front suspension stroke sensor	14	3	Left front suspension		*
Left front turn signal light	11	2	Behind left headlight		
Left headlight (high beam)	13	2	Behind left headlight		
Left headlight leveling motor	12	3	Behind left headlight		
Left HID unit	8	2	Under left headlight		
Outside air temperature sensor	20	2	Front of engine compartment		
PCM	2	49	Right side of engine compartment		
Radiator fan motor	21	2	Front of engine compartment		
Right daytime running light	27	2	Behind right side of front bumper		
Right fog light	28	2	Behind right side of front bumper		
Right front initiator	30	3	Behind right side of front bumper		TPMS
Right front impact sensor	29	2	Behind right side of front bumper		
Right front parking light	34	2	Behind right headlight		
Right front side marker light	36	2	Behind right headlight		
Right-front suspension stroke sensor	38	3	Right front suspension		*
Right front turn signal light	32	2	Behind right headlight		
Right front wheel sensor	37	2	Right side of engine compartment		
Right headlight (high beam)	7	2	Behind right headlight		
Right headlight leveling motor	6	3	Behind right headlight		
Right HID unit	33	2	Under right headlight		
Washer fluid level switch	4	2	Behind right side of front bumper		
Windshield washer motor	35	2	Behind right side of front bumper		
C101	3	13	Right side of engine compartment	Engine wire harness (see page 22-16)	
C205	18	2	Front of engine compartment	ECT sensor subharness	
C212 (Junction connector)	1	24	Right side of engine compartment		
C301	15	3	Left front of engine compartment	Left engine compartment wire harness (see page 22-24)	
G201	25		Right side of engine compartment	Body ground, via right engine compartment wire harness	
G301	19		Left side of engine compartment	Body ground, via right engine compartment wire harness	

*: With active damper system

ECT Sensor Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
ECT sensor 2	22	2	Left side of engine compartment		
C205	18	2	Left side of engine compartment	Right engine compartment wire harness	

BACK

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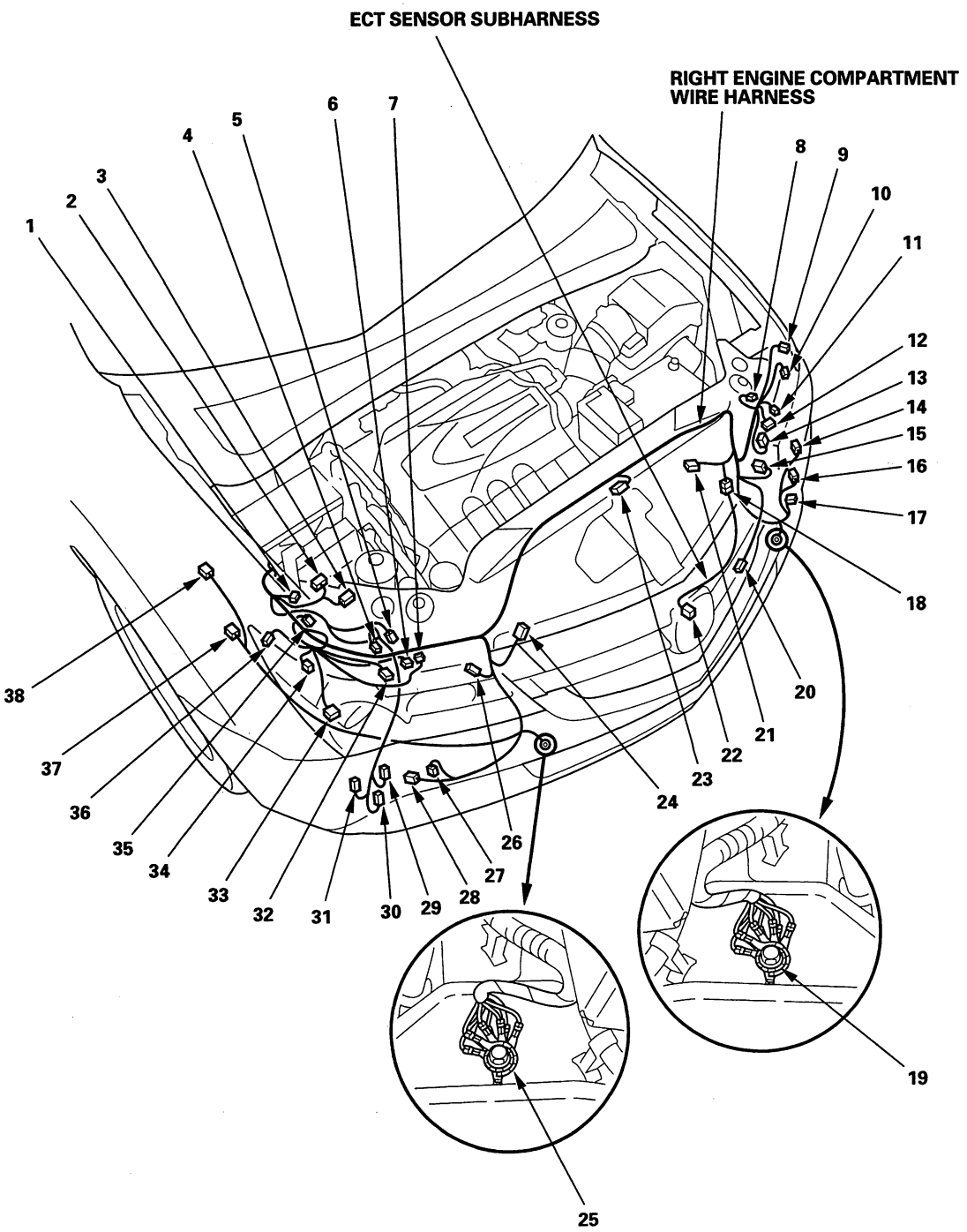

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Connector to Harness Index (cont'd)

Right Engine Compartment Wire Harness (Dash to Rear of Engine Compartment)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/C pressure sensor	1	3	Right side of engine compartment		
APP sensor	9	6	Under left side of dash		
Brake pedal position switch	10	4	Under left side of dash		
Fog light relay	22	4	In the under-dash fuse/relay box	Under-hood auxiliary relay box (see page 22-57)	
Front vertical acceleration sensor	8	3	Under left side of dash		*
Headlight leveling control unit	20	16	Under right side of dash		
Headlight washer relay	21	4	Under right side of dash		Canada
Interior light relay	22	4	In the under-hood fuse/relay box	Under-hood auxiliary relay box (see page 22-57)	
Power steering pressure (PSP) switch	2	2	Right side of engine compartment		
Under-hood fuse/relay box (Relay block) connector A	22	1	In the under-hood fuse/relay box	Relay block (see page 22-57)	
Under-hood fuse/relay box (Relay block) connector B	22	1	In the under-hood fuse/relay box	Relay block (see page 22-57)	
Under-hood fuse/relay box (Relay block) connector C	22	1	In the under-hood fuse/relay box	Relay block (see page 22-57)	
Right front damper coil	3	2	Right side of engine compartment		*
TPMS control unit	11	20	Under left side of dash		TPMS
Under-hood fuse/relay box (Relay control module) connector A	22	4	In the under-hood fuse/relay box	Relay control module (see page 22-57)	
Under-hood fuse/relay box (Relay control module) connector B	22	5	In the under-hood fuse/relay box	Relay control module (see page 22-57)	
Under-hood fuse/relay box (Relay control module) connector C	22	2	In the under-hood fuse/relay box	Relay control module (see page 22-57)	
Under-hood fuse/relay box (Relay control module) connector D	22	10	In the under-hood fuse/relay box	Relay control module (see page 22-57)	
Under-hood fuse/relay box (Relay control module) connector E	22	14	In the under-hood fuse/relay box	Relay control module (see page 22-57)	
Under-hood fuse/relay box (Relay control module) connector F	22	1	In the under-hood fuse/relay box	Relay control module (see page 22-57)	
Under-hood fuse/relay box (Relay control module) connector G	22	4	In the under-hood fuse/relay box	Relay control module (see page 22-57)	
Under-hood fuse/relay box (Relay control module) connector H	22	9	In the under-hood fuse/relay box	Relay control module (see page 22-57)	
Windshield wiper motor	7	5	Left side of engine compartment		
C201	16	34	Under right side of dash	Dashboard wire harness (see page 22-32)	
C202	15	5	Under right side of dash	Dashboard wire harness (see page 22-32)	
C203	17	4	Under right side of dash	Dashboard wire harness (see page 22-32)	
C204	14	23	Under right side of dash	Floor wire harness (see page 22-38)	
C206	5	14	Under right side of dash	Left engine compartment wire harness (see page 22-24)	
C207	6	20	Under right side of dash	Left engine compartment wire harness (see page 22-24)	
C208 (Junction connector)	19	12	Under right side of dash		
C209 (Junction connector)	13	12	Under right side of dash		
C210 (Junction connector)	12	12	Under right side of dash		
C211 (Junction connector)	4	12	Under left side of dash		
G202	23		Right side of engine compartment	Body ground, via right engine compartment wire harness	
G401	18		Under right side of dash	Body ground, via right engine compartment wire harness	

*: With active damper system

BACK

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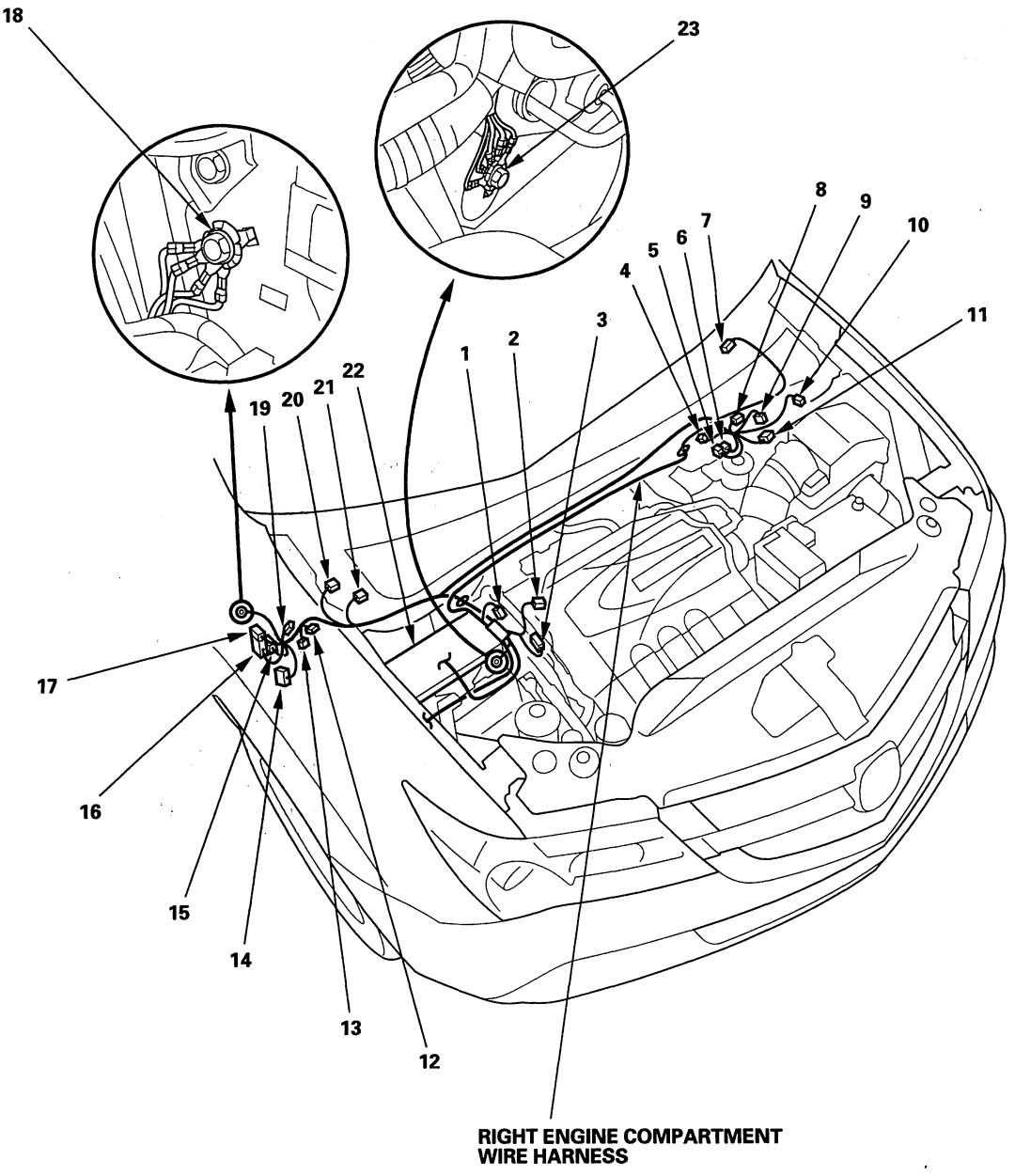

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Connector to Harness Index (cont'd)

Left Engine Compartment Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Brake fluid level switch	4	2	Left side of engine compartment		
Brake light relay	9	5	Under left side of dash		
ELD unit	24	3	In the main under-hood fuse box		
Left front damper coil	17	2	Left side of engine compartment		*
Left front impact sensor	20	2	Behind left side of front bumper		
Left front initiator	21	3	Behind left side of front bumper		TPMS
Left front wheel sensor	18	2	Left side of engine compartment		
Main under-hood fuse box	14	———	Left side of engine compartment		
Starter cut relay 1	10	4	Under left side of dash		
Starter cut relay 2	8	4	Under left side of dash		
Under-dash fuse/relay box connector B (see page 22-59)	12	6	Left kick panel		
Under-dash fuse/relay box connector C (see page 22-59)	13	12	Left kick panel		
Under-dash fuse/relay box connector D (see page 22-59)	11	17	Left kick panel		
Under-dash fuse/relay box connector W (see page 22-59)	15	5	Left kick panel		
VSA modulator-control unit	1	46	Left side of engine compartment		
C102	5	1	Left side of engine compartment	Engine wire harness (see page 22-18)	
C206	2	14	Under right side of dash	Right engine compartment wire harness (see page 22-22)	
C207	3	20	Under right side of dash	Right engine compartment wire harness (see page 22-22)	
C301	22	3	Left front of engine compartment	Right engine compartment wire harness (see page 22-20)	
C303	16	7	Under left side of dash	Floor wire harness (see page 22-26)	
C304	6	14	Under left side of dash	Dashboard wire harness (see page 22-26)	
C305	7	4	Under left side of dash	Dashboard wire harness (see page 22-26)	
G302	23		Left side of engine compartment	Body ground, via left engine compartment wire harness	
G303	19		Left side of engine compartment	Body ground, via left engine compartment wire harness	

*: With active damper system

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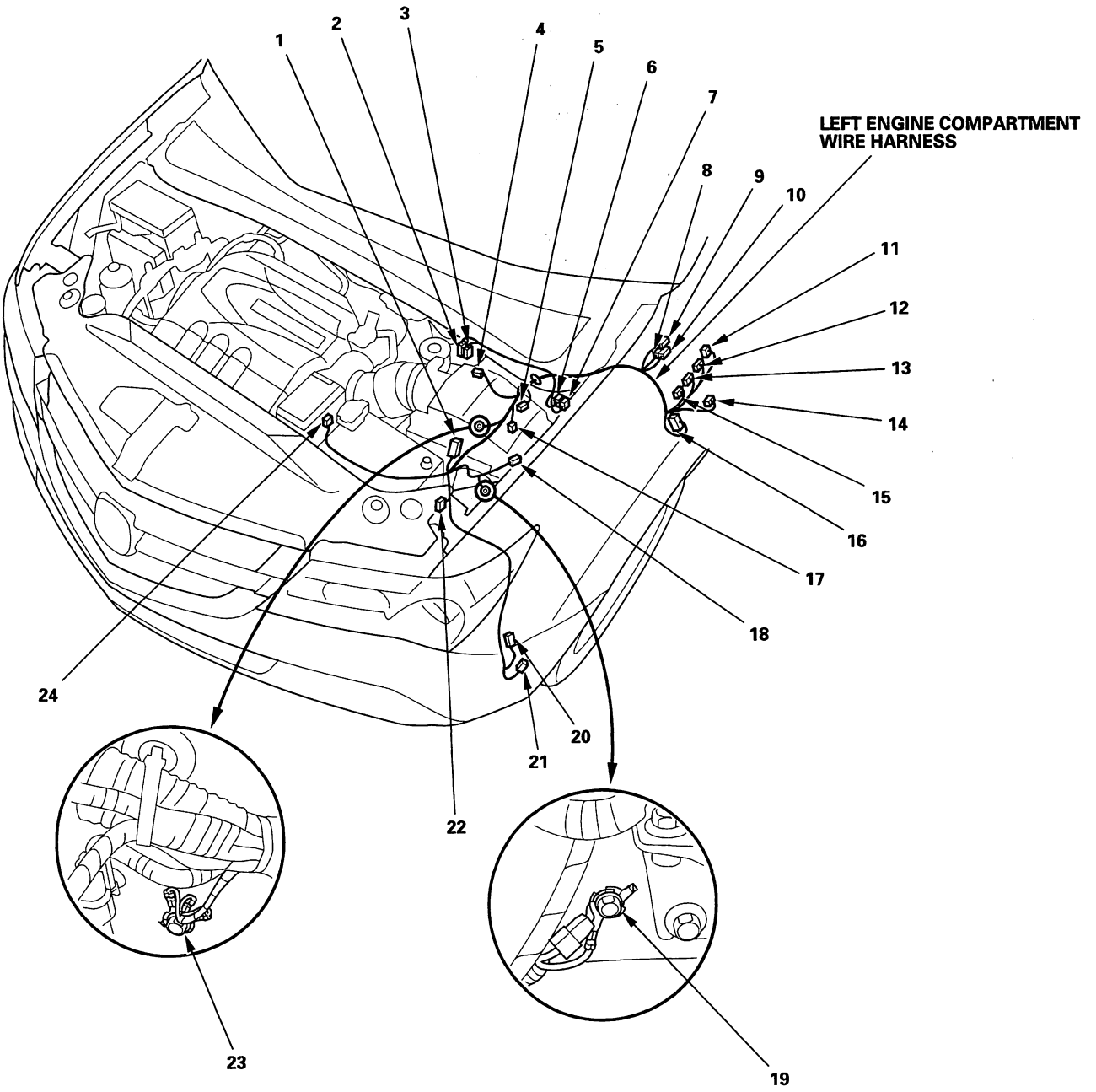

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Connector to Harness Index (cont'd)

Dashboard Wire Harness (View of Driver's Side)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
ACC cut relay	44	5	Under left side of dash		
Cable reel connector A	16	20	In steering column cover		
Combination switch control unit	15	8	In steering column cover		
Dash lights brightness controller	17	6	Under left side of dash		
Driver's airbag inflator	14	4	In steering column cover		
Driver's ambient light	27	3	Under left side of dash		
Driver's footwell light	26	2	Under left side of dash		
Gauge control module connector A	3	12	Behind gauge		
Gauge control module connector B	6	23	Behind gauge		
Headlight washer switch	5	5	Under left side of dash		Canada
Ignition key switch/key light	13	6	In steering column cover		
Ignition switch	19	6	In steering column cover		
IG2 cut relay	45	5	Under left side of dash		
Immobilizer-keyless control unit	18	7	In steering column cover		
Left front tweeter	47	2	Under left side of dash		
Optional connector (trailer brake)	29	5	Under left side of dash		
Parking brake switch	43	1	Under left side of dash		
Power mirror switch	28	10	Under left side of dash		
Power telescopic motor/position sensor	25	6	In steering column cover		
Power tilt motor/position sensor	24	8	In steering column cover		
Power tilt/telescopic steering control unit connector A	22	16	In steering column cover		
Power tilt/telescopic steering control unit connector B	21	8	In steering column cover		
Power tilt/telescopic steering switch	23	13	Left side of steering column		
Steering angle sensor	20	5	In steering column cover		
Under-dash auxiliary fuse holder	35	2	Under left side of dash		

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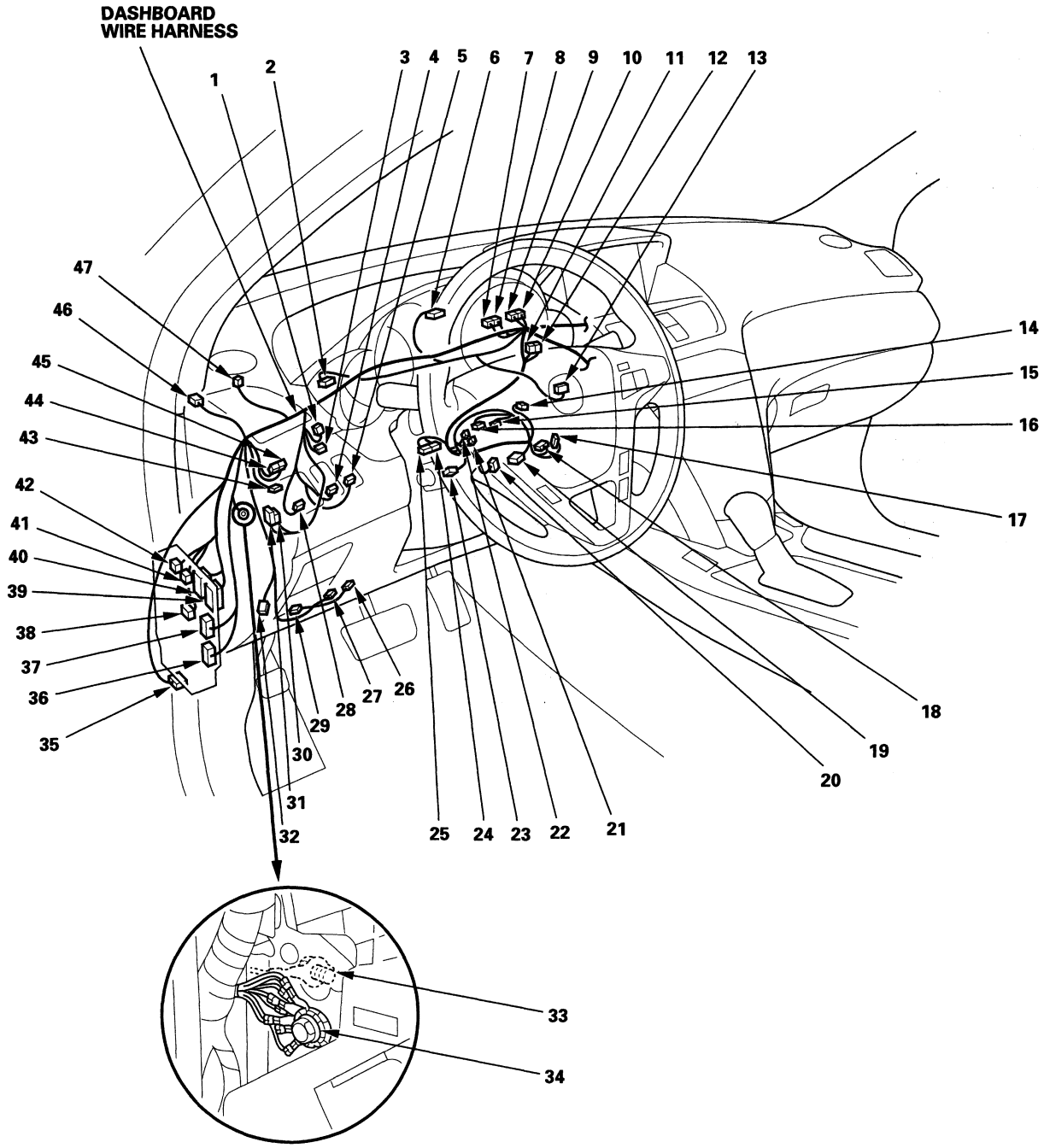

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Connector to Harness Index (cont'd)

Dashboard Wire Harness (View of Driver's Side) (cont'd)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Under-dash fuse/relay box connector A (see page 22-59)	38	6	Left kick panel		
Under-dash fuse/relay box connector N (see page 22-59)	40	45	Left kick panel		
Under-dash fuse/relay box connector P (MICU) (see page 22-59)	37	30	Left kick panel		
Under-dash fuse/relay box connector R (MES) (see page 22-59)	42	2	Left kick panel		
Under-dash fuse/relay box connector S (see page 22-59)	41	2	Left kick panel		
Under-dash fuse/relay box connector X (see page 22-59)	39	39	Left kick panel		
VSA OFF switch	4	5	Under left side of dash		
C304	31	14	Under left side of dash	Left engine compartment wire harness (see page 22-24)	
C305	30	4	Under left side of dash	Left engine compartment wire harness (see page 22-24)	
C501	46	28	Under left side of dash	Roof wire harness (see page 22-45)	
C510 (Junction connector)	32	12	Under left side of dash		
C511 (Junction connector)	1	12	Under left side of dash		
C512 (Junction connector)	2	12	Under left side of dash		
C513 (Junction connector)	12	12	Under left side of dash		
C514 (Junction connector)	11	12	Under left side of dash		
C515 (Junction connector)	7	12	Under left side of dash		
C516 (Junction connector)	8	12	Under left side of dash		
C517 (Junction connector)	10	12	Under left side of dash		
C518 (Junction connector)	9	12	Under left side of dash		
C601	36	20	Under left side of dash	Floor wire harness (see page 22-34)	
G501	34		Under left side of dash	Body ground, via dashboard wire harness	
G502	33		Under left side of dash	Body ground, via dashboard wire harness	

BACK

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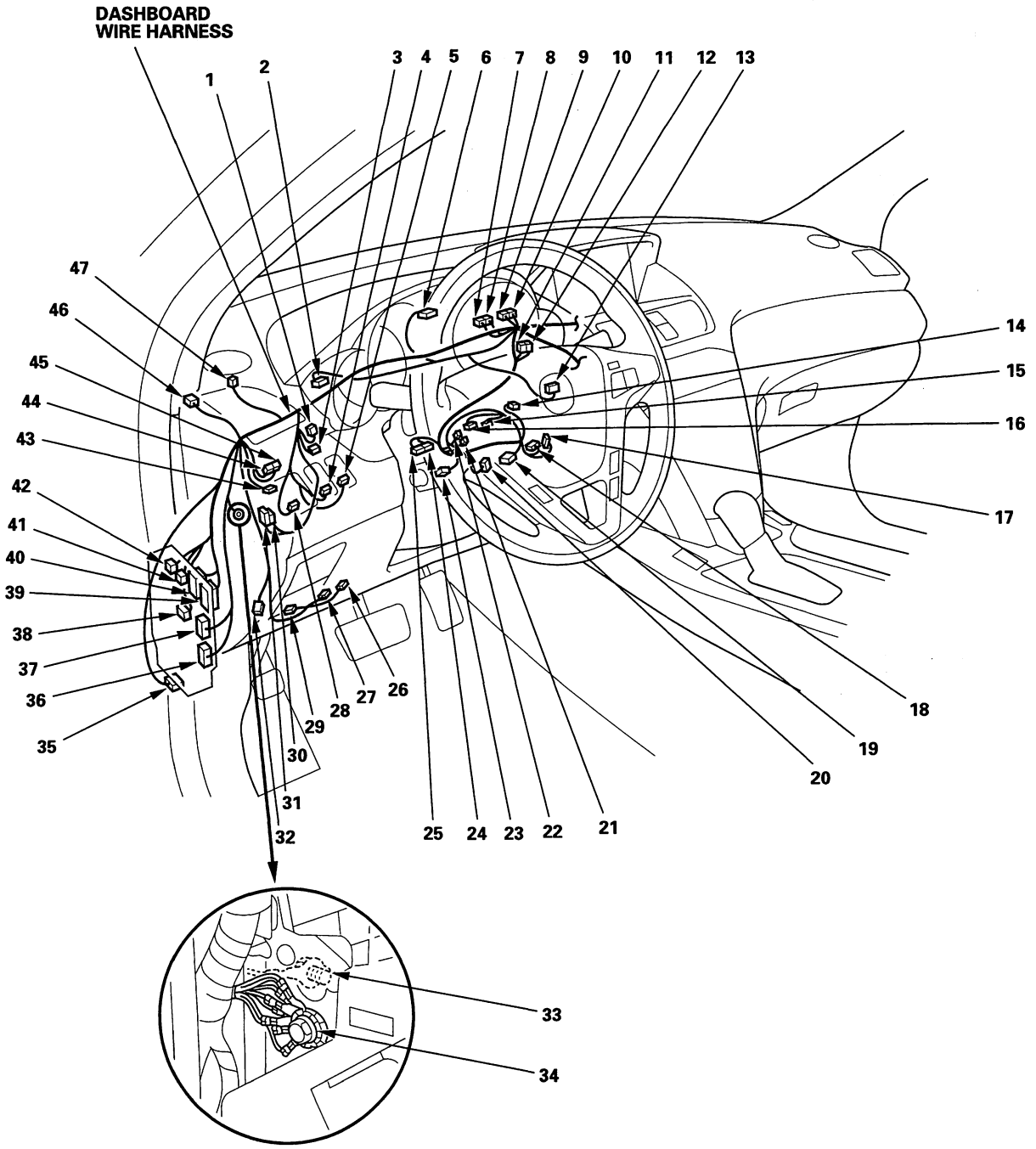

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Connector to Harness Index (cont'd)

Dashboard Wire Harness (Center Console Branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/T shift lock solenoid	6	2	Under center console		
A/T shift lever console light/park-pin switch	7	8	Under center console		
Auxiliary jack assembly	15	14	Rear of center console		* 1
Data link connector	2	16	Under middle of dash		
HandsFreeLink control unit	16	28	Under rear of center console		
In-car temperature sensor	3	4	Under middle of dash		
Left second row seat heater switch	14	6	Rear of center console		* 3
Rear accessory power socket	15	2	Rear of center console		* 2
Rear air mix control motor	11	7	Under center console		
Rear blower motor	8	2	Under center console		
Rear blower motor relay	10	4	Under center console		
Rear climate control panel	13	10	Rear of center console		
Rear evaporator temperature sensor	20	2	Under center console		
Rear mode control motor	17	7	Under center console		
Rear power transistor	9	4	Under center console		
Right second row seat heater switch	12	6	Rear of center console		* 3
Second row seat heater relay	22	5	Under center console		* 3
SRS unit connector A	1	28	Under middle of dash		
Yaw rate-lateral/longitudinal acceleration sensor	5	4	Under middle of dash		
C519 (Junction connector)	24	12	Under middle of dash		
C520 (Junction connector)	23	12	Under middle of dash		
C602	18	20	Under center console	Floor wire harness (see page 22-34)	
C603	19	5	Under center console	Floor wire harness (see page 22-34)	* 3
G503	21		Under console panel	Body ground, via dashboard wire harness	
G505	4		Under middle of dash	Body ground, via dashboard wire harness	

* 1: With rear entertainment system
* 2: Without rear entertainment system
* 3: With second row seat heaters

BACK

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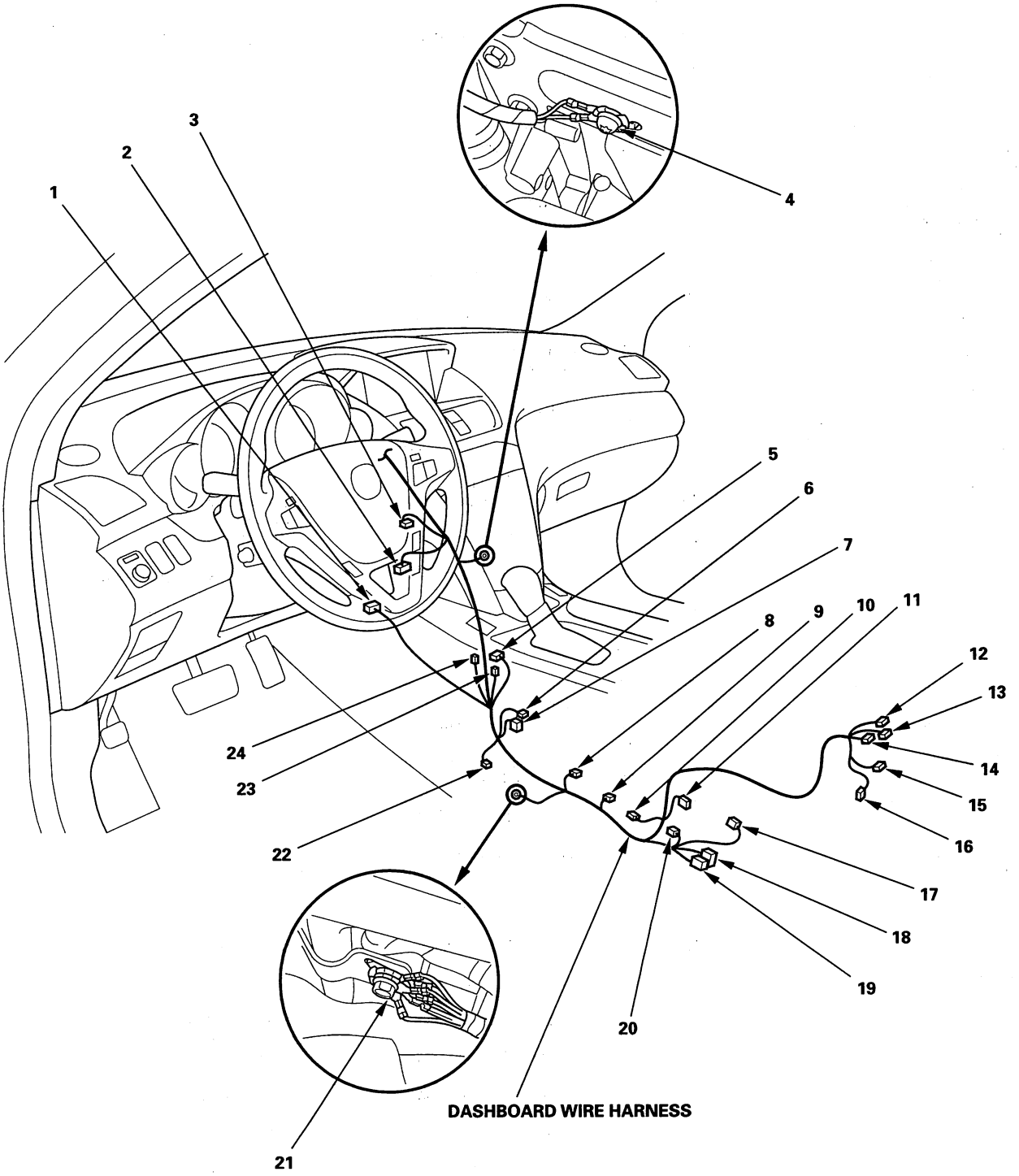

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Connector to Harness Index (cont'd)

Dashboard Wire Harness (View of Passenger's Side)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
AC inverter unit	36	12	Under center console		
Audio unit connector A	39	17	Middle of dash		
Audio unit connector B	40	32	Middle of dash		
Audio unit connector C	41	24	Middle of dash		
Audio unit connector D	42	16	Middle of dash		* 3
Audio unit connector E (for XM receiver)	43	12	Middle of dash		* 3
Audio unit connector E	45	———	Middle of dash		* 3
Center information display	11	12	Middle of dash		* 2
Center speaker	8	2	Middle of dash		
Climate control unit connector A	1	40	Middle of dash		
Climate control unit connector B	2	14	Middle of dash		
Digital audio lead connector	19	———	Under right side of dash		* 3
Digital audio lead (audio unit side)	45	———	Middle of dash		* 3
Front passenger's airbag inflator	17	4	Under right side of dash		
Glove box light	20	2	Under right side of dash		
Hazard warning switch	3	6	Middle of dash		
Interface dial	44	5	Middle of dash		
Navigation display unit	6	20	Middle of dash		* 1
Right front tweeter	16	2	Under right side of dash		
Stereo amplifier connector A	22	28	Under right side of dash		* 1
Stereo amplifier connector A	22	20	Under right side of dash		* 2
Stereo amplifier connector B	23	18	Under right side of dash		
Sunlight sensor	9	5	Middle of dash		
C201	26	34	Under right side of dash	Right engine compartment wire harness (see page 22-22)	
C202	25	5	Under right side of dash	Right engine compartment wire harness (see page 22-22)	
C203	27	4	Under right side of dash	Right engine compartment wire harness (see page 22-22)	
C502	32	12	Under middle of dash	A/C wire harness (see page 22-56)	
C503	33	16	Under middle of dash	A/C wire harness (see page 22-56)	
C521 (Junction connector)	7	12	Under right side of dash		
C522 (Junction connector)	10	12	Under right side of dash		
C523 (Junction connector)	14	12	Under right side of dash		
C524 (Junction connector)	5	12	Under right side of dash		
C525 (Junction connector)	4	12	Under right side of dash		
C526 (Junction connector)	15	12	Under right side of dash		
C527 (Junction connector)	12	12	Under right side of dash		
C528 (Junction connector)	13	12	Under right side of dash		
C529 (Junction connector)	21	12	Under right side of dash		
C530 (Junction connector)	31	12	Under right side of dash		
C604	29	12	Under right side of dash	Floor wire harness (see page 22-38)	
C605	28	18	Under right side of dash	Floor wire harness (see page 22-38)	
C606	35	24	Under middle of dash	Floor wire harness (see page 22-38)	* 1
C771	24	23	Under right side of dash	Front passenger's door wire harness (see page 22-50)	
C901	34	16	Under middle of dash	Console subharness (see page 22-47)	
C951	18	20	Under right side of dash	RES wire harness (see page 22-46)	* 3
G504	37		Under middle of dash	Body ground, via dashboard wire harness	
G506	38		Under middle of dash	Body ground, via dashboard wire harness	
G507	30		Under right side of dash	Body ground, via dashboard wire harness	

* 1: With navigation
* 2: Without navigation
* 3: With rear entertainment system

BACK

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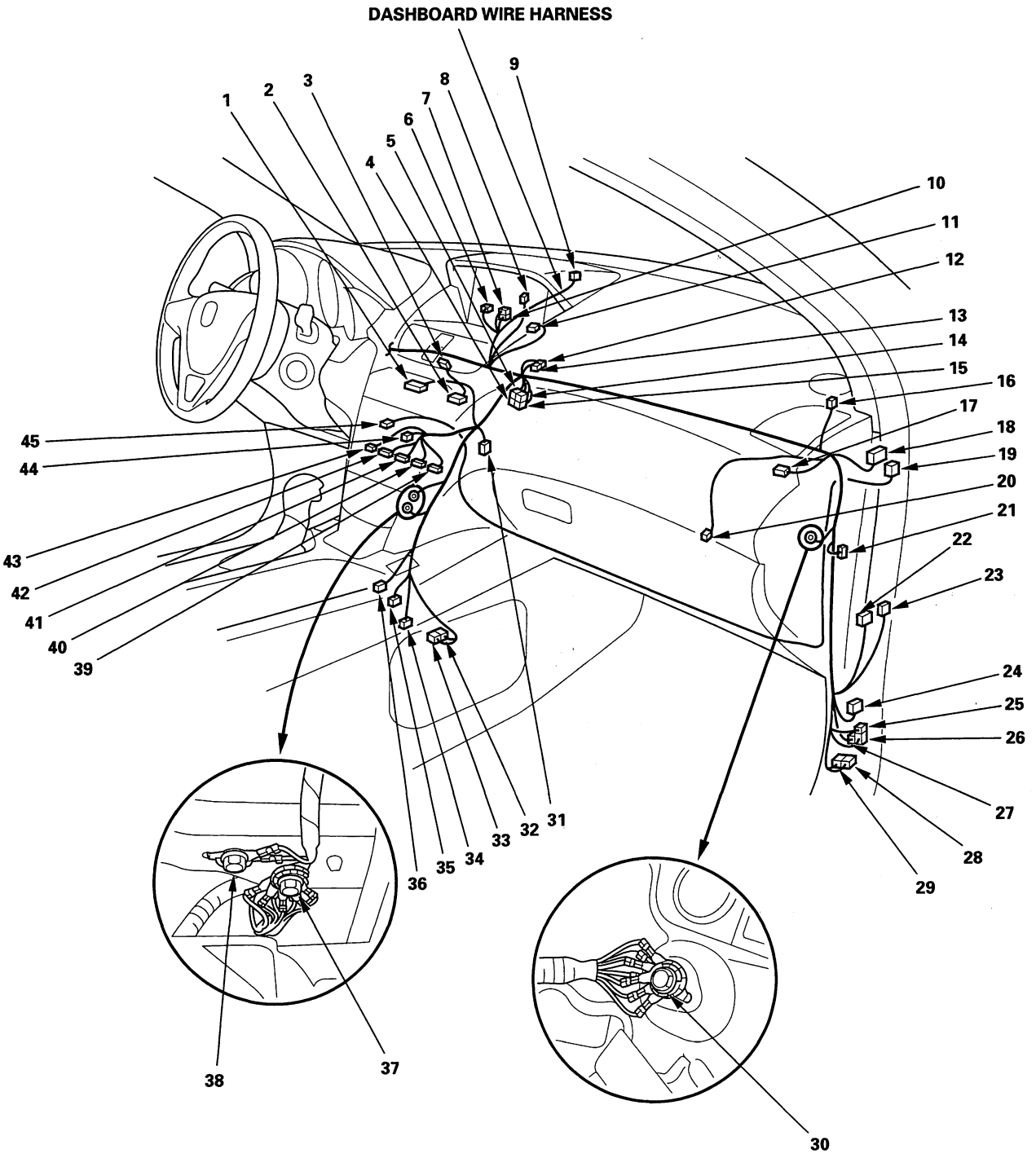

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Connector to Harness Index (cont'd)

Floor Wire Harness (Left Branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Active damper control unit connector A	29	14	Left side of cargo area		* 4
Active damper control unit connector B	30	20	Left side of cargo area		* 4
Cargo area accessory power socket	26	2	Left side of cargo area		
Driver's door switch	46	1	Left B-pillar		
Driver's seat belt tensioner	43	4	Left B-pillar		
Driver's side airbag inflator	9	2	Under driver's seat		
EVAP canister vent shut valve	17	2	Fuel tank		
Fuel fill door opener solenoid	23	2	Left side of cargo area		
Fuel pump control module	34	10	Left side cargo area		
Fuel pump/fuel gauge sending unit	41	4	Fuel tank		
Fuel tank pressure (FTP) sensor	18	3	Fuel tank		
Left rear damper coil	38	2	Under left rear floor		* 4
Left rear door switch	40	1	Left C-pillar		
Left rear initiator	35	3	Under left rear floor		TPMS
Left rear vertical acceleration sensor	36	3	Left side of cargo area		* 4
Left side impact sensor (FIRST)	45	4	Left B-pillar		
Left side impact sensor (SECOND)	39	2	Left C-pillar		
Left side curtain airbag inflator	19	2	Left C-pillar		
Left second row seat heater	21	3	Under left second row seat		* 1
Navigation service check connector	42	2	Under driver's seat		Navigation
Navigation unit connector A	10	20	Under driver's seat		Navigation
Navigation unit connector B	11	7	Under driver's seat		Navigation
Navigation unit connector C	12	8	Under driver's seat		Navigation
Navigation unit connector D	13	14	Under driver's seat		Navigation
Navigation unit connector E	14	5	Under driver's seat		Navigation
Rear fuse/relay box connector A (see page 22-60)	28	2	Left side of cargo area		
Rear fuse/relay box connector B (see page 22-60)	27	34	Left side of cargo area		
Rear safing sensor	20	4	Middle of floor		
SH-AWD control unit connector A	31	20	Left side of cargo area		
SH-AWD control unit connector B	32	8	Left side of cargo area		
Under-dash fuse/relay box connector E (see page 22-59)	3	16	Left kick panel		
Under-dash fuse/relay box connector F (see page 22-59)	4	14	Left kick panel		
Under-dash fuse/relay box connector G (see page 22-59)	5	6	Left kick panel		
Under-dash fuse/relay box connector H (see page 22-59)	6	14	Left kick panel		
Under-dash fuse/relay box connector Q (see page 22-59)	2	14	Left kick panel		

* 1: With second row seat heaters
* 2: With navigation or electrical compass
* 3: Without navigation and electrical compass
* 4: With active damper system

BACK

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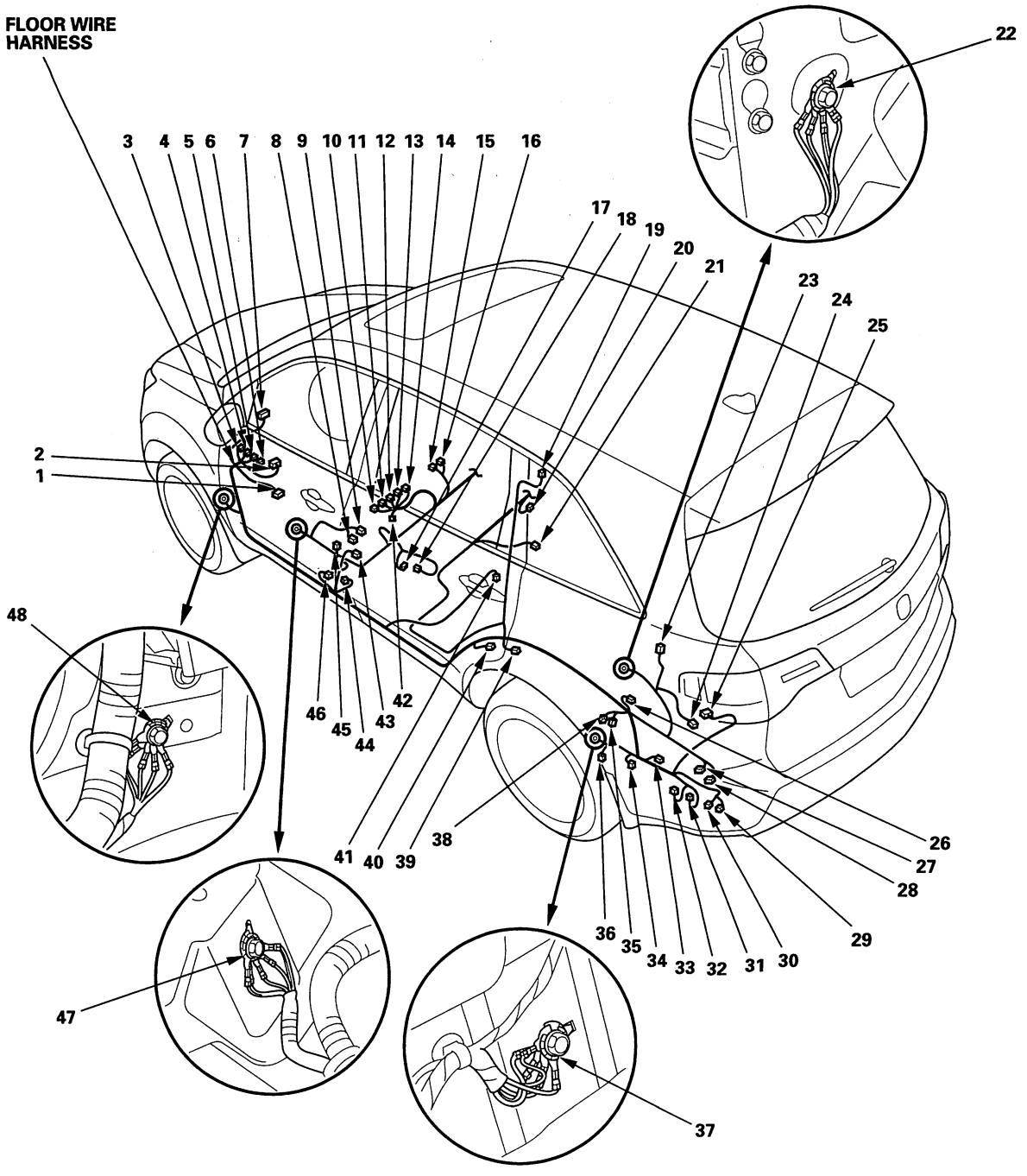

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Connector to Harness Index (cont'd)

Floor Wire Harness (Left Branch) (cont'd)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
C303	7	7	Under left side of dash	Left engine compartment wire harness (see page 22-24)	
C601	1	20	Left kick panel	Dashboard wire harness (see page 22-26)	
C602	15	20	Under center console	Dashboard wire harness (see page 22-30)	
C603	16	5	Under center console	Dashboard wire harness (see page 22-30)	* 1
C609	8	23	Under driver's seat	Driver's seat wire harness (see page 22-54)	
C611	24	12	Left side of cargo area	Rear wire harness (see page 22-40)	* 2
C611	24	4	Left side of cargo area	Rear wire harness (see page 22-40)	* 3
C612 (Junction connector)	33	12	Left kick panel		
C613	25	23	Under left rear floor	Rear subframe wire harness (see page 22-44)	
C781	44	18	Left B-pillar	Left rear door wire harness (see page 22-52)	
G601	48		Left kick panel	Body ground, via floor wire harness	
G602	47		Under driver's seat	Body ground, via floor wire harness	
G603	22		Left side of cargo area	Body ground, via floor wire harness	
G604	37		Left side of cargo area	Body ground, via floor wire harness	

* 1: With second row seat heaters
* 2: With navigation or electrical compass
* 3: Without navigation and electrical compass
* 4: With active damper system

BACK

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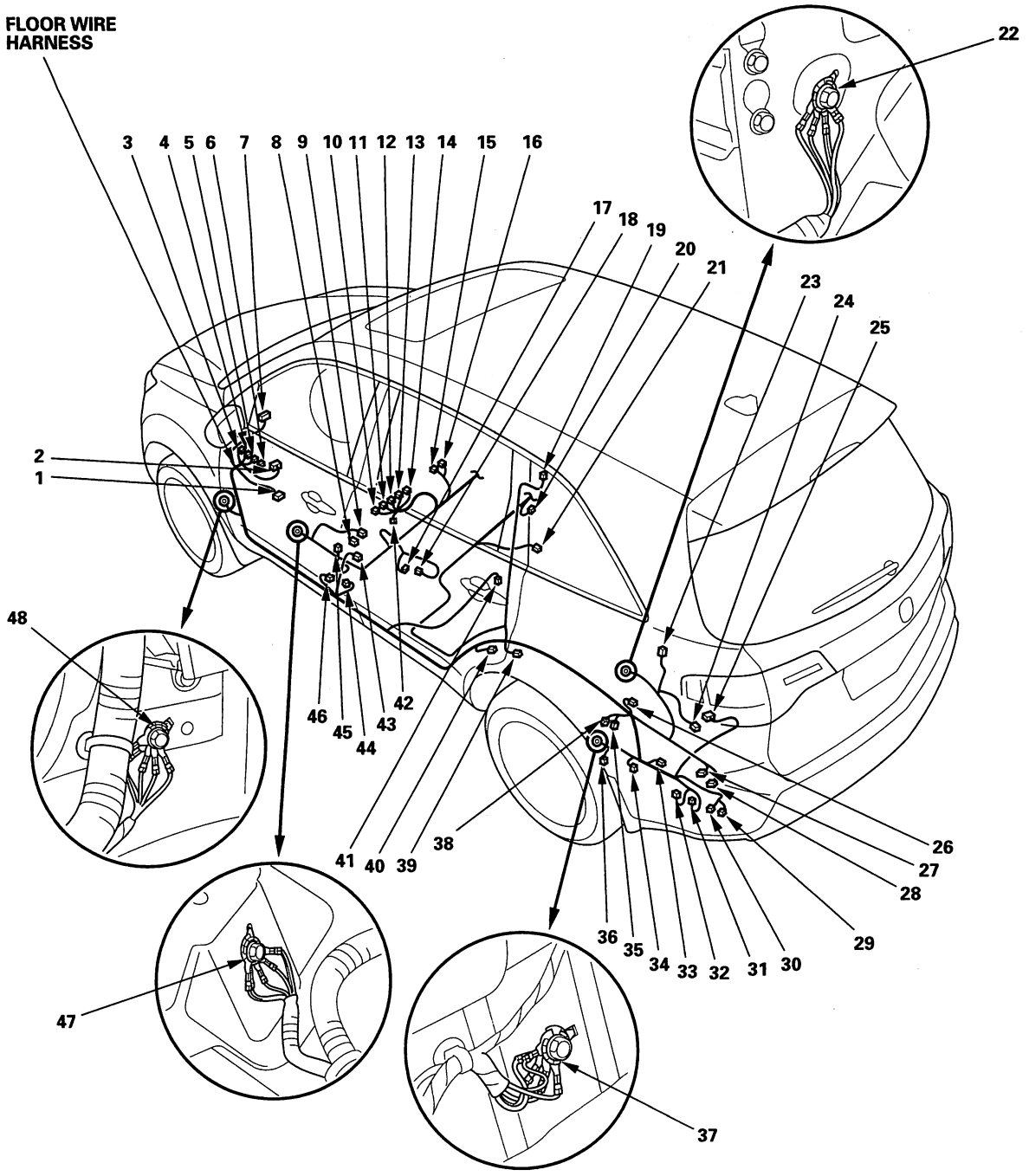

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Connector to Harness Index (cont'd)

Floor Wire Harness (Right branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
AcuraLink control unit (XM receiver) connector A	21	20	Right side of cargo area		USA
AcuraLink control unit (XM receiver) connector B	22	16	Right side of cargo area		USA
Front passenger's door switch	9	1	Right B-pillar		
Front passenger's seat belt tensioner	11	4	Right B-pillar		
Front passenger's side airbag inflator	29	2	Right B-pillar		
Right rear damper coil	17	2	Under right side of floor		* 2
Right rear door switch	14	1	Right C-pillar		
Right rear initiator	16	3	Under right side of floor		TPMS
Right-rear vertical acceleration sensor	20	3	Right side of cargo area		* 2
Right side curtain airbag inflator	27	4	Right C-pillar		
Right second row seat cushion heater	25	3	Under right second row seat		* 1
Right side impact sensor (FIRST)	10	4	Right B-pillar		
Right side impact sensor (SECOND)	15	2	Right C-pillar		
Roll rate sensor	26	2	Middle of floor		
SRS unit connector B	2	16	Under middle of dash		
SRS unit connector C	1	28	Under middle of dash		
Subwoofer	19	8	Under front passenger's seat		
XM receiver	21	14	Right side of cargo area		* 4
C204	6	23	Right kick panel	Right engine compartment wire harness (see page 22-22)	
C604	4	12	Right kick panel	Dashboard wire harness (see page 22-32)	
C605	5	18	Right kick panel	Dashboard wire harness (see page 22-32)	
C606	3	24	Under middle of dash	Dashboard wire harness (see page 22-32)	Navigation
C608 (Junction connector)	28	20	Under middle of dash		
C610	8	14	Under front passenger's seat	Front passenger's seat wire harness (see page 22-55)	
C614	24	13	Right side of cargo area	Rear wire harness (see page 22-40)	Navigation
C614	24	2	Right side of cargo area	Rear wire harness (see page 22-40)	Without Navigation
C615 (Junction connector)	18	12	Right side of floor		
C616	30	4	Under front passenger's seat	ODS wire harness (see page 22-55)	
C617 (Male connector)	23	5	Right side of cargo area		* 3
C617 (Female connector)	23	5	Right side of cargo area		* 3
C791	12	18	Right B-pillar	Right rear door wire harness (see page 22-53)	
G605	7		Under front passenger's seat	Body ground, via front wire harness	
G606	13		Mounted on B-pillar	Body ground, via front wire harness	

* 1: With second row seat heaters
* 2: With active damper system
* 3: With USA models with AcuraLink
* 4: Without AcuraLink

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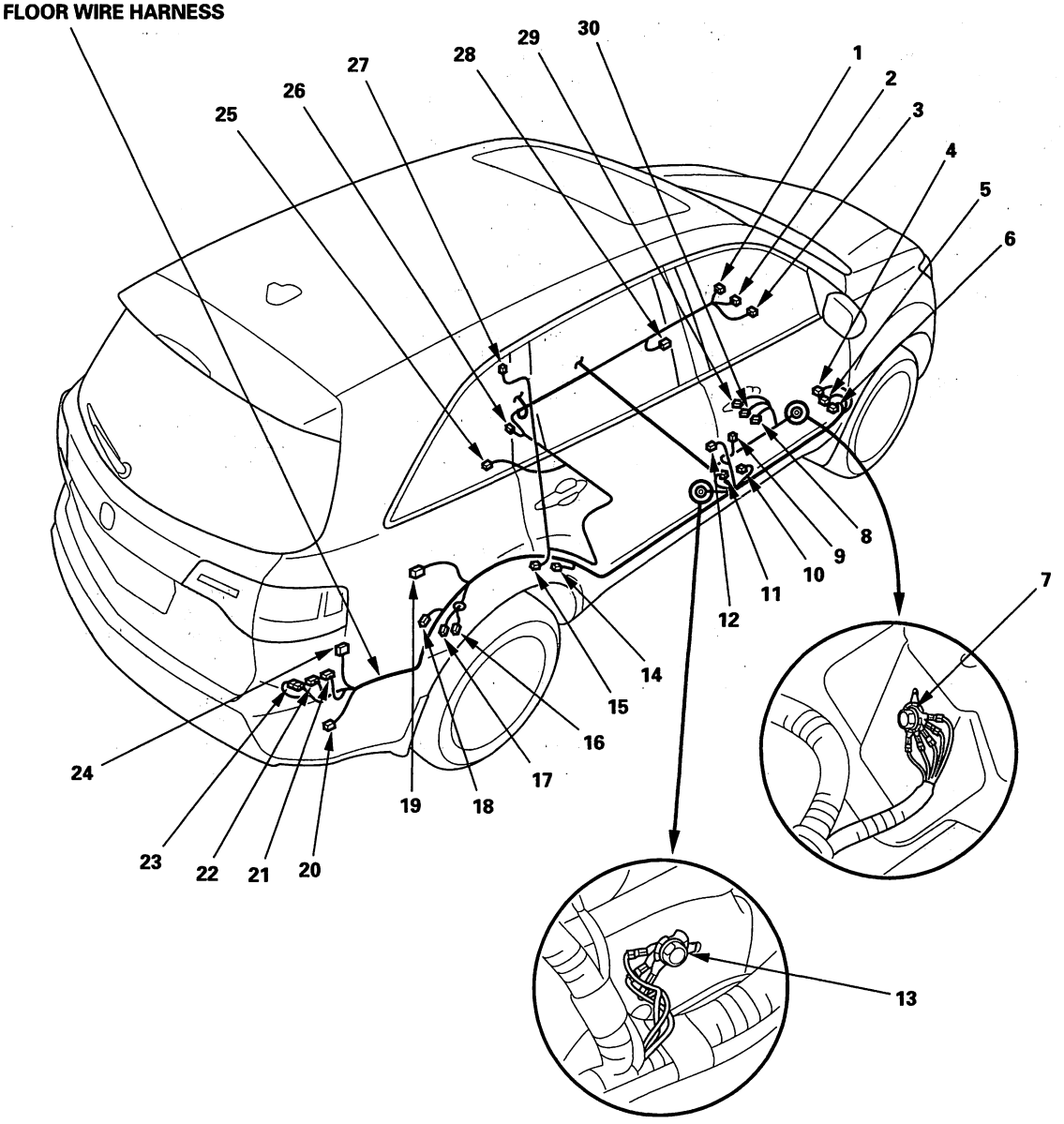
FLOOR WIRE HARNESS



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Connector to Harness Index (cont'd)

Rear Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Electrical compass unit	2	6	Left D-pillar		* 4
Keyless buzzer	13	2	Behind rear bumper		
Left brake light/taillight	15	3	Left taillight assembly		
Left rear side marker light	17	2	Left taillight assembly		
Left rear turn signal light	16	2	Left taillight assembly		
Left surround speaker	6	2	Left D-pillar		Navigation
Power tailgate control unit connector A	23	5	Left D-pillar		* 1
Power tailgate control unit connector B	21	20	Left D-pillar		* 1
Power tailgate control unit connector C	22	14	Left D-pillar		* 1
Power tailgate driver unit connector A	4	2	Left D-pillar		* 1
Power tailgate driver unit connector B	5	8	Left D-pillar		* 1
Rear fuse/relay box connector C (see page 22-60)	19	42	Left side of cargo area		
Right brake light/taillight	11	3	Right taillight assembly		
Right rear side marker light	10	2	Right taillight assembly		
Right rear turn signal light	12	2	Right taillight assembly		
Right surround speaker	9	2	Right D-pillar		Navigation
C611	20	12	Left side of cargo area	Floor wire harness (see page 22-34)	* 2
C611	20	4	Left side of cargo area	Floor wire harness (see page 22-34)	* 3
C614	7	13	Right side of cargo area	Floor wire harness (see page 22-38)	Navigation
C614	7	2	Right side of cargo area	Floor wire harness (see page 22-38)	* 4
C701	3	18	Left D-pillar	Left tailgate wire harness (see page 22-42)	
C704	8	12	Right D-pillar	Right tailgate wire harness (see page 22-43)	* 1
T701 (Welding joint)	18		Left D-pillar		* 1
G701	1		Left D-pillar	Body ground, via rear wire harness	
G702	14		Center of cargo area	Body ground, via rear wire harness	

* 1: With power tailgate
* 2: With navigation or compass
* 3: Without navigation and compass
* 4: Canada models without navigation

BACK

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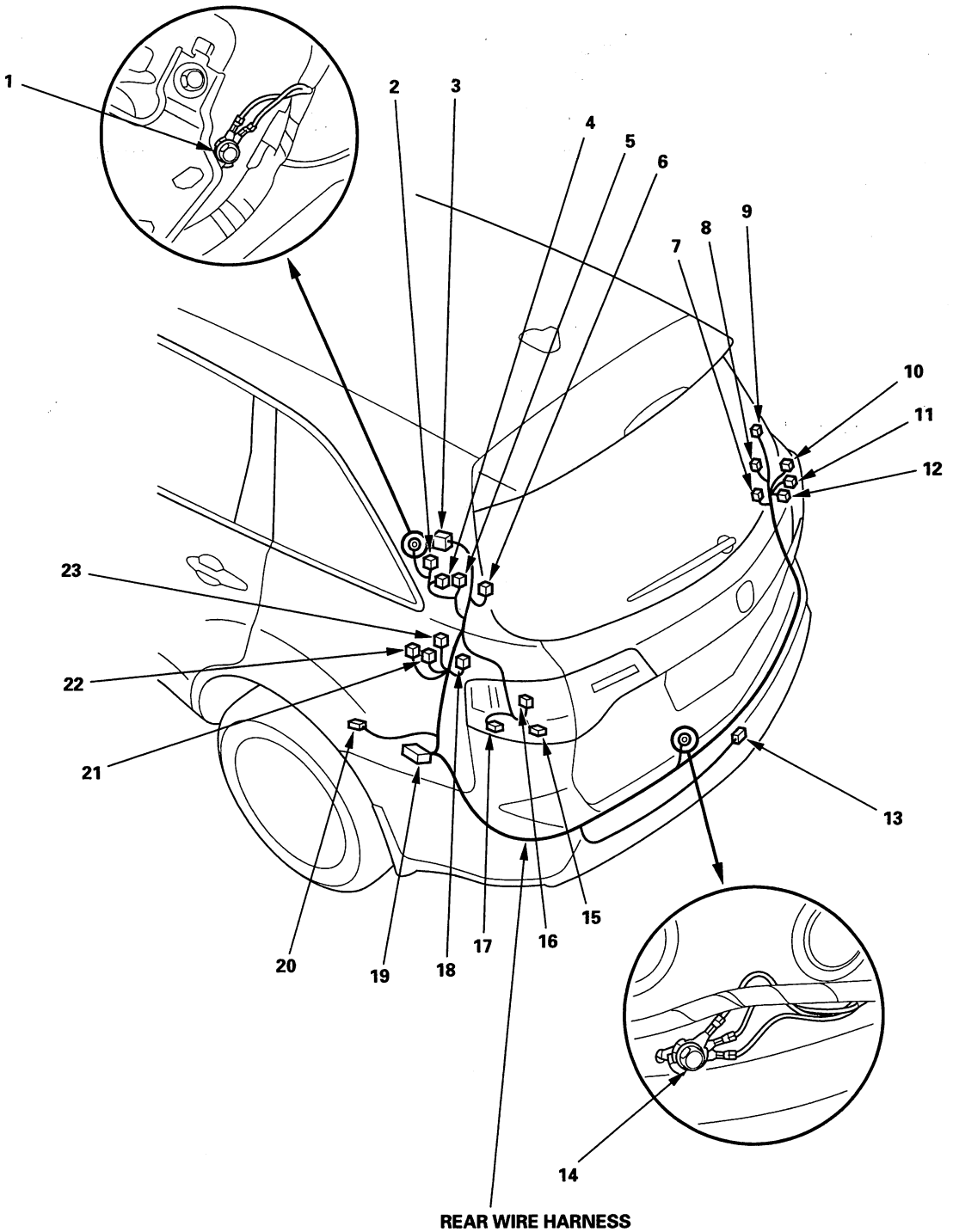

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Connector to Harness Index (cont'd)

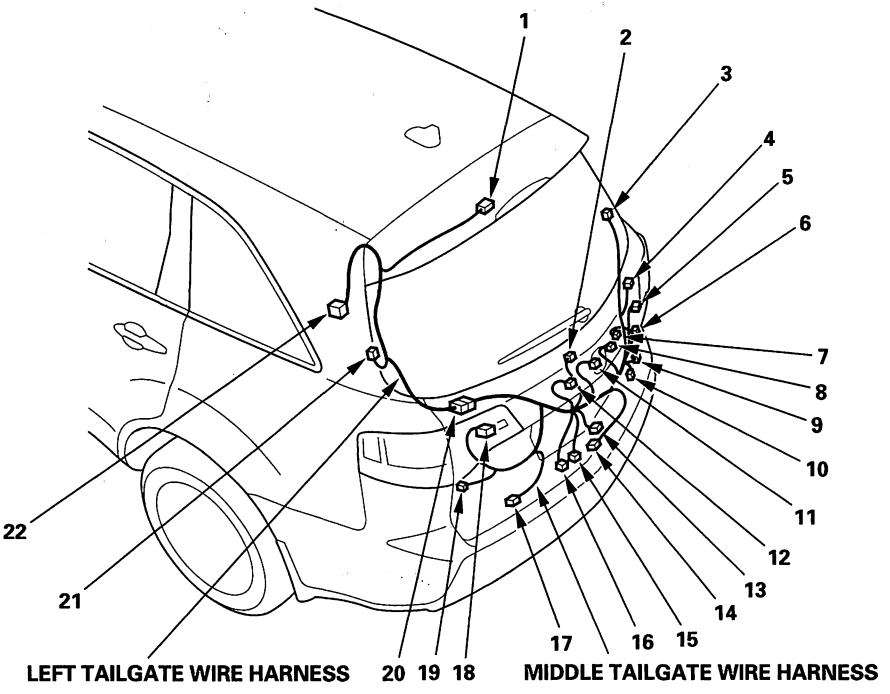
Left Tailgate Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
High mount brake light	1	2	Roof spoiler		
Rear window defogger connector A (+)	21	1	Left side of rear window		
C701	22	23	Left D-pillar	Rear wire harness (see page 22-40)	
C702	20	18	Left side of tailgate	Middle tailgate wire harness	

Middle Tailgate Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Left cargo area light	17	2	Left side of tailgate		
Left back-up light	18	2	Left side of tailgate		
Left license plate light	12	2	Center of tailgate		
Left power tailgate pinch sensor	19	2	Left side of tailgate		* 1
Power tailgate closer motor	15	2	Center of tailgate		* 1
Power tailgate closer unit/latch and ratchet switch	16	6	Center of tailgate		* 1
Power tailgate inside switch	10	5	Center of tailgate		* 1
Rearview camera	7	6	Center of tailgate		Navigation
Rear window defogger connector B (−)	13	1	Right side of rear window		* 2
Rear window wiper motor	2	4	Center of tailgate		
Right cargo area light	9	2	Right side of rear window		
Right back-up light	5	2	Right side of tailgate		
Right license plate light	8	2	Center of tailgate		
Right power tailgate pinch sensor	6	2	Right side of tailgate		* 1
Tailgate latch switch	13	2	Center of tailgate		* 2
Tailgate outer handle switch	11	3	Center of tailgate		
Tailgate release actuator	14	2	Center of tailgate		* 2
C702	20	18	Left side of tailgate	Left tailgate wire harness	
C703	4	18	Right side of tailgate	Right tailgate wire harness (see page 22-43)	* 1

* 1: With power tailgate
* 2: Without power tailgate



BACK

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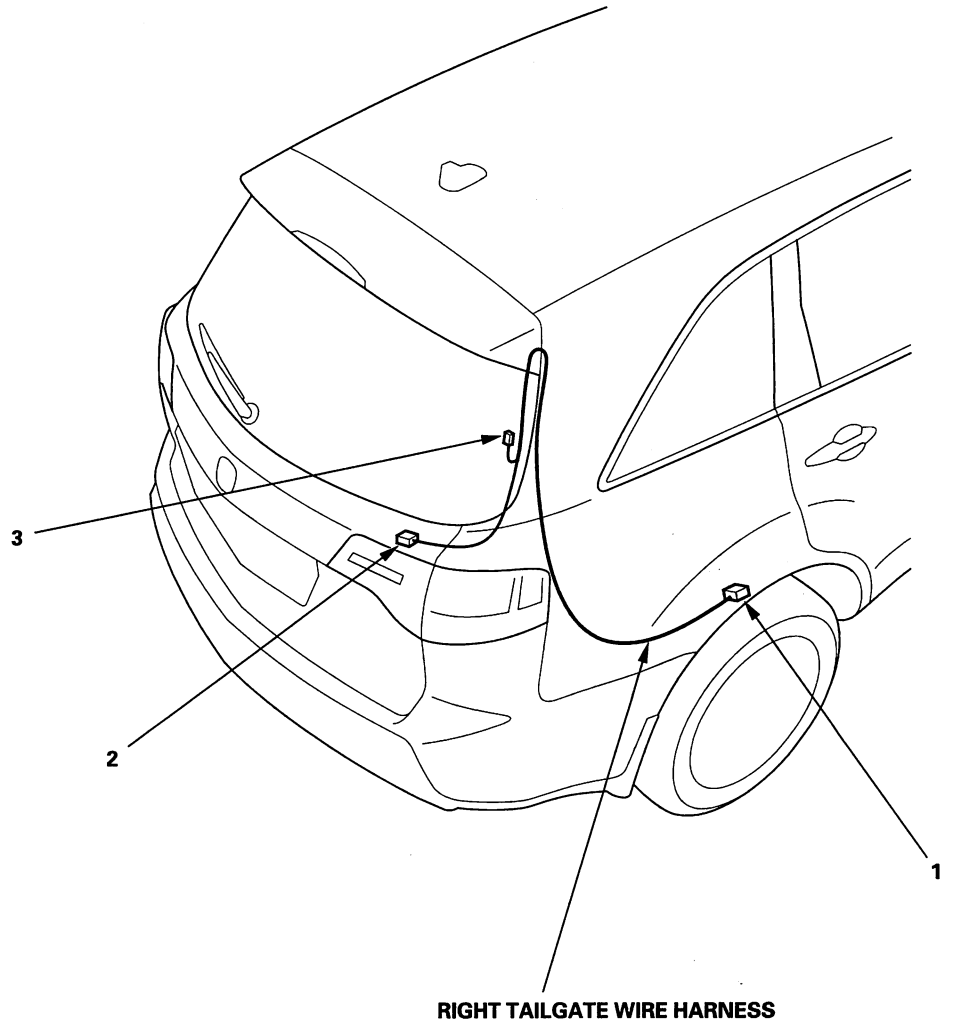
Right Tailgate Wire Harness (With Power Tailgate)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Rear window defogger connector B (—)	3	1	Right side of rear window		
C703	2	18	Right side of tailgate	Middle tailgate wire harness (see page 22-42)	
C704	1	12	Right side of cargo area	Floor wire harness (see page 22-40)	



RIGHT TAILGATE WIRE HARNESS

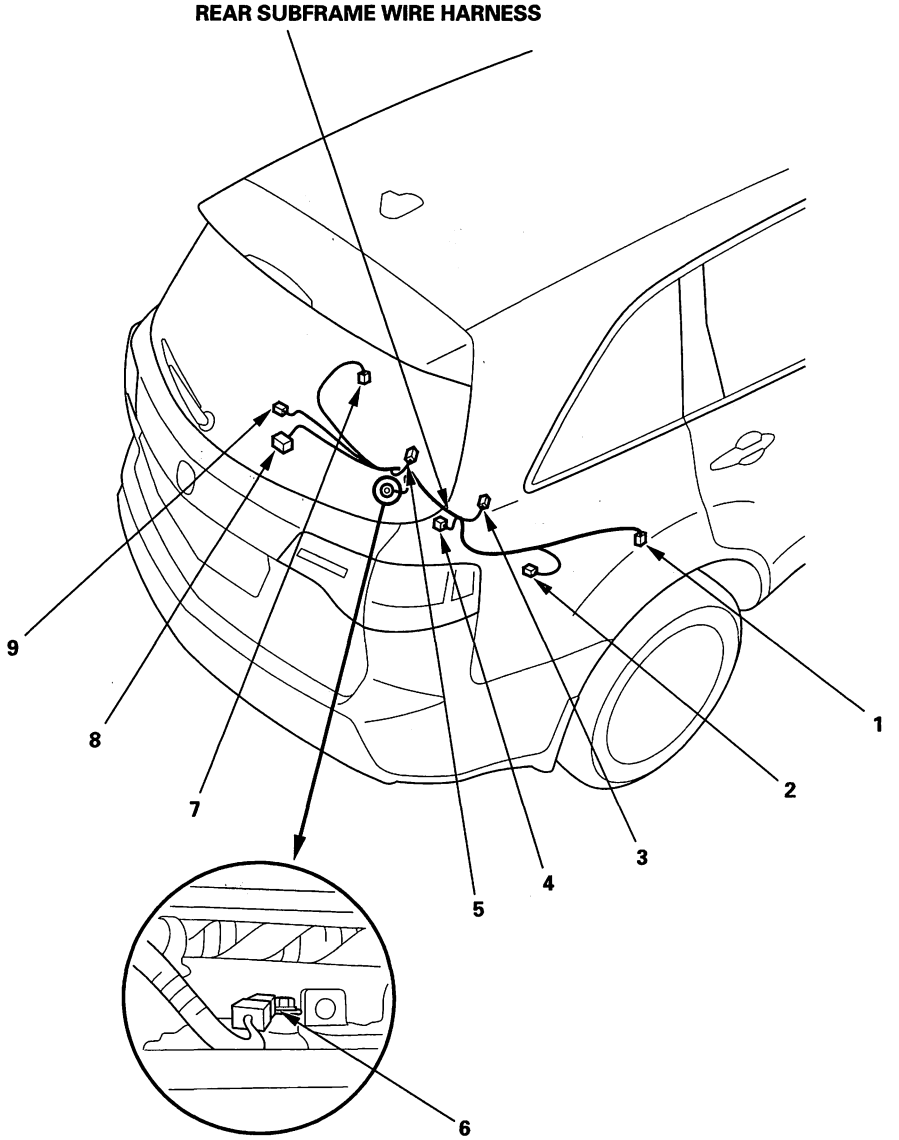
Protected by AR

Connector to Harness Index (cont'd)

Rear Subframe Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Differential temperature sensor	4	2	Rear differential		
Left clutch electromagnetic coil	5	4	Rear differential		
Left rear wheel sensor	7	2	Rear differential		
Left rear suspension stroke sensor	9	3	Rear differential		
Right clutch electromagnetic coil	3	4	Rear differential		
Right rear suspension stroke sensor	2	3	Rear differential		
Right rear wheel sensor	1	2	Rear differential		
C613	8	23	Under rear of floor	Floor wire harness (see page 22-34)	
G651	6		Subframe	Body ground, via rear subframe wire harness	

REAR SUBFRAME WIRE HARNESS



BACK

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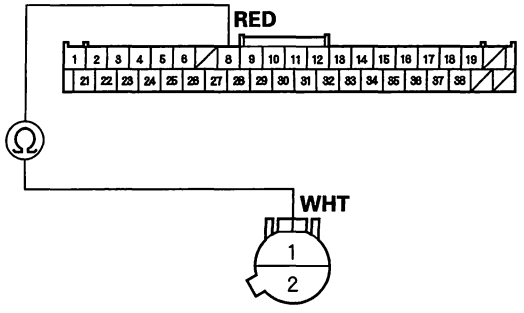
9. Check for continuity between climate control unit connector A (40P) terminal No. 8 and the outside air temperature sensor 2P connector terminal No. 1.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



OUTSIDE AIR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector A (40P) and at the outside air temperature sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire between the climate control unit and the outside air temperature sensor. ■

DTC B1228 or DTC indicator D and AUTO: A Short in the Outside Air Temperature Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1228 or D and AUTO indicated?

   YES—Go to step 5.

   NO—Intermittent failure. ■
5. Turn the ignition switch OFF.
6. Remove the outside air temperature sensor (see page 21-105), and test it (see page 21-105).

   Is the outside air temperature sensor OK?

   YES—Go to step 7.

   NO—Replace the outside air temperature sensor. ■
7. Disconnect climate control unit connector A (40P).

(cont'd)

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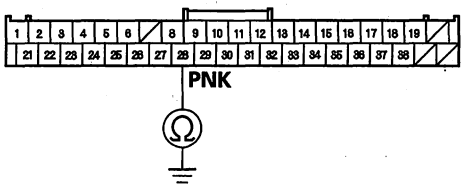
DTC Troubleshooting (cont'd)

8. Check for continuity between climate control unit connector A (40P) terminal No. 28 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

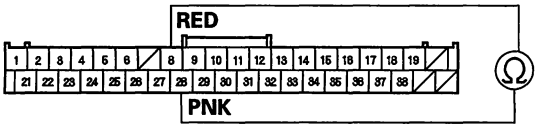
Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the outside air temperature sensor. ■

NO—Go to step 9.

9. Check for continuity between climate control unit connector A (40P) terminals No. 8 and No. 28.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the climate control unit and the outside air temperature sensor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

DTC B1229 or DTC indicator E and AUTO: An Open in the Sunlight Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

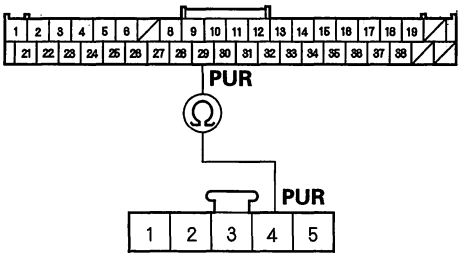
Is DTC B1229 or E and AUTO indicated?

YES—Go to step 5.

NO—Intermittent failure, check for loose wires or poor connections on the sunlight sensor circuit. ■

5. Turn the ignition switch OFF.
6. Disconnect the sunlight sensor 5P connector.
7. Disconnect climate control unit connector A (40P).
8. Check for continuity between climate control unit connector A (40P) terminal No. 29 and the sunlight sensor 5P connector terminal No. 4.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



SUNLIGHT SENSOR 5P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the climate control unit and the sunlight sensor. ■

BACK

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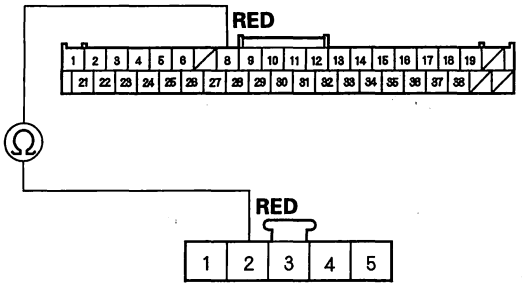
9. Check for continuity between climate control unit connector A (40P) terminal No. 8 and the sunlight sensor 5P connector terminal No. 2.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



SUNLIGHT SENSOR 5P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the climate control unit and the sunlight sensor. ■

10. Reconnect the sunlight sensor 5P connector.

11. Reconnect climate control unit connector A (40P).

12. Test the sunlight sensor (see page 21-106).

Is the sunlight sensor OK?

YES—Check for loose wires or poor connections at climate control unit connector A (40P) and at the sunlight sensor 5P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Replace the sunlight sensor (see page 21-106). ■

DTC B1230 or DTC indicator F and AUTO: A Short in the Sunlight Sensor Circuit

1. Clear the DTC with the HDS.

2. Turn the ignition switch OFF and then ON (II).

3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).

4. Check for DTCs.

Is DTC B1230 or F and AUTO indicated?

YES—Go to step 5.

NO—Intermittent failure. ■

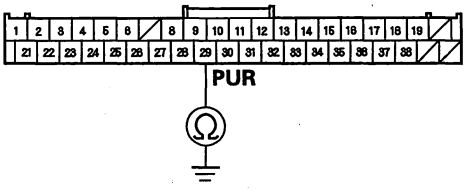
5. Turn the ignition switch OFF.

6. Disconnect the sunlight sensor 5P connector.

7. Disconnect climate control unit connector A (40P).

8. Check for continuity between climate control unit connector A (40P) terminal No. 29 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the sunlight sensor. ■

NO—Go to step 9.

(cont'd)

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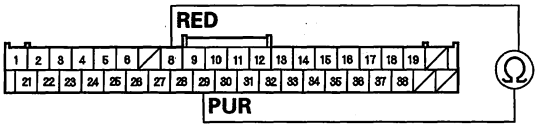
DTC Troubleshooting (cont'd)

9. Check for continuity between climate control unit connector A (40P) terminals No. 8 and No. 29.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the climate control unit and the sunlight sensor. ■

NO—Go to step 10.

10. Reconnect the sunlight sensor 5P connector.
11. Reconnect climate control unit connector A (40P).
12. Test the sunlight sensor (see page 21-106).

Is the sunlight sensor OK?

YES—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Replace the sunlight sensor (see page 21-106). ■

DTC B1231 or DTC indicator G and AUTO: An Open in the Front Evaporator Temperature Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

Is DTC B1231 or G and AUTO indicated?

YES—Go to step 5.

NO—Intermittent failure, check for loose wires or poor connections on the front evaporator temperature sensor circuit. ■

5. Turn the ignition switch OFF.
6. Remove the front evaporator temperature sensor (see page 21-107), and test it (see page 21-107).

Is the front evaporator temperature sensor OK?

YES—Go to step 7.

NO—Replace the front evaporator temperature sensor. ■

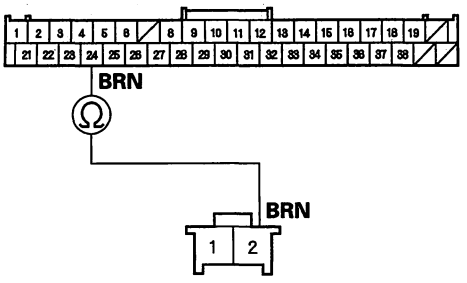
7. Disconnect climate control unit connector A (40P).

BACK

Protected by AR

8. Check for continuity between climate control unit connector A (40P) terminal No. 24 and the front evaporator temperature sensor 2P connector terminal No. 2.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



FRONT EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

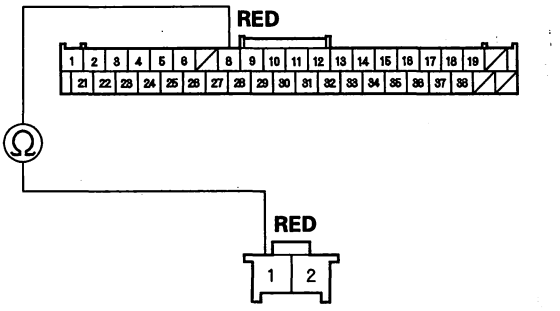
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the climate control unit and the front evaporator temperature sensor.■

9. Check for continuity between climate control unit connector A (40P) terminal No. 8 and the front evaporator temperature sensor 2P connector terminal No. 1.

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



FRONT EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector A (40P) and at the front evaporator temperature sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit.■

NO—Repair open in the wire between the climate control unit and the front evaporator temperature sensor.■

Protected by AR

DTC Troubleshooting (cont'd)

DTC B1232 or DTC indicator H and AUTO: A Short in the Front Evaporator Temperature Sensor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1232 or H and AUTO indicated?

   YES—Go to step 5.

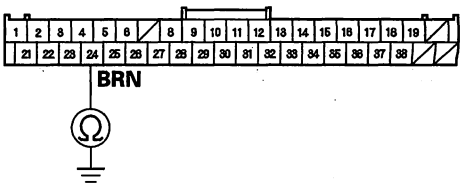
   NO—Intermittent failure. ■
5. Turn the ignition switch OFF.
6. Remove the front evaporator temperature sensor (see page 21-107), and test it (see page 21-107).

   Is the front evaporator temperature sensor OK?

   YES—Go to step 7.

   NO—Replace the front evaporator temperature sensor. ■
7. Disconnect climate control unit connector A (40P).
8. Check for continuity between climate control unit connector A (40P) terminal No. 24 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

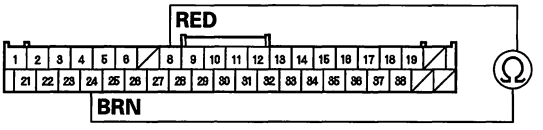
Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the front evaporator temperature sensor. ■

NO—Go to step 9.

9. Check for continuity between climate control unit connector A (40P) terminals No. 8 and No. 24.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the climate control unit and the front evaporator temperature sensor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

BACK

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DTC B1233 or DTC indicator J and AUTO: An Open in the Driver's Air Mix Control Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1233 or J and AUTO indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the driver's air mix control motor circuit. ■
5. Turn the ignition switch OFF.
6. Test the driver's air mix control motor (see page 21-109).

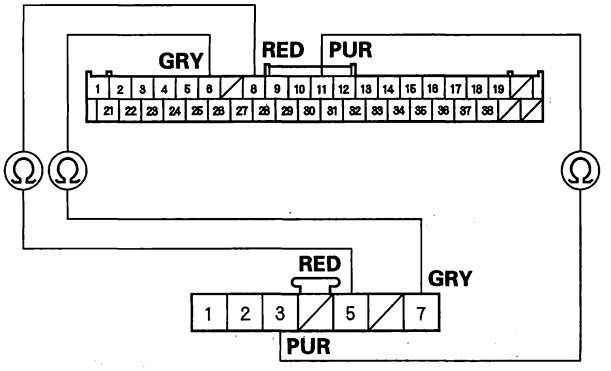
   Is the driver's air mix control motor OK?

   YES—Go to step 7.

   NO—Replace the driver's air mix control motor (see page 21-110). ■
7. Disconnect the driver's air mix control motor 7P connector.
8. Disconnect climate control unit connector A (40P).
9. Check for continuity between the following terminals of climate control unit connector A (40P) and the driver's air mix control motor 7P connector.

40P:	7P:
No. 6	No. 7
No. 8	No. 5
No. 11	No. 3

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



DRIVER'S AIR MIX CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at climate control unit connector A (40P) and at the driver's air mix control motor 7P connector. If the connections are good, substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Repair open in the wire(s) between the climate control unit and the driver's air mix control motor. ■

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DTC Troubleshooting (cont'd)

DTC B1234 or DTC indicator K and AUTO: A Short in the Driver's Air Mix Control Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1234 or K and AUTO indicated?

   YES—Go to step 5.

   NO—Intermittent failure. ■
5. Check for DTCs.

   Are these DTCs also present; B1237 or N and AUTO, and/or B1245 or G, and/or B2968 or A and WINDSHIELD DEFROST, and/or B2980 or B and WINDSHIELD DEFROST?

   YES—Go to step 13.

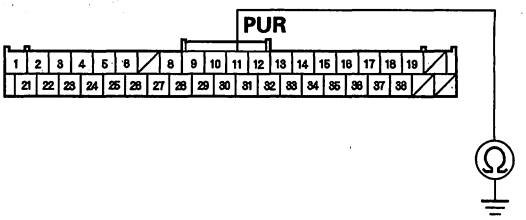
   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Test the driver's air mix control motor (see page 21-109).

   Is the driver's air mix control motor OK?

   YES—Go to step 8.

   NO—Replace the driver's air mix control motor (see page 21-110). ■
8. Disconnect the driver's air mix control motor 7P connector.
9. Disconnect climate control unit connector A (40P).
10. Check for continuity between body ground and climate control unit connector A (40P) terminal No. 11.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

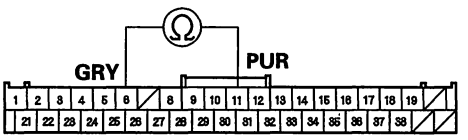
Is there continuity?

YES—Repair short to body ground in the wire between the climate control unit and the driver's air mix control motor. ■

NO—Go to step 11.

11. Check for continuity between climate control unit connector A (40P) terminals No. 6 and No. 11.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair the short in the wires. ■

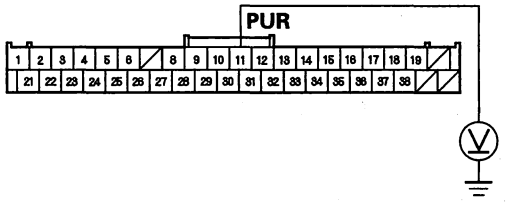
NO—Go to step 12.

BACK

Protected by AR

12. Turn the ignition switch ON (II), and measure the voltage between climate control unit connector A (40P) terminal No. 11 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire between the climate control unit and the driver's air mix control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

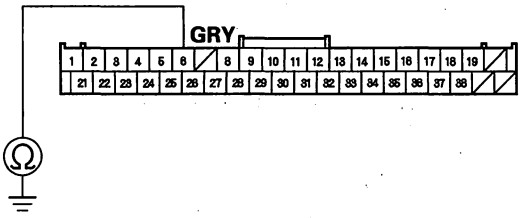
13. Turn the ignition switch OFF, and disconnect the climate control unit.

14. Disconnect these items:

- Driver's air mix control motor
- Passenger's air mix control motor
- Rear air mix control motor
- Humidity/in-car temperature sensor
- A/C pressure sensor

15. Check for continuity between climate control unit connector A (40P) terminal No. 6 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

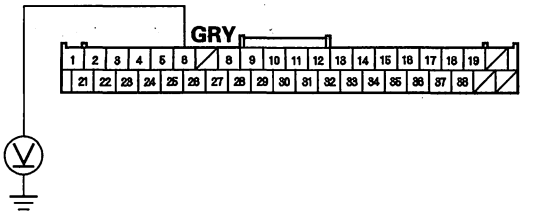
Is there continuity?

YES—Repair short to body ground in the wire. ■

NO—Go to step 16.

16. Turn the ignition switch ON (II), and check the same terminal for voltage to body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire. This short may have also damaged the climate control unit. Repair the short to power before replacing the climate control unit. ■

NO—Go to step 17.

(cont'd)

Protected by AR

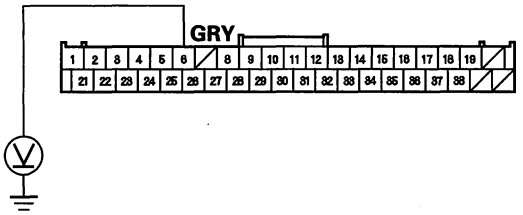
DTC Troubleshooting (cont'd)

17. Turn the ignition switch OFF.

18. Reconnect climate control unit connector (40P).

19. Turn the ignition switch ON (II), and measure the voltage between climate control unit connector A (40P) terminal No. 6 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there about 5 volts?

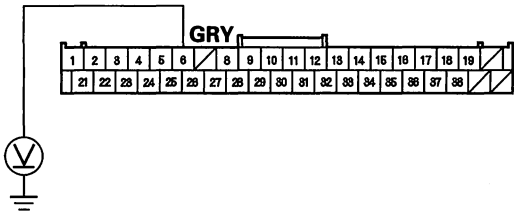
YES—Go to step 20.

NO—Check for a loose wire or poor connection at climate control unit connector A (40P). If the connection is good, substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

20. While checking the same terminal for voltage to ground, reconnect these items individually and note the voltage reading each time:

- Driver's air mix control motor
- Passenger's air mix control motor
- Rear air mix control motor
- Humidity/in-car temperature sensor
- A/C pressure sensor

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Does the voltage remain at about 5 volts?

YES—Substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

NO—Replace the component that caused the voltage drop. ■

BACK

Protected by AR

DTC B1235 or DTC indicator L and AUTO: A Problem in the Driver's Air Mix Control Linkage, Door, or Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1235 or L and AUTO indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the driver's air mix control motor circuit. ■
5. Turn the ignition switch OFF.
6. Test the driver's air mix control motor (see page 21-109).

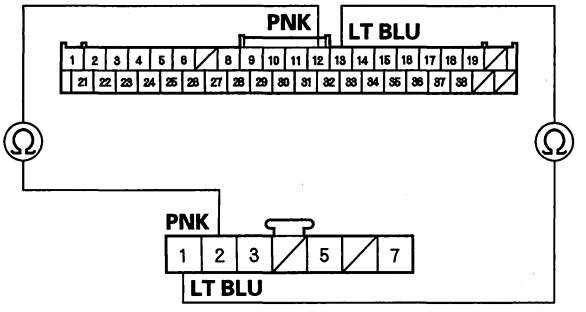
   Is the driver's air mix control motor OK?

   YES—Go to step 7.

   NO—Replace the driver's air mix control motor (see page 21-110), or repair the driver's air mix control linkage or door. ■
7. Disconnect the driver's air mix control motor 7P connector.
8. Disconnect climate control unit connector A (40P).
9. Check for continuity between the following terminals of climate control unit connector A (40P) and the driver's air mix control motor 7P connector.

40P:	7P:
No. 12	No. 2
No. 13	No. 1

CLIMATE CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



DRIVER'S AIR MIX CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire(s) between the climate control unit and the driver's air mix control motor. ■

(cont'd)

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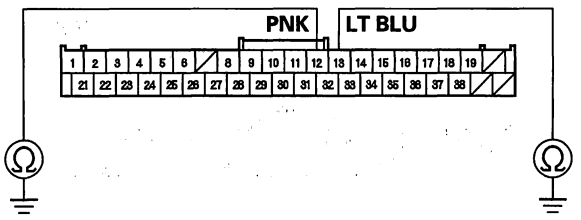
DTC Troubleshooting (cont'd)

10. Check for continuity between body ground and climate control unit connector A (40P) terminals No. 12 and No. 13 individually.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the climate control unit and the driver's air mix control motor. ■

NO—Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit. ■

DTC B1236 or DTC indicator M and AUTO: An Open in the Passenger's Air Mix Control Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then ON (II).
3. Do the self-diagnostic with the HDS (see page 21-9) or climate control unit (see page 21-10).
4. Check for DTCs.

   Is DTC B1236 or M and AUTO indicated?

   YES—Go to step 5.

   NO—Intermittent failure, check for loose wires or poor connections on the passenger's air mix control motor circuit. ■
5. Turn the ignition switch OFF.
6. Test the passenger's air mix control motor (see page 21-110).

   Is the passenger's air mix control motor OK?

   YES—Go to step 7.

   NO—Replace the passenger's air mix control motor (see page 21-111). ■
7. Disconnect the passenger's air mix control motor 7P connector.
8. Disconnect climate control unit connector A (40P).

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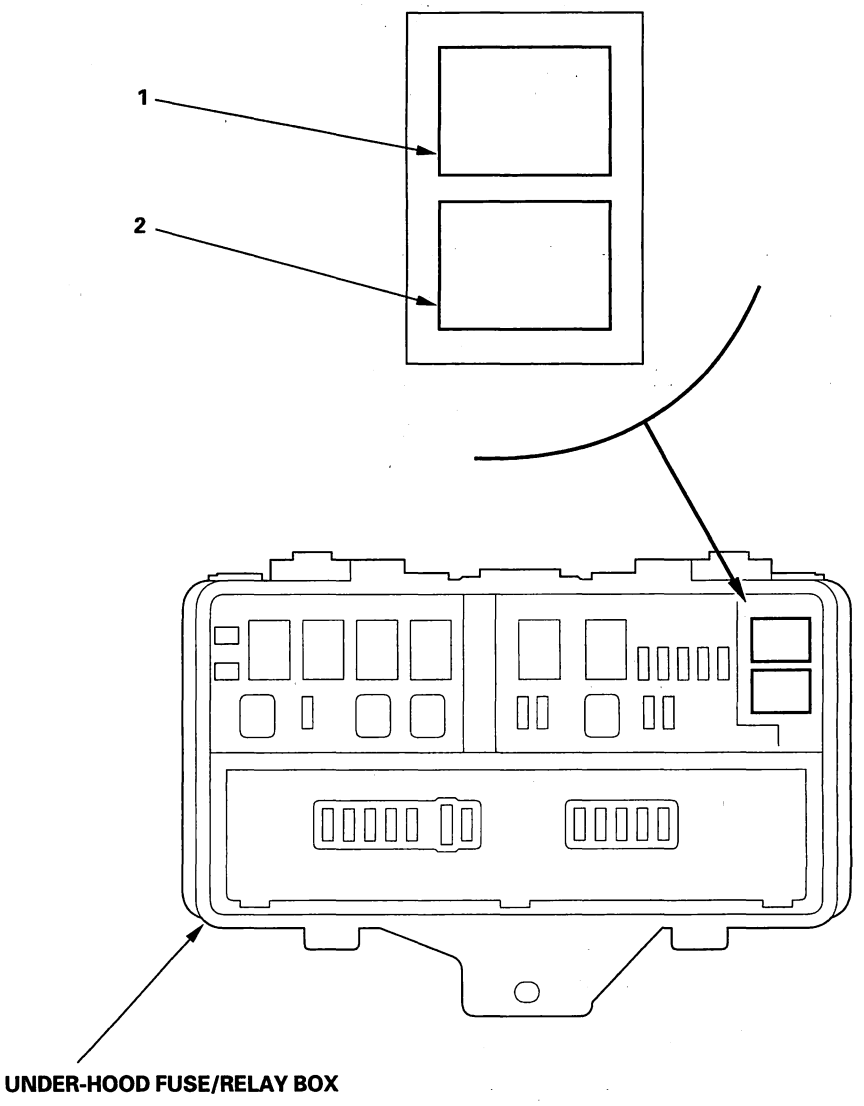
Connector to Fuse/Relay Box Index

Under-hood Fuse/Relay Box (Auxiliary Under-hood Relay Box part)

Socket	Ref	Terminal	Connects to
Fog light relay	1	4	Right engine compartment wire harness (see page 22-22)
Interior light relay	2	4	Right engine compartment wire harness (see page 22-22)



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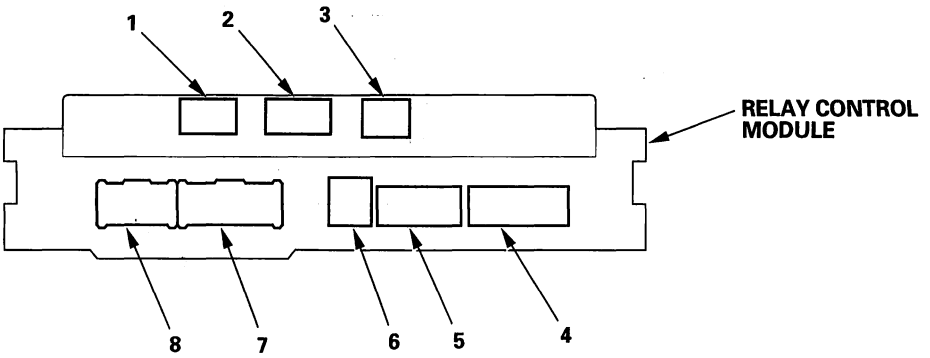
Connector to Fuse/Relay Box Index (cont'd)

Under-hood Fuse/Relay Box (Relay Control Module part)

Socket	Ref	Terminal	Connects to
A	5	4	Right engine compartment wire harness (see page 22-22)
B	2	5	Right engine compartment wire harness (see page 22-22)
C	3	2	Right engine compartment wire harness (see page 22-22)
D	8	10	Right engine compartment wire harness (see page 22-22)
E	7	14	Right engine compartment wire harness (see page 22-22)
F	6	1	Right engine compartment wire harness (see page 22-22)
G	1	4	Right engine compartment wire harness (see page 22-22)
H	4	9	Right engine compartment wire harness (see page 22-22)



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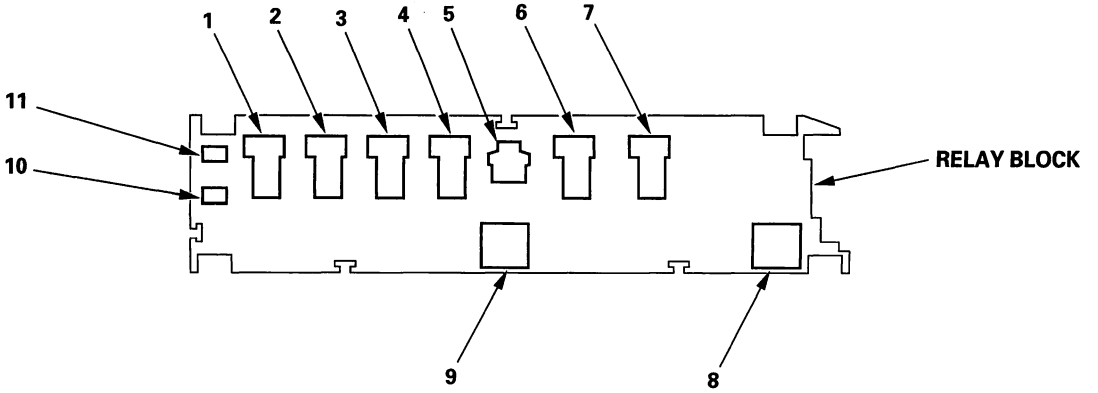
Under-hood Fuse/Relay Box (Relay Block part)

Socket	Ref	Terminal	Connects to
A	9	1	Right engine compartment wire harness (see page 22-22)
A/C compressor clutch relay	2	4	
A/C condenser fan relay	3	4	
B	8	1	Right engine compartment wire harness (see page 22-22)
C	5	1	Right engine compartment wire harness (see page 22-22)
Diode (for A/C condenser fan relay and fan control relay)	11	——	
Diode (for radiator fan relay)	10	——	
Fan control relay	1	5	
Front blower motor relay	7	4	
Headlight low beam relay	6	4	
Radiator fan relay	4	4	



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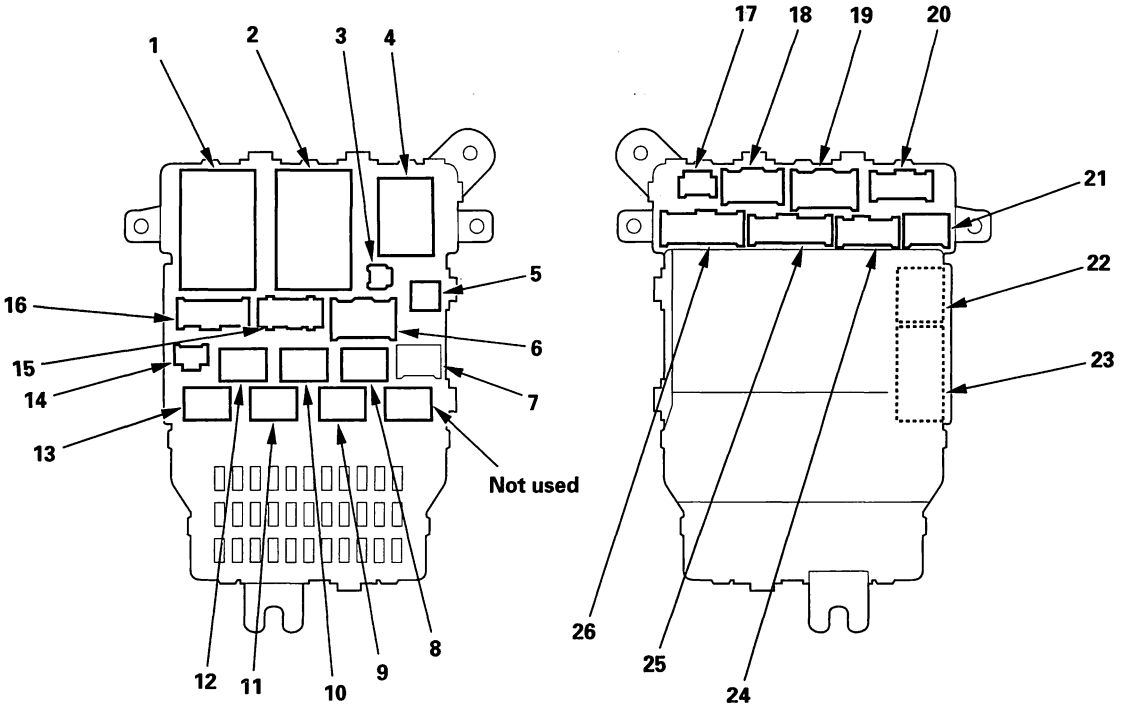
Under-dash Fuse/Relay Box

Socket	Ref	Terminal	Connects to
A	6	6	Dashboard wire harness (see page 22-26)
Accessory power socket relay	8	4	
B	19	6	Left engine compartment wire harness (see page 22-24)
C	18	12	Left engine compartment wire harness (see page 22-24)
D	20	17	Left engine compartment wire harness (see page 22-24)
E	25	16	Floor wire harness (see page 22-34)
F	26	14	Floor wire harness (see page 22-34)
Front seat heater relay	9	4	
G	21	6	Floor wire harness (see page 22-34)
H	24	14	Floor wire harness (see page 22-34)
J	16	21	Driver's door subharness (see page 22-48)
K	15	12	Driver's door subharness (see page 22-48)
M	14	3	MICU service check connector
N	2	45	Dashboard wire harness (see page 22-26)
P	23	30	Dashboard wire harness (see page 22-26)
PGM-FI main relay 2 (FUEL PUMP)	13	4	
Power window relay	11	4	
Q	22	14	Floor wire harness (see page 22-34)
R (for MES connector)	3	2	Dashboard wire harness (see page 22-26)
S (for SRS)	5	2	Dashboard wire harness (see page 22-26)
Short pin (for fuel pump)	10	———	
Short pin (for lumber support)	12	———	
T	7	6	Not used
Turn signal/hazard relay	4	6	
W	17	5	Left engine compartment wire harness (see page 22-24)
X	1	39	Dashboard wire harness (see page 22-26)



BACK

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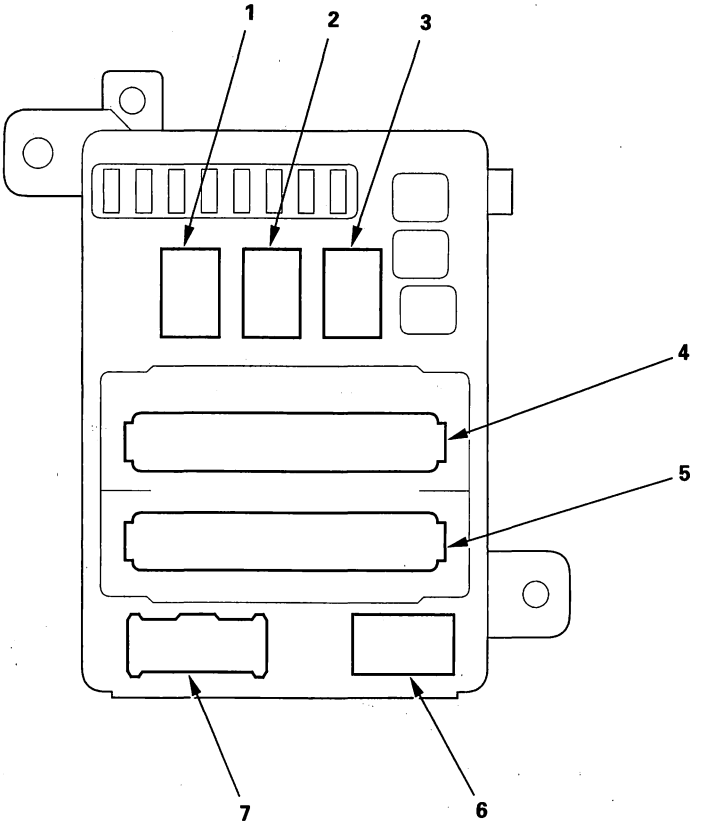
Fuse/Relay Boxes

Connector to Fuse/Relay Box Index (cont'd)

Rear Fuse/Relay Box

Socket	Ref	Terminal	Connects to
A	6	2	Floor wire harness (see page 22-34)
B	5	34	Floor wire harness (see page 22-34)
C	4	42	Rear wire harness (see page 22-40)
Cargo area accessory power socket relay	1	4	Not used
D (for trailer)	7	14	
Rear window defogger relay	3	4	
SH-AWD relay	2	4	



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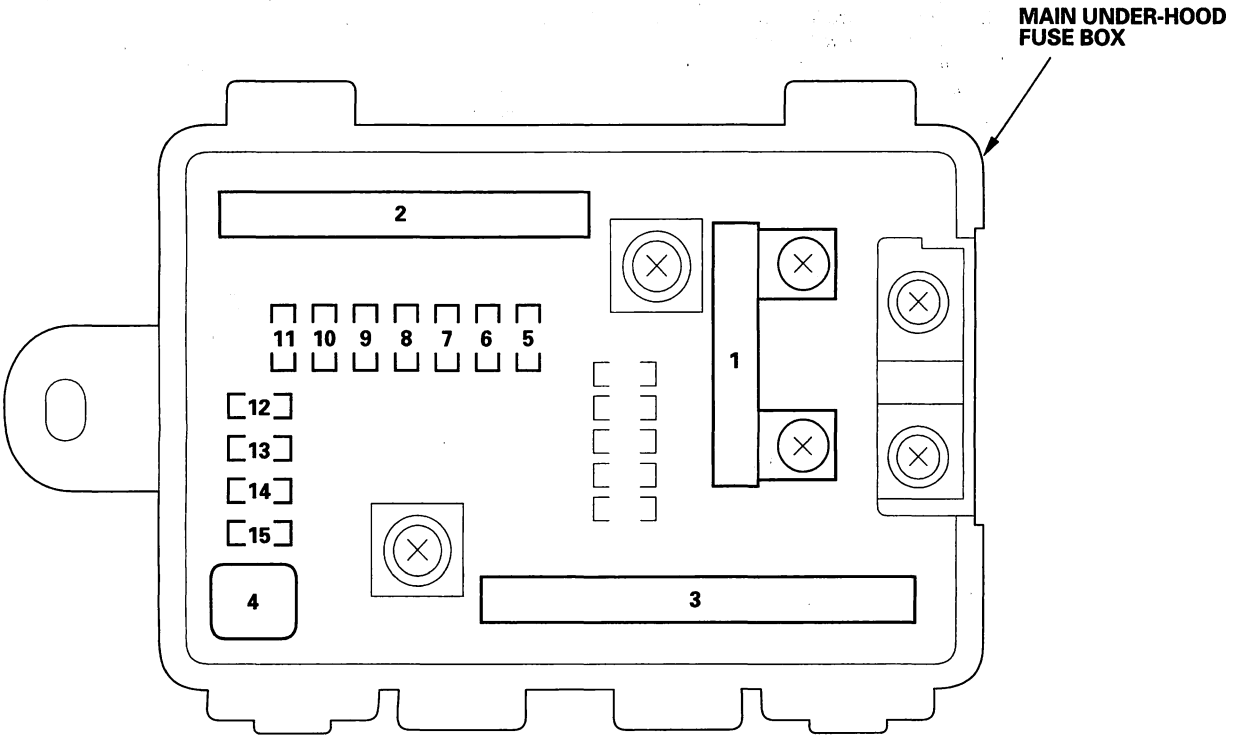
Power Distribution

Fuse to Components Index

Main Under-hood Fuse Box

Fuse Number		Amps	Amps Wire Color Component(s) or Circuit(s) Protected
1	(BAT)	120 A	Battery, Power supply
	———	———	Not used
2	(OP1)	40 A	No. 1, No. 2, No. 3, and No. 4 fuses in the under-dash fuse/relay box
	(OP1)	40 A	No. 12, No. 13, No. 14, No. 15, No. 16, and No. 17 fuses in the under-dash fuse/relay box
	(TRAILER)	40 A	No. 1, No. 2, No. 3, and No. 4 fuses in the rear fuse/relay box (Optional trailer connectors)
	(VSA MTR)	40 A	VSA modulator-control unit (MTR)
	(RR BLOWER)	30 A	Rear blower motor
3	(IG)	50 A	Ignition switch (BAT)
	(P/W)	50 A	No. 24, No. 25, No. 26, No. 27, and No. 28 fuses in the under-dash fuse/relay box, Power window relay in the under-dash fuse/relay box
	(RR F/B)	60 A	No. 5, No. 6, No. 7, No. 8, No. 9, No. 10, and No. 11 fuses (in the rear fuse/relay box)
	(RB1)	30 A	No. 7, No. 8, No. 9, No. 10, and No. 11 fuses (in the under-hood fuse/relay box)
	(RB2)	40 A	No. 1, No. 2, No. 3, No. 4, No. 5, and No. 6 fuses (in the under-hood fuse/relay box)
	(RB3)	60 A	No. 14, No. 15, No. 16, and No. 17 fuses (in the under-hood fuse/relay box)
	(RB4)	60 A	No. 12, No. 13, and No. 22 fuses (in the under-hood fuse/relay box)
4		40 A	Under-dash fuse/relay box (BACK-UP/ACC)
5		30 A	Active damper control unit
6		———	Not used
7		———	Not used
8		30 A	Audio amplifier
9		7.5 A	Under-dash fuse/relay box (RES)
10		15 A	Under-dash fuse/relay box (HAZARD)
11		15 A	Brake light relay, Brake pedal position switch, Relay control module (Horn relay circuit)
12		20 A	VSA modulator-control unit (FSR)
13		20 A	Optional (for trailer)
14		20 A	Second row seat heaters
15		20 A	AC inverter unit



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Power Distribution

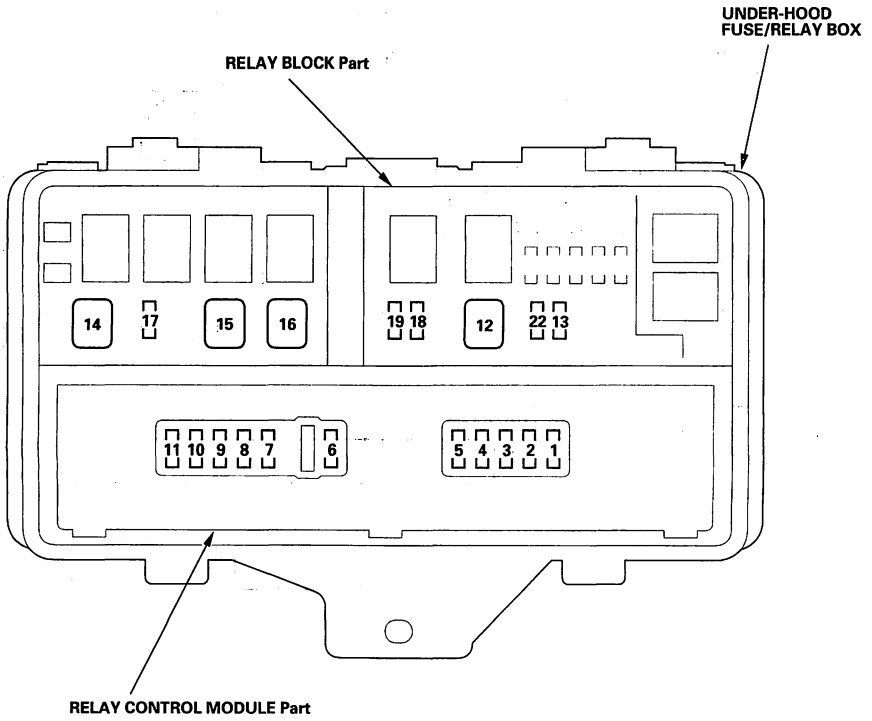
Fuse to Components Index (cont'd)

Under-hood Fuse/Relay Box (Relay Control Module part)

Fuse Number	Amps	Amps Wire Color Component(s) or Circuit(s) Protected
1	10 A	Left daytime running light
2	10 A	Right daytime running light
3	10 A	Headlight leveling control unit, Left headlight (high beam)
4	10 A	Right headlight (high beam)
5	7.5 A	Front parking lights, Front side marker lights
6	30 A	Headlight low beam relay, No. 18 and No. 19 fuses (in the under-hood fuse/relay box)
7	7.5 A	A/F sensor relay, Radiator fan relay
8	15 A	CKP sensor A/B, CMP sensor, ETCS control relay, Ignition coil relay, Injectors, No. 7 (7.5 A) fuse in the under-hood fuse/relay box, PCM (IGP), PCM (MRLY), PGM-FI main relay 1 (FI MAIN), PGM-FI main relay 2 (FUEL PUMP)
9	15 A	Ignition coils
10	15 A	PCM (ETCSRLYOUT)
11	15 A	EVAP canister vent shut valve, Front A/F sensor (bank2, sensor 1), Front SHO2S (bank2, sensor 2), Rear A/F sensor (bank1, sensor 1), Rear SHO2S (bank1, sensor 2)

Under-hood Fuse/Relay Box (Relay Block part)

Fuse Number	Amps	Amps Wire Color Component(s) or Circuit(s) Protected
12	40 A	Blower motor
13	20 A	Fog lights, Fog light relay
14	30 A	Headlight washer motor
15	30 A	A/C condenser fan motor
16	30 A	Radiator fan motor
17	7.5 A	A/C compressor clutch
18	15 A	Left HID unit
19	15 A	Headlight washer motor relay, Right HID unit
22	7.5 A	Active damper system switch light, A/T gear position indicator panel light, Climate control unit light, Dash lights brightness controller light, Driver's ambient light, Driver's seat heater switch light, Front passenger's seat heater switch light, Glove box light, Hazard warning switch light, Headlight washer switch light, Headphone jack, Interior light relay, Left second row seat heater switch light, Moonroof switch light, Power mirror switch light, Rear climate control panel light, Rear controller and screen, Right second row seat heater switch light, Roof console, Steering wheel switches lights, VSA OFF switch light



BACK

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Under-dash Fuse/Relay Box

Fuse Number	Amps	Amps Wire Color Component(s) or Circuit(s) Protected
1	7.5 A	TPMS control unit
2	10 A	Driver's lumbar support motor
3	10 A	Moonroof control unit/motor
4	20 A	Driver's seat heater, Front passenger's seat heater
5	10 A	AcuraLink control unit (XM receiver), Audio unit, Navigation unit, XM receiver
6	7.5 A	Driver's footwell light, Driver's vanity mirror light, Front individual map light, Front passenger's footwell light, Front passenger's vanity mirror light, Ignition key light, Left rear door courtesy light, Rear ceiling light, Rear individual map light, Right rear door courtesy light, Roof console
7	10 A	Climate control unit, Combination switch control unit, Data link connector, Center information display Driver's MPCS unit, Gauge control module, Immobilizer-keyless control unit, MICU (VBU), Navigation display unit, Passenger's MPCS unit, Power tilt/telescopic steering control unit
8	20 A	MICU (+B DOOR LOCK)
9	15 A	Front accessory power socket, Rear accessory power socket
10	15 A	PCM (VBSOL)
11	30 A	EVAP canister vent shut valve, Front A/F sensor (bank2, sensor 1), Front SHO2S (bank2, sensor 2), Rear A/F sensor (bank1, sensor 1), Rear SHO2S (bank1, sensor 2), Windshield wiper motor, Wiper/washer control circuit (in the relay control module)
12	10 A	Subwoofer
13	20 A	Front passenger's power seat motor (Recline, Rear up-down)
14	20 A	Driver's power seat motor (Slide, Front up-down)
15	20 A	Power tilt/telescopic steering control unit
16	20 A	Driver's power seat motor (Recline, Rear up-down)
17	20 A	Front passenger's power seat motor (Slide, Front up-down)
18	10 A	A/F sensor, Alternator, Brake pedal position switch, ELD unit, Engine mount control solenoid, EVAP canister purge valve, PCM
19	20 A	Fuel pump, Immobilizer-keyless control unit, PCM, PGM-FI main relay 2 (FUEL PUMP)
20	7.5 A	Active damper control unit, Brake light relay, Hazard warning switch, ODS unit, SH-AWD control unit, SRS unit
21	7.5 A	AcuraLink control unit (XM receiver), Active damper system switch, Automatic dimming inside mirror, Center information display, Combination switch control unit, Driver's MPCS unit, Electrical compass unit, Gauge control module, MICU, Power seat control unit, Power tailgate control unit, Power tilt/telescopic steering control unit, Rear MICU (Rear fuse/relay box), Relay control module, Shift lock solenoid, TPMS control unit, XM receiver
22	10 A	SRS unit
24	20 A	Left rear power window motor
25	20 A	Right rear power window motor
26	30 A	Passenger's MPCS unit
27	30 A	Driver's MPCS unit
28	20 A	Power tilt/telescopic steering control unit
29	10 A	Steering angle sensor, VSA modulator-control unit, Yaw rate-lateral/longitudinal acceleration sensor
30	10 A	AC inverter unit, Climate control unit, Front seat heater relay MICU, Rear climate control panel, Rear mode control motor, Rear window defogger relay (in the rear fuse/relay box), Relay block (A/C compressor relay, A/C condenser fan relay, Blower motor relay, Fan control relay), Second row seat heaters, Second row seat heater relay
31	15 A	Headlight leveling control unit, Wiper/washer control circuit (in the relay control module), Rear MICU (Rear fuse/relay box), Windshield wiper motor, Windshield/rear window washer motor
32	15 A	Accessory power socket relay, AcuraLink control unit (XM receiver), Audio unit, Climate control unit, Ignition key switch, Center information display unit, Interface dial, MICU, Navigation unit, XM receiver

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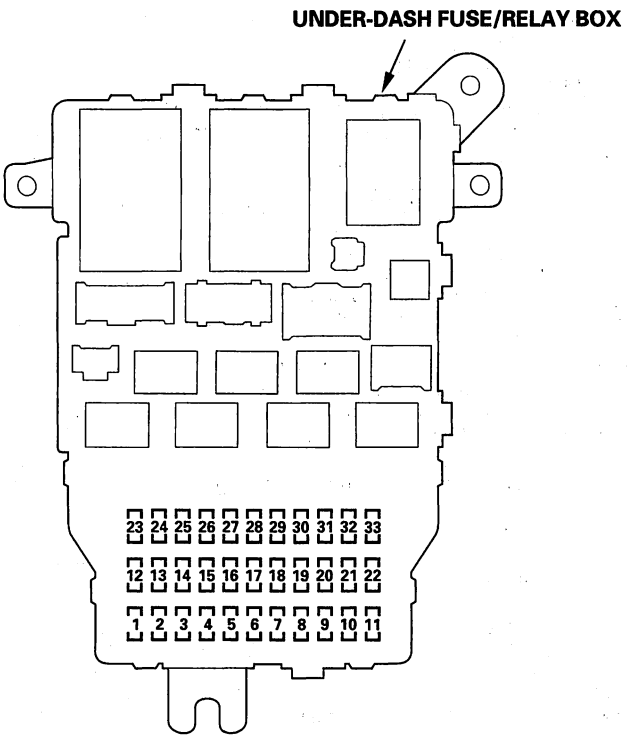
Fuse to Components Index (cont'd)



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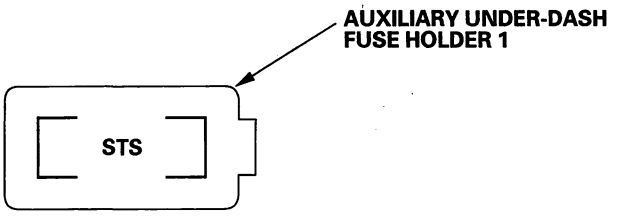
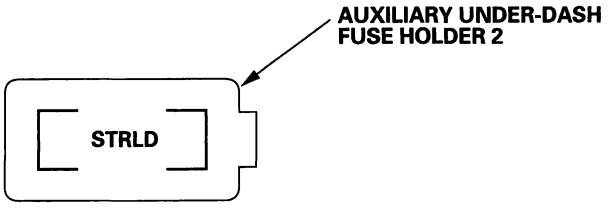
Auxiliary Under-dash Fuse Holder 1

Fuse Number	Amps	Wire Color	Amps Wire Color Component(s) or Circuit(s) Protected
STS	7.5 A	YEL	Ignition switch (ST)
		LT BLU	PCM (STS)



Auxiliary Under-dash Fuse Holder 2

Fuse Number	Amps	Wire Color	Amps Wire Color Component(s) or Circuit(s) Protected
STRLD	7.5 A	PNK	PCM (STRLD)
		BRN	Starter cut relay 1, Starter cut relay 2



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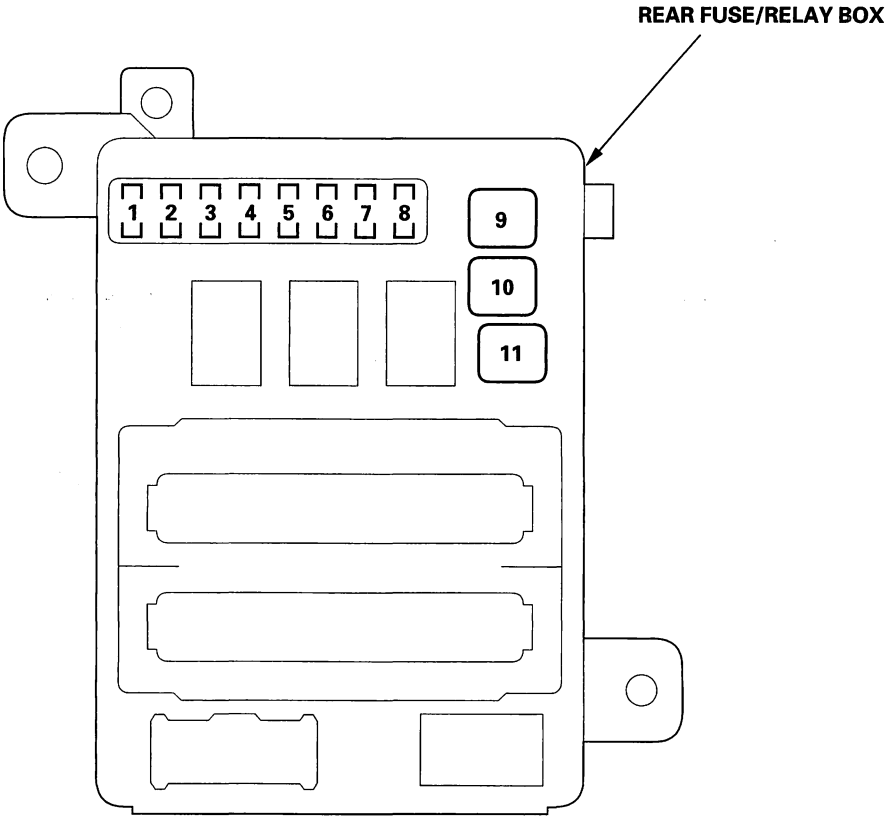
Power Distribution

Fuse to Components Index (cont'd)

Rear Fuse/Relay Box

Fuse Number	Amps	Amps Wire Color Component(s) or Circuit(s) Protected
1	7.5 A	Optional (for trailer lighting connector)
2	20 A	
3	20 A	
4	7.5 A	
5	10 A	Cargo area accessory power socket relay, Cargo area accessory power socket
6	20 A	Power tailgate control unit
7	15 A	Rear MICU
8	7.5 A	Cargo area lights, Rear MICU, Tailgate inside switch (With power tailgate)
9	30 A	SH-AWD control unit
10	30 A	Rear window defogger
11	40 A	Power tailgate control unit



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Ground Distribution

Ground to Components Index

Ground	Component or Circuit Grounded
G1	Battery
G2	Engine mount
G3	Transmission housing
G101	A/T clutch pressure control solenoid valves A, B, and C, CKP sensor A/B, CMP sensor, EGR valve, Ignition coils, PCM (PG, LG), Rocker arm oil pressure switch, Transmission range switch
G201	Hood switch, Right daytime running light, Right fog light, Right front parking light, Right front side marker light, Right front turn signal light, Right headlight (high beam), Right HID unit, Washer fluid level switch
G202	Fan control relay, Front blower motor relay, Headlight washer motor, Power steering pressure (PSP) switch, Relay control module, Windshield wiper motor
G301	Left daytime running light, Left fog light, Left front parking light, Left front side marker light, Left front turn signal light, Left headlight (high beam), Left HID unit, Radiator fan motor
G302	Active damper control unit, Brake fluid level switch, ELD unit
G303	VSA modulator-control unit (2 wires)
G401	Active damper control unit, Headlight leveling control unit, Relay control module, TPMS control unit
G501	Dash lights brightness controller, Gauge control module (2 wires), Headlight washer switch, Memory erase signal (MES) connector, Moonroof control unit/motor, Power mirror switch, VSA OFF switch
G502	MICU (BRN wire)
G503	AC inverter unit, A/T gear position indicator panel light, Data link connector (DLC) (2 wires), Left second row seat heater switch, Park-pin switch, Power tilt/telescopic steering control unit, Rear blower motor relay, Rear power transistor, Rear accessory power socket, Right second row seat heater switch, Second row seat heater relay
G504	Audio amplifier, Audio unit
G505	SRS unit (2 wires)
G506	Center information display/Navigation display unit, Climate control unit, Front passenger's door lock knob switch, HandsFreeLink control unit, Interface dial, Power tilt/telescopic steering control unit, Passenger's MPCS unit, Rear climate control panel, Rear controller and screen, Right power mirror, Steering angle sensor, Steering wheel switches, Yaw rate-lateral /longitudinal acceleration sensor
G507	Driver's seat heater switch, Front accessory power socket, Front passenger's seat heater switch, Front power transistor, Glove box light, Passenger's MPCS unit, Right power mirror (2 wires)
G601	Accessory power socket relay, Automatic inside dimming mirror, Combination switch control unit and combination light switch, Driver's door lock knob switch, Driver's MPCS unit (2 wires), Driver's door power tailgate switch, Driver's vanity mirror light, Driving position memory switch, Front passenger's vanity mirror light, Fuel fill door opener switch, Ignition key switch, Left rear door lock knob switch, Left power mirror (3 wires), MICU (PG), MICU (SG), Multiplex control inspection connector, Roof console, Turn signal/hazard relay
G602	Driver's lumbar support switch (2 wires), Driver's seat belt buckle switch, Left second row seat heater, Power seat control unit (4 wires), Right second row seat heater
G603	Rear fuse/relay box, SH-AWD relay (via rear fuse/relay box), SH-AWD control unit (3 wires)
G604	Cargo area accessory power socket, Fuel fill door opener solenoid, Fuel pump control module, Rear differential, Rear fuse/relay box (Rear MICU)
G605	Front passenger's seat belt buckle switch, Front passenger's seat heater, Front passenger's power seat switch (2 wires), Navigation unit, ODS unit
G606	AcuraLink control unit (XM receiver) (2 wires), AcuraLink inspection connector 5P connector, Right rear door lock knob switch, Subwoofer, XM receiver (2 wires)
G701	High mount brake light, Left back-up light, Left brake light, Left taillights, Left license plate light, Left rear side marker light, Left rear turn signal light, Power tailgate control unit (2 wires), Power tailgate drive unit, Rear window defogger, Right back-up light, Right license plate light, Tailgate release actuator
G702	Electrical compass unit (Without navigation), Power tailgate control unit, Keyless buzzer, Right brake light, Right taillights, Right rear side marker light, Right rear turn signal light, Tailgate latch switch, Tailgate outer handle switch (Without power tailgate)

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DTC Troubleshooting

DTC B1051: Relay Control Module Internal (CPU) Error
DTC B1052: Relay Control Module Internal (EEPROM) Error

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1051 or B1052 indicated?

   YES—Faulty relay control module, replace the under-hood fuse/relay box. ■

   NO—Intermittent failure, the system is OK at this time. ■

DTC B1055: Relay Control Module Lost Communication with MICU (MICU Message)
DTC B1056: Relay Control Module Lost Communication with MICU (ALARM Message)
DTC B1057: Relay Control Module Lost Communication with MICU (DOORSW Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1055, B1056, or B1057 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connection between the relay control module and the MICU. ■

5. Check for DTCs with the HDS.

   Are DTCs B1055, B1056, B1057, B1157, B1159, B 1180, B1255, B1955, B2155, B2156, and B2161 all indicated?

   YES—Do the MICU input test (see page 22-132). ■

   NO—Do the relay control module input test (see page 22-136). ■

BACK

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DTC B1060: Relay Control Module Lost Communication with Gauge Control Module (VPS/NE Message)
DTC B1061: Relay Control Module Lost Communication with Gauge Control Module (A/T Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1060 and/or B1061 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connection between the relay control module and the gauge control module. ■
5. Check for DTCs with the HDS.

   Are DTCs B1011, B1032, B1060, B1061, B1205, B 1206, B1207, B1906, B1956, B2157, and B2160 all indicated?

   YES—Do the gauge control module input test (see page 22-334). ■

   NO—Do the relay control module input test (see page 22-136). ■

DTC B1062: Relay Control Module Lost Communication with Combination Switch Control Unit (HLSW Message)
DTC B1063: Relay Control Module Lost Communication with Combination Switch Control Unit (WIPSW Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1062 and/or B1063 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connection between the relay control module and the combination switch control unit. ■
5. Check for DTCs with the HDS.

   Are DTCs B1007, B1062, B1063, B1155, B1156, B 1957, B1958, and B2969 all indicated?

   YES—Do the combination switch control unit input test (see page 22-300). ■

   NO—Do the relay control module input test (see page 22-136). ■

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DTC Troubleshooting (cont'd)

DTC B1065: Relay Control Module Lost Communication with Driver's MPCS Unit (DRLOCKSW Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTCs B1065 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the relay control module and the driver's MPCS unit. ■
5. Check for DTCs with the HDS.

   Are DTCs B1013, B1015, B1065, B1182, and B 1905 all indicated?

   YES—Do the driver's MPCS unit input test (see page 22-137). ■

   NO—Do the relay control module input test (see page 22-136). ■

BACK

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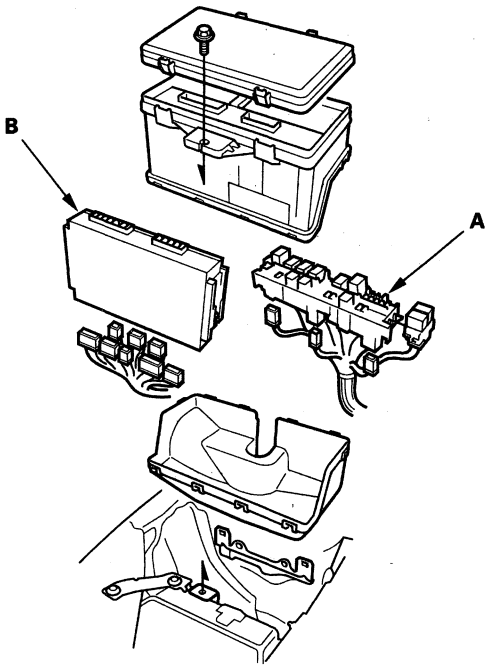
Removal and Installation

Removal

1. Make sure you have anti-theft codes for the audio and navigation system (if equipped).
2. Make sure the ignition switch is OFF.
3. Disconnect the negative battery cable, then disconnect the positive cable, and wait at least 3 minutes.
4. Remove the cover of the under-hood fuse/relay box, and carefully remove the relays by prying under the base of the relay.

   NOTE: Do not use pliers. Pliers will damage the relays, which could cause the engine to stall or not start.



5. Remove the under-hood fuse/relay box from the bracket.
6. Remove the relay block part (A) from the under-hood fuse/relay box.
7. Remove the relay control module part (B) from the under-hood fuse/relay box, then disconnect the connectors from the relay control module.

Installation

1. Install the relay control module and relays, then connect the connectors to the under-hood fuse/relay box.
2. Install the cover to the bottom of the under-hood fuse/relay box.
3. Install the under-hood fuse/relay box and the removed parts in the reverse order of removal.
4. Connect the positive cable to the battery, then connect the negative cable to the battery.
5. Enter the audio and navigation system anti-theft codes, and set the clock (if equipped).
6. Confirm that all systems work properly.

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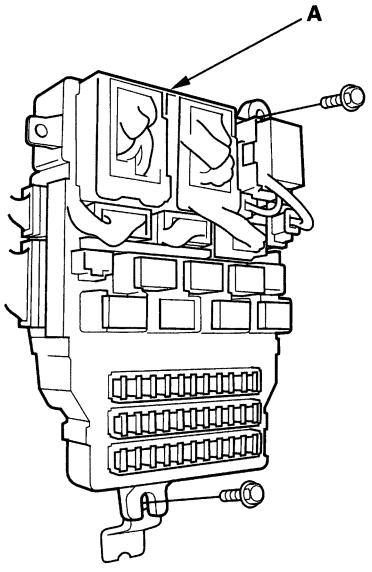
Under-dash Fuse/Relay Box

Removal and Installation

SRS components are located in this area. Review the SRS component locations (see page 24-18). and precautions and procedures (see page 24-20) before performing repairs or servicing.

Removal

1. Make sure you have anti-theft codes for the audio and navigation system (if equipped).
2. Make sure the ignition switch is OFF.
3. Disconnect the negative battery cable, then disconnect the positive cable, and wait at least 3 minutes.
4. Remove the left kick panel (see page 20-76).
5. Disconnect the connectors from the fuse side of the under-dash fuse/relay box (A).



6. Remove the mounting bolts, and pull the fuse/relay box away from the body.
7. Disconnect the connectors from the back side of the under-dash fuse/relay box, then remove the under-dash fuse/relay box.
8. Carefully remove the relays by prying under the base of the relay.

   NOTE: Do not use pliers. Pliers will damage the relays, which could cause the engine to stall or not start.

Installation

NOTE: The MICU which is part of the under-dash fuse/relay box is a component of the immobilizer system. Because of this construction, the MICU must be registered when the under-dash fuse/relay box is replaced, or the vehicle will not start.

1. Install the relays and connect the connectors to the under-dash fuse/relay box, then install the under-dash fuse/relay box in the reverse order of removal.
2. Install the removed parts in the reverse order of removal.
3. Connect the positive cable to battery, then connect the negative cable to the battery.
4. If the under-dash fuse/relay box is replaced, go to step 5. If the original under-dash fuse/relay box is installed, go to step 10.
5. Connect the HDS to the data link connector.
6. Turn the ignition switch ON (II).
7. Select the BODY ELECTRICAL, then enter the IMMOBILIZER SETUP.
8. Select the REPLACE MPCS/MICU/IMOES, then select the suitable menu from the HDS indications.
9. After registration, confirm that the vehicle will start.
10. Enter the audio and navigation system anti-theft codes, and set the clock.
11. Confirm that all systems work properly.

BACK

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DTC Troubleshooting

DTC B1955: Rear MICU Lost Communication with MICU (MICU Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1955 indicated?

   YES—Go to step 5. ■

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connection between the rear fuse/relay box and the MICU. ■
5. Check for DTCs with the HDS.

   Are DTCs B1055, B1056, B1057, B1157, B1159, B 1180, B1255, B1955, B2155, B2156, and/or B2161 indicated?

   YES—Do the MICU input test (see page 22-132). ■

   NO—Do the rear MICU input test (see page 22-139). ■

DTC B1956: Rear MICU Lost Communication with Gauge Control Module (A/T Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1956 indicated?

   YES—Go to step 5. ■

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the rear MICU and the gauge control module. ■
5. Check for DTCs with the HDS.

   Are DTCs B1011, B1061, and B1906 also indicated?

   YES—Do the gauge control module input test (see page 22-334). ■

   NO—Do the rear MICU input test (see page 22-139). ■

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DTC Troubleshooting (cont'd)

DTC B1957: Rear MICU Lost Communication with Combination Switch Control Unit (HLSW Message)
DTC B1958: Rear MICU Lost Communication with Combination Switch Control Unit (WIPSW Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1957 and/or B1958 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the rear MICU and the combination switch control unit. ■
5. Check for DTCs with the HDS.

   Are DTCs B1007, B1062, B1063, B1155, B1156, B 1957, B1958, and/or B2969 all indicated?

   YES—Do the combination switch control unit input test (see page 22-300). ■

   NO—Do the rear MICU input test (see page 22-139). ■

DTC B1959: Rear MICU Lost Communication with Relay Control Module (RM Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1959 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the rear MICU and the relay control module. ■
5. Check for DTCs with the HDS.

   Are DTCs B1005, B1058, B1959, B2162, and/or B 2970 all indicated?

   YES—Do the relay control module input test (see page 22-136). ■

   NO—Do the rear MICU input test (see page 22-139). ■

BACK

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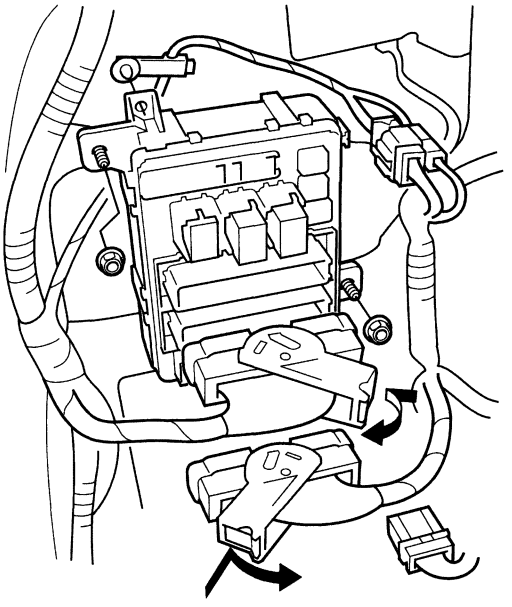
Removal and Installation

SRS components are located in this area. Review the SRS component locations (see page 24-18). and precautions and procedures (see page 24-20) before performing repairs or servicing.

Removal

1. Make sure you have anti-theft codes for the audio and navigation system (if equipped).
2. Make sure the ignition switch is OFF.
3. Disconnect the negative battery cable, then disconnect the positive cable, and wait at least 3 minutes.
4. Remove the left rear side trim panel (see page 20-92).
5. Disconnect the connectors from the rear fuse/relay box (A).



6. Remove the mounting nuts and the rear fuse/relay box.
7. Carefully remove the relays by prying under the base of the relay.

   NOTE: Do not use pliers. Pliers will damage the relays, which could cause the engine to stall or not start.

Installation

1. Install the relays and connect the connectors to the rear fuse/relay box, then install the rear fuse/relay box in the reverse order of removal.
2. Install the removed parts in the reverse order of removal.
3. Connect the positive cable to the battery, then connect the negative cable to the battery.
4. Enter the audio and navigation system anti-theft codes, and set the clock.
5. Confirm that all systems work properly.

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Battery Test

⚠ WARNING

A battery can explode if you do not follow the proper procedure, causing serious injury to anyone nearby. Follow all procedures carefully, and keep sparks and open flames away from the battery.

Use an ED-18™ Battery Tester, and follow the manufacturer's procedures. If you don't have one of these computerized testers, follow this conventional test procedure:

1. Be sure the temperature of the electrolyte is between 70 °F (21 °C) and 100 °F (38 °C).
2. Inspect the battery case for cracks or leaks.
   - If the case is damaged, replace the battery. ■
   - If the case looks OK, go to step 3.
3. Check the test indicator window.
   - If the test indicator window indicates the battery is charged, go to step 4.
   - If the test indicator window indicates a low charge, go to step 7.
4. Apply a 300 amp load for 15 seconds to remove the surface charge.
5. Wait 15 seconds, then apply a test load of 280 amps for 15 seconds.
6. Record battery voltage.
   - If voltage is above 9.6 V, the battery is OK. ■
   - If voltage is below 9.6 V, go to step 7.
7. Charge the battery on High (40 amps) until the test indicator window shows the battery is charged, plus an additional 30 minutes. If the battery charge is very low, it may be necessary to bypass the charger's polarity protection circuitry.
   - If the test indicator window indicates the battery is charged within three hours, repeat steps 4 through 6. If the battery is still below 9.6 V, replace the battery. ■
   - If the test indicator window indicates the battery is not charged within three hours, replace the battery. ■

BACK

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Relays

Power Relay Test

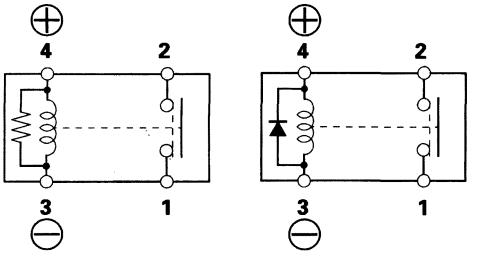
Use this chart to identify the type of relay, then do the test listed for it.

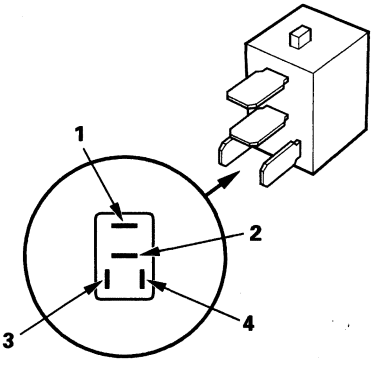
Relay	Test
ACC cut relay	Normally-open type
A/C compressor clutch relay	
A/C condenser fan relay	
Accessory power socket relay	
Brake light relay	
Cargo area accessory power socket relay	
Front blower motor relay	
Front seat heater relay	
Fog light relay	
IG2 cut relay	
Interior light relay	
Headlight low beam relay	
Headlight washer relay	
PGM-FI main relay 2	
Power window relay	
Radiator fan relay	
Rear blower motor relay	
Rear window defogger relay	
SH-AWD relay	
Starter cut relay 1, 2	
Fan control relay	Five-terminal type
Second row seat heater relay	

Normally-open type

Check for continuity between the terminals.

- There should be continuity between the No. 1 and No. 2 terminals when battery positive terminal is connected to the No. 4 terminal, and battery negative terminal is connected to the No. 3 terminal.
- There should be no continuity between the No. 1 and No. 2 terminals when power is disconnected.





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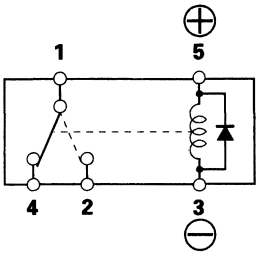
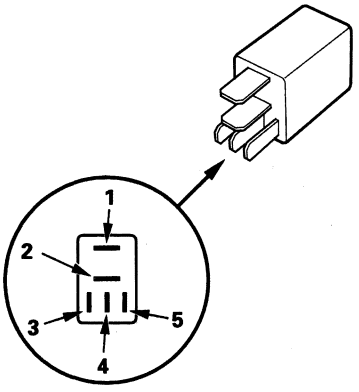
Power Relay Test (cont'd)

Five-terminal type

Check for continuity between the terminals.

- There should be continuity between the No. 1 and No. 2 terminals when battery positive terminal is connected to the No. 5 terminal, and battery negative terminal is connected to the No. 3 terminal.
- There should be continuity between the No. 1 and No. 4 terminals when power is disconnected.



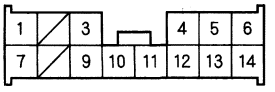


PGM-FI main relay 1, Ignition coil relay, A/F sensor Relay, ETCS relay

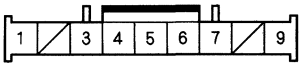
1. Disconnect the negative battery cable, then disconnect the under-hood fuse/relay box connectors C (2P), E (14P), and H (9P).

UNDER-HOOD FUSE/RELAY BOX CONNECTOR C (2P)

UNDER-HOOD FUSE/RELAY BOX CONNECTOR E (14P)



UNDER-HOOD FUSE/RELAY BOX CONNECTOR H (9P)



2. Connect battery power to the C2 terminal.

PGM-FI main relay 1:
- Connect the E5 terminal to body ground. There should be battery voltage between the H1 terminal and body ground.
- Disconnect the E5 terminal from the body ground. There should be no voltage between the H1 terminal and the body ground.

Ignition coil relay:
- Connect the E5 terminal to body ground. There should be battery voltage between the H6 terminal and body ground.
- Disconnect the E5 terminal from the body ground. There should be no voltage between the H6 terminal and the body ground.

A/F sensor relay:
- Connect the E5 and E13 terminals to body ground. There should be battery voltage between the H9 terminal and body ground.
- Disconnect the E5 terminal from the body ground. There should be no voltage between the H9 terminal and the body ground.

ETCS relay:
- Connect the E5 and E14 terminals to body ground. There should be battery voltage between the H7 terminal and body ground.
- Disconnect the E5 terminal from the body ground. There should be no voltage between the H7 terminal and the body ground.

BACK

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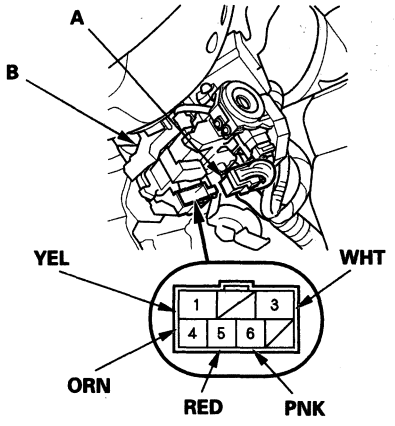
Ignition Switch

Test

SRS components are located in the area. Review the SRS component locations (see page 24-18) and precautions and procedures (see page 24-20) before performing repairs or servicing.

1. Make sure you have the anti-theft code for the audio and navigation system (if equipped).
2. Disconnect the negative battery cable.
3. Remove the steering column covers (see page 20-129).
4. Disconnect the 7P connector (A) from the ignition switch (B).



5. Check for continuity between the terminals in each switch position according to the table.

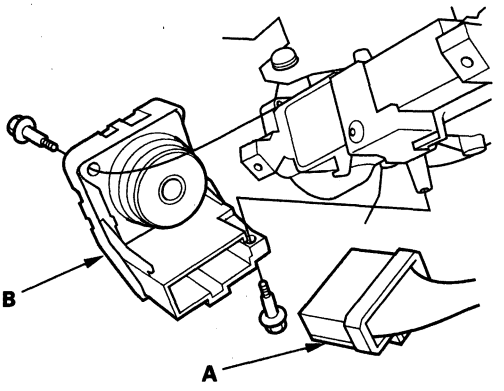
Position \ Terminal	RED (ACC)	WHT (BAT)	PNK (IG1)	ORN (IG2)	YEL (ST)
O (LOCK)					
I (ACC)	○	○			
II (ON)	○	○	○	○	
III (START)		○	○		○

6. If the continuity does not agree with the table, replace the ignition switch (see page 22-79).
7. After reconnecting the battery, enter the audio and navigation system anti-theft codes, and set the clock.

Replacement

SRS components are located in the area. Review the SRS component locations (see page 24-18) and precautions and procedures (see page 24-20) before performing repairs or servicing.

1. Make sure you have the anti-theft code for the audio and navigation system (if equipped).
2. Disconnect the negative battery cable.
3. Remove the steering column covers (see page 20-129).
4. Disconnect the 7P connector (A) from the ignition switch (B).



5. Remove the two screws and the ignition switch.
6. Install in the reverse order of removal.
7. After reconnecting the battery, enter the audio and navigation system anti-theft codes, and set the clock.

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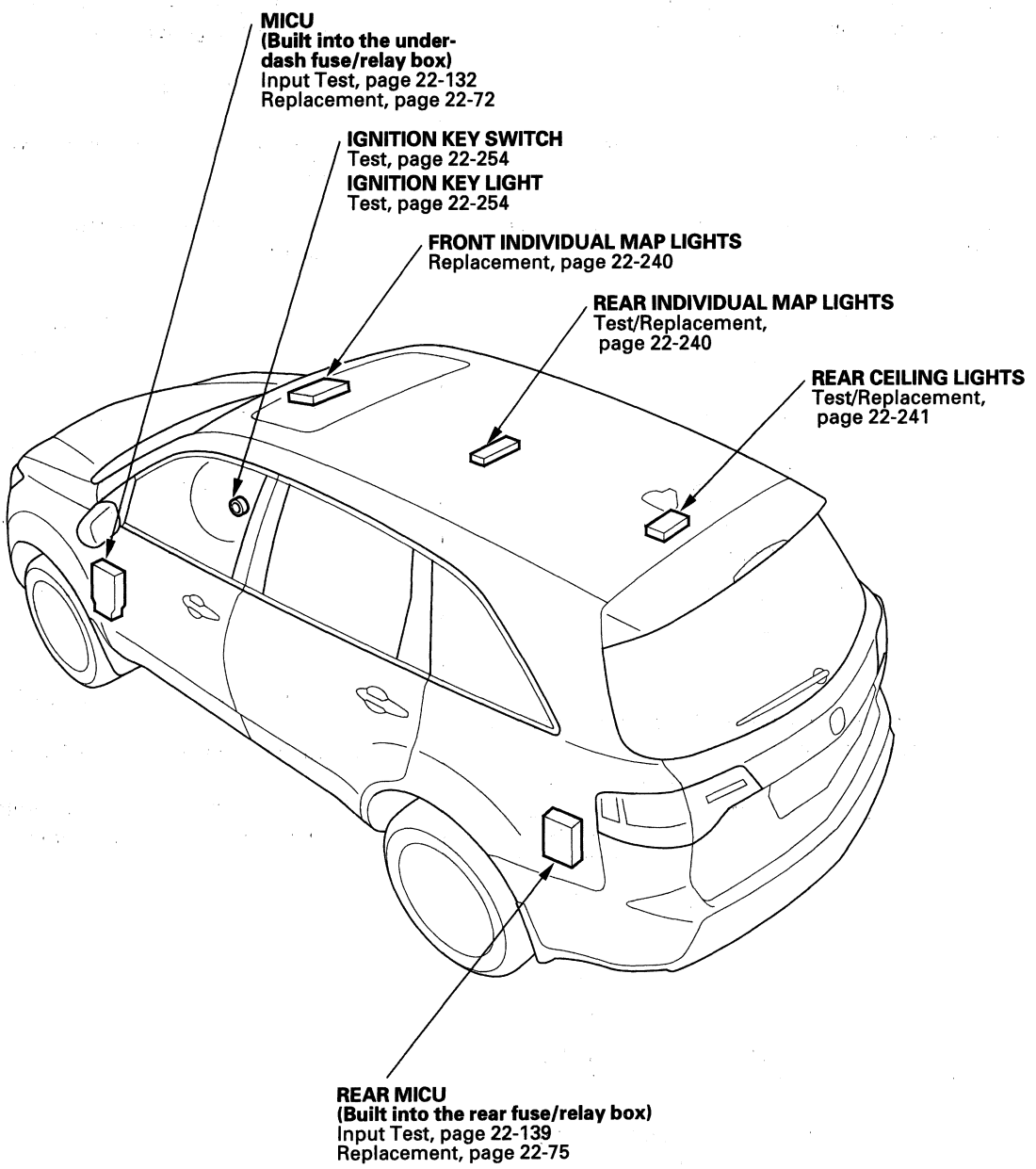
Component Location Index



BACK

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General Troubleshooting Information

Troubleshooting CAN Circuit Related Problems

NOTE: Check the powertrain control module (PCM) for DTCs and troubleshoot PCM (see page 11-3) or F-CAN loss of communication errors first.

Using the HDS (Preferred method)

1. Go to B-CAN System Diagnosis Test Mode A to check for "Connected units" and DTCs (see page 22-112).
2. If no DTCs are retrieved, go to B-CAN System Diagnosis Test Mode C (see page 22-114) or D (see page 22-115).

Without HDS (Use only if the HDS is unavailable)

1. Check for communication circuit problems using B-CAN System Diagnostic Test (see page 22-112).
2. Check for DTCs.
3. Sort, and then troubleshoot the DTCs in this order:
   - -1 Battery voltage DTCs
   - -2 Internal error DTCs
   - -3 Loss of communication DTCs (beginning with the lowest number first; for example, if B1008 and B1011 are retrieved, troubleshoot B1008 first). Refer to loss of communication cross reference chart (see page 22-83).
   - -4 Signal error DTCs
4. If no DTCs are retrieved, use B-CAN System Diagnostic Test Mode 2 to check all inputs related to failure (see step 10 on page 22-116).

(cont'd)

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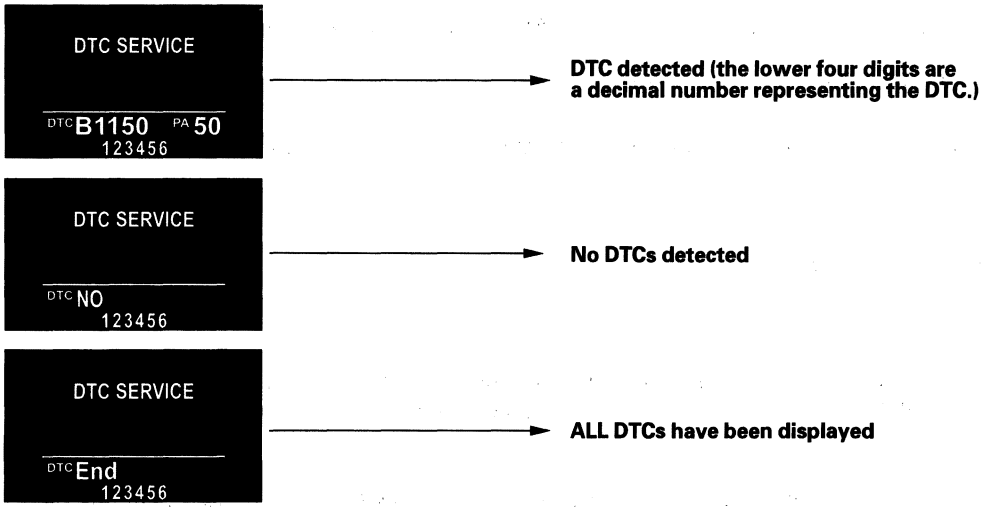
General Troubleshooting Information (cont'd)

How to display DTCs on the gauge control module

1. Set the multiplex in Test Mode 1 (see page 22-116).
2. While in Test Mode 1, the DTCs which have been detected and stored individually by various B-CAN units, will be shown one by one on the multi-information display on the gauge control module when the communication between the MICU and the gauge control module is normal. To scroll through the DTCs, press the select/reset button.



3. The unit that has stored the code can be identified by the number shown on the multi-information display (MID).

Unit	Code (Control Unit I.D. Number)
MICU	10
Relay control module	11
Rear MICU	12
Power tailgate control unit	31
Driver's MPCS unit	35
Gauge control module	50
Climate control unit	51
Combination switch control unit	70
HANDSFREELINK control unit	94
Power seat control unit	95
Immobilizer-keyless control unit	96
AcuraLink control unit (XM receiver)	97

How to clear the DTC

While in DTC indication status, press and hold down the select/reset button for more than 10 seconds.

BACK

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Loss of Communication DTC cross-reference chart

When an engine control unit (ECU) is unable to communicate with the other ECUs on the CAN circuit, the other control units will set loss of communication DTCs. Use this chart to find the control unit that is not communicating.

1. Find the Transmitting Control Unit that is in the same row as all of the loss of communication DTCs retrieved.
2. Do the input test for the transmitting control unit.

BUS OFF and Internal Error Codes

DTC type	Related Unit											
	MICU	Rear MICU	Relay Control Module	Driver's MPCS Unit	Combination Switch Control Unit	Gauge Control Module	Climate Control Unit	Immobilizer-Keyless Control unit	Power Tailgate Control Unit	Power Seat Control Unit	Hands FreeLink Control Unit	AcuraLink Control Unit (XM Receiver)
BUS OFF	B1000	B1950	B1050	B2150	B1250	B1150	B1200	B1900	B1350	B1800	B1750	B2200
ECU (CPU) Error	B1001		B1051									B2209
ECU (EEPROM) Error	B1002		B1052	B2152	B1252	B1152	B1202		B1352	B1802	B1792	

Transmitting Control Unit	Message	Receiving Unit/Loss of Communication DTC												
		MICU	Rear MICU	Relay Control Module	Driver's MPCS Unit	Combination Switch Control Unit	Gauge Control Unit	Climate Control Unit	Immobilizer-Keyless Control Unit	Power Tailgate Control Unit	Power Seat Control Unit	Hands FreeLink Control Unit	AcuraLink Control Unit (XM Receiver)	Navigation Unit
MICU	ALARM			B1056										
	MICU		B1955	B1055	B2155	B1255	B1157			B1355	B1806			
	DOORSW			B1057	B2161		B1159				B1811			
	MIRRORSW				B2156						B1810			
	AUTOLT						B1180							
Rear MICU	RJC	B1012												
Relay Control Module	RM	B1005	B1959		B2162		B1158	B2970						
Driver's MPCS Unit	DRLOCKSW	B1015		B1065			B1182		B1905	B1356				
	ASLOCKSW	B1013								B1358				
	MENSW										B1812			
Combination Switch Control Unit	HLSW	B1007	B1957	B1062			B1155							
	WIPSW		B1958	B1063			B1156	B2969						
Gauge Control Module	VSP/NE	B1011		B1060	B2160			B1205		B1357	B1805	B1408		
	AT		B1956	B1061					B1906	B1359	B1808			
	ENGTEMP							B1206						
	ILLUMI				B2157			B1207						
	SRS	B1032												
	VEHINFO											B1786		
Power Tailgate Control Unit	PTG						B1162							
PCM	ENG						B1168							
	AT						B1169							
VSA Modulator-Control Unit	VSA						B1170							
TPMS Control Unit	TPMS						B1173							
SRS Control	SRS						B1187							
Active Damper Control Unit	ACTIVE DAMPER SYSTEM						B1188							
Navigation Unit								B2981						
AcuraLink Control Unit												B2208		B2207
HandsFreeLink Control Unit														
Audio Unit								B2991						

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DTC Troubleshooting Index

NOTE: Record all DTCs, and sort them by DTC type using the DTC troubleshooting index, then troubleshoot the DTC(s) in this order:

- Battery voltage DTCs
- Internal error DTCs
- Loss of communication DTCs (beginning with the lowest number first; for example, if B1005 and B1016 are retrieved, troubleshoot B1005 first).
- Signal error DTCs

MICU

DTC	Description	DTC Type	Page
B1000	Communication bus line error	Loss of communication	(see page 22-122)
B1001	MICU internal error (CPU error)	Internal error	(see page 22-124)
B1002	MICU internal error (EEPROM error)	Internal error	(see page 22-124)
B1005	MICU lost communication with relay control module (RM message)	Loss of communication	(see page 22-124)
B1007	MICU lost communication with combination switch control unit (HLSW message)	Loss of communication	(see page 22-125)
B1011	MICU lost communication with gauge control module (VSP/NE message)	Loss of communication	(see page 22-125)
B1012	MICU lost communication with the rear fuse/relay box (RJC message)	Loss of communication	(see page 22-126)
B1013	MICU lost communication with driver's MPCS unit (ASLOCKSW message)	Loss of communication	(see page 22-126)
B1015	MICU lost communication with driver's MPCS unit (DRLOCKSW message)	Loss of communication	(see page 22-126)
B1032	MICU lost communication with the SRS unit (CDS message)	Signal error	(see page 22-127)
B1575	Automatic lighting sensor circuit malfunction	Signal error	(see page 22-198)

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Relay Control Module

DTC	Description	DTC Type	Page
B1050	Communication bus line error (BUS-OFF)	Loss of communication	(see page 22-129)
B1051	Relay control module internal (CPU) error	Internal error	(see page 22-68)
B1052	Relay control module internal (EEPROM) error	Internal error	(see page 22-68)
B1055	Relay control module lost communication with MICU (MICU message)	Loss of communication	(see page 22-68)
B1056	Relay control module lost communication with MICU (ALARM message)	Loss of communication	(see page 22-69)
B1057	Relay control module lost communication with MICU (DOORSW message)	Loss of communication	(see page 22-68)
B1060	Relay control module lost communication with gauge control module (VSP/NE message)	Loss of communication	(see page 22-69)
B1061	Relay control module lost communication with gauge control module (A/T message)	Loss of communication	(see page 22-69)
B1062	Relay control module lost communication with combination switch control unit (HLSW message)	Loss of communication	(see page 22-69)
B1063	Relay control module lost communication with combination switch control unit (WIPSW message)	Loss of communication	(see page 22-69)
B1065	Relay control module lost communication with driver's MPCS unit (DRLOCKSW message)	Loss of communication	(see page 22-70)
B1075	Headlight switch back-up circuit malfunction	Signal error	(see page 22-193)
B1076	Windshield wiper switch back-up circuit malfunction	Signal error	(see page 22-296)
B1077	Windshield wiper (As) auto switch circuit malfunction	Signal error	(see page 22-297)
B1078	Daytime running lights system error (Canada)	Loss of communication	(see page 22-194)
B1079	Daytime running lights system error (USA)	Loss of communication	(see page 22-194)
B1080	Power supply circuit (IG1 line) input error for relay control module and MICU	Signal error	(see page 22-127)

(cont'd)

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DTC Troubleshooting Index (cont'd)

Gauge Control Module

DTC	Description	DTC Type	Page
B1150	Communication bus line error	Loss of communication	(see page 22-129)
B1152	Gauge control module internal (EEPROM) error	Internal error	(see page 22-322)
B1155	Gauge control module lost communication with combination switch control unit (HLSW message)	Loss of communication	(see page 22-322)
B1156	Gauge control module lost communication with combination switch control unit (WIPSW message)	Loss of communication	(see page 22-322)
B1157	Gauge control module lost communication with MICU (MICU message)	Loss of communication	(see page 22-323)
B1158	Gauge control module lost communication with relay control module (RM message)	Loss of communication	(see page 22-323)
B1159	Gauge control module lost communication with MICU (DOORSW message)	Loss of communication	(see page 22-323)
B1162	Gauge control module lost communication with Power tailgate control unit(PTG message)	Loss of communication	(see page 22-324)
B1168	Gauge control module lost communication with PCM (ENG messages)	Loss of communication	(see page 22-325)
B1169	Gauge control module lost communication with PCM (A/T messages)	Loss of communication	(see page 22-325)
B1170	Gauge control module lost communication with VSA modulator-control unit (VSA message)	Loss of communication	(see page 22-326)
B1173	Gauge control module lost communication with TPMS control unit (TPMS message)	Loss of communication	(see page 22-327)
B1175	Fuel level sensor (fuel gauge sending unit) circuit open	Signal error	(see page 22-328)
B1176	Fuel level sensor (fuel gauge sending unit) circuit short	Signal error	(see page 22-329)
B1177	Abnormal battery voltage	Battery voltage	(see page 22-330)
B1178	F-CAN communication line error	Loss of communication	(see page 22-325)
B1180	Gauge control module lost communication with MICU (AUTOLT message)	Loss of communication	(see page 22-323)
B1182	Gauge control module lost communication with driver's MPCS unit (DRLOCKSW message)	Loss of communication	(see page 22-331)
B1187	Gauge control module lost communication with SRS unit (SRS message)	Loss of communication	(see page 22-332)
B1188	Gauge control module lost communication with active damper system control unit (active damper system message)	Loss of communication	(see page 22-333)

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Climate Control Unit

DTC	Description	DTC type	Page
B1200	Communication bus line error	Loss of communication	(see page 22-129)
B1202	Climate control unit internal error	Internal error	(see page 21-32)
B1205	Climate control unit lost communication with gauge control module (VSP/NE massage)	Loss of communication	(see page 21-32)
B1206	Climate control unit lost communication with gauge control (ECT message)	Loss of communication	(see page 21-32)
B1207	Climate control unit lost communication with gauge control module (ILLUMI message)	Loss of communication	(see page 21-32)
B1213	An open in the rear evaporator temperature sensor circuit	Signal error	(see page 21-33)
B1214	A short in the rear evaporator temperature sensor circuit	Signal error	(see page 21-34)
B1215	An open or short in the recirculation control motor circuit	Signal error	(see page 21-36)
B1223	A problem in the rear blower motor circuit	Signal error	(see page 21-38)
B1225	An open in the in-car temperature circuit	Signal error	(see page 21-41)
B1226	A short in the in-car temperature sensor circuit	Signal error	(see page 21-43)
B1227	An open in the outside air temperature sensor circuit	Signal error	(see page 21-44)
B1228	A short in the outside air temperature sensor circuit	Signal error	(see page 21-45)
B1229	An open in the sunlight sensor circuit	Signal error	(see page 21-46)
B1230	A short in the sunlight sensor circuit	Signal error	(see page 21-47)
B1231	An open in the evaporator temperature sensor circuit	Signal error	(see page 21-48)
B1232	A short in the evaporator temperature sensor circuit	Signal error	(see page 21-50)
B1233	An open in the driver's air mix control motor circuit	Signal error	(see page 21-51)
B1234	A short in the driver's air mix control motor circuit	Signal error	(see page 21-52)
B1235	A problem in the driver's air mix control linkage, door, motor or motor circuit	Signal error	(see page 21-55)
B1236	An open in the passenger's air mix control motor circuit	Signal error	(see page 21-56)
B1237	A short in the passenger's air mix control motor circuit	Signal error	(see page 21-57)
B1238	A problem in the passenger's air mix control linkage, door, motor or motor circuit	Signal error	(see page 21-60)
B1239	An open or short in the mode control motor circuit	Signal error	(see page 21-62)
B1240	A problem in the mode control linkage, doors, motor, or motor circuit	Signal error	(see page 21-64)
B1241	A problem in the blower motor circuit	Signal error	(see page 21-65)

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DTC Troubleshooting Index (cont'd)

Climate Control Unit

DTC	Description	DTC type	Page
B1244	An open in the rear air mix control motor circuit	Signal error	(see page 21-69)
B1245	An short in the rear air mix control motor circuit	Signal error	(see page 21-70)
B1246	A problem in the rear air mix control linkage, door, motor, or motor circuit	Signal error	(see page 21-73)
B2965	Climate control unit lost communication with rear climate control panel	Loss of communication	(see page 21-74)
B2967	An open in the humidity sensor circuit	Signal error	(see page 21-76)
B2968	A short in the humidity sensor circuit	Signal error	(see page 21-77)
B2969	Climate control unit lost communication with gauge control module (WIPSW message)	Loss of communication	(see page 21-80)
B2970	Climate control unit lost communication with gauge control module (RM message)	Loss of communication	(see page 21-81)
B2979	An open in the A/C pressure sensor circuit	Signal error	(see page 21-81)
B2980	A short in the A/C pressure sensor circuit	Signal error	(see page 21-83)
B2981	Climate control unit lost communication with navigation unit	Loss of communication	(see page 21-86)
B2983	A problem in the recirculation control linkage, door, motor, or motor circuit	Signal error	(see page 21-88)
B2991	Climate control unit lost communication with audio unit	Loss of communication	(see page 21-89)

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Combination Switch Control Unit

DTC	Description	DTC Type	Page
B1250	Communication bus line error	Loss of communication	(see page 22-129)
B1252	Combination switch control unit internal (EEPROM) error	Internal error	(see page 22-195)
B1255	Combination switch control unit lost communication with MICU	Loss of communication	(see page 22-196)
B1275	Combination light switch OFF position circuit malfunction	Signal error	(see page 22-196)
B1276	Combination light switch parking (SMALL) position circuit malfunction	Signal error	(see page 22-196)
B1277	Headlight switch AUTO position circuit malfunction	Signal error	(see page 22-196)
B1278	Headlight switch ON position circuit malfunction	Signal error	(see page 22-196)
B1279	Headlight switch DIMMER position circuit malfunction	Signal error	(see page 22-197)
B1280	Turn signal switch circuit malfunction	Signal error	(see page 22-197)
B1281	Windshield wiper switch MIST position circuit malfunction	Signal error	(see page 22-299)
B1282	Windshield wiper switch INT position circuit malfunction	Signal error	(see page 22-299)
B1283	Windshield wiper switch LOW position circuit malfunction	Signal error	(see page 22-299)
B1284	Windshield wiper switch HIGH position circuit malfunction	Signal error	(see page 22-299)

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DTC Troubleshooting Index (cont'd)

Power Tailgate Control Unit

DTC	Description	DTC Type	Page
B1350	Communication bus line error	Loss of communication	(see page 22-129)
B1352	Power tailgate control unit internal (EEPROM) error	Internal error	(see page 22-496)
B1355	Power tailgate control unit lost communication with MICU (MICU message)	Loss of communication	(see page 22-496)
B1356	Power tailgate control unit lost communication with driver's MPCS unit (DRLOCKSW message)	Loss of communication	(see page 22-497)
B1357	Power tailgate control unit lost communication with gauge control module (VSP/NE message)	Loss of communication	(see page 22-497)
B1358	Power tailgate control unit lost communication with driver's MPCS unit (ASLOCKSW message)	Loss of communication	(see page 22-497)
B1359	Power tailgate control unit lost communication with gauge control module (A/T message)	Loss of communication	(see page 22-497)
B1375	Driver's door power tailgate switch circuit malfunction	Signal error	(see page 22-498)
B1376	Power tailgate outside handle switch circuit malfunction	Signal error	(see page 22-499)
B1377	Inside tailgate lid switch circuit malfunction	Signal error	(see page 22-500)
B1378	Power tailgate right pinch sensor circuit malfunction	Signal error	(see page 22-501)
B1379	Power tailgate left pinch sensor circuit malfunction	Signal error	(see page 22-502)
B1380	Tailgate closer unit open switch circuit malfunction	Signal error	(see page 22-503)
B1381	Tailgate closer unit close switch circuit malfunction	Signal error	(see page 22-505)
B1382	Tailgate closer unit full latch switch circuit malfunction	Signal error	(see page 22-507)
B1383	Tailgate closer unit ratchet switch circuit malfunction	Signal error	(see page 22-509)
B1384	Tailgate closer unit half latch switch circuit malfunction	Signal error	(see page 22-511)
B1386	Power tailgate sensor pulse A circuit malfunction	Signal error	(see page 22-513)
B1387	Power tailgate sensor pulse B circuit malfunction	Signal error	(see page 22-514)
B1388	Power tailgate motor circuit malfunction	Signal error	(see page 22-515)
B1389	Power tailgate motor clutch circuit malfunction	Signal error	(see page 22-518)
B1390	Power tailgate closer function error	Signal error	(see page 22-519)

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HandsFreeLink Control Unit

DTC	Description	DTC Type	Page
B1750	Communication bus line error (BUS-OFF)	Loss of communication	(see page 22-129)
B1775	Microphone input/output short to power/open	Signal error	(see page 23-262)
B1776	Microphone input/output short to ground/open	Signal error	(see page 23-263)
B1779	HFL switch or HFL-voice control switch (HFL talk/ HFL back buttons) circuit open/short	Signal error	(see page 23-265)
B1780	HFL-voice control switch (HFL talk/HFL back buttons) circuit short	Signal error	(see page 23-266)
B1785	Incorrect configuration (VEHINFO Frame)	Signal error	(see page 23-267)
B1786	HandsFreeLink control unit lost communication with gauge control module (VEHINFO Frame)	Signal error	(see page 23-268)
B1792	HandsFreeLink control unit internal error	Internal error	(see page 23-270)

Immobilizer-Keyless Control Unit

DTC	Description	DTC type	Page
B1900	Communication bus line error (BUS-OFF)	Signal error	(see page 22-129)
B1905	Immobilizer-keyless control unit lost communication with driver's MPCS unit (DRLOCKSW message)	Signal error	(see page 22-401)
B1906	Immobilizer-keyless control unit lost communication with gauge control module (A/T message)	Signal error	(see page 22-402)

Rear MICU

DTC	Description	DTC Type	Page
B1950	Communication bus line error (BUS-OFF)	Loss of communication	(see page 22-129)
B1955	Rear MICU lost communication with MICU (MICU message)	Loss of communication	(see page 22-73)
B1956	Rear MICU lost communication with gauge control module (A/T message)	Loss of communication	(see page 22-73)
B1957	Rear MICU lost communication with combination switch control unit (HLSW message)	Loss of communication	(see page 22-74)
B1958	Rear MICU lost communication with combination switch control unit (WIPSW message)	Loss of communication	(see page 22-74)
B1959	Rear MICU lost communication with relay control module (RM message)	Loss of communication	(see page 22-74)

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DTC Troubleshooting Index (cont'd)

Power Seat Control Unit

DTC	Description	DTC Type	Page
B1800	Communication bus line error	Loss of communication	(see page 22-129)
B1802	Power seat control unit internal (EEPROM) error	Internal error	(see page 22-424)
B1805	Power seat control unit lost communication with gauge control module (VSP/NE message)	Loss of communication	(see page 22-424)
B1806	Power seat control unit lost communication with MICU (MICU message)	Loss of communication	(see page 22-425)
B1808	Power seat control unit lost communication with gauge control module (A/T message)	Loss of communication	(see page 22-424)
B1810	Power seat control unit lost communication with MICU (MIRRORSW message)	Loss of communication	(see page 22-425)
B1811	Power seat control unit lost communication with MICU (DOORSW message)	Loss of communication	(see page 22-425)
B1812	Power seat control unit lost communication with driver's MPCS unit (MEMSW message)	Loss of communication	(see page 22-425)
B1825	Power seat slide motor pulse error	Signal error	(see page 22-426)
B1826	Power seat front up-down motor pulse error	Signal error	(see page 22-430)
B1827	Power seat rear up-down motor pulse error	Signal error	(see page 22-434)
B1828	Power seat recline motor pulse error	Signal error	(see page 22-438)
B1829	A/T P signal and VSS signal mismatch	Signal error	(see page 22-442)
B1835	Tilt/telescopic switch signal input error	Signal error	(see page 22-443)
B1836	Power seat position sensor circuit short	Signal error	(see page 22-445)
B1837	Driving position memory recall timeout	Signal error	(see page 22-447)
B1840	Tilt motor pulse error	Signal error	(see page 22-448)
B1841	Telescopic motor pulse error	Signal error	(see page 22-451)
B1842	Power tilt/telescopic position sensor power supply circuit (SVCC line) short	Signal error	(see page 22-455)
B1843	Power seat control unit lost communication with power tilt/telescopic steering control unit (UART line)	Signal error	(see page 22-457)
B1844	Power seat slide switch circuit malfunction	Signal error	(see page 22-459)
B1845	Power seat recline switch circuit malfunction	Signal error	(see page 22-460)
B1846	Power seat front up-down switch circuit malfunction	Signal error	(see page 22-461)
B1847	Power seat rear up-down switch circuit malfunction	Signal error	(see page 22-462)

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Driver's MPCS Unit

DTC	Description	DTC type	Page
B2150	Communication bus line error	Loss of communication	(see page 22-129)
B2152	Driver's MPCS unit internal (EEPROM) error	Internal error	(see page 22-130)
B2155	Driver's MPCS unit lost communication with MICU (MICU message)	Loss of communication	(see page 22-130)
B2156	Driver's MPCS unit lost communication with MICU (MIRRORSW message)	Loss of communication	(see page 22-130)
B2157	Driver's MPCS unit lost communication with gauge control module (ILLUMI message)	Loss of communication	(see page 22-131)
B2160	Driver's MPCS unit lost communication with gauge control module (VSP/NE message)	Loss of communication	(see page 22-131)
B2161	Driver's MPCS unit lost communication with MICU (DOORSW message)	Loss of communication	(see page 22-130)
B2162	Driver's MPCS unit lost communication with Relay control module (RM message)	Loss of communication	(see page 22-131)
B2175	Driver's window motor pulse A error	Signal error	(see page 22-264)
B2176	Driver's window motor pulse B error	Signal error	(see page 22-266)
B2177	Front passenger's window motor pulse A error	Signal error	(see page 22-268)
B2178	Front passenger's window motor pulse B error	Signal error	(see page 22-270)
B2179	Driver's door key cylinder switch LOCK/UNLOCK signal error	Signal error	(see page 22-152)
B2180	Driver's door lock switch LOCK/UNLOCK signal error	Signal error	(see page 22-153)
B2181	Driver's door lock knob switch LOCK/UNLOCK signal error	Signal error	(see page 22-154)
B2182	Left power mirror horizontal sensor signal error	Signal error	(see page 22-463)
B2183	Left power mirror vertical sensor signal error	Signal error	(see page 22-465)
B2184	Right power mirror horizontal sensor signal error	Signal error	(see page 22-467)
B2185	Right power mirror vertical sensor signal error	Signal error	(see page 22-469)
B2186	Front passenger's door lock switch LOCK/UNLOCK signal error	Signal error	(see page 22-155)
B2187	Communication line (UART line) communication error (Driver's MPCS unit from Driver's MPCS unit)	Signal error	(see page 22-272)
B2188	Communication line (UART line) circuit open	Signal error	(see page 22-274)
B2189	Driver's window position detect circuit error	Signal error	(see page 22-275)
B2190	Front passenger's window position detect circuit error	Signal error	(see page 22-276)
B2191	Passenger's MPCS unit internal (EEPROM) error	Internal error	(see page 22-277)

AcuraLink Control Unit

DTC	Description	DTC Type	Page
B2200	Communication bus line error	Loss of communication	(see page 22-129)
B2202	AcuraLink control unit EEPROM error	Loss of communication	(see page 23-241)
B2204	B-CAN communication line error	Loss of communication	(see page 23-241)
B2205	F-CAN communication line error	Loss of communication	(see page 23-242)
B2207	Navigation unit control unit lost communication with AcuraLink control unit	Loss of communication	(see page 23-243)
B2208	HandsFreeLink control unit lost communication with AcuraLink control unit	Loss of communication	(see page 23-246)
B2209	AcuraLink control unit internal error	Loss of communication	(see page 23-249)
B2240	XM antenna error	Signal error	(see page 23-250)

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System Description

MICU Control Functions

The MICU (built into the under-dash fuse/relay box) is one of the B-CAN system components. The MICU controls many systems related to the body controller area and a security system, and also works as a gateway to diagnose the other B-CAN connected ECUs with the HDS.

The MICU also controls the function of these circuits:
Refer to each system circuit diagram for details.

- Entry lights control (individual map lights and ceiling light)
- Exterior lights control (including the daytime running lights control and back-up lights)
- Interlock system
- Keyless entry
- Power door locks
- Security alarm
- Turn signal/hazard flasher
- Tailgate actuator
- Automatic lighting
- Impact sensing door lock release
- Door mirror switch
- S-NET (IMOCD)

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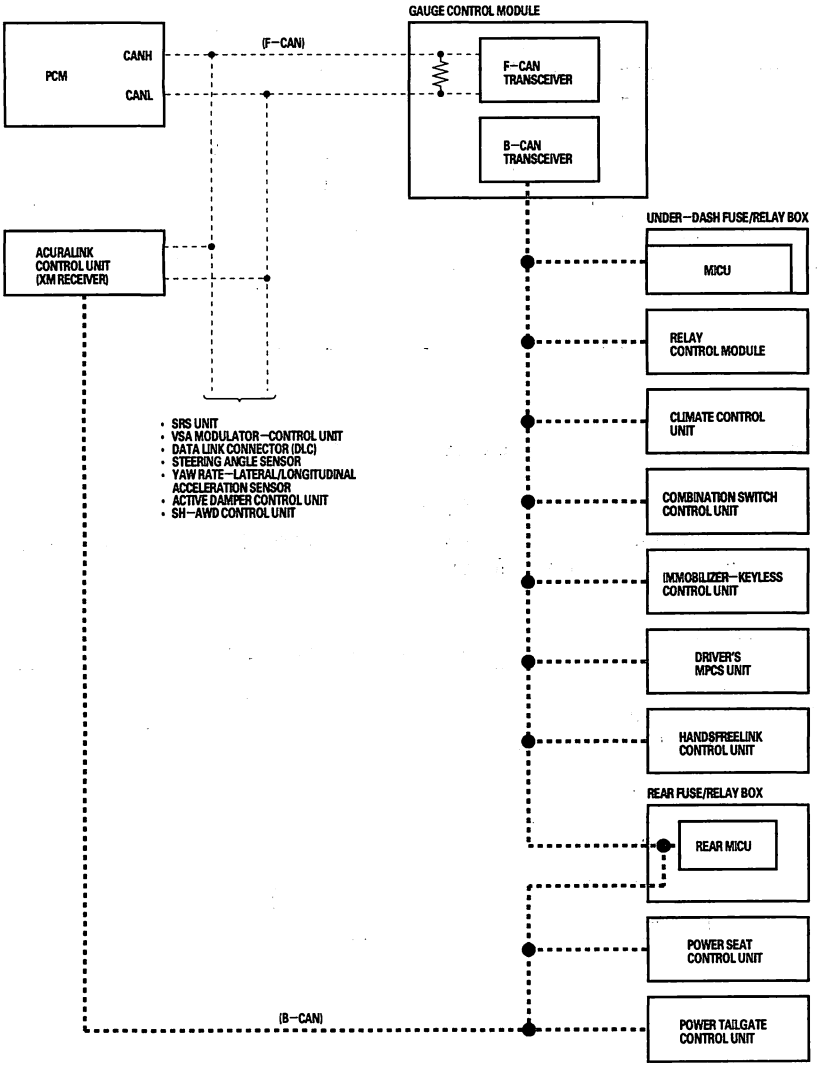
Body Controller Area Network (B-CAN) and Fast Controller Area Network (F-CAN)

The body controller area network (B-CAN) and the fast controller area network (F-CAN) share information between multiple electronic control units (ECUs). B-CAN communication moves at a slower speed (33.33 kbps) for convenience related items and for other functions. F-CAN information moves at a faster speed (500 kbps) for "real time" functions such as fuel and emissions data. To allow both systems to share information, the gauge control module translates information from B-CAN to F-CAN and from F-CAN to B-CAN.



- The single wire method is used between the units not requiring the communication to move at a fast speed.
- Using a single wire method reduces the number of the wires used on the body controller area network.

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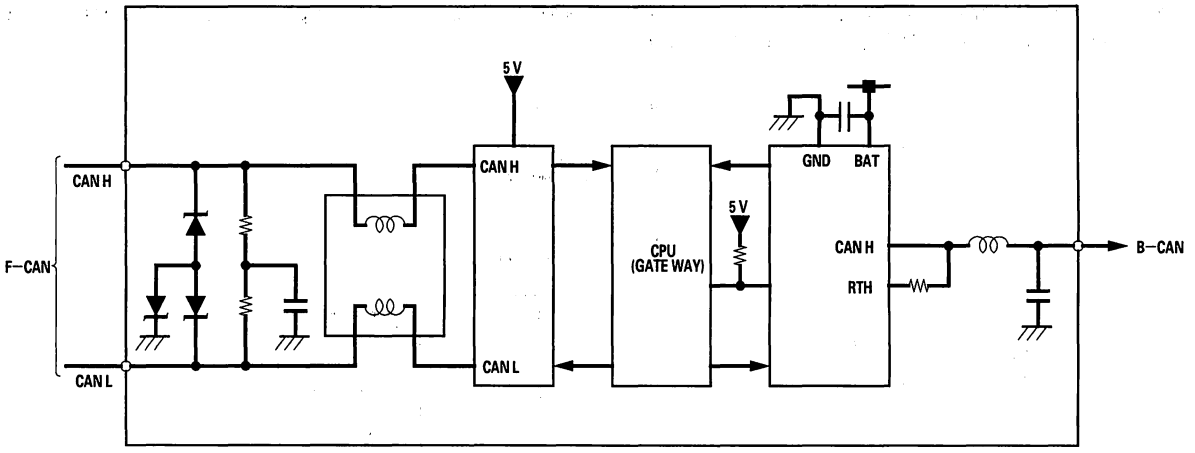
System Description (cont'd)

Gateway Function

The gauge control module acts as a gateway to allow both systems to share information, the gauge control module translates information from B-CAN to F-CAN and from F-CAN to B-CAN.



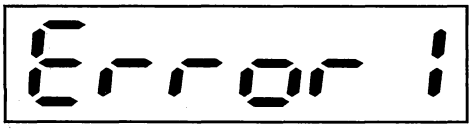
Network "Loss of Communication" Error Checking Function

The ECUs on the CAN circuit send messages to each other. If there are any malfunctions on the network, the odo/trip display on the gauge control module can indicate the error messages by entering the gauge self-diagnostic function (see page 22-315). There are three types of messages as follows:

Error Code List

Error code	Type of communication line(s) error
Error 1	F-CAN communication
Error 2	B-CAN communication
Error 12	F-CAN and B-CAN communication

Example: Error 1



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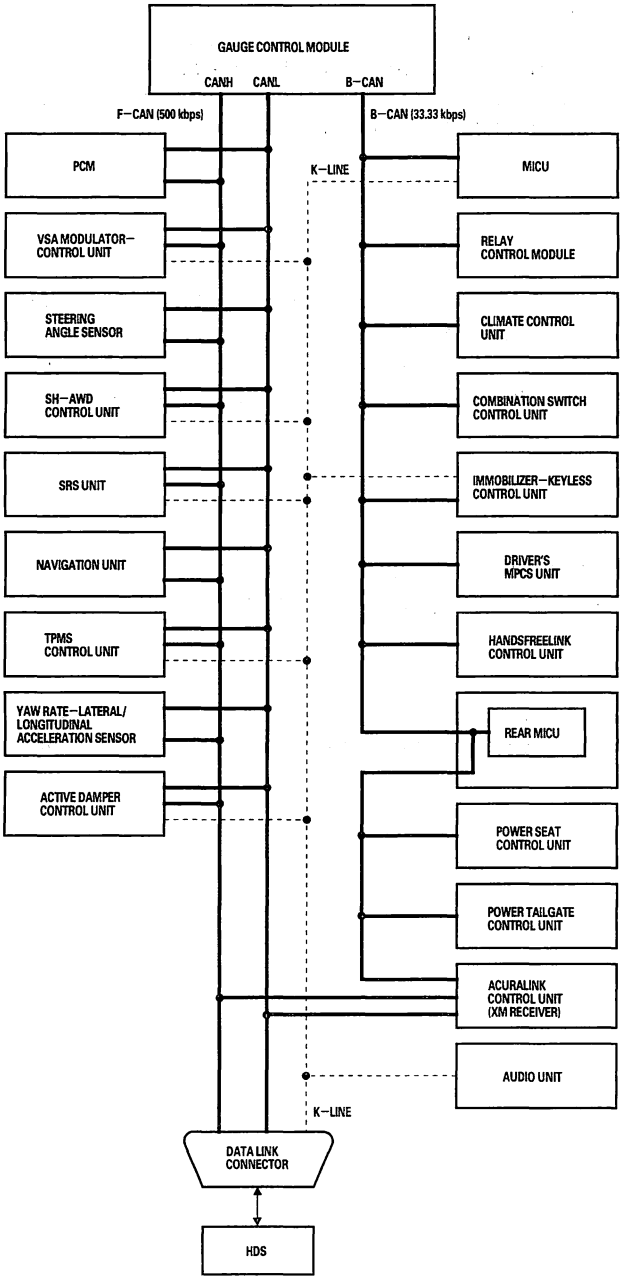
Self-diagnostic Function

By connecting the HDS to the data link connector (DLC), the HDS can retrieve the diagnostic results from the MICU via a diagnostic BUS called the K-LINE. The K-LINE is different from the CAN line, and connected to the CAN related ECUs. The MICU is a gateway between the HDS and B-CAN related ECUs, and sends B-CAN diagnostic results to the HDS. When performing a function test with the HDS, the HDS sends an output signal through the K-LINE to the MICU. The MICU either relays the request to another ECU, or commands the function itself.



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System Description (cont'd)

Wake-up and Sleep Function

The multiplex integrated control system has "wake-up" and "sleep" functions to decrease parasitic draw on the battery when the ignition switch is OFF.

- In the sleep mode, the MICU stops functioning (communication and CPU control) when it is not necessary for the system to operate.
- As soon as any operation is requested (for example, a door is unlocked), the related control unit in the sleep mode immediately wakes up and begins to function.
- When the ignition switch is turned OFF, and the driver's door is opened, then closed, there is a delay about 40 seconds before the control unit goes from the wake-up mode to the sleep mode.
- The sleep mode will not function if any door is opened or if the ignition switch is turned ON (II).
- The draw is reduced from 200 mA to less than 35 mA when in the sleep mode.

NOTE: Sleep and Wake-up Mode Test (see page 22-119).

Fail-safe Function

To prevent improper operation, the MICU has a fail-safe function. In the fail-safe mode, the output signal is fixed when any part of the system malfunctions (for example, a faulty control unit or communication line).
Each control unit has a hardware fail-safe function that fixes the output signal when there is a CPU malfunction, and a software fail-safe function that ignores the signal from a malfunctioning control unit , which allows the system to operate normally.

Hardware Fail-safe Control

Fail-safe function
When a CPU problem or a abnormal power supply voltage is detected, the MICU moves to the hardware fail-safe mode, and each system output load is set to the pre-programmed fail-safe value.

Software Fail-safe Control

When any of the data from the B-CAN circuit cannot be received within a specified time, or an unusual combination of the data is recognized, the MICU moves to the software fail-safe mode. The data that cannot be received is forced to a pre-programmed value.

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Power Supply Voltage Monitoring Function

The MICU monitors the power supply voltage (back-up voltage). If the voltage goes below 10 V, the MICU sends a MICU message and will not store DTCs.

	Input	Output
MICU	Battery voltage	
B-CAN		MICU message

Entry Lights Control System (Ceiling Lights, Ignition Key Light)

The MICU controls the ceiling light and ignition key light ON/OFF based upon the input signals from each switch.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch	Interior lights Ignition key light
B-CAN	Driver's door lock knob switch (LOCK) Keyless LOCK/UNLOCK signal Tailgate latch switch	

Back-up Lights

The MICU controls the back-up lights based upon the ignition switch (IG1) and the transmission range switch (R) signals.

	Input	Output
MICU	Ignition switch (ACC) Transmission range switch (R)	Back-up lights

Turn Signal/Hazard Flasher

The MICU controls the turn signal/hazard flasher lights based upon the input signals from the turn signal switch and the hazard warning switch.

	Input	Output
MICU	Hazard warning switch	Turn signal lights (left) Turn signal lights (right)
B-CAN	Turn signal switch (left) Turn signal switch (right)	

Collision Detection Signal (CDS)

The MICU controls the door lock actuators based upon the IG1 and the SRS signals.

	Input	Output
MICU	IG1 power supply	Door lock actuators (LOCK/UNLOCK) Tailgate release actuator (UNLOCK)
B-CAN	Front impact sensor Side impact sensor (first) Side impact sensor (second) SRS unit rollover signal	

Automatic Lighting System

The MICU controls the automatic lighting system based upon the IG1, IG2, automatic lighting sensor signals, and B-CAN signals.

	Input	Output
MICU	Ignition switch (IG1) Ignition switch (IG2) Automatic lighting sensor signal	Headlight back-up signal
B-CAN	Headlight switch (AUTO) Vehicle speed pulse signal Engine speed signal	AUTOLT messages

(cont'd)

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System Description (cont'd)

Headlight Washer Operation

The MICU controls the headlight washer system based upon the headlight switch and washer switch signals.

	Input	Output
MICU	Windshield washer switch	
B-CAN		Headlight washer messages

Key Interlock

The MICU controls the key interlock solenoid based upon the ignition switch (ACC), the transmission range switch, and the park-pin switch signals.

	Input	Output
MICU	Ignition switch (ACC) Transmission range switch (P) Park-pin switch	Key interlock solenoid

Power Door Locks (Unlock all doors and tailgate at the same time)

The MICU controls the door lock actuators based upon the input signals of each switch.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch	Door lock actuators (LOCK) Door lock actuators (UNLOCK) Tailgate release actuator (UNLOCK)
B-CAN	Driver's door lock switch (LOCK/UNLOCK) Driver's door key cylinder switch (LOCK/UNLOCK) Driver's door lock knob switch (LOCK) Front passenger's door lock switch (LOCK/UNLOCK) Tailgate latch switch	

Power Door Locks (Unlock only the driver's door first)

The MICU controls the door lock actuators based upon the input signals of each switch.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch	Door lock actuators (LOCK) Door lock actuators (UNLOCK) Driver's door lock actuator (UNLOCK) Tailgate release actuator (UNLOCK)
B-CAN	Driver's door lock switch (LOCK/UNLOCK) Driver's door key cylinder switch (UNLOCK) Driver's door lock knob switch (LOCK) Front passenger's door lock switch(LOCK/UNLOCK) Tailgate latch switch	

Door Lock Response Operation

The MICU controls the door lock actuators based upon the B-CAN signals.

	Input	Output
B-CAN	Door lock signal	Door lock actuators (LOCK) Door lock actuators (UNLOCK) Driver's door lock actuator (UNLOCK) Tailgate release actuator (UNLOCK)

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Keyless Entry System (Unlock all doors and tailgate at the same time)

The MICU controls the door lock actuators based upon the input signals of each switch and the B-CAN signals.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch	Door lock actuators (LOCK) Door lock actuators (UNLOCK) Tailgate release actuator (UNLOCK)
B-CAN	Driver's door lock switch (LOCK/UNLOCK) Driver's door key cylinder switch (LOCK/UNLOCK) Driver's door lock knob switch (LOCK) Front passenger's door lock switch (LOCK/UNLOCK) Keyless LOCK/UNLOCK signal Tailgate latch switch	Relock message

Keyless Entry System (Unlock only the driver's door first)

The MICU controls the door lock actuators based upon the input signals of each switch and the B-CAN signals.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch	Door lock actuators (LOCK) Door lock actuators (UNLOCK) Driver's door lock actuator (UNLOCK) Tailgate release actuator (UNLOCK)
B-CAN	Driver's door lock switch (LOCK/UNLOCK) Driver's door key cylinder switch (LOCK/UNLOCK) Driver's door lock knob switch (LOCK) Front passenger's door lock switch(LOCK/UNLOCK) Keyless LOCK/UNLOCK signal Tailgate latch switch	Relock message

Answer Back Response Operation

The MICU controls the turn signal lights based upon the B-CAN signals.

	Input	Output
MICU	IG1 power supply	Turn signal lights (left) Turn signal lights (right)
B-CAN	Answer back signal (buzzer) Answer back signal (hazard) Vehicle speed pulse signal Engine speed signal	

(cont'd)

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System Description (cont'd)

Auto Power Door Locks (LOCK operation)

The MICU controls the door lock actuators based upon the input signals of each switch.

	Input	Output
MICU	IG1 power supply Ignition key switch Transmission range switch (P position) Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch	Door lock actuators (LOCK)
B-CAN	Driver's door lock knob switch (UNLOCK) Front passenger's door lock knob switch(UNLOCK) Left rear door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Vehicle speed pulse signal Engine speed signal Tailgate latch switch	

Auto Power Door Locks (UNLOCK operation)

The MICU controls the door lock actuators based upon the input signals of each switch.

	Input	Output
MICU	IG1 power supply Transmission range switch (P position) Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch	Door lock actuators (UNLOCK) Driver's door lock actuator (UNLOCK) Tailgate release actuator (UNLOCK)
B-CAN	Driver's door lock knob switch (UNLOCK) Front passenger's door lock knob switch(UNLOCK) Left rear door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Tailgate latch switch	

Tailgate Outer Handle Switch Operation (Unlock all doors and tailgate at the same time)

The MICU controls the tailgate release actuator based upon the tailgate outer handle switch and the B-CAN signals.

	Input	Output
MICU		Tailgate release actuator (UNLOCK)
B-CAN	Driver's door lock knob switch (LOCK/UNLOCK) Door lock signal Tailgate outer handle switch	

Tailgate Outer Handle Switch Operation (Unlock only the driver's door first)

The MICU controls the tailgate release actuator based upon the tailgate outer handle switch and the B-CAN signals.

	Input	Output
MICU		Tailgate release actuator (UNLOCK)
B-CAN	Driver's door lock knob switch (LOCK/UNLOCK) Front passenger's door lock knob switch (UNLOCK) Left rear door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Tailgate outer handle switch	

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Security Alarm System

The MICU controls the lighting system and horn based upon the input signals of each switch and the B-CAN signals.

	Input	Output
MICU	IG1 power supply Ignition key switch Audio switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch	Inclining sensor
B-CAN	Driver's door key cylinder switch (LOCK/UNLOCK) Front passenger's door lock knob switch (UNLOCK) Left rear door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Keyless LOCK/UNLOCK signal Door lock signal Relay control module (Hood switch) Tailgate latch switch	MICU (SET 1) message MICU (SET 2) message ALARM (ACTION) message ALARM (HORN) message ALARM (H/L LOW) message ALARM (SMALL LT) message ALARM (CYCLE) message ANSWER BACK (SMALL LT) message ANSWER BACK (BUZZER) message

Prevention of Key Locked Inside Vehicle

The MICU controls the door lock actuators based upon the input signals of each switch.

	Input	Output
MICU	Ignition key switch Driver's door switch	Door lock actuators (LOCK) Door lock actuators (UNLOCK) Driver's door lock actuator (UNLOCK) Tailgate release actuator (UNLOCK)
B-CAN	Driver's door lock knob switch (UNLOCK)	

(cont'd)

Protected by AR

System Description (cont'd)

HDS Inputs and Commands

Certain inputs happen so quickly that the HDS can not update fast enough. Hold the switch that is being tested while monitoring the Data List. This should give the HDS time to update the signal on the Data List.
Because the HDS software is updated to support the release for newer vehicles it is not uncommon to see system function tests that are not supported.
Make sure that the most current software is loaded.

Input:

System Menu	Data List	Data List Indication
Gauge	Cruise Control Main Switch (ACC Switch)	ON/OFF
	Cruise Control Set Switch	ON/OFF
	Cruise Control Resume Switch	ON/OFF
	Washer Fluid Level Switch	ON/OFF
	VSA/TCS Off Switch	ON/OFF
	Parking Brake Switch	ON/OFF
	Illumination Plus Switch	ON/OFF
	Illumination Minus Switch	ON/OFF
	Select/Reset Switch	ON/OFF
	INFO Previous Switch	ON/OFF
	INFO Next Switch	ON/OFF
	ACC Distance Switch	ON/OFF
	CMBS Cancel Switch	ON/OFF
	Fuel Sending Unit Input 1	deg
	Fuel Sending Unit Input 2	V
	VSA/TCS Active Indicator	ON/OFF
	VSA/TCS Indicator (Warning)	ON/OFF
	ABS Indicator	ON/OFF
	EBD Indicator (Electronic Brake Distribution)	ON/OFF
	Cruise Control Main Switch Indicator	ON/OFF
	MIL Indicator	ON/OFF
	Washer Fluid Level Indicator (Canada)	ON/OFF
	DRL Indicator	ON/OFF
	CMBS Indicator	ON/OFF
	ACC Indicator	ON/OFF
	Low Oil Pressure Indicator	ON/OFF
	Charging System Indicator	ON/OFF
	Cruise Main Switch ON Indicator	ON/OFF
	Maintenance Minder Indicator	ON/OFF
	High Beam Indicator	ON/OFF
	Parking Light ON Indicator	ON/OFF
	Low Fuel Warning Indicator	ON/OFF
	Security Indicator	ON/OFF
	Fog Light Indicator	ON/OFF
	Master Warning Indicator	ON/OFF
	Seatbelt Indicator	ON/OFF
	Low Tire Pressure Indicator	ON/OFF
	TPMS Indicator	ON/OFF
	Power Tailgate Indicator	ON/OFF
	SH-AWD Indicator	ON/OFF
	Door Open Indicator	ON/OFF
	Differential Oil Temp Indicator	ON/OFF
	Maintenance Minder Change Oil Indicator	ON/OFF
	Fuel Fill Cap Caution	ON/OFF
	A/T Indicator	ON/OFF
	SRS Indicator	ON/OFF
	Side Airbag Cutoff Indicator	ON/OFF
	CMBS Radar Become Dirty	ON/OFF
	Outside Temperarure Indicator	ON/OFF
	Radiator Fan Indicator	ON/OFF
	Starter Relay Indicator	ON/OFF
	A/T Gear Position Switch (R)	ON/OFF
	A/T Gear Position Switch (P)	ON/OFF

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HDS Inputs and Commands

Input:

System Menu	Data List	Data List Indication
Lighting	Headlight Switch (OFF)	OFF/ON
	Headlight Switch (PARKING)	OFF/ON
	Headlight Switch (HEADLIGHT)	OFF/ON
	Headlight Switch (AUTO)	OFF/ON
	Headlight Switch (High Beam)	OFF/ON
	Headlight Switch (PASSING)	OFF/ON
	Turn Signal Switch (LEFT)	OFF/ON
	Turn Signal Switch (RIGHT)	OFF/ON
	Fog Light Switch	OFF/ON
	Driver's Door Switch	OFF/ON
	Ignition Key Cylinder Light Command	OFF/ON
	Interior Light Command	OFF/ON
	Left Turn Signal Command	OFF/ON
	Right Turn Signal Command	OFF/ON
	Autolight Small Command	OFF/ON
	Autolight Headlight Command	OFF/ON
	Autolight Warning Command	V
	Autolight Headlight Backup line Command	OFF/ON
	Headlight Switch (BACK-UP)	OFF/ON
	Ignition Switch (IG1)	OFF/ON
	Headlight Command	OFF/ON
	Headlight High Beam Command	OFF/ON
	Parking Light Command	OFF/ON
	Fog Light Command	OFF/ON
	DRL Command	OFF/ON
	Interior Small Light Command	OFF/ON
	Inner Taillight Command	OFF/ON
	Rear Fog Light Command	OFF/ON
Doors	Driver's Door Lock Switch Illumination Command	OFF/ON
	Driver's Door Courtesy Light Command	OFF/ON
	Front Passenger's Door Courtesy Light Command	OFF/ON
	Front Passenger's Door Lock Switch Illumination Command	OFF/ON
	Front Passenger's Door Switch	OFF/ON
	Driver's Rear Door Switch	OFF/ON
	Passenger's Rear Door Switch	OFF/ON
	Door LOCK Command	OFF/ON
	Door UNLOCK Command	OFF/ON
	Driver's Door UNLOCK Command	OFF/ON
	Tailgate Switch	OFF/ON
	Tailgate Knob Switch (UNLOCK)	OFF/ON
	Fuel Fill Door Command	OFF/ON
	Driver's Key Cylinder Switch (LOCK)	OFF/ON
	Driver's Key Cylinder Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Switch (LOCK)	OFF/ON
	Driver's Door Lock Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Knob Switch (LOCK)	OFF/ON
	Driver's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Front Passenger's Door Switch (LOCK)	OFF/ON
	Front Passenger's Door Switch (UNLOCK)	OFF/ON
	Front Passenger's Door Knob Switch (UNLOCK)	OFF/ON
	Left Rear Door Knob Switch (UNLOCK)	OFF/ON
	Right Rear Door Knob Switch (UNLOCK)	OFF/ON

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System Description (cont'd)

HDS Inputs and Commands

Input:

System Menu	Data List	Data List Indication
Keyless	Driver's Door Switch	OFF/ON
	Front Passenger's Door Switch	OFF/ON
	Driver's Rear Door Switch	OFF/ON
	Passenger's Rear Door Switch	OFF/ON
	Door LOCK Command	OFF/ON
	Door UNLOCK Command	OFF/ON
	Driver's Door UNLOCK Command	OFF/ON
	Trunk Lid Release Command	OFF/ON
	Ignition Switch (IG1)	OFF/ON
	Tailgate Knob Switch (UNLOCK)	OFF/ON
	Keyless Buzzer Command	OFF/ON
	Driver's Key Cylinder Switch (LOCK)	OFF/ON
	Driver's Key Cylinder Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Switch (LOCK)	OFF/ON
	Driver's Door Lock Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Knob Switch (LOCK)	OFF/ON
	Driver's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Front Passenger's Door Switch (LOCK)	OFF/ON
	Front Passenger's Door Switch (UNLOCK)	OFF/ON
	Front Passenger's Door Knob Switch (UNLOCK)	OFF/ON
	Left Rear Door Knob Switch (UNLOCK)	OFF/ON
	Right Rear Door Knob Switch (UNLOCK)	OFF/ON
Power windows	Power Window Main Switch	OFF/ON
	Power Window Master, Driver's AUTO Switch	OFF/ON
	Power Window Master, Driver's UP Switch	OFF/ON
	Power Window Master, Driver's DOWN Switch	OFF/ON
	Power Window Master, Front Passenger's UP Switch	OFF/ON
	Power Window Master, Front Passenger's DOWN Switch	OFF/ON
	Power Window Master, Left Rear UP Switch	OFF/ON
	Power Window Master, Left Rear DOWN Switch	OFF/ON
	Power Window Master, Right Rear UP Switch	OFF/ON
	Power Window Master, Right Rear DOWN Switch	OFF/ON
	Power Window Master, Passenger's AUTO Switch	OFF/ON
	Front Passenger's Window Switch (UP)	OFF/ON
	Front Passenger's Window Switch (DOWN)	OFF/ON
	Front Passenger's Window Switch (AUTO)	OFF/ON
	Driver's Window Motor A-phase Pulse Signal	NONE/DETECT
	Driver's Window Motor B-phase Pulse Signal	NONE/DETECT
	Front Passenger's Window Motor A-phase Pulse Signal	NONE/DETECT
	Front Passenger's Window Motor B-phase Pulse Signal	NONE/DETECT
	Driver's Window Motor Command	OFF/UP/DOWN
	Front Passenger's Window Motor Command	OFF/UP/DOWN

BACK

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HDS Inputs and Commands

Input:

System Menu	Data List	Data List Indication
Power Seat/Power Mirror	Power Mirror UP Switch	OFF/ON
	Power Mirror MOVE LEFT Switch	OFF/ON
	Power Mirror DOWN Switch	OFF/ON
	Power Mirror MOVE RIGHT Switch	OFF/ON
	Power Mirror LEFT Switch	OFF/ON
	Power Mirror RIGHT Switch	OFF/ON
	Slide Switch Backward	OFF/ON
	Slide Switch Forward	OFF/ON
	Recline Switch Backward	OFF/ON
	Recline Switch Forward	OFF/ON
	Front Up-Down Switch Down	OFF/ON
	Front Up-Down Switch Up	OFF/ON
	Rear Up-Down Switch Down	OFF/ON
	Rear Up-Down Switch Up	OFF/ON
	Ignition Switch for Power Seat Control	OFF/ON
	A/T Gear Position Switch (P)	OFF/ON
	Seat MEMO Switch	OFF/ON
	Driver 1 Position Switch	OFF/ON
	Driver 2 Position Switch	OFF/ON
	Headrest Switch	OFF/ON
	Column Tilt UP Switch	OFF/ON
	Column Tilt DOWN Switch	OFF/ON
	Column Telescopic Pull Switch	OFF/ON
	Column Telescopic Push Switch	OFF/ON
	Column Auto Switch	OFF/ON
	Ignition Switch (ETS)	OFF/ON
	Slide Sensor	OFF/ON
	Front UP-DOWN Sensor	OFF/ON
	Recline Sensor	OFF/ON
	Rear UP-DOWN Sensor	OFF/ON
	Column Tilt Sensor	OFF/ON
	Column Telescopic Sensor	OFF/ON
	Slide Motor Command	OFF/FWD/RWD
	Recline Motor Command	OFF/FWD/RWD
	Front Height Motor Command	OFF/UP/DOWN
	Rear Height Motor Command	OFF/UP/DOWN
	Power Seat Buzzer Command	OFF/ON
	Headrest Motor	OFF/ON
	Column Tilt Motor	OFF/UP/DOWN
	Column Telescopic Motor	OFF/UP/DOWN
	DPMS MEM Switch	OFF/ON
	DPMS POS1 Switch	OFF/ON
	DPMS POS2 Switch	OFF/ON
	Left Power Mirror Horizontal Sensor	NORMAL/ABNORMAL
	Left Power Mirror Vertical Sensor	NORMAL/ABNORMAL
	Right Power Mirror Horizontal Sensor	NORMAL/ABNORMAL
	Right Power Mirror Vertical Sensor	NORMAL/ABNORMAL
	Left Power Mirror UP-DOWN Motor Command	OFF/UP/DOWN
	Left Power Mirror LEFT-RIGHT Motor Command	OFF/LEFT/RIGHT
	Right Power Mirror UP-DOWN Motor Command	OFF/UP/DOWN
	Right Power Mirror LEFT-RIGHT Motor Command	OFF/LEFT/RIGHT
	Memory Switch Position 1 Indicator Command	OFF/ON
	Memory Switch Position 2 Indicator Command	OFF/ON
	Memory Switch Illumination Command	OFF/ON

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System Description (cont'd)

HDS Inputs and Commands

Input:

System Menu	Data List	Data List Indication
Wipers	Windshield Wiper Switch (LOW)	OFF/ON
	Windshield Wiper Switch (HIGH)	OFF/ON
	Windshield Wiper Switch (MIST)	OFF/ON
	Rear Wiper Switch	OFF/ON
	Windshild Washer Switch	OFF/ON
	Rear Washer Switch	OFF/ON
	Intermittent Wiper Dwell Timer	1—255
	Brake Pedal Position Switch	OFF/ON
	Windshield Wiper Motor PARK Switch	OFF/ON
	Windshield Wiper Switch (BACK-UP)	OFF/ON
	Windshield Wiper Motor HI Command	OFF/ON
	Windshield Wiper Motor LO Command	OFF/ON
	Windshield Washer Motor Command	OFF/ON
	Rear Window Washer Motor Command	OFF/ON
	Rear Window Wiper Switch	OFF/ON
	Rear Window Wiper Command	OFF/ON
Security	Ignition Key Cylinder Switch	OFF/ON
	Driver's Door Switch	OFF/ON
	Front Passenger's Door Switch	OFF/ON
	Driver's Rear Door Switch	OFF/ON
	Passenger's Rear Door Switch	OFF/ON
	Radio Switch	OFF/ON
	Door LOCK Command	OFF/ON
	Door UNLOCK Command	OFF/ON
	Driver's Door UNLOCK Command	OFF/ON
	Trunk Lid Release Command	OFF/ON
	Hood Switch	OFF/ON
	Ignition Switch (IG1)	OFF/ON
	Headlight Command	OFF/ON
	Headlight High Beam Command	OFF/ON
	Parking Light Command	OFF/ON
	Horn Command	OFF/ON
	Tailgate Switch	OFF/ON
	Tailgate Knob Switch (UNLOCK)	OFF/ON
	Security Hazard Signal Command	OFF/ON
	Driver's Key Cylinder Switch (LOCK)	OFF/ON
	Driver's Key Cylinder Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Switch (LOCK)	OFF/ON
	Driver's Door Lock Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Knob Switch (LOCK)	OFF/ON
	Driver's Door Lock Knob Switch (UNLOCK)	OFF/ON

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HDS Inputs and Commands

Input:

System Menu	Data List	Data List Indication
Power Tailgate	Power Tailgate Switch	OFF/ON
	Power Tailgate Outer Handle Switch	OFF/ON
	Power Tailgate Inner Switch	OFF/ON
	A/T Shift Position Switch (P)	OFF/ON
	Latch Gear Position Switch (Neutral)	OFF/ON
	Latch Gear Position Switch (Release)	OFF/ON
	Full Latch Switch	OFF/ON
	Ratchet Switch	OFF/ON
	Half Latch Switch	OFF/ON
	Power Tailgate Drive Motor Pulse A	NONE/DETECT
	Power Tailgate Drive Motor Pulse B	NONE/DETECT
	Right Power Tailgate Upper Pinch Sensor	NONE/DETECT
	Left Power Tailgate Upper Pinch Sensor	NONE/DETECT
	Power Tailgate Motor Command	OFF/OPEN/CLOSE
	Power Tailgate Clutch Command	OFF/ON
	Closer Motor Command	OFF/RELEASE/CLOSE
	Power Tailgate Buzzer	OFF/ON

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System Description (cont'd)

Output:

System Menu	Data List	Data List Indication	Operation Time
Gauge	Speedometer displays value inputted	Speedometer	
	Tachometer displays value inputted	Tachometer	
	Fuel gauge displays value inputted	Fuel Level Gauge	
	Temperature gauge displays value inputted	Engine Temperature Gauge	
	Turns VSA activation indicator on/off	VSA/TCS Activation Indicator	Illuminates for 10 sec.
	Turns VSA indicator on/off	VSA/TCS Indicator	Illuminates for 10 sec.
	Turns ABS indicator on/off	ABS Indicator	Illuminates for 10 sec.
	Turns EBD indicator on/off	EBD Indicator (Electronic Brake Display)	Illuminates for 10 sec.
	Turns cruise indicator on/off	Cruise Activation Indicator	Illuminates for 10 sec.
	Turns MIL on/off	MIL Status	Illuminates for 10 sec.
	Turns DRL indicator on/off	Daytime Running Light indicator (Canada)	Illuminates for 10 sec.
	Turns low oil pressure indicator on/off	Engine Oil Pressure Indicator	Illuminates for 10 sec.
	Turns charging system indicator on/off	Charging System Indicator	Illuminates for 10 sec.
	Turns cruise main indicator on/off	Cruise Control Main Switch Indicator	Illuminates for 10 sec.
	Turns maintenance required indicator on/off	Maintenance Required Indicator	Illuminates for 10 sec.
	Turns high beam indicator on/off	High Beam Indicator	Illuminates for 10 sec.
	Turns light-on indicator on/off	Light On Indicator	Illuminates for 10 sec.
	Turns low fuel indicator on/off	Low Fuel Level Indicator	Illuminates for 10 sec.
	Turns security indicator on/off	Security Indicator	Illuminates for 10 sec.
	Display inputted value	Trip Meter	
	Turns A/T P position indicator on/off	A/T Gear Position Indicator (P)	Illuminates for 10 sec.
	Turns A/T R position indicator on/off	A/T Gear Position Indicator (R)	Illuminates for 10 sec.
	Turns A/T N position indicator on/off	A/T Gear Position Indicator (N)	Illuminates for 10 sec.
	Turns A/T D position indicator on/off	A/T Gear Position Indicator (D)	Illuminates for 10 sec.
	Turns A/T D3 position indicator on/off	A/T Gear Position Indicator (D3)	Illuminates for 10 sec.
	Turns A/T 2 position indicator on/off	A/T Gear Position Indicator (2)	Illuminates for 10 sec.
	Controls gauge illumination brightness to inputted value	Illumination Brightness Control	
	Turns key-in beeper on/off	Key Alarm Chime	Sounds alarm for 10 sec.
	Turns light-on beeper on/off	Headlight Alarm Chime	Sounds alarm for 10 sec.
	Turns seat belt reminder beeper on/off	Seat belt Reminder Chime	Sounds alarm for 10 sec.
Lighting	Turns ignition key cylinder light on/off	Ignition Key Cylinder Light Command	Illuminates for 30 sec.
	Turns interior light on/off	Interior Light Command	Illuminates for 30 sec.
	Turns left turn signal lights on/off	Left Turn Signal Command	Blinks for 5 sec.
	Turns right turn signal lights on/off	Right Turn Signal Command	Blinks for 5 sec.
	Turns headlight on/off	Headlight Command	Operates for 15 sec.
	Turns headlight high beam on/off	Headlight High Beam Command	Operates for 15 sec.
	Turns parking lights on/off	Parking Light Command	Operates for 15 sec.
	Turns front fog lights on/off	Front Fog Light	Operates for 15 sec.
	Turns daytime running lights on/off	Daytime Running Light Signal (Canada)	Operates for 15 sec.
	Turns automatic headlights on/off	Automatic Lighting Headlight	Operates for 15 sec.
	Turns cargo area lights on/off	Cargo Area Light	Illuminates for 30 sec.

BACK

Protected by AR

Output:

System Menu	Data List	Data List Indication	Operation Time
Power window	Runs driver's window up	Driver's Window Up	Drives for 3 sec.
	Runs driver's window down	Driver's Window Down	Drives for 3 sec.
	Runs front passenger's window up	Front Passenger's Window Up	Drives for 3 sec.
	Runs front passenger's window down	Front Passenger's Window Down	Drives for 3 sec.
	Runs left rear window up	Left Rear Window Up	Drives for 3 sec.
	Runs left rear window down	Left Rear Window Down	Drives for 3 sec.
	Runs right rear window up	Right Rear Window Up	Drives for 3 sec.
	Runs right rear window down	Right Rear Window Down	Drives for 3 sec.
	Turns power window relay on/off	Power Window Relay	Drives for 3 sec.
Wiper	Turns wiper low speed on/off	Windshield Wiper Motor Low Command	Operates for 5 sec.
	Turns wiper high speed on/off	Windshield Wiper Motor High Command	Operates for 5 sec.
	Turns windshield washer on/off	Windshield Washer Command	Operates for 5 sec.
	Turns rear window washer on/off	Rear Window Washer Motor Command	Operates for 5 sec.
	Turns rear window wiper on/off	Rear Wiper Motor	Operates for 5 sec.
Security	Turn horns on/off	Horn Command	Operates horn for 1 sec.
Power Seat	Turns power seat indicator on/off	Memory Seat Indicator 1	Illuminates for 3 sec.
		Memory Seat Indicator 2	Illuminates for 3 sec.
	Runs power seat motors	Power Seat: Slide Motor-Full Forward	———
		Power Seat: Slide Motor-Full Backward	———
		Power Seat: Front UP-DOWN Motor-Full Up	———
		Power Seat: Front UP-DOWN Motor-Full Down	———
		Power Seat: Rear UP-DOWN Motor-Full Up	———
		Power Seat: Front UP-DOWN Motor-Full Down	———
		Power Seat: Recline Motor-Full Forward	———
		Power Seat: Recline Motor-Full Backward	———
		Power Seat: Memory Buzzer-5 seconds	Drives for 5 sec.
Power Sliding Door	Operates left power sliding door	Power Slide Door Motor: Open (2 sec.)	Drives for 2 sec.
		Power Slide Door Motor: Close (2 sec.)	Drives for 2 sec.
		Magnet Clutch (2 sec.)	Drives for 2 sec.
		Release Actuator (1.3 sec.)	Drives for 1.3 sec.
		Closer Motor	———
		Buzzer	———
	Operates right power sliding door	Power Slide Door Motor: Open (2 sec.)	Drives for 2 sec.
		Power Slide Door Motor: Close (2 sec.)	Drives for 2 sec.
		Magnet Clutch (2 sec.)	Drives for 2 sec.
		Release Actuator (1.3 sec.)	Drives for 1.3 sec.
		Closer Motor	———
		Buzzer	———
Door	Outputs LOCK signal 1 time to all doors	Lock All Doors	0.6 sec.
	Outputs LOCK signal 1 time to all doors	Unlock All	0.6 sec.
	Outputs UNLOCK signal 1 time to driver's door	Unlock Driver's Side Door	0.6 sec.
	Runs left sliding door lock actuator	Left Sliding Door Lock	Lock signal 1 time
		Left Sliding Door Unlock	Unlock signal 1 time
Power Tailgate	Runs power tailgate motor	Full Open Position	———
		Full Close Position	———
	Operates power tailgate electromagnetic clutch	Operates On For 1 sec.	Operates for 1 sec.
	Runs power tailgate release actuator	Open	———
		Close	———
A/C	Turn rear window defogger relay on/off	Rear Defogger	Operates a relay for 60 sec.

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Troubleshooting - B-CAN System Diagnosis Test Mode A

Check the PCM for DTCs and troubleshooting PCM (see page 11-3) or F-CAN loss of communication errors first, then perform this diagnosis if the symptom is related to the B-CAN system.

Perform this diagnosis first if the symptom is related to the B-CAN system.

NOTE: Always turn the ignition switch within 3 seconds when prompted in the DTC troubleshooting procedures in this section.

1. Check the symptom against this list of B-CAN related systems:

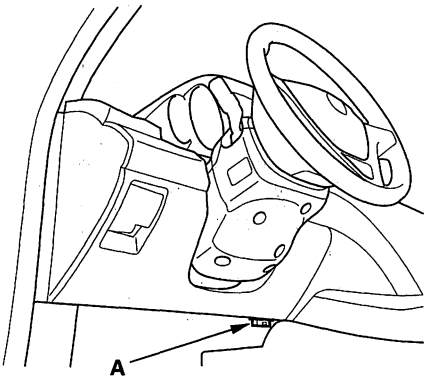
   - Gauge control module
   - Exterior lights
   - Turn signals
   - Entry light control
   - Interior lights
   - Safety indicators
   - Rear window defogger
   - HandsFreeLink
   - Horns (security and panic)
   - Chimes (key-in, seat belt, lights-on and parking brake)
   - Power windows
   - Power window/moonroof timer
   - Wiper/washer
   - Security
   - Keyless entry
   - Power door locks
   - Climate control
   - Key interlock
   - Dash light brightness
   - Driving position memory
   - Power tailgate
   - XM radio
   - Immobilizer

   Is the symptom related to the B-CAN system?

   YES—Go to step 2.

   NO—Go to the system troubleshooting for the system with the symptom. ■

2. Connect the HDS, then turn the ignition switch ON (II).



3. From the BODY ELECTRICAL system select menu, select UNIT INFORMATION, and then select CONNECTED UNIT listed to see if it is communicating with the HDS.

   - MICU
   - Gauge control module
   - Combination switch control unit
   - Relay control module
   - Power seat control unit
   - HandsFreeLink control unit
   - Driver's MPCS unit
   - Rear MICU
   - AcuraLink control unit (XM receiver)
   - Power tailgate control unit
   - Climate control unit
   - Immobilizer-keyless control unit

   NOTE:
   - If the unit is communicating with the HDS, DETECT will be displayed.
   - If the unit is not communicating, "Not Available" will be displayed.

   Are all control units communicating with the HDS?

   YES—Go to step 4.

   NO—If any of the control unit are not communicating, go to B-CAN System Diagnosis Test Mode B (see page 22-113). If all units are not communicating or only the MICU is communicating, go to DTC B1000 troubleshooting (see page 22-122). ■

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4. Select the system that has the problem from BODY ELECTRICAL system select menu, then select DTCs.

   Are any DTCs indicated?

   YES—Go to step 5.

   NO—If the problem is related to one of the following items, go to B-CAN System Diagnosis Test Mode C (see page 22-114), if the system does not stop or turn off. Go to Test Mode D (see page 22-115) if the system does not run or turn on.

   - Exterior lights
   - Turn signals
   - Entry light control
   - Interior lights
   - Horns (security and panic)
   - Power windows
   - Wiper/washer
   - Power door locks

   If the problem is related to one of the following items, go to the troubleshooting for that individual system. ■

   - Gauge control module
   - Safety indicators
   - Chimes (key-in, seat belt and lights-on)
   - Rear window defogger (climate control)
   - Security
   - Keyless entry
   - Climate control
   - Key interlock
   - Dash light brightness
   - Audio system
   - Navigation
   - Driving position memory
   - HandsFreeLink
   - Power tailgate
   - Immobilizer

5. Record all DTCs, and sort them by DTC type.

6. Troubleshoot the DTC(s) in this order:

   - Battery voltage DTCs.
   - Internal error DTCs.
   - Loss of communication DTCs. Begin troubleshooting with the lowest number first (Example: if DTC B1008 and B1011 are retrieved, begin by troubleshooting B1008). Refer to loss of communication DTC cross reference chart (see page 22-83).
   - Signal error DTCs.

Troubleshooting - B-CAN System Diagnosis Test Mode B

Perform this diagnosis if any of the control units are not communicating (Not Available is displayed in the HDS) as found by the B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Using the HDS, select the system that has the symptom from BODY ELECTRICAL.

2. Select DTCs, and then check for loss of communication DTCs. Refer to loss of communication DTC cross reference chart.

   Are any loss of communication DTCs indicated?

   YES—Go to step 3.

   NO—Replace the MICU. ■

3. Perform the input test for the unit not communicating with the HDS.

   NOTE: Troubleshoot Rear MICU loss of communication DTCs before troubleshooting AcuraLink control unit (XM receiver) the power tailgate control unit, and the power seat control unit DTC.

Unit not communicating
MICU (see page 22-132)
Gauge control module (see page 22-334)
Relay control module (see page 22-136)
Driver's MPCS unit (see page 22-278)
Combination switch control unit (see page 22-300)
Immobilizer-keyless control unit (see page 22-411)
Rear MICU (see page 22-139)
Power seat control unit (see page 22-477)
Power tailgate control unit (see page 22-522)
Climate control unit troubleshooting (see page 21-93)

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Troubleshooting - B-CAN System Diagnosis Test Mode C

Perform this diagnosis if a component that is controlled by the B-CAN system does not stop or turn off.

NOTE:
- If the component does not turn ON, go to B-CAN System Diagnosis Test Mode D (see page 22-115).
- See the B-CAN system unit input/output index for a list of input and output devices and the control units that monitor the input and controls the output devices (see page 22-94).
- Always turn the ignition switch within 3 seconds when prompted in the DTC troubleshooting procedures in this section.

1. Check for DTCs by selecting the TEST MODE menu from the HDS.

   Are any DTCs indicated?

   YES—Go to B-CAN System Diagnosis Test Mode A (see page 22-112). ■

   NO—Go to step 2.

2. Turn OFF the switch that controls the malfunctioning component.

3. Select DATA LIST from the TEST MODE menu, and check the input of the switch that controls the component.

   Does the HDS indicate the switch is OFF?

   YES—Go to step 4.

   NO—Go to step 6.

4. In DATA LIST, check the output signal of the malfunctioning component.

   Is the output signal OFF?

   YES—Go to step 5.

   NO—Replace the control unit that controls the device that will not turn OFF. ■

5. Check the relay if applicable, then check for a short in the wire between the relay and the component, the relay and control unit, or the component and control unit.

   Are the relay and the wire harness OK?

   YES—Replace the control unit that controls the component that will not turn OFF. ■

   NO—Replace the relay or repair the wire harness. ■

6. Check the switch, then check for a short in the wire between the switch and the control unit that monitors the switch.

   Is the switch and wire harness OK?

   YES—Replace the control unit that monitors the switch. ■

   NO—Replace the switch or repair the wire harness. ■

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Troubleshooting - B-CAN System Diagnosis Test Mode D

Perform this diagnosis if a component that is controlled by the B-CAN system does not run or come on.

NOTE:
- If the component does not turn off or stop, go to B-CAN System Diagnosis Test Mode C (see page 22-114).
- See the B-CAN system unit input/output index for a list of input and output devices and the control units that monitor the input and controls the output devices (see page 22-94).
- Always turn the ignition switch within 3 seconds when prompted in the DTC troubleshooting procedures in this section.

1. Check the fuse of the malfunctioning output device.

   Is the fuse OK?

   YES—Go to step 2.

   NO—Replace the fuse and recheck. ■

2. Check for DTCs by selecting the TEST MODE menu from the HDS.

   Are any DTCs indicated ?

   YES—Go to B-CAN System Diagnosis Test Mode A (see page 22-112). ■

   NO—Go to step 3.

3. Turn ON the switch that controls the malfunctioning component.

4. Select DATA LIST from the TEST MODE menu, and check output signal for the malfunctioning component.

   Is there an output signal?

   YES—Go to step 5.

   NO—Go to step 9.

5. Check the relay and ground, then check for an open or a short in the circuit for the malfunctioning component.

   Are the relay and circuit OK?

   YES—Go to step 6.

   NO—Replace the relay or repair the wire circuit. ■

6. Perform the function test for the malfunctioning component.

   Does the output device pass the function test?

   YES—Go to step 7.

   NO—Replace the component. ■

7. With the malfunctioning output device connected, connect a voltmeter between the malfunctioning output device and body ground on the wire that the control unit uses to control the output device circuit.

8. Select MISC. TEST from the TEST MODE menu, and do the forced operation test of the malfunctioning component.

   Is there a change in voltage (12 V to 0 V or 0 V to 12 V)?

   YES—Replace the component. ■

   NO—Replace the control unit that controls the malfunctioning component. ■

9. Select DATA LIST from the TEST MODE menu, and make sure the switch signal input for the malfunctioning system indicates a change when operated.

   Does the switch input indicated ON when the switch is ON?

   YES—Replace the control unit that controls the malfunctioning component. ■

   NO—Go to step 10.

10. Check the switch and its ground (if applicable), then check for an open or a short in the wire between the switch and the control unit that monitors it.

    Are the switch and the wire harness OK?

    YES—Replace the control unit that monitors the switch. ■

    NO—Replace the switch or repair the wire harness. ■

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Troubleshooting - B-CAN System Diagnosis Test Mode 1 and Test Mode 2 (without the HDS)

Special Tools Required
MPCS (MCIC) service connector 07WAZ-001010A

Test Mode 1

Check the PCM for DTCs and troubleshoot PCM (see page 11-3) or F-CAN loss of communication errors first, then perform this diagnosis if the HDS is not available.

1. Check the No. 7 (10 A) and No. 21 (7.5 A) fuses in the under-dash fuse/relay box.

   Are the fuses OK?

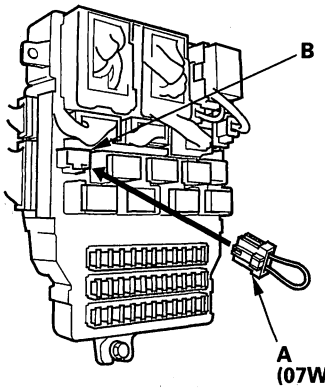
   YES—Go to step 2.

   NO—Find and repair the cause of the blown fuse. ■

2. Remove the left kick panel (see page 20-76).

3. Turn the ignition switch ON (II), and move the ceiling light switch to the middle (door) position.

4. Connect the MPCS service connector (A) to the MCIC socket (B) in the under-dash fuse/relay box.



5. Wait 5 seconds, and watch the ceiling lights. When the ceiling lights flash quickly once, and then go off, the system is in Test Mode 1.

6. Check for B-CAN DTCs indicated by the gauge control module LCD display while still in Test Mode 1. Push the odometer select/reset button to display the next code. After you get to the last code, the display shows END. If no DTCs are stored, the display will read NO.

   Are any DTCs indicated?

   YES—Go to Step 7.

   NO—Go to Step 10.

7. Record all DTCs and sort them.

8. Troubleshoot the DTCs in this order:

   - Battery voltage DTCs
   - Internal error DTCs
   - Loss of communication DTCs (begin with the lowest number first; for example, if B1008 and B1011 are retrieved, troubleshoot B1008 first). Refer to less of communication DTC cross reference chart (see page 22-83).
   - Signal error DTCs

9. Clear the DTCs by pressing and holding the select/reset button for about 10 seconds. You will hear a beep to confirm the codes have been cleared. Operate the devices that failed, and recheck for codes.

Test Mode 2

10. Remove the MPCS service connector from the under-dash fuse/relay box socket for 5—10 seconds, then re-insert it to enter Mode 2. When the system enters Mode 2, the ceiling light will flash two times quickly and then go off.

    NOTE: If the MPCS connector is disconnected for too short or too long of a time, or the ignition switch is turned OFF, the system will return to Test Mode 1.

11. The following tables list the circuits that can be checked in Test Mode 2. Operate the switch that is most closely related to the problem. If the circuit is OK, the ceiling lights will blink once. If the circuit is faulty, there will be no indication.

BACK

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MICU

Item
Driver's door switch (OPEN)
Front passenger's door switch (OPEN)
Left rear door switch (OPEN)
Right rear door switch (OPEN)
Audio security ground (when disconnected)
Mirror select switch (LEFT, CENTER, RIGHT)
Mirror switch (LEFT, RIGHT, UP, DOWN)

* The front passenger's and door lock knob switches must be in the locked position when beginning the test.

RELAY CONTROL MODULE

Item
Windshield wiper switch (AUTO STOP/PARK)
Hood switch (OPEN)

COMBINATION SWITCH CONTROL UNIT

Item
Turn signal switch (LEFT)
Turn signal switch (RIGHT)
Combination light switch (ON; each position)
Dimmer switch (ON)
Passing switch (ON)
Windshield wiper switch (ON)
Intermittent wiper dwell timer
Windshield washer switch (ON)
Fog light switch (ON)
Rear window wiper switch (ON)
Rear window washer switch (ON)

REAR MICU

Item
Tailgate latch switch (ON)
Tailgate outer handle switch (Without power tailgate) (ON)

DRIVER'S MPCS UNIT

Item
Power window master switch (Driver's window UP)
Power window master switch (Driver's window DOWN)
Power window master switch (Driver's window AUTO UP)
Power window master switch (Driver's window AUTO DOWN)
Power window master switch (Front passenger's window UP)
Power window master switch (Front passenger's window DOWN)
Power window master switch (Front passenger's window AUTO UP)
Power window master switch (Front passenger's window AUTO DOWN)
Power window master switch (Left rear window UP)
Power window master switch (Left rear window DOWN)
Power window master switch (Right rear window UP)
Power window master switch (Right rear window DOWN)
Driver's door key cylinder switch* (LOCK)
Driver's door key cylinder switch* (UNLOCK)
Driver's door lock switch (LOCK)
Driver's door lock switch (UNLOCK)
Driver's door lock knob switch (LOCK)
Driver's door lock knob switch (UNLOCK)
Left rear door lock knob switch** (UNLOCK)
Driving position memory switches (1, 2, memo)
Left rear power window switch (UP)
Left rear power window switch (DOWN)
Fuel fill door opener switch (ON)

* A second key is necessary to check the key cylinder inputs.
  Be sure to rotate the key cylinder switch two times to each position (lock and lock, unlock and unlock) to ensure the door lock knob switch is in the appropriate position.
* * The left rear door lock knob switches must be in the locked position when beginning the test.

(cont'd)

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Troubleshooting - B-CAN System Diagnosis Test Mode 1 and Test Mode 2 (without the HDS) (cont'd)

GAUGE CONTROL MODULE

Item
Parking brake switch (ON; parking brake applied)
Cruise control main SET/RESUME/CANCEL switch (ON; switch pressed)
Transmission range switch (P, R, N, D)
Washer fluid level switch (fluid removed) (Canada)
Brake fluid level switch (fluid removed)
Illumination control switches (+, −)
MID switches (Select/Reset, <INFO, INFO>)

POWER SEAT CONTROL UNIT

Item
Power seat slide switch (FORWARD, BACKWARD)
Power seat front up-down switch (UP, DOWN)
Power seat rear up-down switch (UP, DOWN)
Power seat recline switch (FORWARD, RECLINE)
Power tilt/telescopic steering switch (UP, DOWN, PUSH, PULL)

PASSENGER'S MPCS UNIT

Item
Front passenger's door lock knob switch* (UNLOCK)
Right rear door lock knob switch* (UNLOCK)
Front passenger's door lock switch (LOCK)
Front passenger's door lock switch (UNLOCK)
Front passenger's power window switch (UP, DOWN, AUTO)
Right rear power window switch (UP, DOWN)

* The front passenger's and right rear door lock knob switches must be in the locked position when beginning the test.

Do the map lights indicate proper switch operation?

YES—Go to function and input test for the system related to the failure. ■

NO—Repair the open, short, or replace the faulty switch. ■

BACK

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Sleep and Wake-up Mode Test

1. Shift to the sleep mode:
   Turn the ignition switch OFF, and remove the key, then open and close the driver's door. If the MICU receives no signals from the inputs listed below, it will go into sleep mode in less than 40 seconds.

Driver's door lock switch (LOCK or UNLOCK)
Driver's door key cylinder switch (LOCK or UNLOCK)
Front passenger's door lock switch (LOCK or UNLOCK)
Tailgate latch switch (Tailgate closed)
Hazard warning switch (OFF)

2. Confirm the sleep mode:
   Measure the voltage on the B-CAN communication line (PNK wires); there should be battery voltage in the sleep mode. Check the parasitic draw at the battery while shifting into the sleep mode; amperage should change from about 200 mA to less than 35 mA.

3. Shift to the wake up mode:
   When the ignition switch is turned ON (II), the MICU, gauge control module, immobilizer-keyless control unit-receiver, and PCM wake up at the same time without "talking" to each other through the communication lines. When any switch in the multiplex integrated control system is turned on, it wakes up its related control unit which, in turn, wakes up the other units. After confirming the sleep mode, look in the following table for the switch most related to the problem. Operate that switch and see if its control unit wakes up.

   NOTE: If any control unit is faulty and will not wake up, several circuits in the system will malfunction at the same time. In the table below, the control unit is followed by a list of the switches and input signals that can wake it up.

Door switches (door open)
Driver's door lock switch (LOCK or UNLOCK)
Driver's door lock knob switch (LOCK or UNLOCK)
Driver's door key cylinder switch (LOCK or UNLOCK)
Front passenger's door lock switch (LOCK or UNLOCK)
Front passenger's door lock knob switch (LOCK or UNLOCK)
Left rear door lock knob switch
Right rear door lock knob switch
Tailgate latch switch (Tailgate open)
Hood switch (hood open)
Hazard warning switch (ON)
Combination light switch (Parking, Headlight, Dimmer, Passing ON)
Ignition key switch (key inserted)

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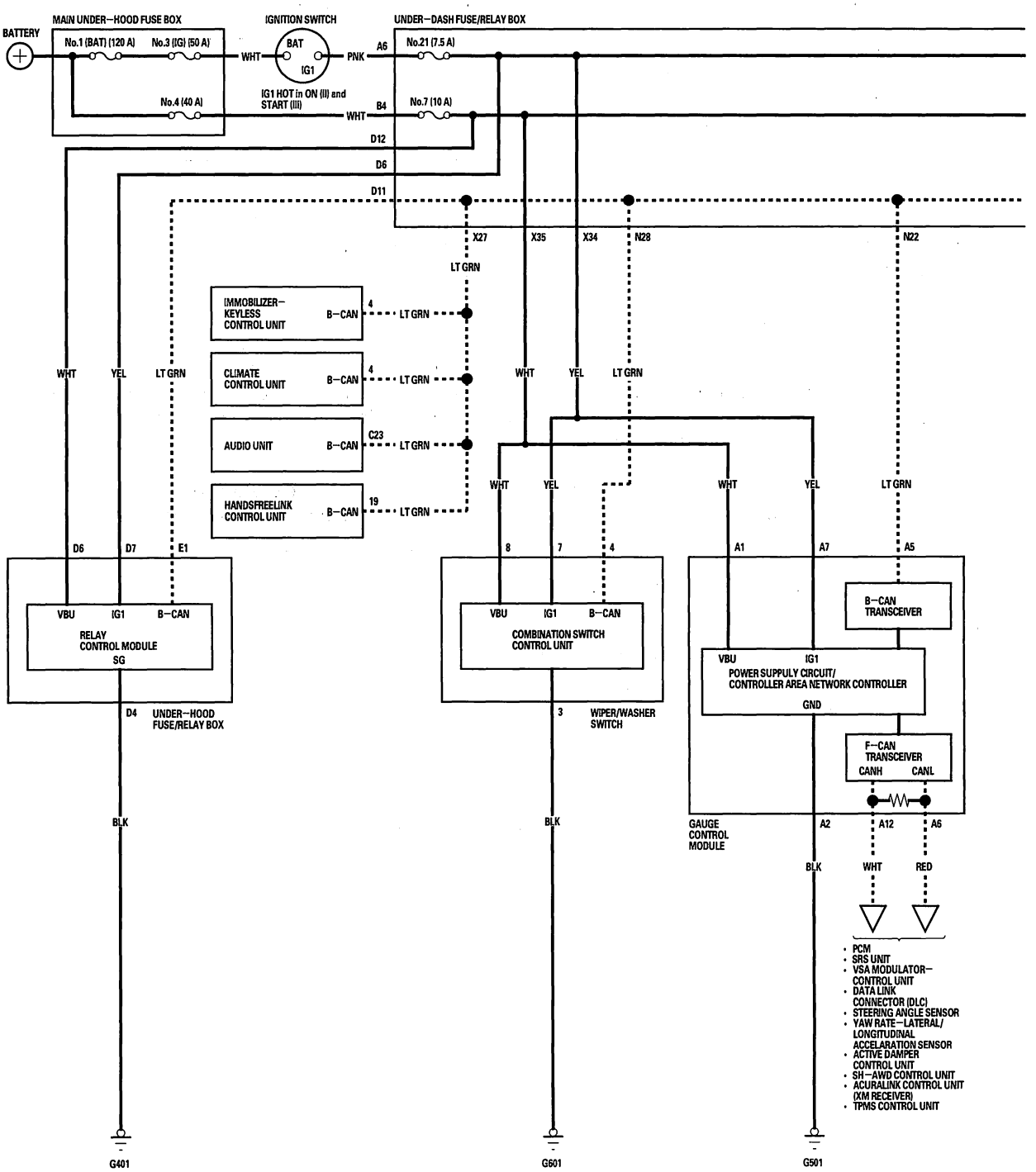
Multiplex Integrated Control System

Circuit Diagram



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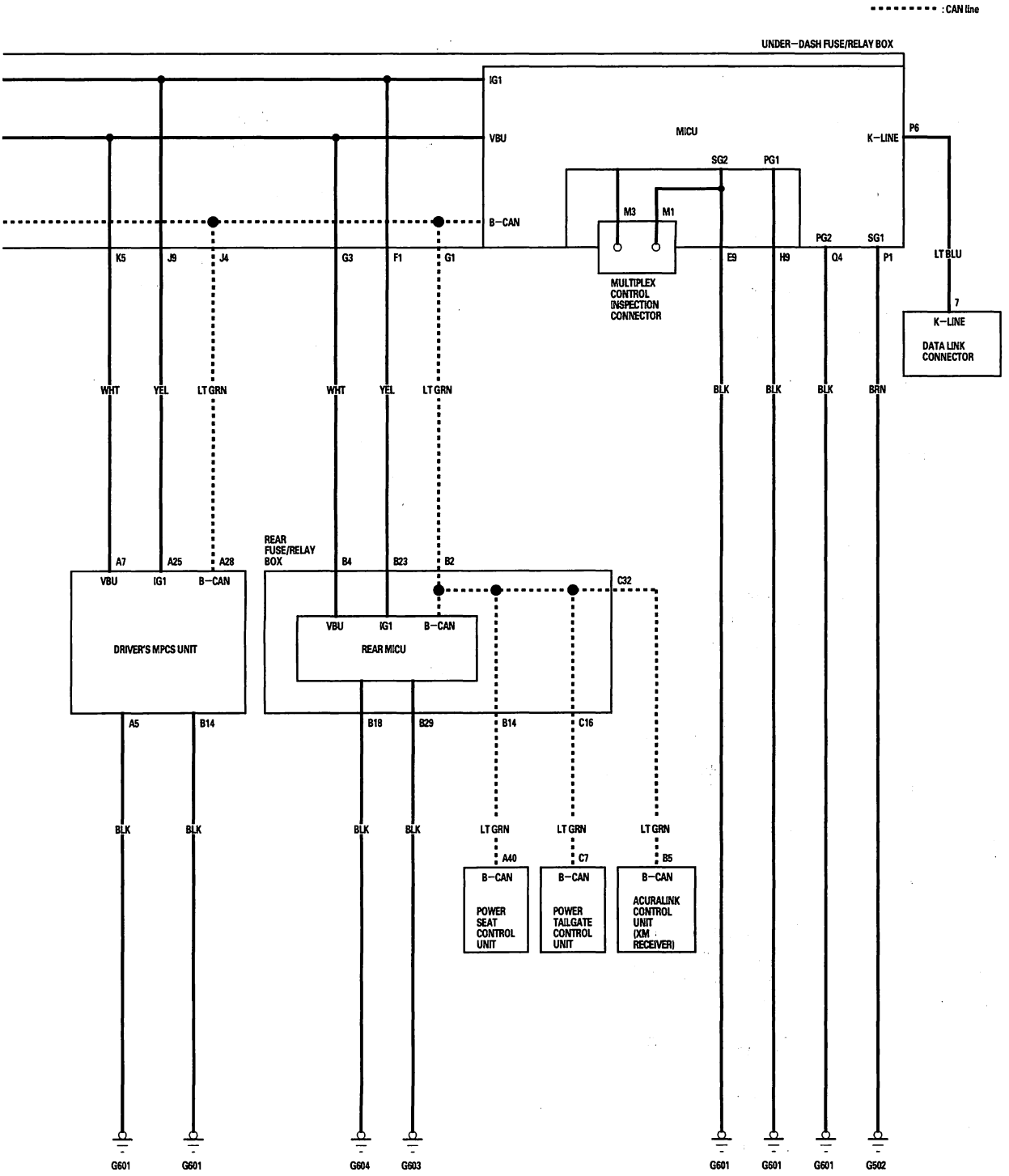

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DTC Troubleshooting

DTC B1000: Communication Bus Line Error

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.
   Is DTC B1000 indicated?
   YES—Go to step 5.
   NO—Intermittent failure, the communication bus line is OK at this time. Check for loose or poor connections, or worn/shorted wires. If the connections are good, check the battery condition (see page 22-76) and the charging system. ■
5. Check for DTCs with the HDS.
   Are DTCs B1000, B1005, B1007, B1011, B1012, B 1013, B1015 and B1032 all indicated?
   YES—Go to step 6.
   NO—Faulty MICU; replace the under-dash fuse/ relay box. ■
6. Turn the ignition switch OFF.
7. Disconnect the appropriate connector at each control unit in the table one at a time. Clear the DTC, then recheck for DTCs after each unit is disconnected.

Control unit	Connector
Relay control module	Under-hood fuse/relay box connector E (14P)
Gauge control module	Connector A (12P)
Immobilizer-keyless control unit	7P connector
Combination switch control unit	8P connector
Driver's MPCS unit	Connector A (40P)
Climate control unit	40P connector
Audio unit	Connector C (24P)
HandsFreeLink control unit	28P connector
Power seat control unit	Connector A (40P)
Power tailgate control unit	Connector C (14P)
AcuraLink control unit (XM receiver)	Connector B (16P)
Rear MICU*	Rear fuse/relay box connector B (34P)

*: Disconnect this one last

Is DTC B1000 indicated with each individual unit disconnected?

YES—Go to step 11.

NO—Replace the control unit that was disconnected when B1000 did not reset (If the unit is the rear MICU, go to Step 8.) ■

8. Disconnect the rear fuse/relay box connectors B (34P) and C (42P).
9. Check for continuity between each of the rear fuse/ relay box connector terminals listed in the table and body ground.

Connected control unit	Rear fuse/relay box connector terminal
Power seat control unit	B14
Power tailgate control unit	C16
AcuraLink control unit (XM receiver)	C32

Is there continuity?

YES—Repair the short to ground in the wire between the rear fuse/relay box and the affected control unit. ■

NO—Go to step 10.

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10. Measure the voltage between each of the rear fuse/relay box connector terminals listed in the table and body ground.

Connected control unit	Rear fuse/relay box connector terminal
Power seat control unit	B14
Power tailgate control unit	C16
AcuraLink control unit (XM receiver)	C32

Is there less than 1 V?

YES—Replace the rear fuse/relay box.■

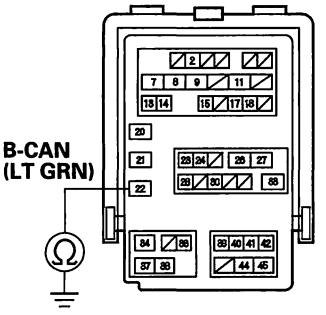
NO—Repair short to power in the wire between the rear fuse/ relay box and the affected control unit.■

11. Disconnect each control unit connectors in the table.

Control unit	Connector
Relay control module	Under-hood fuse/relay box connector E (14P)
Gauge control module	Connector A (12P)
Immobilizer-keyless control unit	7P connector
Combination switch control unit	8P connector
Driver's MPCS unit	Connector A (40P)
Climate control unit	40P connector
Audio unit	Connector C (24P)
HandsFreeLink control unit	28P connector

12. Check for continuity between the under-dash fuse/relay box connector N (45P) No. 22 terminal and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR N (45P)



Is there continuity?

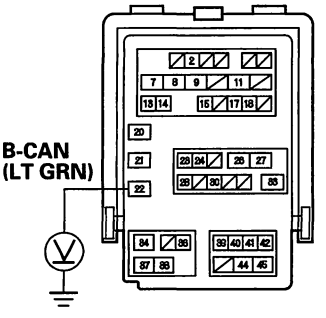
YES—Repair short to ground in the wire.■

NO—Go to step 13.

13. Turn the ignition switch ON (II).

14. Measure the voltage between the under-dash fuse/relay box connector N (45P) No. 22 terminal and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR N (45P)



Is there battery voltage?

YES—Repair short to power in the wire.■

NO—Faulty MICU, replace the under-dash fuse/relay box.■

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DTC Troubleshooting (cont'd)

DTC B1001: MICU Internal (CPU) Error

DTC B1002: MICU Internal (EEPROM) Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1001 and/or B1002 indicated?

   YES—Faulty MICU, replace the under-dash fuse/relay box. ■

   NO—Intermittent failure, the system is OK at this time. ■

DTC B1005: MICU Lost Communication with Relay Control Module (RM Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1005 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the MICU and the relay control module. ■

5. Check for DTCs with the HDS.

   Are DTCs B1158, B1959, B2162, and B2970 also indicated with B1005?

   YES—Do the relay control module input test (see page 22-136). ■

   NO—Do the MICU input test (see page 22-132). ■

BACK

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DTC B1007: MICU Lost Communication with Combination Switch Control Unit (HLSW Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1007 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the MICU and the combination switch control unit. ■
5. Check for DTCs with the HDS.

   Are DTCs B1062, B1155, and B1957 also indicated with DTC B1007?

   YES—Do the combination switch control unit input test (see page 22-300). ■

   NO—Do the MICU input test (see page 22-132). ■

DTC B1011: MICU Lost Communication with Gauge Control Module (VSP/NE Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1011 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the MICU and the gauge control module. ■
5. Check for DTCs with the HDS.

   Are DTCs B1060, B1205, B1357, B1408, B1805, and/or B2160 also indicated with DTC B1011?

   YES—Do the gauge control module input test (see page 22-334). ■

   NO—Do the MICU input test (see page 22-132). ■

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DTC Troubleshooting (cont'd)

DTC B1012: MICU Lost Communication with Rear MICU (RJC Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1012 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the MICU and the rear MICU. ■
5. Check for DTCs with the HDS.

   Is DTC B1955 indicated with DTC B1012?

   YES—Do the rear MICU input test (see page 22-139). ■

   NO—Do the MICU input test (see page 22-132). ■

DTC B1013: MICU Lost Communication with Driver's MPCS Unit (ASLOCKSW Message)

DTC B1015: MICU Lost Communication with Driver's MPCS Unit (DRLOCKSW Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1013 and/or B1015 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the MICU and the driver's MPCS unit. ■
5. Check for DTCs with the HDS.

   Are DTCs B1065, B1082, B1356, B1358, and/or B 1905 also indicated with B1013 and/or B1015?

   YES—Do the driver's MPCS unit input test (see page 22-278). ■

   NO—Do the MICU input test (see page 22-132). ■

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DTC B1032: MICU Lost Communication with the SRS Unit (CDS Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1032 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
5. Check for DTCs with the HDS.

   Is DTC B1011 also indicated with DTC B1032?

   YES—Check for an open in the wire between the MICU and the gauge control module. If the circuit is bad, repair the open. ■

   NO—Do the gauge control module input test (see page 22-334). ■

DTC B1080: Ignition Key Switch Circuit Malfunction

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

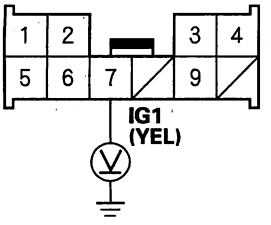
1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1080 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
5. Turn the ignition switch OFF.
6. Disconnect the under-hood fuse/relay box connector D (10P).
7. Turn the ignition switch ON (II).
8. Measure the voltage between the under-hood fuse/relay box connector D (10P) No. 7 terminal and body ground.

UNDER-HOOD FUSE/RELAY BOX CONNECTOR D (10P)



Wire side of female terminals

Is there battery voltage?

YES—Substitute a known-good under-hood fuse/relay box and recheck. ■

NO—Go to step 9.

(cont'd)

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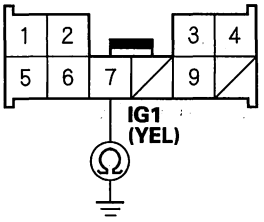
DTC Troubleshooting (cont'd)

9. Turn the ignition switch OFF.

10. Check for continuity between the under-hood fuse/relay box connector D (10P) No. 7 terminal and body ground.

UNDER-HOOD FUSE/RELAY BOX CONNECTOR D (10P)



Wire side of female terminals

Is there continuity?

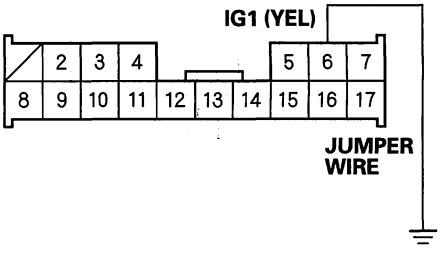
YES—Repair a short to ground in the wire. After repairing, replace the No. 21 (7.5 A) fuse in the under-dash fuse/relay box. ■

NO—Go to step 11.

11. Disconnect the under-dash fuse/relay box connector D (17P).

12. Connect the under-dash fuse/relay box connector D (17P) No. 6 terminal and body ground.

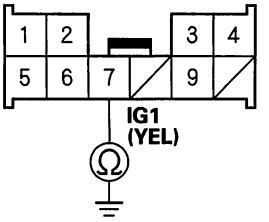
UNDER-DASH FUSE/RELAY BOX CONNECTOR D (17P)



Wire side of female terminals

13. Check for continuity between the under-hood fuse/relay box connector D (10P) No. 7 terminal and body ground.

UNDER-HOOD FUSE/RELAY BOX CONNECTOR D (10P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good under-dash fuse/relay box and recheck. ■

NO—Repair an open in the wire. ■

BACK

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DTC B1050: Communication Bus Line Error

DTC B1150: Communication Bus Line Error

DTC B1200: Communication Bus Line Error

DTC B1250: Communication Bus Line Error

DTC B1350: Communication Bus Line Error

DTC B1750: Communication Bus Line Error

DTC B1800: Communication Bus Line Error

DTC B1900: Communication Bus Line Error

DTC B1950: Communication Bus Line Error

DTC B2150: Communication Bus Line Error

DTC B2200: Communication Bus Line Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Are DTCs B1050, B1150, B1200, B1250, B1350, B 1750, B1800, B1900, B1950, B2150, and/or B2200 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections at the MICU and B-CAN connected units in the table. ■

5. Check for DTCs with the HDS.

Under-dash fuse/ relay box connector	B-CAN connected unit connector
Connector D (17P) No. 11 terminal	Under-hood fuse/relay box connector E (14P) No. 1 terminal
Connector N (45P) No. 22 terminal	Gauge control module Connector A (12P) No. 5 terminal
Connector N (45P) No. 28 terminal	Combination switch control unit 8P connector No. 4 terminal
Connector J (21P) No. 4 terminal	Driver's MPCS unit connector A (40P) No. 28 terminal
Connector X (39P) No. 27 terminal	Immobilizer-keyless control unit 7P connector No. 4 terminal
Connector X (39P) No. 27 terminal	Climate control unit 40P connector No. 4 terminal
Connector X (39P) No. 27 terminal	Audio unit connector C (24P) No. 23 terminal
Connector X (39P) No. 27 terminal	HandsFreeLink control unit 28P connector No. 19 terminal
Connector G (6P) No. 1 terminal	Power seat control unit connector A (40P) No. 40 terminal
Connector G (6P) No. 1 terminal	Power tailgate control unit connector C (14P) No. 7 terminal
Connector G (6P) No. 1 terminal	AcuraLink control unit (XM receiver) connector B (16P) No. 5 terminal
Connector G (6P) No. 1 terminal	Rear MICU (rear fuse/ relay box connector B (34P)

Is DTC B1000 also indicated?

YES—Troubleshoot DTC B1000. ■

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections at the MICU and B-CAN connected units in the table. ■

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DTC Troubleshooting (cont'd)

DTC B2152: Driver's MPCS Unit Internal (EEPROM) Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B2152 indicated?

   YES—Replace the driver's MPCS unit. ■

   NO—Intermittent failure, the system is OK at this time. ■

DTC B2155: Driver's MPCS Unit Lost Communication with MICU (MICU Message)

DTC B2156: Driver's MPCS Unit Lost Communication with MICU (MIRRORSW Message)

DTC B2161: Driver's MPCS Unit Lost Communication with MICU (DOORSW Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Are DTCs B2155, B2156, or B2161 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the driver's MPCS unit and the MICU. ■

5. Check for DTCs with the HDS.

   Are DTCs B1055, B1056, B1157, B1159, B1255, B 1955, B2156, and/or B2161also indicated?

   YES—Faulty MICU, replace the under-dash fuse/ relay box (see page 22-72). ■

   NO—Do the driver's MPCS unit input test (see page 22-137). ■

BACK

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DTC B2157: Driver's MPCS Unit Lost Communication with Gauge Control Module (ILLUMI Message)

DTC B2160: Driver's MPCS Unit Lost Communication with Gauge Control Module (VSP/NE Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B2157 and/or B2160 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the driver's MPCS unit and the gauge control module. ■
5. Check for DTCs with the HDS.

   Are DTCs B1011, B1060, B1061, B1205, B1206, B 1207, B1359, B1906, B1956, B2157, and/or B2160 also indicated?

   YES—Do the gauge control module input test (see page 22-334). ■

   NO—Do the driver's MPCS unit input test (see page 22-278). ■

DTC B2162: Driver's MPCS Unit Lost Communication with Relay Control Module (RM Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B2162 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the driver's MPCS unit and the relay control module. ■
5. Check for DTCs with the HDS.

   Are DTCs B1005, B1158, B1959, B2162, and/or B 2970 also indicated?

   YES—Do the relay control module input test (see page 22-136). ■

   NO—Do the driver's MPCS unit input test (see page 22-278). ■

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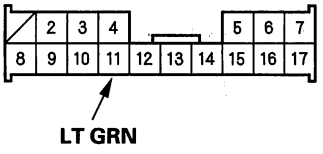
MICU Input Test

NOTE: Before testing, troubleshoot the B-CAN System Diagnosis Test Mode A (see page 22-112).

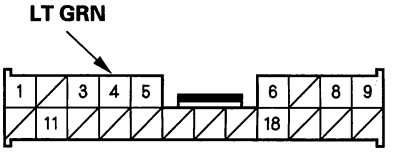
1. Turn the ignition switch OFF.
2. Remove the left kick panel (see page 20-76).
3. Disconnect the under-dash fuse/relay box connectors D, E, F, G, H, J, N, P, Q, W, and X.

   NOTE: All connector views are wire side of female terminals.

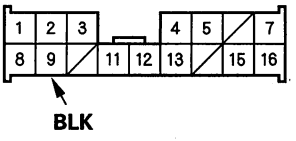
CONNECTOR D (17P)



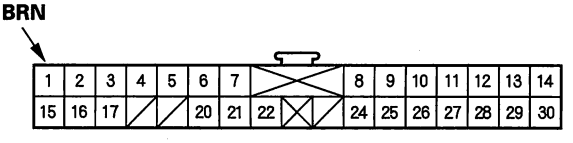
CONNECTOR J (21P)*



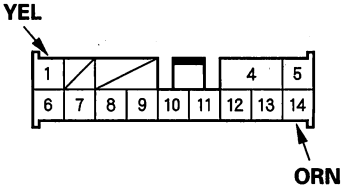
CONNECTOR E (16P)



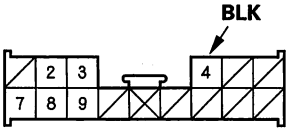
CONNECTOR P (30P)



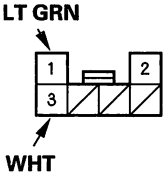
CONNECTOR F (14P)



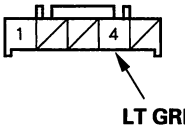
CONNECTOR Q (14P)



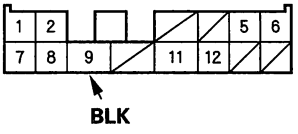
CONNECTOR G (6P)



CONNECTOR W (5P)



CONNECTOR H (14P)



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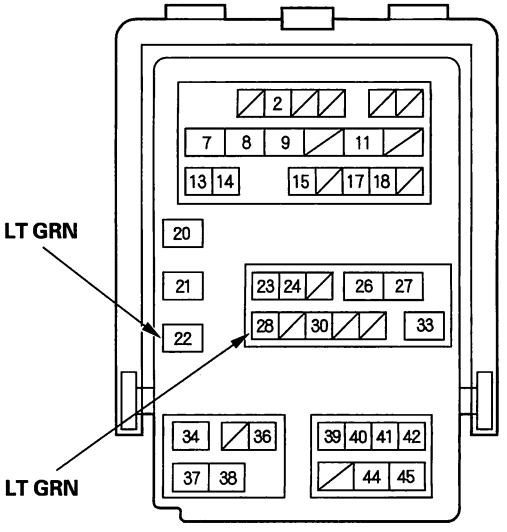
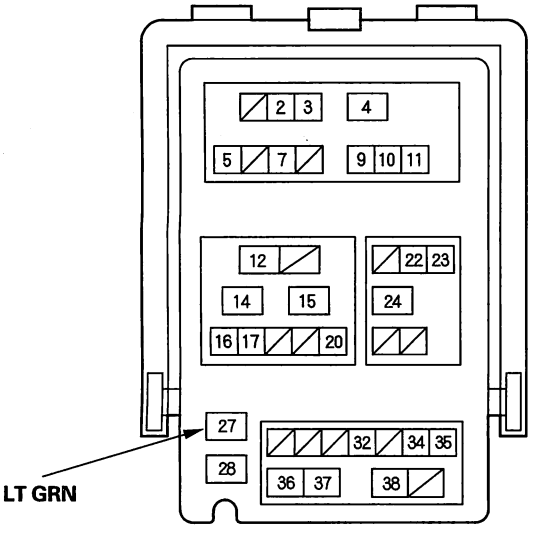
CONNECTOR N (45P)*



CONNECTOR X (39P)*



***Connector view shown rotated 180°from actual position in the under-dash fuse/relay box.**

4. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 5.

5. With the connector still disconnect, make these input tests at the connectors.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
D11	LT GRN	Under all conditions (Under-hood fuse/relay box connector E (14P) disconnected)	Check for continuity between the D11 terminal and the under-hood fuse/relay box connector E (14P) No. 1 terminal: There should be continuity.	• An open in the wire
			Check for continuity between the D11 terminal and body ground: There should be no continuity.	• A short to ground in the wire
G1	LT GRN	Under all conditions (Rear fuse/relay box connector B (34P) disconnected)	Check for continuity between the G1 terminal and the rear fuse/relay box connector B (34P) No. 2 terminal: There should be continuity.	An open in the wire
			Check for continuity between the G1 terminal and body ground: There should be no continuity.	A short to ground in the wire
J4	LT GRN	Under all conditions (Driver's MPCS unit connector A (40P) disconnected)	Check for continuity between the J4 terminal and the driver's MPCS unit connector A (40P) No. 28 terminal: There should be continuity.	An open in the wire
			Check for continuity between the J4 terminal and body ground: There should be no continuity.	A short to ground in the wire

(cont'd)

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MICU Input Test (cont'd)

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
P6	LT BLU	Under all conditions (MICU connector P (30P) disconnected)	Check for continuity between the P6 terminal and the DLC No. 7 terminal: There should be continuity.	An open in the wire
			Check for continuity between the P6 terminal and body ground: There should be no continuity.	A short to ground in the wire
N22	LT GRN	Under all conditions (Gauge control module connector A (12 P) disconnected)	Check for continuity between the N22 terminal and the gauge control module connector A (12 P) No. 5 terminal: There should be continuity.	An open in the wire
			Check for continuity between the N22 terminal and body ground: There should be no continuity.	A short to ground in the wire
N28	LT GRN	Under all conditions (Combination switch control unit 8P connector disconnected)	Check for continuity between the N28 terminal and the combination switch control unit 8P connector No. 4 terminal: There should be continuity.	An open in the wire
			Check for continuity between the N28 terminal and body ground: There should be no continuity.	A short to ground in the wire
X27	LT GRN	Under all conditions (Immobilizer-keyless control unit 7P connector disconnected)	Check for continuity between the X27 terminal and the immobilizer-keyless control unit 7P connector No. 4 terminal: There should be continuity.	An open in the wire
			Check for continuity between the X27 terminal and body ground: There should be no continuity.	A short to ground in the wire
X27	GRY	Under all conditions (Climate control unit 40P connector disconnected)	Check for continuity between the X27 terminal and the climate control unit 40P connector No. 4 terminal: There should be continuity.	An open in the wire
			Check for continuity between the X27 terminal and body ground: There should be no continuity.	A short to ground in the wire
X27	LT GRN	Under all conditions (Audio unit connector C) (24P) disconnected)	Check for continuity between the X27 terminal and the audio unit connector C (24P) No. 23 terminal: There should be continuity.	An open in the wire
			Check for continuity between the X27 terminal and body ground: There should be no continuity.	A short to ground in the wire
X27	LT GRN	Under all conditions (HandsFreeLink control unit 28P connector disconnected)	Check for continuity between the X27 terminal and the HandsFreeLink control unit 28P connector No. 19 terminal: There should be continuity.	An open in the wire
			Check for continuity between the X27 terminal and body ground: There should be no continuity.	A short to ground in the wire

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6. Reconnect the connectors, and make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the MICU must be faulty; replace the under-dash fuse/relay box (see page 22-72).

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
E9 H9 Q4	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G601) • An open in the wire
P1	BRN	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G502) • An open in the wire
F1	YEL	Ignition switch ON (II), (Rear fuse/relay box connector B (34P) disconnected)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • A short to ground in the wire between the MICU and rear fuse/relay box
G3	WHT	Under all conditions, (Rear fuse/relay box connector B (34P) disconnected)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • A short to ground in the wire between the MICU and rear fuse/relay box
F14	ORN	Under all conditions	Short connection to ground: The ignition key light should come on.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 6 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty ignition key light • An open in the wire
W4	LT GRN	Under all conditions (Interior lights switch in DOOR position)	Short connection to ground: The interior lights should come on.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 6 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Blown map lights or ceiling light bulb(s) • An open in the wire

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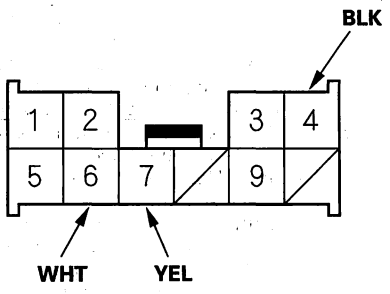
Relay Control Module Input Test

NOTE: Before testing, troubleshoot the B-CAN System Diagnosis Test Mode A (see page 22-112).

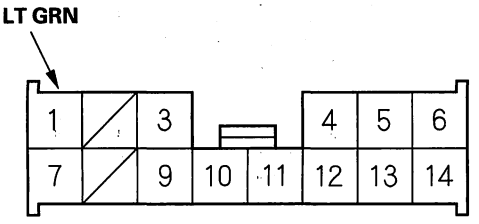
1. Turn the ignition switch OFF.
2. Remove the under-hood fuse/relay box (see page 22-72).
3. Disconnect the under-hood fuse/relay box connectors D (10P) and E (14P).

UNDER-HOOD FUSE/RELAY BOX CONNECTOR D (10P)



Wire side of female terminals

UNDER-HOOD FUSE/RELAY BOX CONNECTOR E (14P)



Wire side of female terminals

4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 5.
5. With the connectors still disconnected, make these input tests at the connectors
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
E1	LT GRN	Under all conditions (Under-dash fuse/relaybox connector D (17P) disconnected	Check for continuity between the E1 terminal and the under-dash fuse/ relay box connector D (17P) No. 11 terminal: There should be continuity.	An open in the wire
			Check for continuity between the E1 terminal and body ground: There should be no continuity.	A short to ground in the wire

6. Reconnect the connector, and make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, replace the relay control module.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
D4	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G401) • An open in the wire
D6	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
D7	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire

BACK

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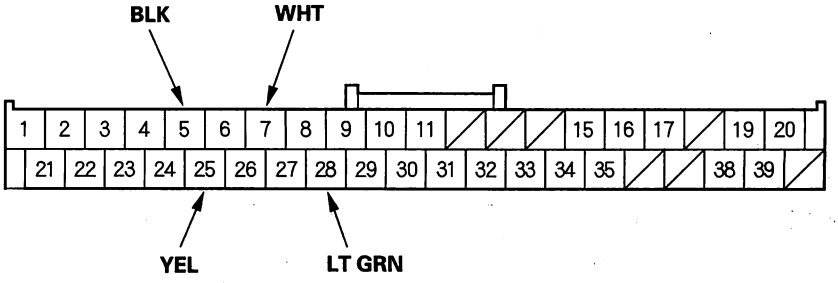
Driver's MPCS Unit Input Test

NOTE: Before testing, troubleshoot the B-CAN System Diagnosis Test Mode A (see page 22-112).

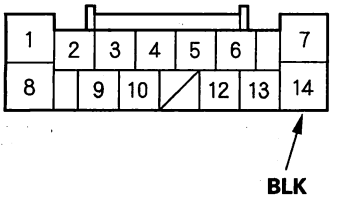
1. Turn the ignition switch OFF.
2. Remove the driver's door panel (see page 20-8).
3. Disconnect the driver's MPCS unit connectors A (40P) and B (14P).

DRIVER'S MPCS UNIT CONNECTOR A (40P)



Wire side of female terminals

DRIVER'S MPCS UNIT CONNECTOR B (14P)



Wire side of female terminals

4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 5.

(cont'd)

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Driver's MPCS Unit Input Test (cont'd)

5. With the connectors still disconnected, make these input tests at the connectors.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A28	LT GRN	Under all conditions (Under-dash fuse/relay box connector J (21P) disconnected	Check for continuity between the A 28 terminal and the under-dash fuse/relay box connector J (21P) No. 4 terminal: There should be continuity.	An open in the wire.
			Check for continuity between the A 28 terminal and body ground: There should be no continuity.	A short to ground in the wire

6. Reconnect the connectors, and make these input tests at the connectors.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, replace the driver's MPCS unit.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A5 B14	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G401) • An open in the wire
A7	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
A25	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire

BACK

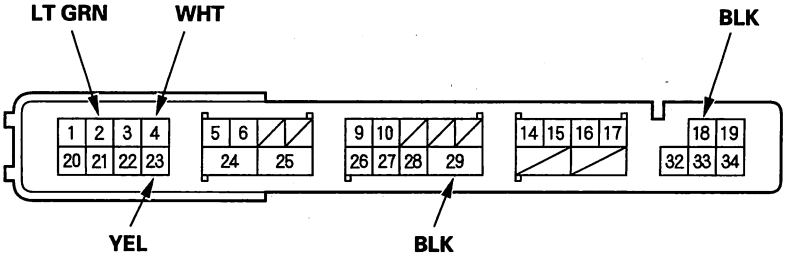
Protected by AR

Rear MICU Input Test

NOTE: Before testing, troubleshoot the B-CAN System Diagnosis Test Mode A (see page 22-112).

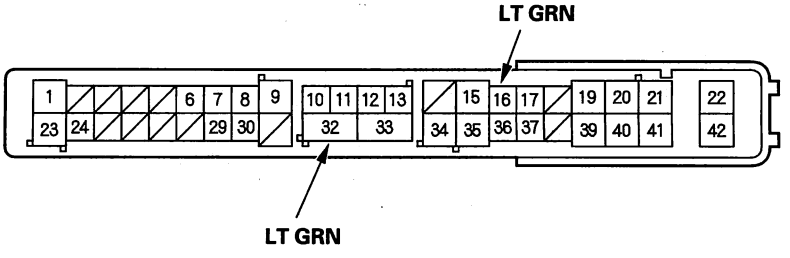
1. Turn the ignition switch OFF.
2. Remove the left rear trim (see page 20-92).
3. Disconnect the rear fuse/relay box connectors B (34P) and C (42P).

CONNECTOR B (34P)



Wire side of female terminals

CONNECTOR C (42P)



Wire side of female terminals

4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 5.

(cont'd)

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Rear MICU Input Test (cont'd)

5. With the connectors still disconnected, make these input tests at the connectors.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B2	LT GRN	Under all conditions (Under-dash fuse/relay box connector G (6P)	Check for continuity between the B2 terminal and the under-dash fuse/relay box connector G (6P) No. 1 terminal: There should be continuity.	An open in the wire
			Check for continuity between the B2 terminal and body ground: There should be no continuity.	A short to ground in the wire
B14	LT GRN	Under all conditions (Power seat control unit connector A (40P) disconnected)	Check for continuity between the B 14 terminal and the power seat control unit connector A (40P) No. 40 terminal: There should be continuity.	An open in the wire
			Check for continuity between the B 14 terminal and body ground: There should be no continuity.	A short to ground in the wire
C16*1	LT GRN	Under all conditions (Power tailgate control unit connector C (14P) disconnected)	Check for continuity between the C 16 terminal and the power tailgate control unit connector C (14P) No. 7 terminal: There should be continuity.	An open in the wire
			Check for continuity between the C 16 terminal and body ground: There should be continuity.	A short to ground in the wire
C32*2	LT GRN	Under all conditions (AcuraLink control unit (XM receiver) connector B (16P) disconnected)	Check for continuity between the C 32 terminal and the (AcuraLink control unit (XM receiver) connector B (16P) No. 5 terminal: There should be continuity.	An open in the wire
			Check for continuity between the C 32 terminal and body ground: There should be no continuity.	A short to ground in the wire

* 1: With power tailgate
* 2: With AcuraLink

6. Reconnect the connectors, and make these input tests at the connectors.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the rear MICU must be faulty, replace the rear fuse/relay box (see page 22-75).

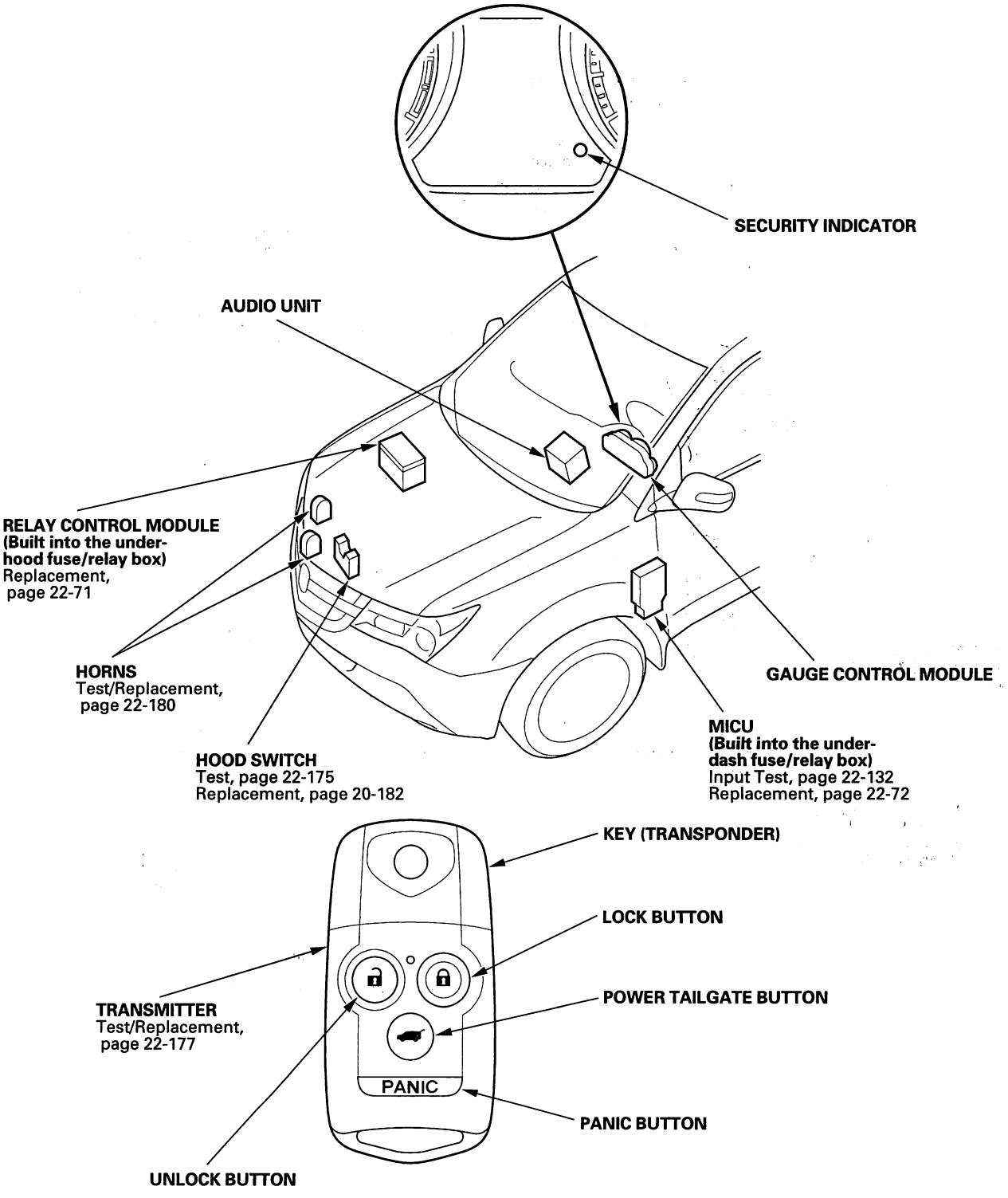
Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B18 B29	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G603, G604) • An open in the wire
B4	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty rear fuse/relay box • An open in the wire
B23	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty rear fuse/relay box • An open in the wire

BACK

Protected by AR

Keyless/Power Door Locks/Security System

Component Location Index



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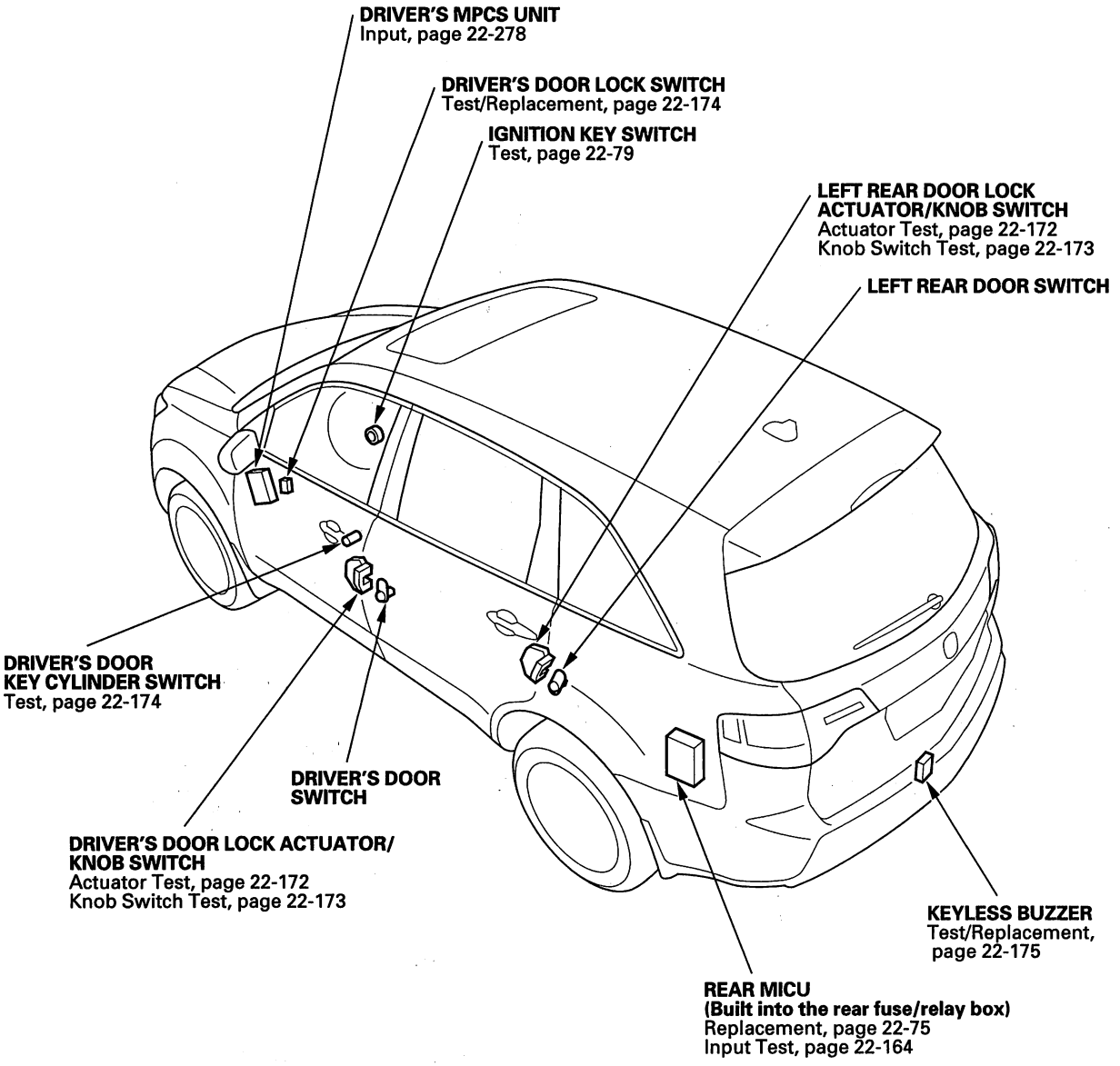
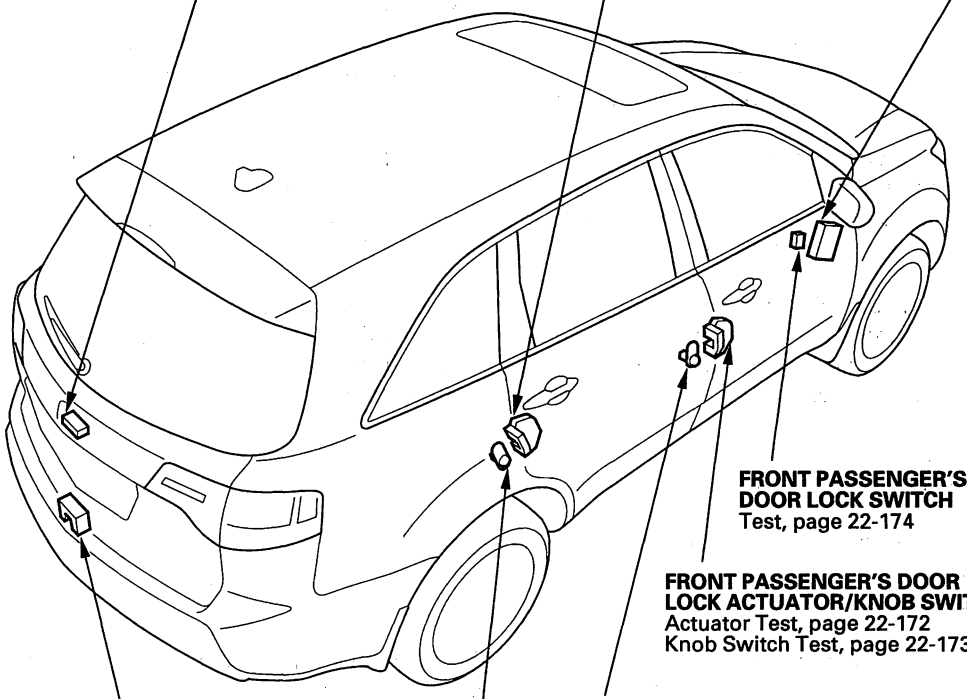
Protected by AR

Component Location Index (cont'd)



BACK

Protected by AR



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RIGHT REAR DOOR LOCK ACTUATOR/KNOB SWITCH
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PASSENGER'S MPCS UNIT
Input Test, page 22-281

FRONT PASSENGER'S DOOR LOCK SWITCH
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FRONT PASSENGER'S DOOR LOCK ACTUATOR/KNOB SWITCH
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FRONT PASSENGER'S DOOR SWITCH

RIGHT REAR DOOR SWITCH

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TAILGATE LATCH SWITCH (Without power tailgate)
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Protected by AR

System Description

Security Alarm System

The security alarm system is integrated with the multiplex integrated control system. For the system to arm, the ignition switch must be off, the key must be removed, and the MICU must receive signals that the doors, hood, and tailgate are closed and locked. The alarm can be armed or disarmed at any time by locking or unlocking the driver's door with the key or pressing the LOCK/UNLOCK button on the transmitter, the alarm can also be armed by locking (with the lock knob) then closing the driver's door.

When everything is closed and locked, the only inputs that are grounded, and have 0 V, are the driver's door lock knob switch (LOCK position), and the audio unit. In other words, all of the other switches are open, and have about 5.0 V in sleep mode or 12 V in awake mode, including the key cylinder switches. The security indicator in the gauge control module begins to flash immediately after the doors, tailgate, and hood are closed and locked, and then, after 20 seconds, the flashing intervals of the security indicator change to indicate that the alarm is fully armed. If the security indicator does not flash, the system is not arming. If the LOCK button is pressed a second time within 5 seconds (Keyless LOCK acknowledgement is turned ON) and the vehicle is completely closed and locked, a beep sounds and parking lights flash one time to confirm the security alarm system is armed.

If one of the switches is misadjusted or shorted internally (0 V), or there is a short in the circuit (0 V), the security system will not arm. A switch that is slightly misadjusted can cause the alarm to sound for no apparent reason. In this case, a significant change in outside air temperature, the vibration of a passing vehicle, or something bumping into the vehicle could cause the alarm to sound. There is no glass breakage or motion detector feature.

If anything is opened or improperly unlocked after the system is armed, the control unit receives a ground signal from that switch, the 5—12 V reference drops to 0 V, and the system sounds the alarm. If the audio unit is disconnected, the input loses its ground, and the input voltage goes to 5—12 V, and the system sounds the alarm.
The system sounds the alarm when any of following occur while the security system is armed:

- A door or the tailgate is forced open
- A door is unlocked without using the key or the transmitter
- The hood is opened
- The audio unit (or navigation unit, rear controller and screen) is disconnected
- The transmitter panic is operated
- The ignition switch is turned ON (II)

When the system sounds the alarm, the horns sound and the exterior lights flash for 2 minutes. The alarm can be stopped at any time by unlocking the driver's door with the key or by pressing any button on the transmitter.

BACK

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Panic Mode

The panic mode sounds the alarm in order to attract attention. When the PANIC button on the transmitter is pressed and held for about 2 seconds, the alarm sounds and the exterior lights flash for about 20 seconds.

The panic mode can be cancelled at anytime by pressing any button on the remote or by turning the ignition switch ON (II). The panic mode will not function if the ignition switch is ON (II).

Keyless Entry System

The keyless entry system is integrated with the multiplex integrated control system. Transmitters 1 and 2 (Identified on the back of each transmitter) are linked to the DPMS, the climate control settings, the custom memory settings (in the MID), the audio, the navigation and the illumination settings. Depending on which transmitter unlocks the vehicle, these settings are chosen.

Some functions of the security, keyless entry, and power door locks can be customized using the MID keyless memory setting. They include:

- AUTO DOOR LOCK: Door locking can be turned off, or turned on when shifting from Park or at a speed above 15 mph.
- AUTO DOOR UNLOCK: Door unlocking can be turned off, or turned on when shifting to Park or turning the ignition switch OFF.
- WHENEVER UNLOCKING: Door unlocking can be set to unlock all doors or only the driver's door on the first push.
- KEYLESS DOOR LOCK ACKNOWLEDGEMENT: The beep and the front parking lights can be turned on or off when pressing the LOCK/UNLOCK button on the remote.
- SECURITY RELOCK TIMER: Select the time (30, 60, or 90 sec.) that the doors relock if you unlock the doors with the remote, but do not open any of them.
- HEADLIGHT AUTO OFF TIMER: Select time (0, 15, 30, or 60 sec.) to turn the headlights off after removing the key from the ignition opening, then closing the driver's door.
- AUTO LIGHT SENSITIVITY: Automatic lighting sensor sensitivity can be adjusted five steps (MIN/LOW/MID/HIGH/MAX).
- INTERIOR LIGHT DIMMING TIMER: Select the dimming time (15, 30, or 60 sec.) of the interior lights after closing the door with the key removed from the ignition.

(cont'd)

Protected by AR

System Description (cont'd)

- METER SETUP:
  Language-English/French/Espanol
  Outside air temperature-+5 +4 +3 +2 +1 0 −1 −2 −3 −4 −5
  Trip A an average Fuel Reset w/fill-ON/OFF
  Adjust alarm volume-HIGH/MID/LOW
  Elapsed time reset-manually only, IGN OFF, Trip A, Trip B
  Auto interior illumination-MAX MID LOW MIN OFF
- POSITION SETUP:
  Memory position link ON/OFF
  Auto tilt telescope steering wheel ON/OFF
  NOTE: If either of these function is turned off, they will not function with a linked remote.
- LIGHTING SETUP:
  Interior light dimming time (15, 30, 60 sec.)
  Headlight auto OFF timer (0, 15, 30, 60 sec.)
  Auto light sensitivity MAX HIGH MID LOW MIN
- DOOR WINDOW SETUP:
  Auto door lock-Shift from park with vehicle speed ON or OFF-Driver's door/All doors
  Auto door unlock-Shift to park with ignition ON or OFF-Driver's door/All doors
  Key and remote unlock mode-Driver's door/All doors
  Keyless lock acknowledgement-ON/OFF
  Security relock timer (90, 60, 30, sec)
- WIPER SETUP:
  Wiper action intermittent/with speed

The transmitters can be linked and unlinked to the keyless memory settings by pressing the LOCK and UNLOCK buttons at the same time for about 1 second. The LED on the transmitter blinks twice when unlinked, and once when linked.

The keyless entry system allows you to lock and unlock the vehicle with the transmitter. When you press the LOCK button, all the doors lock (unless any one of the doors is not fully closed or the key is in the ignition switch).

When you press the UNLOCK button first time, only the driver's door unlocks, if keyless memory setting "WHENEVER UNLOCKING" is set to Driver's Door. The other doors unlock when you press the UNLOCK button a second time. All the doors unlock when you press the UNLOCK button first time if keyless memory setting "WHENEVER UNLOCKING" is set to All Doors.

NOTE: The doors will not lock with the transmitter if a door is not fully closed, or if the ignition key is in the ignition switch.

If the UNLOCK button is pressed, released, then pressed and held, the windows and the moonroof begin to open. The windows and the moonroof stop if the button is released. The windows and moonroof cannot be closed with the remote. See power windows for more information and troubleshooting.
When the interior lights switch is in the "DOOR" position, the individual map lights will come on when the UNLOCK button is pressed. If a door is not opened, the lights will go off in about 30, 60, or 90 seconds (depending on the keyless memory setting "SECURITY RELOCK TIMER"), and the doors will relock. If the doors are locked with the transmitter within 30 seconds, the lights will go off immediately.

BACK

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Manual Keyless Transmitter Programming/Deleting

NOTE: The keyless transmitter attaches to the ignition key and is separate from the immobilizer transponder. It is not necessary to use the HDS when replacing or deleting an existing keyless transmitter.

- Adding a key (transponder) can only be done with the HDS. If the key being added has a new remote transmitter, it can be programmed with the HDS at the end of the "ADD A KEY" function (see page 22-410).
- If one or all keys (transponders) are lost, the remote transmitters must be deleted manually. This will assure that all of the old keyless transmitters have been cleared from the immobilizer/keyless control units memory.
- When replacing the immobilizer keyless control unit, you must have all of the remote transmitters that need to be programmed to the car.
- The immobilizer keyless control unit can only store 5 keyless transmitter.
- During programming, pushing the transmitters button more than once may push other remotes out of the memory. In other words, pushing the same remotes button 5 times will delete all other remotes.

Adding a remote transmitter

Turn the ignition ON (II) and within 4 seconds push the lock or unlock button within 4 seconds and turn it OFF, turn it back ON (II) within 4 seconds and back OFF (0). Repeat this 2 more times and the locks should cycle when the button is pushed. Turn the ignition key OFF (0) and remove the key. Wait 10 seconds and verify that the all remotes function properly.

Adding multiple remote transmitters

Turn the ignition ON (II) and within 4 seconds push the lock or unlock button within 4 seconds and turn it OFF, turn it back ON (II) within 4 seconds and back OFF (0). Repeat this 2 more times and the locks should cycle when the button is pushed. Push the lock or unlock button on each remote to be programmed within 4 seconds of each other. Turn the ignition key OFF (0) and remove the key. Wait 10 seconds and verify that all remotes being programmed are functioning properly.

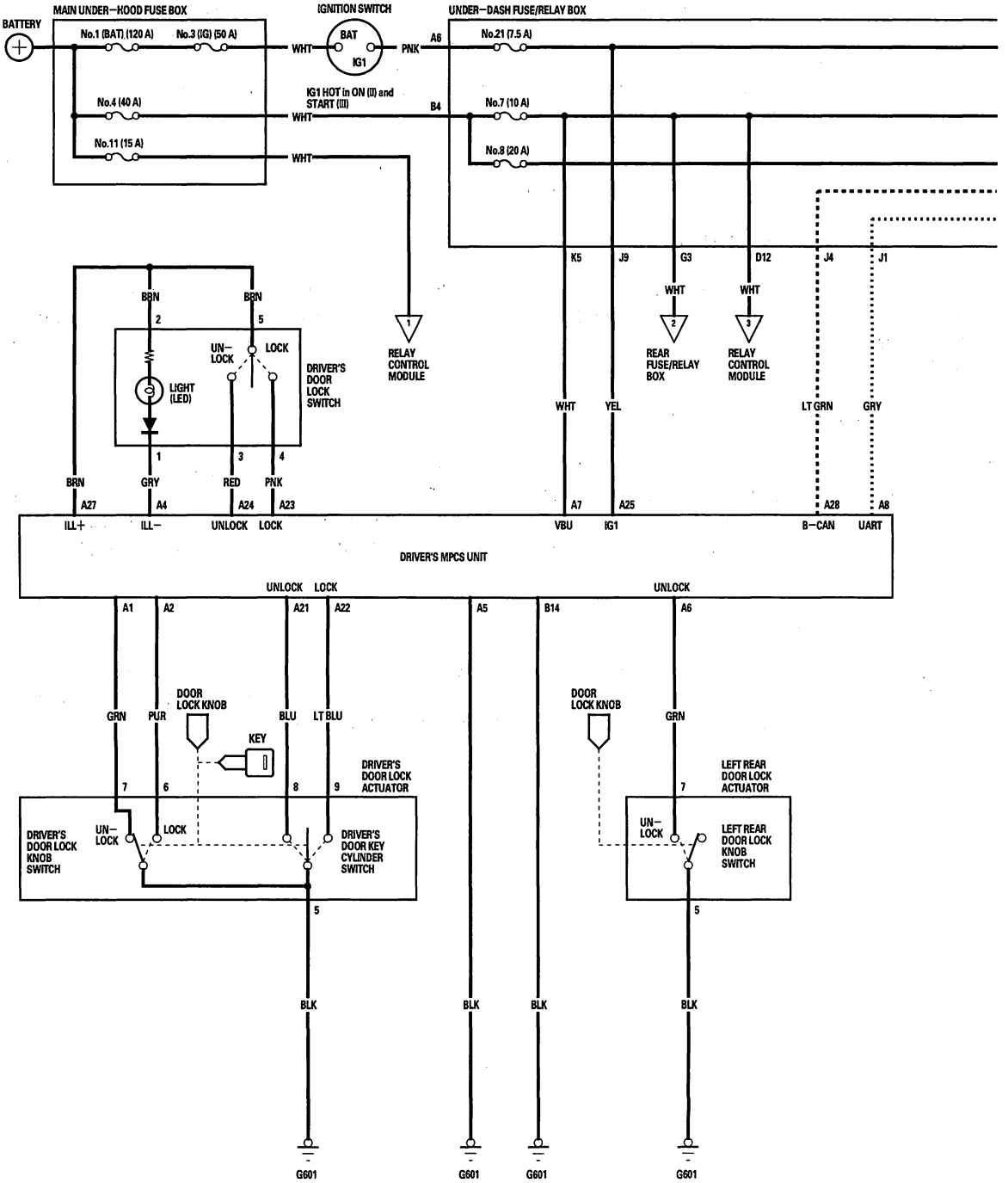
Deleting remotes

Turn the ignition ON (II) and within 4 seconds push the lock or unlock button within 4 seconds and turn it OFF, turn it back ON (II) within 4 seconds and back OFF (0). Repeat this 2 more times and the locks should cycle when the button is pushed. Push the same button 5 more times. This will leave only the current remote programmed.

Protected by AR

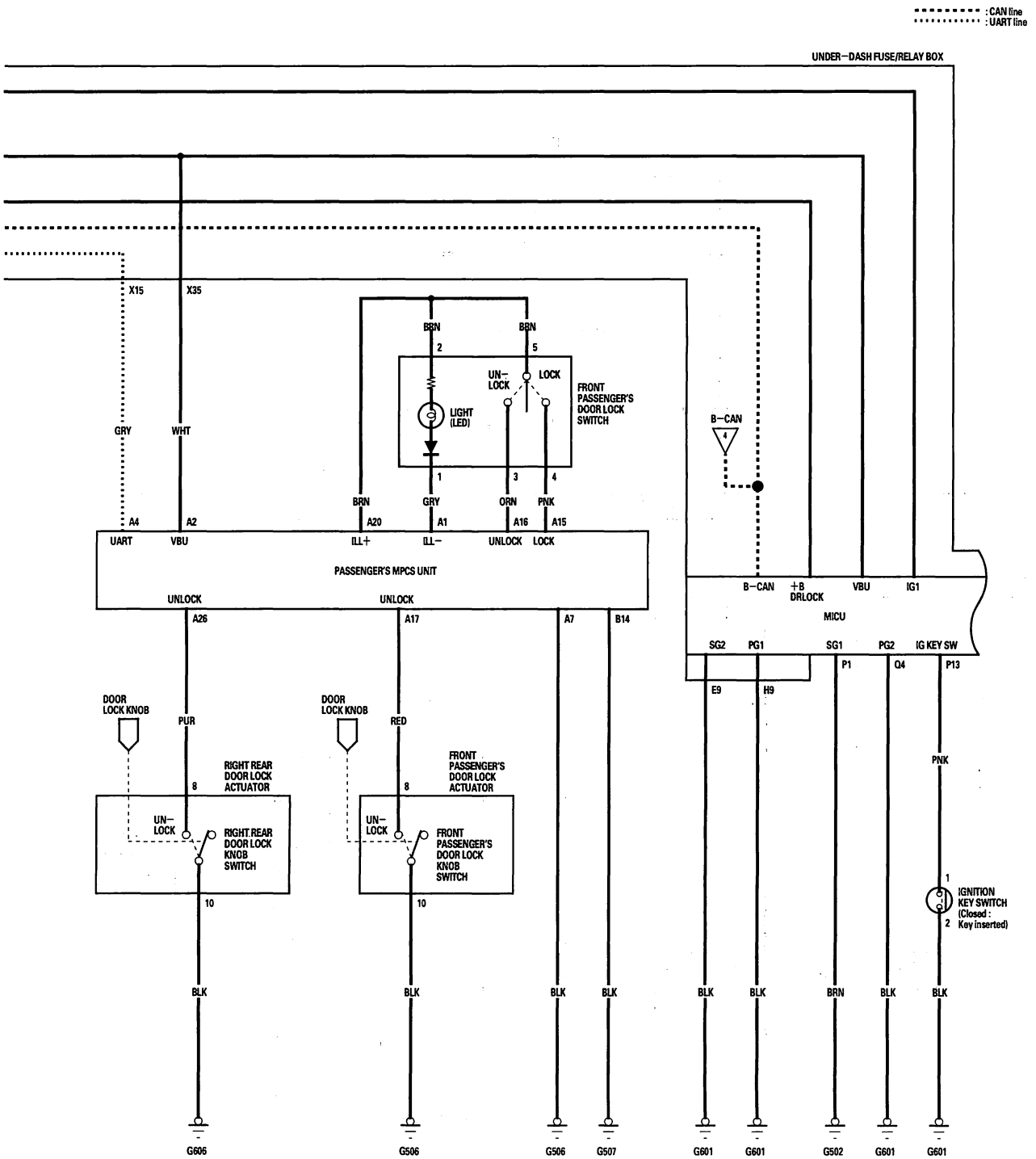
Keyless/Power Door Locks/Security System

Circuit Diagram



BACK

Protected by AR



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BACK

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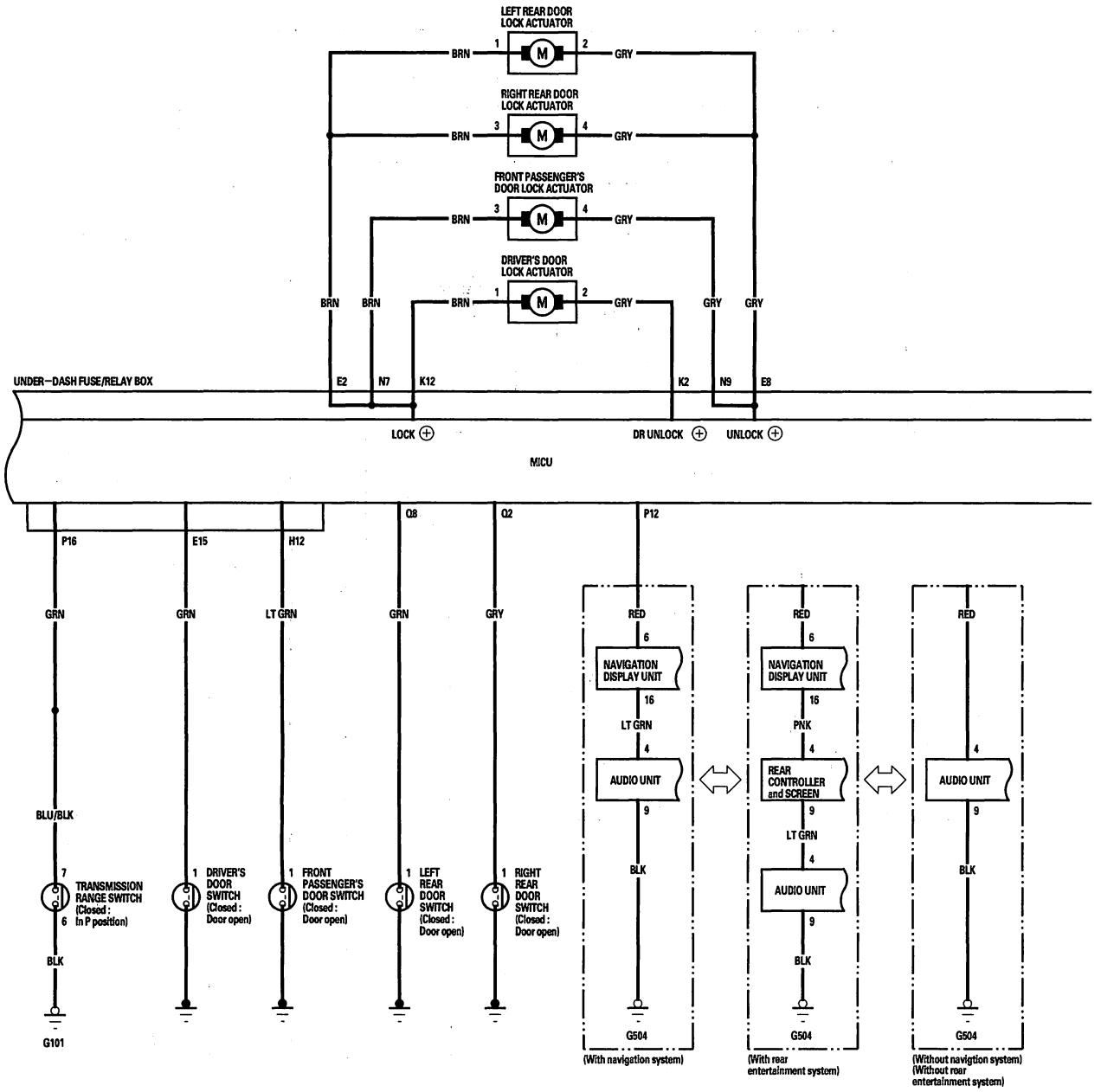
Keyless/Power Door Locks/Security System

Circuit Diagram (cont'd)



BACK

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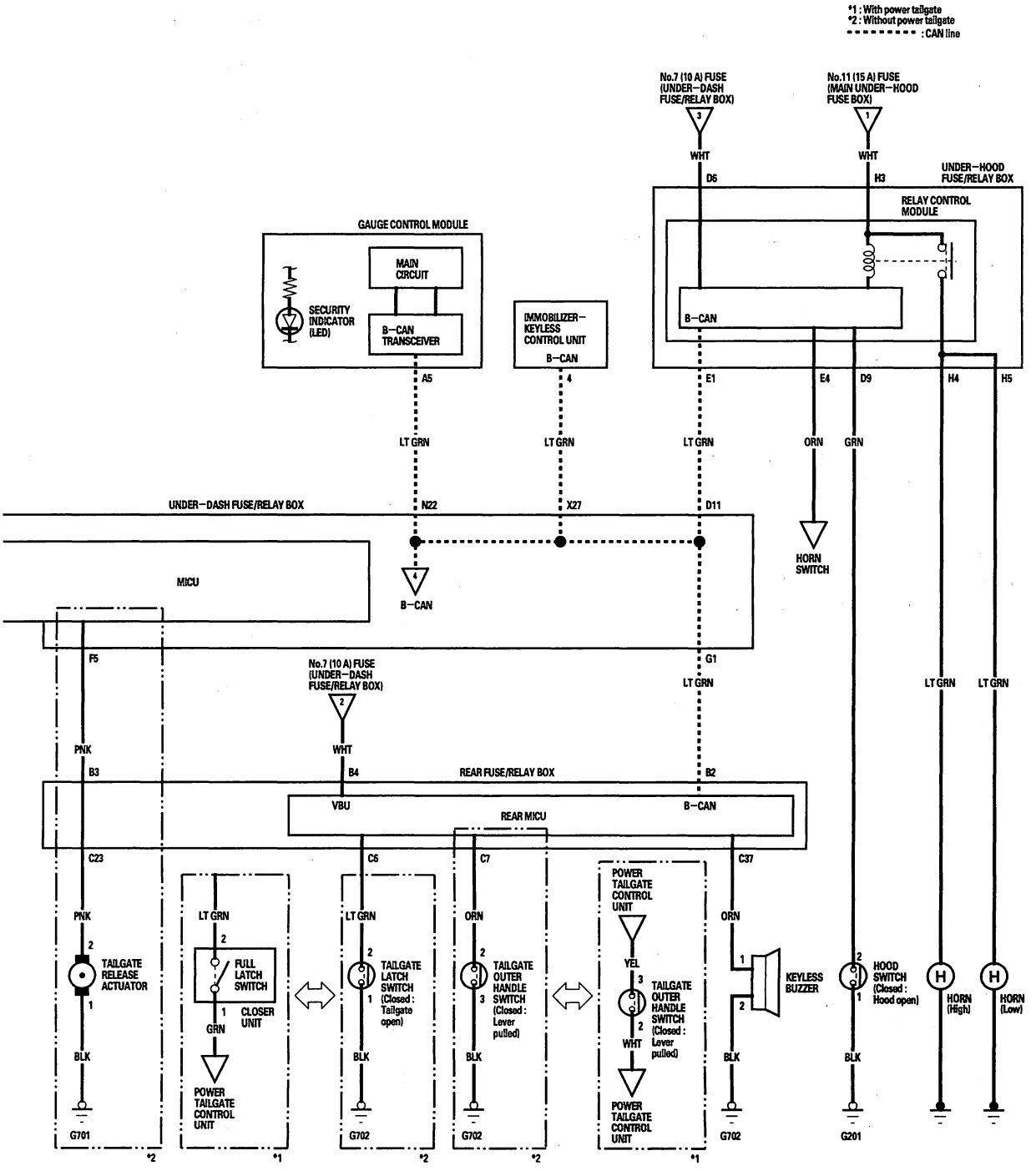

BACK

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DTC Troubleshooting

DTC B2179: Driver's Door Key Cylinder Switch LOCK/UNLOCK Signal Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF and then back ON (II).
3. Turn the driver's door key cylinder to the LOCK and UNLOCK positions with the ignition key.
4. Check for DTCs with the HDS.

   Is DTC B2179 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the driver's door key cylinder switch system is OK at this time. Check for loose or poor connections. ■
5. With the driver's door key cylinder switch in neutral position, select DOOR LOCK from the BODY ELECTRICAL system select menu, and enter the DATA LIST.
6. Check the ON/OFF Information of the Driver's Door Key Cylinder Switch (LOCK) and Driver's Door Key Cylinder Switch (UNLOCK) in the DATA LIST.

   Are both information indicators OFF?

   YES—Go to step 7.

   NO—Go to step 8.
7. Turn the driver's door key cylinder to the LOCK and UNLOCK positions with the ignition key, and check the ON/OFF information of the Driver's Door Key Cylinder Switch (LOCK) and Driver's Door Key Cylinder Switch (UNLOCK) in the DATA LIST.

   Are both Driver's Door Key Cylinder Switch (LOCK) and Driver's Door Key Cylinder Switch (UNLOCK) information indicators ON at the same time with the door key cylinder switch in the LOCK or UNLOCK position?

   YES—Test the key cylinder switch (see page 22-174). If it is OK, repair the short between the No. 8 BLU and No. 9 LT BLU wires.

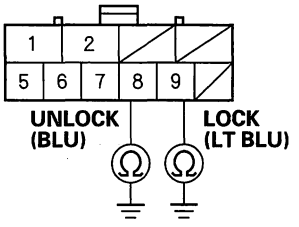
   NO—Replace the driver's MPCS unit. ■
8. Disconnect the driver's door lock actuator 10P connector.
9. Check the ON/OFF information of the Driver's Door Key Cylinder Switch (LOCK) and Driver's Door Key Cylinder Switch (UNLOCK) in the DATA LIST.

   Are both information indicators OFF?

   YES—Faulty driver's door key cylinder switch; replace the driver's door lock actuator assembly. ■

   NO—Go to step 10.
10. Turn the ignition switch OFF.
11. Disconnect the driver's MPCS unit connector A (40P).
12. Check for continuity between body ground and the driver's door lock actuator 10P connector terminals No. 8 and No. 9 individually.

DRIVER'S DOOR LOCK ACTUATOR 10P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

NO—Replace the driver's MPCS unit. ■

BACK

Protected by AR

DTC B2180: Driver's Door LOCK Switch LOCK /UNLOCK Signal Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Lock and unlock the driver's door with the driver's door lock switch operation.
3. Check for DTCs with the HDS.

   Is DTC B2180 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the driver's MPCS unit and the driver's door lock switch. ■
4. With the driver's door lock switch in the neutral position, select the DOOR LOCK from the BODY ELECTRICAL system select menu, and enter the DATA LIST.
5. Check the ON/OFF Information of the Driver's Door Lock Switch (LOCK) and Driver's Door Lock Switch (UNLOCK).

   Are both information indicators OFF?

   YES—Go to step 6.

   NO—Go to step 7.
6. Operate the driver's door lock switch in the LOCK and UNLOCK positions, and check the ON/OFF information of the Driver's Door Lock Switch (LOCK) and Driver's Door LOCK Switch (UNLOCK).

   Are both Driver's Door LOCK Switch (LOCK) and Driver's Door LOCK Switch (UNLOCK) information indicators ON at the same time when the door lock switch is in the LOCK or UNLOCK position?

   YES—Repair short between the wires. ■

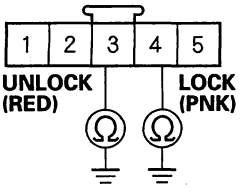
   NO—Replace the driver's MPCS unit. ■
7. Disconnect the driver's door lock switch 5P connector.
8. Check the ON/OFF information of the Driver's Door Lock Switch (LOCK) and Driver's Door Lock Switch (UNLOCK).

   Are both information indicators OFF?

   YES—Faulty driver's door lock switch. ■

   NO—Go to step 9.
9. Disconnect the driver's MPCS unit connector A (40P).
10. Check for continuity between body ground and the driver's door lock switch 5P connector No. 3 and No. 4 terminals individually.

DRIVER'S DOOR LOCK SWITCH 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Replace the driver's MPCS unit. ■

Protected by AR

DTC Troubleshooting (cont'd)

DTC B2181: Driver's Door LOCK Knob Switch LOCK/UNLOCK Signal Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Lock and unlock the driver's door with the door lock knob switch operation.
4. Check for DTCs with the HDS.

   Is DTC B2181 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the driver's door lock knob switch system is OK at this time. Check for loose or poor connections.■
5. Select DOOR LOCK from the BODY ELECTRICAL system select menu, and enter the DATA LIST.
6. Check the ON/OFF information of the Driver's Door Lock Knob Switch (LOCK) and Driver's Door Lock Knob Switch (UNLOCK) in the DATA LIST.

   Does the Driver's Door Lock Knob Switch (LOCK) information indicate ON and Driver's Door Lock Knob Switch (UNLOCK) information indicate OFF with the door lock knob switch is in the LOCK position, and does the Driver's Door Lock Knob Switch (LOCK) information indicate OFF and Driver's Door Lock Knob Switch (UNLOCK) information indicate ON with the door lock knob switch is in the UNLOCK position?

   YES—Replace the driver's MPCS unit.■

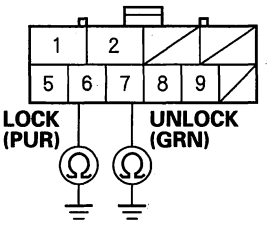
   NO—Go to step 7.
7. Disconnect the driver's door lock actuator 10P connector.
8. Check the ON/OFF information of the Driver's Door Knob Switch (LOCK) and Driver's Door Lock Knob Switch (UNLOCK) in the DATA LIST.

   Are both information indicators OFF?

   YES—Faulty driver's door lock knob switch; replace the driver's door lock actuator assembly.■

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Disconnect the driver's MPCS unit connector A (40P).
11. Check for continuity between body ground and the driver's door lock actuator 10P connector terminals No. 6 and No. 7 individually.

DRIVER'S DOOR LOCK ACTUATOR 10P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire.■

NO—Replace the driver's MPCS unit.■

BACK

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DTC B2186: Front Passenger's Door Lock Switch LOCK/UNLOCK Signal Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Lock and unlock the front passenger's door with the door lock switch operation.
4. Check for DTCs with the HDS.

   Is DTC B2186 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the front passenger's door lock switch system is OK at this time. Check for loose or poor connections. ■
5. With the front passenger's door lock switch in the neutral position, select the DOOR LOCK from the BODY ELECTRICAL system select menu, and enter the DATA LIST.
6. Check the ON/OFF information of the Front Passenger's Door Lock Switch (LOCK) and Front Passenger's Door Lock Switch (UNLOCK).

   Are both information indicators OFF?

   YES—Go to step 7.

   NO—Go to step 8.
7. Operate the front passenger's door lock switch in the LOCK and UNLOCK positions, and check the ON/OFF information of the Front Passenger's Door Lock Switch (LOCK) and Front Passenger's Door Lock Switch (UNLOCK).

   Are both the Front Passenger's Door Lock Switch (LOCK) and Front passenger's Door Lock Switch (UNLOCK) information indicators ON at the same time when the door lock switch is in the LOCK or UNLOCK position?

   YES—Repair short between the wires. ■

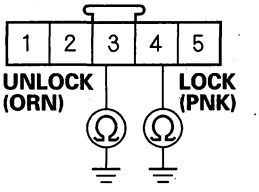
   NO—Replace the passenger's MPCS unit. ■
8. Disconnect the front passenger's door lock switch 5P connector.
9. Check the ON/OFF information of the Front Passenger's Door Lock Switch (LOCK) and Front Passenger's Door Lock Switch (UNLOCK).

   Are both information indicators OFF?

   YES—Faulty front passenger's door lock switch; replace it. ■

   NO—Go to step 10.
10. Turn the ignition switch OFF.
11. Disconnect the passenger's MPCS unit connector A (28P).
12. Check for continuity between body ground and the front passenger's door lock switch 5P connector terminals No. 3 and No. 4 individually.

FRONT PASSENGER'S DOOR LOCK SWITCH 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Replace the passenger's MPCS unit. ■

Protected by AR

Symptom Troubleshooting

Power Door Locks/Keyless

1. If the door lock system works properly, but the vehicle does not start, refer to the immobilizer-keyless control unit symptom troubleshooting information (see page 22-403).

NOTE: Only the panic function will work with the key in the ignition off position. There is no keyless function with the ignition turned ON (II).

No.	Symptom	Check Items
1	The doors will not lock or unlock.*	• MICU input test (see page 22-132) • Driver's door key cylinder switch test (see page 22-174) • Door lock switch test (see page 22-174) • Door lock knob switch test (see page 22-173)
2	The doors will not lock.*	• MICU input test (see page 22-132) • Door lock knob switch test (see page 22-173) • Driver's door switch test (check the door switch ON/OFF information with the HDS)
3	The doors will not unlock.*	• MICU input test (see page 22-132) • Driver's door lock knob switch test (see page 22-173)
4	Keyless operation does not work (LOCK, UNLOCK, PANIC).	Symptom troubleshooting (see page 22-157).
5	Doors will not unlock with the transmitter, but will unlock with the door switch.	Symptom troubleshooting (see page 22-159).
6	Doors will not lock with the transmitter, but will lock with the door switch.	Symptom troubleshooting (see page 22-159).
7	Doors automatically relock 30, 60, or 90 seconds after being unlocked with the transmitter even though a door has been opened.	• Driver's door switch test. • Symptom troubleshooting (see page 22-160).
8	The horn does not sound and/or the headlights do not flash when PANIC button on the transmitter pressed.	Symptom troubleshooting (see page 22-159).
9	Keyless lock or unlock operation will work even though the ignition key is in the ignition switch.	Ignition key switch test (see page 22-79).

*: If only one door is not working properly, check that door's lock actuator first, then check the other items listed in this table.

BACK

Protected by AR

Keyless operation does not work (LOCK, UNLOCK, PANIC)

NOTE:
- Before troubleshooting, check the B-CAN DTCs. If any DTC is indicated, troubleshoot the indicated DTC first.
- Before troubleshooting, do the keyless transmitter test (see page 22-177).

1. Turn the ignition switch ON (II).
2. Try to start the engine.

   Does the engine start?

   YES—The immobilizer system is OK, go to step 3.

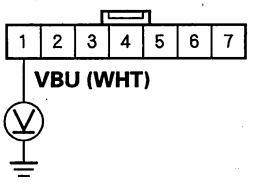
   NO—Go to the immobilizer symptom troubleshooting (see page 22-405).■
3. Turn the ignition switch OFF.
4. Connect the HDS to the data link connector.
5. Close all doors, then turn the ignition switch ON (II).
6. Enter the BODY ELECTRICAL menu, and check the door switch parameters.

   Do all door switches indicate OFF?

   YES—Go to step 7.

   NO—Faulty door switch, or shorted door switch wire. Repair as necessary.■
7. Remove the ignition key from the ignition switch.
8. Measure for voltage between the immobilizer-keyless control unit 7P connector No. 1 terminal and body ground.

IMMOBILIZER-KEYLESS CONTROL UNIT 7P CONNECTOR



Wire side of female terminals

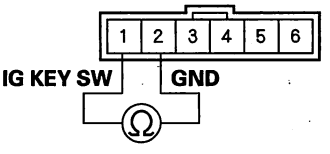
Is there battery voltage?

YES—Go to step 9.

NO—Check the No. 7 (10 A) fuse in the under-dash fuse/relay box. If the fuse is blown, replace the fuse and repair a short to ground in the wire. If the fuse is OK, repair open in the wire.■

9. Disconnect the ignition key switch 6P connector.
10. At the ignition key switch side, check for continuity between the ignition key switch 6P connector No. 1 and No. 2 terminals.

IGNITION KEY SWITCH 6P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Faulty ignition key switch or short to ground, replace the steering lock assembly.■

NO—Go to step 11.

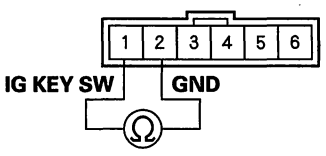
(cont'd)

Protected by AR

Symptom Troubleshooting (cont'd)

11. Insert the ignition key into the ignition switch.
12. At the ignition key switch side, check for continuity between the ignition key switch 6P connector No. 1 and No. 2 terminals.

IGNITION KEY SWITCH 6P CONNECTOR



Terminal side of male terminals

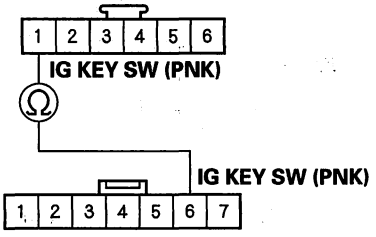
Is there continuity?

YES—Go to step 13.

NO—Faulty ignition key switch, replace the steering lock assembly. ■

13. Disconnect the immobilizer-keyless control unit 7P connector.
14. Check for continuity between the immobilizer-keyless control unit 7P connector No. 6 terminal and the ignition key switch 6P connector No. 1 terminal.

IGNITION KEY SWITCH 6P CONNECTOR
Wire side of female terminals



IMMOBILIZER-KEYLESS CONTROL UNIT 7P CONNECTOR
Wire side of female terminals

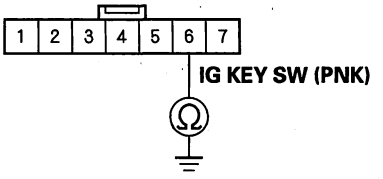
Is there continuity?

YES—Go to step 15.

NO—Repair open in the wire. ■

15. Check for continuity between the immobilizer-keyless control unit 7P connector No. 6 terminal and body ground.

IMMOBILIZER-KEYLESS CONTROL UNIT 7P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Replace the immobilizer-keyless control unit. ■

BACK

Protected by AR

Doors will not unlock (or lock) with the transmitter, but will unlock (lock) with the door switch

NOTE: Before troubleshooting, check the B-CAN DTCs. If any DTC is indicated, troubleshoot the indicated DTC first.

1. Turn the ignition switch OFF.
2. Remove the ignition key from the ignition switch.
3. Close and lock the doors.
4. Try to lock/unlock the doors with the keyless transmitter.

   Do the door lock actuators work normally?

   YES—Intermittent failure, the system is OK at this time. ■

   NO—Go to step 5.
5. Open the driver's door.

   Does the key-in reminder chime sound?

   YES—Faulty ignition key switch, or short to ground on the ignition key switch PNK wire. Repair as necessary. ■

   NO—Go to step 6.
6. Do the transmitter test (see page 22-177).

   Is the transmitter OK?

   YES—Substitute a known-good MICU and recheck. ■

   NO—Replace the transmitter. ■

The horn does not sound and/or the headlights do not flash when the PANIC button on the transmitter is pressed

NOTE: Before troubleshooting, check the B-CAN DTCs. If any DTC is indicated, troubleshoot the indicated DTC first.

1. Press the PANIC button.

   Does the horn sound?

   YES—Go to step 3.

   NO—Go to step 2.
2. Press the horn button.

   Does the horn sound?

   YES—Go to step 3.

   NO—Check the horn circuit. ■
3. Turn the headlight switch ON.

   Do the headlights come on?

   YES—Go to step 4.

   NO—Check the lighting circuit. ■
4. Do the transmitter test (see page 22-177).

   Is the transmitter OK?

   YES—Substitute a known-good MICU and recheck. ■

   NO—Replace the transmitter. ■

Protected by AR

Symptom Troubleshooting (cont'd)

Doors automatically relock 30, 60, 90 seconds after being unlocked with the transmitter even though a door has been opened

1. Turn the ceiling light switch in DOOR position.
2. Turn the ignition switch ON (II).
3. Close all doors.
4. Watch the ceiling light and the door indicator on the gauge control module.

   Does the ceiling light and door indicator go off?

   YES—Go to step 5.

   NO—Repair short to ground in the wire between the MICU and door switch. ■
5. Open and close each door one at a time.
6. Watch the ceiling light and the door indicator on the gauge control module.

   Does the ceiling light and door indicator come on when the door is open, and go off when the door is closed?

   YES—Substitute a known-good MICU and recheck. If the symptom goes away, replace the original MICU. ■

   NO—Check for open in the wire between the MICU and the door switch. If the wire is OK, replace the door switch. ■

BACK

Protected by AR

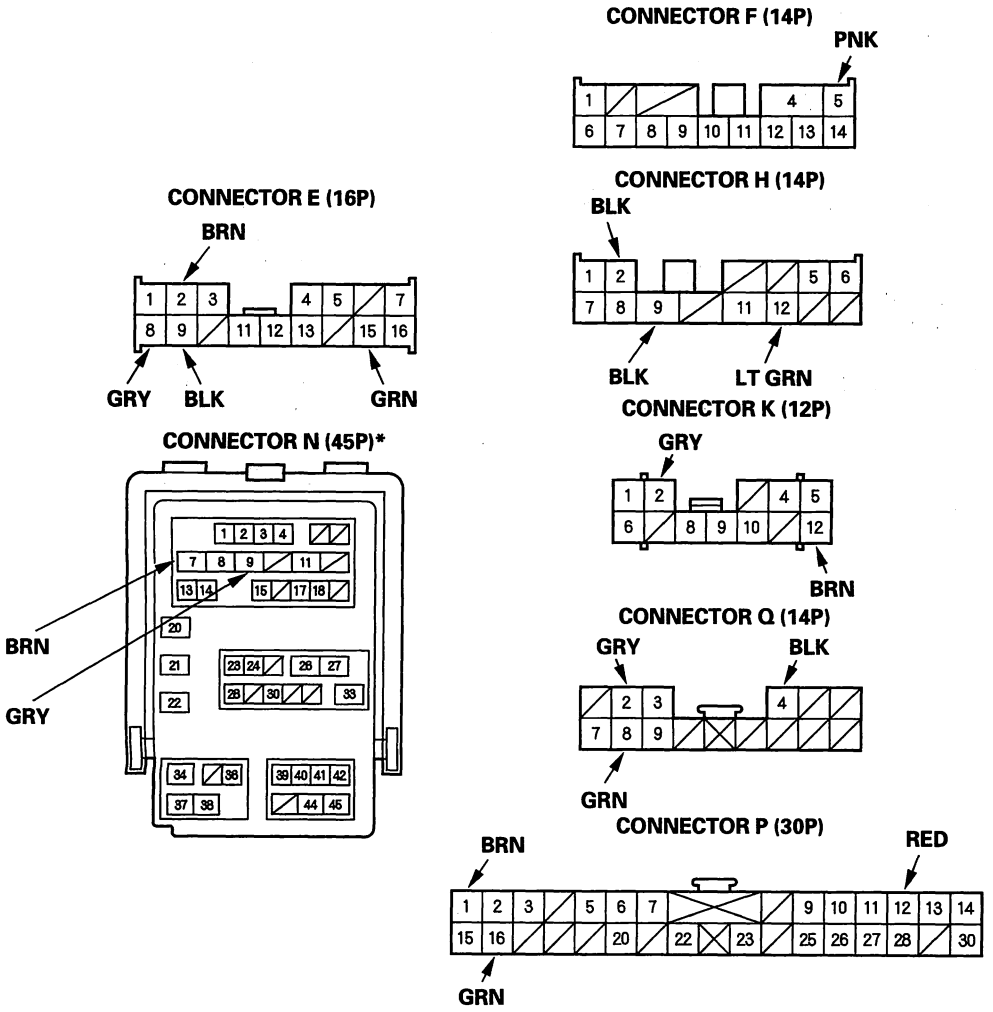
Control Unit Input Test

NOTE: Before testing, troubleshoot the multiplex integrated control system first using B-CAN system Diagnosis Test Mode A (see page 22-112).

MICU

1. Turn the ignition switch OFF.
2. Remove the left kick panel (see page 20-76).
3. Disconnect the under-dash fuse/relay box connectors.

   NOTE: All connector views are wire side of female terminals.



*** Connector view shown rotated 180° from actual position in the under-dash fuse/relay box.**

4. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 5.

(cont'd)

Protected by AR

Control Unit Input Test (cont'd)

5. With the connector still disconnected, make these input tests at the connectors.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
E2 E8	BRN GRY	Connect battery power to the E2 (E8) terminal, and the E8 (E2) terminal to body ground.	Check actuator operation: The left and right rear door lock actuators should LOCK (UNLOCK).	• Faulty left rear door lock actuator • Faulty right rear door lock actuator • An open in the wire
K2 K12	GRY BRN	Connect battery power to the K12 (K2) terminal, and the K2 (K12) terminal to body ground.	Check actuator operation: The driver's door lock actuator should LOCK (UNLOCK).	• Faulty driver's door lock actuator • An open in the wire
N7 N9	BRN GRY	Connect battery power to the N7 (N9) terminal, and the N9 (N7) terminal to body ground.	Check actuator operation: The front passenger's door lock actuator should LOCK (UNLOCK).	• Faulty front passenger's door lock actuator • An open in the wire
F5*	PNK	Connect battery power to the F5 terminal.	Check tailgate release actuator operation: The tailgate should open.	• Faulty tailgate release actuator • Poor ground (G701) • Faulty rear fuse/relay box • An open in the wire

*: Without power tailgate

BACK

Protected by AR

6. Reconnect the connectors, then turn the ignition switch ON (II), and make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 7.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
P1	BRN	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G502) • An open in the wire
E9 H9 Q4	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G601) • An open in the wire
E15	GRN	Driver's door open	Measure the voltage to ground: There should be less than 1 V.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Measure the voltage to ground: There should be more than 5 V.	• Faulty driver's door switch • A short to ground in the wire
H12	LT GRN	Front passenger's door open	Measure the voltage to ground: There should be less than 1 V.	• Faulty front passenger's door switch • An open in the wire
		Front passenger's door closed	Measure the voltage to ground: There should be more than 5 V.	• Faulty front passenger's door switch • A short to ground in the wire
Q2	GRY	Right rear door open	Measure the voltage to ground: There should be less than 1 V.	• Faulty right rear door switch • An open in the wire
		Right rear door closed	Measure the voltage to ground: There should be more than 5 V.	• Faulty right rear door switch • A short to ground in the wire
Q8	GRN	Left rear door open	Measure the voltage to ground: There should be less than 1 V.	• Faulty left rear door switch • An open in the wire
		Left rear door closed	Measure the voltage to ground: There should be more than 5 V.	• Faulty left rear door switch • A short to ground in the wire
P12	RED	Under all conditions	Measure the voltage to ground: There should be less than 1 V.	• Faulty connection at the audio unit, navigation unit, and/or rear controller and screen • Faulty audio unit • Faulty navigation unit • Faulty rear controller and screen • An open in the wire • Poor ground (G504)
P16	GRN	Transmission range switch in P position	Measure the voltage to ground: There should be less than 1 V.	• Faulty transmission range switch • An open in the wire • Poor ground (G101)
		Transmission range switch in any other position than P	Measure the voltage to ground: There should be more than 5 V.	• Faulty transmission range switch • A short to ground in the wire

(cont'd)

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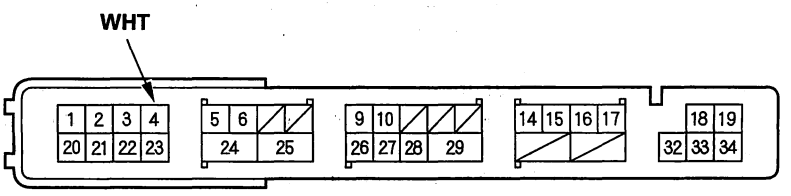
Control Unit Input Test (cont'd)

Rear Fuse/Relay Box

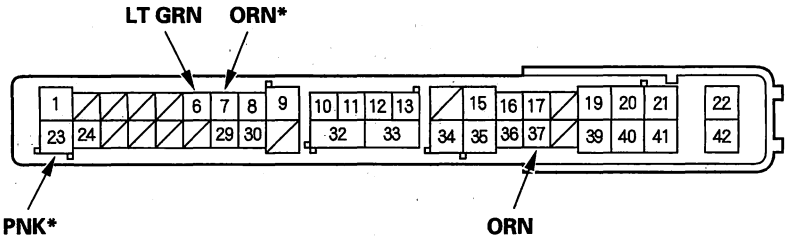
7. Turn the ignition switch OFF.
8. Remove the left rear trim (see page 20-92).
9. Disconnect the rear fuse/relay box connectors.

CONNECTOR B (34P)



Wire side of female terminals

CONNECTOR C (42P)



Wire side of female terminals

***: Without power tailgate**

10. Inspect the connector and socket terminals to be sure they are all making good contact.
    - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
    - If the terminals look OK, go to step 11.

BACK

Protected by AR

11. With the connector still disconnected, make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 12.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
C23*	PNK	Connect battery power to the C23 terminal momentarily.	Check tailgate release actuator operation: The tailgate should open.	• Poor ground (G701) • Faulty tailgate release actuator • An open in the wire
C37	ORN	Connect battery power to the C37 terminal momentarily.	Check keyless buzzer operation: The keyless buzzer should sound.	• Faulty keyless buzzer • Poor ground (G702) • An open in the wire

*: Without power tailgate

12. Reconnect the connectors, then turn the ignition switch ON (II), and make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 13.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B4	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • An open in the wire
C6	LT GRN	Tailgate open	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G702) • Faulty tailgate latch switch • An open in the wire
		Tailgate closed	Measure the voltage to ground: There should be more than 5 V.	• Faulty tailgate latch switch • A short to ground in the wire
C7*	ORN	Tailgate outer handle pulled	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G702) • Faulty tailgate outer handle switch • An open in the wire
		Tailgate outer handle released	Measure the voltage to ground: There should be more than 5 V.	• Faulty tailgate outer handle switch • A short to ground in the wire

*: Without power tailgate

(cont'd)

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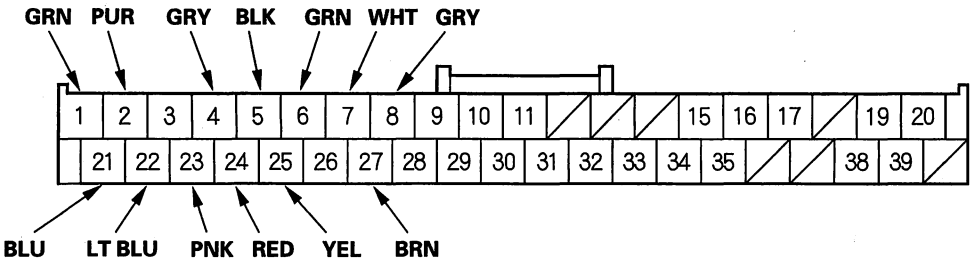
Control Unit Input Test (cont'd)

Driver's MPCS Unit

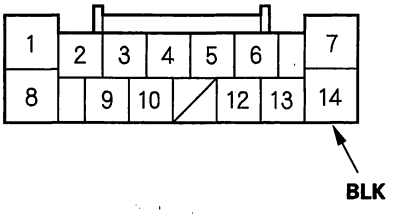
13. Turn the ignition switch OFF.
14. Remove the driver's door panel (see page 20-8).
15. Disconnect the driver's MPCS unit connectors A (40P) and B (14P).

CONNECTOR A (40P)



Wire side of female terminals

CONNECTOR B (14P)



Wire side of female terminals

16. Inspect the connector and socket terminals to be sure they are all making good contact.
    - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
    - If the terminals look OK, go to step 17.

BACK

Protected by AR

17. With the connectors still disconnected, make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 18.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A8	GRY	Under all conditions	Check for continuity between the A8 terminal and the passenger's MPCS unit connector A (28P) No. 4 terminal: There should be continuity.	• Faulty under-dash fuse/relay box • An open in the wire
			Check for continuity to ground: There should be no continuity.	• Faulty under-dash fuse/relay box • A short to ground in the wire
A23 • A27	PNK • BRN	Driver's door lock switch in UNLOCK	Check for continuity between the terminals: There should be continuity.	• Faulty driver's door lock switch • An open in the wire
		Driver's door lock switch in neutral or LOCK	Check for continuity between the terminals: There should be no continuity.	• Faulty driver's door lock switch • A short to ground in the wire
A24 • A27	RED • BRN	Driver's door lock switch in LOCK	Check for continuity between the terminals: There should be continuity.	• Faulty driver's door lock switch • An open in the wire
		Driver's door lock switch in neutral or UNLOCK	Check for continuity between the terminals: There should be no continuity.	• Faulty driver's door lock switch • A short to ground in the wire.
A27 • A4	BRN • GRY	Connect the A7 and A27 terminals, and A4 and A5 terminals with jumper wires	Check the driver's door lock switch lights: The switch LED should come on.	• Faulty driver's door lock switch • Blown bulb(s) • An open in the wire

(cont'd)

Protected by AR

Control Unit Input Test (cont'd)

18. Reconnect the connectors, then turn the ignition switch ON (II), and make these input tests at the connectors.
    - If any test indicates a problem, find and correct the cause, then recheck the system.
    - If all the input tests prove OK, go to step 19.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A5 B14	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G601) • An open in the wire
A7 A27	WHT BRN	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
A25	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
A1	GRN	Driver's door lock knob switch in UNLOCK	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G601) • Faulty driver's door lock knob switch • An open in the wire
		Driver's door lock knob switch in LOCK	Measure the voltage to ground: There should be battery voltage.	• Faulty driver's door lock knob switch • A short to ground in the wire
A2	PUR	Driver's door lock knob switch in LOCK	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G601) • Faulty driver's door lock knob switch • An open in the wire
		Driver's door lock knob switch in UNLOCK	Measure the voltage to ground: There should be battery voltage.	• Faulty driver's door lock knob switch • A short to ground in the wire
A21	BLU	Driver's door key cylinder switch in UNLOCK	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G601) • Faulty driver's door key cylinder switch • An open in the wire
		Driver's door key cylinder switch in neutral or LOCK	Measure the voltage to ground: There should be battery voltage.	• Faulty driver's door key cylinder switch • A short to ground in the wire
A22	LT BLU	Driver's door key cylinder switch in LOCK	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G601) • Faulty driver's door key cylinder switch • An open in the wire
		Driver's door key cylinder switch in UNLOCK	Measure the voltage to ground: There should be battery voltage.	• Faulty driver's door key cylinder switch • A short to ground in the wire
A6	GRN	Left rear door lock knob switch in UNLOCK	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G601) • Faulty left rear door lock knob switch • An open in the wire
		Left rear door lock knob switch in LOCK	Measure the voltage to ground: There should be battery voltage.	• Faulty left rear door lock knob switch • A short to ground in the wire

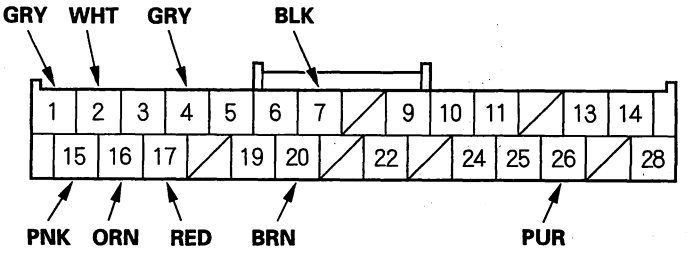
BACK

Protected by AR

Passenger's MPCS Unit

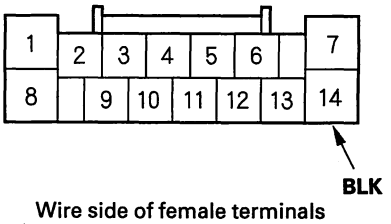
19. Turn the ignition switch OFF.
20. Remove the front passenger's door panel (see page 20-8).
21. Disconnect the passenger's MPCS unit connectors.

CONNECTOR A (28P)



Wire side of female terminals

CONNECTOR B (14P)



Wire side of female terminals

22. Inspect the connector and socket terminals to be sure they are all making good contact.

- If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
- If the terminals look OK, go to step 23.

(cont'd)

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Control Unit Input Test (cont'd)

23. With the connectors still disconnected, make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 24.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A4	GRY	Under all conditions	Check for continuity between the A4 terminal and the driver's MPCS unit connector A (40P) No. 8 terminal: There should be continuity.	• Faulty under-dash fuse/relay box • An open in the wire
			Check for continuity to ground: There should be no continuity.	• Faulty under-dash fuse/relay box • A short to ground in the wire
A15 • A20	PNK • BRN	Front passenger's door lock switch in LOCK	Check for continuity between the terminals: There should be continuity.	• Faulty front passenger's door lock switch • An open in the wire
		Front passenger's door lock switch in neutral or UNLOCK	Check for continuity between the terminals: There should be no continuity.	• Faulty front passenger's door lock switch • A short to ground in the wire
A16 • A20	ORN • BRN	Front passenger's door lock switch in UNLOCK	Check for continuity between the terminals: There should be continuity.	• Faulty front passenger's door lock switch • An open in the wire
		Front passenger's door lock switch in neutral or LOCK	Check for continuity between the terminals: There should be no continuity.	• Faulty front passenger's door lock switch • A short to ground in the wire.
A20 • A1	BRN • GRY	Connect the A2 and A20 terminals, and A1 and A7 terminals with jumper wires	Check the front passenger's door lock switch lights: The switch LED should come on.	• Faulty front passenger's door lock switch • An open in the wire

BACK

Protected by AR

24. Reconnect the connectors, then turn the ignition switch ON (II), and make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 25.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A7	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G506) • An open in the wire
B14	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G507) • An open in the wire
A2 A20	WHT BRN	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
A17	RED	Front passenger's door lock knob switch in UNLOCK	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G506) • Faulty front passenger's door lock knob switch • An open in the wire
		Front passenger's door lock knob switch in LOCK	Measure the voltage to ground: There should be battery voltage.	• Faulty front passenger's door lock knob switch • A short to ground in the wire
A26	PUR	Right rear door lock knob switch in UNLOCK	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G606) • Faulty right rear door lock knob switch • An open in the wire
		Right rear door lock knob switch in LOCK	Measure the voltage to ground: There should be battery voltage.	• Faulty right rear door lock knob switch • A short to ground in the wire

25. If multiple failures are found on more than one control unit, replace the under-dash fuse/relay box (includes the MICU) (see page 22-72). If input failures are related to a particular control unit, replace the control unit.

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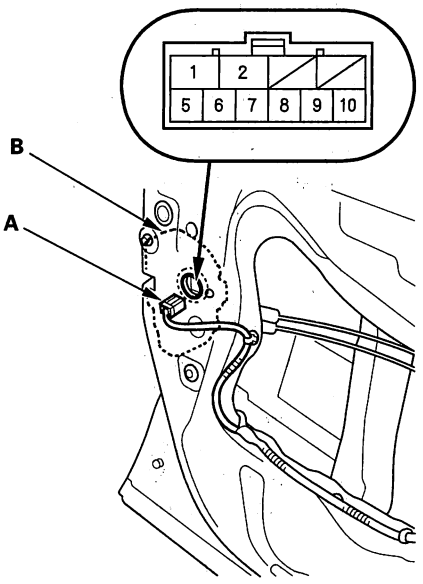
Door Lock Actuator Test

Driver's Door and Left Rear Door

1. Remove the door panel (see page 20-8).
2. Disconnect the 10P connector (A) from the actuator (B).

   NOTE: The illustration shows the driver's door.



3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

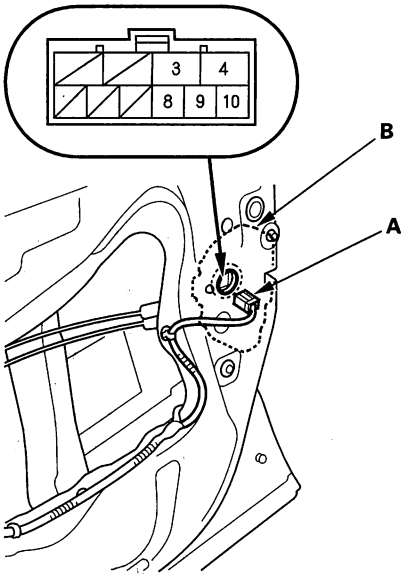
Terminal / Position	1	2
LOCK	⊕	⊖
UNLOCK	⊖	⊕

4. If the actuator does not operate as specified, replace it.

Front Passenger's Door and Right Rear Door

1. Remove the door panel (see page 20-8).
2. Disconnect the 10P connector (A) from the actuator (B).

   NOTE: The illustration shows the front passenger's door.



3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

Terminal / Position	3	4
LOCK	⊕	⊖
UNLOCK	⊖	⊕

4. If the actuator does not operate as specified, replace it.

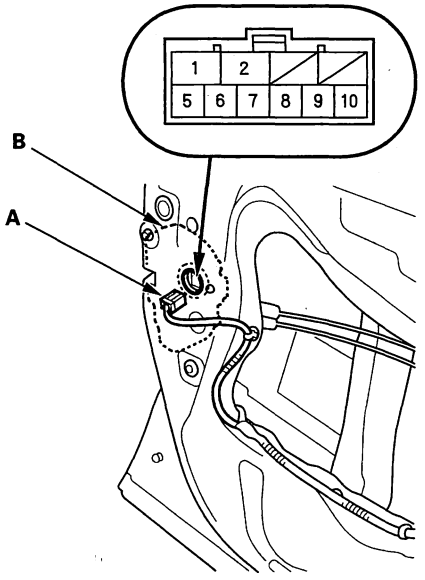
BACK

Protected by AR

Door Lock Knob Switch Test

Driver's Door

1. Remove the driver's door panel (see page 20-8).
2. Disconnect the 10P connector (A) from the actuator (B).

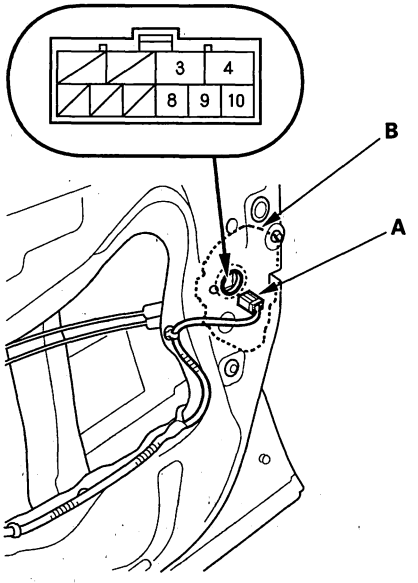


3. Check for continuity between the terminals.
   - There should be continuity between the No. 6 and No. 5 terminals when the door lock knob switch is in the LOCK position and no continuity when the switch is in the UNLOCK position.
   - There should be continuity between the No. 7 and No. 5 terminals when the door lock knob switch is in the UNLOCK position and no continuity when the switch is in the LOCK position.
4. If the continuity is not as specified, replace the door lock actuator.

Passenger Doors

1. Remove the passenger's door panel (see page 20-8).
2. Disconnect the 10P connector (A) from the actuator (B).

   NOTE: The illustration shows the front passenger's door.

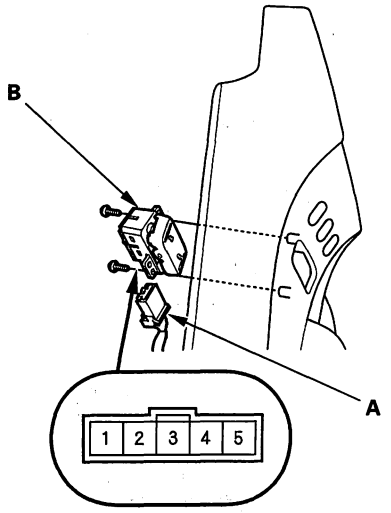


3. Check for continuity between the terminals. There should be continuity between the No. 8 [No. 7] and No. 10 [No. 5] terminals when the door lock knob switch in the UNLOCK position and no continuity when the switch is in the LOCK position.
   [ ] : Left rear door
4. If the continuity is not specified, replace the door lock actuator.

Protected by AR

Door Lock Switch Test

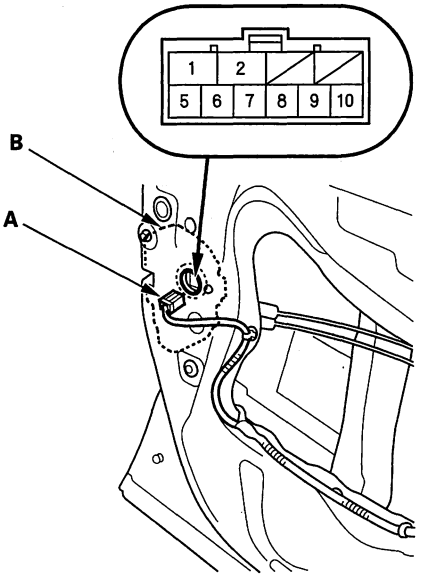
1. Remove the door panel (see page 20-8).
2. Disconnect the 5P connector (A), remove the two screws, then remove the door lock switch (B).



3. Check for continuity between the terminals.
   - There should be continuity between the No. 5 and No. 4 terminals when the door lock switch is in the LOCK position.
   - There should be no continuity between the No. 5 and No. 4 terminals when the door lock switch is in the neutral position or UNLOCK position.
   - There should be continuity between the No. 5 and No. 3 terminals when the door lock switch is in the UNLOCK position.
   - There should be no continuity between the No. 5 and No. 3 terminals when the door lock switch is in the neutral position or LOCK position.
   - There should be continuity between the No. 2, No. 2 (+) and No. 1 (−) terminals (bulb check).
4. If the continuity is not as specified, replace the bulb or switch.

Door Key Cylinder Switch Test

1. Remove the driver's door panel (see page 20-8).
2. Disconnect the 10P connector (A) from the key cylinder switch (B).



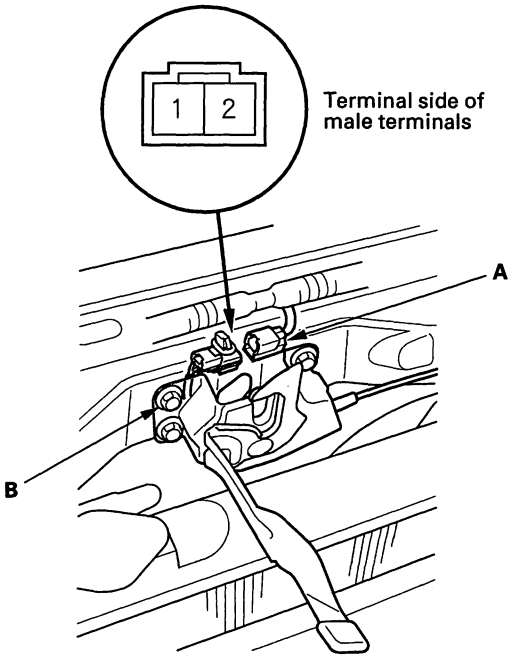
3. Check for continuity between the terminals.
   - There should be continuity between the No. 9 and No. 5 terminals when the door key cylinder switch is in LOCK position.
   - There should be no continuity between the No. 9 and No. 5 terminals when the door key cylinder switch is in the neutral or UNLOCK position.
   - There should be continuity between the No. 8 and No. 5 terminals when the door key cylinder switch is in UNLOCK position.
   - There should be no continuity between the No. 8 and No. 5 terminals when the door key cylinder switch is in the neutral or LOCK position.
4. If the continuity is not as specified, replace the door key cylinder assembly (see page 20-12).

BACK

Protected by AR

Hood Switch Test

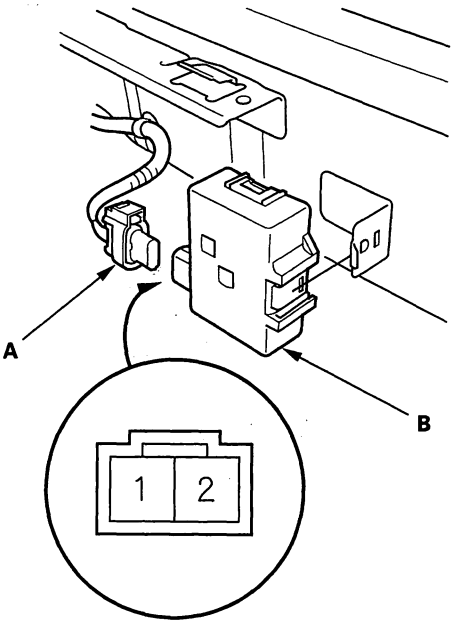
1. Open the hood.
2. Disconnect the 2P connector (A) from the hood switch (B).



3. Check for continuity between the terminals. There should be continuity between the No. 1 and No. 2 terminals when the hood is opened (latch released). There should be no continuity between the No. 1 and No. 2 terminals when the hood is closed (latch pushed down).
4. If the continuity is not as specified, replace the hood switch.

Keyless Buzzer Test/Replacement

1. Remove the rear bumper (see page 20-190).
2. Disconnect the 2P connector (A) from the keyless buzzer (B).



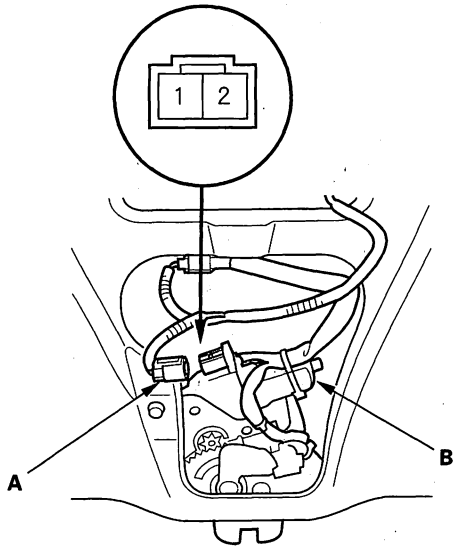
3. Test the buzzer by connecting battery power to the No. 1 terminal and ground to the No. 2 terminal. The buzzer should sound.
4. If the buzzer does not sound, replace it.
5. Install the buzzer in the reverse order of removal.

Protected by AR

Tailgate Release Actuator Test

Without Power Tailgate

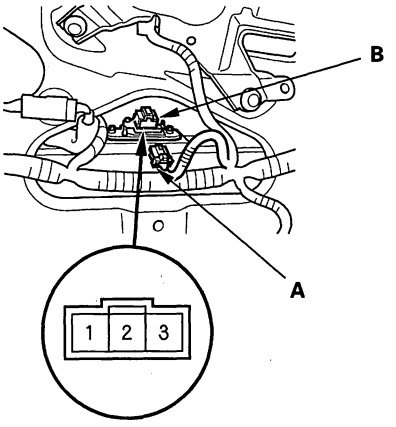
1. Remove the tailgate trim panel (see page 20-96).
2. Disconnect the 2P connector (A) from the tailgate release actuator (B).



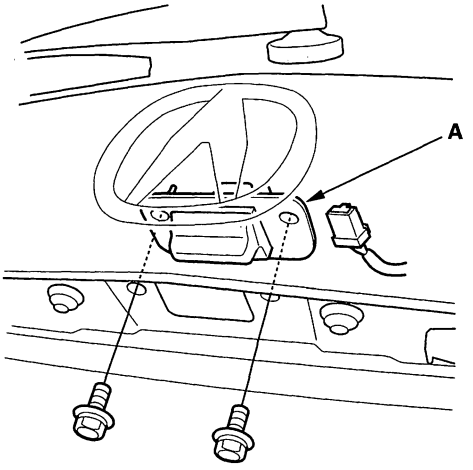
3. Check the actuator by connecting battery power to the No. 2 terminal and ground to the No. 1 terminal. To prevent damage to the actuator, apply battery voltage only momentarily.
   The actuator should work.
4. If the actuator does not work, replace the tailgate latch assembly (see page 20-228).

Tailgate Outer Handle Switch Test/ Replacement

1. Remove the tailgate trim panel (see page 20-96).
2. Disconnect the 3P connector (A) from the tailgate outer handle switch (B).



3. Check for continuity between the tailgate outer handle switch 3P connector No. 2 and No. 3 terminals.
   - There should be continuity when the tailgate outer handle is pulled.
   - There should be no continuity when the tailgate outer handle is released.
4. If the continuity is not as specified, remove the two bolts and the tailgate outer handle switch (A).



5. Install the switch in the reverse order of removal.

BACK

Protected by AR

Transmitter Test/Replacement

NOTE:
- If the doors unlock or lock with the transmitter, but the LED on the transmitter does not come on, the LED is faulty; replace the transmitter.
- If any door is open, you cannot lock the doors with the transmitter.
- If you unlocked the doors with the transmitter, but do not open any of the doors within 30, 60, or 90 seconds, the doors relock automatically.
- The lock or unlock does not work with the transmitter if the ignition key is inserted in the ignition switch.

With HDS

1. Press the lock or unlock button five or six times to reset the transmitter.

   - If the locks work, the transmitter is OK.
   - If any of the transmitter buttons does not work, replace the transmitter, then manually reprogram the transmitter (see page 22-147).
   - If the locks don't work, go to step 2.

2. Connect the HDS to the data link connector.

3. Select KEYLESS from the BODY ELECTRICAL menu, then enter the KEYLESS CHECK.

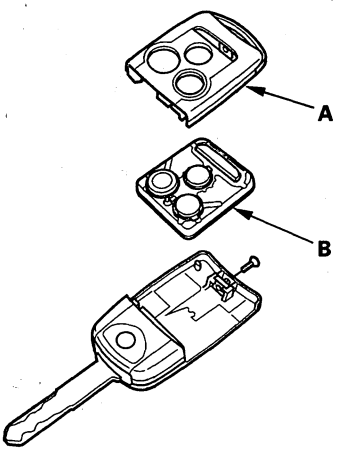
4. Press lock, unlock, trunk, or panic button and check the response on the screen of the HDS.

   NOTE: The door lock actuators may or may not cycle when receiving input from the transmitter.

   - If KEYLESS ENTRY TRANSMITTER CODE IS RECEIVED is indicated, the transmitter is OK.
   - If DIFFERENT KEYLESS ENTRY TRANSMITTER CODE IS RECEIVED is indicated, the transmitter is not registered to the vehicle, if necessary, manually reprogram the transmitter (see page 22-147).
   - If KEYLESS ENTRY TRANSMITTER CODE IS NOT RECEIVED is indicated, go to step 5.

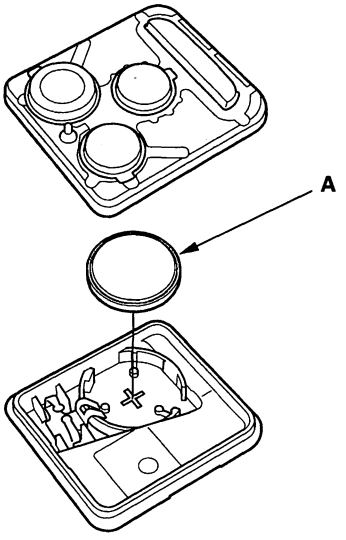
5. Remove the transmitter cover (A) from the transmitter (B), and check for water damage.

   - If you find any water damage, replace the transmitter, then manually reprogram the transmitter (see page 22-147).
   - If there is no water damage, go to step 6.



6. Replace the transmitter battery (A) with a new one, and press lock or unlock button and check the receive condition on the screen of the HDS.

   - If KEYLESS ENTRY TRANSMITTER CODE IS RECEIVED is indicated, the transmitter is OK.
   - If KEYLESS ENTRY TRANSMITTR CODE IS NOT RECEIVED is indicated, go to step 7.



(cont'd)

Protected by AR

Transmitter Test/Replacement (cont'd)

7. Use a different known-good keyless transmitter assembly and repeat steps 3 and 4.

   NOTE: The keyless transmitter does not need to be programmed to the vehicle for this test.

   - If DIFFERENT KEYLESS ENTRY TRANSMITTER CODE IS RECEIVED is indicated, replace the keyless transmitter and manually reprogram the transmitter (see page 22-147).
   - If KEYLESS ENTRY TRANSMITTER CODE IS NOT RECEIVED is indicated, the immobilizer-keyless control unit is faulty, replace it and do the immobilizer system registration (see page 22-410).

Without HDS

1. Start the engine.

   - If the engine does not start, go to the immobilizer system troubleshooting (see page 22-408).
   - If the engine starts, go to step 2.

2. Press the lock or unlock button five or six times to reset the transmitter.

   - If the locks work, the transmitter is OK.
   - If the locks don't work, go to step 3.

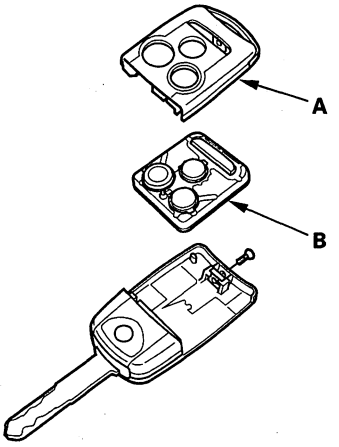
3. Manually program the transmitter (see page 22-147). If the transmitter does not program, go to step 4.

4. Manually program a known-good transmitter.

   - If you can program the transmitter, replace the original transmitter.
   - If you can not program the transmitter, replace the original transmitter, go to step 5.

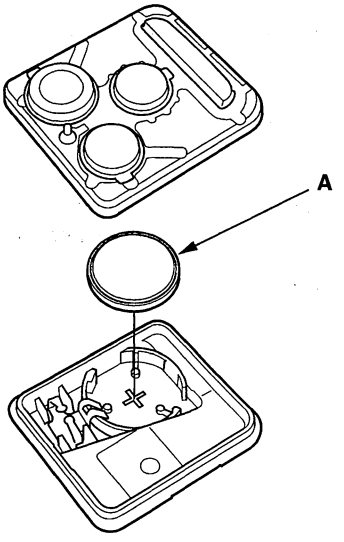
5. Remove the transmitter cover (A) from the transmitter (B), and check for water damage.

   - If you find any water damage, replace the transmitter.
   - If there is no water damage, go to step 6.



6. Replace the transmitter battery (A) with a new one, and try to lock and unlock the doors with the transmitter by pressing the lock or unlock button five or six times.

   - If the doors lock and unlock, the transmitter is OK.
   - If the doors don't lock and unlock, the HDS will be required for further diagnosis.

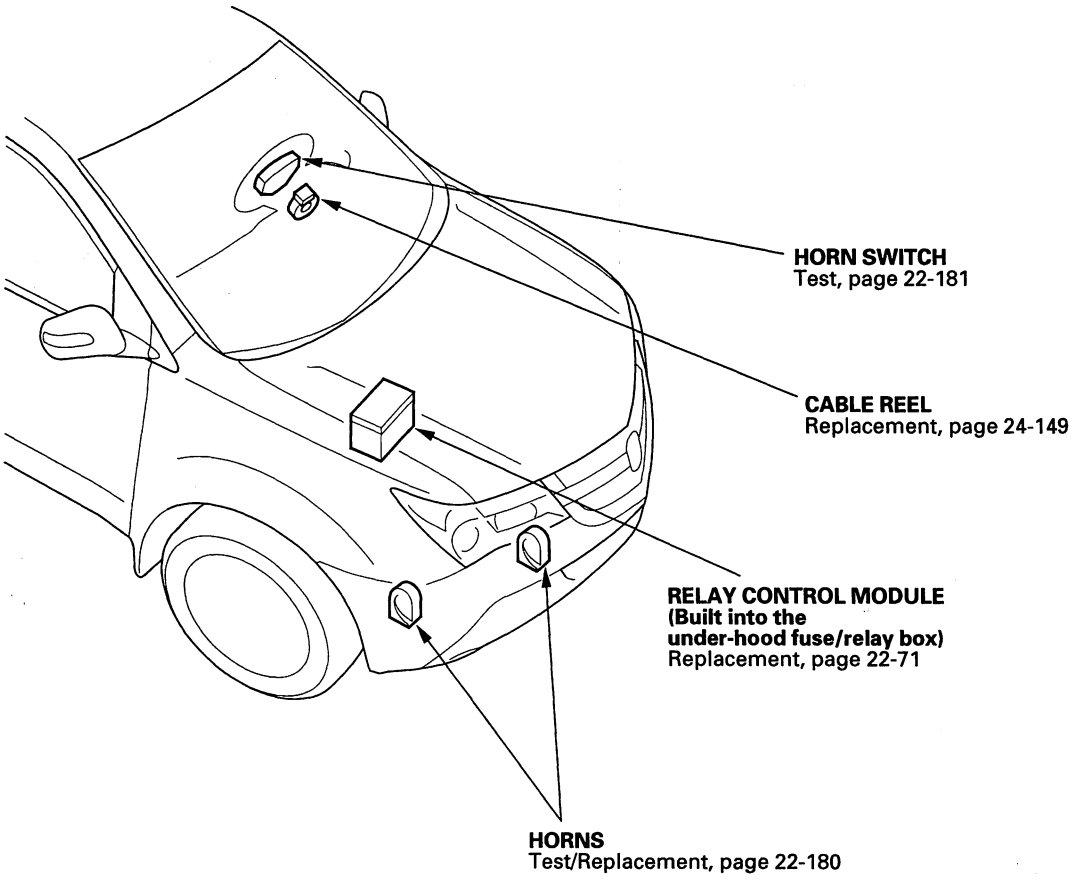


BACK

Protected by AR

Horns

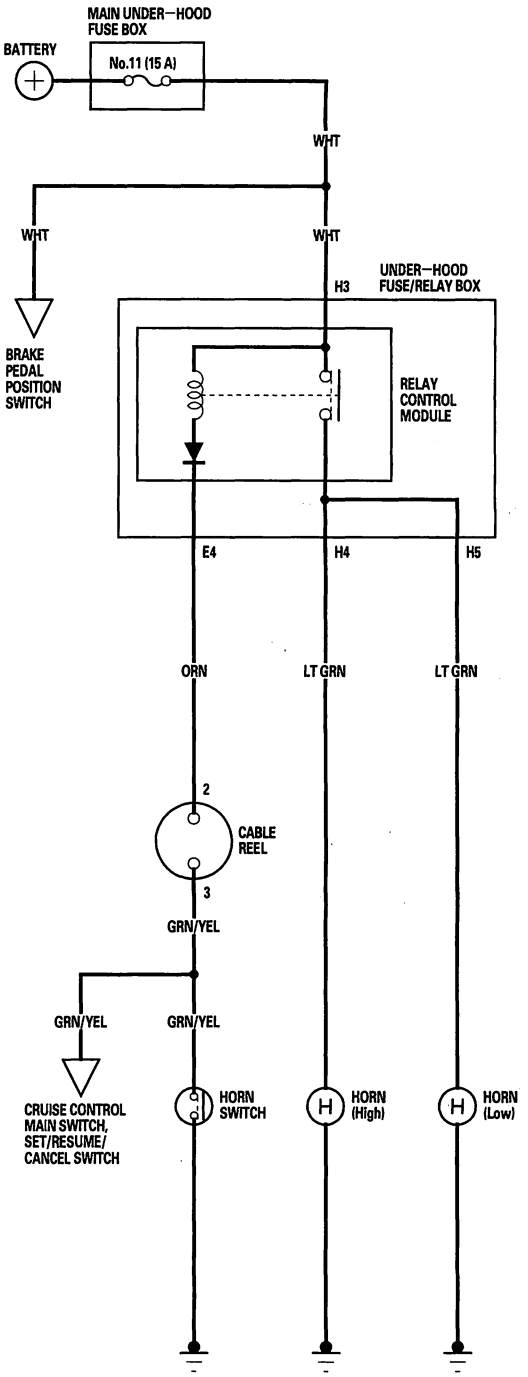
Component Location Index



Protected by AR

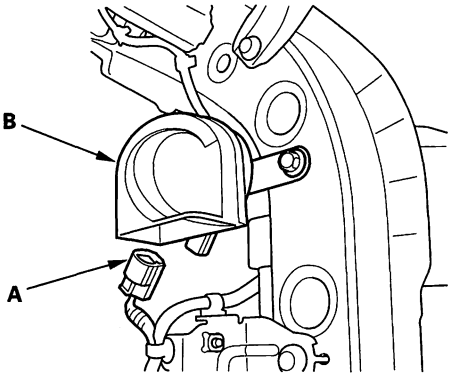
Horns

Circuit Diagram

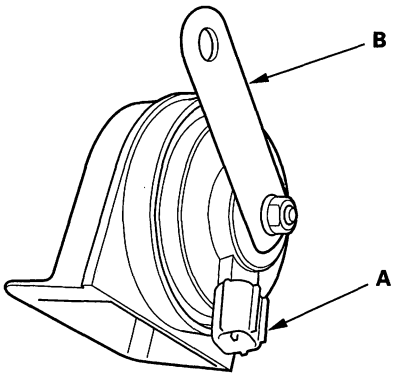


Horn Test/Replacement

1. Remove the upper grille (see page 20-203).
2. Disconnect the 1P connector (A) from each horn (B).



3. Test the horn by connecting battery power to the terminal (A) and grounding the bracket (B). The horn should sound.



4. If it fails to sound, replace it.

BACK

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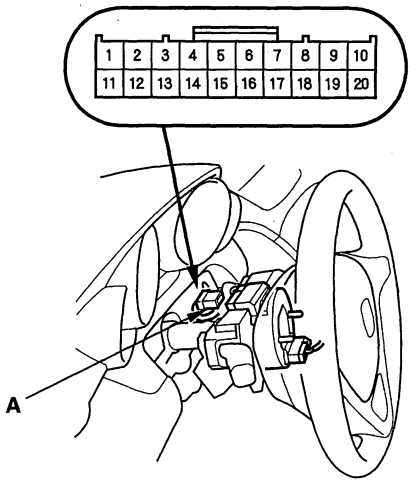
Horn Switch Test

1. Remove the steering column covers (see page 17-25).

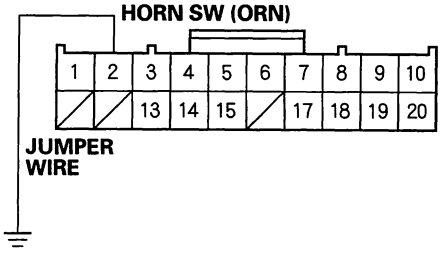
2. Disconnect the dashboard wire harness 20P connector (A) from the cable reel (B).



3. Using a jumper wire, connect the dashboard wire harness 20P connector No. 2 terminal to body ground. The horns should sound.

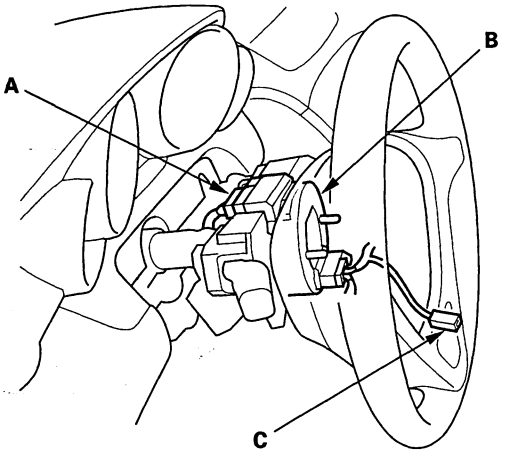
   - If the horns sound, go to step 4.
   - If the horns do not sound, check these items:
     - No. 11 (15 A) fuse in the main under-hood fuse box.
     - Horn (see page 22-180)
     - MICU
     - An open in the wire.

DASHBOARD WIRE HARNESS 20P CONNECTOR



Wire side of female terminals

4. Reconnect the dashboard wire harness 20P connector (A) to the cable reel (B).

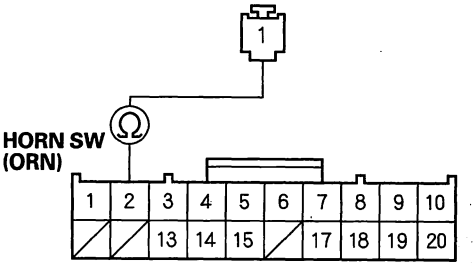


5. Remove the driver's airbag assembly (see page 24-137), and disconnect the horn switch 1P positive terminal (C) from the driver's airbag.

6. Check for continuity between the dashboard wire harness 20P connector No. 2 terminal and the horn switch 1P positive terminal.

   - If there is continuity, check the installation of the driver's airbag assembly and the steering wheel. If the installation is correct, faulty horn switch; replace the driver's airbag assembly.
   - If there is no continuity, repair an open in the wire between the cable reel and the horn switch 1P positive terminal, if the wire harness is OK, replace the cable reel (see page 24-149).

HORN SWITCH 1P POSITIVE TERMINAL
Wire side of female terminals



DASHBOARD WIRE HARNESS 20P CONNECTOR
Wire side of female terminals

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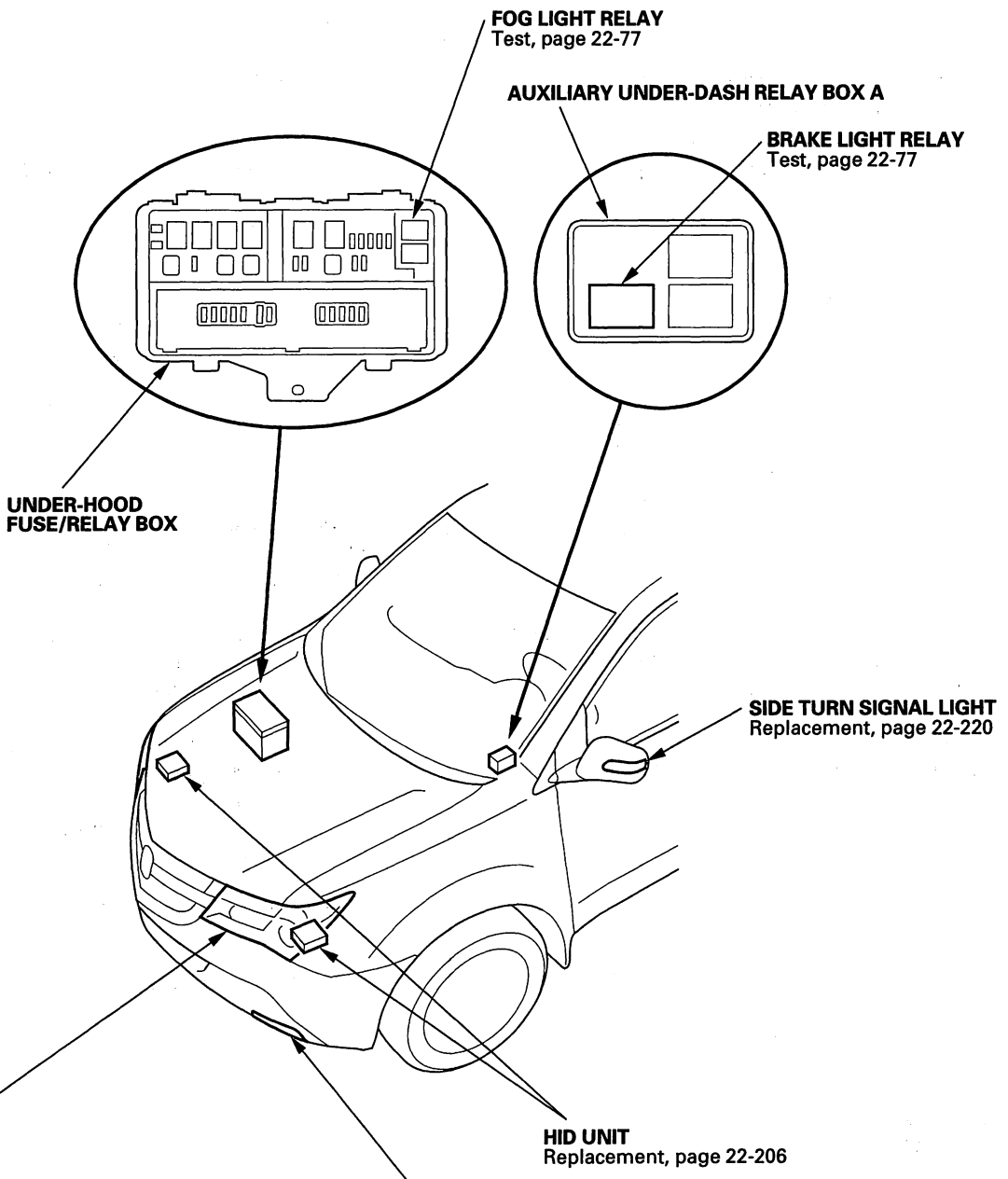
Exterior Lights

Component Location Index



BACK

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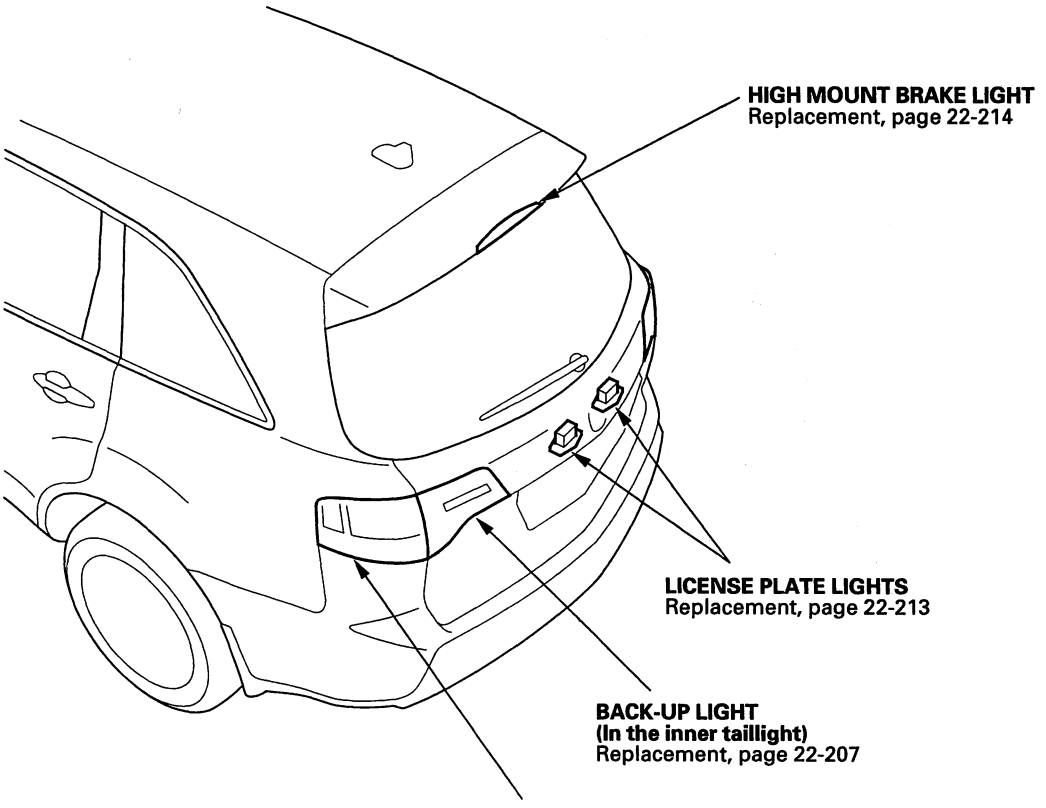

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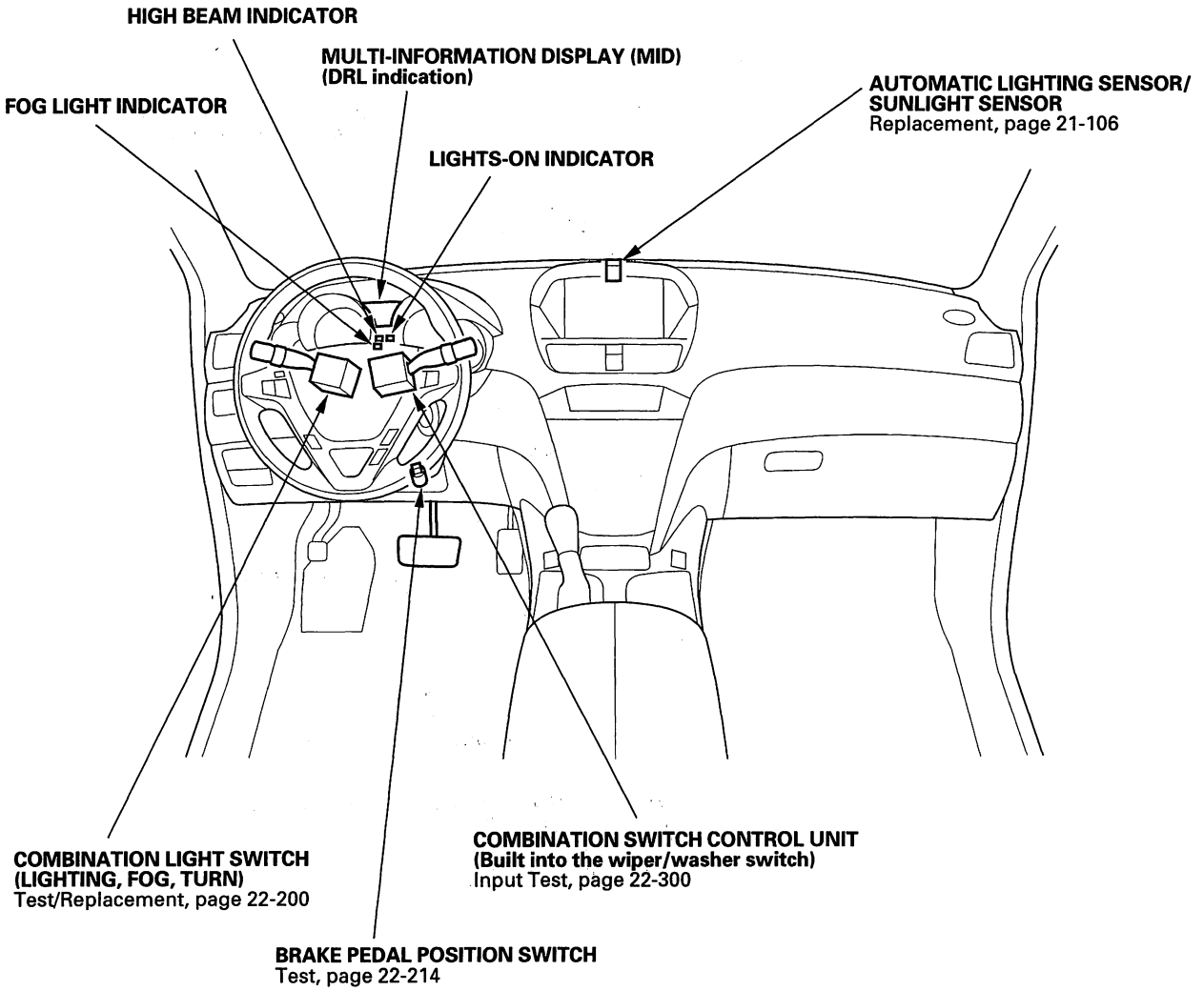
Component Location Index (cont'd)



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System Description

Daytime Running Lights

The daytime running lights system is composed of the relay control module, the combination control unit, the left and right daytime running lights, and the DRL indication on the multi-information display (MID). The daytime running lights operate with the ignition switch ON (II), the headlights off, and the parking brake released.

When the daytime running lights are on, the relay control module turns the left and right daytime running lights control circuit on and off (duty cycle) which provides a reduced voltage (approximately 6—8 volts) via the No. 1 and No. 2 fuses in the under-hood fuse/relay box. The DRL comes on with reduced brightness.

The gauge control module will show the DRL indication on the multi-information display (MID) with the ignition switch ON (II) and the parking brake released when a problem is detected with the daytime running lights circuit.

NOTE: The daytime running lights are disabled when the ignition switch is turned OFF. To keep the daytime running lights from coming on, apply the parking brake switch while the ignition switch OFF. When you then turn the ignition switch back ON (II), the daytime running lights will not come on until the parking brake is released.

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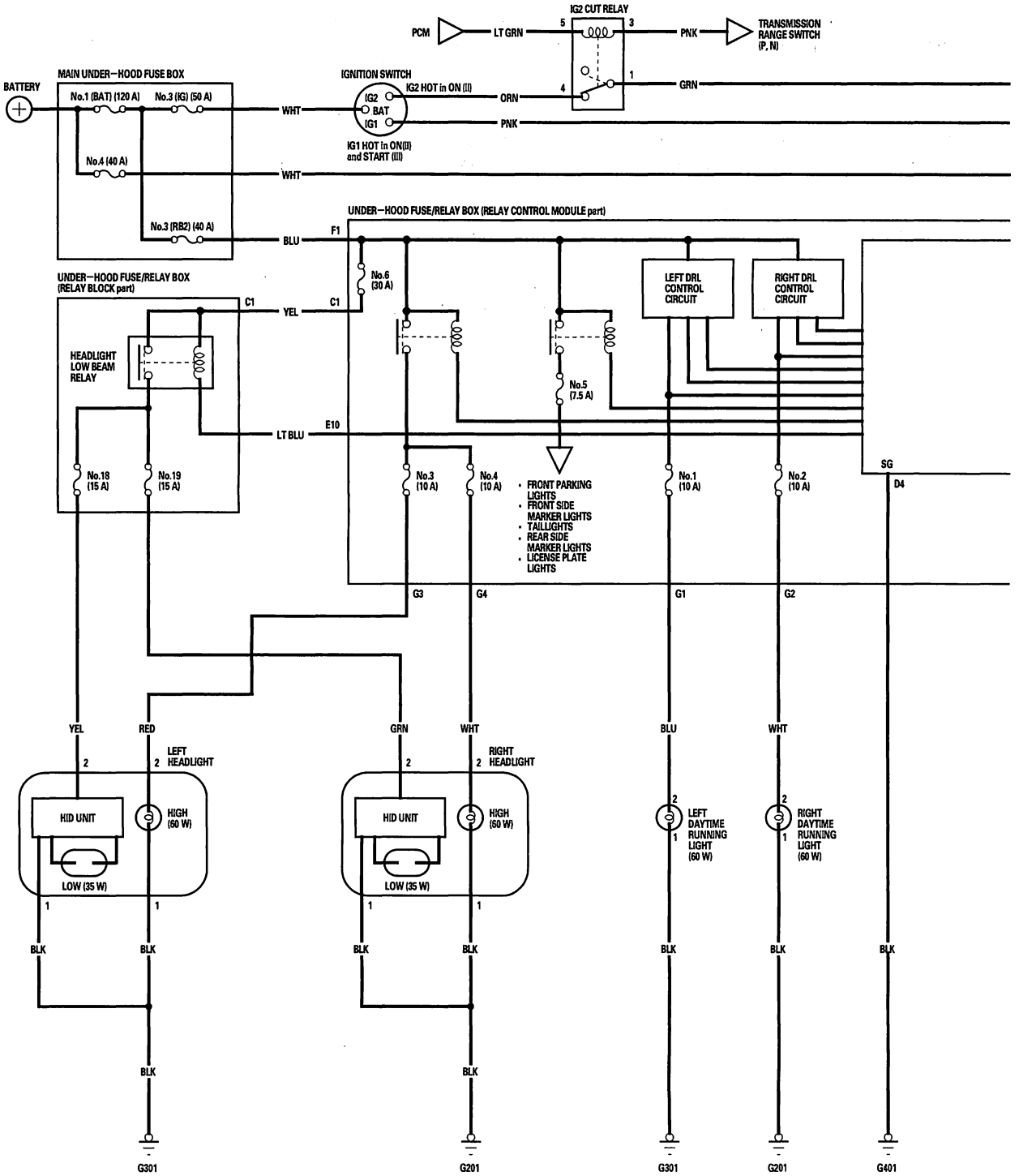
Exterior Lights

Circuit Diagram



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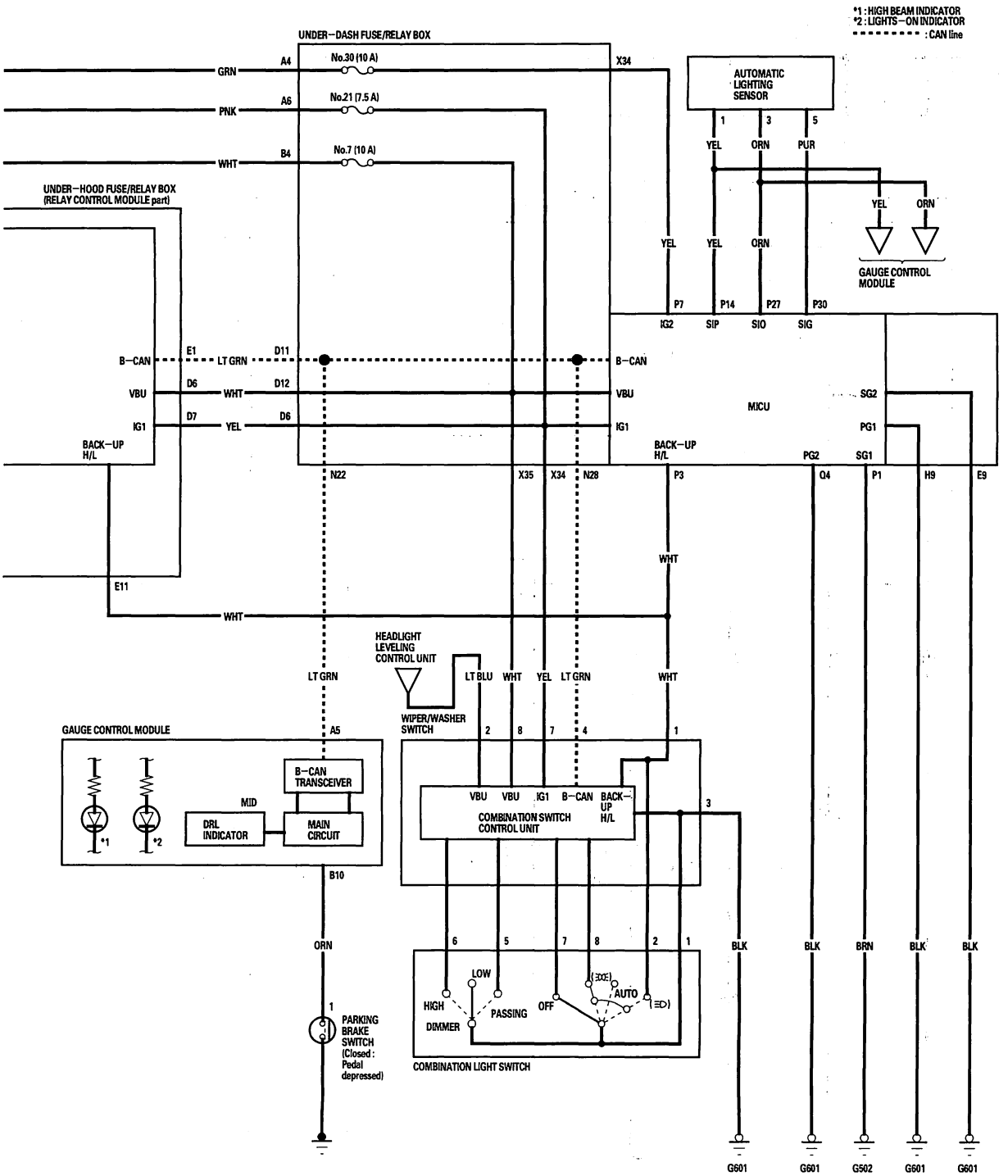

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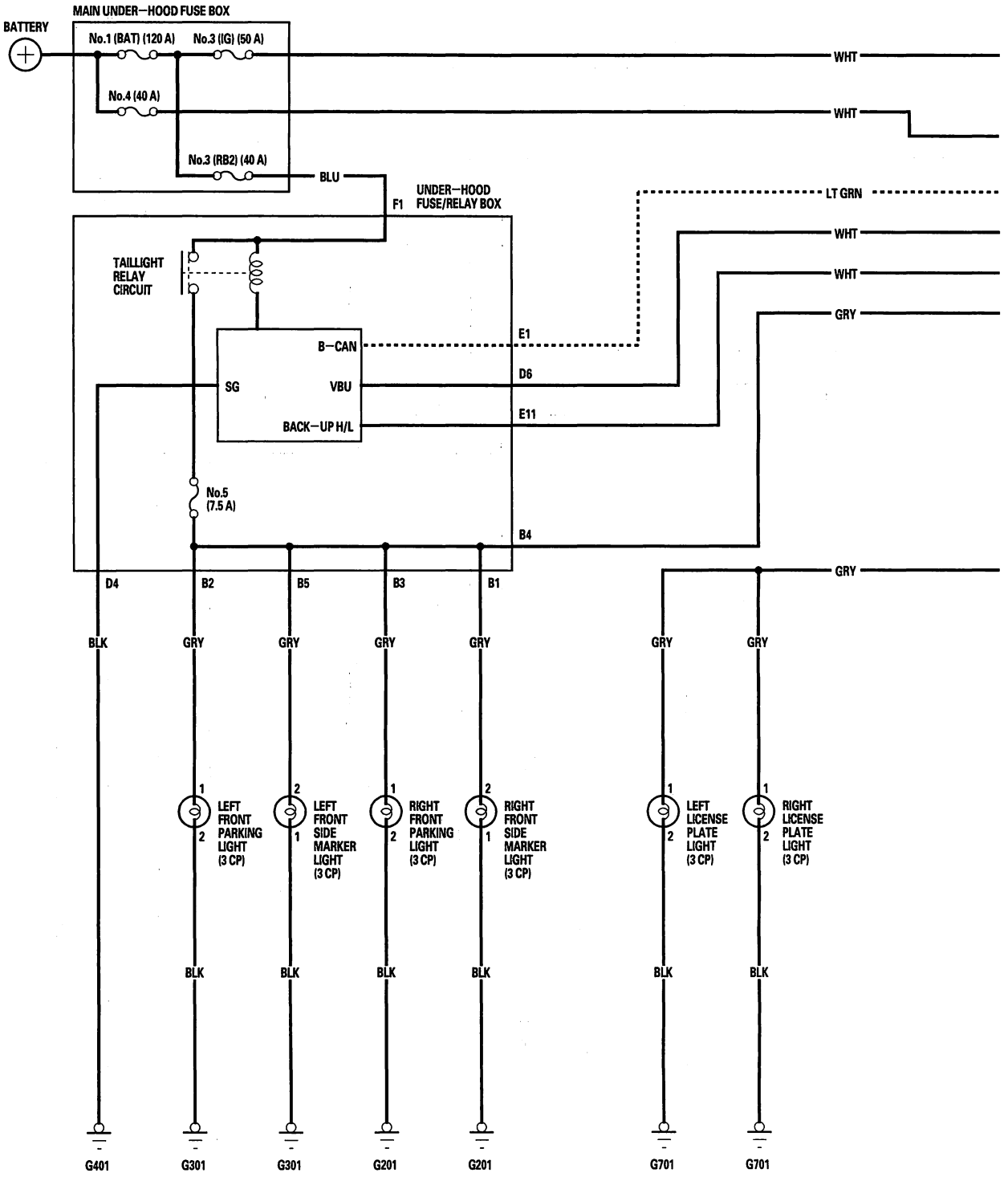
Exterior Lights

Circuit Diagram - Parking/Side Marker/License Plate Lights, Taillights



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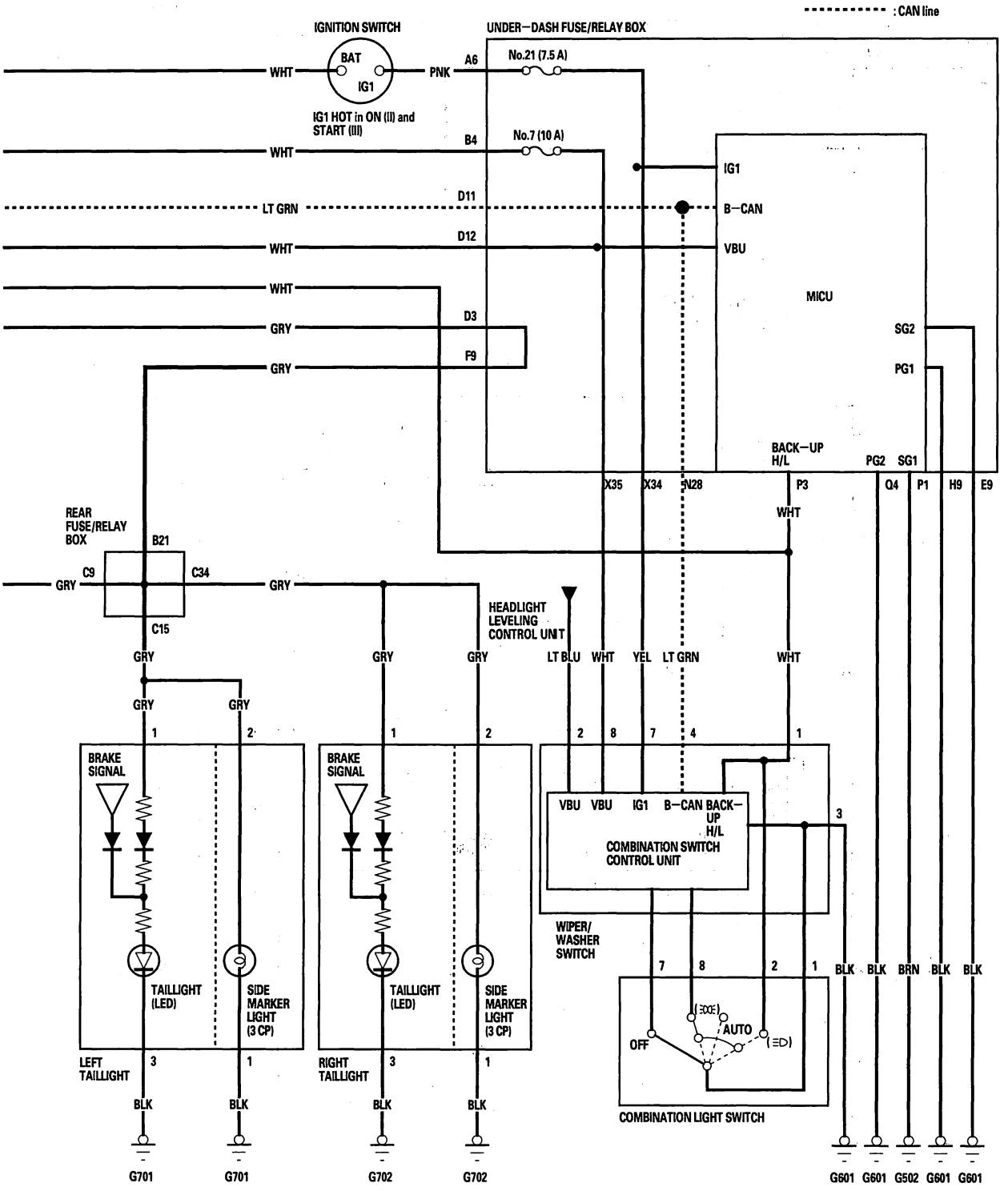

BACK

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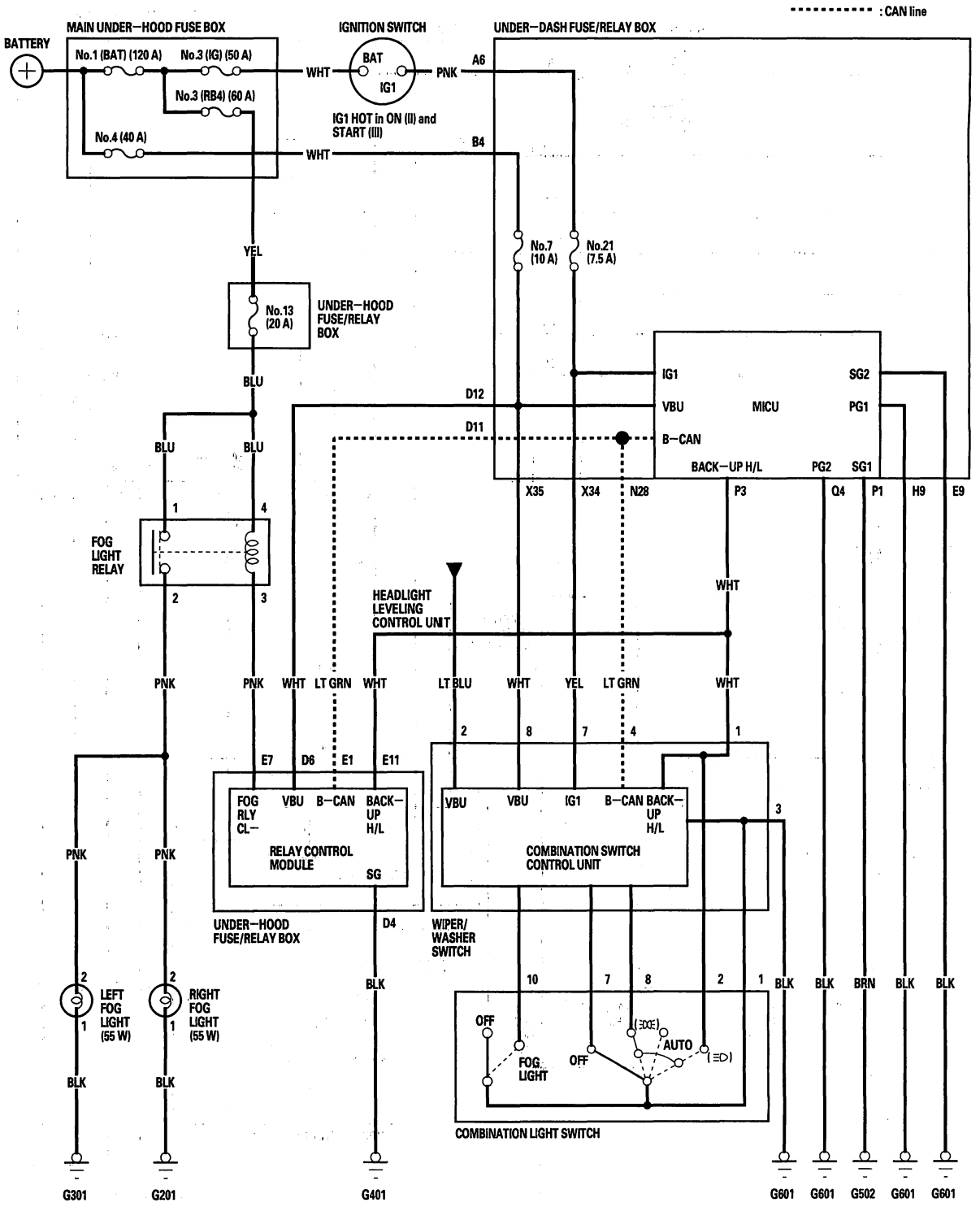
Exterior Lights

Circuit Diagram - Fog Lights



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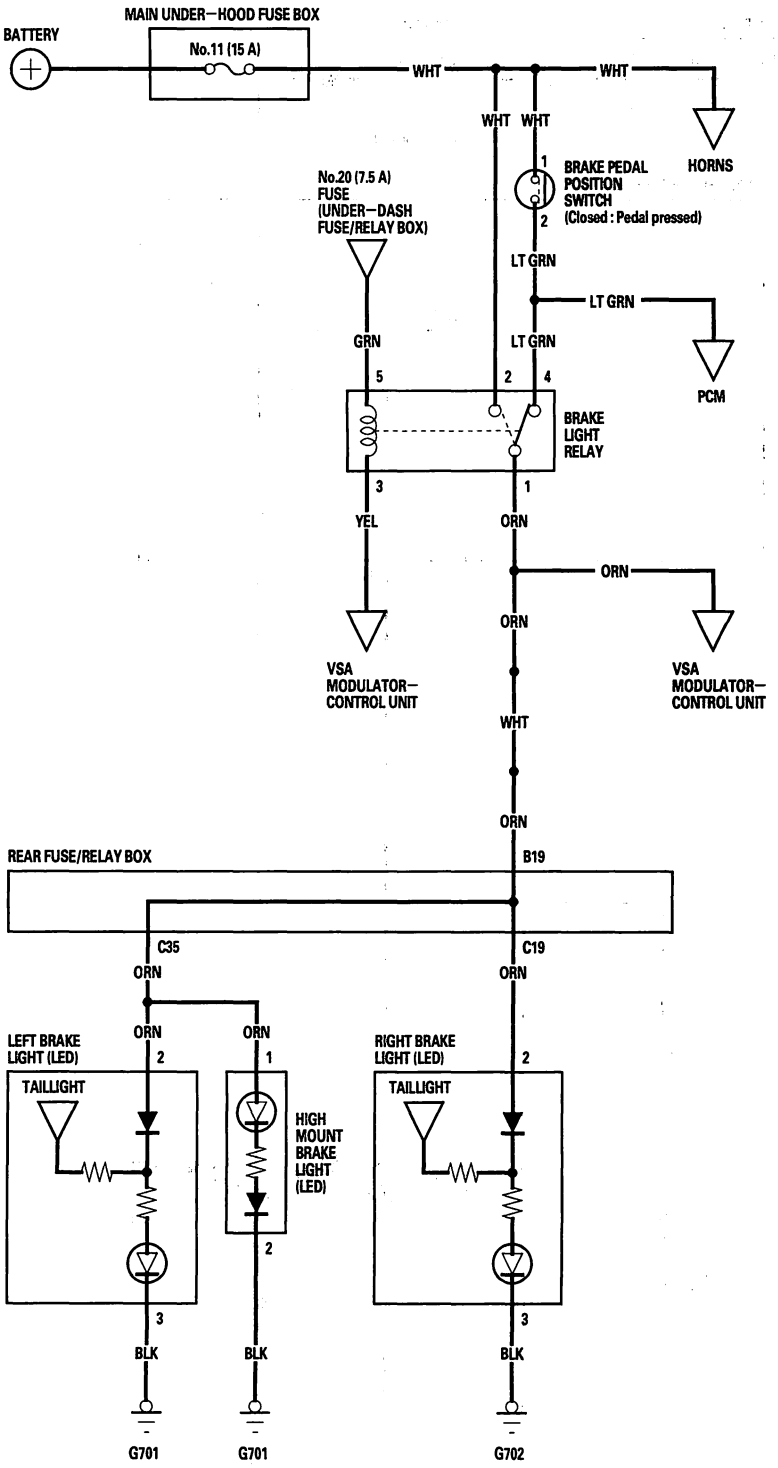
Circuit Diagram - Brake Lights



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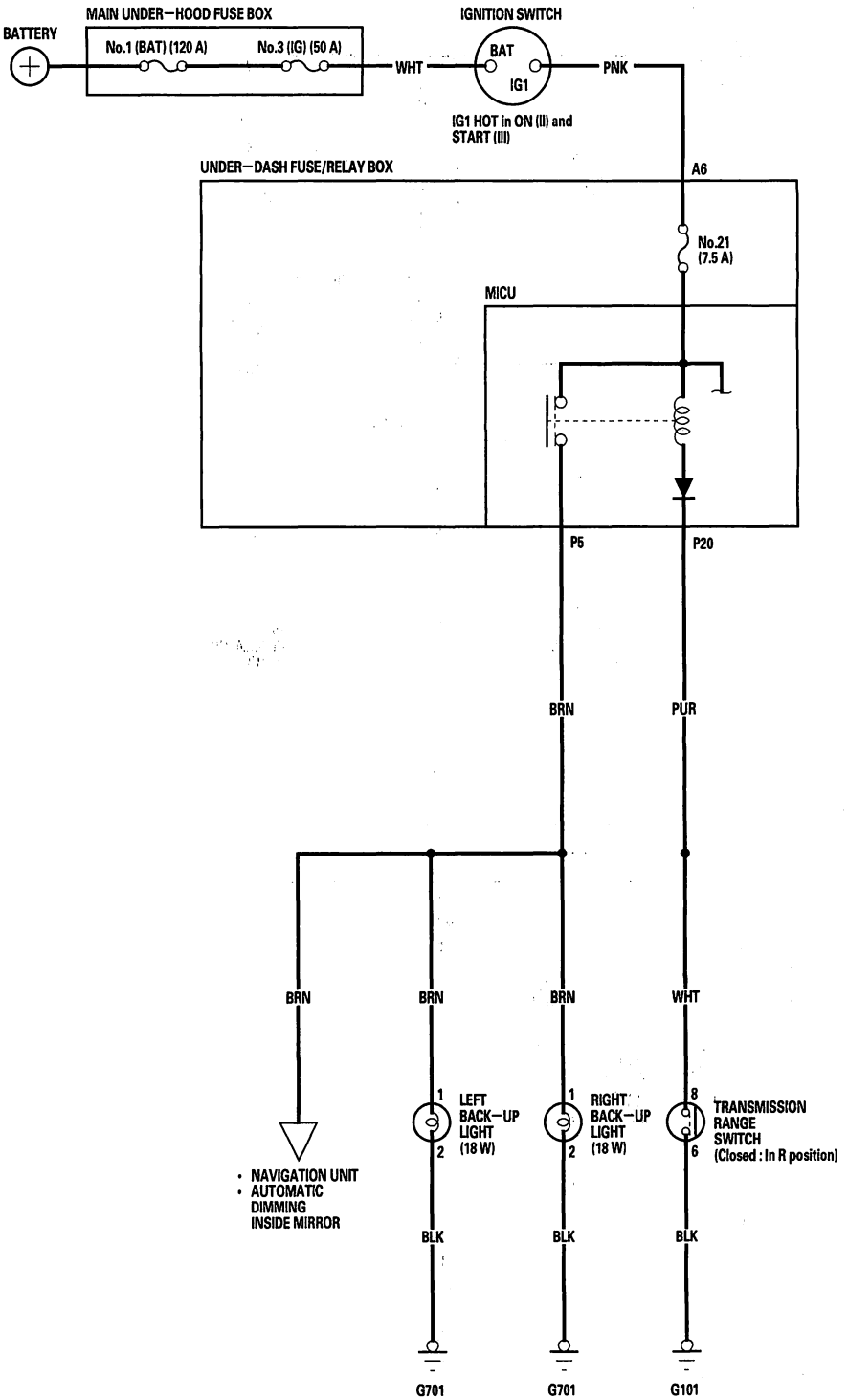
Circuit Diagram - Back-up Lights



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DTC Troubleshooting

DTC B1075: Headlight Switch Back-up Circuit Malfunction

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Turn the headlight switch ON for 5 seconds and OFF.
4. Check for DTCs with the HDS.

   Is DTC B1075 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
5. Select BODY ELECTRICAL system select menu, then enter the DATA LIST menu.
6. Check the ON/OFF information of the HEADLIGHT BACK-UP with the HDS.

   Is OFF indicated?

   YES—Go to step 7.

   NO—Check for a short in the WHT wire between the combination switch control unit and the relay control module (H/L BACK-UP line) or between the combination switch control unit and the MICU, if the harness is OK, replace the combination switch control unit (see page 22-300). ■
7. Turn the headlight switch ON.
8. Select BODY ELECTRICAL system select menu, then enter the DATA LIST menu.
9. Check the ON/OFF information of the HEADLIGHT BACK-UP with the HDS.

   Is ON indicated?

   YES—Go to the relay control module input test (see page 22-136) and check for a poor ground, if the GND line is OK, replace the under-hood fuse/relay box (see page 22-71). ■

   NO—Check for an open in the wire between the combination switch control unit and the relay control module (H/L BACK-UP line) or between the combination switch control unit and the MICU, if the wire is OK, replace the combination switch control unit (see page 22-302). ■

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DTC Troubleshooting (cont'd)

DTC B1078: Daytime Running Lights System Error (Canada)

DTC B1079: Daytime Running Lights System Error (USA)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Turn the headlight switch OFF, and apply the parking brake.
2. Turn the ignition switch ON (II).
3. Clear the DTCs with the HDS.
4. Release the parking brake.
5. Turn the ignition switch OFF, and then back ON (II).
6. Check for DTCs with the HDS.

   Is DTC B1078 or B1079 indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
7. Turn the ignition and headlight switches OFF.
8. Check the No. 1 (10 A) and No. 2 (10 A) fuses in the under-hood fuse/relay box.

   Are the fuses OK?

   YES—Go to step 9.

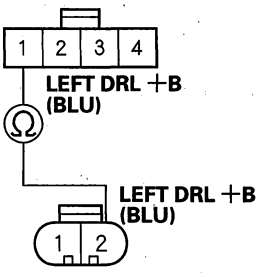
   NO—Replace the blown fuse and recheck. If the fuse blows again, repair short in the wire between the under-hood fuse/relay box and the appropriate daytime running lights.■
9. Check the daytime running light bulbs.

   Are the daytime running light bulbs OK?

   YES—Go to step 10.

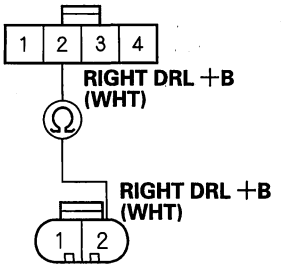
   NO—Replace the faulty bulb.■
10. Disconnect the under-hood fuse/relay box connector G (4P).
11. Disconnect the each daytime running light 2P connector.
12. Check for continuity between the each daytime running light 2P connector No. 2 terminal and the under-hood fuse/relay box connector G (4P) No. 1 and No. 2 terminals respectively.

UNDER-HOOD FUSE/RELAY BOX CONNECTOR G (4P)
Wire side of female terminals



LEFT DAYTIME RUNNING LIGHT 2P CONNECTOR
Wire side of female terminals

UNDER-HOOD FUSE/RELAY BOX CONNECTOR G (4P)
Wire side of female terminals



RIGHT DAYTIME RUNNING LIGHT 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire.■

BACK

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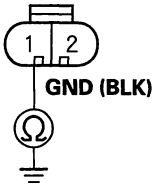
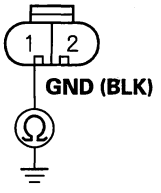
13. Check for continuity between the No. 1 terminal of each daytime running light 2P connector and body ground.

LEFT DAYTIME RUNNING LIGHT 2P CONNECTOR



Wire side of female terminals

RIGHT DAYTIME RUNNING LIGHT 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the relay control module. ■

NO—Repair open in the BLK wire or poor ground (G201-right side, G301-left side). ■

DTC B1252: Combination Switch Control Unit Internal (EEPROM) Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

Is DTC B1252 indicated?

YES—Replace the combination switch control unit (see page 22-302). ■

NO—Intermittent failure, the system is OK at this time. ■

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DTC Troubleshooting (cont'd)

DTC B1255: Combination Switch Control Unit Lost Communication with MICU (MICU Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1255 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the combination switch control unit and the MICU. ■
5. Check for DTCs with the HDS.

   Are DTC B1055, B1157, B1806, B1955, and B2155 also indicated?

   YES—Go to the MICU input test (see page 22-132). ■

   NO—Go to the combination switch control unit input test (see page 22-300). ■

DTC B1275: Combination Light Switch OFF Position Circuit Malfunction

DTC B1276: Combination Light Switch Parking (SMALL) Position Circuit Malfunction

DTC B1277: Headlight Switch AUTO Position Circuit Malfunction

DTC B1278: Headlight Switch ON Position Circuit Malfunction

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Operate each combination light switch position for more than 2 seconds, then turn the combination light switch OFF.
4. Check for DTCs with the HDS.

   Is DTC B1275, B1276, B1277 and/or B1278 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
5. Turn the ignition switch OFF.
6. Disconnect the combination light switch 20P connector from the combination light switch.
7. Do the combination light switch test (see page 22-200) and check for open or short in the combination light switch terminals in each switch position.

   Is the combination light switch OK?

   YES—Faulty combination switch control unit, replace the wiper/washer switch. ■

   NO—Replace the combination light switch. ■

BACK

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DTC B1279: Headlight Switch DIMMER Position Circuit Malfunction

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Turn the headlight switch ON.
4. Change the DIMMER switch from low beam to high beam and wait for 2 seconds.
5. Pull and hold the combination light switch lever, and hold the passing switch position for more than 2 seconds.
6. Check for DTCs with the HDS.

   Is DTC B1279 indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the headlight switch DIMMER circuit is OK at this time. Check for loose or poor connections. ■
7. Turn the ignition switch OFF.
8. Disconnect the combination light switch 20P connector from the combination light switch.
9. Do the combination light switch test (see page 22-200) and check for open or short in the combination light switch terminals in each switch position.

   Is the combination light switch OK?

   YES—Faulty combination switch control unit, replace the wiper/washer switch. ■

   NO—Replace the combination light switch. ■

DTC B1280: Turn Signal Switch Circuit Malfunction

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Turn the turn signal switch to left position and wait for 2 seconds, then turn to right position and wait for 2 seconds.
4. Check for DTCs with the HDS.

   Is DTC B1280 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the turn signal switch circuit is OK at this time. Check for loose or poor connections. ■
5. Turn the ignition switch OFF.
6. Disconnect the combination light switch 20P connector from the combination light switch.
7. Do the combination light switch test (see page 22-200) and check for open or short in the turn signal switch terminals in each switch position.

   Is the turn signal switch OK?

   YES—Faulty combination switch control unit, replace the wiper/washer switch. ■

   NO—Replace the combination light switch. ■

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DTC Troubleshooting (cont'd)

DTC B1575: Automatic Lighting Sensor Circuit Malfunction

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

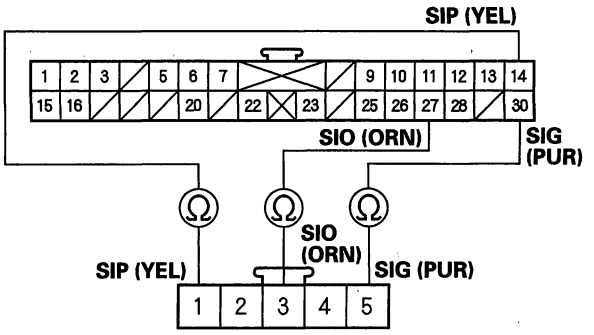
1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Check for DTCs with the HDS.

   Is DTC B1575 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the automatic lighting sensor and the MICU.■
4. Turn the ignition switch OFF.
5. Disconnect the under-dash fuse/relay box connector P (30P).
6. Disconnect the automatic lighting sensor 5P connector.
7. Disconnect the gauge control module connector A (12P).
8. Check for continuity between the under-dash fuse/relay box connector P (30P) No. 14, No. 27, and No. 30 terminals and the automatic lighting sensor 5P connector No. 1, No. 3 and No. 5 terminals respectively.

UNDER-DASH FUSE/RELAY BOX CONNECTOR P (30P)
Wire side of female terminals



AUTOMATIC LIGHTING SENSOR 5P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire.■

BACK

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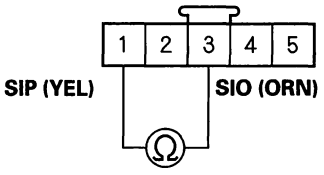
9. Check for continuity between the automatic lighting sensor 5P connector No. 1 and No. 3 terminals.

AUTOMATIC LIGHTING SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the No. 1 and No. 3 terminals. ■

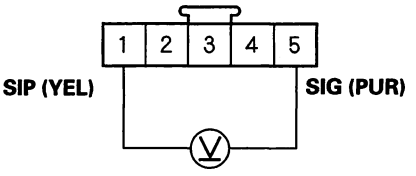
NO—Go to step 10.

10. Reconnect the under-dash fuse/relay box connector P (30P).

11. Turn the ignition switch ON (II).

12. Measure the voltage between the automatic lighting sensor 5P connector No. 1 and No. 5 terminals.

AUTOMATIC LIGHTING SENSOR 5P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Replace the automatic lighting sensor. ■

NO—Replace the under-dash fuse/relay box (see page 22-72). ■

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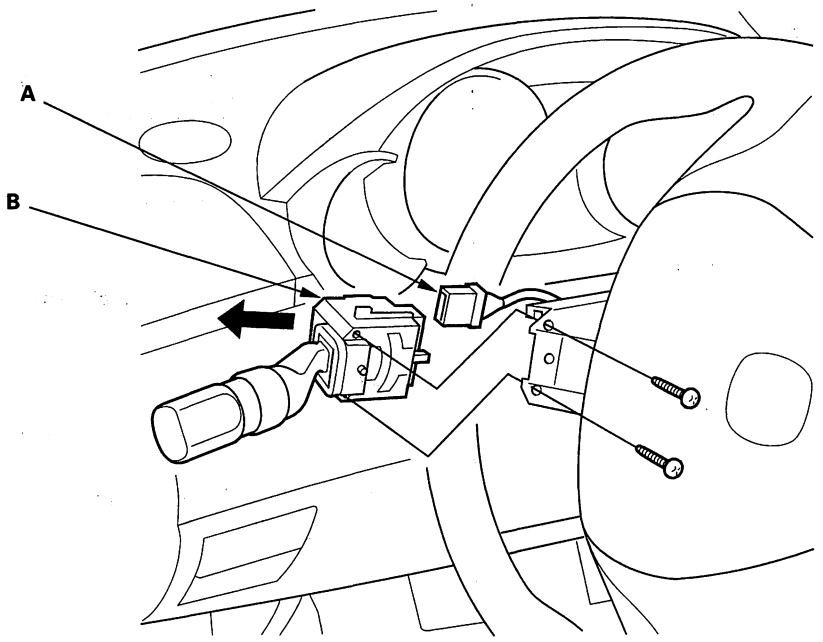
Combination Light Switch Test/Replacement

1. Remove the driver's dashboard lower cover (see page 20-119).
2. Remove the steering column covers (see page 20-129).
3. Disconnect the combination light switch 20P connector (A) from the combination light switch (B).



4. Remove the two screws, then slide out the combination light switch.

BACK

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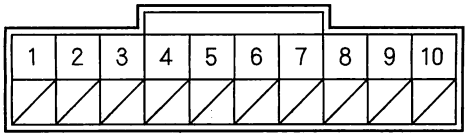
5. Inspect the connector terminals to be sure they are all making good contact.

- If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
- If the terminals look OK, check for continuity between the terminals in each switch position according to the tables.



Terminal side of male terminals

Light switch:

Position \ Terminal			4	9	6	5	3	10
Headlight switch	OFF		○					○
							○	○
		LOW		○			○	○
		HIGH		○			○	○
						○		○
Passing switch	OFF							
	ON				○			○

Turn signal switch:

Position \ Terminal	8	7	10
LEFT	○		○
Neutral			
RIGHT		○	○

Fog light switch:

Position \ Terminal	1	10
OFF		
ON	○	○

6. If the continuity check is not as specified, replace the switch.

BACK

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HID Lamp System Troubleshooting

⚠ WARNING

A transient high tension (25,000 V) occurs at the bulb sockets or the high intensity discharge (HID) lamps when the combination light switch is turned ON, it may cause serious electrical shock or electrocution if you do not observe the cautions below.

⚠ CAUTION

- Never turn on the combination light switch before fitting the HID bulbs to their bulb sockets and completing the reassembly of the headlight assembly.
- Do not service the headlights assembly in wet conditions, such as rain or snow, near a sprinkler system, or when your hands are wet to prevent electrocution.
- Do not touch the surface of the HID bulbs with your bare hands and do not stain it with any oils and fats.
- Do not disassemble the inverter unit and the igniter unit.
- Do not turn on the HID bulb by using a power source other than the battery mounted on your vehicle.

NOTE:
- Before troubleshooting, check the No. 19 (15 A), and No. 18 (15 A) fuses in the under-hood fuse/relay box.
- Cool down the HID bulb before checking.
- After checking, the HID system requires about 5 minutes to be normal condition.
- Before troubleshooting, make sure you have the anti-theft code for the radio and navigation system (if equipped).
- After connecting the battery cables, enter the anti-theft code for the radio and navigation system (if equipped), then set the clock.

1. Turn the ignition switch ON (II).

2. Select the BODY ELECTRICAL menu, then enter the HEADLIGHT COMMAND from the FUNCTIONAL TESTS, and turn the headlights on repeatedly.

   Do the headlights come on?

   YES—Go to the combination light switch test and the combination switch input test. ■

   NO—Go to step 3.

3. Turn the headlight switch and the ignition switch OFF.

4. Disconnect the negative battery cable, then disconnect the positive cable.

5. Remove the bulb socket from the HID bulb (see page 22-207).

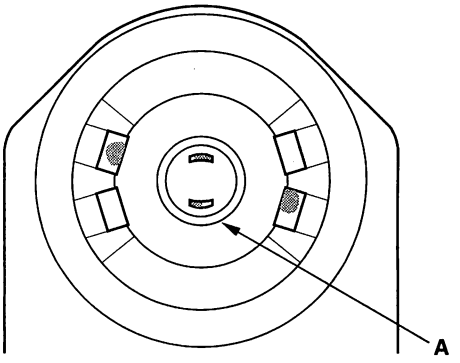
6. Check for loose or poor connections between the bulb socket and the HID bulb.

   Is the connection OK?

   YES—Go to step 7.

   NO—Install the bulb and the bulb socket correctly and recheck. ■

7. Check the condition of the HID bulb socket mating surface (A).



   Are the terminals corroded or burnt?

   YES—Replace the bulb socket, and recheck. ■

   NO—Go to step 8.

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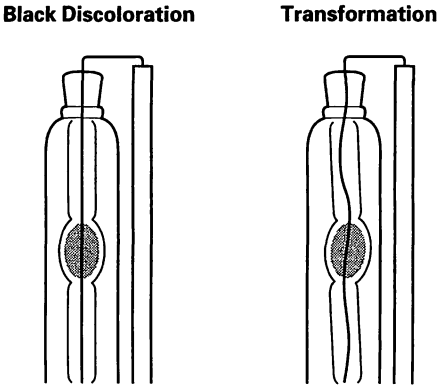
8. Remove the bulb, and check the luminescence part of the HID bulb.



Is there black discoloration or transformation?

YES—Replace the HID bulb(s), and recheck. ■

NO—Go to step 9.

9. Substitute the right and left HID bulbs.

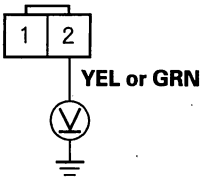
Does the symptom change to the other side?

YES—Replace the HID bulb and recheck. ■

NO—Go to step 10.

10. Turn the combination light switch OFF.
11. Disconnect the HID unit 2P connector.
12. Turn the combination light (headlight) switch ON.
13. Measure the voltage between the No. 2 terminal of the HID unit 2P connector and body ground.

HID UNIT 2P CONNECTOR



Wire side of female terminals

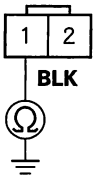
Is there battery voltage?

YES—Go to step 14.

NO—Repair open in the wire between the HID unit and under-hood fuse/relay box. If the wire is OK, replace the under-hood fuse/relay box (see page 22-71).

14. Check for continuity between the No. 1 terminal of the HID unit 2P connector and body ground.

HID UNIT 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Faulty HID unit. ■

NO—Repair open in the wire between the HID unit and body ground. If the wire is OK, check for poor ground (G201/G301). ■

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Headlight Adjustment

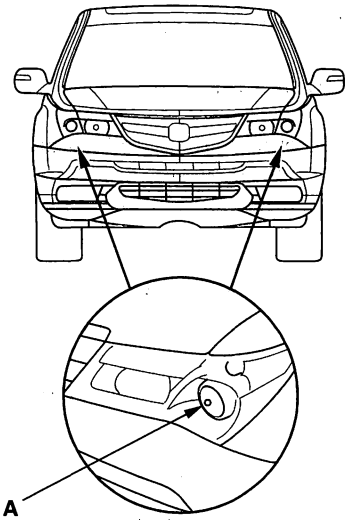
⚠CAUTION

Headlights become very hot during use; do not touch them or any attaching hardware immediately after they have been turned off.

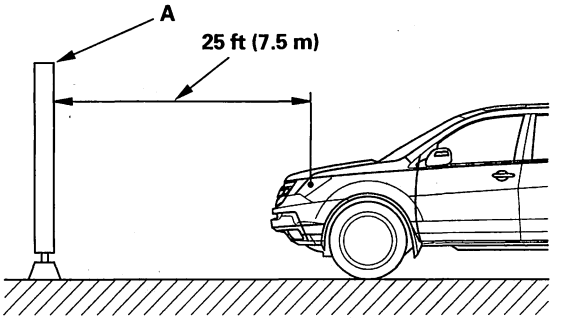
Before adjusting the headlights:

- Park the vehicle on a level surface.
- Make sure the tire pressures are correct.
- The driver or someone who weighs the same should sit in the driver's seat.

1. Clean the outer lens so that you can see the center (A) of the headlights.



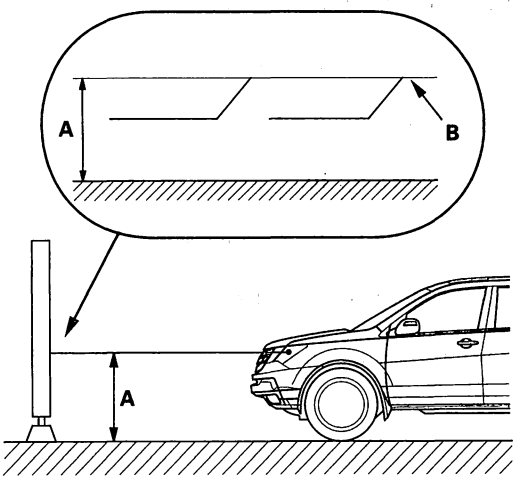
2. Park the vehicle in front of a wall or a screen (A).



3. Turn the low beams on.

4. Determine if the headlights are aimed properly.

   Vertical adjustment:
   Measure the height of the headlights (A).
   Adjust the cut line (B) to the lights height.



BACK

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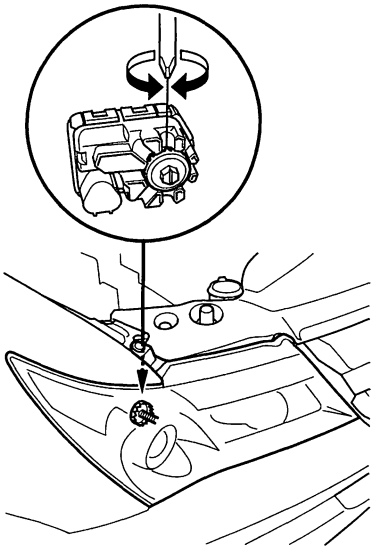
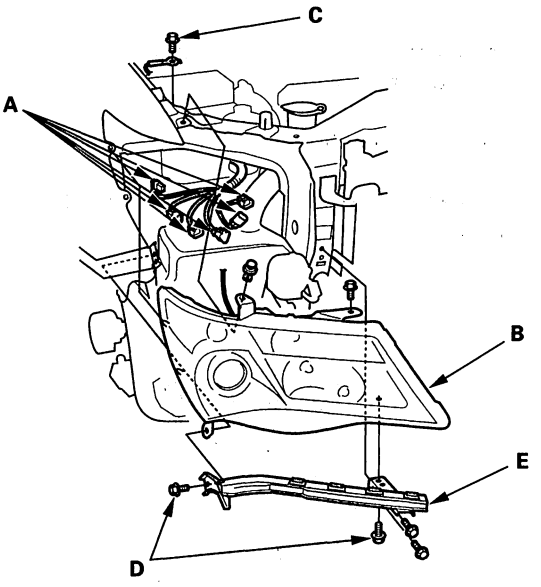
5. If necessary, open the hood and adjust the headlights to local requirements by turning the vertical adjuster.



Headlight Replacement

1. Remove the front bumper (see page 20-188).
2. Remove the connectors (A) from the headlight assembly (B).



3. Remove the security strap bolt (C).
4. Remove the clips and bolts, then remove the headlight.
5. Remove the bolt (D) and the corner upper beam (E) from the headlight.
6. Install the headlight in the reverse order of removal.
7. After the replacement, then do the headlights learning procedure (see page 22-231) and aim the headlights per local requirements.

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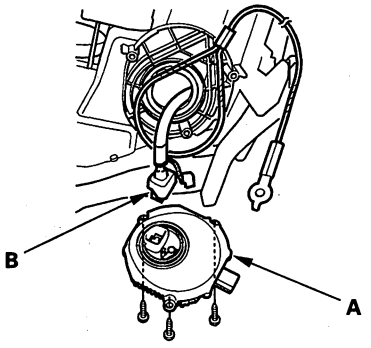
HID Unit Replacement

1. Make sure you have the anti-theft code for the radio and the navigation system (if equipped). Make sure the ignition switch is OFF.
2. Turn the combination light switch OFF.
3. Disconnect the negative battery cable, then disconnect the positive cable.
4. Remove the headlight assembly (see page 22-205).
5. Remove the three mounting screws and the HID unit (A).



6. Disconnect the 4P connector (B) from the HID unit.
7. Inspect the gasket for damage. If damaged, replace it.
8. Install in the reverse order of removal.
9. Enter the anti-theft codes for the radio and the navigation system, then set the clock.

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HID Bulb Replacement

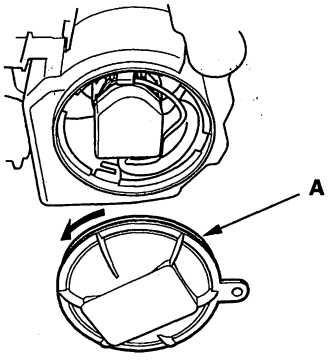
⚠WARNING

A transient high tension (25,000 V) occurs at the bulb sockets of the high intensity discharge (HID) lamps when the combination light switch is turned ON, it may cause serious electrical shock or electrocution if you do not observe the cautions below.

⚠CAUTION

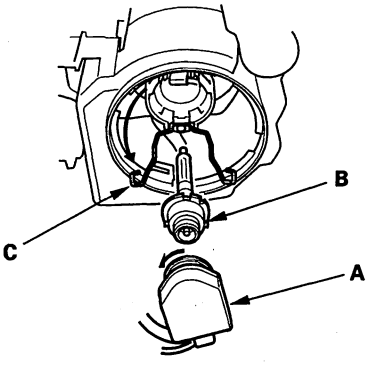
- Never turn on the combination light switch before fitting the HID bulbs to their bulb sockets and completing the reassembly of the headlight assembly.
- Do not service the headlights assembly in wet conditions, such as rain or snow, near a sprinkler system, or when your hands are wet to prevent electrocution.
- Do not touch the surface of the HID bulbs with your bare hands and do not stain it with any oils and fats.
- Do not disassemble the inverter unit and the igniter unit.
- Do not turn on the HID bulb by using a power source other than the battery mounted on your vehicle.

1. Make sure you have the anti-theft codes for the radio and the navigation system (if equipped). Make sure the ignition switch is OFF.
2. Turn the combination light switch OFF.
3. Disconnect the negative battery cable, then disconnect the positive cable.
4. Remove the headlight assembly (see page 22-205).
5. Turn the cover (A) 45 ° counterclockwise to remove it from the headlight assembly.



6. Turn the socket (A) 45 ° counterclockwise to remove it from the bulb (B).

Headlight: 35 W



7. Pull the retaining spring (C) away from the bulb then remove the bulb.
8. Install the new bulb in the reverse order of removal. Make sure the notches in the bulb align with the tabs in the headlight.
9. After reconnecting the battery, enter the anti-theft codes for the radio and the navigation system, then set the clock.

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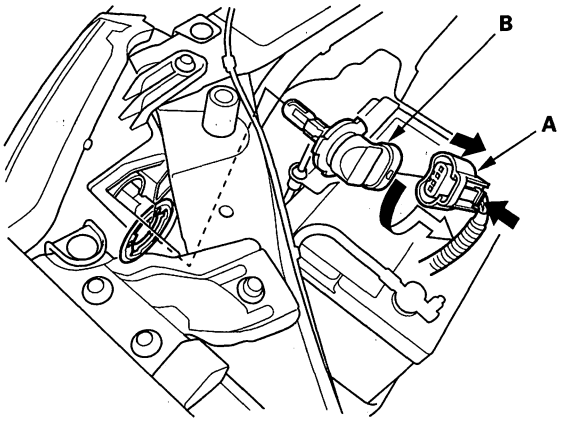
Bulb Replacement

Headlight Bulb (High Beam)

1. Remove the left or right upper fender trim (see page 20-218).
2. For the left headlight, remove the battery cover, remove the battery hold-down by removing the two nuts, then slide the battery to access the bulb.
3. Disconnect the 2P connector (A) from the headlight bulb socket (B).

   Headlight Bulb: 60 W



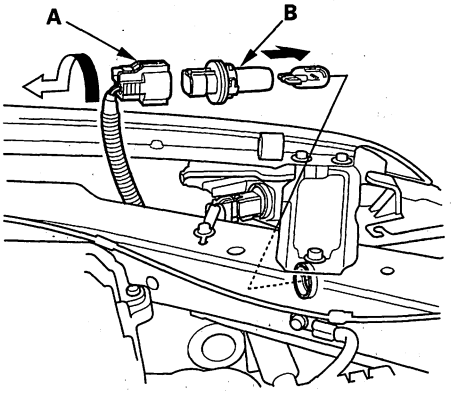
4. Turn the bulb socket 45 ° counterclockwise to remove it from the headlight housing.
5. Install a new bulb in the reverse order of removal. Make sure the notches in the bulb align with the tabs in the headlight.

   NOTE: Do not touch the glass of the bulb with your hands. If necessary, clean the glass area with alcohol.

Front Parking Light Bulb

1. Remove the left or right upper fender trim (see page 20-218).
2. For right parking light, remove the clip from windshield washer reservoir.
3. Disconnect the 2P connector (A) from the front parking light bulb socket (B).

   Front Parking Light Bulb: 3 CP



4. Turn the bulb socket 45 ° counterclockwise to remove it from the headlight housing.
5. Install a new bulb in the reverse order of removal.

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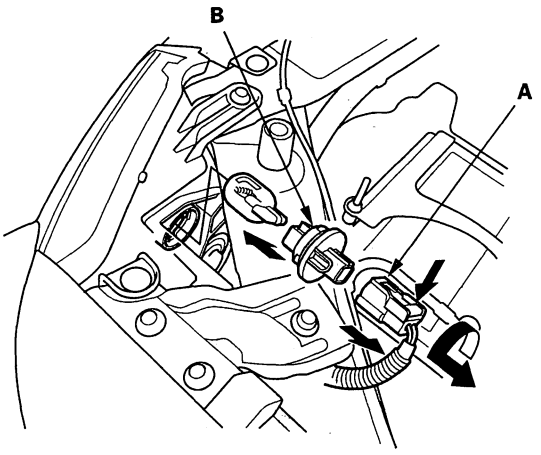
Front Turn Signal Light Bulb

1. Remove the left or right upper fender trim (see page 20-218).
2. For the left light, remove the battery cover, remove the battery hold-down by removing the two nuts, then slide the battery to access the bulb.
3. Disconnect the 3P connector (A) from the bulb socket (B).

Front Turn Signal Light Bulb: 21 W

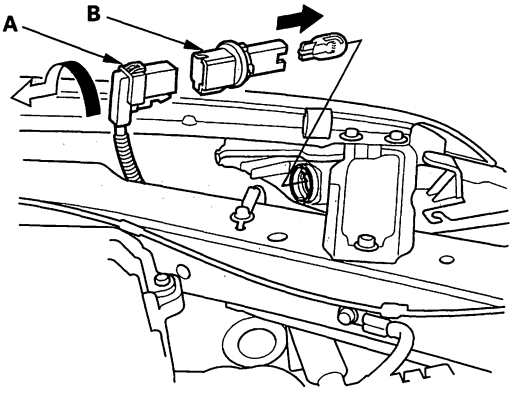


4. Turn the bulb socket 45 °counterclockwise to remove it from the headlight housing.
5. Install a new bulb in the reverse order of removal.

Front Side Marker Light

1. Disconnect the 2P connector (A) from the front turn signal/front parking light.

Front Side Marker Light: 3 CP



2. Turn the bulb socket (B) 45 °counterclockwise to remove it from the headlight housing.
3. Install a new bulb in the reverse order of removal.

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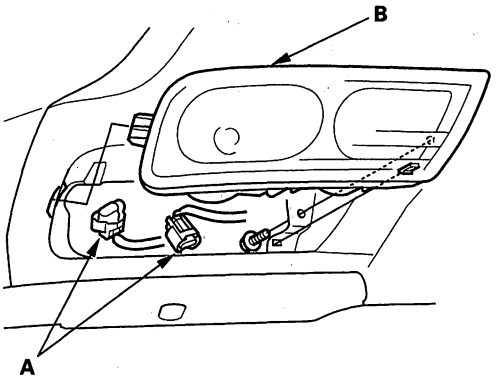
Fog Light/Daytime Running Light Replacement

1. Remove the front bumper (see page 20-188).
2. Disconnect the 2P connectors from the fog light and the daytime running light.



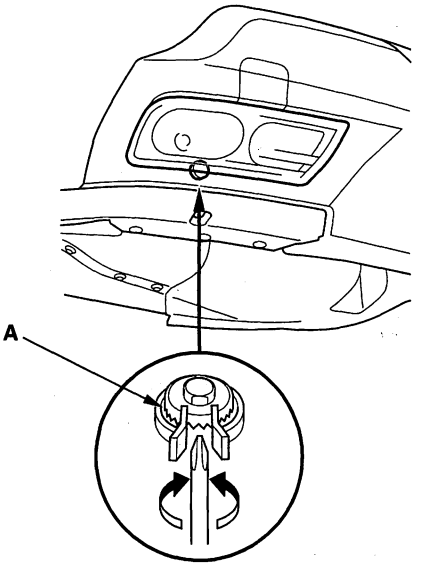
3. Remove the screw, then remove the light.
4. Install the light in the reverse order of removal.
5. After replacement, adjust the fog lights/daytime running lights (see page 22-210).

Fog Light/Daytime Running Light Adjustment

Before adjusting the fog light/daytime running light:

- Park the vehicle on a level surface.
- Make sure the tire pressures are correct.
- Have the driver or someone who weighs the same sit in the driver's seat.

Adjust the fog lights/daytime running lights to local requirements by turning the adjuster (A).



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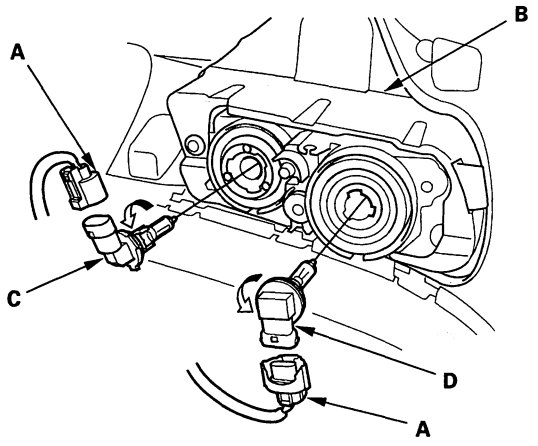
Fog Light/Daytime Running Light Bulb Replacement

1. Remove the inner fender (see page 20-217).

2. Disconnect the 2P connectors (A) from the fog lights/daytime running lights (B).

   Fog Light: **55 W**
   Daytime Running Light: **60 W**



3. Turn the fog light bulb socket (C) and the daytime running light bulb socket (D) 45 ° counterclockwise to remove them from the housing.

4. Install new bulb(s) in the reverse order of removal.

   NOTE: Do not touch the glass of the bulb with your hands. If necessary, clean the glass area with alcohol.

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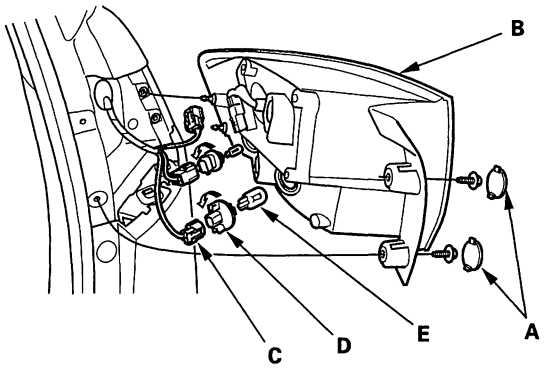
Taillight Replacement

Taillight

1. Remove the covers (A) and two bolts from the taillight (B).

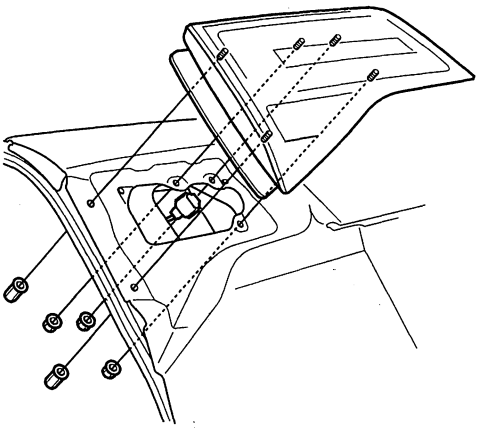
   Rear Turn Signal Light: 21 W
   Rear Side Marker Light: 3 CP



2. Carefully pull out the taillight.
3. Disconnect the connectors (C) from the taillight.
4. Turn the bulb sockets (D) 45 ° counterclockwise to remove the bulbs (E).
5. Install the light in the reverse order of removal.

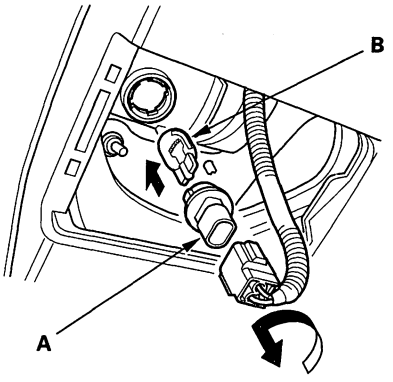
Inner Taillight

1. Remove the tailgate lid panel (see page 20-96).
2. Disconnect the 2P connector (A) from the inner taillight (B).



3. Remove the five nuts, then remove the inner taillight.
4. Turn the bulb socket (A) 45 ° counterclockwise to remove the bulb (B).

   Back-up Light: 21 W



5. Install the light in the reverse order of removal.

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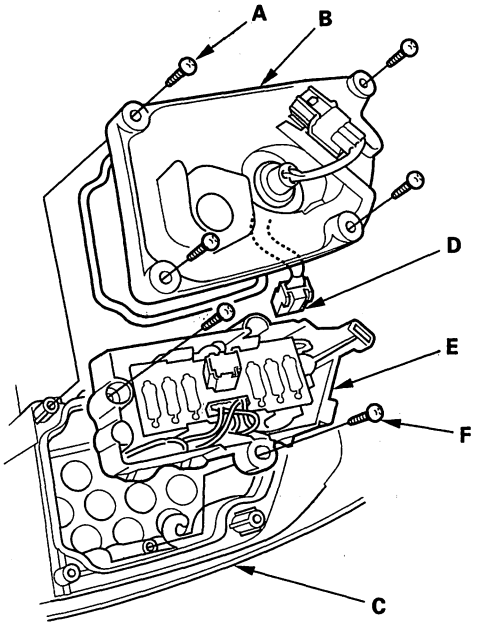
Taillight/Brake Light LED Replacement

1. Remove the taillight (see page 22-212).
2. Remove the four screws (A) and the back cover (B) from the taillight (C).

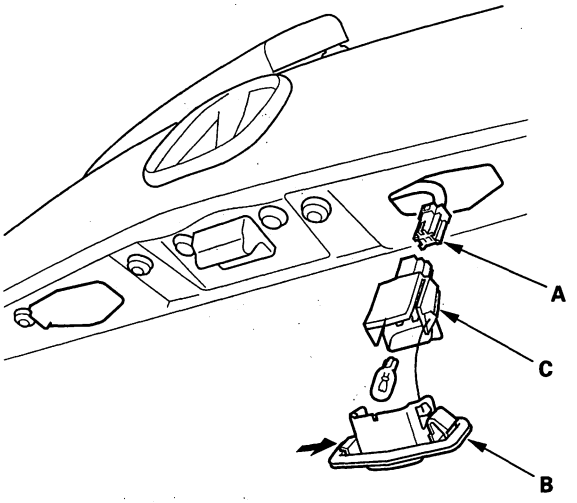


3. Carefully disconnect the connector (D) from the taillight/brake light LED (E).
4. Remove the two screws (F) and the taillight/brake light LED from the taillight housing.
5. Inspect the gasket, if the gasket is distorted or compressed, replace it.
6. Install a new LED in the reverse order of removal.

License Plate Light Replacement

1. Pull the license plate light assembly out, and disconnect the 2P connector (A) from the light.

License Plate Light: 3 CP



2. Separate the lens (B) and housing (C), then remove the bulb.
3. Install the light in the reverse order of removal.

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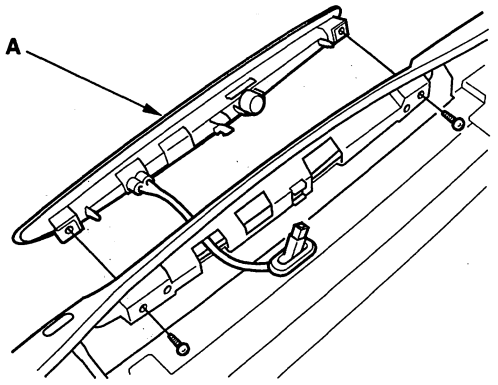
High Mount Brake Light Replacement

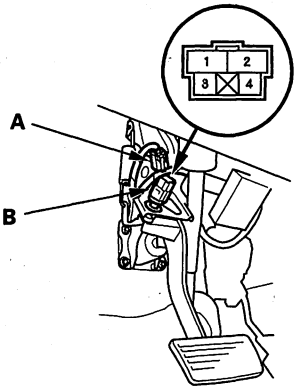
1. Remove the tailgate spoiler (see page 20-213).
2. Remove the two screws from the high mount brake light (A).



3. Disconnect the 2P connector (B) from the high mount brake light.
4. Install the light in the reverse order of removal.

Brake Pedal Position Switch Test

1. Disconnect the 4P connector (A) from the brake pedal position switch (B).



2. Check for continuity between the No. 1 and No. 2 terminals.
   - There should be continuity when the brake pedal is pressed.
   - There should be no continuity when the brake pedal is released.
3. Check for continuity between the No. 3 and No. 4 terminals.
   - There should be no continuity when the brake pedal is pressed.
   - There should be continuity when the brake pedal is released.
4. If necessary, adjust or replace the switch, or adjust the pedal height (see page 19-6).

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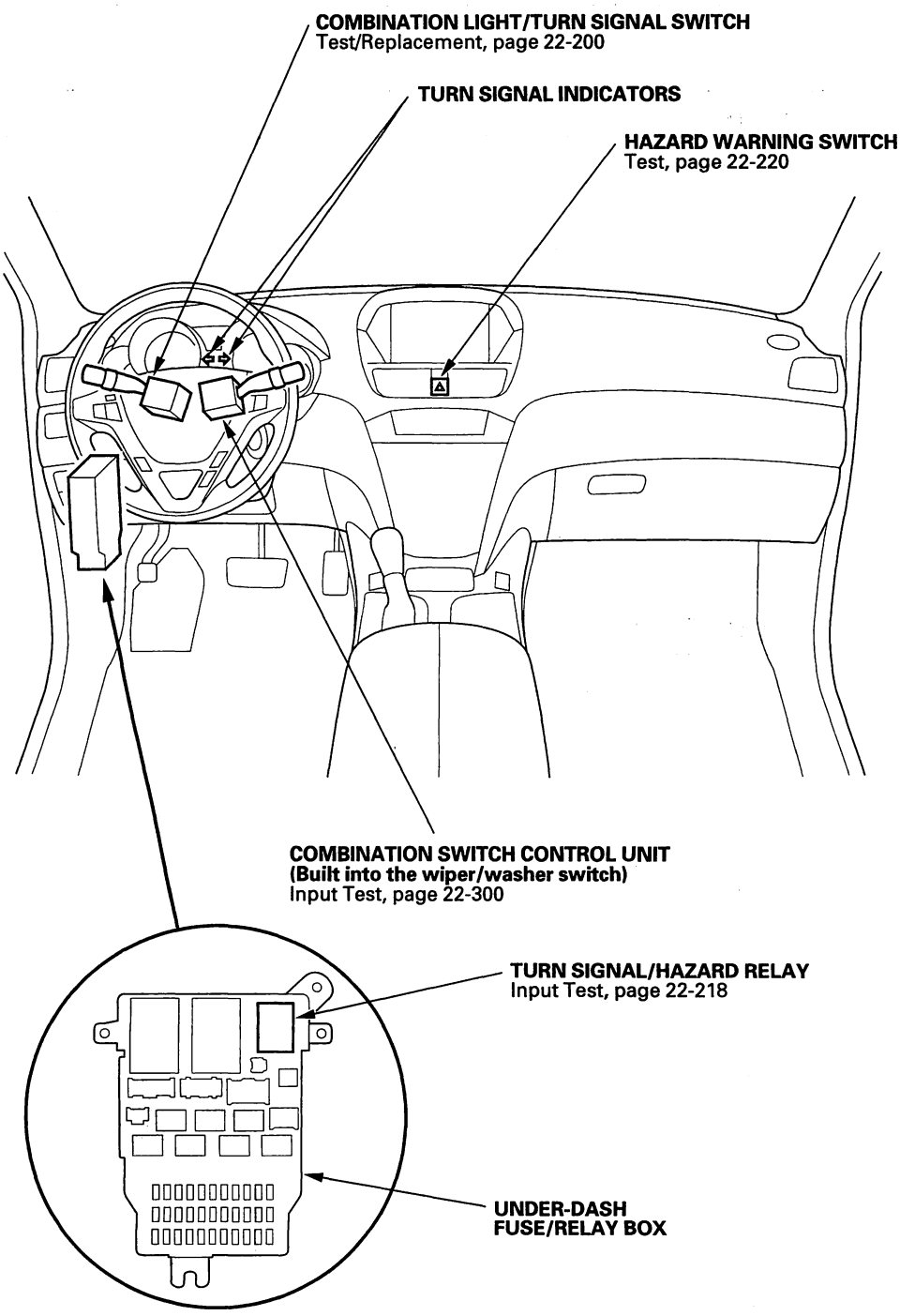
Turn Signal/Hazard Flasher

Component Location Index



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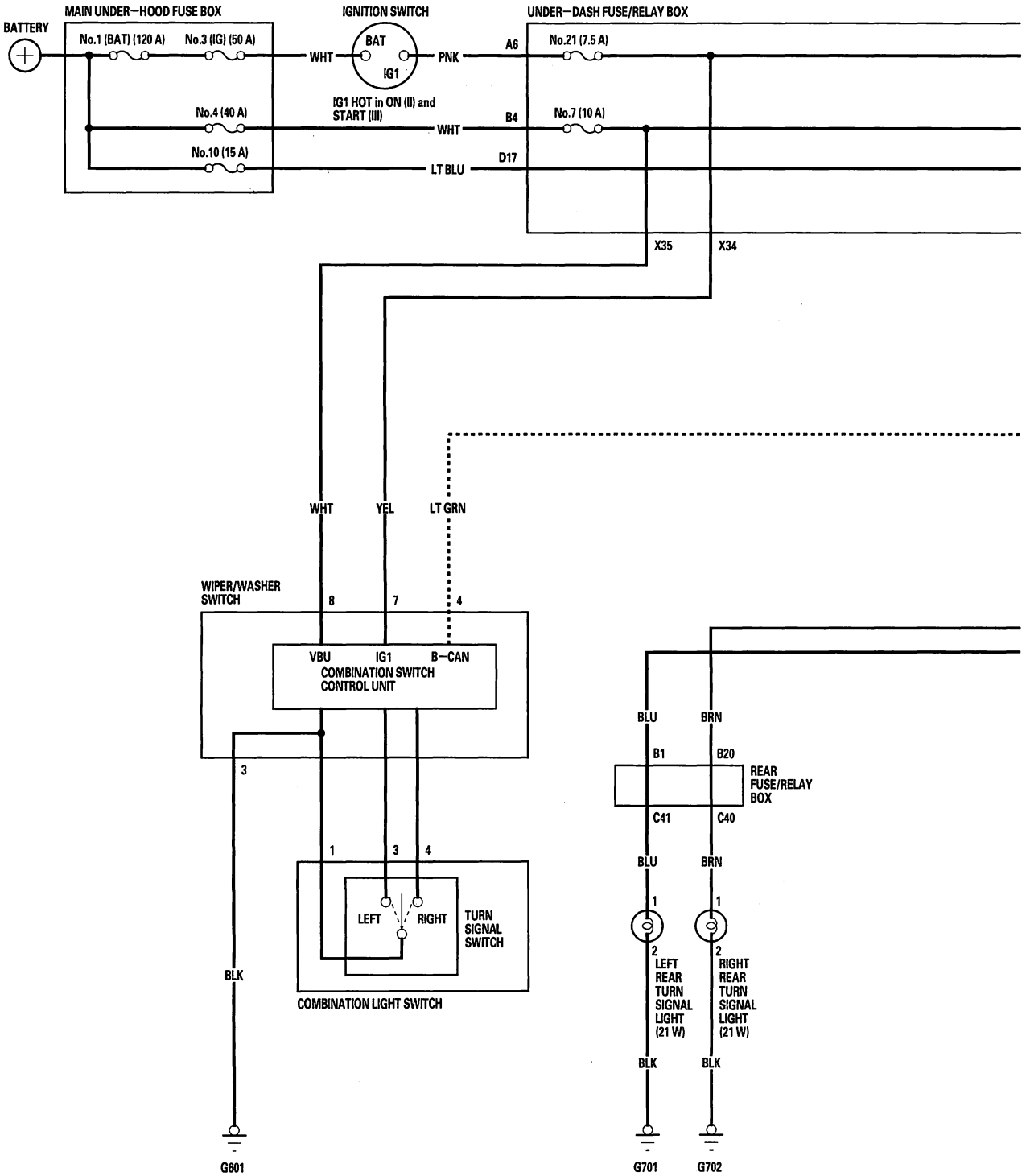
Turn Signal/Hazard Flasher

Circuit Diagram



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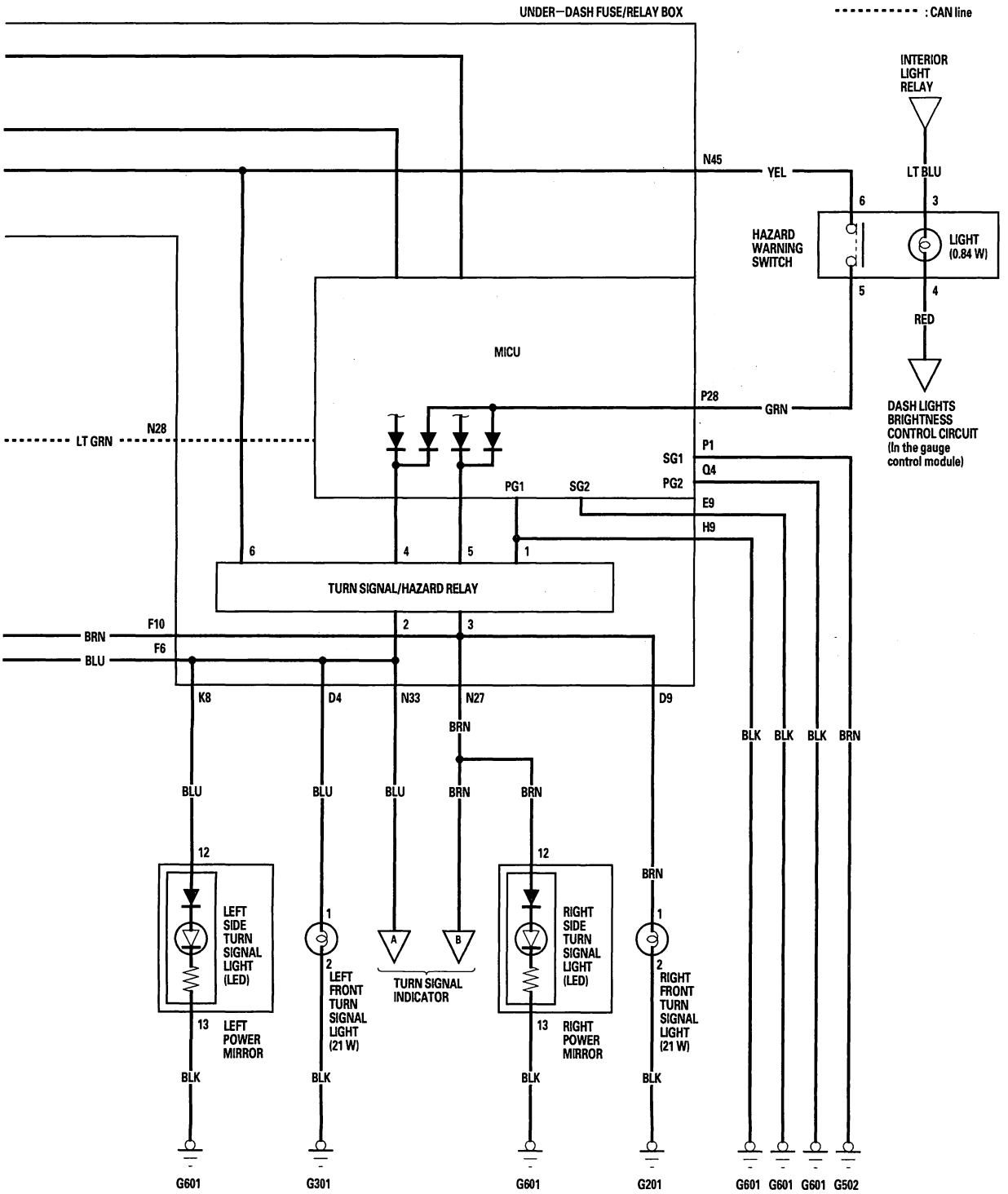

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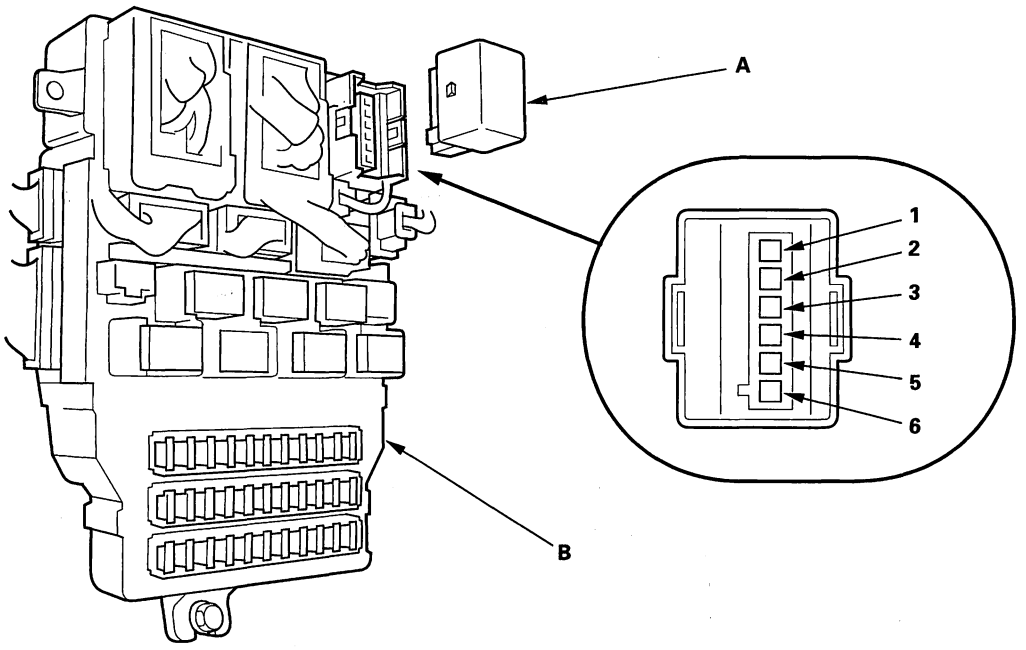
Turn Signal/Hazard Flasher

Turn Signal/Hazard Relay Input Test

1. Remove the turn signal/hazard relay 1 (A) from the driver's under-dash fuse/relay box (B).



2. Inspect the relay and fuse/relay box socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.

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3. Make these input tests at the fuse/relay box.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the turn signal/hazard relay must be faulty; replace it.

Cavity	Teat condition	Test: Desired result	Possible cause if result is not obtained
6	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 10 (15 A) fuse in the main under-hood fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
1	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G601) • Faulty under-dash fuse/relay box • An open in the wire
2	Connect the No. 6 terminal to the No. 2 terminal with a jumper wire.	Check the turn signal lights operation. The left turn signal lights and indicator should come on.	• Blown bulb • Poor ground (G301, G601, G701) • Faulty LED • An open in the wire
3	Connect the No. 6 terminal to the No. 3 terminal with a jumper wire.	Check the turn signal lights operation. The right turn signal lights and indicator should come on.	• Blown bulb • Poor ground (G201, G601, G701) • Faulty LED • An open in the wire
4	Ignition switch ON (II) and turn signal switch in Left position.	Measure the voltage to ground. There should be about 10 V or more.	• Poor ground (G601) • Faulty turn signal switch • Faulty under-dash fuse/relay box • An open in the wire • Faulty combination switch control unit* • Faulty MICU*
5	Ignition switch ON (II) and turn signal switch in Right position.	Measure the voltage to ground. There should be about 10 V or more.	
4	Hazard warning switch ON	Measure the voltage to ground. There should be about 10 V or more.	• Poor ground (G601) • Blown No. 10 (15 A) fuse in the main under-hood fuse/relay box • Faulty under-dash fuse/relay box • Faulty hazard warning switch • An open in the wire • Faulty MICU*
5		Measure the voltage to ground. There should be about 10 V or more.	

* : Go to the B-CAN System Diagnosis Test Mode A (see page 22-112).

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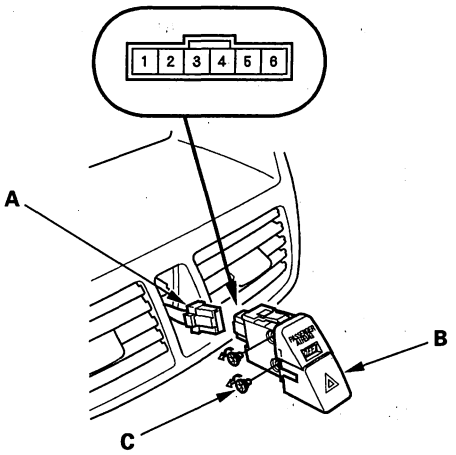
Turn Signal/Hazard Flasher

Hazard Warning Switch Test

1. Remove the center panel (see page 20-121).
2. Disconnect the 6P connector (A) from the hazard warning switch (B).



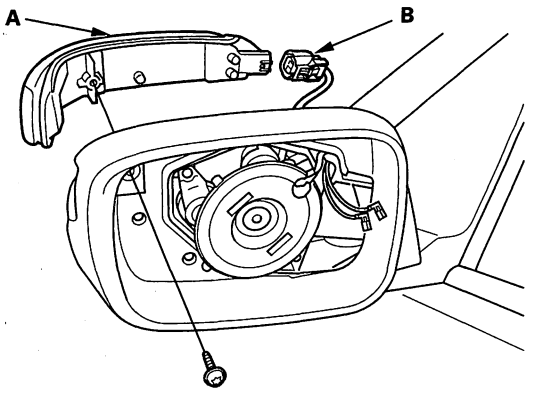
3. Remove the hazard warning switch from behind the center panel.
4. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position	5	6	3		4
OFF			○	○	○
ON	○	○	○	○	○

5. If the continuity is not as specified, replace the bulb (C) or the hazard warning switch.

Side Turn Signal Light Replacement

1. Remove the mirror holder (see page 20-43).
2. Remove the screw, then pull out the side turn signal light (A).



3. Disconnect the 2P connector (B) from the light.
4. Install in the reverse order of removal.

BACK

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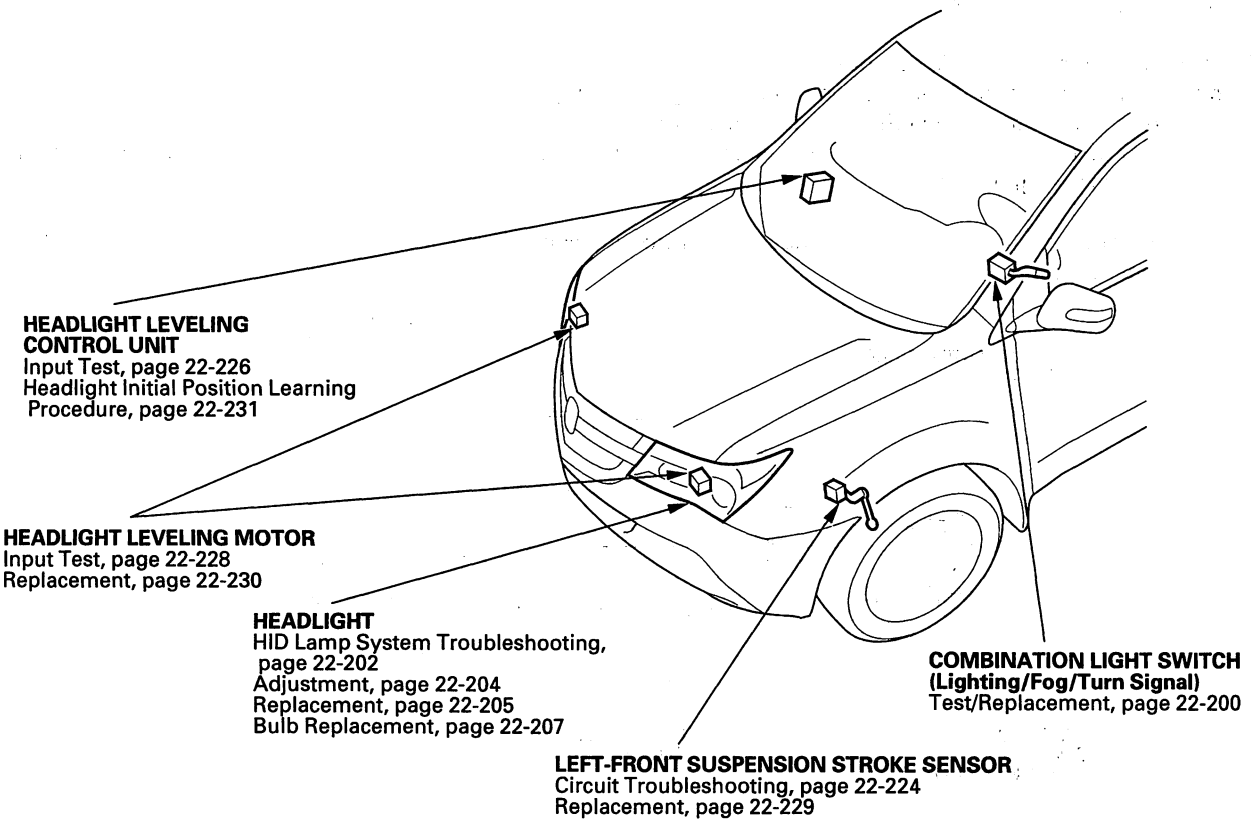
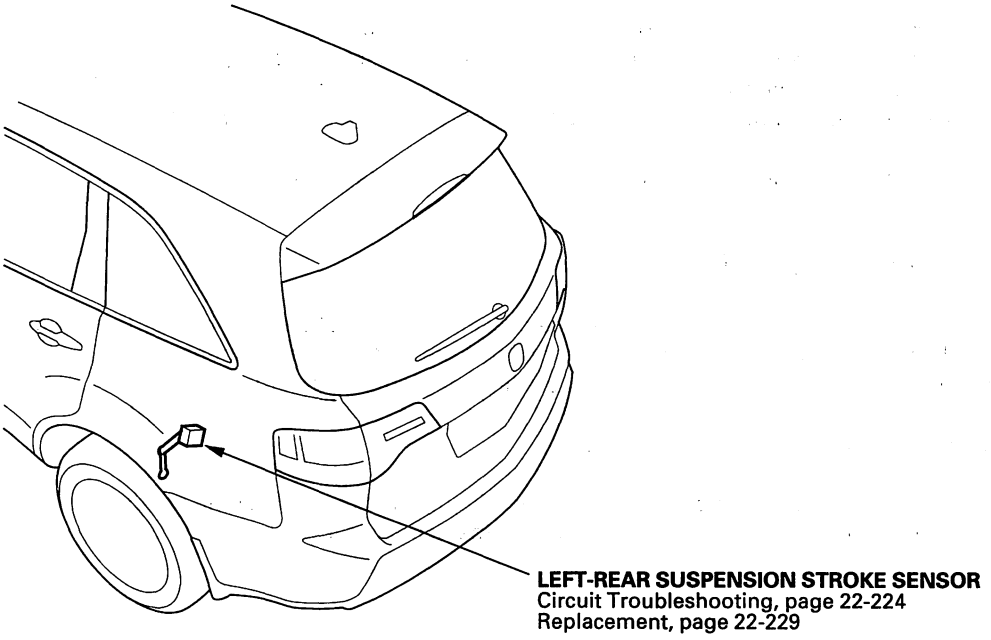
Headlight Leveling System

Component Location Index





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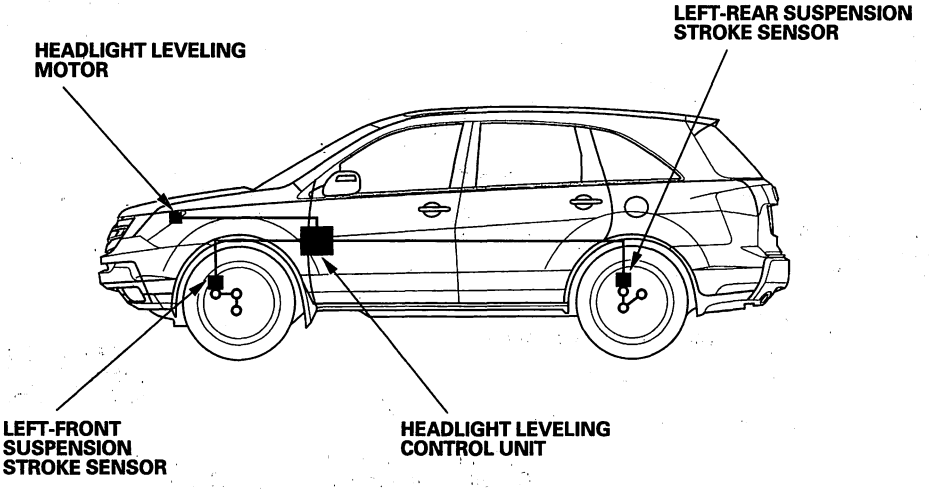
Headlight Leveling System

System Description

Headlight Leveling System (With HID)

The headlights leveling system is composed of the headlight leveling control unit, the left-front and left-rear suspension stroke sensors, and the left and right headlight leveling motors.
The system uses the left-front and left-rear suspension stroke sensors to monitor the vehicle ride height. The ride height is monitored every 3 minutes while the vehicle is running with the headlight switch ON, and 8 seconds after the vehicles stops with the ignition and headlight switches ON.

If the control unit detects the ride height change, the control unit controls the headlight leveling motors to adjust the headlight vertical position.



Suspension Stroke Sensors

The suspension stroke sensors are also one of the active damper system components. The headlight leveling system uses the left-front and left-rear suspension stroke sensor signals. The left-front suspension stroke sensor is located at the left front suspension area. A short link connects the arm of the sensor to the stabilizer bar. The left-rear suspension stroke sensor is located at the left rear suspension area. A short link connects the arm of the sensor to the damper assembly.
The sensors detect the vehicle ride height and sends a voltage signal (about 0.4—4.6 V) to the headlight leveling control unit.

Headlight Leveling Control Unit

The headlight leveling control unit is located under the passenger's side of the dashboard. The headlight leveling control unit uses the voltage signals it receives from the left-front and left-rear suspension stroke sensors to determine the voltage signal (about 2—11 V) it sends to control the left and right leveling motors.

Headlight Leveling Motors

The headlight leveling motors are located behind both headlights, and they adjust the headlights vertically based upon the voltage signals (about 2—11V) they receive from the headlight leveling control unit.

BACK

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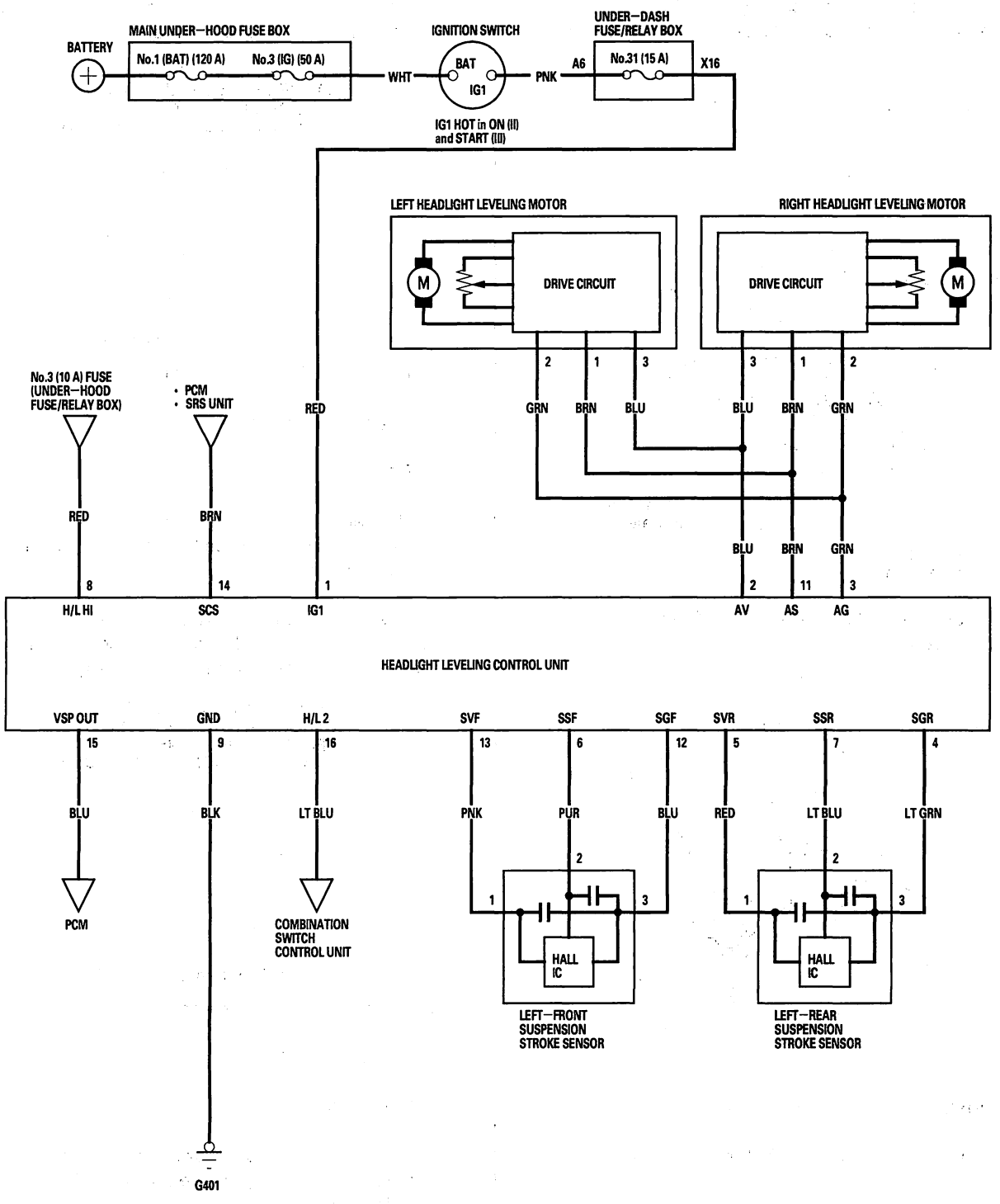
Circuit Diagram



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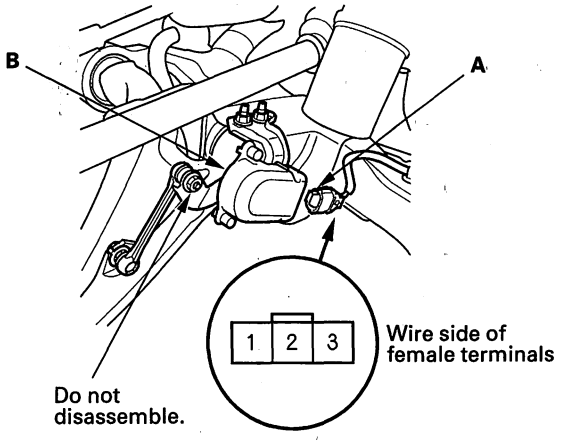
Suspension Stroke Sensor Circuit Troubleshooting

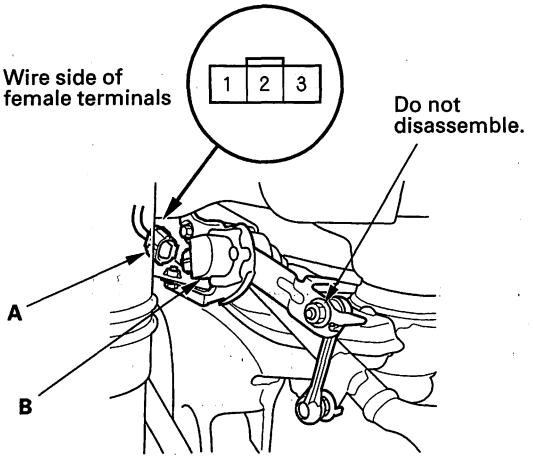
NOTE: Before troubleshooting, check the No. 31 (15 A) fuse in the under-dash fuse/relay box. Check the active damper system for DTCs and troubleshoot those codes first.

1. Raise the vehicle, make sure it is securely supported.

2. Disconnect the 3P connector (A) from the left-front stroke sensor (B).



3. Disconnect the 3P connector (A) from the left-rear stroke sensor (B).

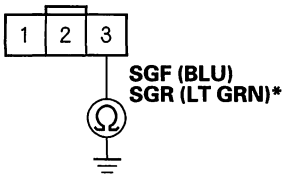


4. Turn the ignition switch ON (II).

5. Turn the combination light (headlight) switch ON.

6. Check for continuity between the left-front and left-rear suspension stroke sensors 3P connector No. 3 terminal and body ground individually.

LEFT-FRONT SUSPENSION STROKE SENSOR 3P CONNECTOR
LEFT-REAR SUSPENSION STROKE SENSOR 3P CONNECTOR



Wire side of female terminals

***: Left-rear suspension stroke sensor**

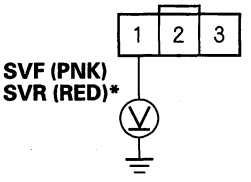
Is there continuity?

YES—Go to step 7.

NO—Repair open in the wire or poor ground (G401), if the wire is OK, replace the headlight leveling control unit. ■

7. Measure the voltage between the left-front and left-rear suspension stroke sensor 3P connector No. 1 terminal and body ground individually.

LEFT-FRONT SUSPENSION STROKE SENSOR 3P CONNECTOR
LEFT-REAR SUSPENSION STROKE SENSOR 3P CONNECTOR



Wire side of female terminals

***: Left-rear suspension stroke sensor**

Is there about 5 V?

YES—Go to step 8.

NO—Check for an open or a short in the wire between the headlight leveling control unit and the left-front (or left-rear) suspension stroke sensor. If the wire is OK, replace the left-front (or left-rear) suspension stroke sensor. ■

BACK

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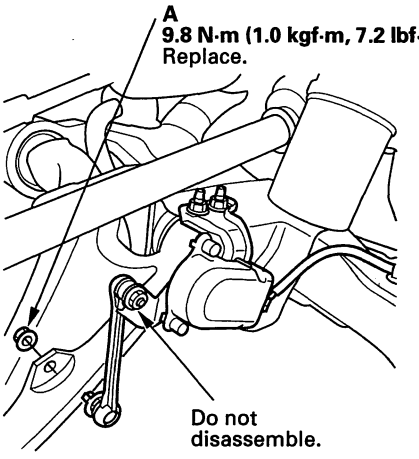
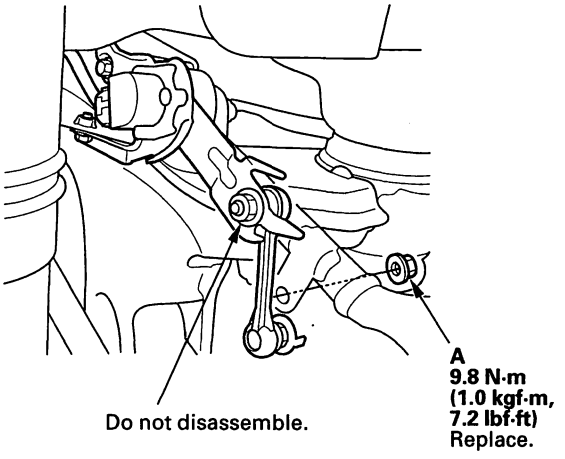
8. Remove the nut (A) and the left-front suspension stroke sensor from the suspension side.

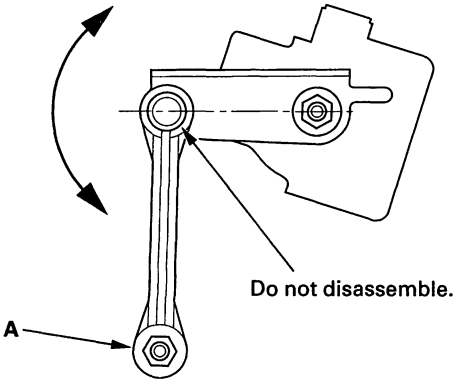


9. Remove the nut (A) and the left-rear suspension stroke sensor from the suspension side.

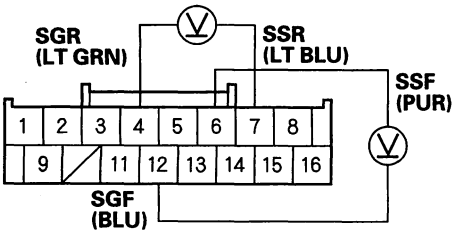


10. Reconnect the 3P connector to the each suspension stroke sensor.

11. Measure the voltage between the headlight auto leveling control unit 16P connector No. 4 and No. 7 terminals, and No. 6 and No. 12 terminals while the suspension stroke sensor arm (A) is moved.



HEADLIGHT LEVELING CONTROL UNIT 16P CONNECTOR



Wire side of female terminals

Is there about 0.5—4.5 V?

YES—Intermittent failure, the system is OK at this time. Check for loose or poor connection between the headlight leveling control unit and the left-front (or left-rear) suspension stroke sensor, if the connections are OK, replace the left-front (or left-rear) suspension stroke sensor. ■

NO—Check for an open or a short in the wire between the headlight leveling control unit and the left-front (or left-rear) suspension stroke sensor, if the wire is OK, replace the left-front (or left-rear) suspension stroke sensor. ■

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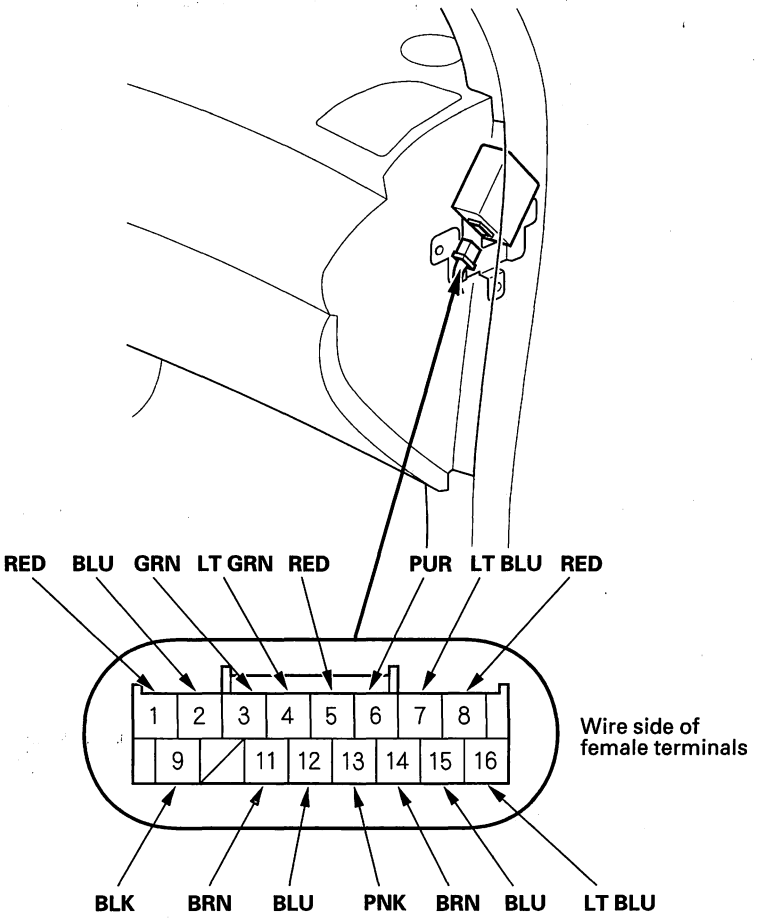
Headlight Leveling System

Headlight Leveling Control Unit Input Test

1. Turn the ignition switch OFF, and remove the glove box (see page 20-125).
2. Disconnect the 16P connector (A) from the headlight leveling control unit (B).



3. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals are OK, go to step 4.

BACK

Protected by AR

4. With the connector still disconnected, make these input tests at the connector.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
15	BLU	Ignition switch ON (II), raise the vehicle, make sure it is securely supported, and rotate one of the front wheels slowly with the other wheel blocked.	Measure the voltage between the No. 15 (+) and No. 9 (−) terminals: There should be 0—5 V or more and 0—5 V or more repeatedly.	• Faulty PCM • An open in the wire • A short to ground
16	LT BLU	Under all conditions	Check for continuity between the No. 16 terminal and the No. 2 terminal of the combination switch control unit 8P connector: There should be continuity.	An open in the wire

5. Reconnect the connector, turn the ignition switch ON (II), and make these input tests at the connector.

   • If any test indicates a problem, find and correct the cause, then recheck the system.
   • If all the input tests prove OK, replace the headlight leveling control unit.

   NOTE: After replacing the control unit, do the headlight initial position learning procedure (see page 22-231).

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
9	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G401) • An open in the wire
3	GRN	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G401) • An open in the wire
4	LT GRN			
12	BLU			
8	RED	Under all conditions	Measure the voltage between the No. 8 terminal and body ground: There should be battery voltage.	• Blown No. 3 (10 A) fuse in the main under-hood fuse box • A short to ground
1	RED	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 31 (15 A) fuse in the under-dash fuse/relay box • An open in the wire
2	BLU	Ignition switch ON (II), headlight switch ON	Measure the voltage between the No. 2 and No. 3 terminals: There should be battery voltage.	• Faulty headlight leveling motor • An open in the wire
3	GRN			
11	BRN	Ignition switch ON (II), headlight switch ON	Measure the voltage between the No. 11 and No. 3 terminals: There should be about 2 to 12 V.	• Faulty headlight leveling motor • An open in the wire
3	GRN			
6	PUR	Under all conditions	• Measure the voltage between the No. 13 and No. 12 terminals: There should be about 5 V. • Measure the voltage between the No. 6 and No. 12 terminals: There should be about 0.5 to 4.5 V.	• Faulty left-front suspension stroke sensor • An open in the wire
12	BLU			
13	PNK			
4	LT GRN	Under all conditions	• Measure the voltage between the No. 5 and No. 4 terminals: There should be about 5 V. • Measure the voltage between the No. 7 and No. 4 terminals: There should be about 0.5 to 4.5 V.	• Faulty left-rear suspension stroke sensor • An open in the wire
5	RED			
7	LT BLU			

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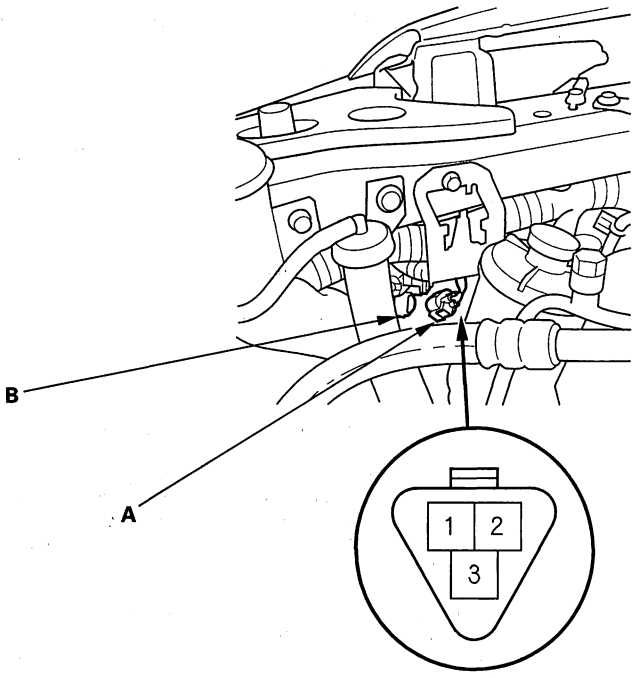
Headlight Leveling System

Headlight Leveling Motor Input Test

1. Turn the ignition switch OFF.
2. Disconnect the 3P connector (A) from the headlight leveling motor (B).



Wire side of female terminals

3. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals are OK, go to step 4.
4. Reconnect the connector to the headlight leveling motor, and make these input tests at the connector.
   - If any tests indicate a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, replace the headlight leveling motor (see page 22-230).

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
1	BRN	Ignition switch ON (II)	Check for voltage to ground: There should be about 2—12 V. NOTE: Depending on the headlight leveling position.	• Faulty headlight leveling control unit • An open in the wire
2	GRN	Ignition switch ON (II)	Check for voltage to ground: There should be less than 1 V.	• Faulty headlight leveling control unit • An open in the wire
3	BLU	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Faulty headlight leveling control unit • An open in the wire

BACK

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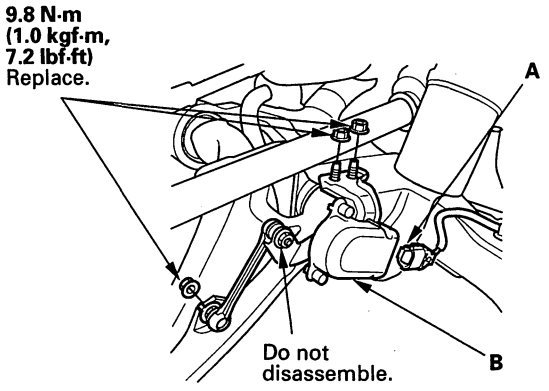
Suspension Stroke Sensor Replacement

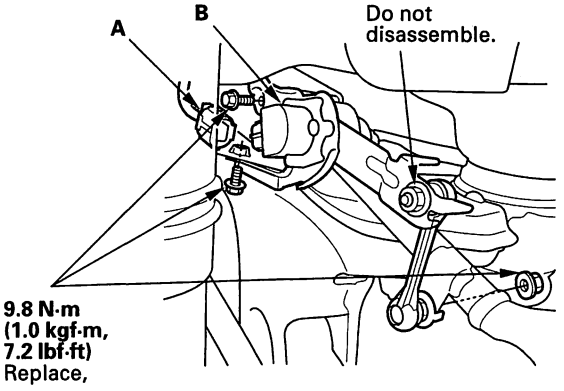
NOTE:
- Right side of suspension stroke sensor for active damper system is the same procedure as left side suspension stroke sensor.
- After install the rear suspension stroke sensor, do the memorizing rear suspension full rebound position (see page 18-54).

1. Raise the vehicle, make sure it is securely supported.
2. Disconnect the 3P connector (A) from the suspension stroke sensor (B).

LEFT-FRONT



LEFT-REAR



3. Remove the bolt and nut, then remove the suspension stroke sensor.
4. Install the sensor in the reverse order of removal.
5. After installing, do the headlight initial position learning procedure (see page 22-231).

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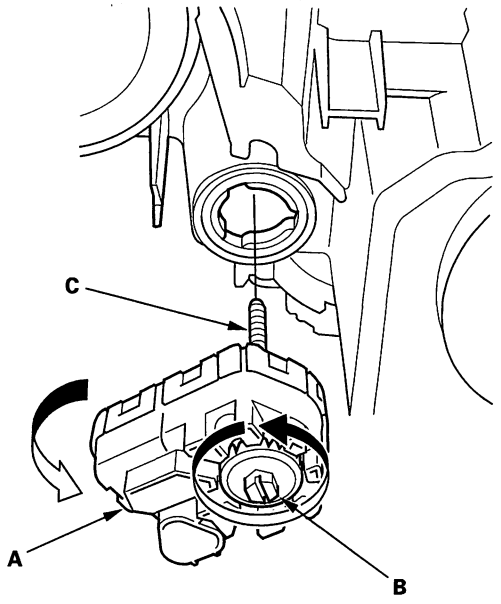
Headlight Leveling Motor Replacement

Removal

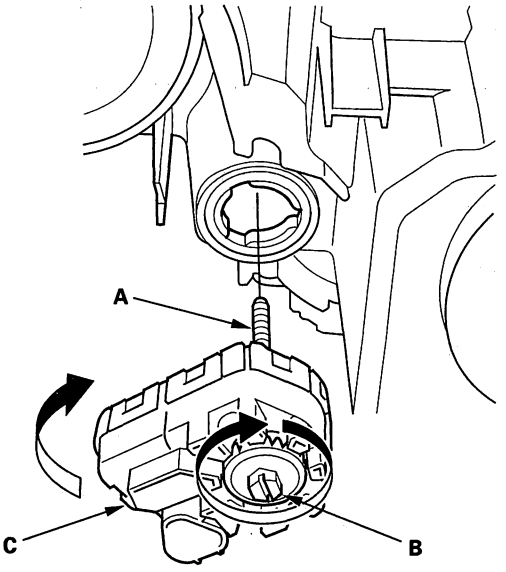
1. Remove the headlight assembly (see page 22-205).
2. Turn the headlight leveling motor (A) 45 ° counterclockwise.



3. Turn the adjuster (B) of the headlight leveling motor until the headlight leveling motor shaft (C) is removed from the headlight.

Installation

1. Insert the headlight leveling motor shaft (A) into the headlight housing, then turn the adjuster (B) until the shaft connects to the headlight.



2. Turn the headlight leveling motor (C) 45 ° clockwise to install to the headlight.
3. Tighten the adjuster until fully it is secure, but do not over tighten, then back it off 9 turns.
4. Insert the headlight in the reverse order of removal.
5. After installing, do the headlight leveling motor initial position learning procedure (see page 22-231)

BACK

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Headlight Initial Position Learning Procedure

Do the headlight initial position learning when any of the related parts of the headlight auto leveling system shown is replaced:

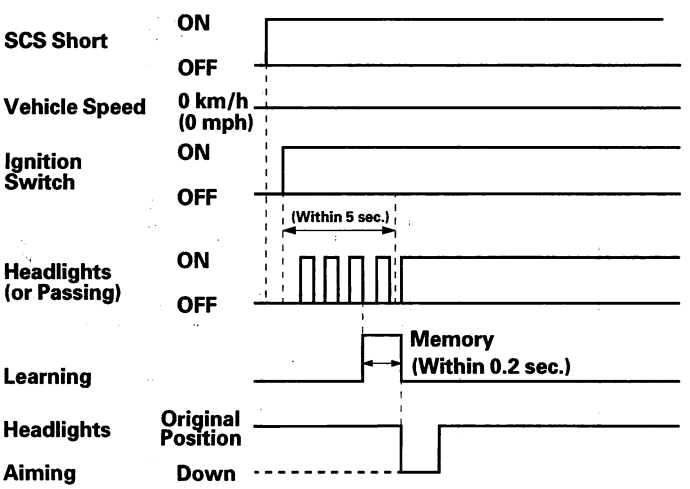
- Headlight
- HID unit
- Left-front suspension stroke sensor
- Left-rear suspension stroke sensor
- Headlight leveling motor
- Headlight auto leveling control unit

Learning Procedure

Before learning the headlights:

- Park the vehicle on a level surface.
- Make sure the tire pressures are correct.

1. Turn the ignition switch OFF.
2. Remove all of the baggage from the vehicle.
3. Slide the front seats backward fully.
4. Have the driver (about 165 lb (75 kg)) or someone who weighs the same sit in the driver's seat.
5. Connect the HDS to the data link connector.
6. Jump the SCS line with the HDS.
7. Turn the ignition switch ON (II).
8. Within 5 seconds, turn the headlights (low beam) or passing switch ON and OFF three times repeatedly, and leave them on.
   - If the headlights aiming move down (about 2 in. at 10 feet), then return to the original position, the initial position learning is complete.
   - If the headlights aiming don't move, go to step 1 and repeat the procedure.
9. Turn the ignition switch OFF, and disconnect the HDS from the data link connector.
10. Adjust the headlight aim to conform with the applicable requirements.



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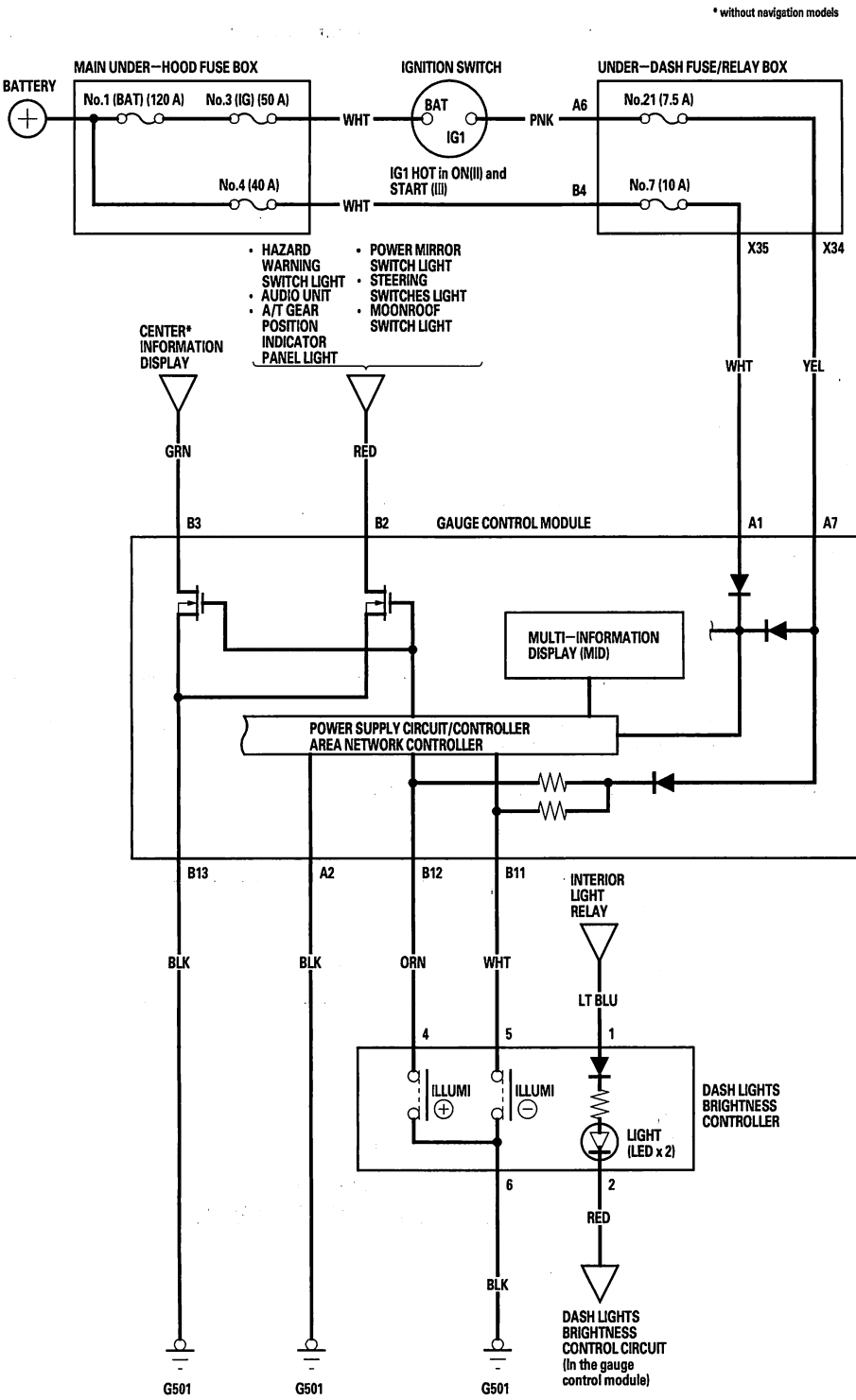
Dash Lights Brightness Controller

Circuit Diagram



BACK

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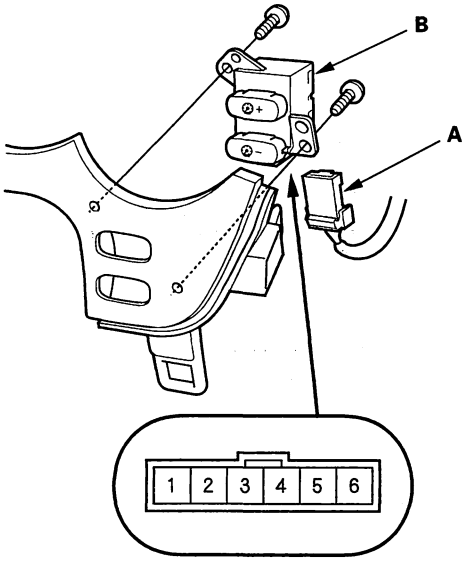
Dash Lights Brightness Controller Test/Replacement

1. Remove the instrument fascia (see page 20-118).
2. Disconnect the 6P connector (A) from the dash lights brightness controller (B).



3. Remove the two screws and the dash lights brightness controller.
4. Check for continuity between the No. 5 and No. 6 terminals.
   - There should be continuity when the ILLUMI (—) button is pressed.
   - There should be no continuity when the ILLUMI (—) button is released.
5. Check for continuity between the No. 4 and No. 6 terminals.
   - There should be continuity when the ILLUMI (+) button is pressed.
   - There should be no continuity when the ILLUMI (+) button is released.
6. If the continuity is as not specified, replace the controller.
7. Check the LED by connecting battery power to No. 1 terminal and ground to No. 2 terminal. The LED should come on.
8. If the LED does not work; replace the dash lights brightness controller assembly.

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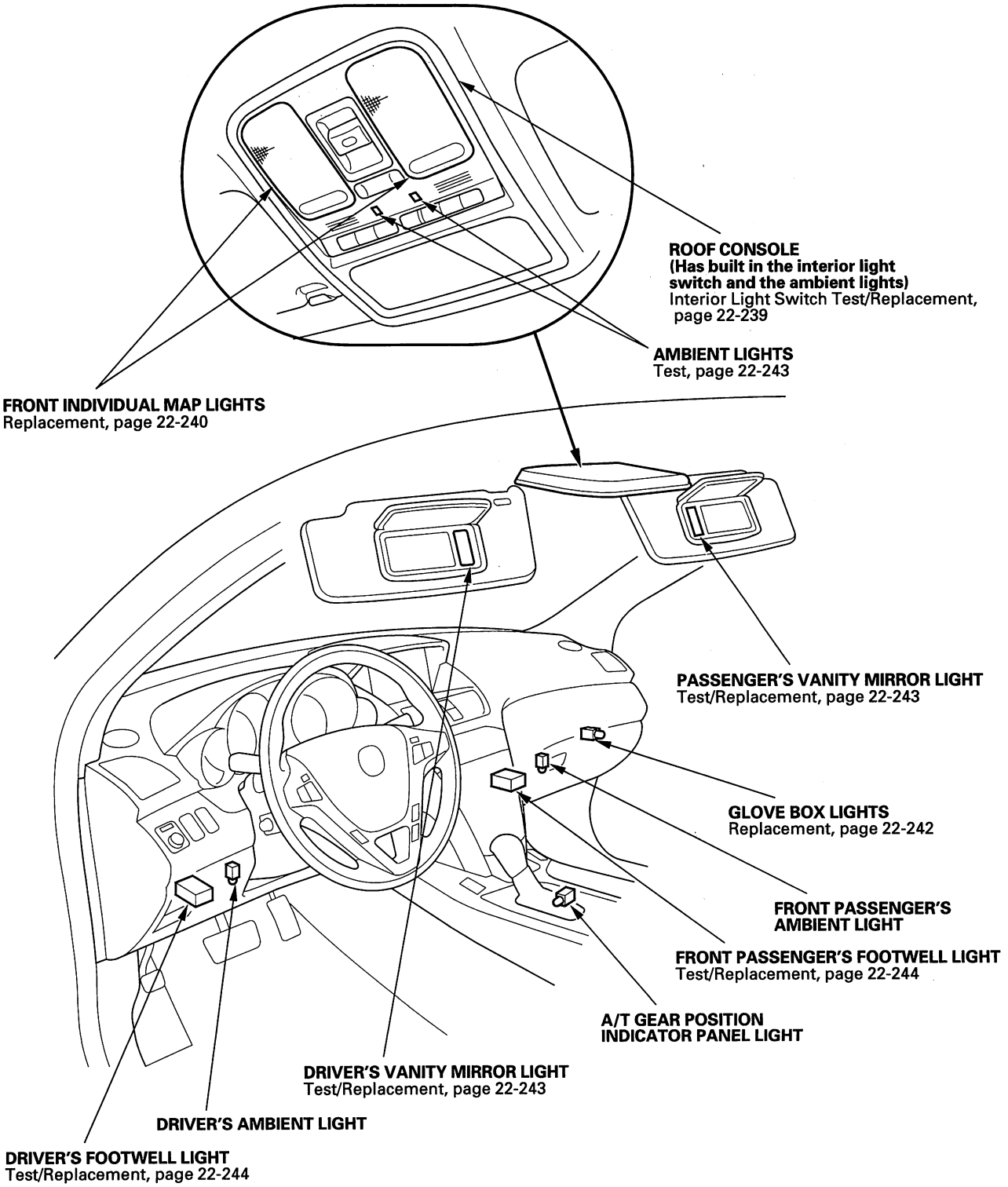
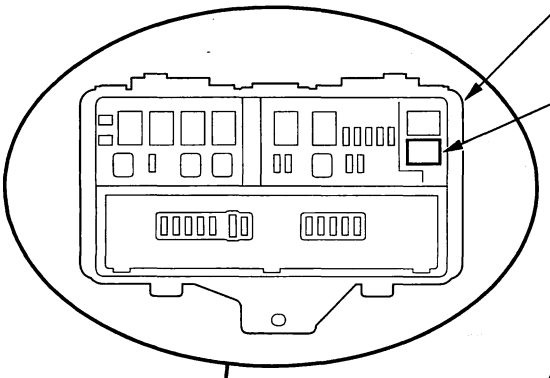
Interior Lights

Component Location Index



BACK

Protected by AR



UNDER-HOOD FUSE/RELAY BOX

INTERIOR LIGHT RELAY
Test, page 22-77

REAR INDIVIDUAL MAP LIGHTS
Test/Replacement,
page 22-240

FRONT PASSENGER'S COURTESY LIGHT
Replacement,
page 22-242

FRONT PASSENGER'S DOOR SWITCH

REAR CEILING LIGHT
Test/Replacement
page 22-241

RIGHT REAR DOOR SWITCH

MICU
(Built into the under-dash fuse/relay box)
Input Test,
page 22-248
Replacement,
page 22-72

DRIVER'S DOOR COURTESY LIGHT
Replacement,
page 22-242

DRIVER'S DOOR SWITCH

LEFT REAR DOOR SWITCH

REAR MICU
(Built into the rear fuse/relay box)
Input Test, page 22-248
Replacement, page 22-75

CARGO AREA LIGHT
Test/Replacement,
page 22-241

POWER TAILGATE CLOSER UNIT (Including FULL LATCH SWITCH)
Latch/Ratchet Switch Test,
page 22-526
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TAILGATE LATCH SWITCH
(Without power tailgate)
Latch Switch Test,
page 22-244
Replacement, page 20-228

BACK

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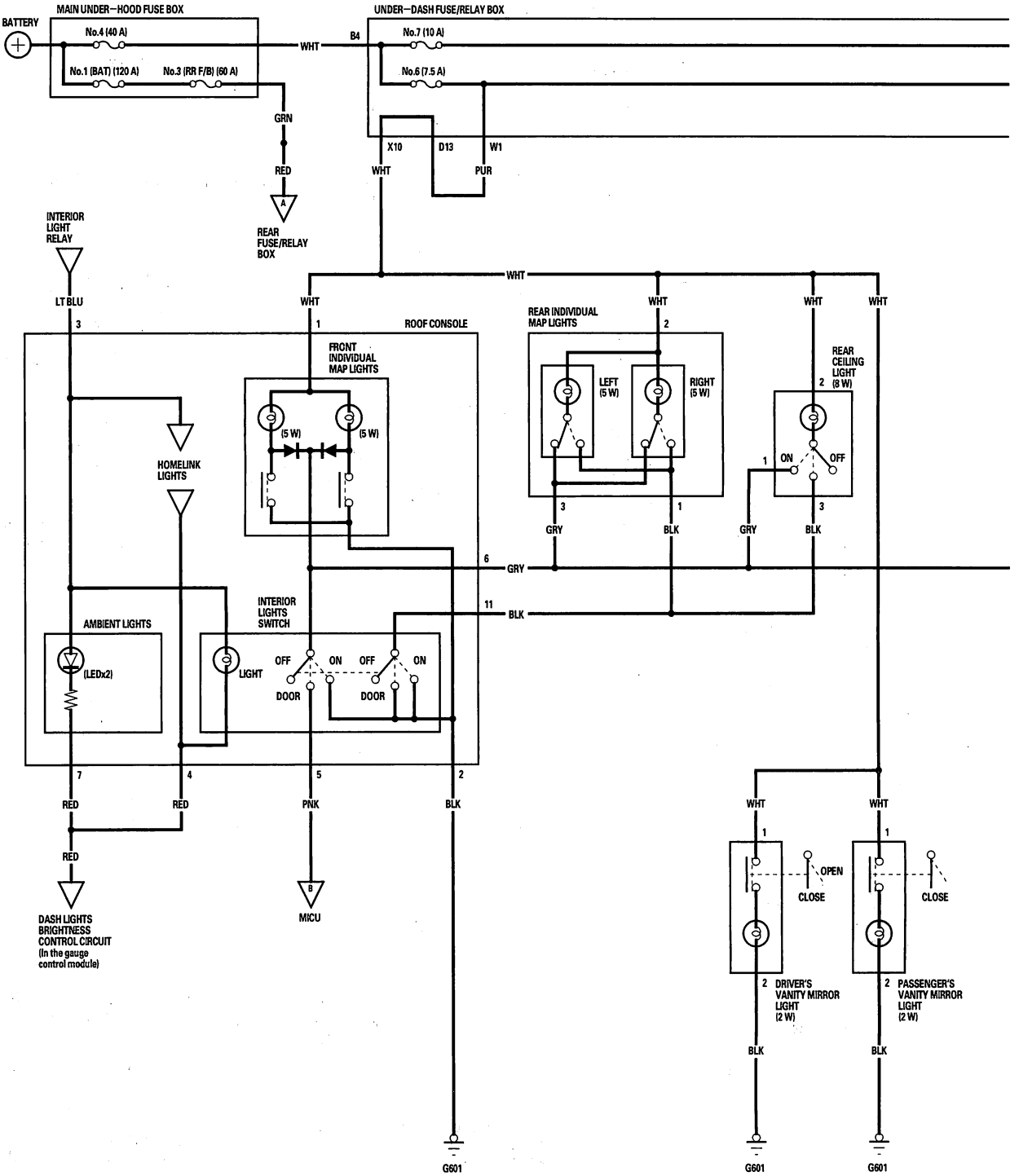
Interior Lights

Circuit Diagram



BACK

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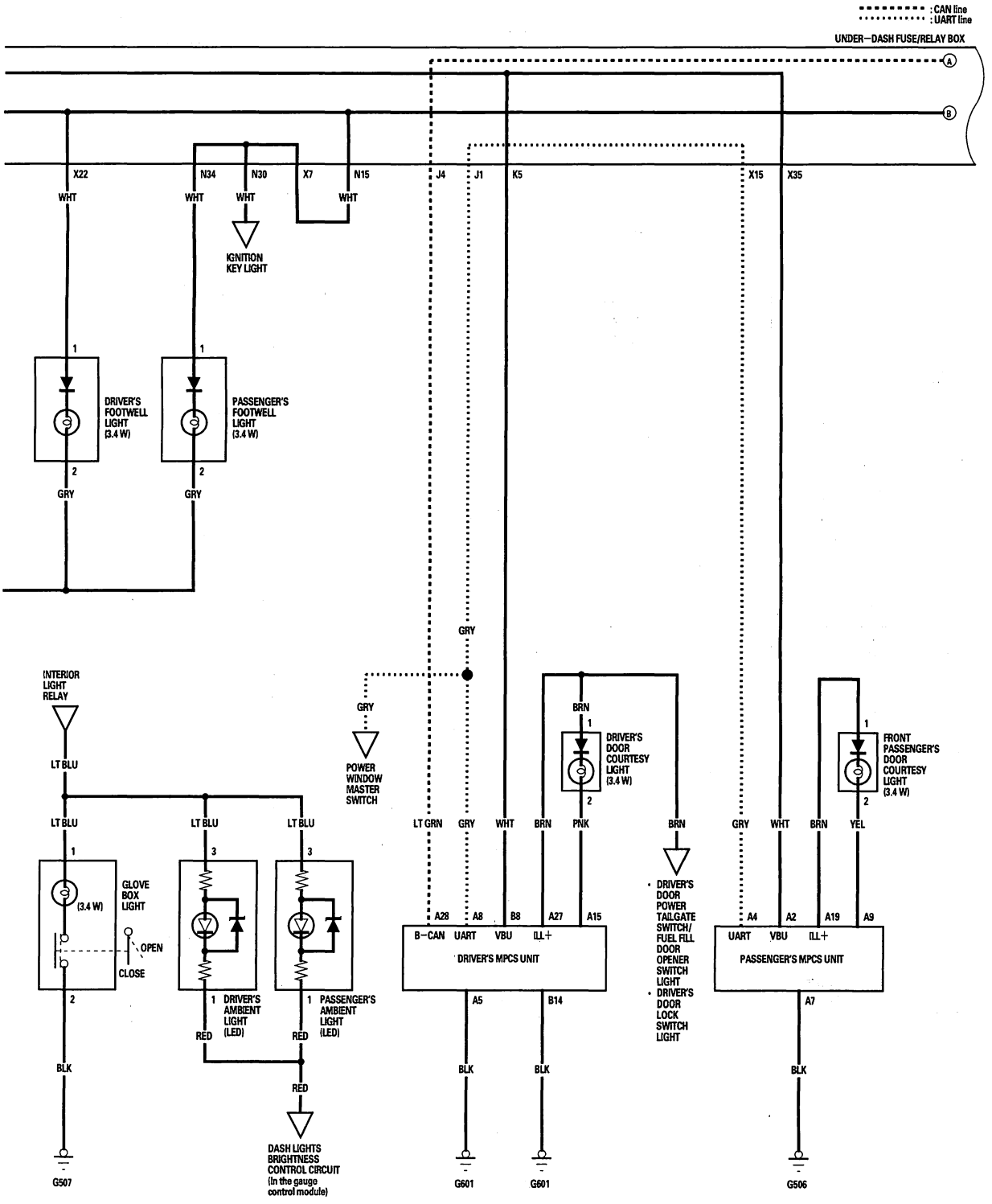

(cont'd)

BACK

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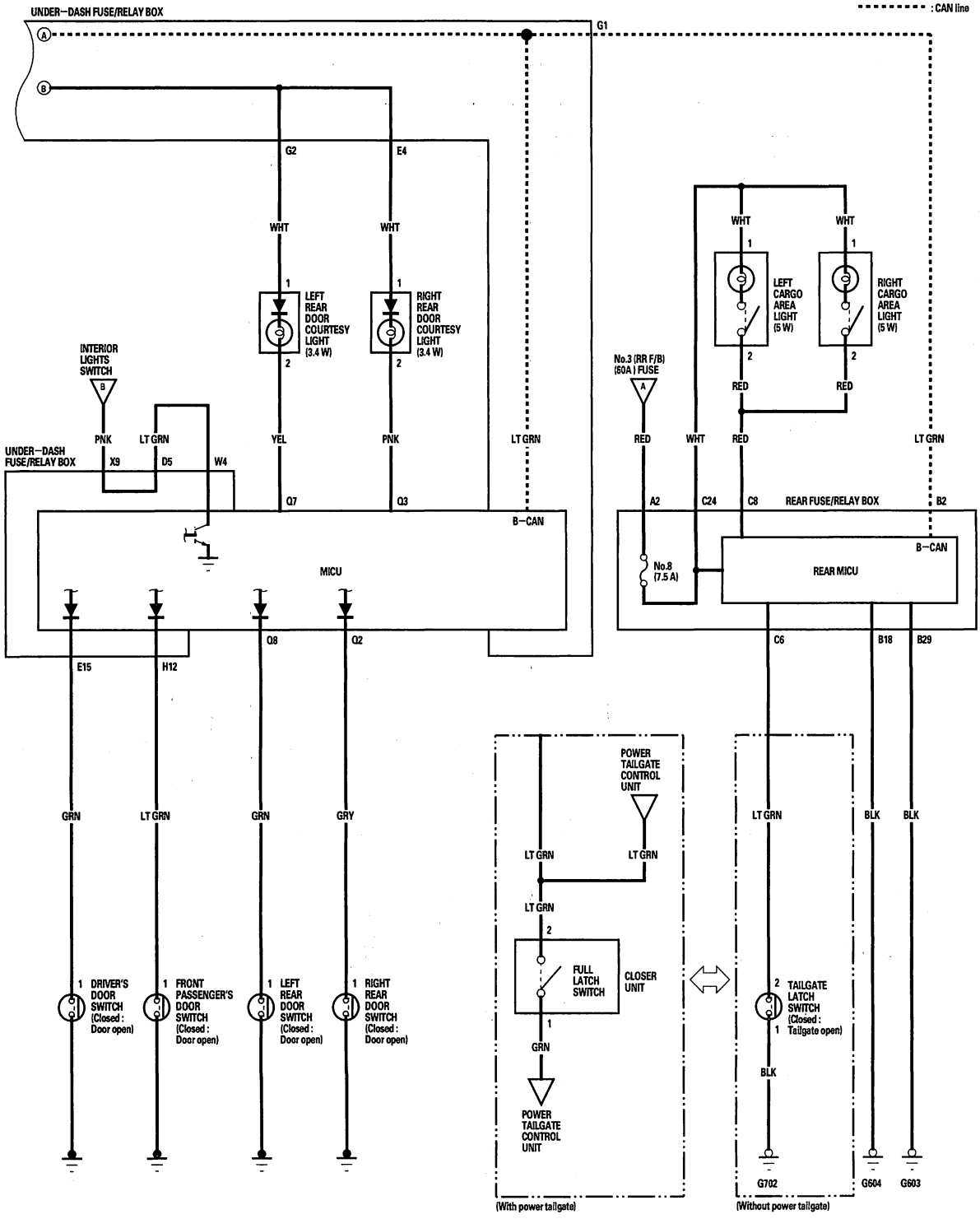
Interior Lights

Circuit Diagram (cont'd)



BACK

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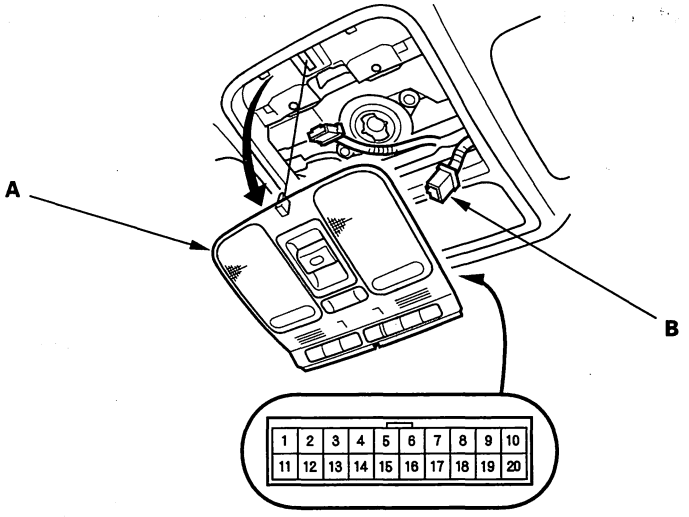
Interior Light Switch Test/Replacement

1. Carefully pull down the roof console (A).



2. Disconnect the 20P connector (B) from the roof console.

3. Check for continuity between the terminals in each interior light switch position according to the table.

NOTE:
- Before testing, check the front individual map light bulb(s).
- When check for continuity across the diode, use the diode setting (⟶|⟵) on the digital volt/ohm meter to check the diode bias.

Position \ Terminal	1		2	5	6	11
OFF	○	○ ▶			○	
OFF (Front map light switch ON)	○	○ ▶	○		○	
Middle (DOOR) position	○	○ ▶		○	○	
ON	○	○ ▶	○		○	○

4. If the continuity is not as specified, replace the roof console as an assembly.

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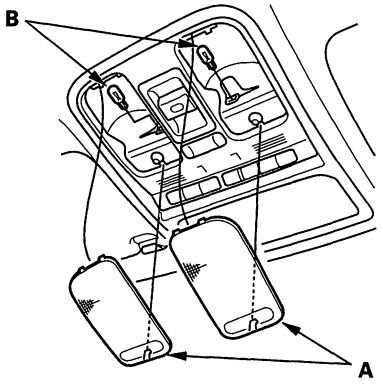
Front Individual Map Light Replacement

1. Carefully pry off the lens (A) with a small screwdriver.

   Front Map Light: 5 W x 2

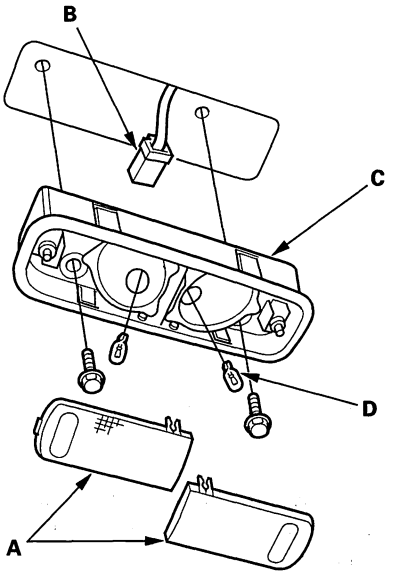


2. Check the bulb(s) (B). If the bulb is OK, but there is a malfunction, check the interior light switch (see page 22-239).

Rear Individual Map Light Test/ Replacement

1. Turn the ceiling light switch OFF.
2. Carefully pry off the lens (A) with a small screwdriver.

   Map Light: 6.2 W × 2



3. Remove the two mounting screws.
4. Disconnect the 3P connector (B) from the housing (C).
5. Check for continuity between the terminals.
   - There should be continuity between the No. 1 and No. 3 terminals with the left switch ON.
   - There should be continuity between the No. 1 and No. 2 terminals with the right switch ON.
6. If the continuity is not as specified, check the bulb(s) (D). If the bulbs are OK, replace the light.
7. Install in the reverse order of removal.

BACK

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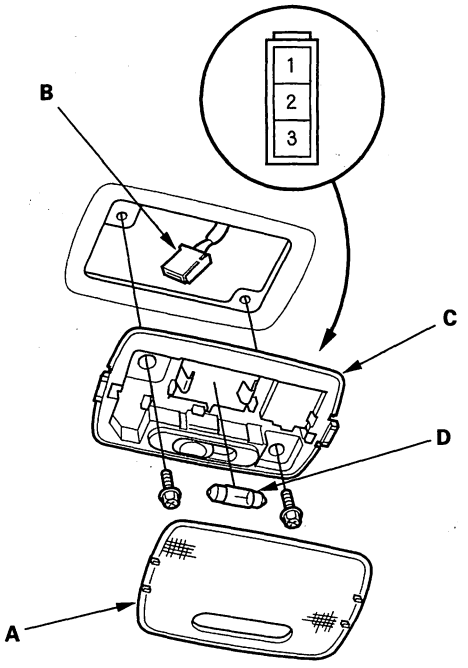
Rear Ceiling Light Test/ Replacement

1. Turn the light switch OFF.
2. Carefully pry off the lens (A) with a small screwdriver.

Ceiling Light: 8 W

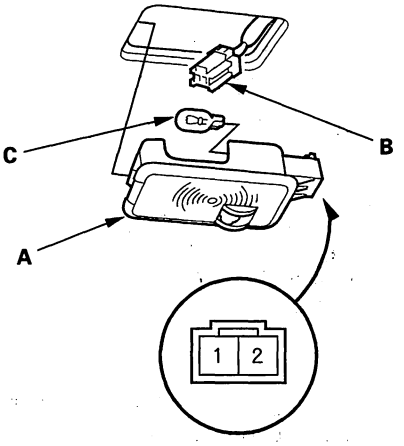


3. Remove the two mounting screws.
4. Disconnect the 3P connector (B) from the housing (C).
5. Check for continuity between the terminals in each switch position according to the table.
   - There should be continuity between the No. 2 and No. 3 terminals with the switch in the MIDDLE position.
   - There should be continuity between the No. 2 and No. 1 terminals with the switch in the ON position.
6. If the continuity is not as specified, check the bulb (D). If the bulb is OK, replace the light.

Cargo Area Light Test/Replacement

1. Open the tailgate.
2. Carefully pry out the cargo area light (A).

Cargo Area Light: 5 W



3. Disconnect the 2P connector (B) from the light.
4. Check for continuity between the No. 1 and No. 2 terminals. There should be continuity. If there is no continuity, check the bulb (C). If the bulb is OK, replace the trunk light.

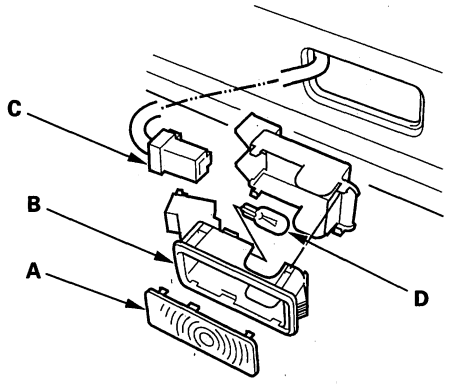
Protected by AR

Interior Lights

Courtesy Light Replacement

1. Carefully pry off the lens (A) with a small screwdriver.

Courtesy Light: 2 CP

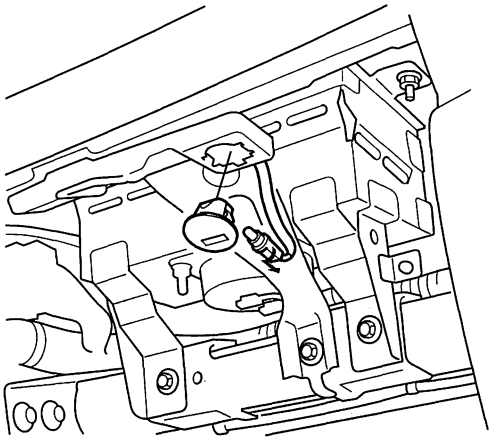


2. Pry out the housing (B) from the door, then disconnect the 2P connector (C).
3. Remove the bulb (D) from the socket.
4. Install in the reverse order of removal.

Glove Box Light Replacement

1. Remove the glove box stops and damper (see page 20-125).
2. Turn the bulb socket (A) 45° counterclockwise to remove it.

Glove Box Light: 3.4 W



3. Remove the bulb (B) from the socket.
4. Install in the reverse order of removal.

BACK

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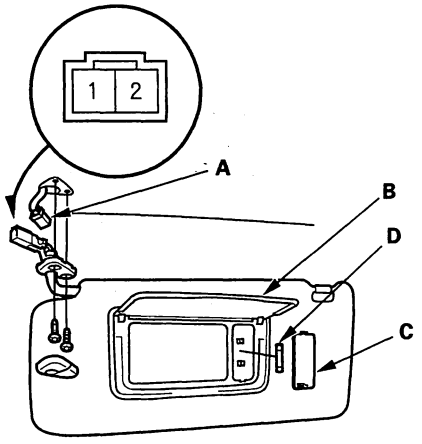
Vanity Mirror Light Test/ Replacement

1. Open the sunvisor.
2. Remove the sunvisor (see page 20-98).
3. Disconnect the 2P connector (A) from the vanity mirror light.

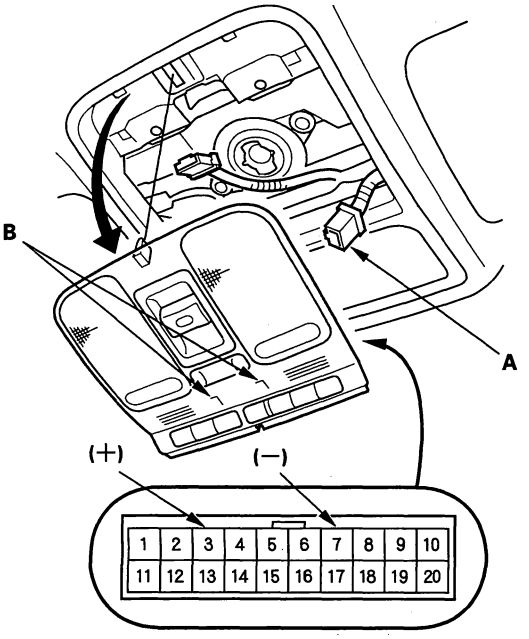
Vanity Mirror Light: 2 W



4. Check for continuity between the No. 1 and No. 2 terminals.
   - With the vanity mirror cover (B) opened, there should be continuity.
   - With the vanity mirror cover closed, there should be no continuity.
5. If the continuity is not as specified, remove the lens (C) and replace the bulb (D) or the sunvisor.

Ambient Light Test

1. Carefully pull down the roof console and disconnect the 20P connector (A).



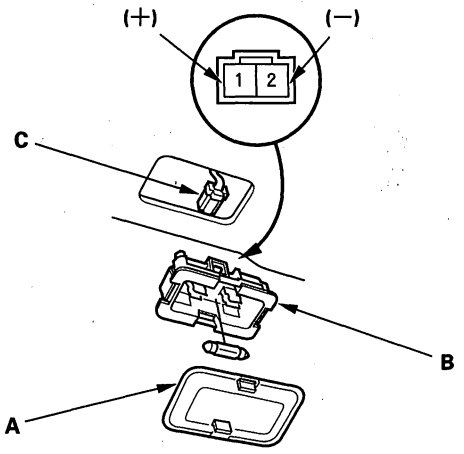
2. Connect the roof console connector terminal No. 3 to battery power and terminal No. 7 to body ground. The ambient lights (B) should turn on. If they do not turn on, replace the roof console.

Protected by AR

Footwell Light Test/Replacement

1. Carefully pry out the footwell light lens (A) and housing (B).

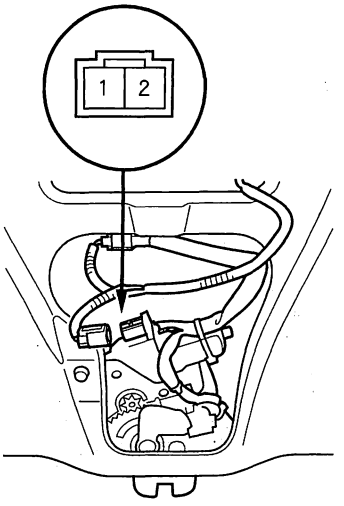
   Footwell Light: 5 W



2. Disconnect the 2P connector (C) from the light.
3. Check for continuity between the No. 1 (+) and No. 2 (−) terminals. There should be continuity. If there is no continuity, check the bulb (C). If the bulb is OK, replace the footwell light.
4. Install in the reverse order of removal.

Tailgate Latch Switch Test

1. Open the tailgate.
2. Remove the tailgate trim panel (see page 20-96).
3. Disconnect the 2P connector from the tailgate latch switch.



4. Check for continuity between the No. 1 and No. 2 terminals.
   - With the tailgate open, there should be continuity.
   - With the tailgate closed, there should be no continuity.
5. If the continuity is not as specified, replace the latch assembly.

BACK

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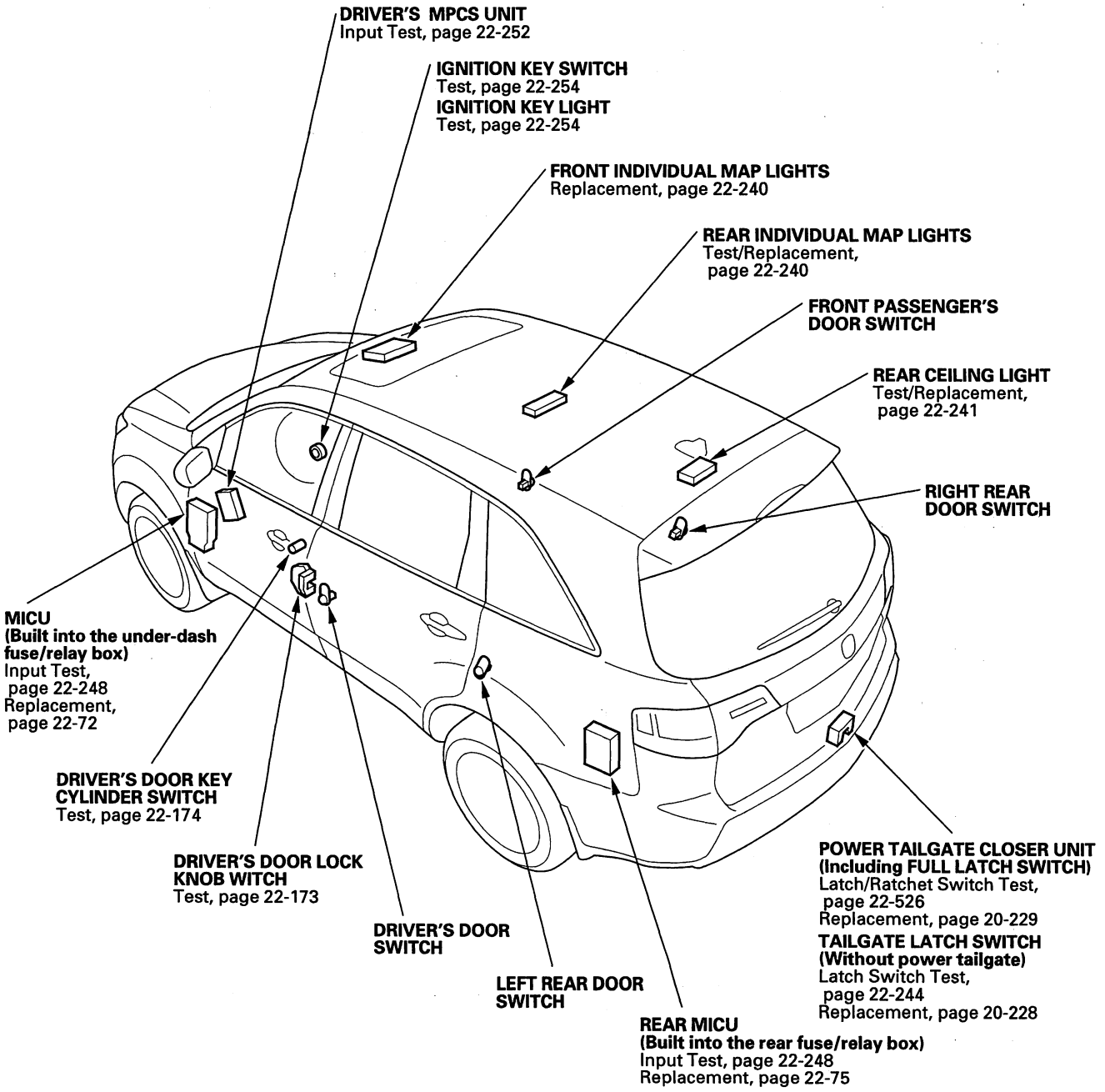
Entry Lights Control System

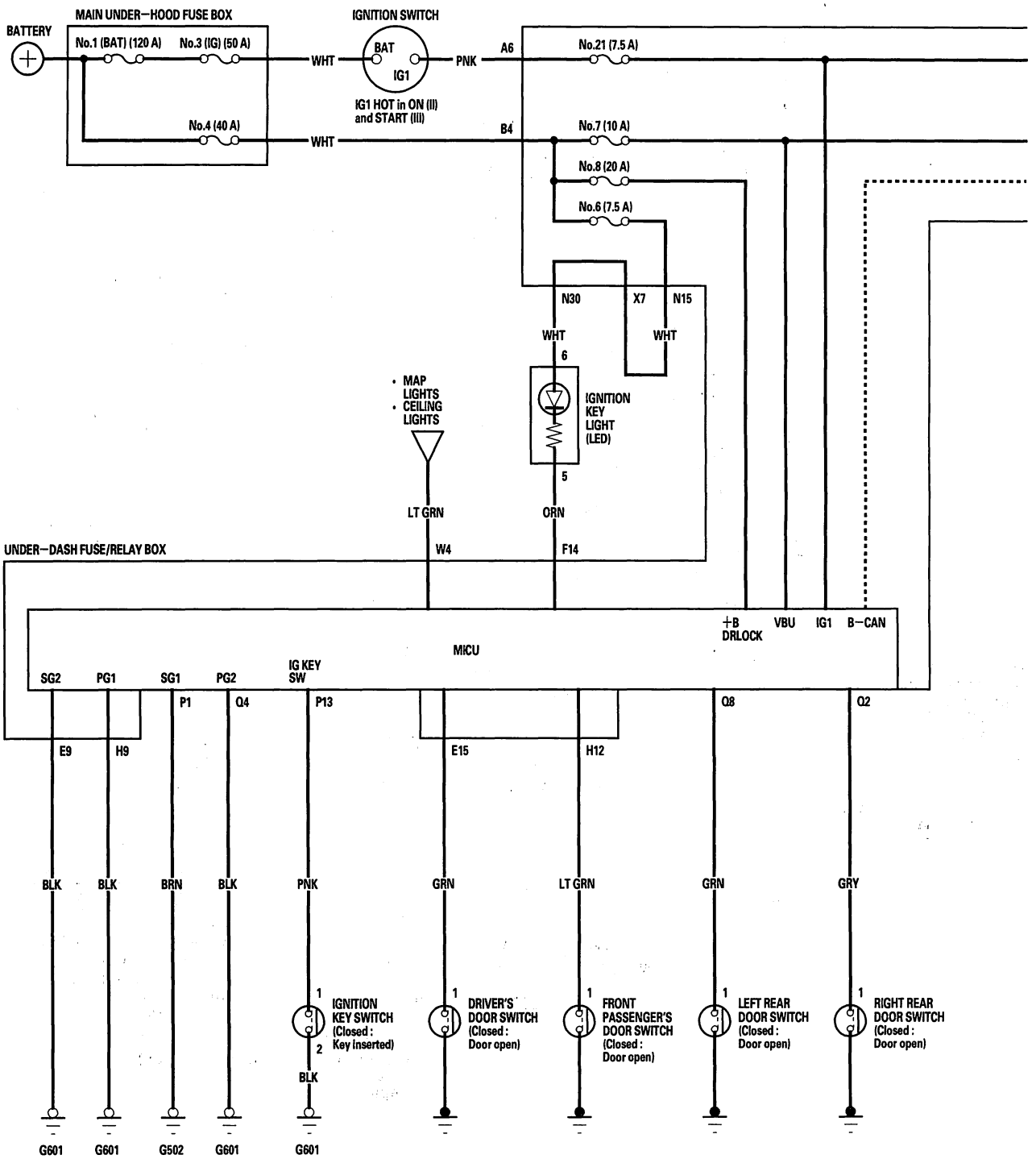
Component Location Index



Protected by AR

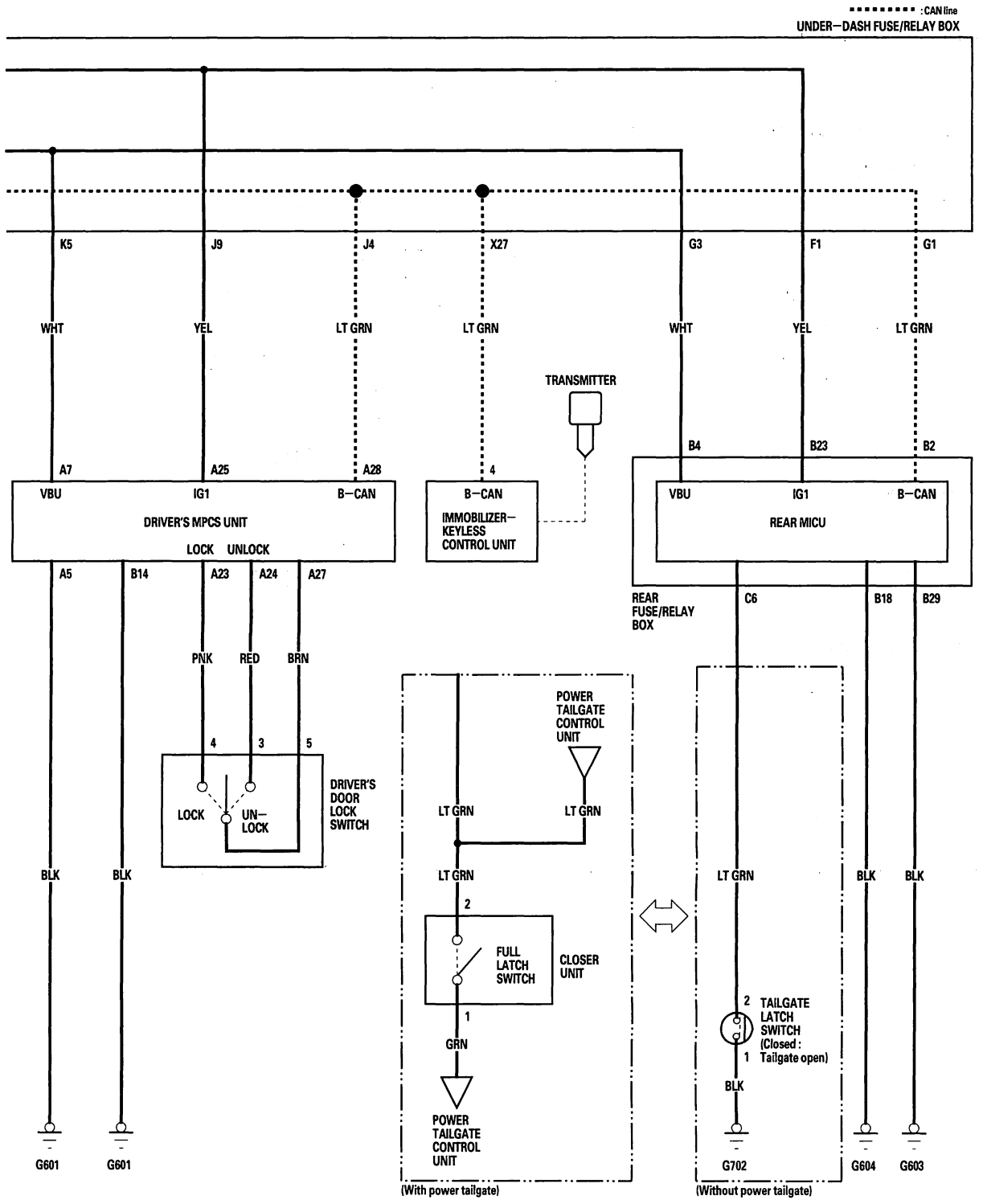
Entry Lights Control System

Circuit Diagram



BACK

Protected by AR



BACK

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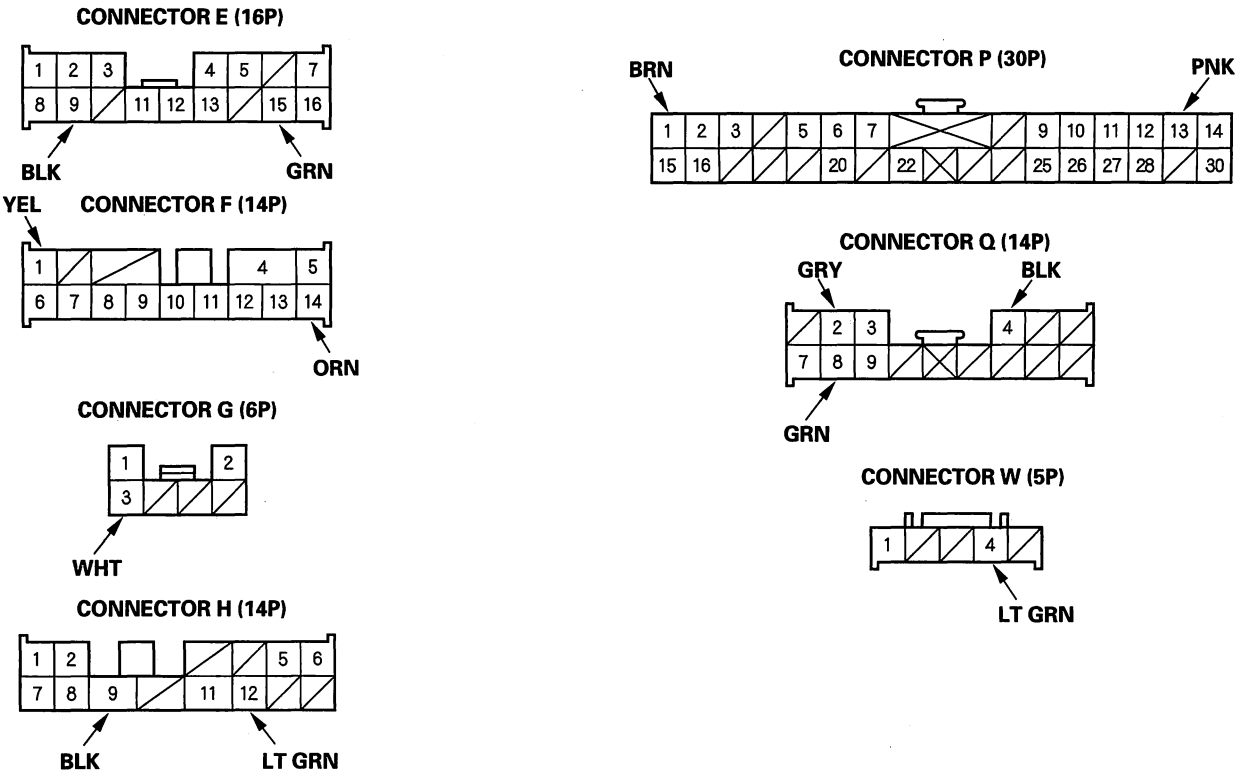
Entry Lights Control System

Control Unit Input Test

NOTE: Before testing, troubleshoot the B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Turn the ignition switch OFF, and remove the left kick panel (see page 20-76).
2. Disconnect the under-dash fuse/relay box connectors E, F, G, H, P, Q, and W.

   NOTE: All connector views are wire side of female terminals.



3. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 4.

BACK

Protected by AR

4. Reconnect the connectors, turn the ignition switch ON (II), and make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
E9 H9 Q4	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G601) • An open in the wire
P1	BRN	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G502) • An open in the wire
P13	PNK	Ignition key inserted into the ignition switch	Measure the voltage to ground: There should be less than 1 V.	• Faulty ignition key switch • An open in the wire
		Ignition switch OFF and the ignition key removed from the ignition switch	Measure the voltage to ground: There should be more than 5 V.	• Faulty ignition key switch • A short to ground in the wire
E15	GRN	Driver's door open	Measure the voltage to ground: There should be less than 1 V.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Measure the voltage to ground: There should be more than 5 V.	• Faulty driver's door switch • A short to ground in the wire
H12	LT GRN	Front passenger's door open	Measure the voltage to ground: There should be less than 1 V.	• Faulty front passenger's door switch • An open in the wire
		Front passenger's door closed	Measure the voltage to ground: There should be more than 5 V.	• Faulty front passenger's door switch • A short to ground in the wire
Q2	GRY	Right rear door open	Measure the voltage to ground: There should be less than 1 V.	• Faulty right rear door switch • An open in the wire
		Right rear door closed	Measure the voltage to ground: There should be more than 5 V.	• Faulty right rear door switch • A short to ground in the wire
Q8	GRN	Left rear door open	Measure the voltage to ground: There should be less than 1 V.	• Faulty left rear door switch • An open in the wire
		Left rear door closed	Measure the voltage to ground: There should be more than 5 V.	• Faulty left rear door switch • A short to ground in the wire
F14	ORN	Under all conditions	Attach to ground: The ignition key light should come on.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 6 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty ignition key light • An open in the wire
W4	LT GRN	Under all conditions (Interior lights switch in DOOR position)	Attach to ground: The ignition lights should come on.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 6 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Blown map lights or ceiling light bulb(s) • An open in the wire

(cont'd)

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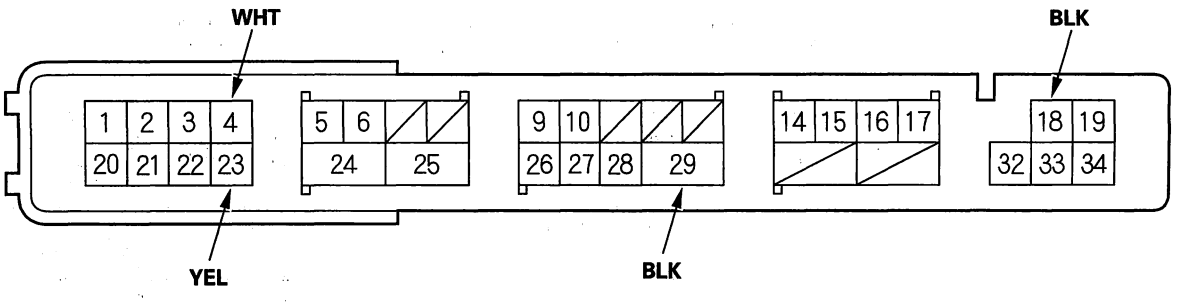
Entry Lights Control System

Control Unit Input Test (cont'd)

Rear Fuse/Relay Box

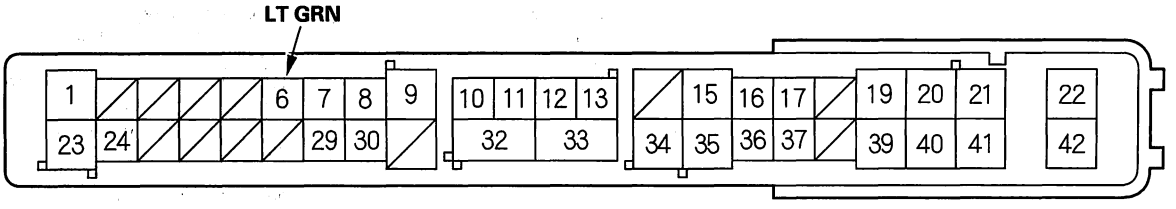
5. Turn the ignition switch OFF.
6. Remove the left rear trim (see page 20-92).
7. Disconnect the rear fuse/relay box connector B (34P) and C (42P).

CONNECTOR B (34P)



Wire side of female terminals

CONNECTOR C (42P)



Wire side of female terminals

8. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 9.

BACK

Protected by AR

9. Reconnect the connectors, then turn the ignition switch ON (II), and make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 10.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B18 B29	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G603, G604) • An open in the wire
B4	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
B23	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
C6*	LT GRN	Tailgate open	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G702) • Faulty tailgate latch switch • An open in the wire
		Tailgate closed	Measure the voltage to ground: There should be more than 5 V.	• Faulty tailgate latch switch • A short to ground in the wire

*: Without power tailgate

(cont'd)

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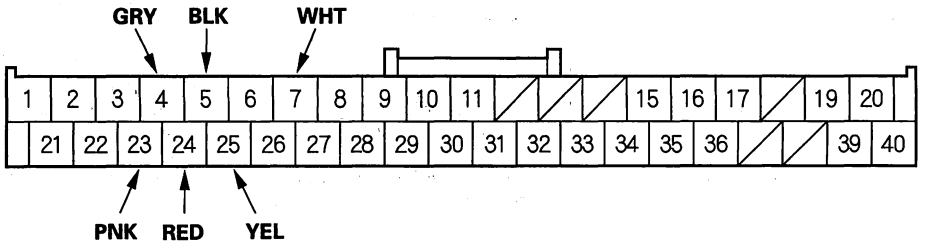
Control Unit Input Test (cont'd)

Driver's MPCS Unit

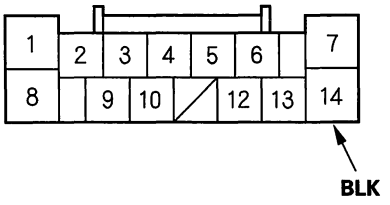
10. Turn the ignition switch OFF.
11. Remove the driver's door panel (see page 20-8).
12. Disconnect the driver's MPCS unit connections.

CONNECTOR A (40P)



Wire side of female terminals

CONNECTOR B (14P)



Wire side of female terminals

13. Inspect the connector and socket terminals to be sure they are all making good contact.
    - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
    - If the terminals look OK, go to step 14.

BACK

Protected by AR

14. With the connectors still disconnected, make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 15.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A23 · A27	PNK · BRN	Driver's door lock switch in LOCK	Check for continuity: There should be continuity.	• Faulty driver's door lock switch • An open in the wire
		Driver's door lock switch in neutral or UNLOCK	Check for continuity: There should be no continuity.	• Faulty driver's door lock switch • A short to ground in the wire
A24 · A27	RED · BRN	Driver's door lock switch in UNLOCK	Check for continuity: There should be continuity.	• Faulty driver's door lock switch • An open in the wire
		Driver's door lock switch in neutral or LOCK	Check for continuity: There should be no continuity.	• Faulty driver's door lock switch • A short to ground in the wire

15. Reconnect the connectors, and make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 16.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A5 B14	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G601) • An open in the wire
A7	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
A25	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire

16. If multiple failures are found on more than one control unit, replace the under-dash fuse/relay box (includes the MICU) (see page 22-72). If input failures are related to a particular control unit, replace the control unit.

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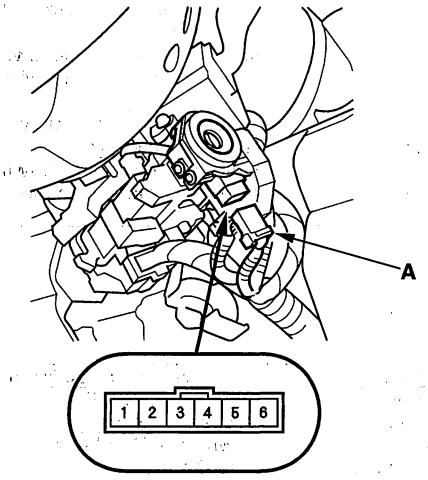
Entry Lights Control System

Ignition Key Switch Test

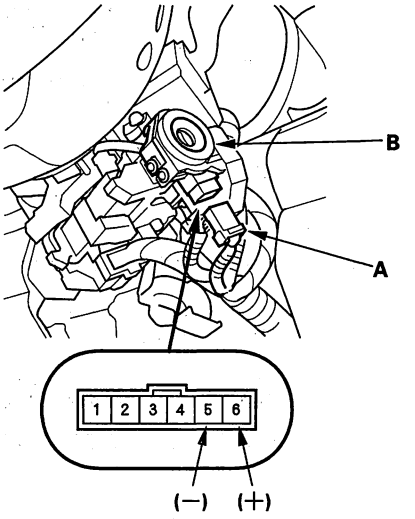
1. Remove the steering column upper and lower covers (see page 20-129).
2. Disconnect the 6P connector (A).



3. Check for continuity between the No. 1 and No. 2 terminals.
   - There should be continuity with the key in the ignition switch.
   - There should be no continuity with the key removed.
4. If the continuity is not as specified, replace the ignition switch.

Ignition Key Light Test

1. Remove the steering column upper and lower covers (see page 20-129).
2. Disconnect the 6P connector (A).



3. The LED (B) should come on when power is connected to the No. 6 terminal and ground is connected to No. 5 terminal.
4. If the LED does not come on, replace the ignition switch.

BACK

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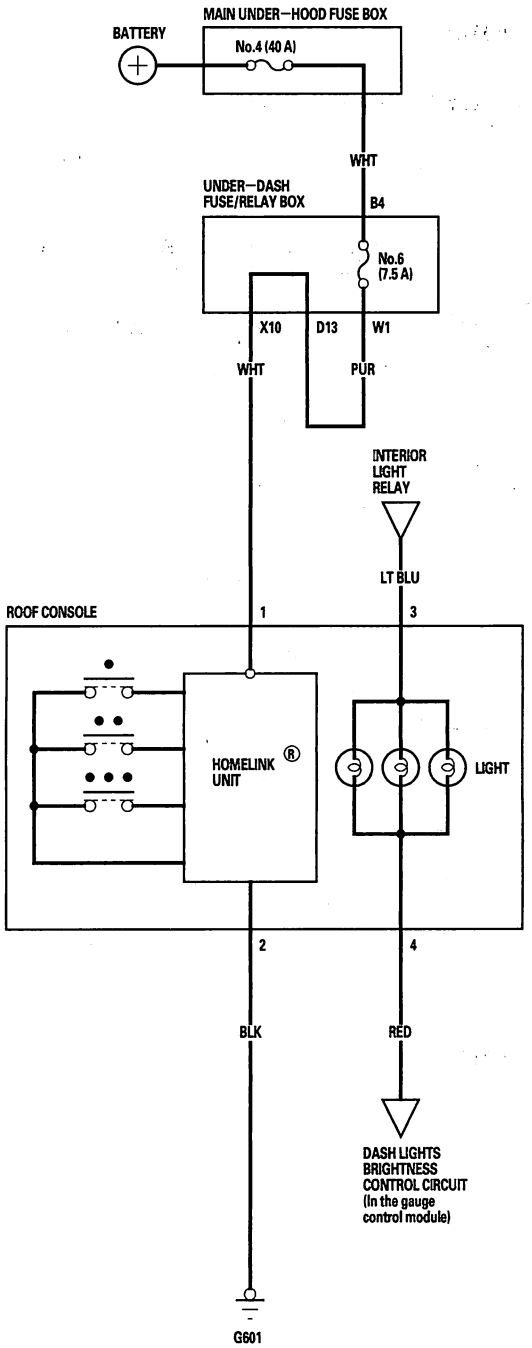
HomeLink Remote Control System

Circuit Diagram



Test

Turn on the front individual map lights at the interior light switch ON position.

- If the front individual map lights come on, the HomeLink's power and ground circuits are OK. If the HomeLink will not open the client's garage door, check that the HomeLink is programmed properly (see the owner's manual) or call HomeLink at 800-355-3515. On the internet, go to www. homelink. com.
- If the front individual map lights do not come on, check for these problems:
  - A blown No. 6 (7.5 A) fuse in the under-dash fuse/relay box.
  - A faulty under-dash fuse/relay box.
  - An open in the WHT wire between the driver's under-dash fuse/relay box and roof console.
  - An open in the BLK wire between the roof console and G601.

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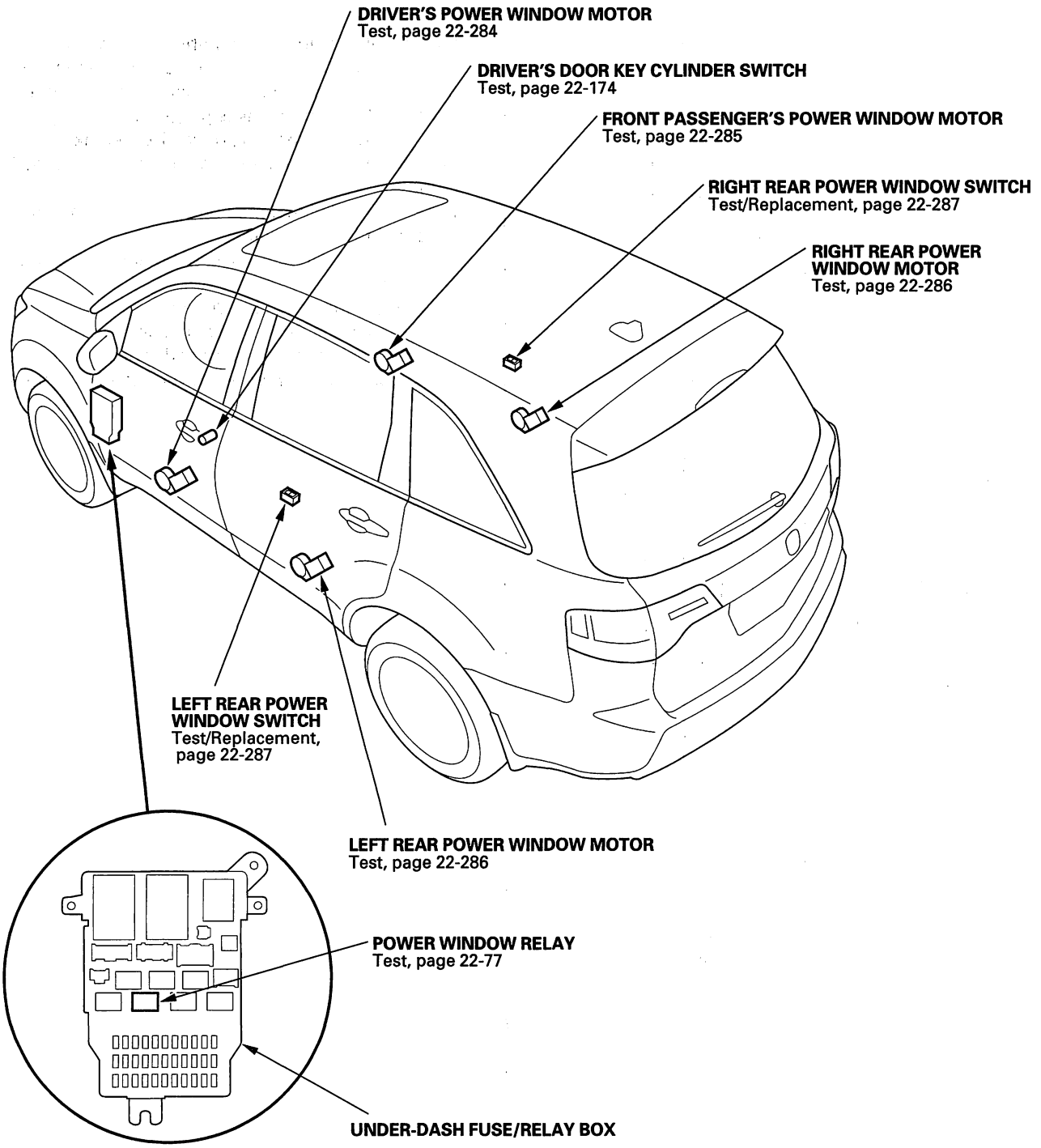
Power Windows

Component Location Index



BACK

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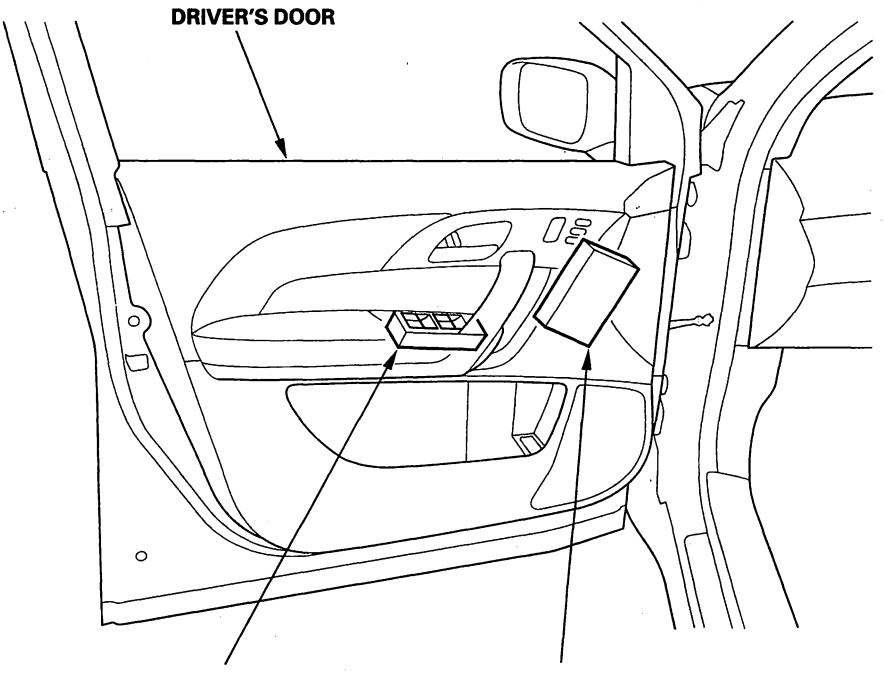

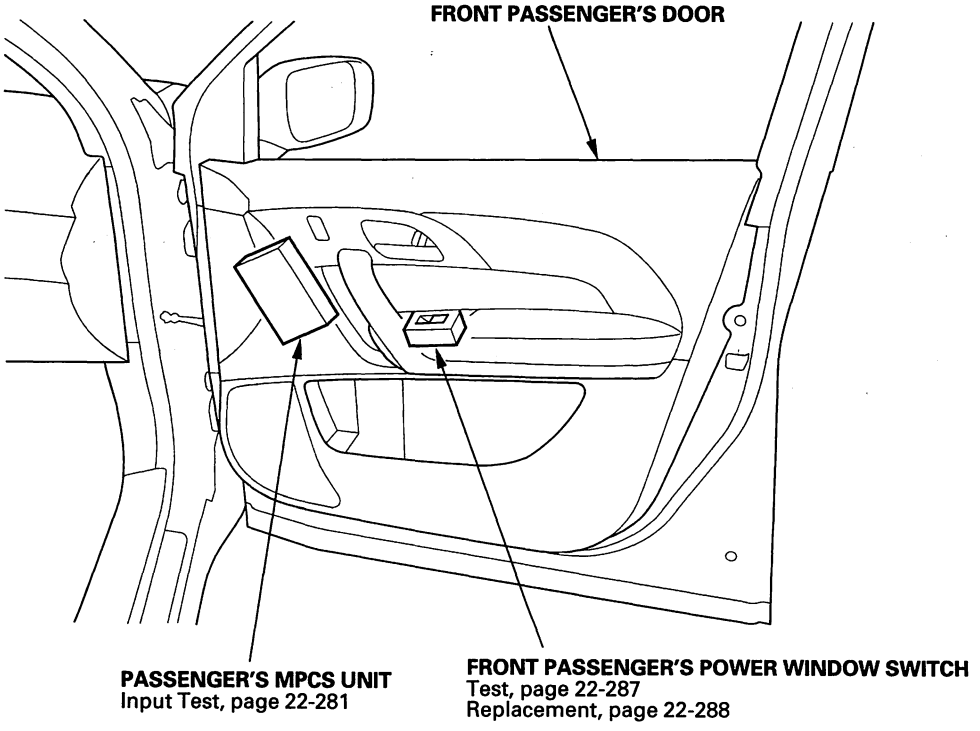

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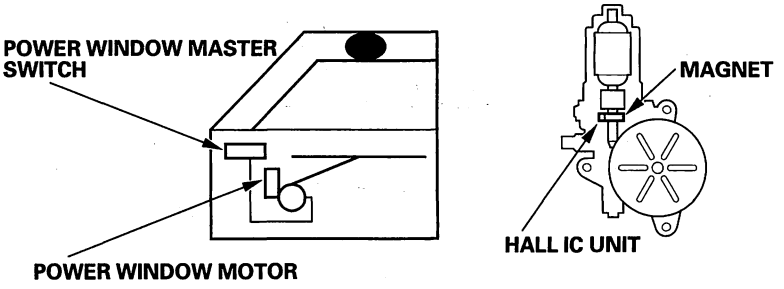
Power Windows

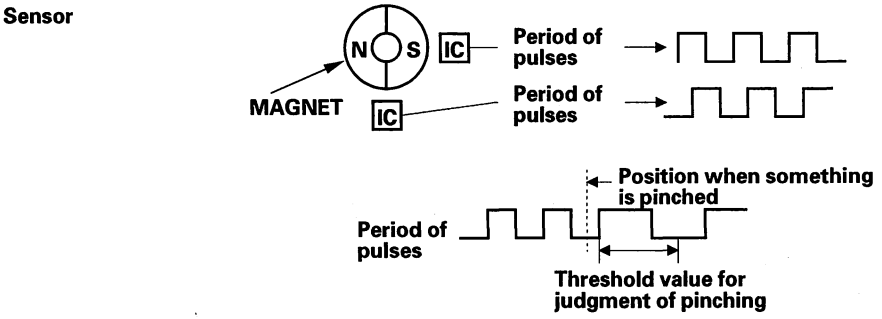
System Description

Anti-pinch Power Window Operation

The system is composed of the driver's MPCS unit, passenger's MPCS unit, power window master switch, passenger's switches, and power window motors.

The power window motor incorporates a pulser which generates pulses during the motor's operation and sends pulses to the driver's and passenger's MPCS units. As soon as the power window control unit detects a change in the pulse frequency from the pulser, the power window control unit makes the power window motor stop and reverse. This is prevent pinching your hand or fingers during auto-up operation.





Key Cylinder Operation
With the key inserted in the driver's door key cylinder, turn the key a second time within 15 seconds and hold it to operate the windows and moonroof (clockwise to open, counterclockwise to close). The windows and moonroof stop moving when the key is released. The anti-pinch operation is not active when closing the windows and moonroof with the key cylinder.

Keyless Operation
By pressing and holding the UNLOCK button of the keyless transmitter a second time within 15 seconds, the windows and moonroof open. The windows and moonroof stop moving when the UNLOCK button is released. The windows do not close with the LOCK button.

BACK

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Resetting the Power Window Control Unit

Resetting the power windows are required when any of the following have occurred:

- Power window regulator replacement or repair
- Power window motor replacement or repair
- Window run channel replacement
  - Driver's MPCS unit replacement
  - Passenger's MPCS unit replacement or repair
- Door glass replacement or repair
- Power is removed from the driver's or passenger's MPCS unit while the power window timer is ON.

NOTE: If the passenger's window has lost power when the key off timer is ON, it cannot be operated from the driver's switch and must be reset from the passenger's power window switch.

Using the HDS

1. Connect the HDS to the data link connector.
2. Turn the ignition switch ON (II), then enter the vehicle's VIN and mileage at the prompts.
3. Select "BODY ELECTRICAL" from the "SYSTEM SELECT" menu.
4. From the "BODY ELECTRICAL SYSTEM SELECT" menu, select "POWER WINDOWS".
5. From the "MODE" menu, select "ADJUSTMENTS".
6. From the "ADJUSTMENT" menu, select "WINDOW P RESET" for driver's side (passenger's side) window.
7. Follow the prompts on the screen.
8. Confirm that the power window control unit is reset by using the window AUTO UP and AUTO DOWN function.

(cont'd)

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Resetting the Power Window Control Unit (cont'd)

Without the HDS

NOTE: Do each bullet in step 4 within 5 seconds of each other.

1. Turn the ignition switch ON (II).
2. Move the window all the way down by using the window DOWN switch.
3. Open the driver's door.
4. Do the following 3 times before going to step 5:
   - Turn the ignition switch OFF.
   - Push and hold the window DOWN switch.
   - Turn the ignition switch ON (II).
   - Release the window DOWN switch.
5. Confirm that AUTO UP no longer works. If AUTO UP still works, go back to step 1.
6. Move the window all the way down using the window DOWN switch.
7. Pull up and hold the window UP switch until the window is all the way up, then continue to hold the switch for 1 second.
8. Confirm that the power window control unit is reset by using the window AUTO UP and AUTO DOWN function.

   If the window still does not work in AUTO, repeat the procedure several times, paying close attention to the 5 second time limit between steps. If it still does not work, go to B-CAN System Diagnosis Test Mode A (see page 22-112).

   NOTE: The passenger's window must be rest from the passenger's power window switch.

BACK

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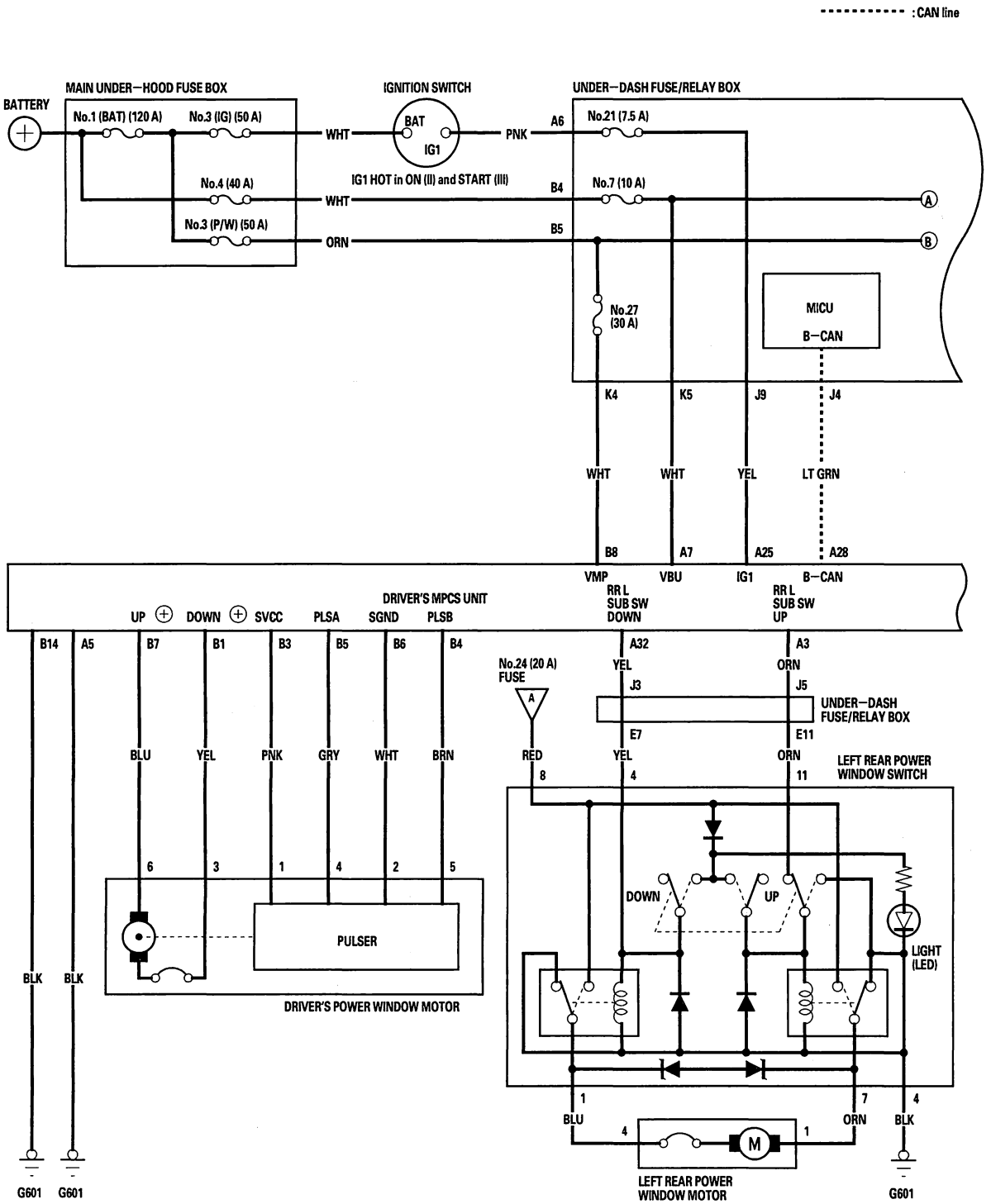
Circuit Diagram



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BACK

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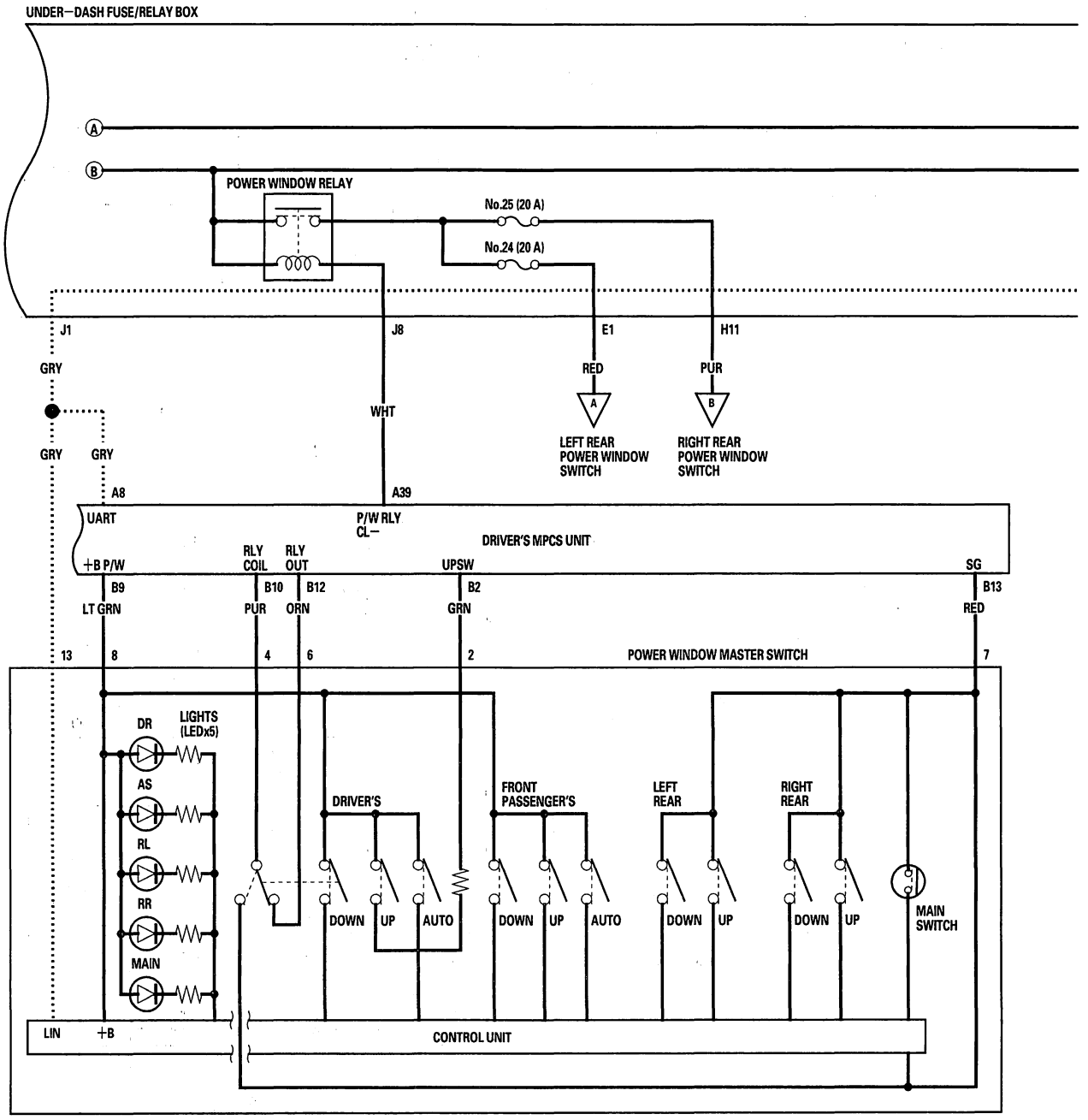
Power Windows

Circuit Diagram (cont'd)



BACK

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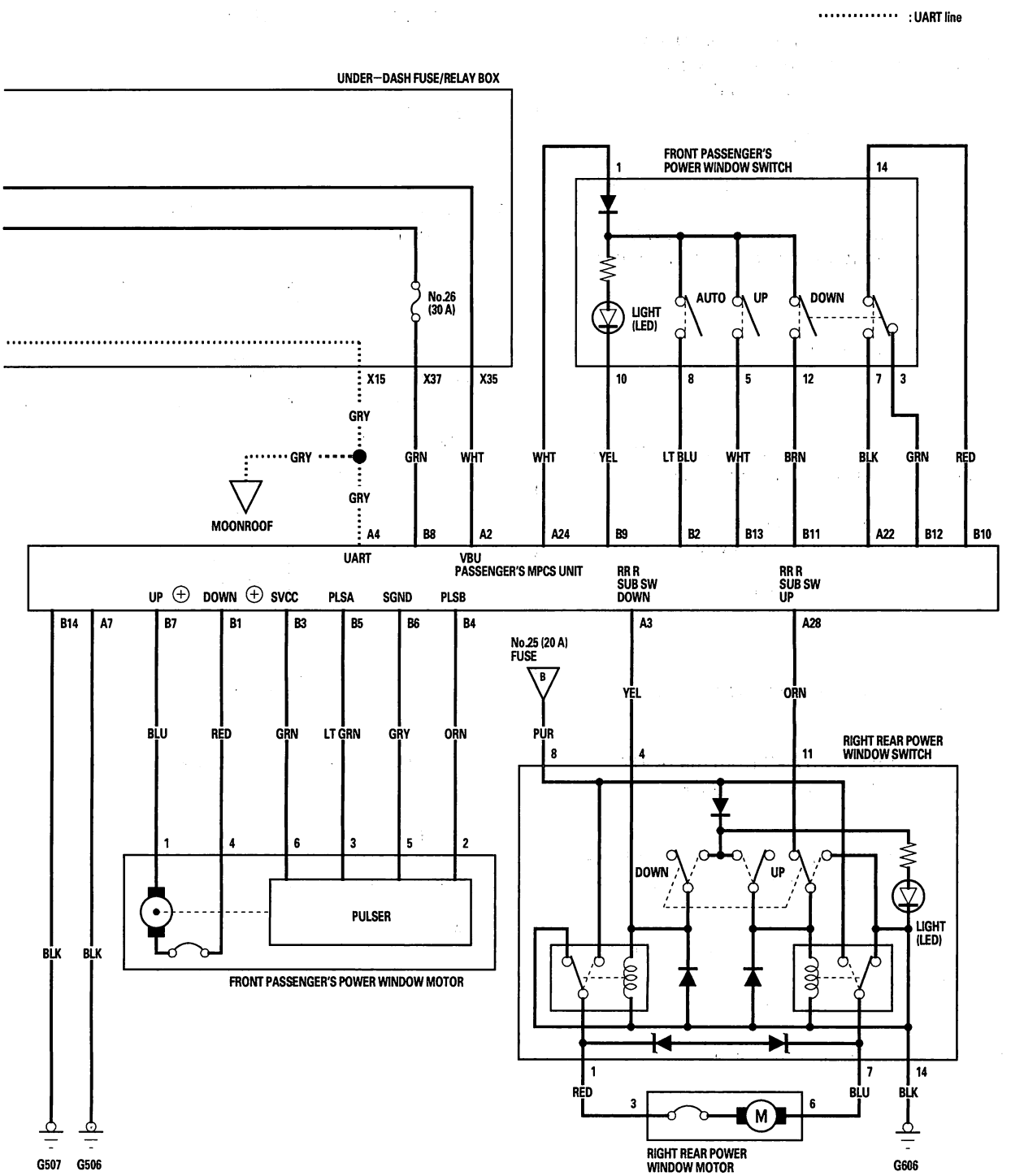

BACK

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DTC Troubleshooting

DTC B2175: Driver's Power Window Motor Pulse A Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Open and close the driver's power window by using the power window master switch manually.
4. Check for DTCs with the HDS.

   Is DTC B2175 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
5. Open and close the driver's power window by using the power window master switch manually.

   Does the window motor operate?

   YES—Go to step 6.

   NO—Test the driver's power window motor (see page 22-284). ■
6. Select the POWER WINDOWS from the BODY ELECTRICAL system select menu and enter the DATA LIST.
7. Check the DETECT/NONE information of the Driver's window motor A-phase pulse signal in the DATA LIST.

   Does the information indicator display DETECT while the window is moving, and display NONE when the window is stopped?

   YES—Replace the driver's MPCS unit. ■

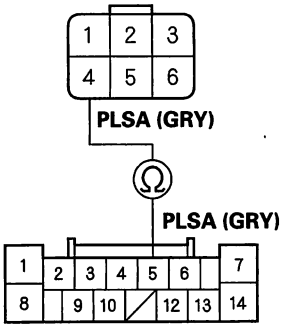
   NO—Go to step 8.
8. Check for DTCs with the HDS.

   Is DTC B2176 also indicated?

   YES—Go to step 15.

   NO—Go to step 9. ■
9. Turn the ignition switch OFF.
10. Disconnect the 14P connector from the driver's MPCS unit.
11. Disconnect the 6P connector from the driver's power window motor.
12. Check for continuity between driver's MPCS unit connector B (14P) No. 5 terminal and driver's power window motor 6P connector No. 4 terminal.

DRIVER'S POWER WINDOW MOTOR 6P CONNECTOR
Wire side of female terminals



DRIVER'S MPCS UNIT CONNECTOR B (14P)
Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire.

BACK

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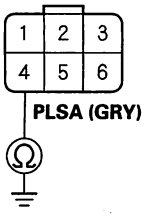
13. Check for continuity between driver's power window motor 6P connector No. 4 terminal and body ground.

DRIVER'S POWER WINDOW MOTOR 6P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Replace the driver's power window. ■

14. Test the driver's power window motor (see page 22-284).

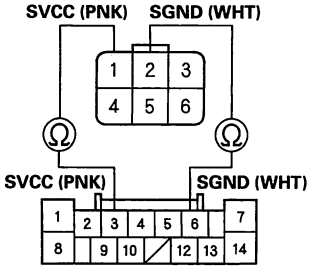
Is the motor OK?

YES—Replace the driver's MPCS unit. ■

NO—Replace the driver's power window motor. ■

15. Check for continuity between the driver's MPCS unit connector B (14P) No. 3 and No. 6 terminals and the driver's power window motor 6P connector No. 1 and No. 2 terminals respectively.

DRIVER'S POWER WINDOW MOTOR 6P CONNECTOR
Wire side of female terminals



DRIVER'S MPCS UNIT CONNECTOR B (14P)
Wire side of female terminals

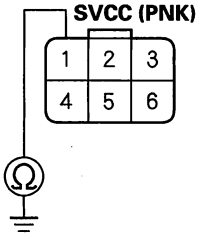
Is there continuity?

YES—Go to step 16.

NO—Repair an open in the wire. ■

16. Check for continuity between the driver's power window motor 6P connector No. 1 terminal and body ground.

DRIVER'S POWER WINDOW MOTOR 6P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

NO—Replace the driver's power window motor. ■

BACK

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DTC Troubleshooting (cont'd)

DTC B2176: Driver's Power Window Motor Pulse B Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Open and close the driver's power window by using the power window master switch manually.
4. Check for DTCs with the HDS.

   Is DTC B2176 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Open and close the driver's power window by using the power window master switch manually.

   Does the window motor operate?

   YES—Go to step 6.

   NO—Test the driver's power window motor (see page 22-284).■
6. Select the POWER WINDOWS from the BODY ELECTRICAL system select menu and enter the DATA LIST.
7. Check the DETECT/NONE information of the Driver's window motor B-phase pulse signal in the DATA LIST.

   Does the information indicator display DETECT while the window is moving, and display NONE when the window is stopped?

   YES—Replace the driver's MPCS unit.■

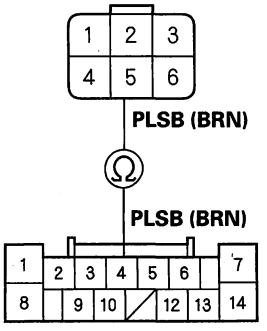
   NO—Go to step 8.
8. Check for DTCs with the HDS.

   Is DTC B2175 also indicated?

   YES—Go to step 15.

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Disconnect the 14P connector from the driver's MPCS unit.
11. Disconnect the 6P connector from the driver's power window motor.
12. Check for continuity between driver's MPCS unit connector B (14P) No. 4 terminal and driver's power window motor 6P connector No. 5 terminal.

DRIVER'S POWER WINDOW MOTOR 6P CONNECTOR
Wire side of female terminals



DRIVER'S MPCS UNIT CONNECTOR B (14P)
Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire.

BACK

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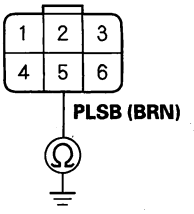
13. Check for continuity between driver's power window motor 6P connector No. 5 terminal and body ground.

DRIVER'S POWER WINDOW MOTOR 6P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire.■

NO—Go to step 14.

14. Test the driver's power window motor (see page 22-284).

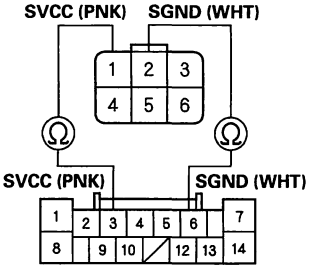
Is the motor OK?

YES—Replace the driver's MPCS unit.■

NO—Replace the driver's power window motor.■

15. Check for continuity between the driver's MPCS unit connector B (14P) No. 3 and No. 6 terminals and the driver's power window motor 6P connector No. 1 and No. 2 terminals respectively.

DRIVER'S POWER WINDOW MOTOR 6P CONNECTOR
Wire side of female terminals



DRIVER'S MPCS UNIT CONNECTOR B (14P)
Wire side of female terminals

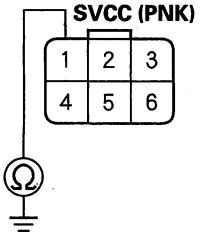
Is there continuity?

YES—Go to step 16.

NO—Repair an open in the wire.■

16. Check for continuity between the driver's power window motor 6P connector No. 1 terminal and body ground.

DRIVER'S POWER WINDOW MOTOR 6P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire.■

NO—Replace the driver's power window motor.■

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DTC Troubleshooting (cont'd)

DTC B2177: Front Passenger's Power Window Motor Pulse A Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Open and close the front passenger's power window by using the front passenger's power window switch manually.
4. Check for DTCs with the HDS.

   Is DTC B2177 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Open and close the driver's power window by using the power window master switch manually.

   Does the window motor operate?

   YES—Go to step 6.

   NO—Test the front passenger's power window motor (see page 22-285).■
6. Select the POWER WINDOWS from the BODY ELECTRICAL system select menu and enter the DATA LIST.
7. Check the DETECT/NONE information of the Front passenger's window motor A-phase pulse signal in the DATA LIST.

   Does the information indicator display DETECT while the window is moving, and display NONE when the window is stopped?

   YES—Replace the driver's MPCS unit.■

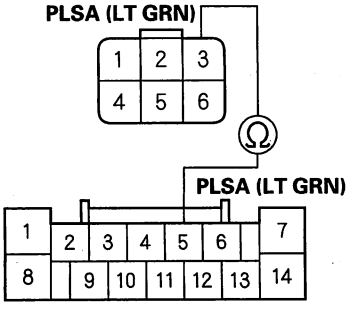
   NO—Go to step 8.
8. Check for DTCs with the HDS.

   Is DTC B2178 also indicated?

   YES—Go to step 15.

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Disconnect the passenger's MPCS unit connector B (14P).
11. Disconnect the 6P connector from the passenger's power window motor.
12. Check for continuity between front passenger's MPCS unit connector B (14P) No. 5 terminal and front passenger's power window motor 6P connector No. 3 terminal.

FRONT PASSENGER'S POWER WINDOW MOTOR 6P CONNECTOR
Wire side of female terminals



PASSENGER'S MPCS UNIT CONNECTOR B (14P)
Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire.

BACK

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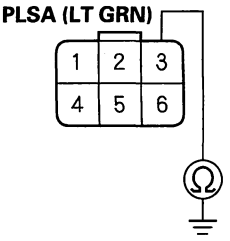
13. Check for continuity between front passenger's power window motor 6P connector No. 3 terminal and body ground.

FRONT PASSENGER'S POWER WINDOW MOTOR 6P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire.■

NO—Go to step 14.

14. Test the front passenger's power window motor (see page 22-285).

Is the motor OK?

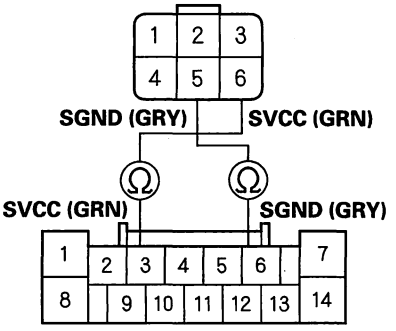
YES—Replace the passenger's MPCS unit.■

NO—Replace the front passenger's power window motor.■

15. Check for continuity between the passenger's MPCS unit connector B (14P) No. 3 and No. 6 terminals and the front passenger's power window motor 6P connector No. 5 and No. 6 terminals respectively.

FRONT PASSENGER'S POWER WINDOW MOTOR 6P CONNECTOR

Wire side of female terminals



PASSENGER'S MPCS UNIT CONNECTOR B (14P)

Wire side of female terminals

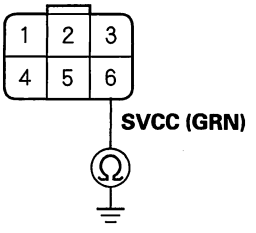
Is there continuity?

YES—Go to step 16.

NO—Repair open in the wire.■

16. Check for continuity between the front passenger's power window motor 6P connector No. 6 terminal and body ground.

FRONT PASSENGER'S POWER WINDOW MOTOR 6P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire.■

NO—Replace the front passenger's power window motor.■

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DTC Troubleshooting (cont'd)

DTC B2178: Front Passenger's Power Window Motor Pulse B Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Open and close the front passenger's power window by using the front passenger's power window switch manually.
4. Check for DTCs with the HDS.

   Is DTC B2178 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Open and close the driver's power window by using the power window master switch manually.

   Does the window motor operate?

   YES—Go to step 6.

   NO—Test the front passenger's power window motor (see page 22-285).■
6. Select the POWER WINDOWS from the BODY ELECTRICAL system select menu and enter the DATA LIST.
7. Check the DETECT/NONE information of the Front passenger's window motor B-phase pulse signal in the DATA LIST.

   Does the information indicator display DETECT while the window is moving, and display NONE when the window is stopped?

   YES—Replace the driver's MPCS unit.■

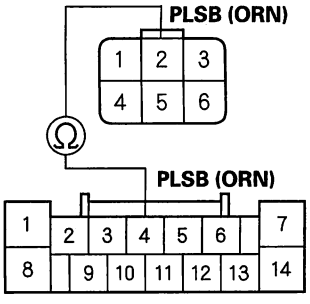
   NO—Go to step 8.
8. Check for DTCs with the HDS.

   Is DTC B2177 also indicated?

   YES—Go to step 15.

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Disconnect the passenger's MPCS unit connector B (14P).
11. Disconnect the 6P connector from the passenger's power window motor.
12. Check for continuity between front passenger's MPCS unit connector B (14P) No. 4 terminal and front passenger's power window motor 6P connector No. 2 terminal.

FRONT PASSENGER'S POWER WINDOW MOTOR 6P CONNECTOR
Wire side of female terminals



PASSENGER'S MPCS UNIT CONNECTOR B (14P)
Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire.■

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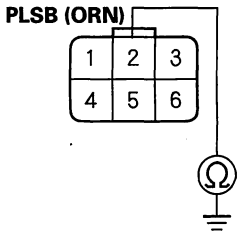
13. Check for continuity between front passenger's power window motor 6P connector No. 2 terminal and body ground.

FRONT PASSENGER'S POWER WINDOW MOTOR 6P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 14.

14. Test the front passenger's power window motor (see page 22-285).

Is the motor OK?

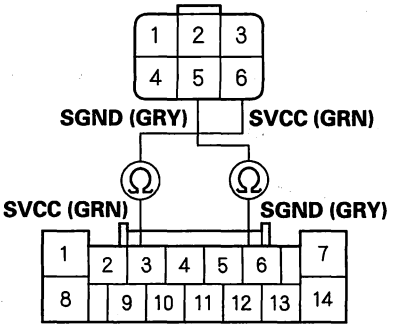
YES—Replace the passenger's MPCS unit. ■

NO—Replace the front passenger's power window motor. ■

15. Check for continuity between the passenger's MPCS unit connector B (14P) No. 3 and No. 6 terminals and the front passenger's power window motor 6P connector No. 5 and No. 6 terminals respectively.

FRONT PASSENGER'S POWER WINDOW MOTOR 6P CONNECTOR

Wire side of female terminals



PASSENGER'S MPCS UNIT CONNECTOR B (14P)

Wire side of female terminals

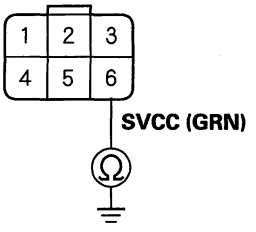
Is there continuity?

YES—Go to step 16.

NO—Repair open in the wire. ■

16. Check for continuity between the front passenger's power window motor 6P connector No. 6 terminal and body ground.

FRONT PASSENGER'S POWER WINDOW MOTOR 6P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Replace the front passenger's power window motor. ■

BACK

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DTC Troubleshooting (cont'd)

DTC B2187: Communication Line (UART Line) Driver's MPCS Unit cannot send UART messages.

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Check for DTCs with the HDS.

   Is DTC B2187 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time.■
4. Turn the ignition switch OFF.
5. Disconnect the passenger's MPCS unit connector A (28P).
6. Turn the ignition switch ON (II).
7. Clear the DTCs with the HDS.
8. Turn the ignition switch OFF, and then back ON (II).
9. Check for DTCs with the HDS.

   Is DTC B2187 indicated?

   YES—Go to step 10.

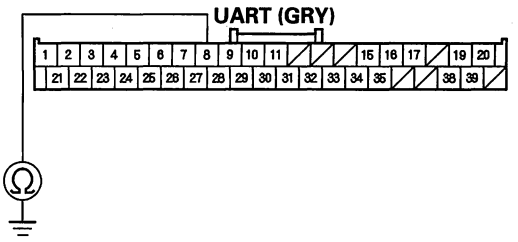
   NO—Do the passenger's MPCS unit input test, step No. 6. If OK, replace the passenger's MPCS unit.■
10. Turn the ignition switch OFF.
11. Disconnect the moonroof control unit/motor 10P connector.
12. Turn the ignition switch ON (II).
13. Clear the DTCs with the HDS.
14. Turn the ignition switch OFF, and then back ON (II).
15. Check for DTCs with the HDS.

    Is DTC B2187 indicated?

    YES—Go to step 16.

    NO—Replace the moonroof control unit/motor.■
16. Turn the ignition switch OFF.
17. Disconnect the driver's MPCS unit connector A (40P).
18. Check for continuity between the driver's MPCS unit connector A (40P) No. 8 terminal and body ground.

DRIVER'S MPCS UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire.■

NO—Go to step 19.

19. Turn the ignition switch ON (II).

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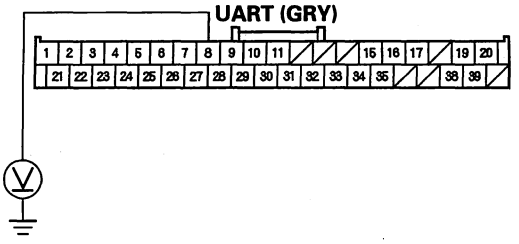
20. Measure the voltage between the driver's MPCS unit connector A (40P) No. 8 terminal and body ground.

DRIVER'S MPCS UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there voltage?

YES—Repair short to power in the wire. ■

NO—Replace the driver's MPCS unit. ■

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DTC Troubleshooting (cont'd)

DTC B2188: Communication Line (UART Line) Driver's MPCS Unit cannot receive UART messages from Pasenger's MPCS Unit.

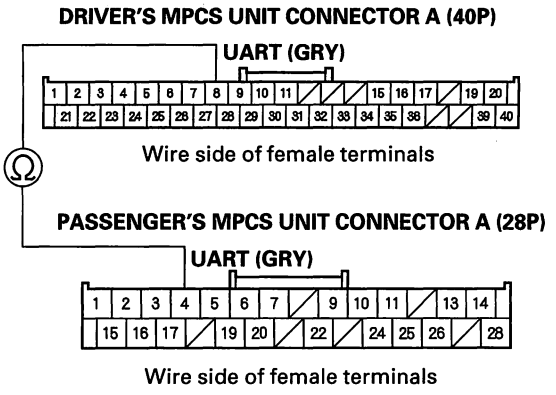
NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Open and close the driver's and front passenger's windows by operating the power window master switch.
4. Check for DTCs with the HDS.

   Is DTC B2188 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch OFF.
6. Disconnect the driver's MPCS unit connector A (40P).
7. Disconnect the passenger's MPCS unit connector A (28P).
8. Check for continuity between the driver's MPCS unit connector A (40P) No. 8 terminal and the passenger's MPCS unit connector A (28P) No. 4 terminal.



Is there continuity?

YES—Substitute a known-good driver's MPCS unit and recheck. If the DTC goes away, replace the original driver's MPCS unit. If the DTC is still present, replace the passenger's MPCS unit.

NO—Repair open in the wire.■

BACK

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DTC B2189: Driver's Power Window Position Detect Circuit Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Open and close the driver's power window by using the power window master switch manually.
4. Check for DTCs with the HDS.

   Is DTC B2175 or B2176 also indicated?

   YES—Troubleshoot the indicated DTC(s) first. ■

   NO—Go to step 5.
5. Reset the power window control unit (see page 22-259).
6. Clear the DTCs with the HDS.
7. Turn the ignition switch OFF, and then back ON (II).
8. Open and close the driver's power window by using the power window master switch manually.
9. Check for DTCs with the HDS.

   Is DTC B2189 indicated?

   YES—Go to step 10.

   NO—The system is OK at this time. ■
10. Turn the ignition switch OFF.
11. Substitute a known-good driver's MPCS unit.
12. Clear the DTCs with the HDS.
13. Turn the ignition switch OFF, and then back ON (II).
14. Open and close the driver's power window by using the power window master switch manually.
15. Check for DTCs with the HDS.

    Is DTC B2189 indicated?

    YES—Replace the driver's power window motor. ■

    NO—Replace the driver's MPCS unit. ■

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DTC Troubleshooting (cont'd)

DTC B2190: Front Passenger's Power Window Position Detect Circuit Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Open and close the front passenger's window by using the front passenger's power window switch manually.
4. Check for DTCs with the HDS.

   Is DTC B2177 or B2178 also indicated?

   YES—Troubleshoot the indicated DTC(s) first. ■

   NO—Go to step 5.
5. Reset the power window control unit (see page 22-259).
6. Clear the DTCs with the HDS.
7. Turn the ignition switch OFF, and then back ON (II).
8. Open and close the front passenger's power window by using the front passenger's power window switch manually.
9. Check for DTCs with the HDS.

   Is DTC B2190 indicated?

   YES—Go to step 10.

   NO—The system is OK at this time. ■
10. Turn the ignition switch OFF.
11. Substitute a known-good passenger's MPCS unit.
12. Clear the DTCs with the HDS.
13. Turn the ignition switch OFF, and then back ON (II).
14. Open and close the front passenger's power window by using the front passenger's power window switch manually.
15. Check for DTCs with the HDS.

    Is DTC B2190 indicated?

    YES—Replace the front passenger's window motor. ■

    NO—Replace the passenger's MPCS unit. ■

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DTC B2191: Passenger's MPCS Unit Internal (EEPROM) Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Check for DTCs with the HDS.

   Is DTC B2191 indicated?

   YES—Replace the passenger's MPCS unit. ■

   NO—Intermittent failure, the system is OK at this time. ■

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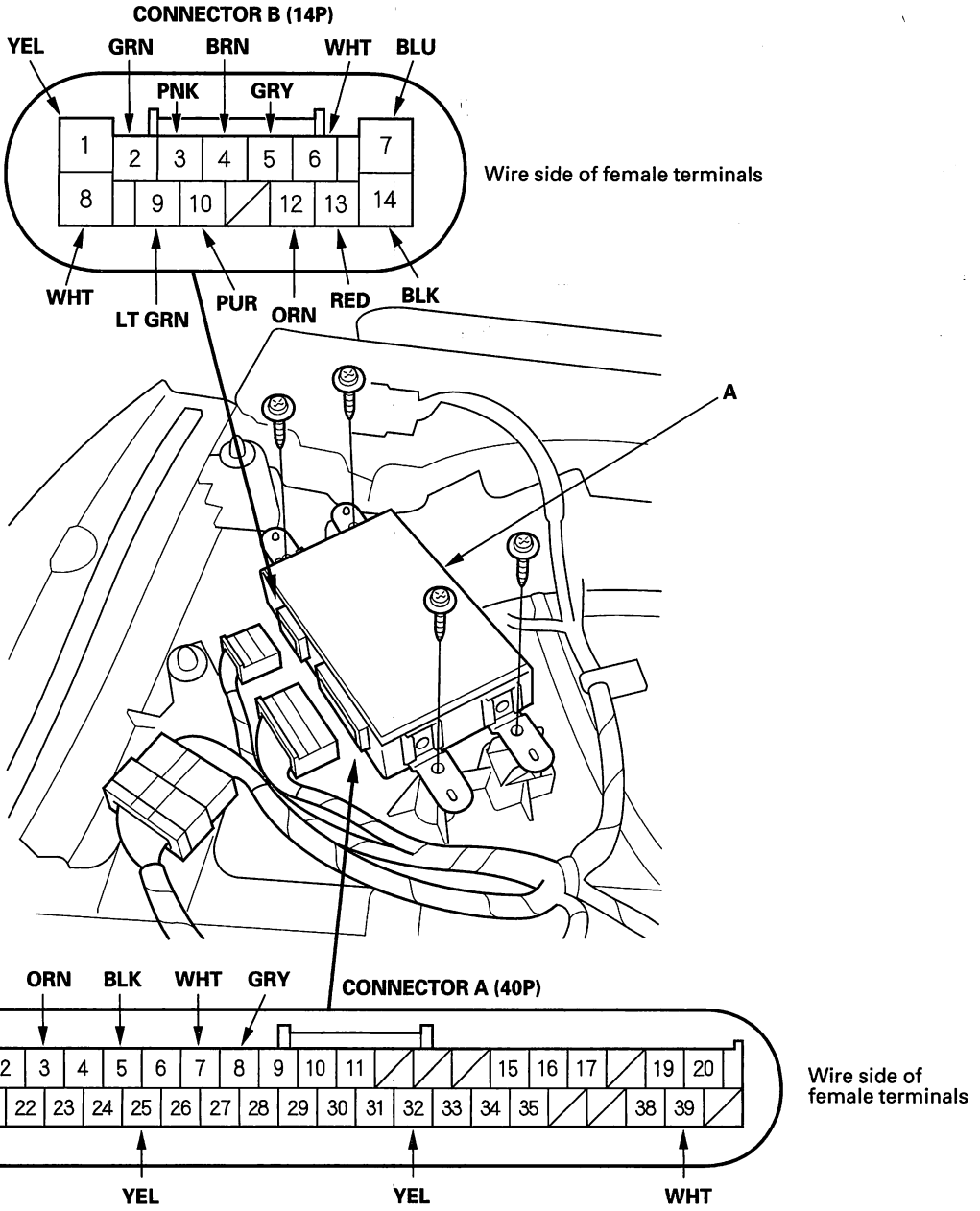
Driver's MPCS Unit Input Test

1. Turn the ignition switch OFF.
2. Remove the driver's door panel (see page 20-8).
3. Disconnect the driver's MPCS unit (A) connectors A (40P) and B (14P).



4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, Go to step 5.

BACK

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5. With the connector still disconnected, make these input tests at the connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, Go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A8	GRY	Under-dash fuse/relay box connector J (21P) and power window master switch connector B (14P) disconnected	Check for continuity between the A8 terminal and under-dash fuse/relay box connector J (12P) No. 1 terminal, and A8 terminal and power window master switch connector B (14P) No. 13 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	Short to ground in the wire
A39	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 3 (P/W) (50 A) fuse in the main under-hood fuse box • Faulty power window relay • An open in the wire
A3	ORN	Connect the A39 terminal to body ground, and connect the A3 and B 8 terminals with a jumper wire.	Check the left rear power window motor operation: The motor should run (the power window should go up).	• Blown No. 24 (20 A) fuse in the under-dash fuse/relay box • Poor ground (G601) • Faulty power window relay • Faulty left rear power window switch • Faulty left rear power window motor • An open in the wire
A32	YEL	Connect the A39 terminal to body ground, and connect the A32 and B8 terminals with a jumper wire.	Check the left rear power window motor operation: The motor should run (the power window should go down).	
B1	YEL	Connect the B8 and B1 terminals, and the B7 and B14 terminals with jumper wires.	Check the driver's power window motor operation: The motor should run (the power window should go down).	• Blown No. 27 (30 A) fuse in the under-dash fuse/relay box • Faulty driver's power window motor • An open in the wire
B7	BLU	Connect the B8 and B7 terminals, and the B1 and B14 terminals with jumper wires.	Check the driver's power window motor operation: The motor should run (the power window should go up).	
B9 • B2	LT GRN • GRN	Driver's power window switch in UP position	Check for continuity between the terminals: There should be continuity.	• Faulty power window master switch • An open in the wire
		Driver's power window switch released	Check for continuity between the terminals: There should be no continuity.	• Faulty power window master switch • A short to ground in the wire
B10 • B12	PUR • ORN	Under all condition (except pressing the driver's power window switch DOWN position)	Check for continuity between the terminals: There should be continuity.	• Faulty power window master switch • An open in the wire
		Driver's power window switch in DOWN position	Check for continuity between the terminals: There should be no continuity.	• Faulty power window master switch • A short to ground in the wire
B10 • B13	PUR • RED	Driver's power window switch in DOWN position	Check for continuity between the terminals: There should be continuity.	• Faulty power window master switch • An open in the wire
		Driver's power window switch released	Check for continuity between the terminals: There should be no continuity.	• Faulty power window master switch • A short to ground in the wire

(cont'd)

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Driver's MPCS Unit Input Test (cont'd)

6. Reconnect the connector, and make these input tests at the connector.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, replace the driver's MPCS unit, then go to step 7.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A5 B14	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G601) • An open in the wire
A7	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
B8	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 3 (P/W) (50 A) fuse in the main under-hood fuse box • Blown No. 27 (30 A) fuse in the under-dash fuse/relay box • An open in the wire
A25	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
B3	PNK	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Faulty driver's MPCS unit • An open in the wire
B4	BRN	Ignition switch ON (II), and driver's power window motor runs by connecting the B8 and B1 terminals and the B7 and B14 terminals with jumper wires.	Measure the voltage between the B4 and B6 terminals: There should be 0—about 5 V — 0—about 5 V repeatedly (a digital voltmeter reads about 2.5 V while the power window moves).	• Blown No. 27 (30 A) fuse in the under-dash fuse/relay box • Faulty driver's MPCS unit • Faulty driver's power window motor • An open in the wire
B5	GRY	Ignition switch ON (II), and driver's power window motor runs by connecting the B8 and B1 terminals and the B7 and B14 terminals with jumper wires.	Measure the voltage between the B5 and B6 terminals: There should be 0—about 5 V — 0—about 5 V repeatedly (a digital voltmeter reads about 2.5 V while the power window moves).	• Blown No. 27 (30 A) fuse in the under-dash fuse/relay box • Faulty driver's MPCS unit • Faulty driver's power window motor • An open in the wire
B6	WHT	Ignition switch ON (II)	Check for continuity to ground: There should be continuity.	• Poor ground (G601) • Faulty driver's MPCS unit • An open in the wire
B9	LT GRN	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Faulty driver's MPCS unit • Faulty power window master switch • An open in the wire • A short to ground in the wire

7. Reset the power window control unit (see page 22-259).

BACK

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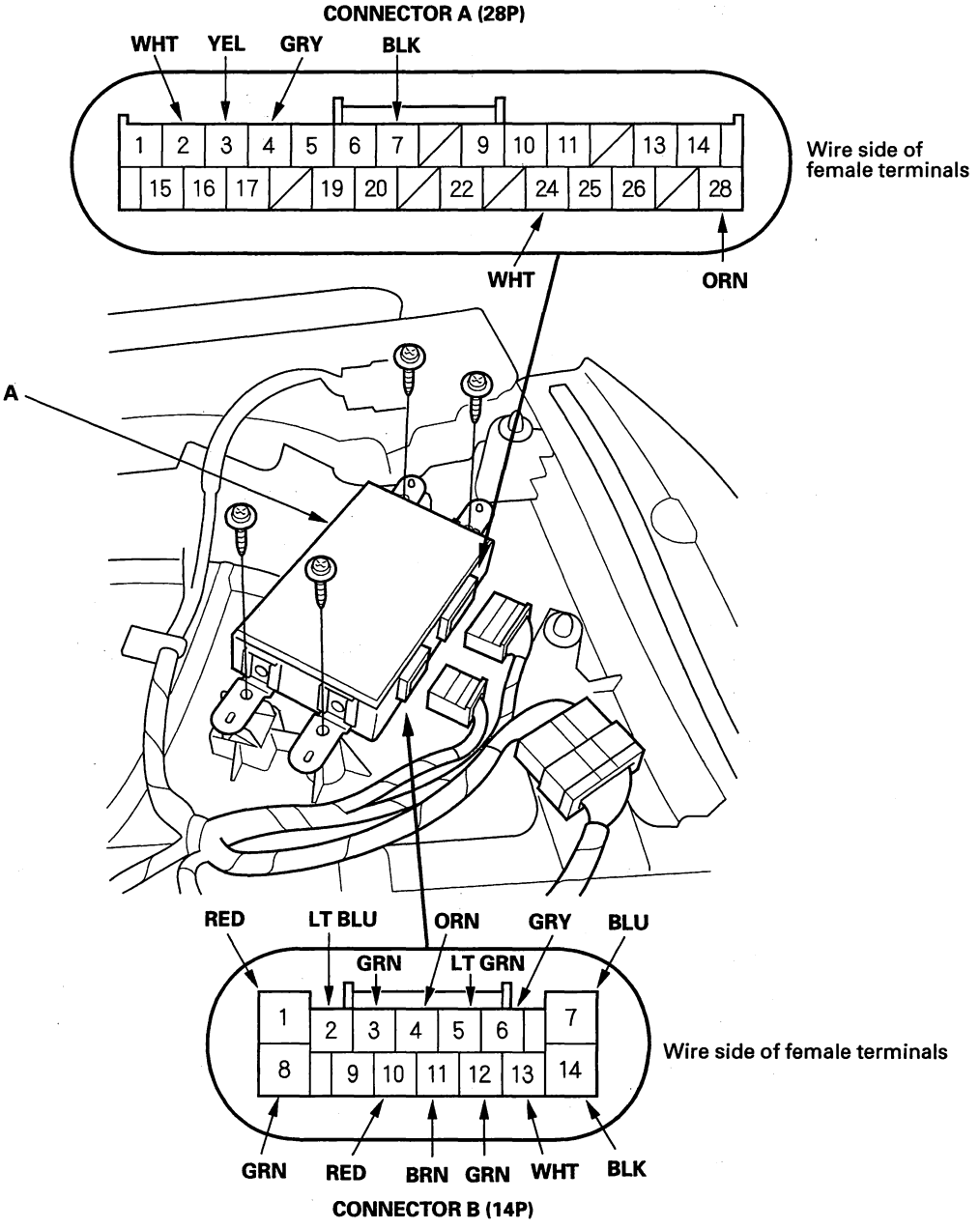
Passenger's MPCS Unit Input Test

1. Turn the ignition switch OFF.
2. Remove the front passenger's door panel (see page 20-8).
3. Disconnect the passenger's MPCS unit (A) connectors A (28P) and B (14P).



4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 5.

(cont'd)

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Passenger's MPCS Unit Input Test (cont'd)

5. With the connector still disconnected, make these input tests at the connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A4	GRY	Under-dash fuse/relay box connector X (39P) and moonroof control unit/motor 10P connector disconnected	Check for continuity between the A4 terminal and under-dash fuse/relay box connector X (39P) No. 15 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	Short to ground in the wire
A3	YEL	Ignition switch ON (II), connect the A3 and B8 terminals with a jumper wire.	Check the right rear power window motor operation: The motor should run (the power window should go down).	• Blown No. 26 (30 A) fuse in the under-dash fuse/relay box • Poor ground (G606) • Faulty power window relay • Faulty right rear power window switch • Faulty right rear power window motor • An open in the wire
A28	ORN	Ignition switch ON (II), connect the A28 and B8 terminals with a jumper wire.	Check the right rear power window motor operation: The motor should run (the power window should go up).	
B1	RED	Connect the B8 and B1 terminals, and the B7 and B14 terminals with jumper wires.	Check the front passenger's power window motor operation: The motor should run (the power window should go down).	• Blown No. 26 (30 A) fuse in the under-dash fuse/relay box • Faulty front passenger's power window motor • An open in the wire
B7	BLU	Connect the B8 and B7 terminals, and the B1 and B14 terminals with jumper wires.	Check the front passenger's power window motor operation: The motor should run (the power window should go up).	
A24 • B2	WHT • LT BLU	Front passenger's power window switch in AUTO position	Check for continuity between the terminals: There should be continuity.	• Faulty passenger's power window switch • An open in the wire
		Front passenger's power window switch released	Check for continuity between the terminals: There should be no continuity.	• Faulty passenger's power window switch • A short to ground in the wire
A24 • B11	WHT • BRN	Front passenger's power window switch in DOWN position	Check for continuity between the terminals: There should be continuity.	• Faulty passenger's power window switch • An open in the wire
		Front passenger's power window switch released	Check for continuity between the terminals: There should be no continuity.	• Faulty passenger's power window switch • A short to ground in the wire
A24 • B13	WHT • WHT	Front passenger's power window switch in UP position	Check for continuity between the terminals: There should be continuity.	• Faulty passenger's power window switch • An open in the wire
		Front passenger's power window switch released	Check for continuity between the terminals: There should be no continuity.	• Faulty passenger's power window switch • A short to ground in the wire
A22 • B10	BLK • RED	Front passenger's power window switch in DOWN position	Check for continuity between the terminals: There should be continuity.	• Faulty passenger's power window switch • An open in the wire
		Front passenger's power window switch released	Check for continuity between the terminals: There should be no continuity.	• Faulty passenger's power window switch • A short to ground in the wire
B10 • B12	RED • GRN	Under all condition (except pressing the front passenger's power window switch DOWN position)	Check for continuity between the terminals: There should be continuity.	• Faulty passenger's power window switch • An open in the wire
		Front passenger's power window switch in DOWN position	Check for continuity between the terminals: There should be no continuity.	• Faulty passenger's power window switch • A short to ground in the wire

BACK

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6. Reconnect the connector, and make these input tests at the connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, replace the passenger's MPCS unit, then go to step 7.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A7	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G506) • An open in the wire
B14	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G507) • An open in the wire
A2	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
B8	GRN	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 3 (P/W) (50 A) fuse in the main under-hood fuse box • Blown No. 26 (30 A) fuse in the under-dash fuse/relay box • An open in the wire
B3	GRN	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Faulty passenger's MPCS unit • An open in the wire
B4	ORN	Ignition switch ON (II), and front passenger's power window motor runs by connecting the B8 and B1 terminals and the B7 and B14 terminals with jumper wires.	Measure the voltage between the B4 and B6 terminals: There should be 0—about 5 V — 0—about 5 V repeatedly (a digital voltmeter reads about 2.5 V while the power window moves).	• Blown No. 26 (30 A) fuse in the under-dash fuse/relay box • Faulty passenger's MPCS unit • Faulty front passenger' s power window motor • An open in the wire
B5	LT GRN	Ignition switch ON (II), and front passenger's power window motor runs by connecting the B8 and B1 terminals and the B7 and B14 terminals with jumper wires.	Measure the voltage between the B5 and B6 terminals: There should be 0—about 5 V — 0—about 5 V repeatedly (a digital voltmeter reads about 2.5 V while the power window moves).	• Blown No. 26 (30 A) fuse in the under-dash fuse/relay box • Faulty passenger's MPCS unit • Faulty front passenger's power window motor • An open in the wire
B6	GRY	Ignition switch ON (II)	Check for continuity to ground: There should be continuity.	• Poor ground (G506, G507) • Faulty passenger's MPCS unit • An open in the wire

7. Reset the power window control unit (see page 22-259).

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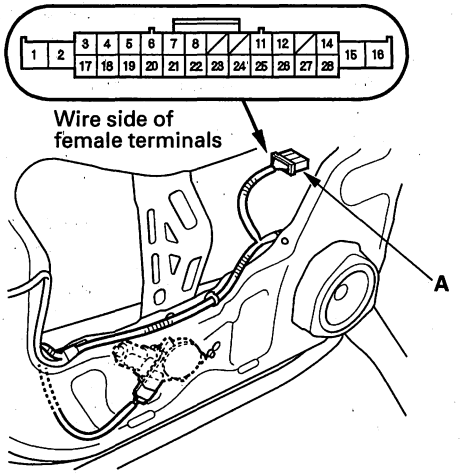
Driver's Power Window Motor Test

1. Remove the door panel (see page 20-8), and disconnect the driver's door wire harness B 28P connector (A) from the driver's door wire harness A.

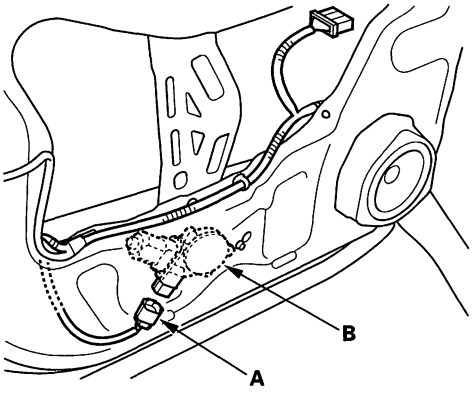


2. At the driver's door wire harness B 28P connector, test the power window motor in each direction by connecting battery power and ground according to the table.When the motor stops running, disconnect one lead immediately.

Terminal / Direction	15	16
UP	⊕	⊖
DOWN	⊖	⊕

3. If the motor does not run or fails to run smoothly, Go to step 4.

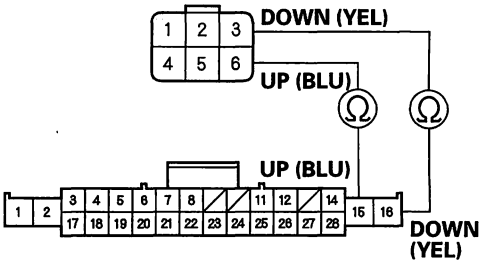
4. Disconnect the 6P connector (A) from the driver's power window motor (B).



5. Check for continuity between the driver's power window motor 6P connector No. 3 and No. 6 terminals and the driver's door wire harness B 28P connector No. 15 and No. 16 terminals respectively. There should be continuity.

   - If there is no continuity, repair open in the wire.
   - If there is continuity, replace the power window motor.

DRIVER'S POWER WINDOW MOTOR 6P CONNECTOR
Wire side of female terminals



DRIVER'S DOOR WIRE HARNESS B 28P CONNECTOR
Wire side of female terminals

6. After replacing the power window motor, reset the power window control unit (see page 22-259).

BACK

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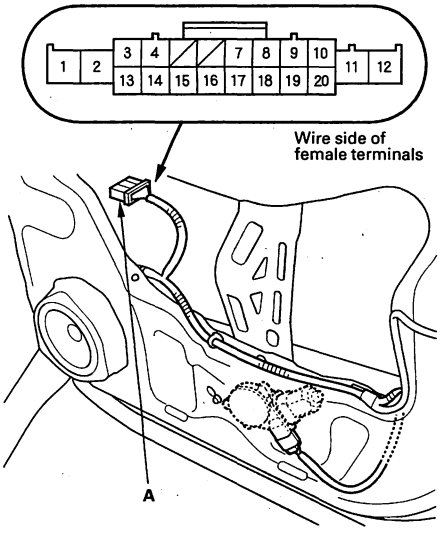
Front Passenger's Power Window Motor Test

1. Remove the door panel (see page 20-8), and disconnect the front passenger's door wire harness 20P connector (A) from the front passenger's door subharness.

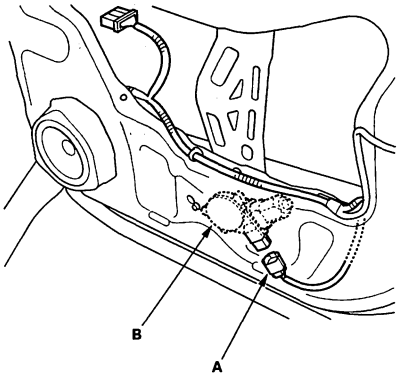


2. At the front passenger's door wire harness 20P connector, test the power window motor in each direction by connecting battery power and ground according to the table.When the motor stops running, disconnect one lead immediately.

Terminal / Direction	2	12
UP	⊖	⊕
DOWN	⊕	⊖

3. If the motor does not run or fails to run smoothly, go to step 4.

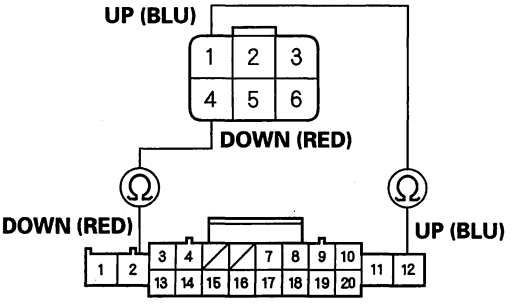
4. Disconnect the 6P connector (A) from the front passenger's power window motor (B).



5. Check for continuity between the front passenger's power window motor 6P connector No. 1 and No. 4 terminals and the front passenger's door wire harness 20P connector No. 2 and No. 12 terminals respectively. There should be continuity.

   - If there is no continuity, repair open in the wire.
   - If there is continuity, replace the power window motor.

FRONT PASSENGER'S POWER WINDOW MOTOR 6P CONNECTOR
Wire side of female terminals



FRONT PASSENGER'S DOOR WIRE HARNESS 20P CONNECTOR
Wire side of female terminals

6. After replacing the power window motor, reset the power window control unit (see page 22-259).

BACK

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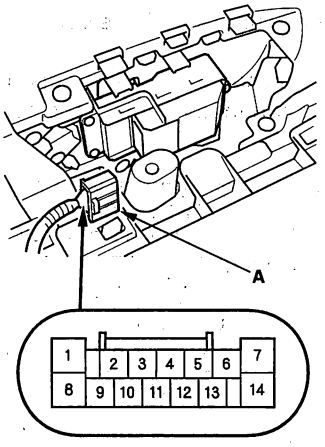
Rear Power Window Motor Test

1. Remove the door panel (see page 20-8), and disconnect the rear power window switch 14P connector (A).



Wire side of female terminals

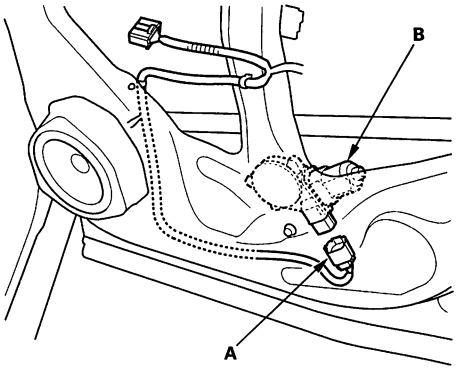
2. Test the power window motor in each direction by connecting battery power and ground according to the table. When the motor stops running, disconnect one lead immediately.

Terminal / Direction	1 [6]	4 [3]
UP	⊕	⊖
DOWN	⊖	⊕

[ ] : **Right rear power window**

3. If the motor does not run or fails to run smoothly, Go to step 4.

4. Disconnect the 6P connector (A) from the rear power window motor (B).



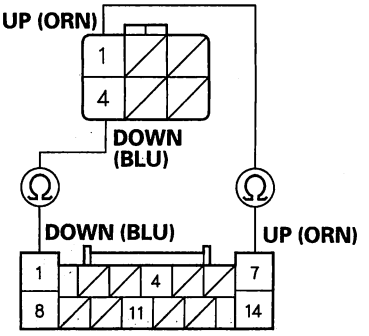
The illustration shows the right rear door, the left rear door is symmetrical.

5. Check for continuity between the rear power window motor 6P connector No. 1 [No. 3] and No. 4 [No. 6] terminals and the front rear power window switch 14P connector No. 1 and No. 7 terminals respectively. There should be continuity.
[ ] : Right rear power window

- If there is no continuity, repair open in the wire.
- If there is continuity, replace the power window motor.

LEFT REAR POWER WINDOW MOTOR 6P CONNECTOR

Wire side of female terminals

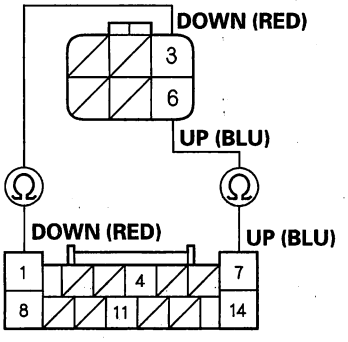


LEFT REAR POWER WINDOW SWITCH 14P CONNECTOR

Wire side of female terminals

RIGHT REAR POWER WINDOW MOTOR 6P CONNECTOR

Wire side of female terminals



RIGHT REAR POWER WINDOW SWITCH 14P CONNECTOR

Wire side of female terminals

6. After replacing the power window motor, reset the power window control unit (see page 22-259).

BACK

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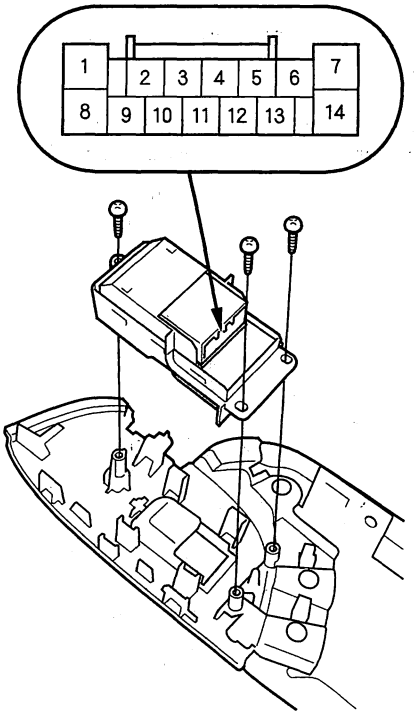
Front Passenger's Power Window Switch Test

1. Remove the front passenger's door panel (see page 20-8), and disconnect the 14P connector from the front passenger's power window switch.



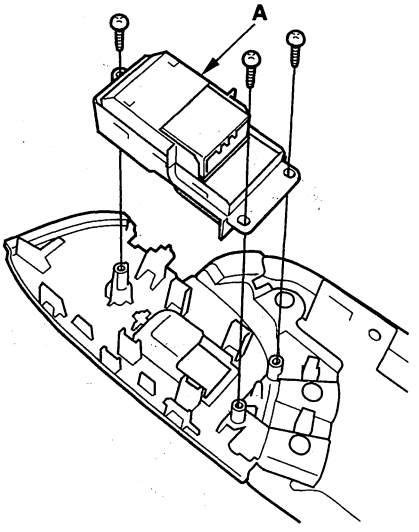
2. Check for continuity between the terminals in each switch position according to the table.

Position \ Terminal	1	5	8	12	3	7	14
UP	○	○			○		○
DOWN	○			○		○	○
AUTO	○		○		○		○

3. If the continuity is not as specified, replace the switch (see page 22-288).

Rear Power Window Switch Test/ Replacement

1. Remove the rear door panel (see page 20-22), and disconnect the 14P connector from the rear power window switch.
2. Remove the power window switch panel (see page 20-22).
3. Remove the three mounting screws and the rear power window switch (A).



4. Swap the rear power window switch with another known-good power window switch and test. If the original power window switch is faulty; replace it.
5. Install the switch in the reverse order of removal.
6. Reset the power window control unit (see page 22-259).

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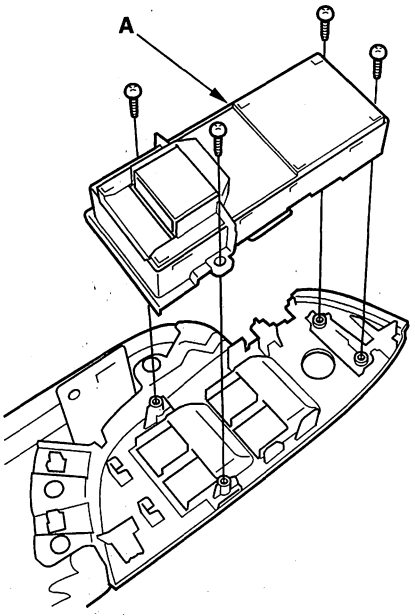
Power Window Master Switch Replacement

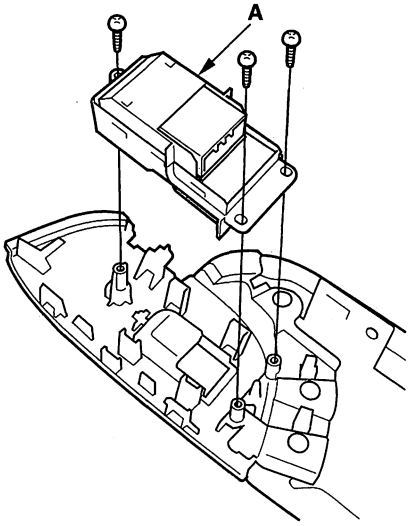
1. Remove the driver's door panel (see page 20-8), and disconnect the 14P connector from the power window master switch.
2. Remove the power window switch panel (see page 20-8).
3. Remove the four mounting screws and the power window master switch (A).



4. Install the switch in the reverse order of removal.
5. Reset the power window control unit (see page 22-259).

Front Passenger's Power Window Switch Replacement

1. Remove the front passenger's door panel (see page 20-8), and disconnect the 14P connector from the front passenger's power window switch.
2. Remove the power window switch panel (see page 20-8).
3. Remove the three mounting screws and the front passenger's power window switch (A).



4. Install the switch in the reverse order of removal.
5. Reset the power window control unit (see page 22-259).

BACK

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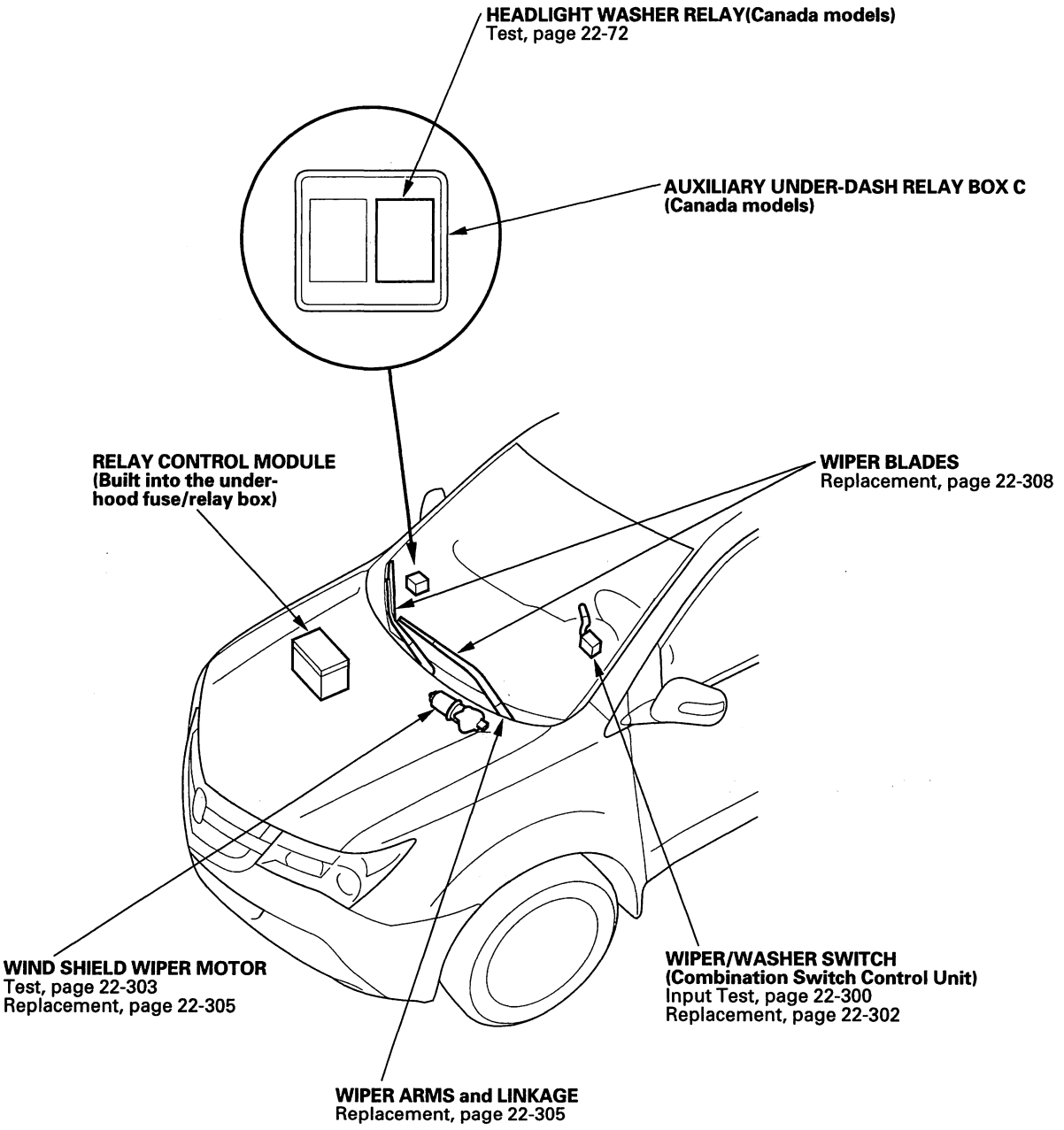
Wipers/Washers

Component Location Index



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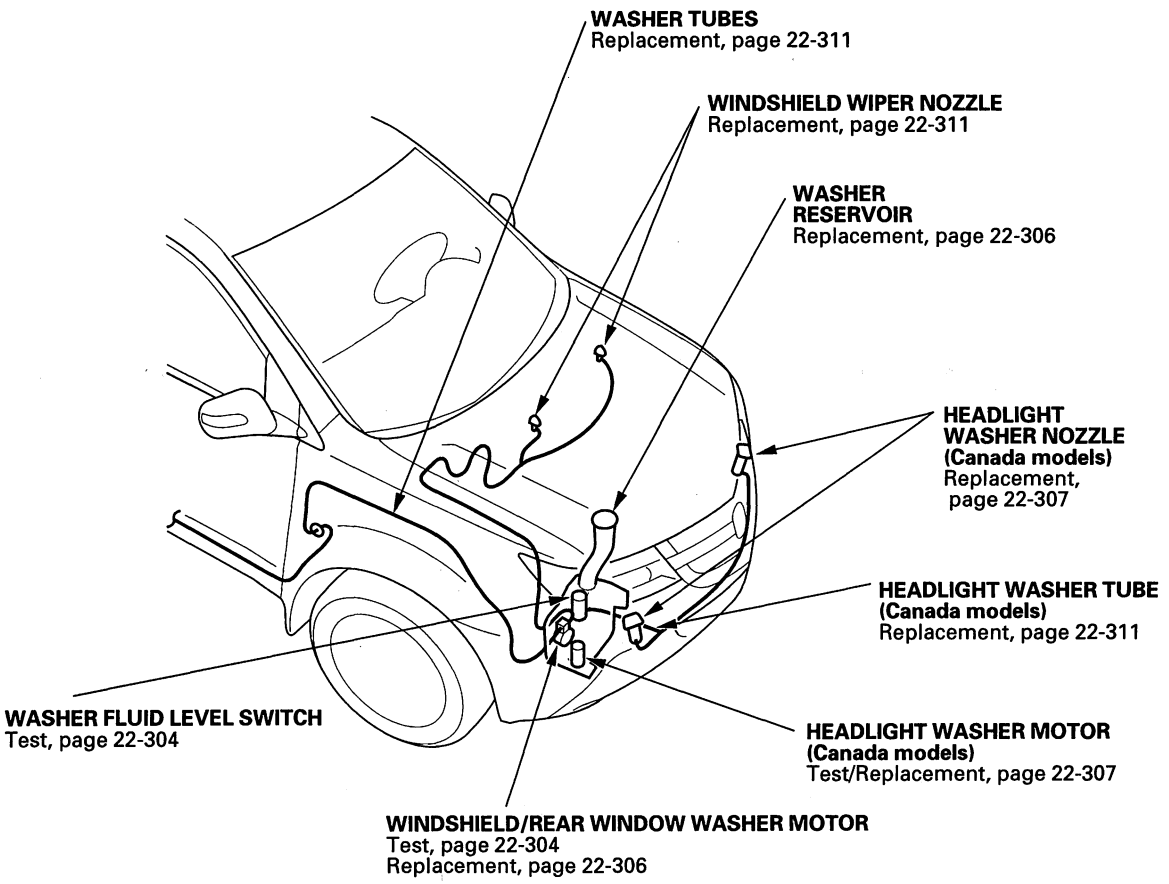
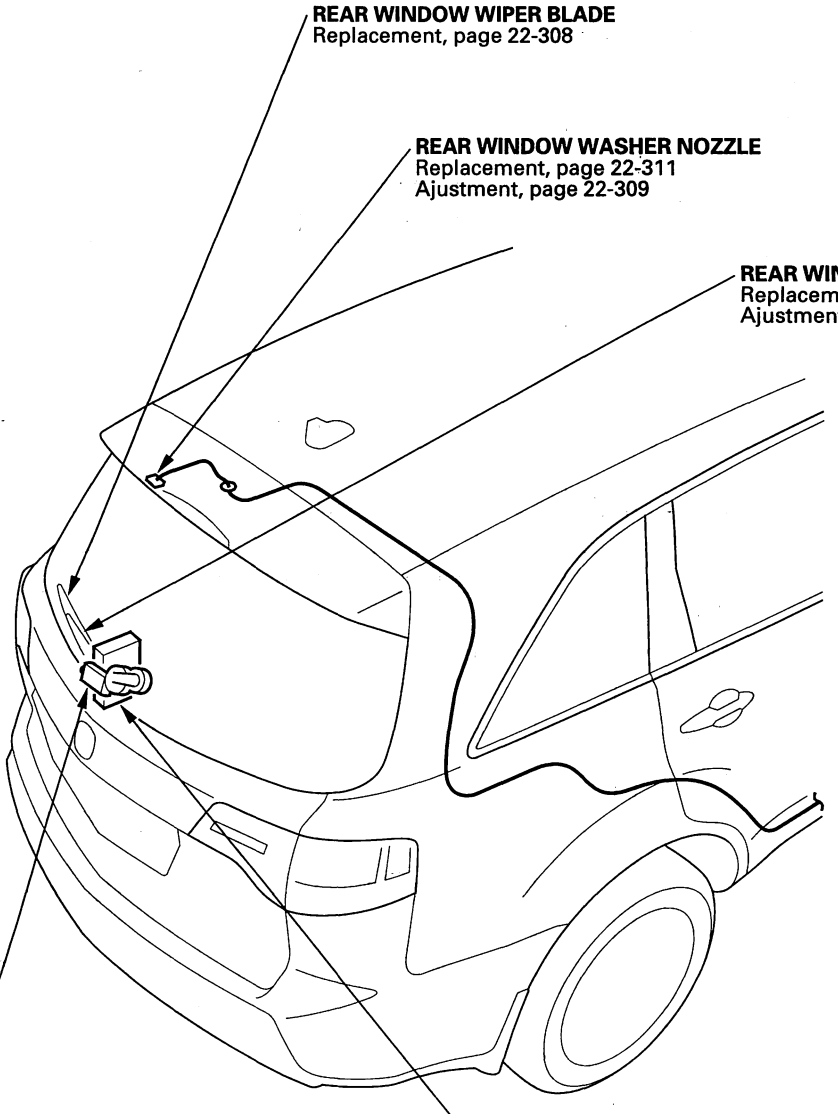
Protected by AR

Component Location Index (cont'd)



BACK

Protected by AR



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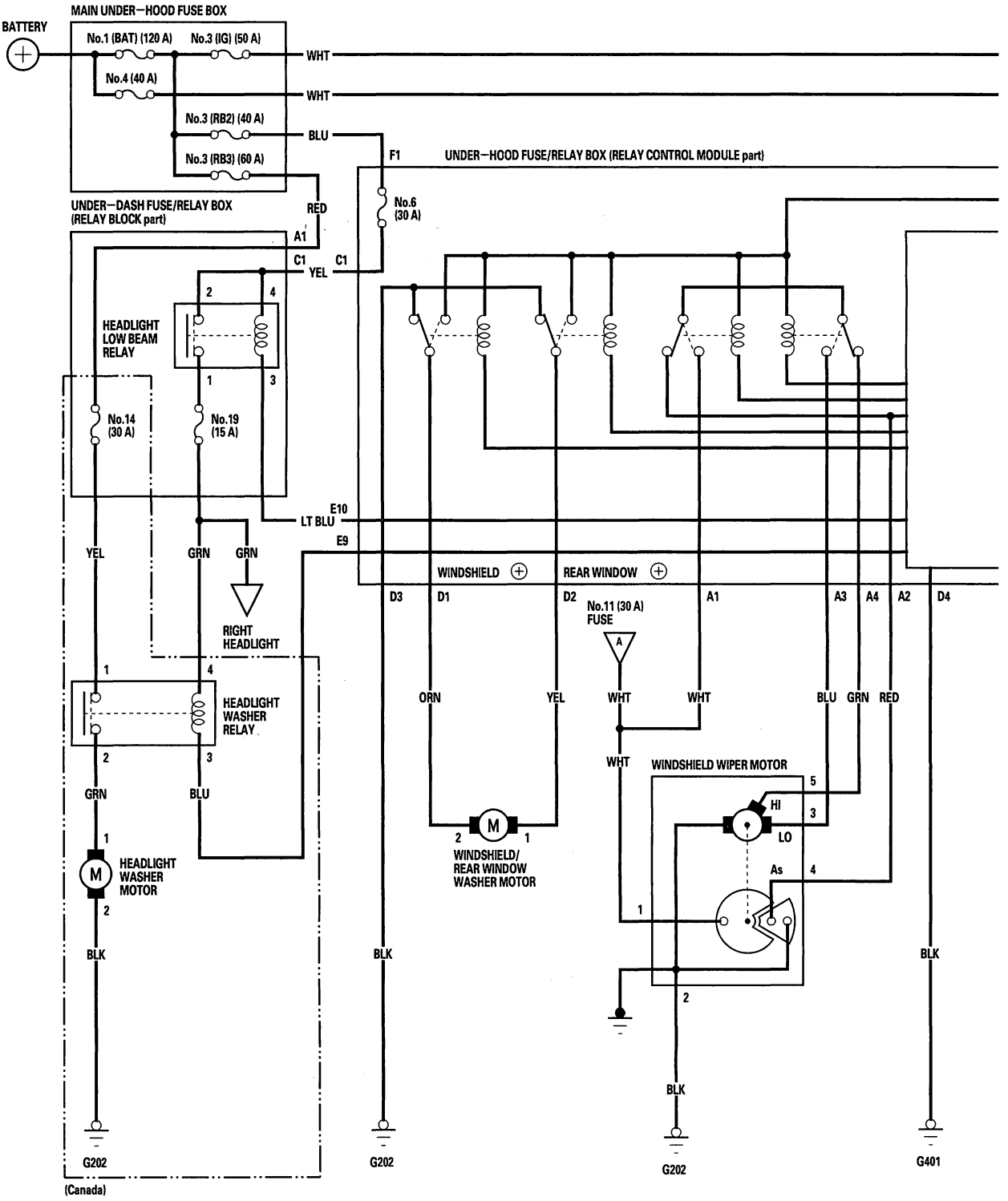
Wipers/Washers

Circuit Diagram - Windshield, Headlight Washer



BACK

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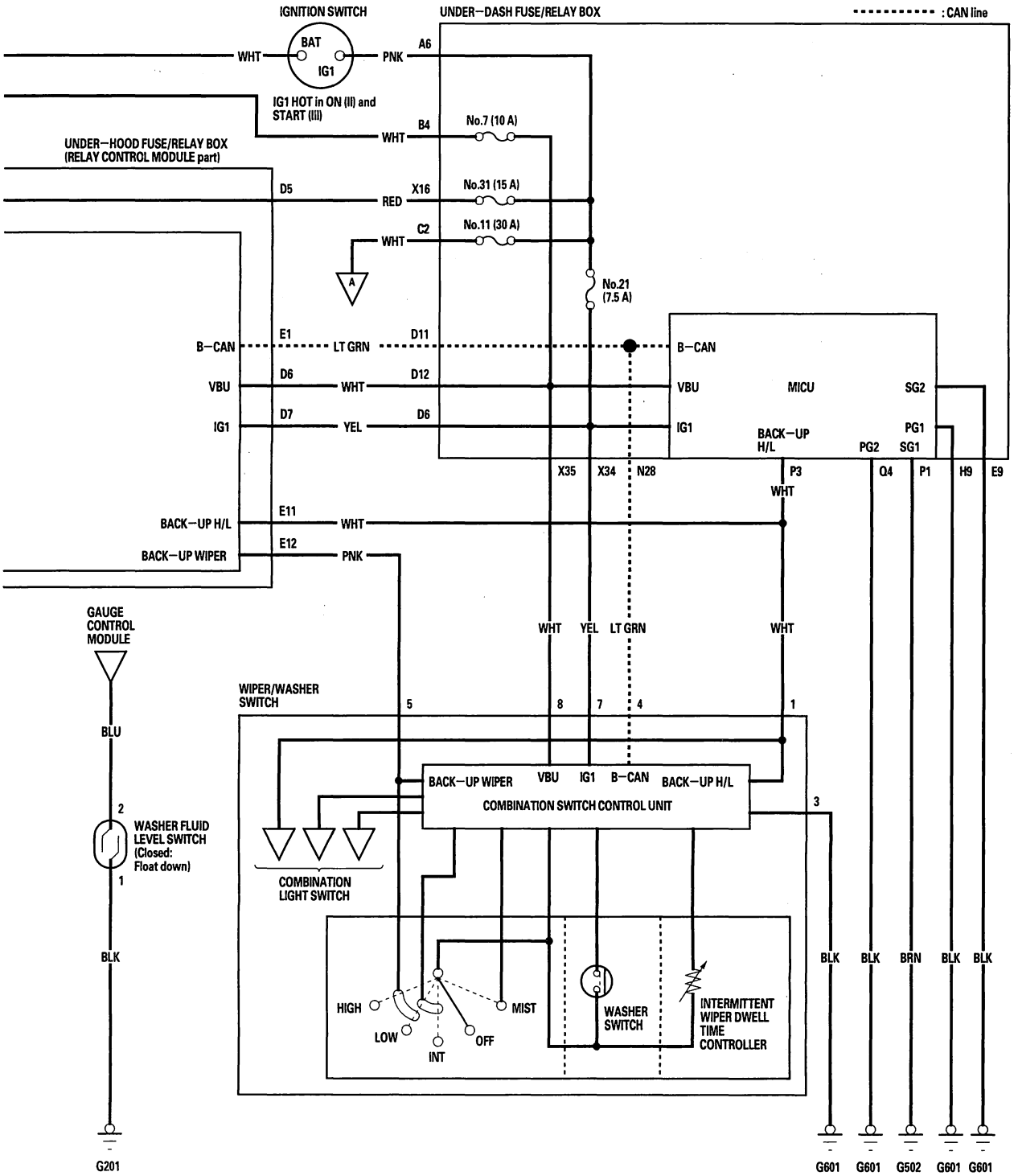

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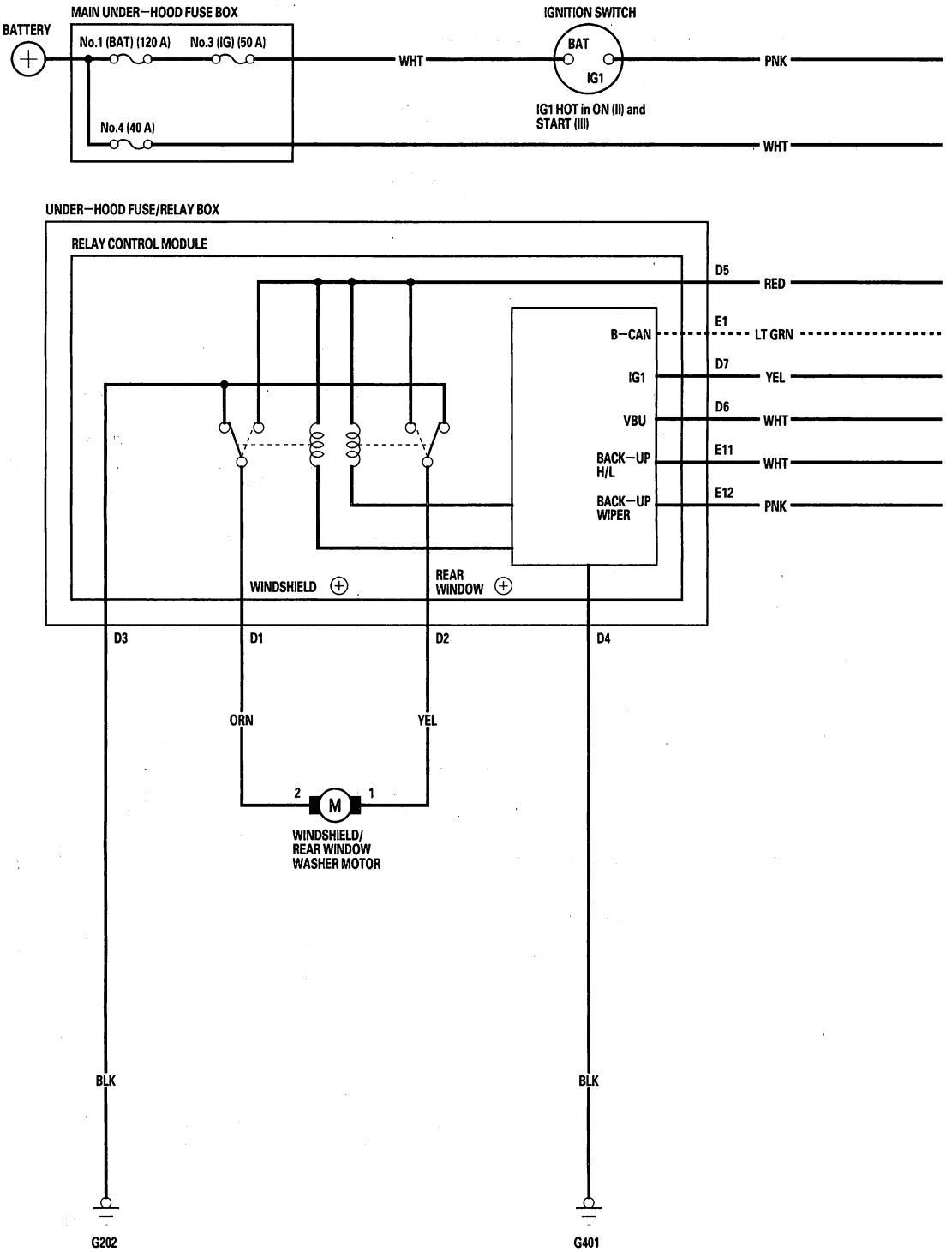
Circuit Diagram - Rear Window



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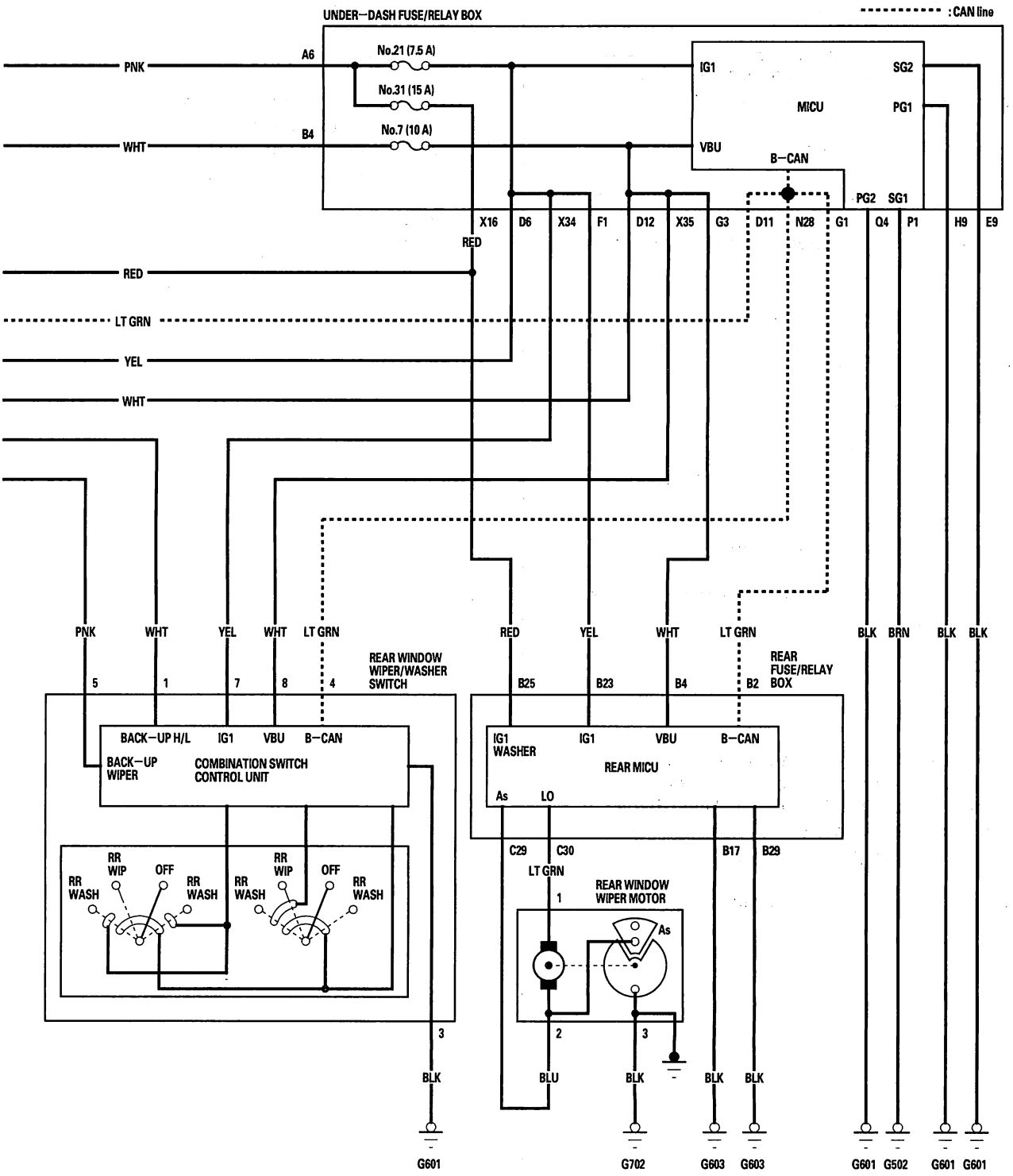

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DTC Troubleshooting

DTC B1076: Windshield Wiper Switch Back-up Circuit Malfunction

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Turn the windshield wiper switch ON for 5 seconds and OFF.
4. Check for DTCs with the HDS.

   Is DTC B1076 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Select BODY ELECTRICAL system select menu, then enter the DATA LIST menu.
6. Check the ON/OFF information of the FR WIPER BACK-UP with the HDS.

   Is OFF indicated?

   YES—Go to step 7.

   NO—Check for a short in the wire between the combination switch control unit and the relay control module (WIPER BACK-UP line), if the harness is OK, replace the combination switch control unit (see page 22-300).■
7. Turn the windshield wiper switch ON.
8. Check the ON/OFF information of the FR WIPER BACK-UP with the HDS.

   Is ON indicated?

   YES—Go to the relay control module input test (see page 22-136) and check for a poor ground, if the GND line is OK, replace the under-hood fuse/relay box (see page 22-71).■

   NO—Check for an open in the wire between the combination switch control unit and the relay control module (WIPER BACK-UP line), if the wire is OK, replace the combination switch control unit (see page 22-302).■

BACK

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DTC B1077: Windshield Wiper Auto Switch Circuit Malfunction

1. Turn the ignition switch ON (II), and the windshield wiper switch ON.
2. Check the windshield wiper operation.

   Does the wiper work?

   YES—Go to step 3.

   NO—Go to step 13.
3. Clear the DTC with the HDS.
4. Turn the ignition switch OFF, and then back ON (II).
5. Turn the windshield wiper switch ON, and then OFF.
6. Check for DTCs with the HDS.

   Is DTC B1077 indicated?

   YES—Go to step 7.

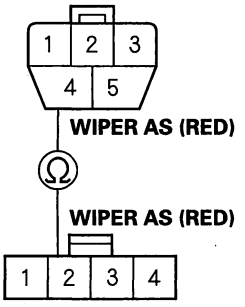
   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
7. Select BODY ELECTRICAL system select menu, then enter the DATA LIST menu.
8. Check the ON/OFF information of the FR WIPER AS with the HDS.

   Is OFF indicated when the motor stopped, and ON intermittently indicated when the motor runs?

   YES—Faulty relay control module, replace the under-hood fuse/relay box (see page 22-71). ■

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Disconnect the windshield wiper motor 5P connector.
11. Disconnect the under-hood fuse/relay box connector A (4P).
12. Check for continuity between the windshield wiper motor 5P connector No. 4 terminal and the under-hood fuse/relay box connector A (4P) No. 2 terminal.

WINDSHIELD WIPER MOTOR 5P CONNECTOR
Wire side of female terminals



Wire side of female terminals
UNDER-HOOD FUSE/RELAY BOX CONNECTOR A (4P)

Is there continuity?

YES—Faulty relay control module, replace the under-hood fuse/relay box (see page 22-71). ■

NO—Repair open in the wire. ■
13. Check the No. 11 (30 A) and No. 31 (15 A) fuses in the under-dash fuse/relay box.

    Are the fuses OK?

    YES—Go to step 12.

    NO—Replace the fuse(s) and recheck the system. ■

(cont'd)

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DTC Troubleshooting (cont'd)

14. Turn the ignition switch OFF.

15. Check the No. 11 (30 A) and No. 31 (15 A) fuses in the under-dash fuse/relay box.

    Are the fuses OK?

    YES—Go to step 16.

    NO—Replace the fuse and recheck the system. ■

16. Do the wiper motor test (see page 22-303).

    Does the wiper motor run normally?

    YES—Go to step 17.

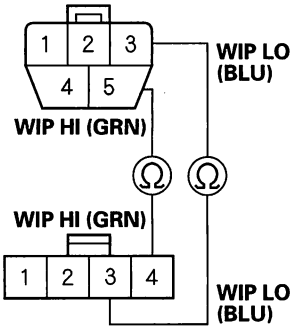
    NO—Replace the windshield wiper motor and recheck. ■

17. Disconnect the windshield wiper motor 5P connector.

18. Disconnect the under-hood fuse/relay box connector A (4P).

19. Check for continuity between the windshield wiper motor 5P connector No. 3 and No. 5 terminals and the under-hood fuse/relay box connector A (4P) No. 3 and No. 4terminals.

WINDSHIELD WIPER MOTOR 5P CONNECTOR
Wire side of female terminals



Wire side of female terminals
UNDER-HOOD FUSE/RELAY BOX CONNECTOR A (4P)

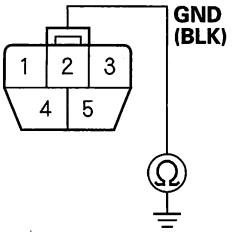
Is there continuity?

YES—Go to step 20.

NO—Repair open in the wire. ■

20. Check for continuity between the windshield wiper motor 5P connector No. 2 terminal and body ground.

WINDSHIELD WIPER MOTOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Faulty relay control module, replace the under-hood fuse/relay box (see page 22-71). ■

NO—Repair open in the wire or poor ground (G401). ■

BACK

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DTC B1281: Windshield Wiper Switch MIST Position Circuit Malfunction

DTC B1282: Windshield Wiper Switch INT (AUTO) Position Circuit Malfunction

DTC B1283: Windshield Wiper Switch LOW Position Circuit Malfunction

DTC B1284: Windshield Wiper Switch HIGH Position Circuit Malfunction

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Turn the windshield wiper switch to MIST, and wait for 2 seconds.
4. Turn the windshield wiper switch OFF, and wait for 2 seconds.
5. Turn the windshield wiper switch to INT (AUTO), and wait for 2 seconds.
6. Turn the windshield wiper switch to LOW, and wait for 2 seconds.
7. Turn the windshield wiper switch in HIGH, and wait for 2 seconds.
8. Check for DTCs with the HDS.

   Is DTC B1281, B1282, B1283, and/or B1284 indicated?

   YES—Replace the wiper/washer switch. ■

   NO—Intermittent failure, the wiper/washer switch and the combination switch control unit are OK at this time. Check for loose or poor connections. ■

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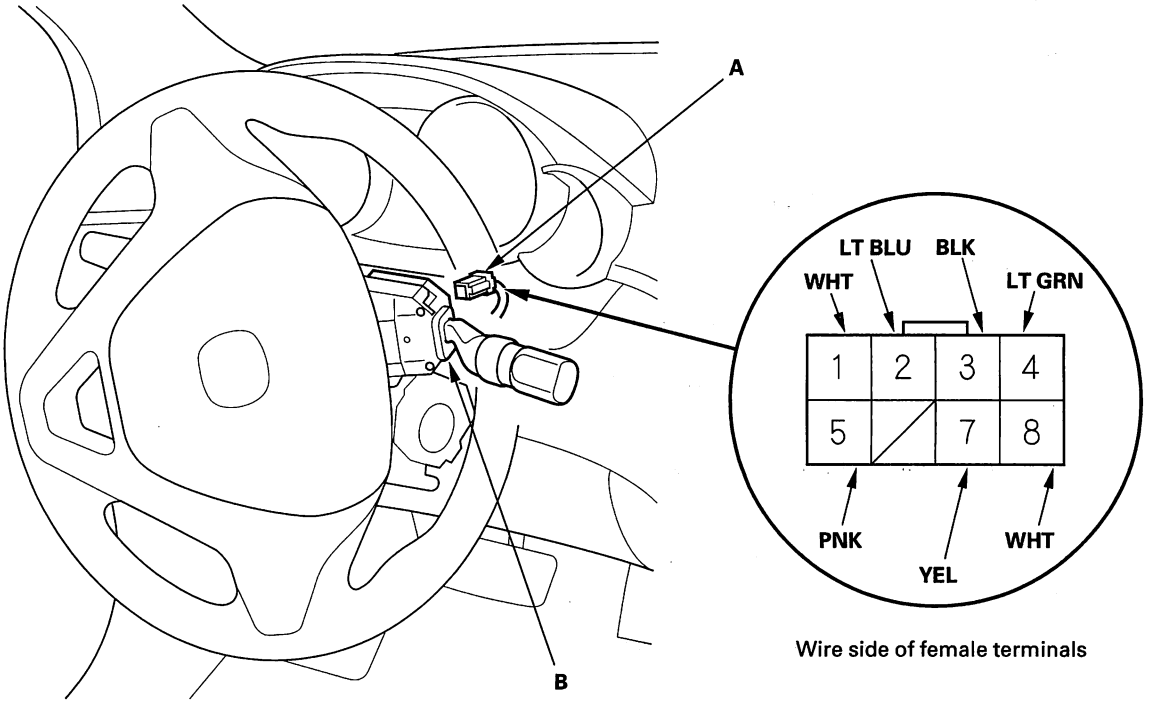
Wiper/Washer Switch (Combination Switch Control Unit) Input Test

NOTE: Before testing, troubleshoot the B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Remove the dashboard lower cover (see page 20-119).
2. Remove the steering column covers (see page 20-129).
3. Disconnect the 8P connector (A) from the wiper/washer switch (B).



Wire side of female terminals

4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 5.

BACK

Protected by AR

5. With the connector still disconnected, make these input tests at the connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
1	WHT	Under all conditions	Check for continuity between the No. 1 terminal and the under—hood fuse/relay box connector E (14P) No. 11 terminal: There should be continuity.	An open in the wire
		Disconnect the under—hood fuse/relay box connector E (14P) and the under—dash fuse/relay box connector P (30P)	Check for continuity between the No. 1 terminal and body ground: There should be no continuity.	A short to ground in the wire
2	LT BLU	Under all conditions	Check for continuity between the No. 2 terminal of the combination switch control unit and the headlight leveling control unit No. 16 terminal: There should be continuity.	An open in the wire
4	LT GRN	Under all conditions	Check for continuity between the No. 4 terminal and under-dash fuse/relay box connector N (45P) No. 28 terminal: There should be continuity.	An open in the wire
		Disconnect the under-dash fuse/relay box connector N (45P)	Check for continuity between the No. 4 terminal and body ground: There should be no continuity.	A short to ground in the wire
5	PNK	Under all conditions	Check for continuity between the No. 5 terminal and the under-hood fuse/relay box connector E (14P) No. 12 terminal: There should be continuity.	An open in the wire
		Disconnect the under-hood fuse/relay box connector E (14P)	Check for continuity between the No. 5 terminal and body ground: There should be no continuity.	A short to ground in the wire

6. Reconnect the 8P connector to the wiper/washer switch, and make these input tests at the connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, replace the wiper/washer switch (combination switch control unit).

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
3	BLK	Under all conditions	Check for voltage to ground: There should be less than 0.5 V.	• Poor ground (G601) • An open in the wire
8	WHT	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
7	YEL	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire

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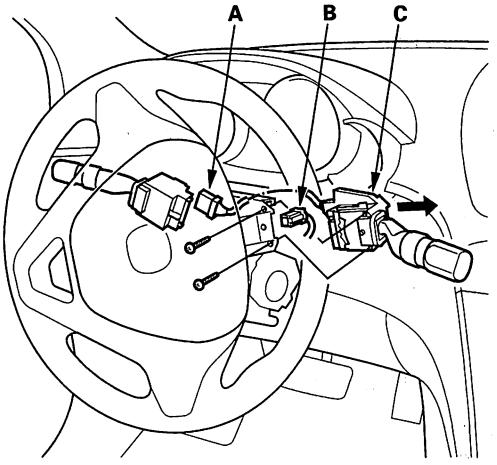
Wiper/Washer Switch Replacement

NOTE: The wiper/washer switch is built into the combination switch control unit. For the wiper/washer test, refer to the combination switch control unit input test (see page 22-300).

1. Remove the dashboard lower cover (see page 20-119).
2. Remove the steering column covers (see page 20-129).
3. Disconnect the combination light switch 20P connector (A), and dashboard wire harness 8P connector (B) from the wiper/washer switch (C).



4. Remove the two screws, then slide out the wiper/washer switch.

BACK

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Wiper Motor Test

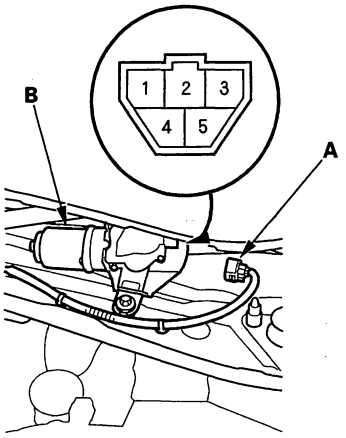
Windshield

1. Open the hood, and remove the wiper arms (see page 22-305).

   NOTE: Carefully remove the wiper arms so that they do not touch the hood.

2. Remove the cowl covers (see page 20-205).

3. Disconnect the 5P connector (A) from the windshield wiper motor (B).



4. Test the motor by connecting battery power to the windshield wiper motor 5P connector No. 3 terminal and ground to the No. 2 terminal. The motor should run at low speed. If the motor does not run or fails to run smoothly, replace the motor.

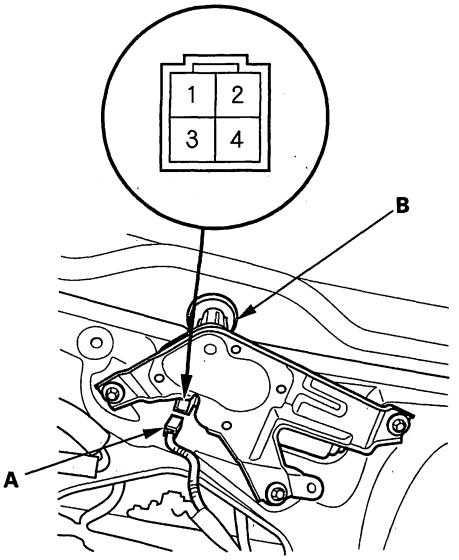
5. Test the motor by connecting battery power to the windshield wiper motor 5P connector No. 5 terminal and ground to the No. 2 terminal. The motor should run at high speed. If the motor does not run or fails to run smoothly, replace the motor (see page 22-305).

6. Connect an analog ohmmeter between the windshield wiper motor 5P connector No. 1 and No. 4 terminals, and run the motor at low or high speed. The ohmmeter should indicate continuity and no continuity alternately. If it does not, replace the motor.

Rear Window

1. Open the tailgate, and remove the tailgate lower panel (see page 20-96).

2. Disconnect the 4P connector (A) from the rear window wiper motor (B).



3. Test the motor by connecting battery power to the rear window wiper motor 4P connector No. 1 terminal and ground to the No. 2 terminal. The motor should run. If the motor does not run or fails to run smoothly, replace the motor (see page 22-306).

4. Connect an analog ohmmeter between the rear window wiper motor 4P connector No. 2 and No. 3 terminals. The ohmmeter should indicate continuity and no continuity alternately. If it does not, replace the motor.

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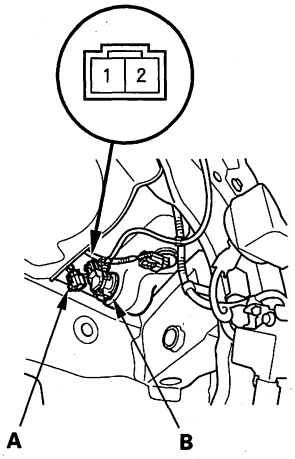
Washer Motor Test

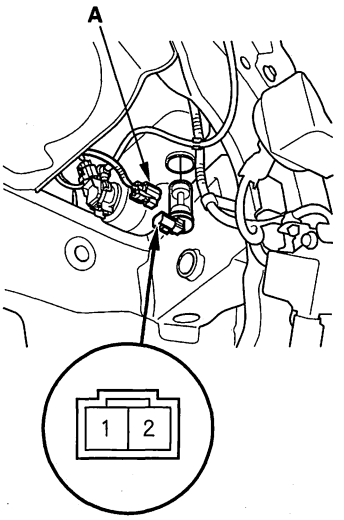
1. Remove the right inner fender (see page 20-217).
2. Disconnect the 2P connector (A) from the washer motor (B).



3. Test the motor by connecting battery power to the No. 2 (No. 1) terminal and ground the No. 1 (No. 2) terminal of the washer motor. The motor should run.
   ( ): Rear window washer direction.
   - If the motor does not run or fails to run smoothly, replace it.
   - If the motor runs smoothly, but little or no washer fluid is pumped, check for a disconnected or blocked washer hose, or a clogged washer motor outlet.

Washer Fluid Level Switch Test

1. Remove the right inner fender (see page 20-217).
2. Disconnect the 2P connector (A) from the washer fluid level switch.



3. Remove the washer fluid level switch from the washer reservoir.

   NOTE: Fluid may flow out of the opening.

4. Check for continuity between the No. 1 and No. 2 terminals in each float position.
   - There should be continuity when the float is down.
   - There should be no continuity when the float is up.
5. If the continuity is not as specified, replace the switch.

BACK

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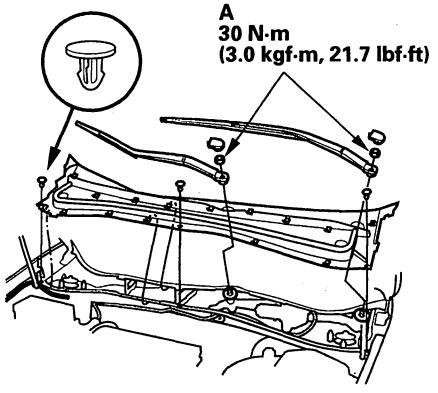
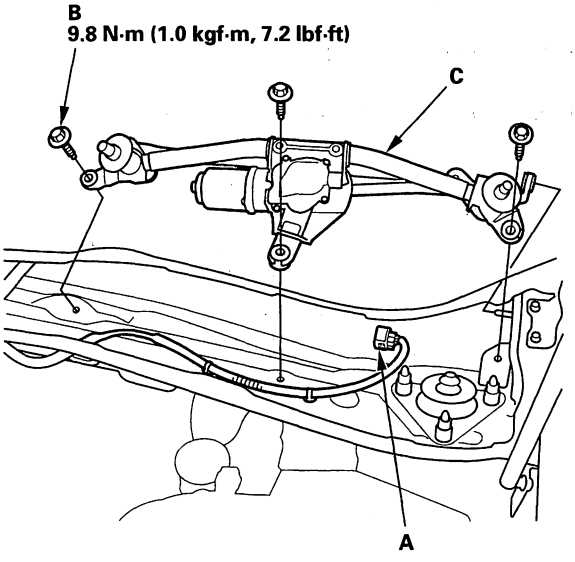
Wiper Motor Replacement

1. Open the hood. Remove the caps, nuts (A), and the windshield wiper arms (B).



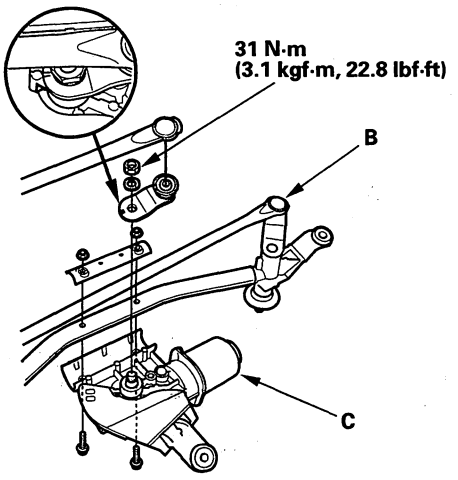
2. Remove the cowl covers (see page 20-205).

3. Disconnect the 5P connector (A) from the wiper motor.



4. Remove the three bolts (B) and the wiper linkage assembly (C).

5. Make sure the mark of the link to show the original adjustment. Separate the windshield wiper linkage (B) from the wiper motor (C).



6. Install in the reverse order of removal, and note these items:

   - Align the marks of the link and the linkage to install the linkage with the original adjustment.
   - Apply multipurpose grease to the moving parts.
   - Before installing the wiper arms, turn the wiper switch ON, then OFF to return the shafts to the park position.
   - If necessary, replace any damaged clips.

7. After installation, adjust the wiper arms (see page 22-309).

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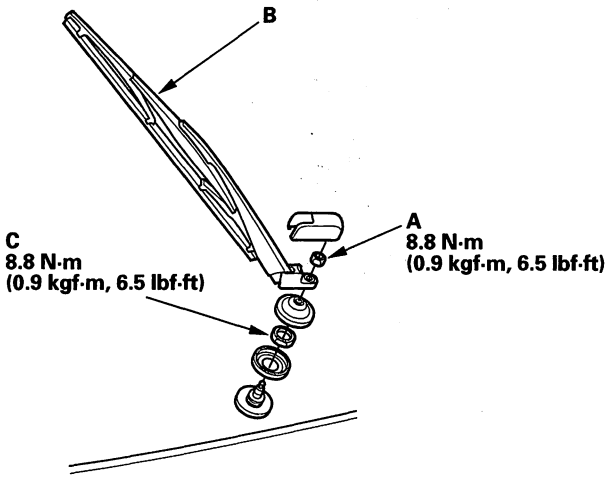
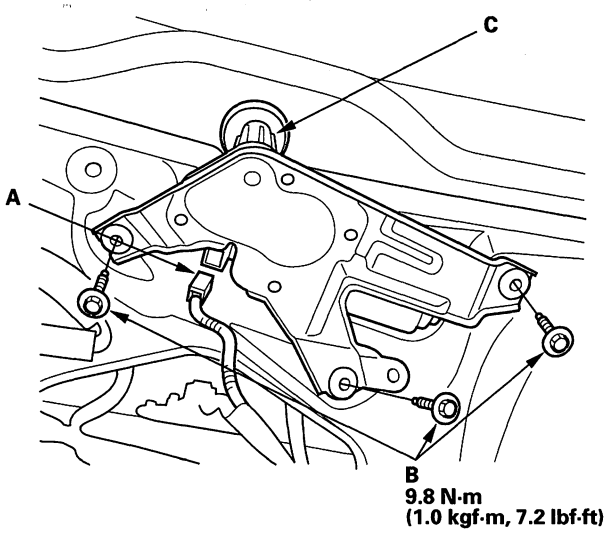
Rear Window Wiper Motor Replacement

1. Open the tailgate, and remove the tailgate lower trim panel (see page 20-96).
2. Remove the mounting nut (A), the wiper arm (B) and the special nut (C).



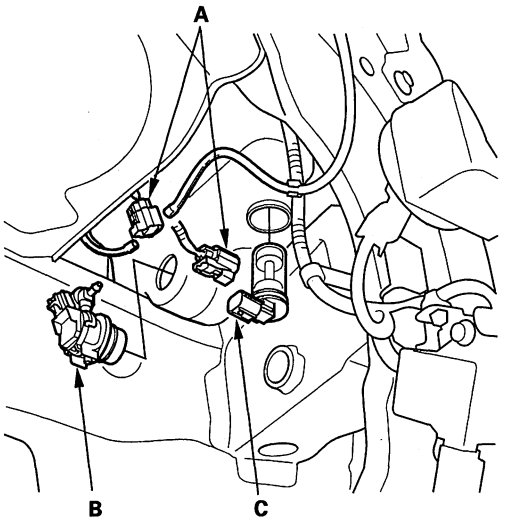
3. Disconnect the 4P connector (A) and remove the three mounting bolts (B), then remove the rear window wiper motor (C).



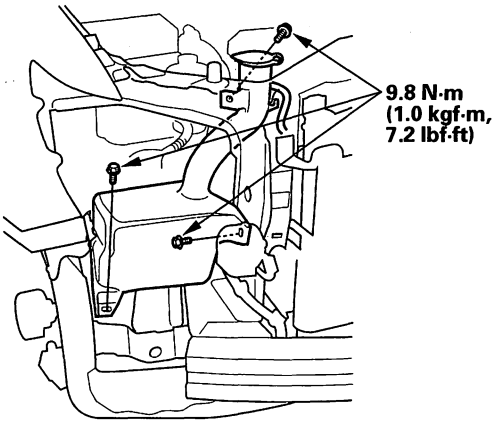
4. Install in the reverse order of removal.

Washer Reservoir Replacement

1. Remove the right inner fender (see page 20-217).
2. Disconnect the 2P connector (A) from the washer motor(s) (B) and the washer fluid level switch (C).



3. Disconnect the washer tubes.
4. Remove the bolts and the washer reservoir.



5. Install in the reverse order of removal. Check the washer motor operation.

BACK

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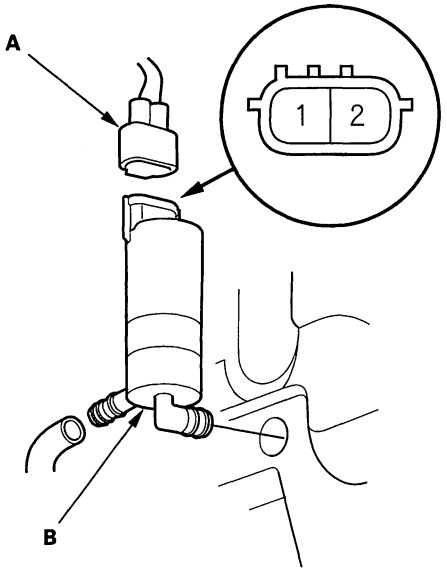
Headlight Washer Motor Test/ Replacement

Canada models

1. Remove the light inner fender (see page 20-217).
2. Disconnect the 2P connector (A) from the washer motor (B).

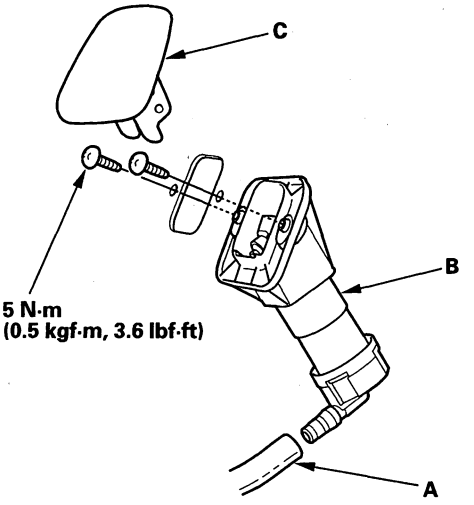


3. Test the motor by connecting battery power to the headlight washer motor 2P connector No. 1 terminal and ground to the No. 2 terminal. The motor should run.
   - If the motor does not run or fails to run smoothly, replace it.
   - If the motor runs smoothly, but little or no washer fluid is pumped, check for a disconnected or blocked washer hose, or a clogged washer motor outlet.
4. Install the washer motor in the reverse order of removal.

Headlight Washer Nozzle Replacement

Canada models

1. Remove the front bumper (see page 20-188), and disconnect the headlight washer tubes from the washer motor.
2. Disconnect the headlight washer tube (A) from the headlight washer nozzle (B).



3. Remove the headlight washer nozzle cover (C).
4. Remove the bolt and two screws, then remove the headlight washer nozzle.
5. Install the nozzle in the reverse order of removal. After installation, check the headlight washer operation.

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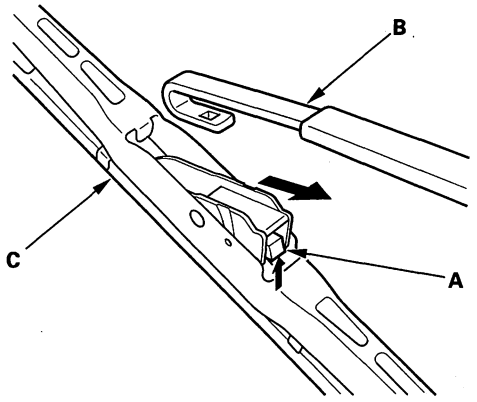
Wiper Blade Replacement

Windshield

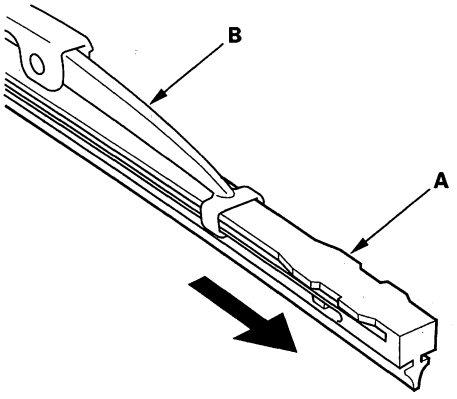
1. Lift the wiper arms from the windshield.

   NOTE: Lift the driver's side first.

2. Press and hold the tab (A) and slide the wiper blade (B) toward the tab to release it from the wiper arm.



3. Slide the rubber (A) out from the wiper blade (B).



4. Install a new rubber to the wiper blade in the reverse order of removal.

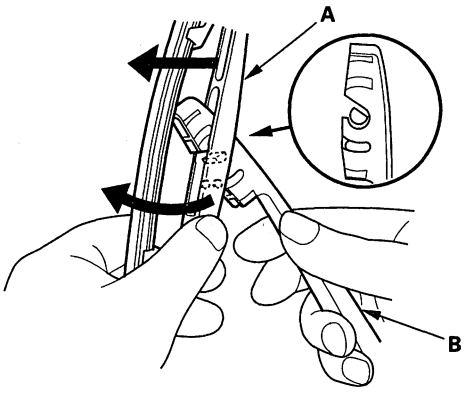
5. Install the wiper blades onto the wiper arms in the reverse order of removal.

6. Check the wiper operation, if the blades slip, turn the wiper switch OFF, and reinstall the wiper blades securely.

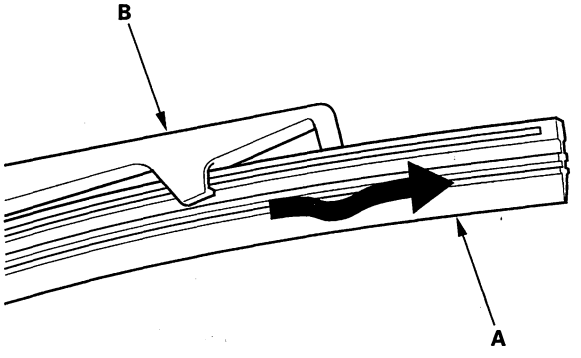
Rear Window

1. Lift the wiper arm from the rear window.

2. Turn the rear wiper blade (A), release the lock, and then remove the wiper blade from the rear wiper arm (B).



3. Raise the old rubber (A), and remove it from the wiper blade (B).



4. Insatall the new rubber and the wiper blade in the reverse order of removal.

   NOTE: After installation, confirm that the wiper arm works smoothly.

BACK

Protected by AR

Wiper Arm/Nozzle Adjustment

Windshield

Wiper arms park position

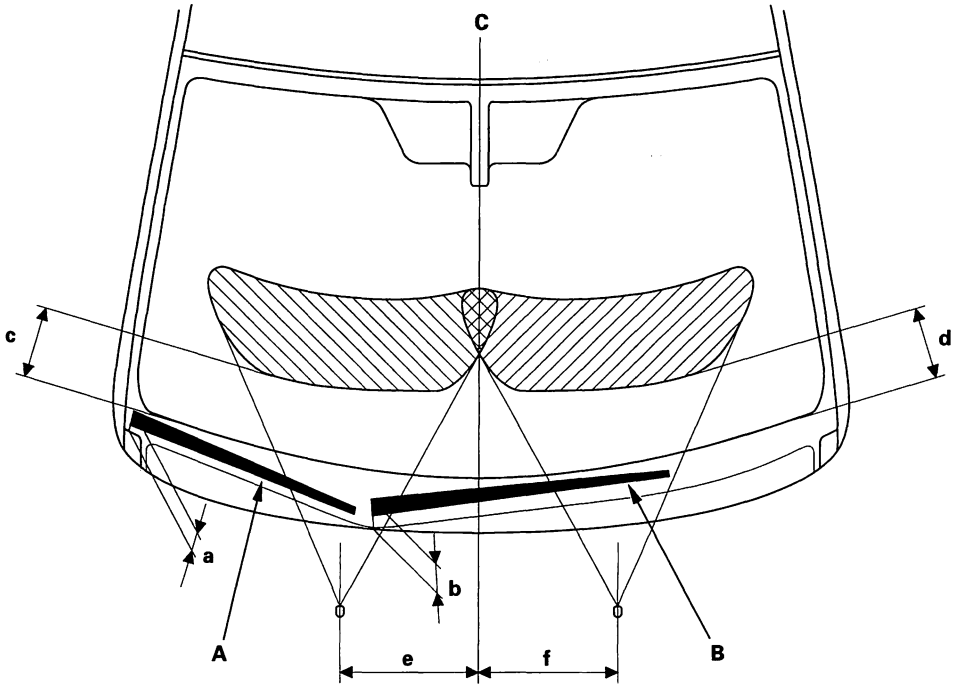
1. When the wiper arms stop at the park (automatic stop) position, confirm that they are at the standard position.

   a: Position at about 1.6 in. (40.7 mm) from the top of cowl cover (A)
   b: Position at about 2.1 in. (54.3 mm) from the top of cowl cover (A)

Washer nozzle position

2. When you turn on the washers, confirm 50 % or more of the washer fluid lands within the spray area. If the spray area is not within the standard positions, adjust the nozzles.

   c: Position at about 6.2 in. (157.3 mm) from the top of the black ceramic area (B) at the lower windshield
   d: Position at about 6.2 in. (157.3 mm) from the top of the black ceramic area (B) at the lower windshield
   e: Position at about 11.8 in. (300 mm) from the windshield center line (C)
   f: Position at about 11.8 in. (300 mm) from the windshield center line (C)



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Protected by AR

Wiper Arm/Nozzle Adjustment (cont'd)

Rear Window

Wiper arm park position

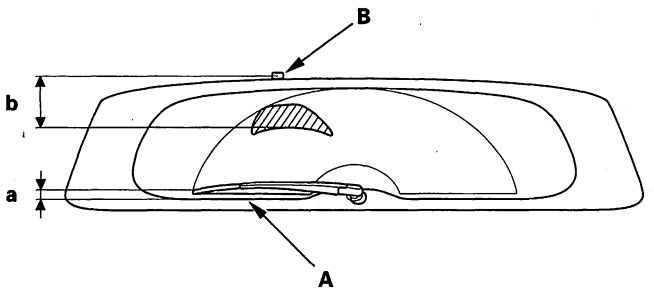
1. When the wiper arm stops at the park position, confirm that it is at the standard position.

   a: Position at about 0.4 in. (11.2 mm) from the black ceramic area (A)

Washer nozzle position

2. When you turn on the washers, confirm 50 % or more of the washer fluid lands within the spray area. If the spray area is not within the standard positions, adjust the nozzles.

   b: Position at about 5.1 in. (130.2 mm) from the rear washer nozzle (B)



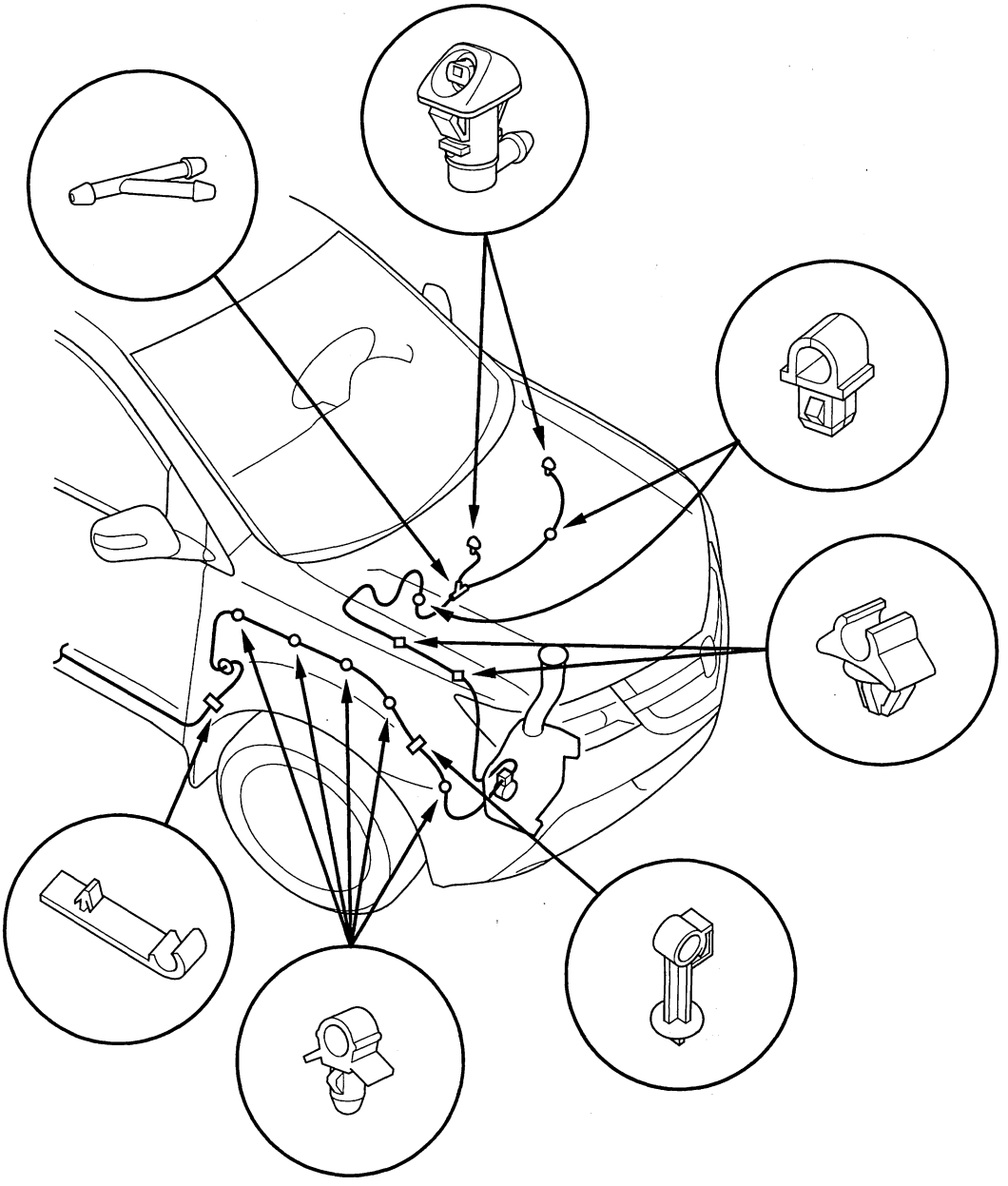
BACK

Protected by AR

Washer Tube Replacement

1. Remove the washer nozzles and clips, then remove the washer tubes.

Windshield/Rear Window Washers



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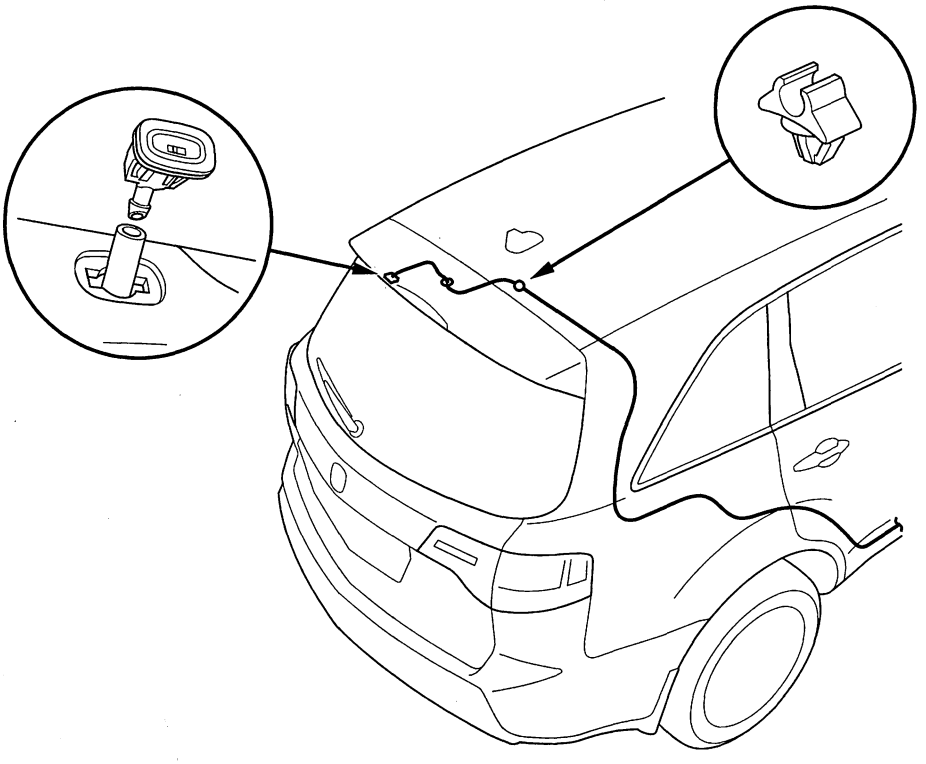
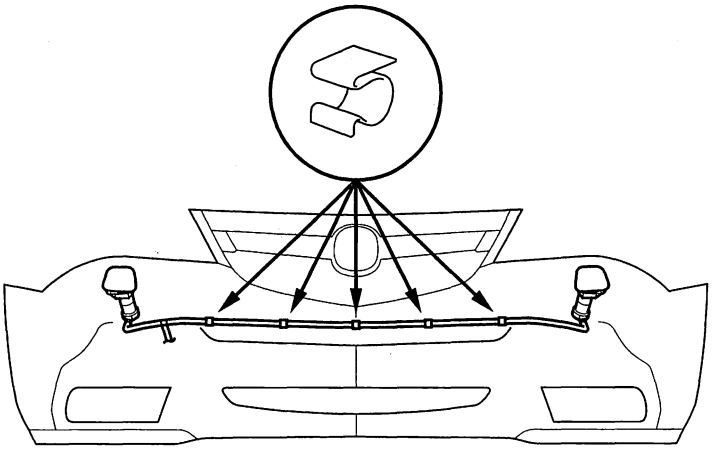
Protected by AR

Washer Tube Replacement (cont'd)



Headlight Washer (Canada models)



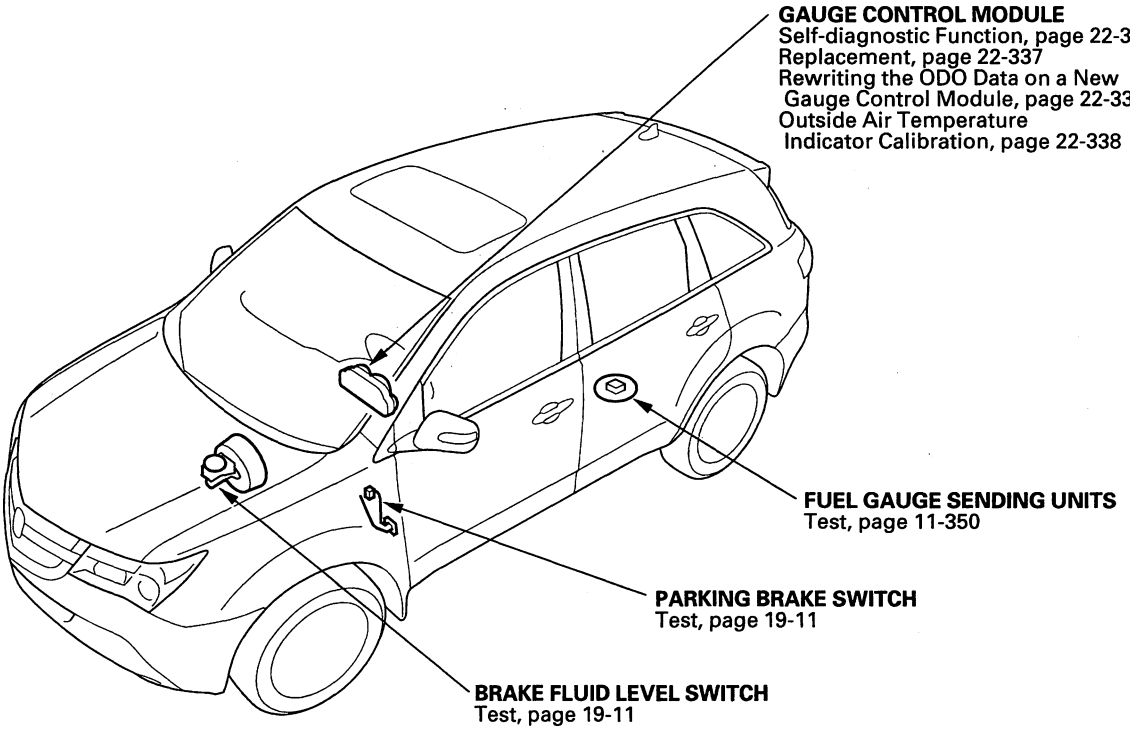
2. Install the parts in the reverse order of removal. Take care not to pinch the washer tubes. Check the washer operation.

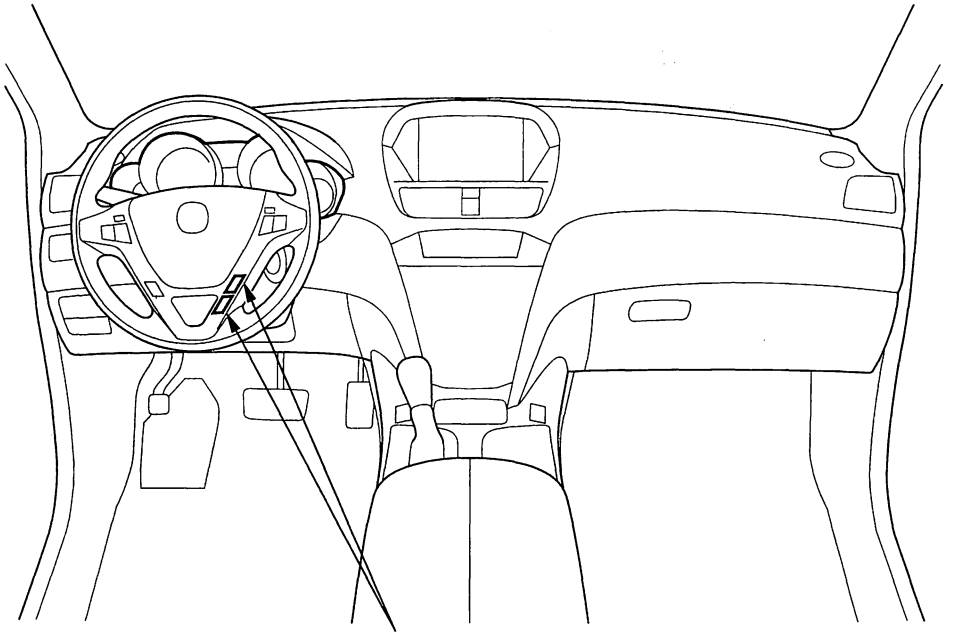
BACK

Protected by AR

Gauges

Component Location Index





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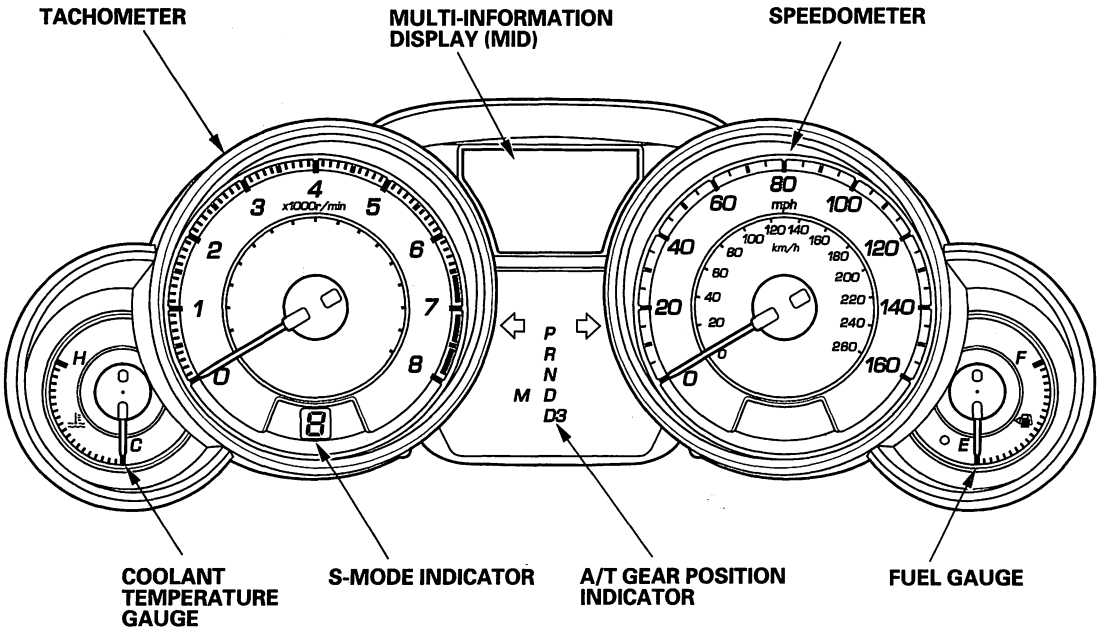
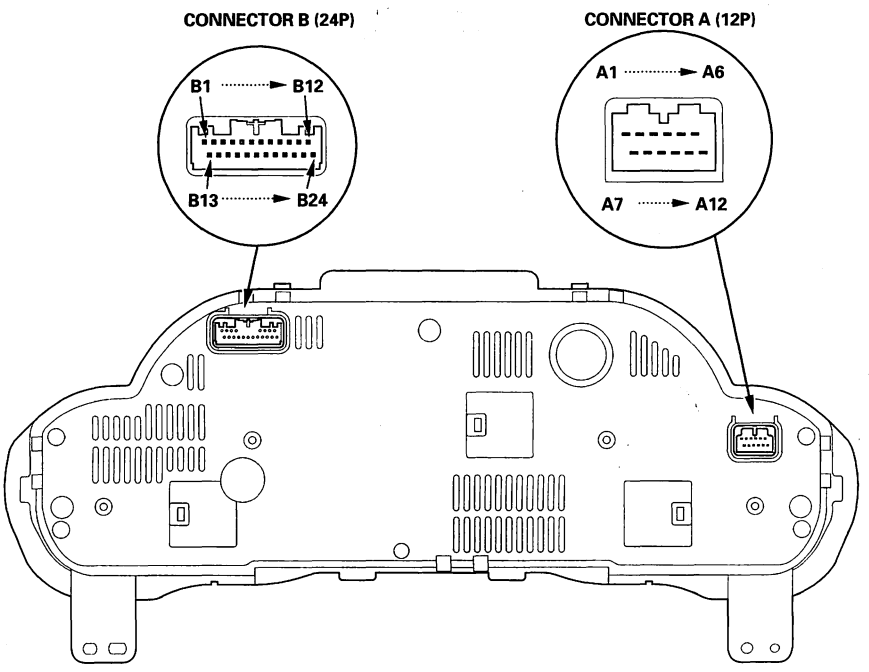
Protected by AR

Gauges

Component Location Index (cont'd)





BACK

Protected by AR

Self-diagnostic Function

Before troubleshooting the gauge system, refer to multiplex integrated control system B-CAN System Diagnosis Test Mode A (see page 22-112).

The gauge control module has a self-diagnostic function.

- The beeper drive circuit check.
- The indicator drive circuit check.
- The switch input test.
- The LCD segments check.
- The gauges drive circuit check (speedometer, tachometer, fuel gauge, coolant temperature gauge).
- The communication line check (of the body-controller area network (B-CAN) communication line and the fast-controller area network (F-CAN) communication line between the gauges).

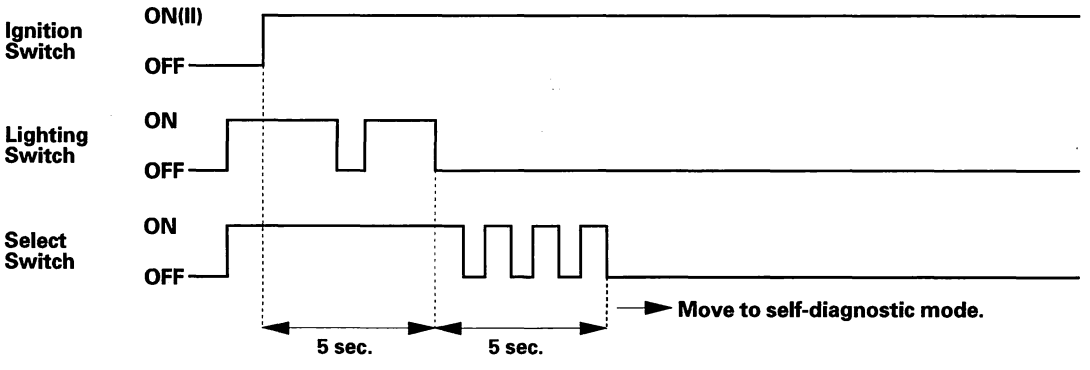
NOTE: Indicators are also controlled via the communication line.

Entering the self-diagnostic function

Before doing the self-diagnostic function, check the No. 7 (10 A) fuse and the No. 21 (7.5 A) fuse in the under-dash fuse /relay box.

1. Push and hold the SEL RESET button.
2. Turn the headlights ON.
3. Turn the ignition switch ON (II).
4. Within 5 sec., turn the headlights OFF, then ON and OFF again.
5. Within 5 sec., release the SELECT button, and then push and release the button three times repeatedly.

NOTE:
- While in the self-diagnostic mode, the dash lights brightness controller operates normally.
- While in the self-diagnostic mode, the SELECT button is used to start the Beeper Drive Circuit Test and the Gauge Drive Circuit Check.
- If the vehicle speed exceeds 1.2 mph (2 km/h) or the ignition switch is turned OFF, the self-diagnostic mode ends.



(cont'd)

Protected by AR

Self-diagnostic Function (cont'd)

The Indicator Drive Circuit Check

When entering the self-diagnostic mode, these indicators blink:
ABS indicator, active damper system indicator, A/T gear position indicator, brake system indicator, charging system indicator, cruise control indicator, cruise main indicator, DRL indicator, fog light indicator, high beam indicator, immobilizer indicator, lights-on indicator, low fuel indicator, malfunction indicator lamp (MIL), message indicator, oil pressure indicator, seat belt indicator, security indicator, SH-AWD indicator, Side airbag indicator, tire pressure indicator, VSA activation indicator, and VSA indicator.

Switch Input Check

After the intermittent beeper sounds at the initial stage of self-diagnosis, a beeper sounds continuously while any of the following switch inputs are switched from OFF to ON:
Parking brake switch, VSA OFF switch, comfort switch, cruise control master, SET, RESUME, CANCEL switches, select, previous, next switches, and dash lights brightness controller (VOL (+), VOL (−)).

The Beeper Drive Circuit Check

When entering the self-diagnostic mode, the beeper sounds five times.

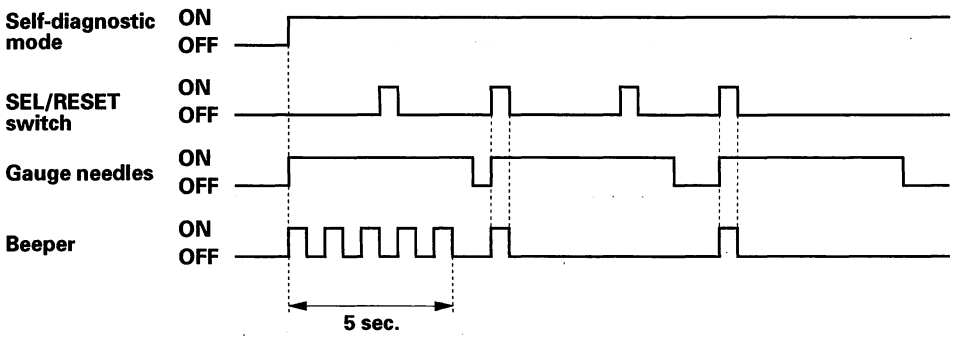
The LCD [Sport shift and multi-information display (MID)] Segment Check

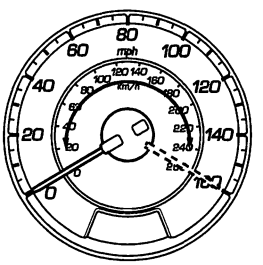
When entering the self-diagnostic mode, the word "Checking Now" shows on the MID.

The Gauge Drive Circuit Check

When entering the self-diagnostic mode, the speedometer, the tachometer, the fuel gauge, and the coolant temperature gauge needles sweep from the minimum position to maximum position, then return to the minimum position.

NOTE:
After the beeper stops sounding and the gauge needles return to the minimum position, pushing the select/reset button starts the Beeper Drive Circuit Check (one beep) and the Gauge Drive Circuit Check again.
The check cannot be started again until the gauge needles return to the minimum position.





The needles sweep from the minimum position to the maximum position, then return to the minimum position.

If any needle fails to sweep or the beeper does not sound, replace the gauge control module.

BACK

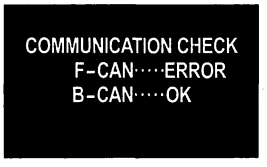
Protected by AR

The Communication Line Check

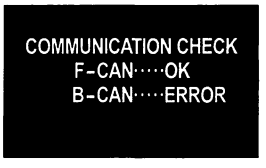
While in the self-diagnostic mode, the Communication Line Check starts after the LCD Segment Check.

If the communication line is OK, the word "OK" will be indicated on the multi-information display (MID). If there is a communication line error, the word "NG" will be indicated on the MID.

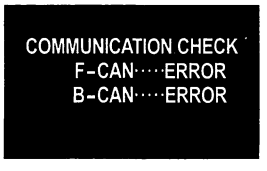
Indication pattern
There is a malfunction in the communication line between the F-CAN and gauge control module. The B-CAN is OK at this time. Check for DTCs in the PCM and troubleshoot any DTCs found. If no DTCs are found, go to B-CAN System Diagnosis Test Mode A (see page 22-112).



There is a malfunction in the communication line between the B-CAN and gauge control module. The F-CAN line is OK at this time. Go to B-CAN System Diagnosis Test Mode A (see page 22-112).



There is a malfunction in the communication line between the gauge control module and F-CAN and B-CAN. Check for DTCs in the PCM and troubleshoot any DTCs found. If no DTCs are found, go to B-CAN System Diagnosis Test Mode A (see page 22-112).



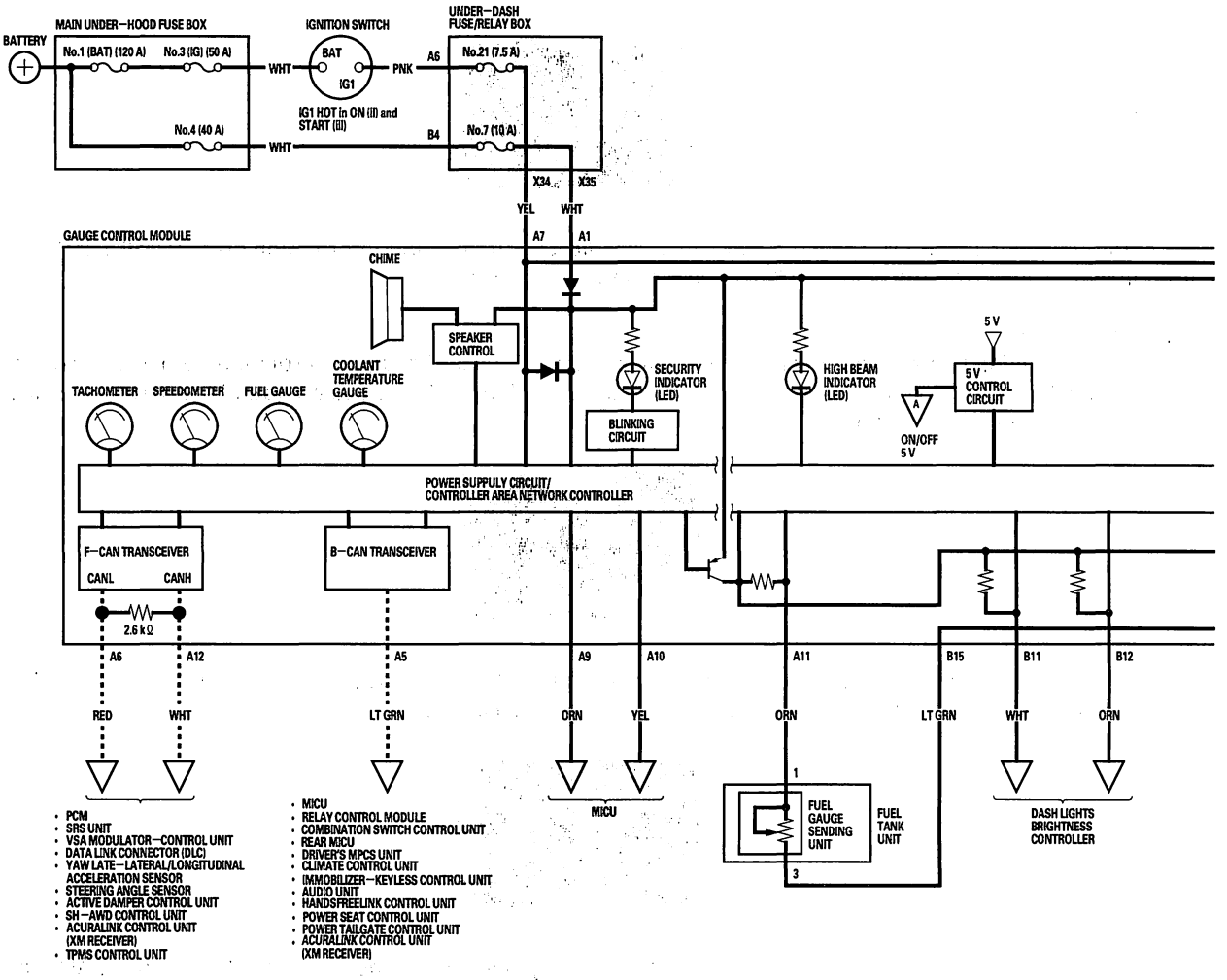
Ending the self-diagnostic function

Turn the ignition switch OFF.
NOTE: If the vehicle speed exceeds 1.2 mph (2 km/h), the self-diagnostic function ends.

Protected by AR

Gauges

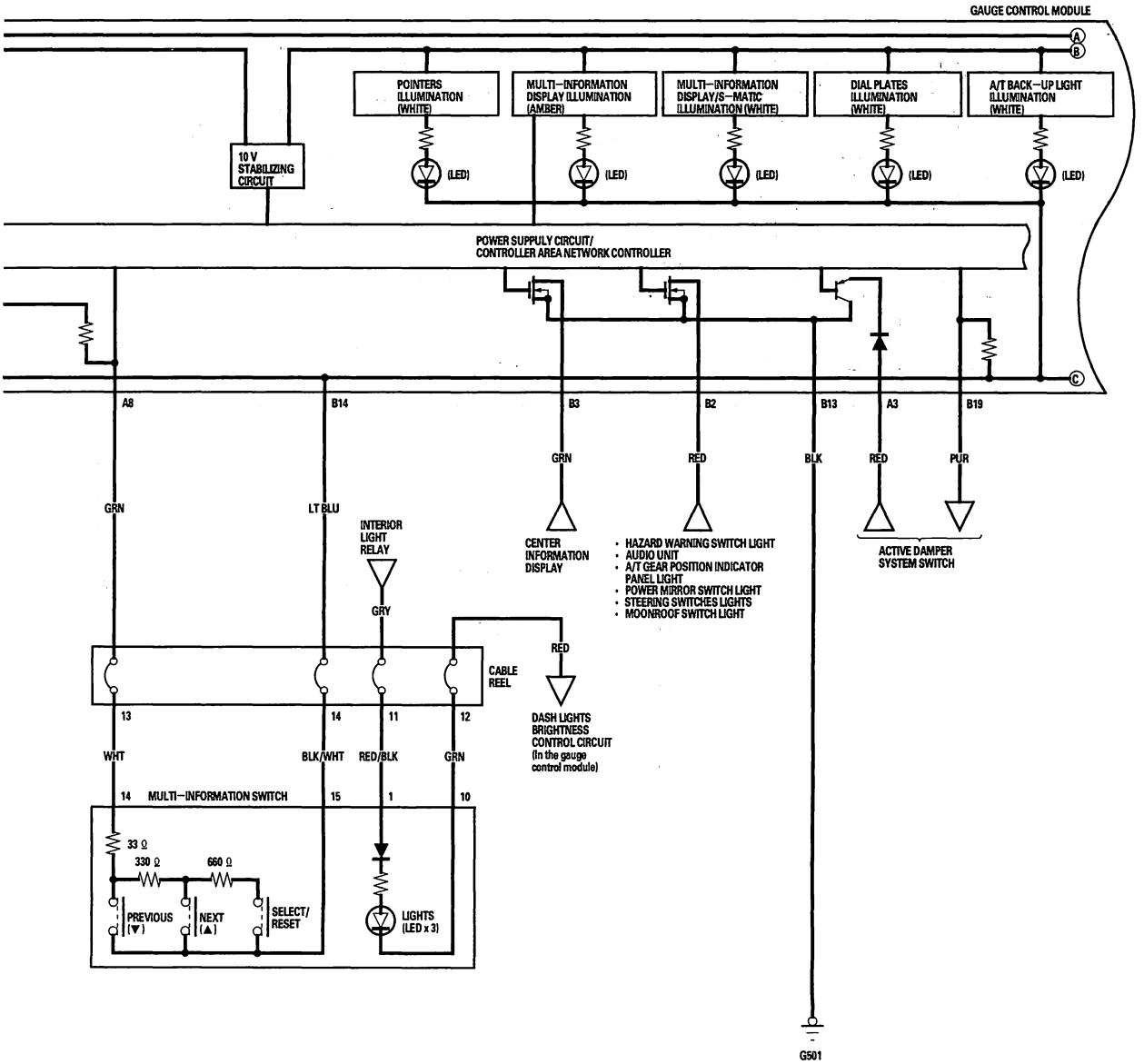
Circuit Diagram



BACK

Protected by AR

: CAN line

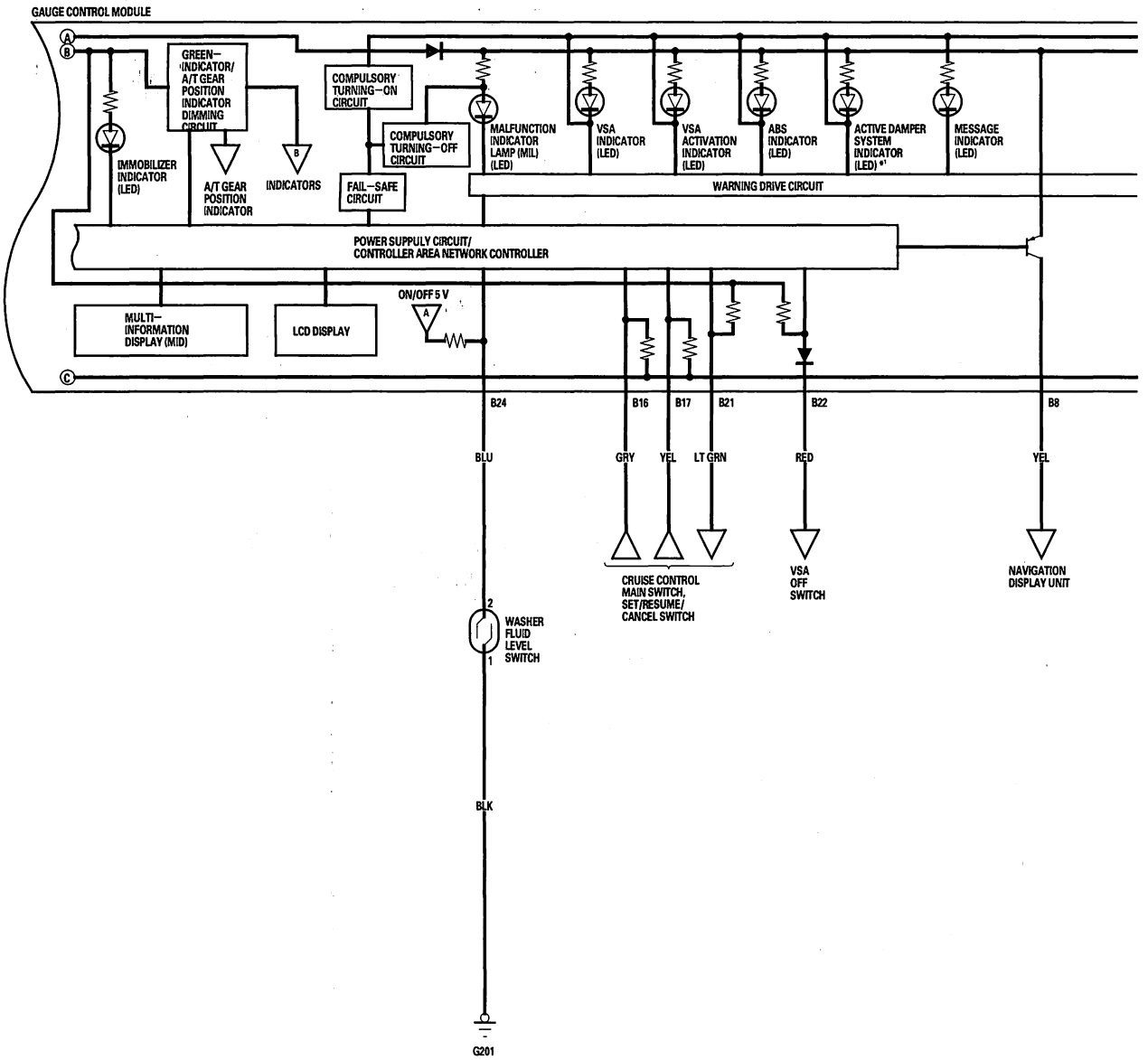


(cont'd)

Protected by AR

Gauges

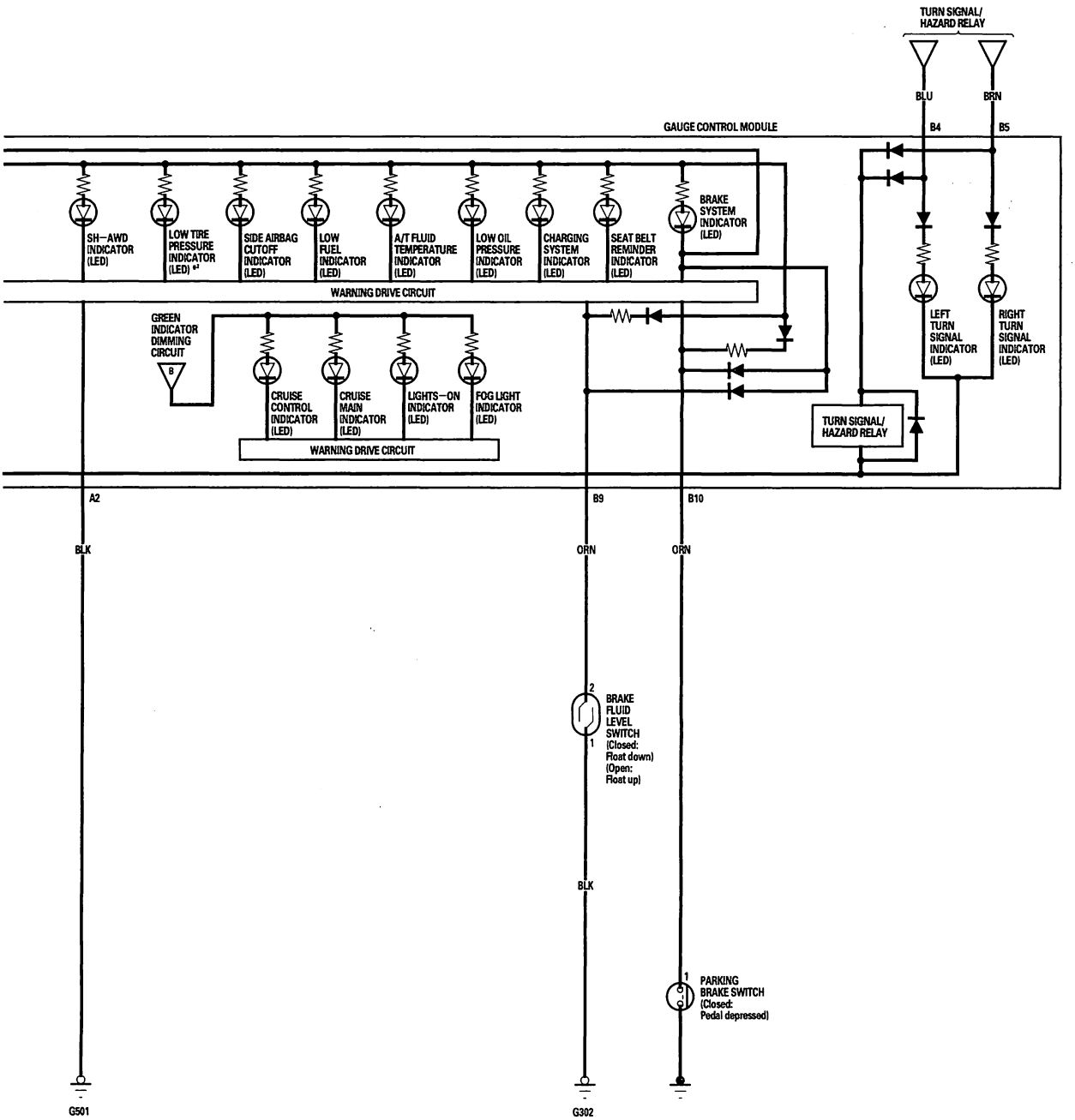
Circuit Diagram (cont'd)



BACK

Protected by AR

*1 : With active damper system
*2 : With TPMS



BACK

Protected by AR

DTC Troubleshooting

DTC B1152: Gauge Control Module Internal (EEPROM) Error

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1152 indicated?

   YES—Replace the gauge control module (see page 22-337). ■

   NO—Intermittent failure, the system is OK at this time. ■

DTC B1155: Gauge Control Module Lost Communication with Combination Switch Control Unit (HLSW Message)

DTC B1156: Gauge Control Module Lost Communication with Combination Switch Control Unit (WIPSW Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1155 and/or B1156 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the gauge control module and the combination switch control unit. ■

5. Check for DTCs with the HDS.

   Are DTCs B1007, B1062, B1063, B1957, B1958, and/or B2969 also indicated?

   YES—Do the combination switch control unit input test (see page 22-300). ■

   NO—Do the gauge control module input test (see page 22-334). ■

BACK

Protected by AR

DTC B1157: Gauge Control Module Lost Communication with MICU (MICU Message)

DTC B1159: Gauge Control Module Lost Communication with MICU (DOORSW Message)

DTC B1180: Gauge Control Module Lost Communication with MICU (AUTOLT Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1157, B1159, and/or B1180 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connection between the gauge control module and the MICU. ■
5. Check for DTCs with the HDS.

   Are DTCs B1055, B1056, B1057, B1255, B1955, B 2155, B2156, and/or B2161 also indicated?

   YES—Do the MICU input test (see page 22-132). ■

   NO—Do the gauge control module input test (see page 22-334). ■

DTC B1158: Gauge Control Module Lost Communication with Relay Control Module (RM Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1158 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the gauge control module and the relay control module. ■
5. Check for DTCs with the HDS.

   Are DTCs B1005, B1959, B2162, and/or B2970 also indicated?

   YES—Do the relay control module input test (see page 22-136). ■

   NO—Do the gauge control module input test (see page 22-334). ■

Protected by AR

DTC Troubleshooting (cont'd)

DTC B1162: Gauge Control Module Lost Communication with Power Tailgate (PTG Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions inB-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1162 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the gauge control module. ■
5. Check for DTCs with the HDS.

   Are DTCs B1155, B1156, B1157, B1158, B1180, and/or B1182 also indicated?

   YES—Do the gauge control module input test (see page 22-334). ■

   NO—Do the power tailgate control unit input test (see page 22-522). ■

BACK

Protected by AR

DTC B1168: Gauge Control Module Lost Communication with PCM (ENG Message)

DTC B1169: Gauge Control Module Lost Communication with the PCM (A/T Message)

DTC B1178: F-CAN Communication Error

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1168, B1169, and/or B1178 indicated?

   YES—Go to step 5.

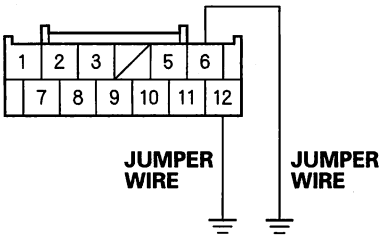
   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connection between the gauge control module and the PCM. ■
5. Check for Fuel and Emissions Systems DTCs with the HDS.

   Are there any DTCs indicated?

   YES—Go to the indicated DTCs, then recheck. ■

   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Disconnect the gauge control module connector A (12P).
8. Jump the SCS with the HDS.
9. Disconnect the PCM connector A (49P).
10. Connect the gauge control module connector A (12 P) connector No. 6 and No. 12 terminals and body ground with jumper wires.

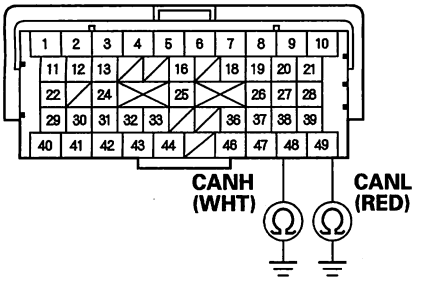
GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

11. Check for continuity between the PCM connector A (49P) No. 48 and No. 49 terminals and body ground individually.

PCM CONNECTOR A (49P)



Terminal side of male terminals

Is there continuity?

YES—Update the PCM if it does not have the latest software (see page 11-7), or substitute a known-good PCM (see page 11-8), and recheck. If the indication goes away, replace the original PCM (see page 11-244). If the DTC is still present, replace the gauge control module (see page 22-334). ■

NO—Repair open in the wire. ■

Protected by AR

DTC Troubleshooting (cont'd)

DTC B1170: Gauge Control Module Lost Communication with the VSA Modulator-Control Unit (VSA Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1170 indicated?

   YES—Go to step 5.

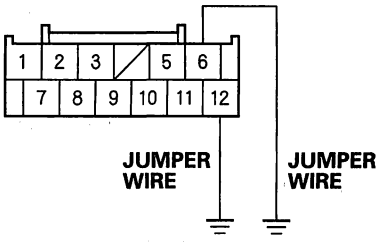
   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connection between the gauge control module and the VSA modulator-control unit. ■
5. Check for VSA System DTCs with the HDS (see page 19-43).

   Are there any DTCs indicated?

   YES—Go to the indicated DTCs, then recheck.

   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Disconnect the gauge control module connector A (12P).
8. Disconnect the VSA modulator-control unit 46P connector.
9. Connect the gauge control module connector A (12 P) connector No. 6 and No. 12 terminals and body ground with jumper wires.

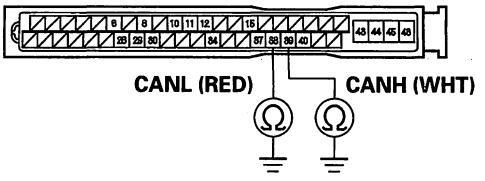
GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

10. Check for continuity between the VSA modulator-control unit 46P connector No. 38 and No. 39 terminals and body ground individually.

VSA MODULATOR-CONTROL UNIT 46P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good VSA modulator-control unit (see page 19-102), and recheck. If the indication goes away, replace the original VSA modulator-control unit (see page 19-102). If the DTC is still present, replace the gauge control module (see page 22-334). ■

NO—Repair open in the wire. ■

BACK

Protected by AR

DTC B1173: Gauge Control Module Lost Communication with the TPMS Control Unit (TPMS Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1173 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connection between the gauge control module and the TPMS control unit.■

5. Check for TPMS DTCs with the HDS (see page 18-125).

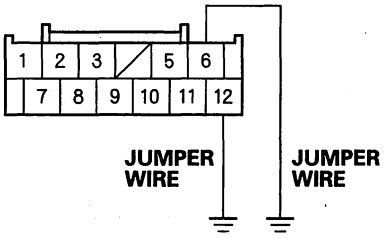
   Are there any DTCs indicated?

   YES—Go to the indicated DTCs, then recheck.

   NO—Go to step 6.

6. Turn the ignition switch OFF.
7. Disconnect the gauge control module connector A (12P).
8. Disconnect the TPMS control unit 20P connector.
9. Connect the gauge control module connector A (12 P) connector No. 6 and No. 12 terminals and body ground with jumper wires.

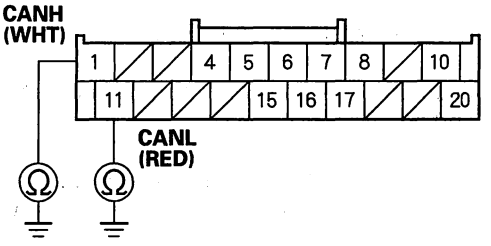
GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

10. Check for continuity between the adaptive cruise control (ACC) unit 20P connector No. 1 and No. 11 terminals and body ground individually.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good TPMS control unit (see page 18-162), and recheck. If the indication goes away, replace the original TPMS control unit (see page 18-162). If the DTC is still present, replace the gauge control module (see page 22-334).■

NO—Repair open in the wire.■

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DTC Troubleshooting (cont'd)

DTC B1175: Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Open

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

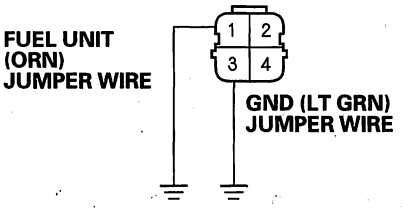
1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 30 seconds or more.
4. Check for DTCs with the HDS.

   Is DTCs B1175 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the gauge control module and the fuel tank unit. ■
5. Turn the ignition switch OFF.
6. Disconnect the fuel tank unit 4P connector.
7. Disconnect the gauge control module connectors A (12P) and B (24P).
8. Connect the fuel tank unit 4P connector No. 1 and No. 3 terminals and body ground with jumper wires.

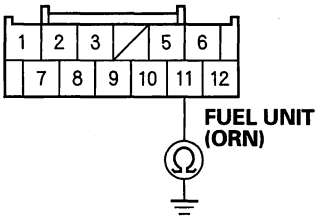
FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

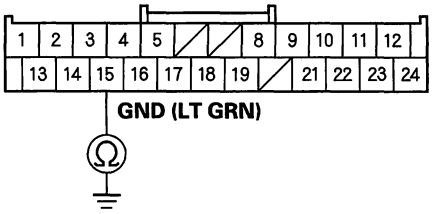
9. Check for continuity between the gauge control module connector A (12P) No, 11 terminal and body ground, and connector B (24P) No. 15 terminal and body ground respectively.

GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

GAUGE CONTROL MODULE CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the gauge control module and the fuel tank unit. ■

10. Do the fuel gauge sending unit test (see page 11-350).

    Is the fuel tank unit OK?

    YES—Replace the gauge control module. ■

    NO—Replace the fuel gauge sending unit. ■

BACK

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DTC B1176: Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Short

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 30 seconds or more.
4. Check for DTCs with the HDS.

   Is DTCs B1176 indicated?

   YES—Go to step 5.

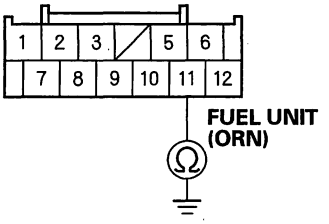
   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the gauge control module and the fuel tank unit. ■
5. Turn the ignition switch OFF.
6. Disconnect the fuel tank unit 4P connector.
7. Clear the DTCs with the HDS.
8. Turn the ignition switch OFF, and then back ON (II).
9. Wait for 30 seconds or more.
10. Check for DTCs with the HDS.

    Is DTCs B1176 indicated?

    YES—Go to step 11.

    NO—Replace the fuel gauge sending unit. ■
11. Disconnect the gauge control module connector A (12P).
12. Check for continuity between the gauge control module connector A (12P) No. 11 terminal and body ground.

GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between the gauge control module and the fuel tank unit. ■

NO—Replace the gauge control module. ■

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DTC Troubleshooting (cont'd)

DTC B1177: Battery Voltage Abnormal

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Check for DTCs with the HDS.

   Is DTCs B1177 indicated?

   YES—Go to step 8.

   NO—Go to step 4.
4. Clear the DTCs with the HDS.
5. Turn the ignition switch OFF, and then back ON (II).
6. Crank the engine.
7. Check for DTCs with the HDS.

   Is DTCs B1177 indicated?

   YES—Go to step 8.

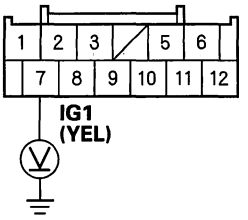
   NO—Intermittent failure, the gauge control module and power supply voltage (IG1) that is supplied to the gauge control module are OK at this time. The battery may have been discharged, and recovered. ■
8. Check the battery (see page 22-76) and the charging system.

   Are the battery condition normal and the charging system OK?

   YES—Go to step 9.

   NO—The battery needs a recharge or replacement, or the charging system needs to repair. ■
9. Turn the ignition switch ON (II).
10. With the gauge control module connector A (12P) still connected, measure the voltage between the gauge control module connector A (12P) No. 7 terminal and body ground.

GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

Is the voltage above 7.5 V?

YES—Replace the gauge control module. ■

NO—Repair open or high resistance in the IG1 line between the ignition switch and the gauge control module. ■

BACK

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DTC B1182: Gauge Control Module Lost Communication with Driver's MPCS Unit (DRLOCKSW Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1182 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the gauge control module and the driver's MPCS unit. ■
5. Check for DTCs with the HDS.

   Are DTCs B1013, B1015, B1065, and B1905 indicated with DTC B1182?

   YES—Do the driver's MPCS unit input test (see page 22-137). ■

   NO—Do the gauge control module input test (see page 22-334). ■

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DTC Troubleshooting (cont'd)

DTC B1187: Gauge Control Module Lost Communication with SRS Unit (SRS Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1187 indicated?

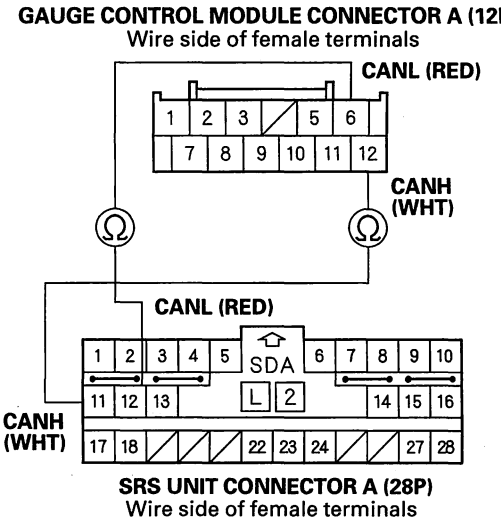
   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the gauge control module and the SRS unit. ■
5. Check for SRS DTCs with the HDS.

   Are there any DTCs indicated?

   YES—Go to the indicated DTCs, then recheck.

   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Disconnect the gauge control module connector A (12P).
8. Disconnect the SRS unit connector A (see page 24-152).
9. Check for continuity between the gauge control module connector A (12P) No. 6 and the SRS unit connector A (28P) No. 12 terminal, and between the gauge control module connector A (12P) No. 12 terminal and the SRS unit connector A (28P) No. 11 terminal.



Is there continuity?

YES—Substitute a known-good SRS unit (see page 24-152), and recheck. If the indication goes away, replace the original SRS unit (see page 24-152). If the DTC is still present, replace the gauge control module (see page 22-334). ■

NO—Repair open in the wire. ■

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DTC B1188: Gauge Control Module Lost Communication with Active Damper System Control Unit (Active Damper System Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1188 indicated?

   YES—Go to step 5.

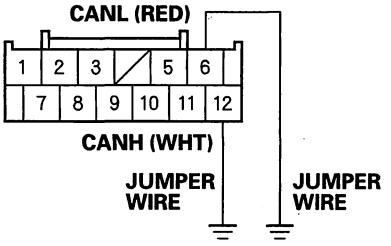
   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the gauge control module and the active damper control unit. ■
5. Check for active damper system DTCs with the HDS.

   Are there any DTCs indicated?

   YES—Go to the indicated DTCs, then recheck.

   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Disconnect the gauge control module connector A (12P).
8. Disconnect the active damper control unit connector B (14P).
9. Connect the gauge control module connector A (12P) connector No. 6 and No. 12 terminals to body ground with jumper wires.

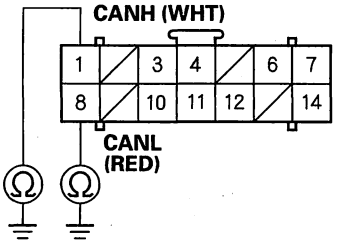
GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

10. Check for continuity between the active damper control unit connector B (14P) No. 1 and No. 8 terminals and body ground respectively.

ACTIVE DAMPER CONTROL UNIT CONNECTOR B (14P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good active damper control unit (see page 18-118), and recheck. If the indication goes away, replace the original active damper control unit (see page 18-118). If the DTC is still present, replace the gauge control module (see page 22-334). ■

NO—Repair open in the wire. ■

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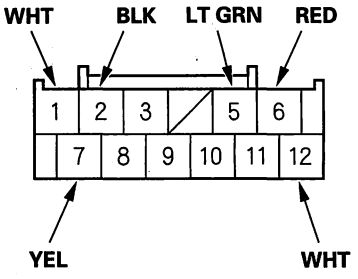
Gauge Control Module Input Test

NOTE: Before testing, troubleshoot the B-CAN System Diagnosis Test Mode A (see page 22-112).

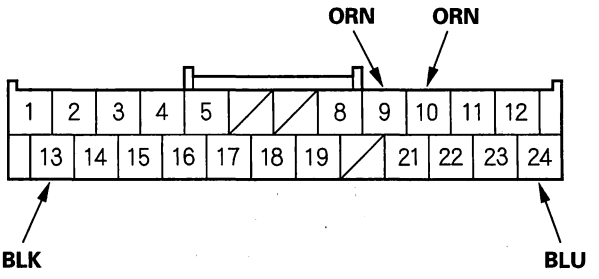
1. Turn the ignition switch OFF, remove the gauge control module (see page 22-337).
2. Disconnect the gauge control module connectors A (12P) and B (24P).

   NOTE: All connector views are wire side of female terminals.

GAUGE CONTROL MODULE CONNECTOR A (12P)



GAUGE CONTROL MODULE CONNECTOR B (24P)



3. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 4.
4. With the connectors still disconnected, make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A5	BLK	Under-dash fuse /relay box connector N (45 P) disconnected	Check for continuity between the A5 and the under-dash fuse/relay box connector N (45P) No. 22 terminal: There should be continuity.	An open in the wire
A6	RED	PCM connector A (49P) disconnect	Check for continuity between A6 and the PCM connector A (49P) No. 1 terminal: There should be continuity.	An open in the wire
A12	WHT	PCM connector A (49P) disconnected	Check for continuity between A12 and the PCM connector A (49P) No. 36 terminal: There should be continuity.	An open in the wire

BACK

Protected by AR

5. Reconnect the connectors, turn the ignition switch ON (II), and make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, replace the gauge control module.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A2 B13	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
A1	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
A7	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the main under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
B9	ORN	Ignition switch ON (II), brake fluid is full level in the reservoir	Measure the voltage to ground: There should be 5 V or more.	• Faulty brake fluid level switch • A short to ground in the wire
		Ignition switch ON (II), brake fluid is lower level in the reservoir	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G302) • An open in the wire • Faulty brake fluid level switch
B10	ORN	Ignition switch ON (II), parking brake pedal pressed	Measure the voltage to ground: There should be less than 1 V.	• Faulty brake fluid level switch • An open in the wire
		Ignition switch ON (II), parking brake pedal released	Measure the voltage to ground: There should be 5 V or more.	• Faulty brake fluid level switch • A short to ground in the wire
B24	BLU	Ignition switch ON (II), washer fluid is half or more in the washer reservoir	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G201) • Faulty washer fluid level switch • An open in the wire
		Ignition switch ON (II), washer fluid is half or more in the washer reservoir	Measure the voltage to ground: There should be 5 V or more.	• Faulty washer fluid level switch • A short to ground in the wire

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Rewriting the ODO Data and Transferring Smart Maintenance on a New Gauge Control Module

NOTE:
- Obtain a new gauge control module before starting the rewriting process.
- Rewriting is not possible on a gauge control module that will not communicate with the HDS.
- Make sure that the HDS shows the correct VIN for the car you are working on.
- Once you have started this procedure, you must complete it before removing the HDS from the DLC.
- Connect a battery jumper box (not a battery charger) to insure that correct battery voltage will be maintained.

1. Before replacing the gauge control module, connect the HDS.
2. Select GAUGES from the BODY ELECTRICAL system select menu with the HDS.
3. Select "Gauge Control Module Replacement (ODO Rewrite)" from the ADJUSTMENT menu, and follow the instructions on the display to retrieve the ODO value and the Smart Maintenance Information.
4. Replace the gauge control module.
5. Follow the instructions on the display to write the new ODO value and Smart Maintenance to the new gauge control module. If the data transfer fails, refer to the instructions below to release the locked ODO value.

Release Locked odometer mileage to the original gauge control module.

If after you attempt to transfer mileage, the new odometer has dashes (———), garbled, or an incorrect value displayed, do the following:

Start over. The original gauge control module is going to be unlocked and restored to its original state.

1. Confirm that you have the latest HDS version of software.
2. Make sure that the HDS shows the correct VIN for the car you are working on.
3. With the ignition switch OFF, reconnect the original gauge control module.
4. Completely re-boot the HDS.
5. Clear any stored DTCs.
6. Navigate to Body Electric/Gauges/Adjustment/ Instrument Panel Replacement.
7. Select "3. Releasing Locked ODO Value."
8. Follow the prompts and the Odometer mileage will be restored.
9. Start over and make sure the screen prompts are followed.

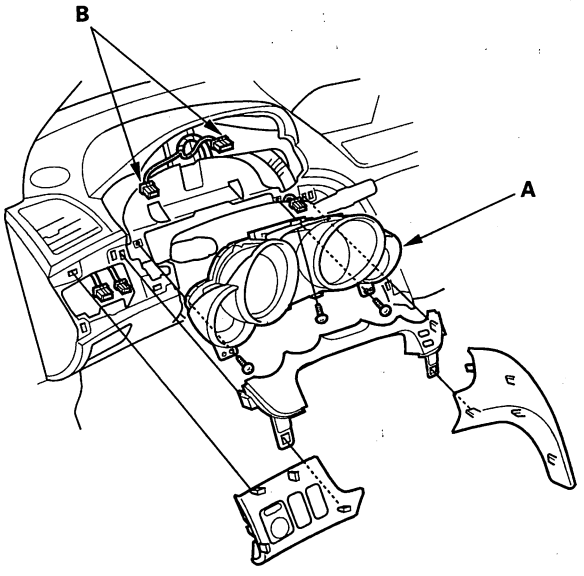
BACK

Protected by AR

Gauge Control Module Replacement

NOTE: Before replacing the gauge control module, do the "Rewriting the ODO DATA and Transferring the Smart Maintenance on a NEW Gauges (see page 22-336).

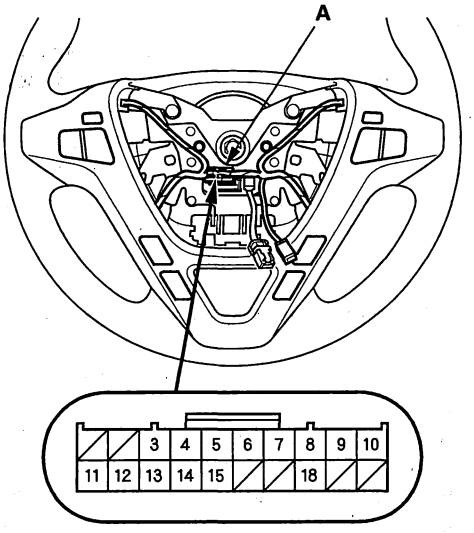
1. Remove the parts shown:
   - Driver's switch panel (see page 20-117).
   - Instrument fascia (see page 20-118).
2. Remove the screws from the gauge control module (A).



3. Disconnect the connectors (B), and remove the gauge control module.
4. Install the gauge in the reverse order of removal.

Multi-information Switch Test/ Replacement

1. Remove the driver's airbag assembly (see page 24-137).
2. Disconnect the 20P connector (A) from the cable reel.



Wire side of female terminals

3. Measure the resistance between the cable reel 20P connector No. 13 and No. 14 terminals in each multi-information switch position according to the table.

Position	Resistance
Previous (▲)	About 33 Ω
SEL/RESET	About 1043 Ω
Next (▼)	About 363 Ω

4. If the resistance is not as specified, replace the steering switch assembly.

   NOTE: If the switch is OK, but there is a problem with the switch function, check the cable reel.

Protected by AR

Outside Air Temperature Indicator Calibration

NOTE: To test the outside air temperature sensor (see page 21-105).

Description

The outside temperature sensor is located behind the center of the front bumper. The gauge control module uses measurements from this sensor to display the outside air temperature.
Because of the location of the sensor, it may be affected by heat reflection from the road, engine and radiator heat, or hot exhaust from surrounding traffic.
These conditions can heat soak the outside air temperature sensor and cause inaccurate readings.
Logic has been written into the gauge control module to help prevent abnormal of fluctuating outside air temperature indicator readings.

Outside Air Temperature Indicator Logic

Initial outside air temperature indication after the ignition switch is turned ON (II).
If the engine coolant temperature is 140 ℉ (60 ℃) or higher when the ignition switch is turned ON (II), the outside air temperature indicated the last time the key was turned off will be displayed regardless of the current temperature measured by the outside air temperature sensor.

If the engine coolant temperature is 139 ℉ (59 ℃) or lower when the ignition switch is turned ON (II), the current temperature measured by the outside air temperature sensor will be indicated.

Update to the outside air temperature indicator while driving

If the temperature measured by the outside air temperature sensor is greater than the temperature on the outside air temperature indicator, the outside temperature indicator will increase by 1 ℉ (1 ℃) per minute after the vehicle speed is greater than 19 mph (30 km/h) for more than 30 seconds. It will continue to increase until the current outside air temperature is indicated. So, the first change to the outside air temperature indicator is 1 minute and 30 seconds after the vehicle speed is greater than 19 mph (30 km/h). If the vehicle speed drops below 19 mph (30 km/h), the indicator will not update again until the vehicle speed is increased to 19 mph (30 km/h) or more for more than 1 minute and 30 seconds again.

If the outside air temperature is less than 140 ℉ (60 ℃), the temperature increases 1 ℉ (1 ℃) every 2 seconds until the current outside air temperature.

If the outside air temperature is less than the indicated temperature, the temperature will decrease 1 ℉ (1 ℃) every 2 seconds until the current outside air temperature is indicated regardless of vehicle speed.

Troubleshooting

If the indicator displays "— — —" for more than 2 seconds after selecting the outside air temperature display mode, check the climate control system or multiplex integrated control system for DTCs (see B-CAN System Diagnosis Test Mode A) (see page 22-112).

Calibration

The outside air temperature indicator's displayed temperature can be recalibrated ±5 ℉ or ±3 ℃ to meet the customer's expectations.

Calibrate the outside air temperature with the HDS or by custom memory setting.

BACK

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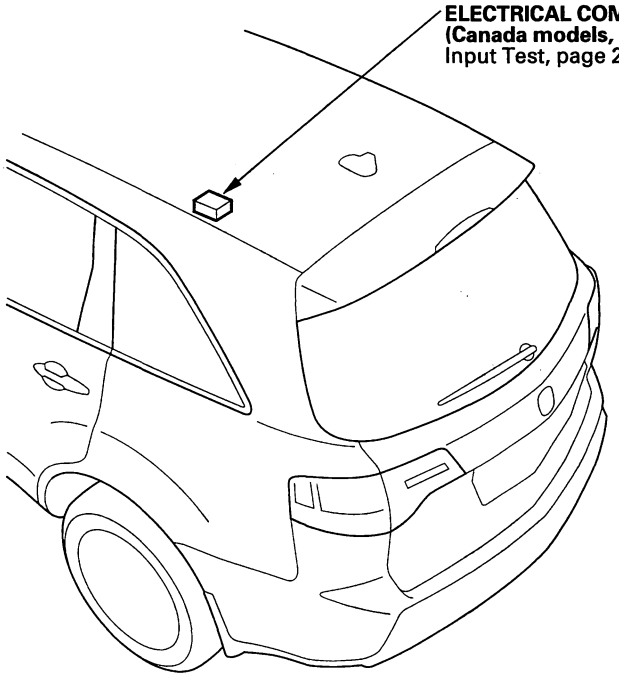
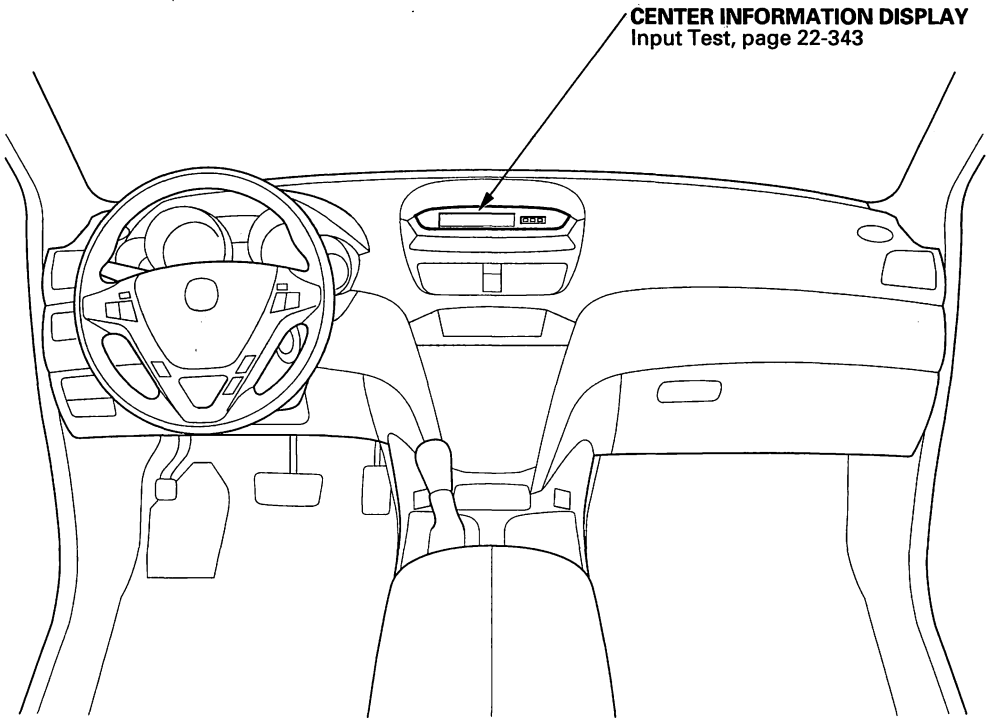
Electrical Compass

BODY

Component Location Index





BACK

Protected by AR

Electrical Compass

System Description

Compass Operation (Canada models, without navigation)

The electrical compass unit shows the direction of the vehicle on the center information display. Compass operation can be affected by driving near power lines or stations, across bridges, through tunnels, over railroad crossings, past large vehicles, or driving near large objects that can cause a magnetic disturbance. If you see "———" in the direction display, the compass is self-calibrating.
The compass may need to be manually calibrated after exposure to a strong magnetic field. If the compass seems to be continually showing the wrong direction, and is not self-calibrating, complete the compass calibration procedure, on the next page. In most areas, there is a variation between magnetic north and true north. Zone setting is required so the compass can compensate for this variation. To check and select the zone set into the compass, complete the compass zone setting procedure on the next page:

Self-diagnosis Function

1. Press and hold the "SET" button, the "▲" arrow up button, and the "▼" arrow down button, then turn the ignition switch ON (II).
2. Release all buttons after a second.
3. Press and release the "SET" button and press and release the "▼" arrow button. Do steps 1 through 3 within 4 seconds to enter the self-diagnosis mode.
4. Press the "▲"arrow up button to make all segments go OFF and ON.

5. Press the "SET" button to exit the self-diagnosis function.

Compass Adjustment Mode menu
The compass calibration and the compass zone setting can be done in the compass adjustment mode. To enter the compass adjustment mode menu, press and hold the "SET" button for at least 5 seconds.

NOTE: If there is no operation of the "SET" button, the "▲" arrow up button, or the "▼" arrow down button during the compass adjustment mode for more than 10 seconds, the compass adjustment mode will cancel and the display will return to the normal display.

BACK

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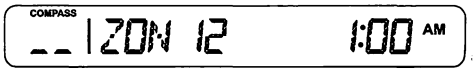
Compass Zone Setting

NOTE: You should do this procedure in an open area away from buildings, power line, and other vehicles.

6. Select the "ZON" and press the "SET" button on the center information display during the compass adjustment mode, the directional display on the center information display will show the "Zone set display" shown, and zone set request is transmitted.

   - The display shows the "Zone set display" for 1.5 seconds and until the data from the Compass corresponds to the requested data. After 1.5 seconds and the received data corresponds, the display changes to the "CAL request display".
   - The zone number displayed on the center information display during a compass adjustment mode will correspond with the last received Compass data. If zone data is not receive yet, display will be blinking "———" for zone number.

   Zone Set Display (Directional display is off, and "———" blinks.)



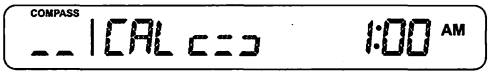
Compass Calibration

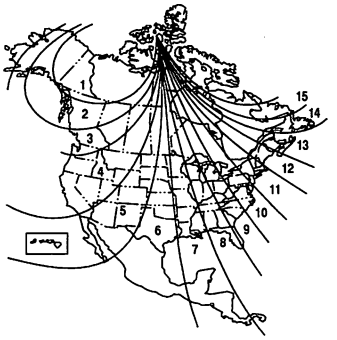
NOTE: You should do this procedure in an open area away from buildings, power line, and other vehicles.

7. Select the "CAL" and press the "SET" button on the center information display during the compass adjustment mode, the directional display on the center information display will show the "Calibration display" shown, and calibration request is transmitted.

   When the display goes from "———" to an actual heading, the compass unit has been calibrated.

   Calibration Display (Directional display is off, "———" blinks, and an animation is displayed to show that the calibration is in progress.)



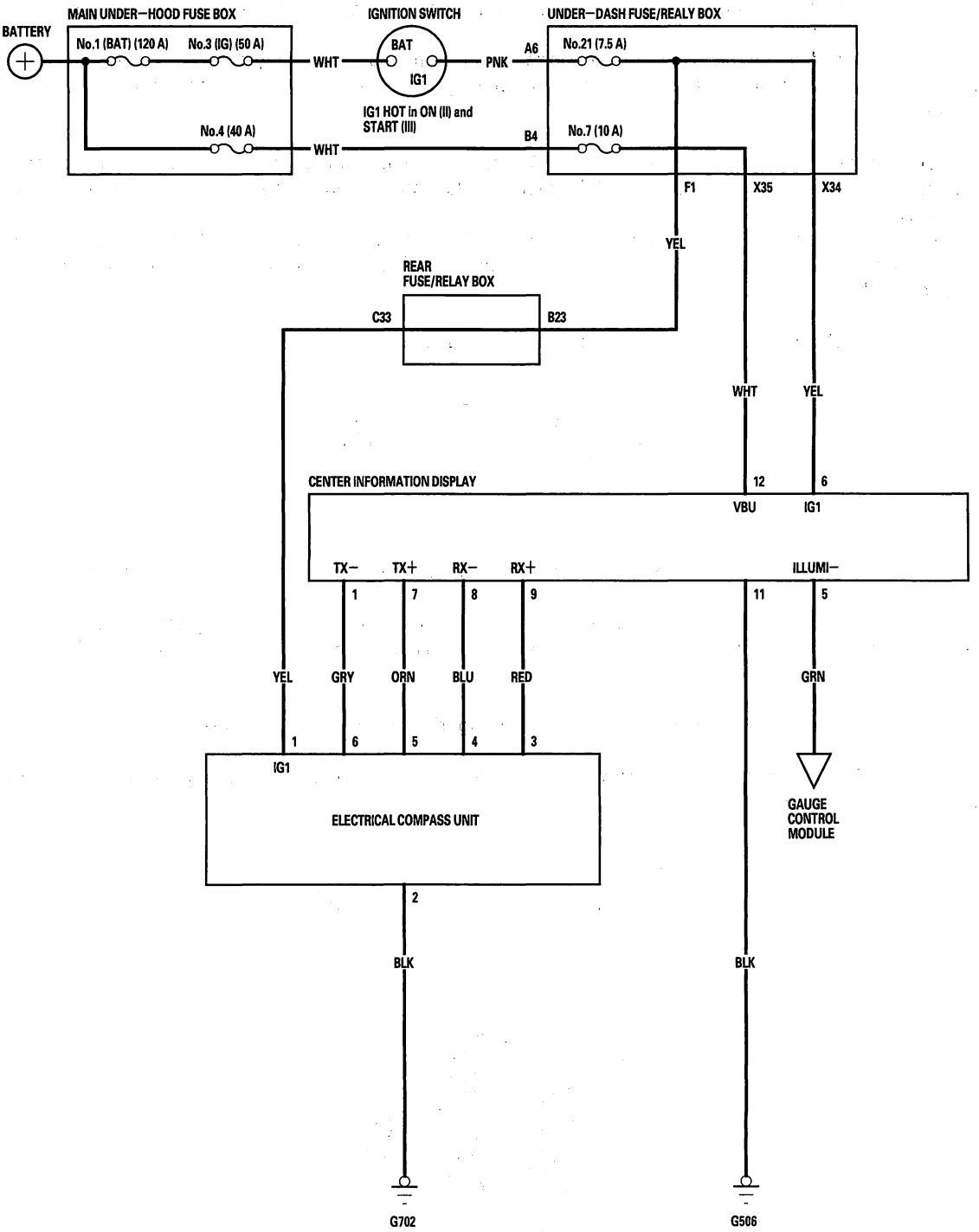


Protected by AR

Electrical Compass

Circuit Diagram

Canada models without navigation



BACK

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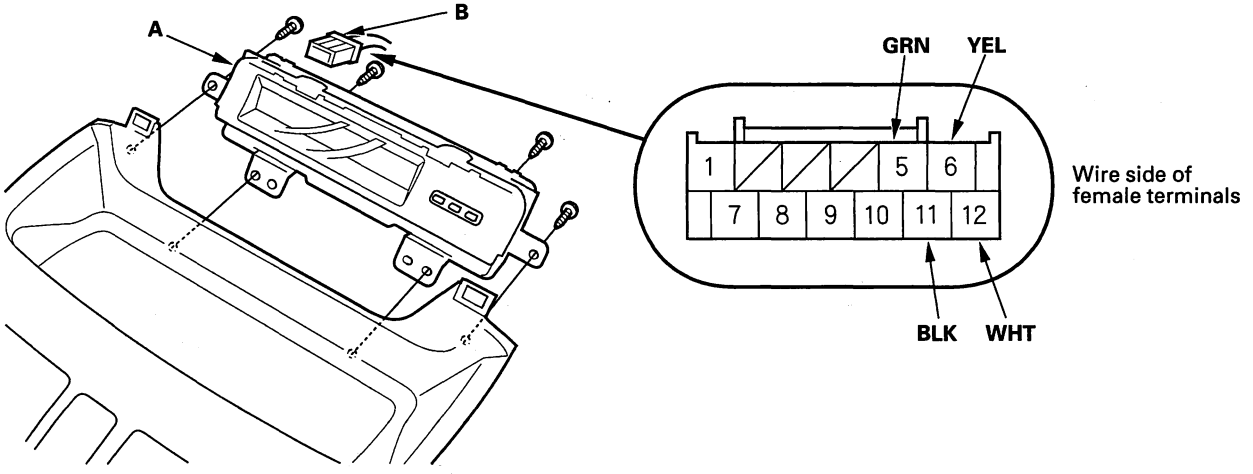
Center Information Display Input Test

1. Remove the dashboard upper visor (see page 20-120).
2. Remove the center panel (see page 20-121).
3. Remove the four screws, and the center information display (A).



4. Disconnect the 12P connector (B) from the center information display.
5. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4
6. Reconnect the connector to the electrical compass unit, turn the ignition switch ON (II) and perform the following input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all input tests prove OK, the center information display must be faulty; replace it.

Cavity	Wire	Test Condition	Test: Desired result	Possible cause if result is not obtained
11	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
12	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • An open in the wire
6	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire

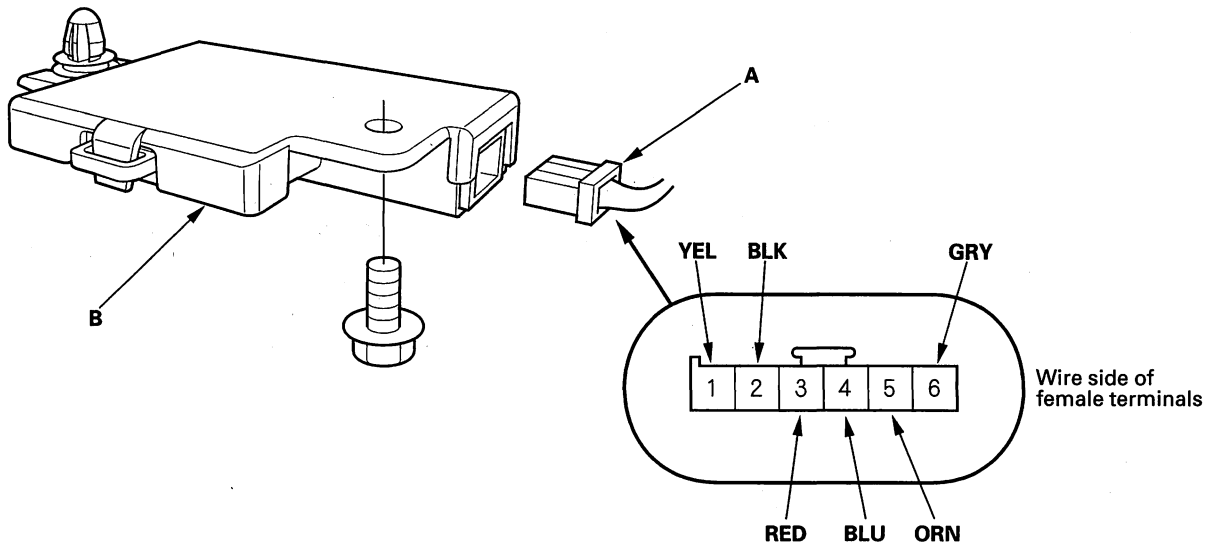
Protected by AR

Electrical Compass

Electrical Compass Unit Input Test

1. Remove the headliner (see page 20-101).

2. Disconnect the 6P connector (A) from the electrical compass unit (B).



3. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

4. Reconnect the connector to the electrical compass unit, turn the ignition switch ON (II) and perform the following input tests at the connector.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all input tests prove OK, the electrical compass unit must be faulty; replace it.

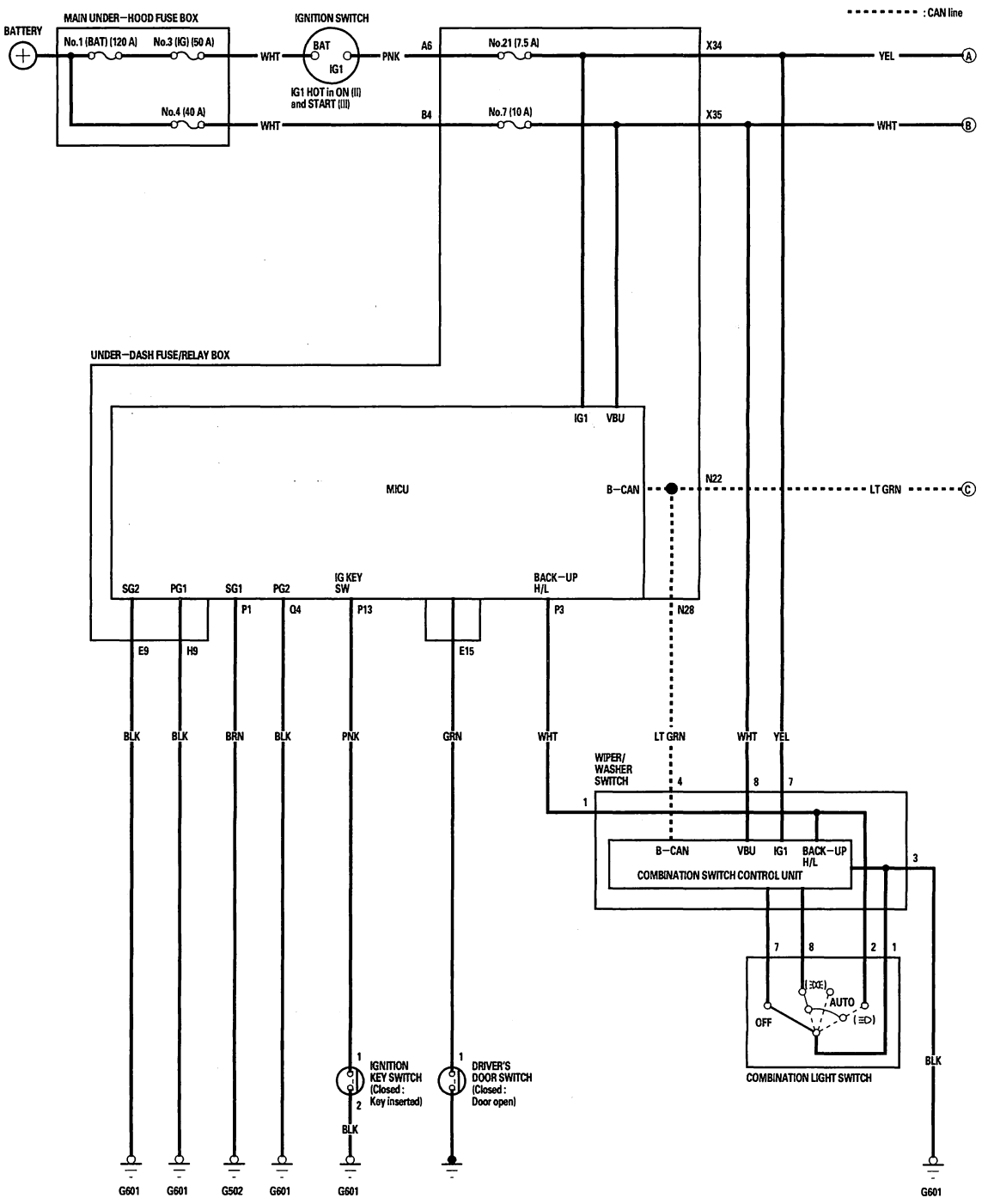
Cavity	Wire	Test Condition	Test: Desired result	Possible cause if result is not obtained
2	BLK	Under all conditions	Measure the voltage to ground: There should be 1 less than 0.5 V.	• Poor ground (G501) • An open in the wire
1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
3	RED	Under all conditions	Measure the voltage to ground: There should be about 4 V.	• Faulty center information display • An open in the wire • A short to ground in the wire
4	BLU	Under all conditions	Measure the voltage to ground: There should be about 4 V.	• Faulty center information display • An open in the wire • A short to ground in the wire
5	ORN	Under all conditions	Measure the voltage to ground: There should be about 4 V.	• Faulty center information display • An open in the wire • A short to ground in the wire
6	GRY	Under all conditions	Measure the voltage to ground: There should be about 4 V.	• Faulty center information display • An open in the wire • A short to ground in the wire

BACK

Protected by AR

Reminder Systems

Circuit Diagram



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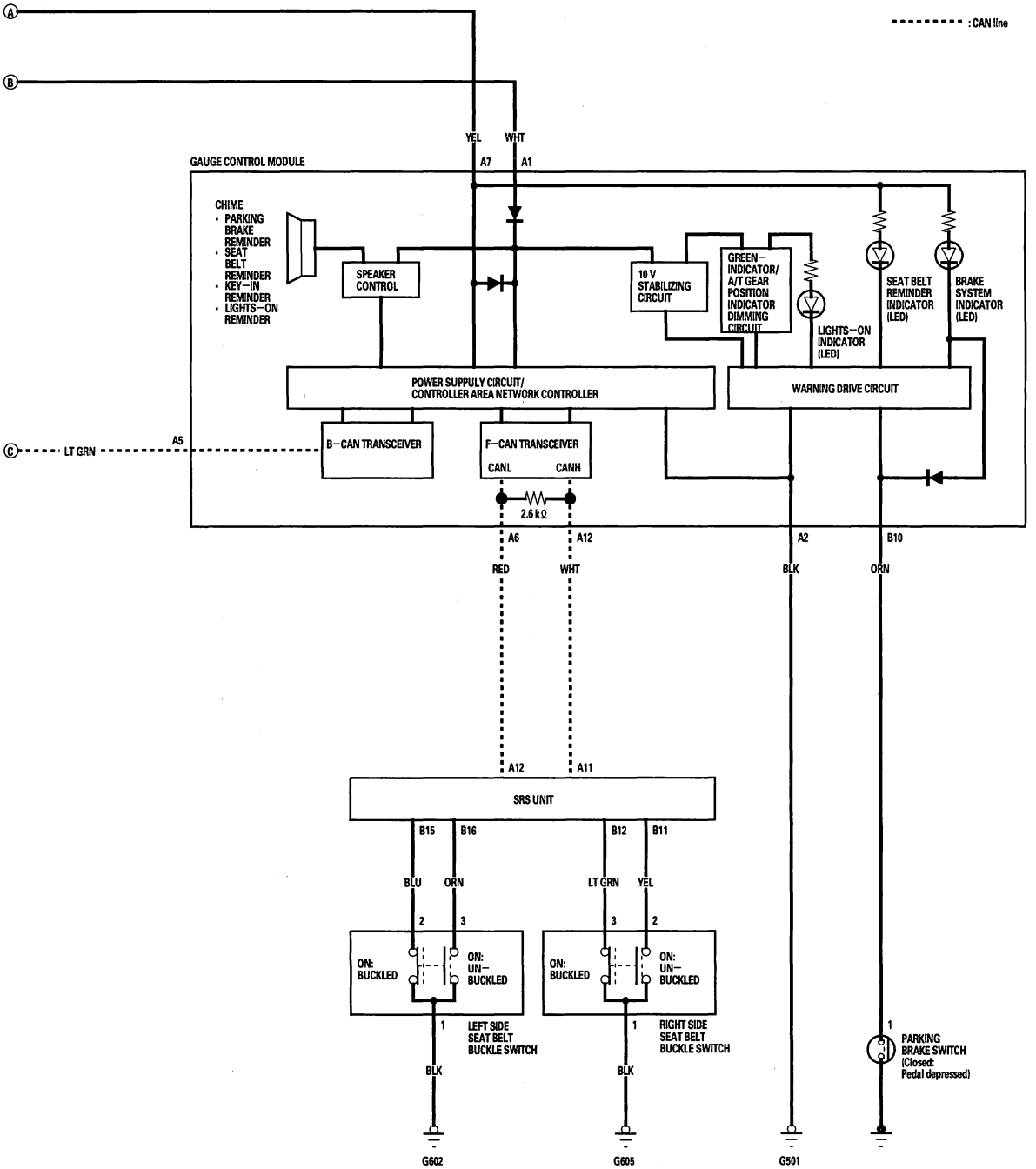
Reminder Systems

Circuit Diagram (cont'd)



BACK

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Control Unit Input Test

NOTE:

- Before testing, troubleshoot the B-CAN System Diagnosis Test Mode A (see page 22-112).
- Before testing, troubleshoot the F-CAN System using the gauge control module self-diagnosis function (see page 22-315).

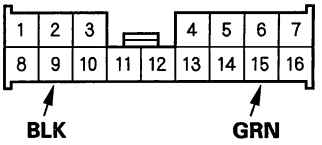
MICU (Common Test)

1. Turn the ignition switch OFF, and remove the left kick panel (see page 20-76).

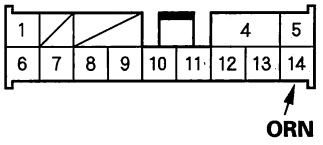
2. Disconnect the under-dash fuse/relay box connectors E, H, P and Q.

   NOTE: All connector views are wire side of female terminals.

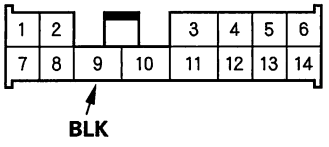
UNDER-DASH FUSE/RELAY BOX CONNECTOR E (16P)



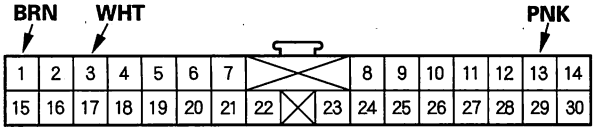
UNDER-DASH FUSE/RELAY BOX CONNECTOR F (14P)



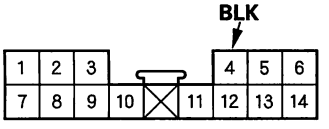
UNDER-DASH FUSE/RELAY BOX CONNECTOR H (14P)



UNDER-DASH FUSE/RELAY BOX CONNECTOR P (30P)



UNDER-DASH FUSE/RELAY BOX CONNECTOR Q (14P)



3. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

(cont'd)

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Control Unit Input Test (cont'd)

4. Reconnect the connectors, turn the ignition switch ON (II), and make these input tests at the connectors.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 5.

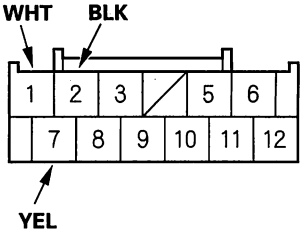
Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
E9 H9 Q4	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G601) • An open in the wire
P1	BRN	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G502) • An open in the wire

GAUGE CONTROL MODULE (Common Test)

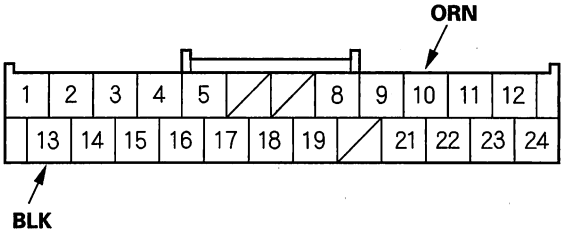
5. Disconnect the gauge control module connectors A (12P) and B (24P).

   NOTE: All connector views are wire side of female terminals.

GAUGE CONTROL MODULE CONNECTOR A (12P)



GAUGE CONTROL MODULE CONNECTOR B (24P)



6. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 7.

BACK

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7. Reconnect the connectors, turn the ignition switch ON (II), and make these input tests at the connectors.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to the appropriate input test.
     - Key-in reminder, go to step 8.
     - Parking brake reminder, go to step 9.
     - Lights-on reminder, do the combination switch control unit input test (see page 22-300) and the combination light switch test (see page 22-200).
     - Seat belt reminder, do the seat belt buckle switch test.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B13 A2	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
A1	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
A7	YEL	Ignition switch ON (II).	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire

(cont'd)

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Control Unit Input Test (cont'd)

Key-in reminder

8. Reconnect the under-dash fuse/relay box connectors, turn the ignition switch ON (II), and make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the MICU must be faulty, replace the under-dash fuse/relay box (see page 22-72).

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
P13	PNK	Ignition key inserted into the ignition switch	Measure the voltage to ground: There should be less than 1 V.	• Faulty ignition key switch • An open in the wire
		Ignition switch OFF and the ignition key removed from the ignition switch	Measure the voltage to ground: There should be 5 V or more.	• Faulty ignition key switch • A short to ground in the wire
E15	GRN	Driver's door open	Measure the voltage to ground: There should be less than 1 V.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Measure the voltage to ground: There should be more than 5 V.	• Faulty driver's door switch • A short to ground in the wire
F14	ORN	Under all conditions	Attach to ground: The ignition key light should come on.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 6 (7.5 A) fuse in the under-dash fuse/relay box • Faulty ignition key light • An open in the wire

Parking Brake Reminder

9. Reconnect the gauge control module connectors, turn the ignition switch ON (II), and make these input tests at the connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, replace the gauge control module (see page 22-337).

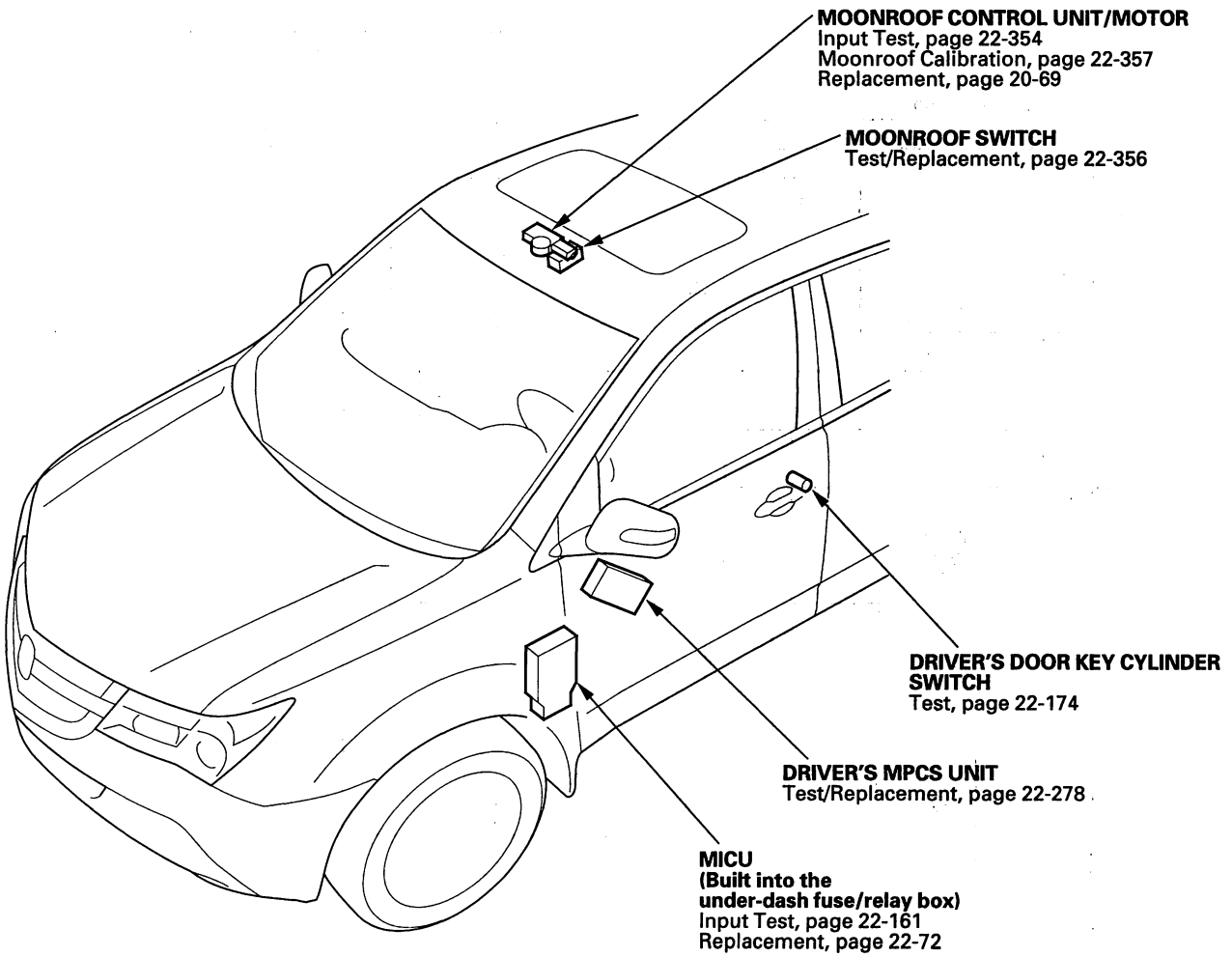
Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B10	ORN	Ignition switch ON (II), parking brake pedal pressed	Measure the voltage to ground: There should be less than 1 V.	• Faulty brake fluid level switch • An open in the wire
		Ignition switch ON (II), parking brake pedal released	Measure the voltage to ground: There should be more than 5 V.	• Faulty brake fluid level switch • A short to ground in the wire

BACK

Protected by AR

Moonroof

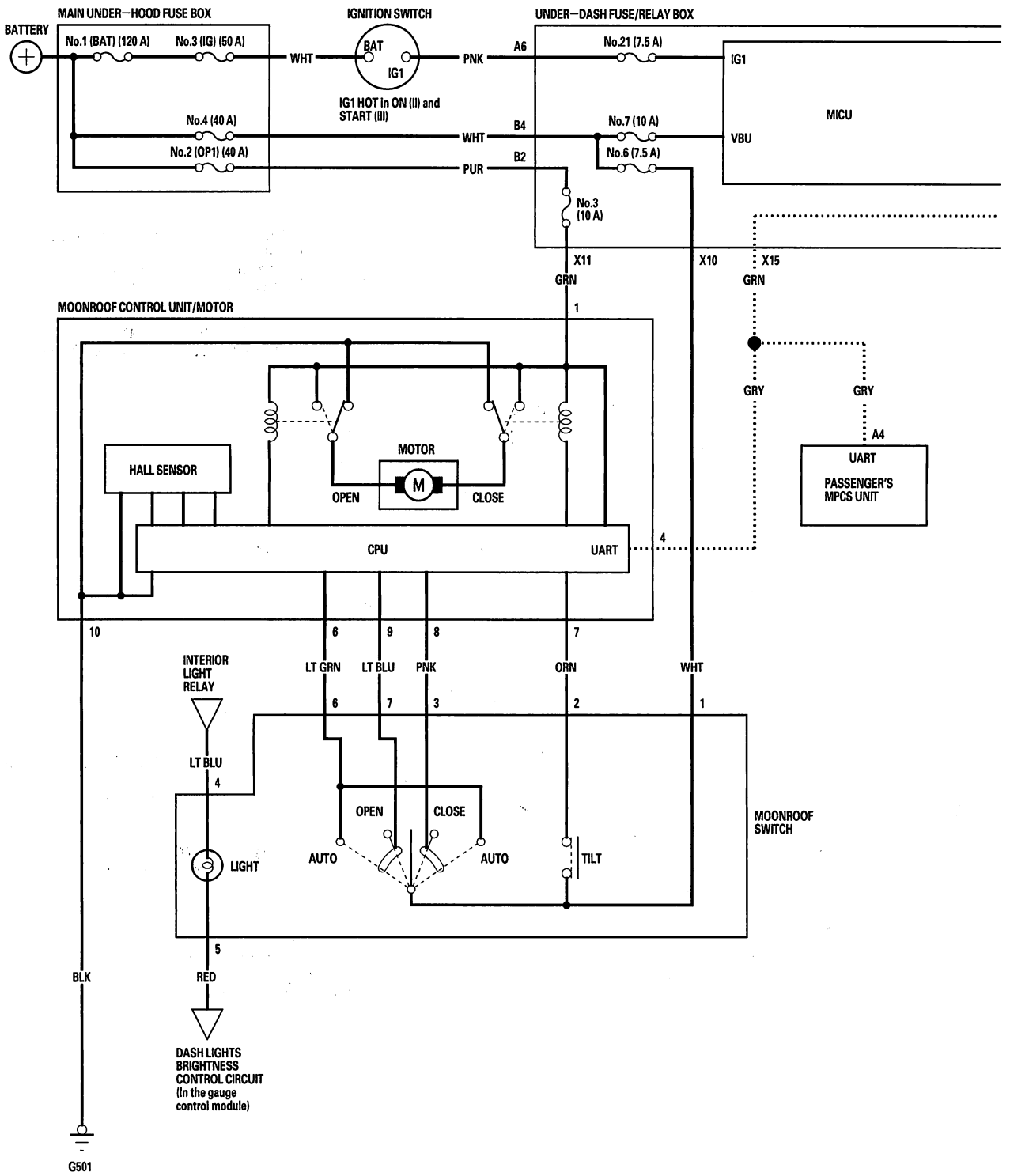
Component Location Index



Protected by AR

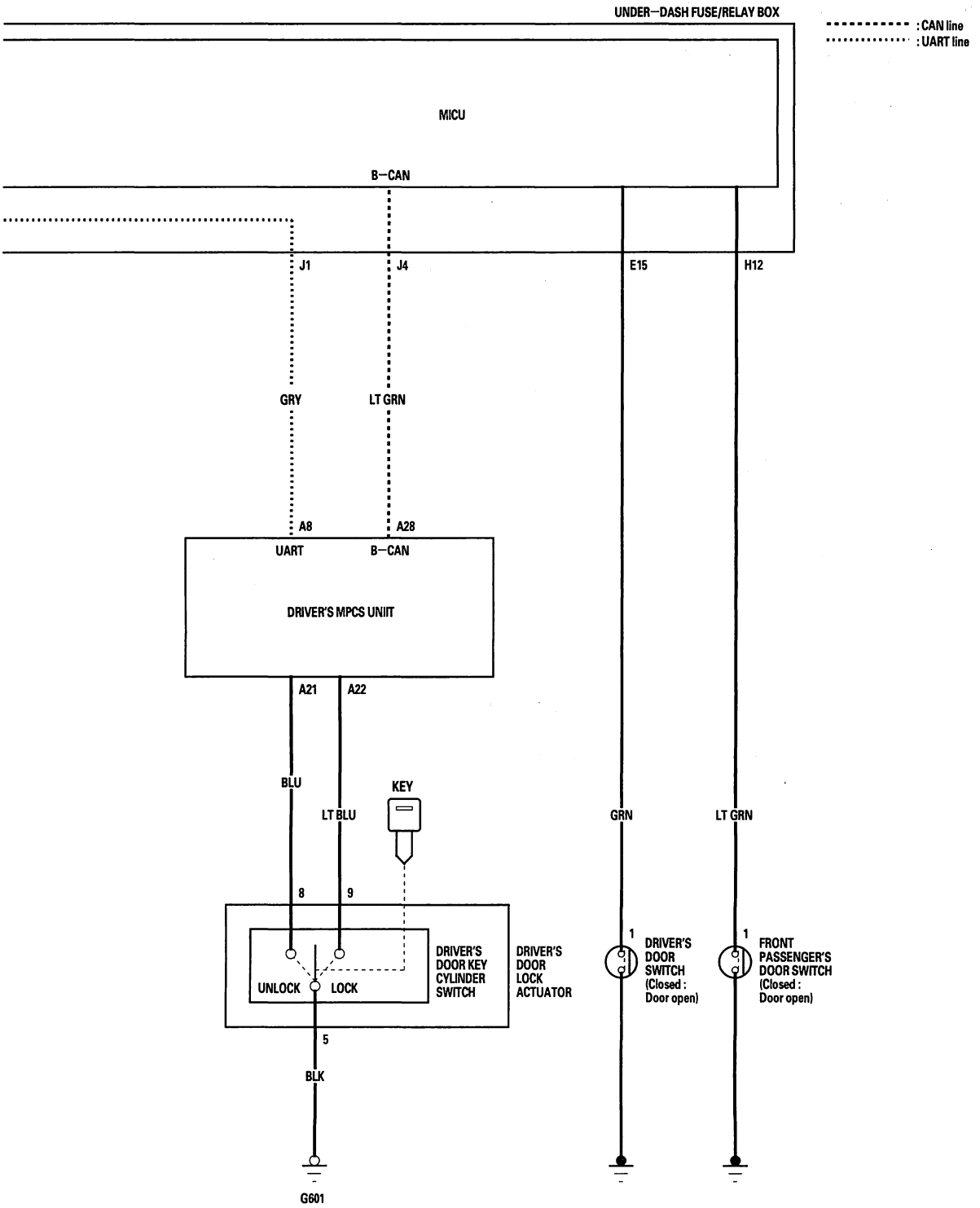
Moonroof

Circuit Diagram



BACK

Protected by AR



BACK

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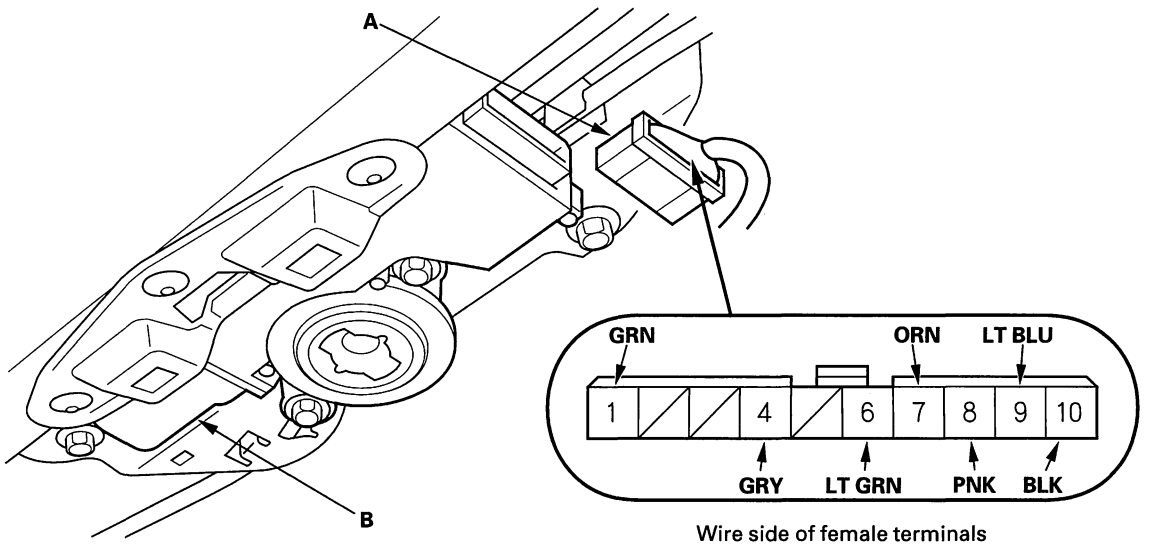
Moonroof Control Unit Input Test

Before troubleshooting the moonroof circuit, troubleshoot the multiplex integrated control system using B-CAN System Diagnosis Test Mode A (see page 22-112).
If the moonroof works OK manually, but will not work in AUTO, or reverses frequently (pinch detection) do the moonroof calibration (see page 22-357) before proceeding with the input test.

1. Turn the ignition switch OFF.
2. Remove the headliner (see page 20-101).
3. Disconnect the 10P connector (A) from the moonroof control unit (B).



Wire side of female terminals

4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 5.

BACK

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5. With the connector still disconnected, make these input tests at the connector.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
4	GRY	Under all conditions	Check for continuity between the No. 4 terminal and the under-dash fuse/relay box connector X (39P) No. 15 terminal, and the No. 4 terminal and the passenger's MPCS unit connector A (28P) No. 4 terminal: There should be continuity.	• An open in the wire

6. Reconnect the connector, and make these input tests at the connector.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 7.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
10	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
1	GRN	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 2 (OP1) (40 A) fuse in the main under-hood fuse box • Blown No. 3 (10 A) fuse in the under-dash fuse/relay box • An open in the wire
6	LT GRN	Moonroof switch in AUTO OPEN or AUTO CLOSE position	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 6 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty moonroof switch • An open in the wire
7	ORN	Moonroof switch in TILT position	Measure the voltage to ground: There should be battery voltage.	
8	PNK	Moonroof switch in CLOSE position	Measure the voltage to ground: There should be battery voltage.	
9	LT BLU	Moonroof switch in OPEN position	Measure the voltage to ground: There should be battery voltage.	

7. If all the input tests are OK and multiple failures are found, replace the moonroof control unit/motor assembly. If the problem is related to the key-off operation, go to the driver's MPCS unit input test (see page 22-278), and passenger's MPCS unit input test (see page 22-281).

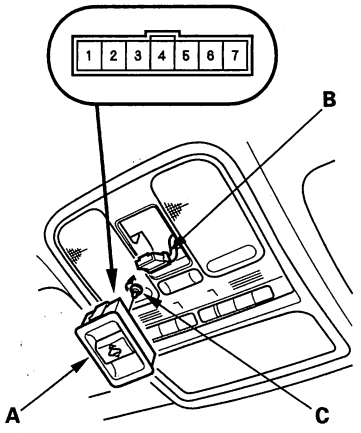
Protected by AR

Moonroof Switch Test/Replacement

Special Tools required
KTC trim tool set SOJATP2014

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damaging components.
- Take care not to scratch the roof console and related parts.
- The moonroof can still be operated for about 10 minutes after the ignition switch is turned from the "II" to the "I" or "0" positions, as long as none of the doors have been opened. This provides a convenience to parked occupants while offering a degree of security against unwanted or accidental moonroof operation.

1. Carefully pry the moonroof switch (A) out of the roof console.



2. Disconnect the 7P connector (B) from the moonroof switch.

3. Check for continuity between the terminals in each switch position according to the table.

Position \ Terminal	1	2	3	6	7	4		5
OPEN	○				○			
CLOSE	○		○					
TILT	○	○				○	○	○
CLOSE+AUTO	○		○	○				
OPEN+AUTO	○			○	○			

4. If the continuity is not as specified, replace the illumination bulb (C) or the switch.

5. Install in the reverse order of removal.

BACK

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Resetting the Moonroof Control Unit

NOTE: Do the moonroof control unit reset with all the doors and tailgate closed.

Resetting the moonroof is required when any of the following have occurred.

- The moonroof was moved manually with the battery dead or disconnected.
- The moonroof motor was replaced with a new one.
- Any of components related to the moonroof were replaced.
  - Wind deflector
  - Moonroof glass
  - Moonroof seal
  - Moonroof glass bracket
  - Moonroof cables, etc.

To reset the moonroof control unit, do these steps

1. Turn the ignition switch OFF.
2. Press and hold the tilt switch, and turn the ignition switch ON (II).
3. Release the tilt switch, and turn the ignition switch OFF.
4. Repeat steps 2 and 3 four times.
5. Press and hold the moonroof open switch an additional 3 seconds after the moonroof is fully opened.
6. Press and hold the moonroof close switch an additional until 3 seconds after the moonroof is fully closed (tilted).
7. Confirm that the moonroof control unit is reset by using the moonroof AUTO OPEN and AUTO CLOSE function.

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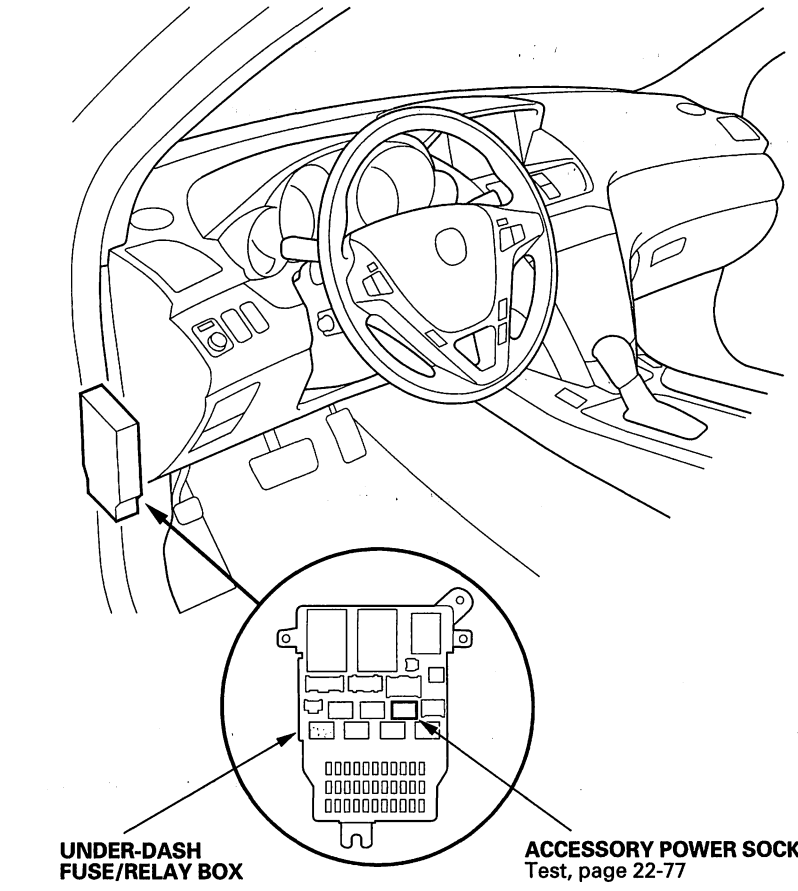
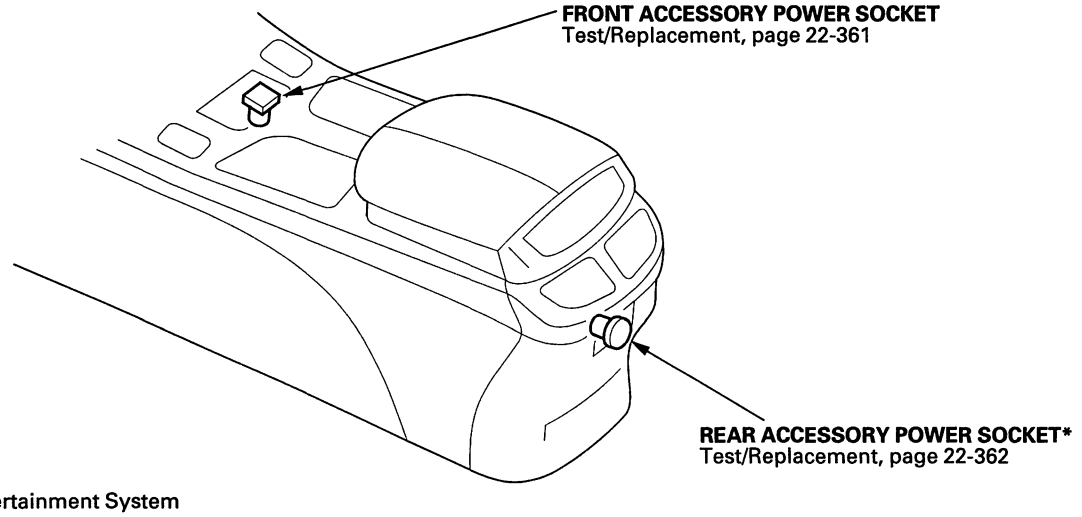
Accessory Power Sockets

Component Location Index

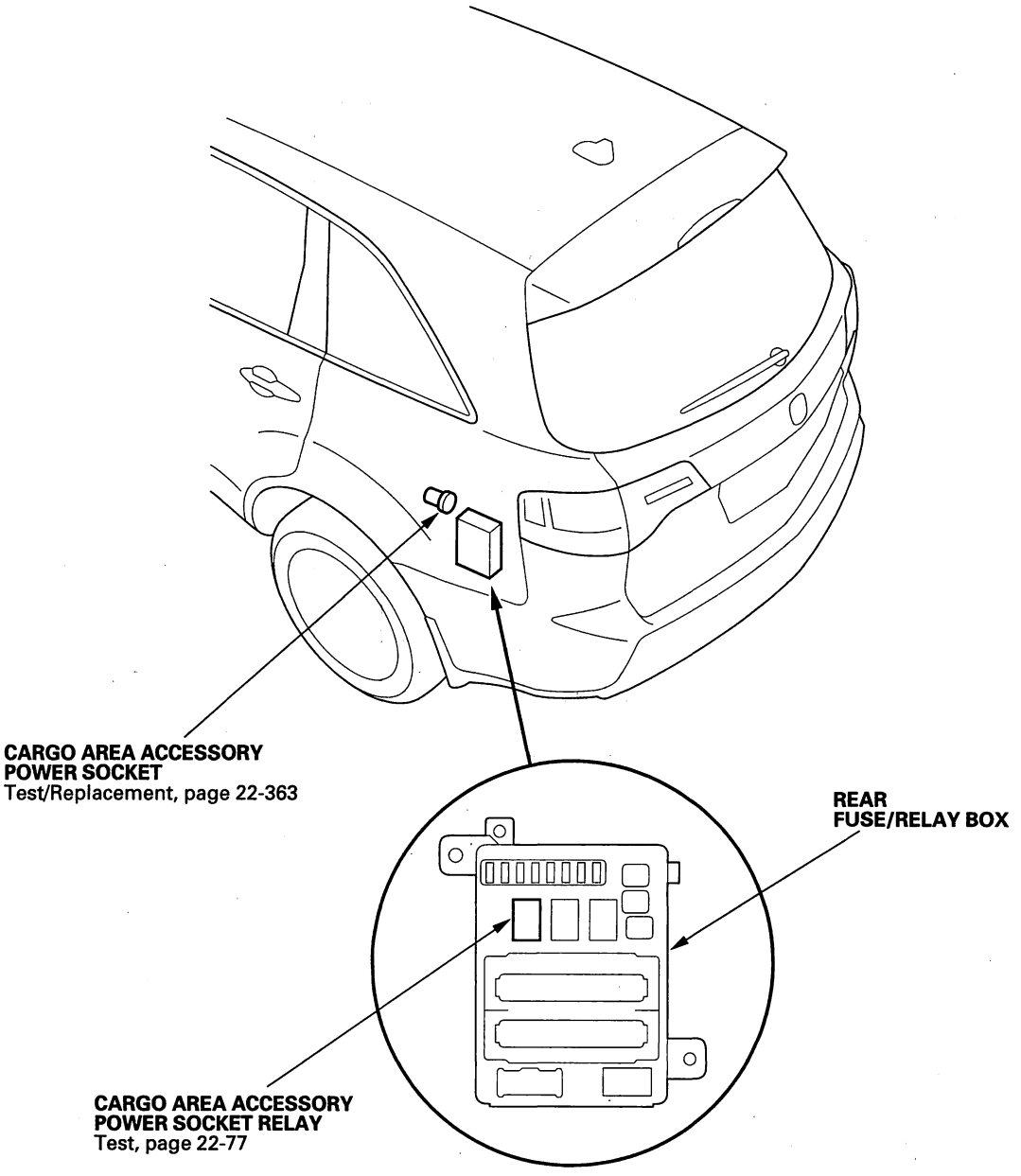




*: Without Rear Entertainment System

BACK

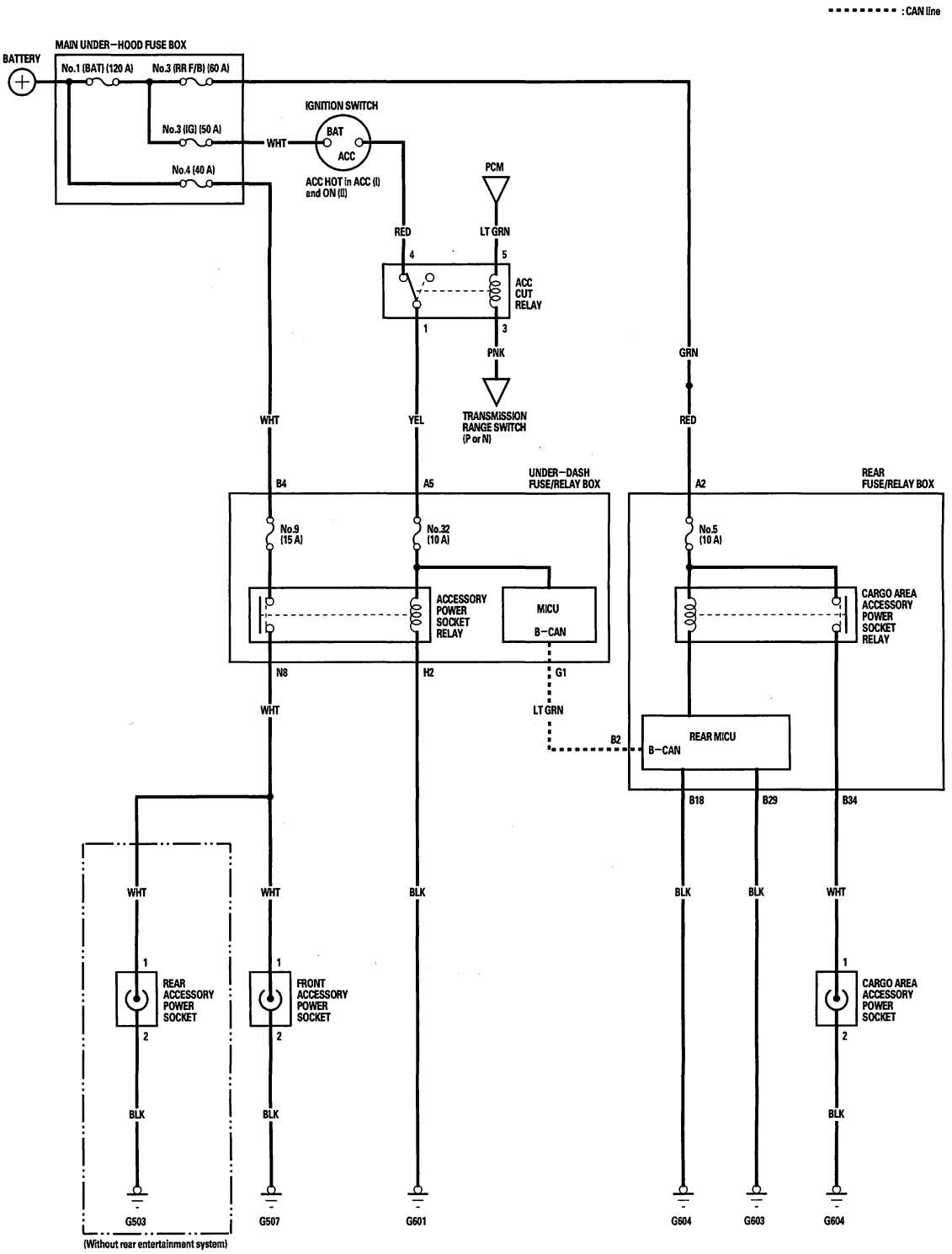
Protected by AR



Protected by AR

Accessory Power Sockets

Circuit Diagram



BACK

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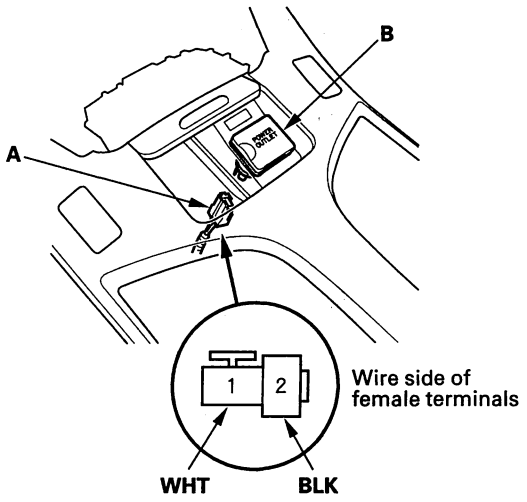
Front Accessory Power Socket Test/Replacement

1. Remove the console panel (see page 20-107).

2. Disconnect the 2P connector (A) from the front accessory power socket (B).



3. Inspect the connector terminals to be sure they are all making good contact.

   - If the terminals are bent, loose, or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 4.

4. Turn the ignition switch to ACC (I).

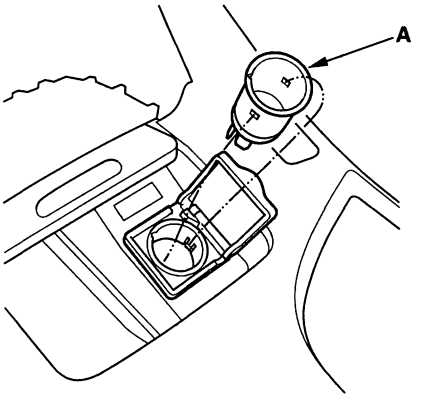
5. Measure the voltage between the No. 1 terminal and body ground. There should be battery voltage.

   - If there is battery voltage, go to step 6.
   - If there is no battery voltage, check for:
     – Blown No. 32 (10 A) fuse in the under-dash fuse/relay box.
     – Blown No. 9 (15 A) fuse in the under-dash fuse/relay box.
     – Faulty accessory power socket relay.
     – Faulty under-dash fuse/relay box.
     – Poor ground (G 601).
     – An open in the wire.

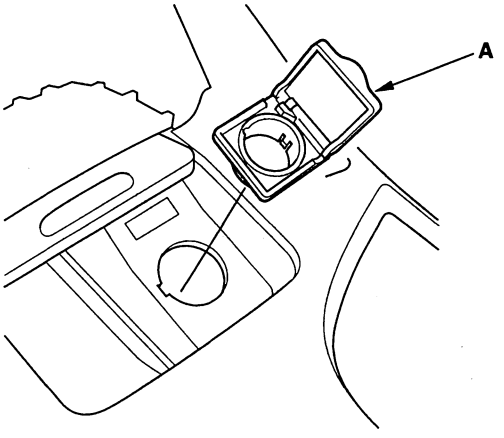
6. Check for continuity between the No. 2 terminal and body ground. There should be continuity.

   - If there is continuity, go to step 7.
   - If there is no continuity, check for:
     – Poor ground (G 507).
     – An open in the wire.

7. Remove the socket (A).



8. Remove the housing (A).



9. Install the power socket in the reverse order of removal.

Protected by AR

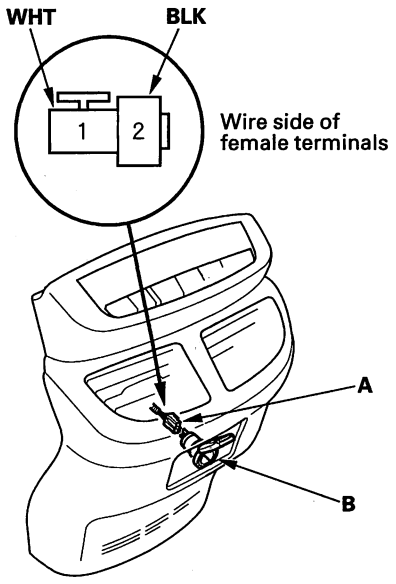
Accessory Power Sockets

Rear Accessory Power Socket Test/Replacement

Without Rear Entertainment System

1. Remove the center console rear trim (see page 20-110).

2. Disconnect the 2P connector (A) from the rear accessory power socket (B).



3. Inspect the connector terminals to be sure they are all making good contact.

   - If the terminals are bent, loose, or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 4.

4. Turn the ignition switch to ACC (I).

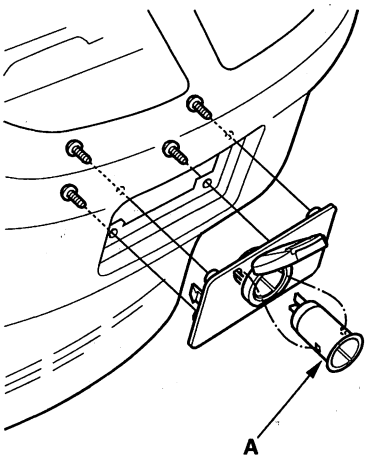
5. Measure the voltage between the No. 1 terminal and body ground. There should be battery voltage.

   - If there is battery voltage, go to step 6.
   - If there is no battery voltage, check for:
     – Blown No. 32 (10 A) fuse in the under-dash fuse/relay box.
     – Blown No. 9 (15 A) fuse in the under-dash fuse/relay box.
     – Faulty accessory power socket relay.
     – Faulty under-dash fuse/relay box.
     – Poor ground (G 601).
     – An open in the wire.

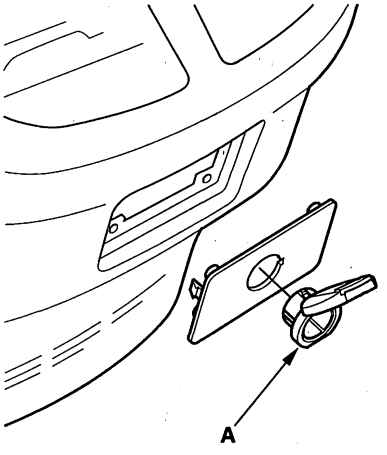
6. Check for continuity between the No. 2 terminal and body ground. There should be continuity.

   - If there is continuity, go to step 7.
   - If there is no continuity, check for:
     – Poor ground (G 503).
     – An open in the wire.

7. Remove the socket (A).



8. Remove the housing (A).



9. Install the power socket in the reverse order of removal.

BACK

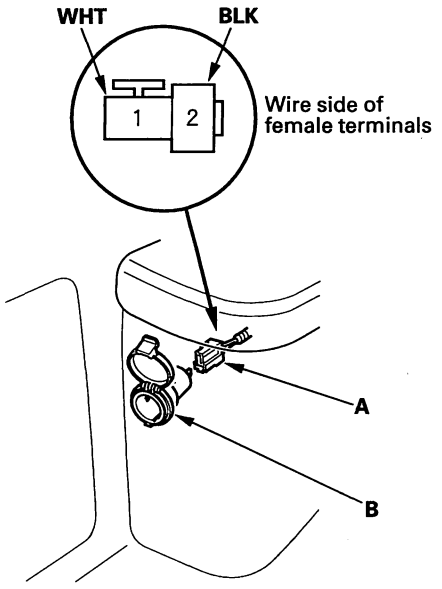
Protected by AR

Cargo Area Accessory Power Socket Test/Replacement

NOTE: Before testing the cargo area accessory power socket, do the multiplex integrated control system troubleshooting using B-CAN System Diagnosis Test Mode A (see page 22-112)

1. Remove the left side rear trim (see page 20-92).

2. Disconnect the 2P connector (A) from the center accessory power socket (B).



3. Inspect the connector terminals to be sure they are all making good contact.

   - If the terminals are bent, loose, or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 4.

4. Turn the ignition switch to ACC (I).

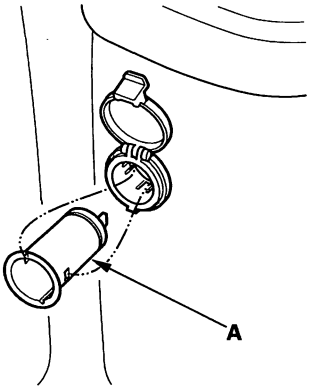
5. Measure the voltage between the No. 1 terminal and body ground. There should be battery voltage.

   - If there is battery voltage, go to step 6.
   - If there is no battery voltage, check for:
     – Blown No. 32 (10 A) fuse in the under-dash fuse/relay box.
     – Blown No. 5 (10 A) fuse in the rear fuse/relay box.
     – Faulty cargo area accessory power socket relay.
     – Faulty rear fuse/relay box (including rear MICU).
     – Poor ground (G 603).
     – An open in the wire.

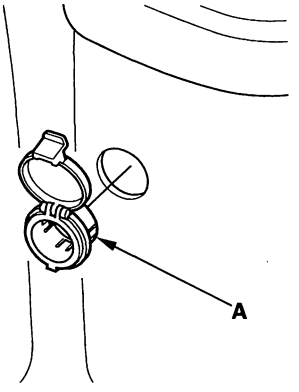
6. Check for continuity between the No. 2 terminal and body ground. There should be continuity.

   - If there is continuity, go to step 7.
   - If there is no continuity, check for:
     – Poor ground (G 604).
     – An open in the wire.

7. Remove the socket (A).



8. Remove the housing (B).



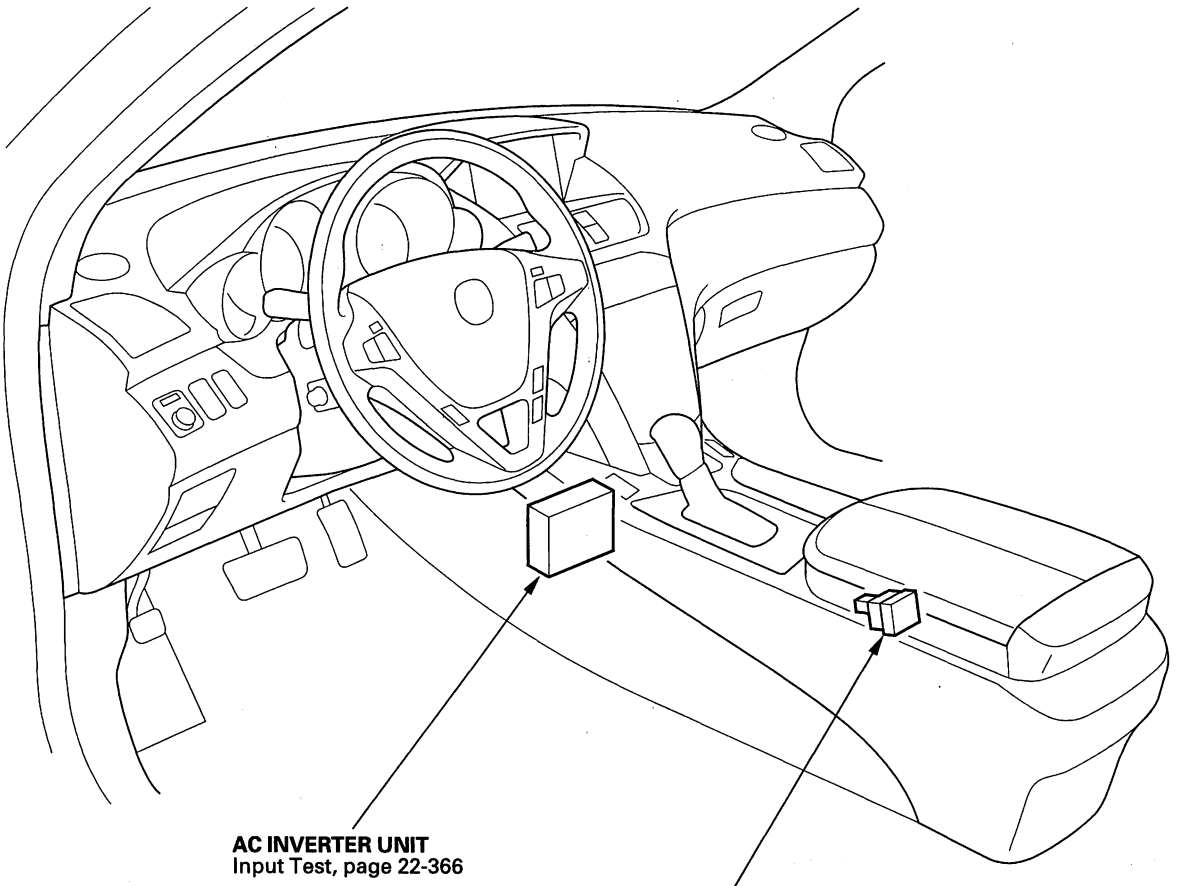
9. Install the power socket in the reverse order of removal.

BACK

Protected by AR

AC Power Outlet

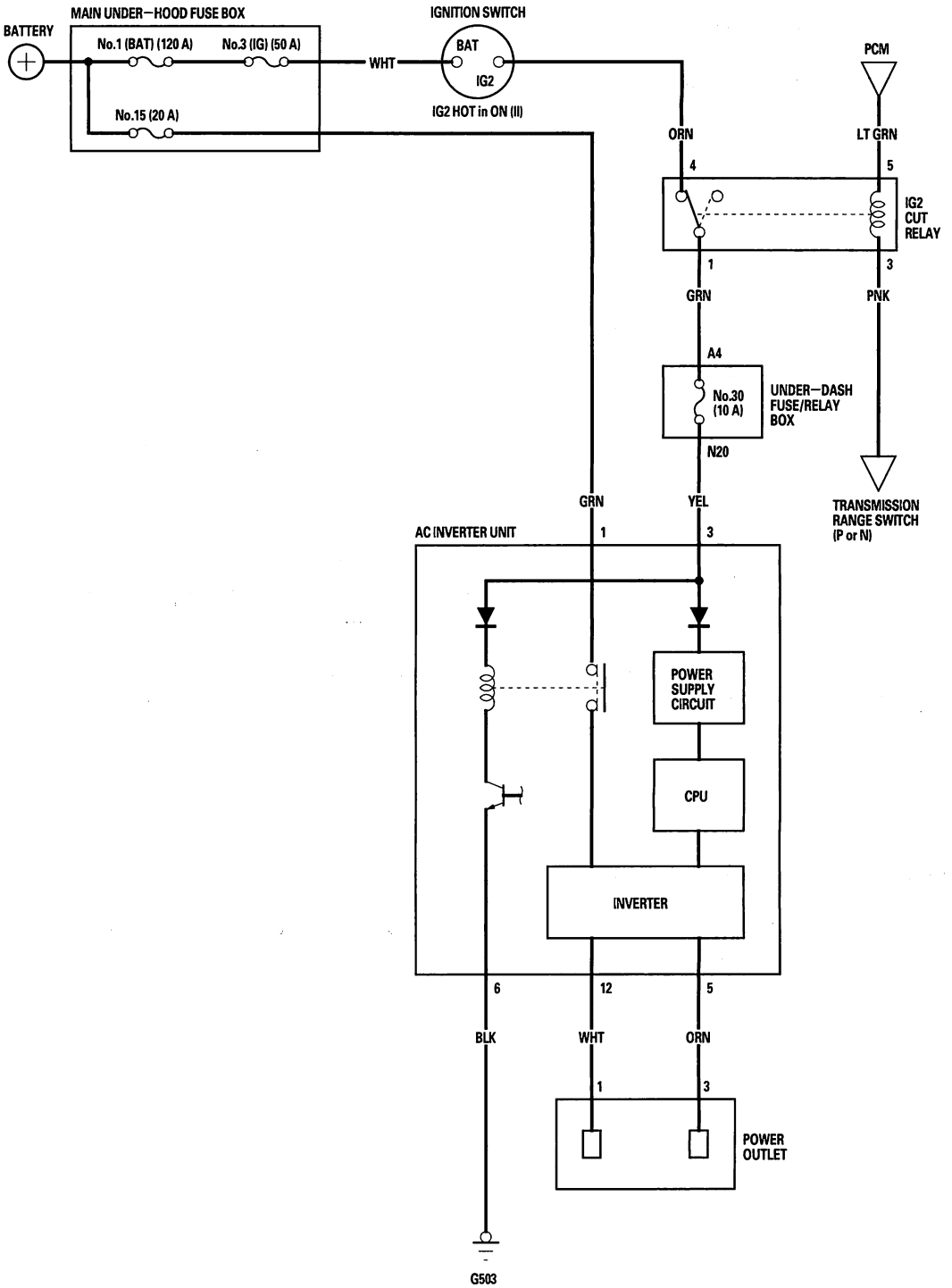
Component Location Index



BACK

Protected by AR

Circuit Diagram

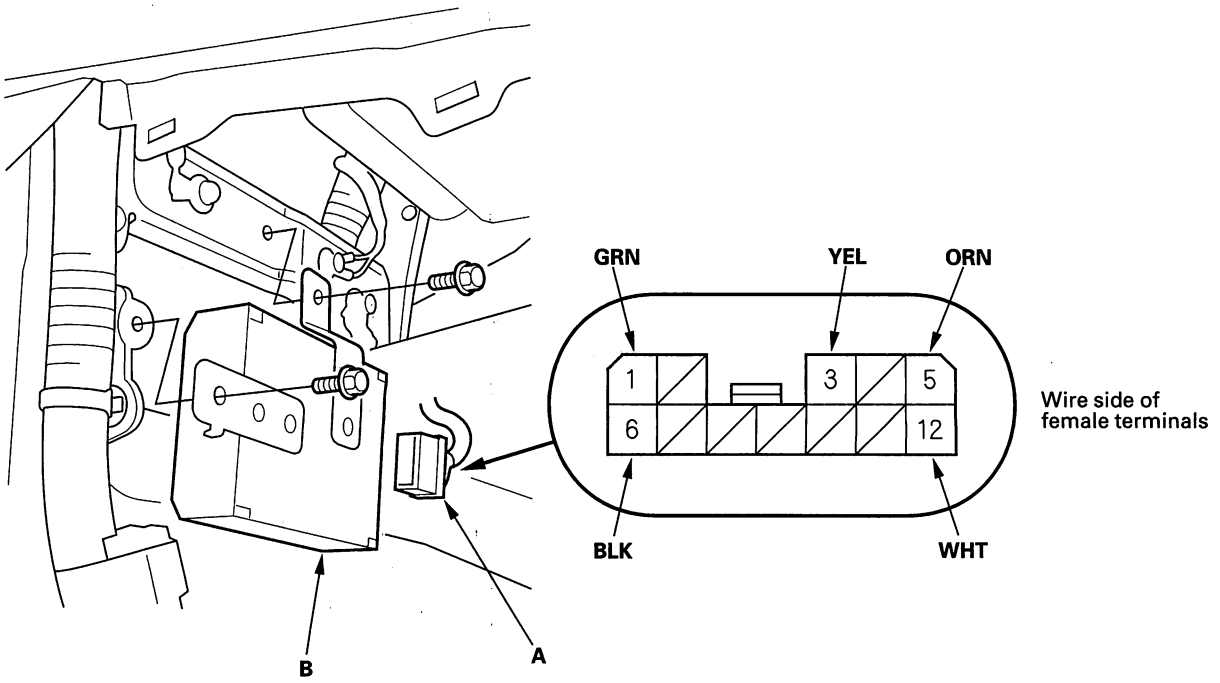


Protected by AR

AC Power Outlet

AC Inverter Unit Input Test

1. Make sure you have the anti-theft codes for the audio and navigation system (if equipped).
2. Make sure the ignition switch is OFF.
3. Disconnect the battery negative cable.
4. Remove the driver's console side trim (see page 20-107).
5. Disconnect the 12P connector (A) from the AC inverter unit (B).



6. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 7.

BACK

Protected by AR

7. With the control unit still disconnected, make these input tests at the connector.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 8.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
5	ORN	Under all conditions	Check for continuity between the No. 5 terminal and power outlet 3P connector No. 3 terminal: There should be continuity.	• An open in the wire
12	WHT	Under all conditions	Check for continuity between the No. 12 terminal and power outlet 3P connector No. 1 terminal: There should be continuity.	• An open in the wire

8. Reconnect the connector, turn the ignition switch ON (II), and make these input tests at the connector.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, replace the AC inverter unit.

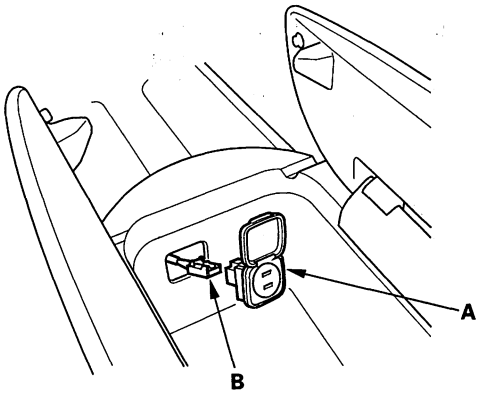
Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
6	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G503) • An open in the wire
1	GRN	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 15 (20 A) fuse in the main under-hood fuse box • An open in the wire
3	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 30 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire

Protected by AR

AC Power Outlet

Power Outlet Replacement

1. Remove the center console (see page 20-107).
2. Remove the power outlet (A), and disconnect the 3P connector (B).



3. Install the power outlet in the reverse order of removal.

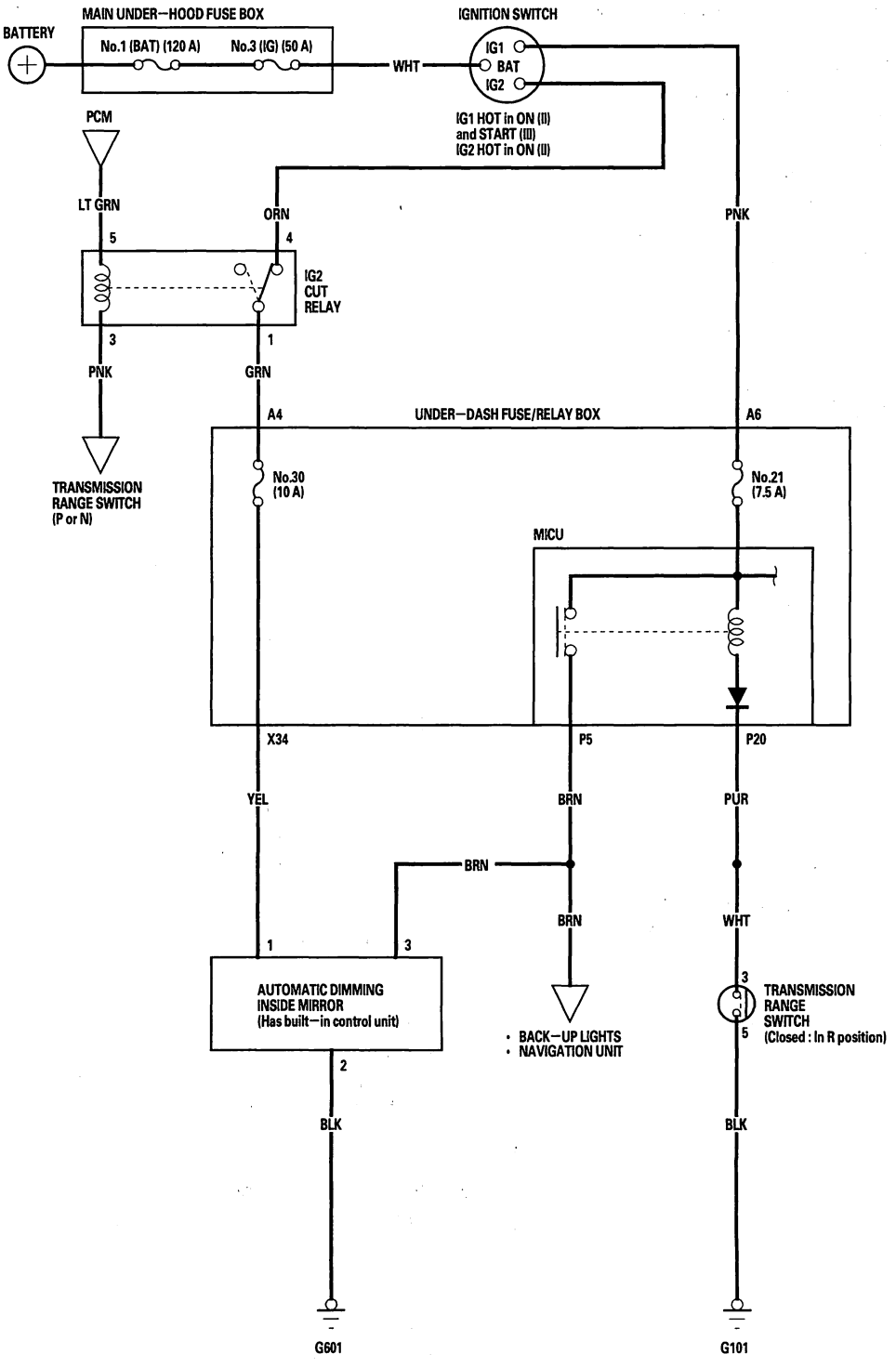
BACK

Protected by AR

Automatic Dimming Inside Mirror

Circuit Diagram

Canada models



BACK

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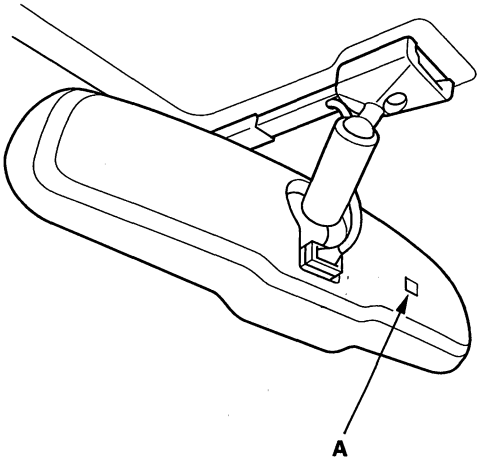
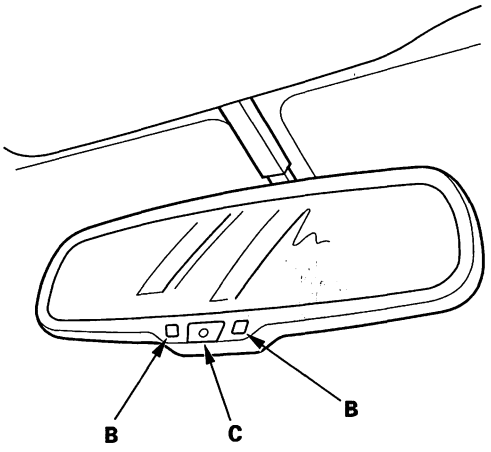
Automatic Dimming Inside Mirror

System Description

Canada models

The automatic dimming inside mirror has a front-facing lux level sensor (A), a rear-facing lux level sensors (B), and a control unit. The control unit receives signals from each sensor. Based on the difference between the two lux levels (the light outside the vehicle and the light from the headlights of the other vehicle, etc.), the control unit controls the electro-chromic gel to reduce the glare. This dimming function is canceled when the transmission is in reverse, or when the automatic dimming off switch (C) is turned OFF.

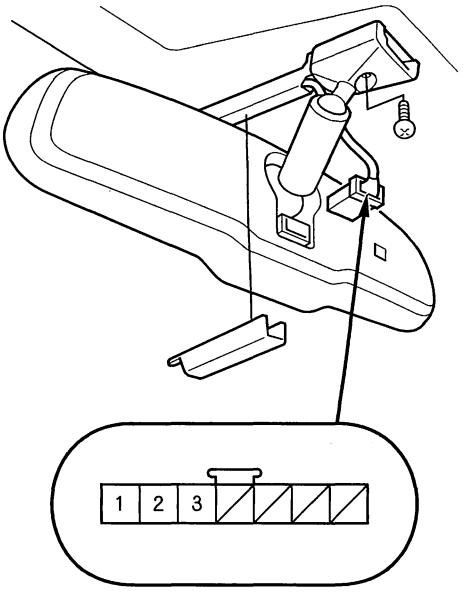




Test/Replacement

Canada models

1. Remove the roof console (see page 22-239).
2. Turn the ignition switch ON (II).



Wire side of female terminals

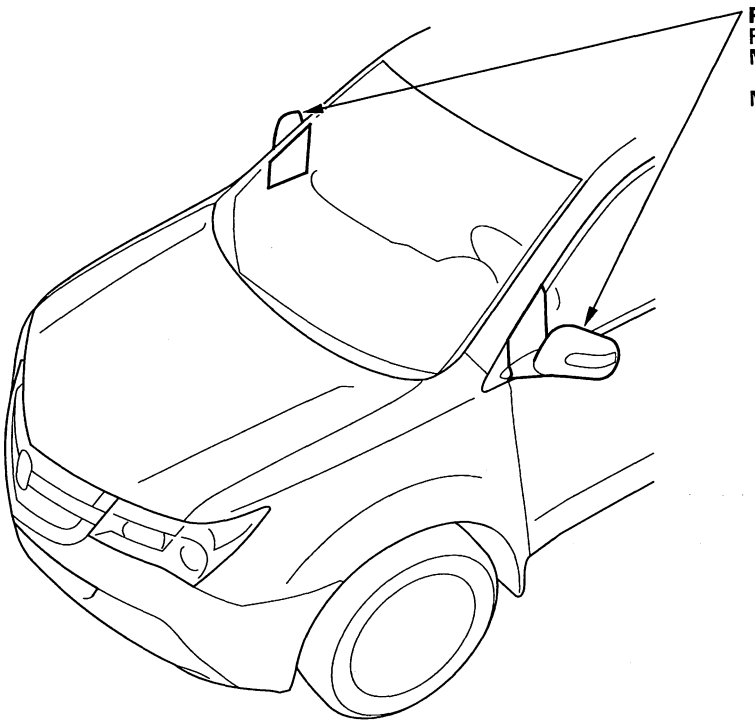
3. Measure the voltage between No. 2 terminal and body ground.
   - If there is less than 0.5 V, go to step 4.
   - If there is more than 0.5 V, check for:
     – An open in the wire.
     – Poor ground (G 601).
4. Measure the voltage between No. 1 terminal and body ground.
   - If there is battery voltage, go to step 5.
   - If there is no voltage, check for:
     – Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box.
     – An open in the wire.
5. Measure the voltage between No. 3 terminal and body ground with the transmission range switch in R position.
   - If there is battery voltage, replace the mirror assembly.
   - If there is no voltage, check for:
     – An open in the wire.
     – Faulty under-dash fuse/relay box.
     – Faulty transmission range switch.

BACK

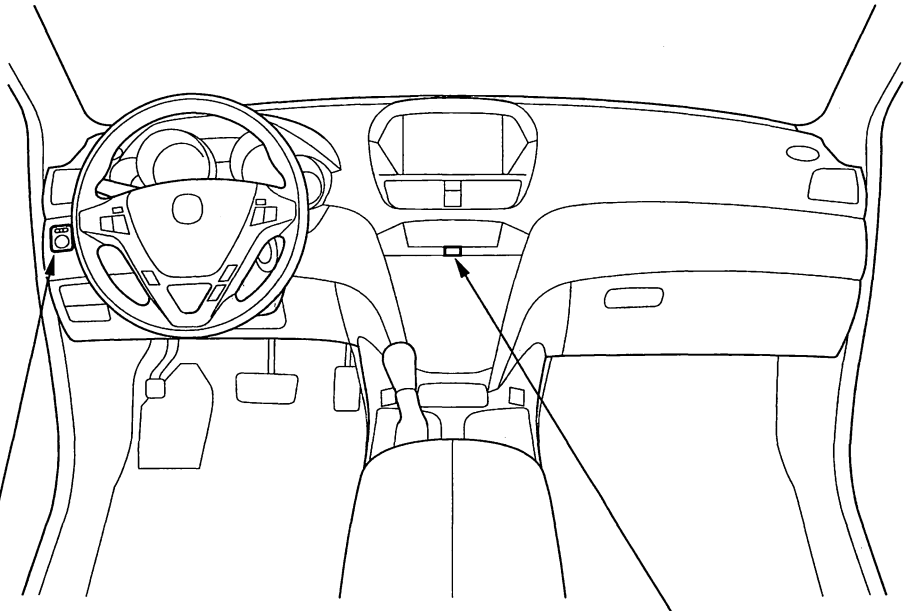
Protected by AR

Power Mirrors

Component Location Index



POWER MIRRORS
Replacement, page 20-43
Mirror Actuator Test, page 22-374
Mirror Actuator Replacement, page 22-375



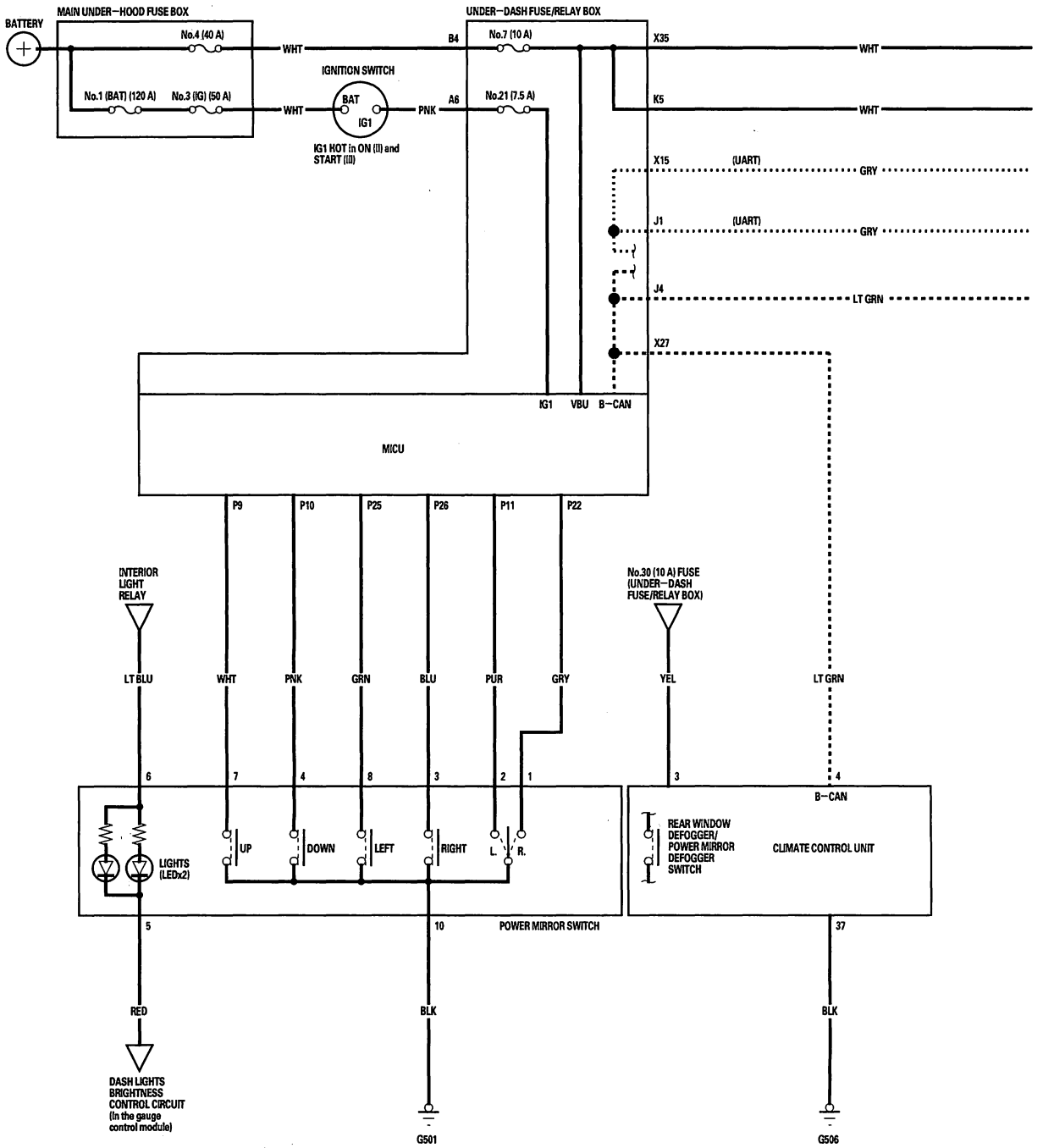
POWER MIRROR SWITCH
Test/Replacement, page 22-374

REAR WINDOW DEFOGGER/ POWER MIRROR DEFOGGER SWITCH
(Built into the climate control unit)

Protected by AR

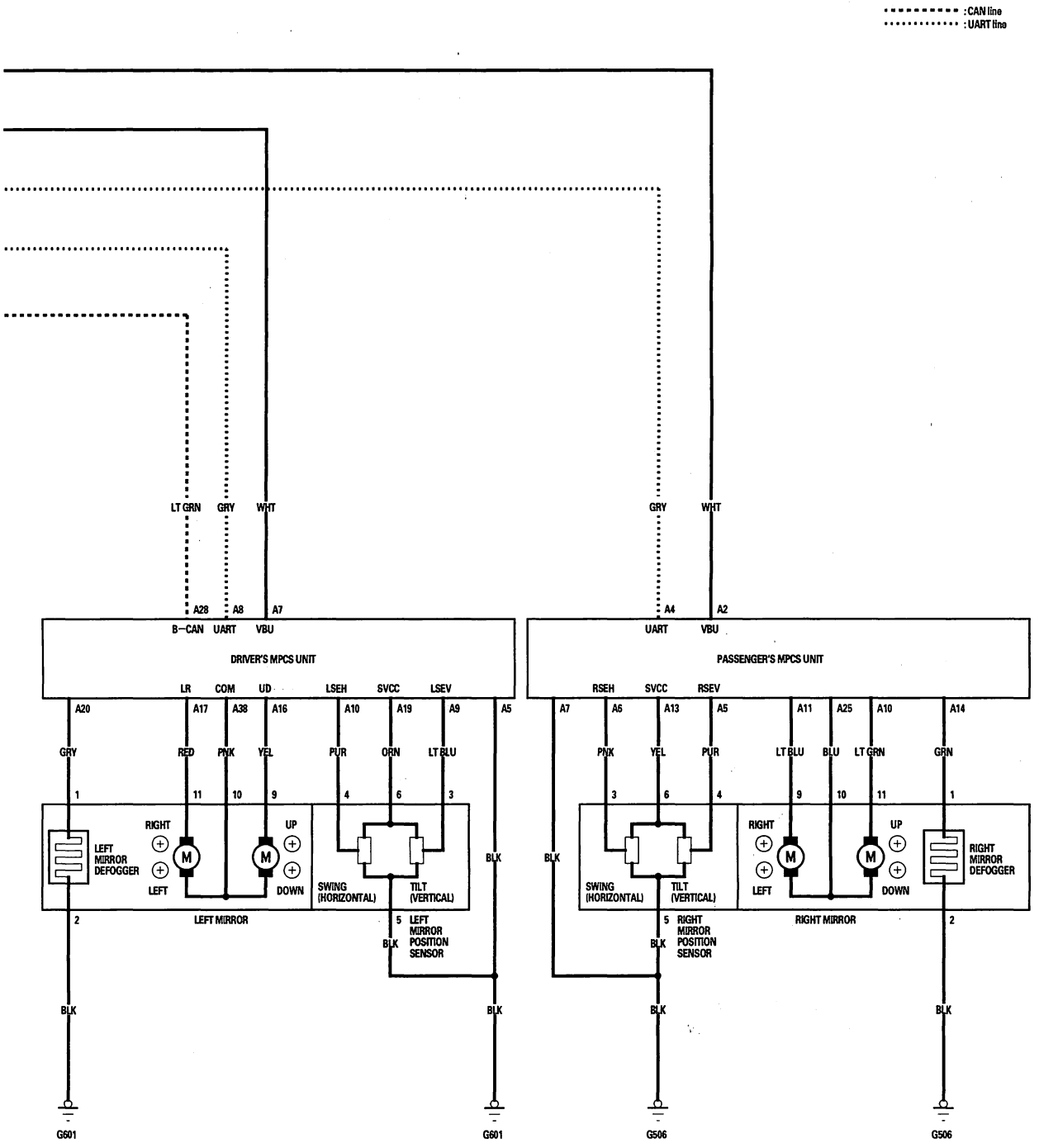
Power Mirrors

Circuit Diagram



BACK

Protected by AR

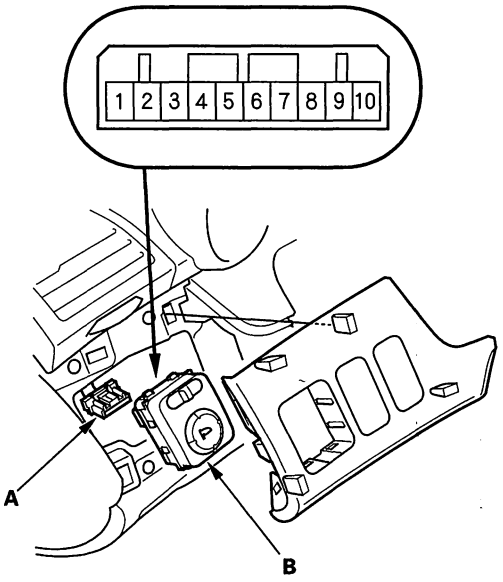


BACK

Protected by AR

Power Mirror Switch Test/ Replacement

1. Carefully pry the switch panel out from the dashboard.
2. Disconnect the 10P connector (A) from the power mirror switch (B).



3. Check for continuity between the terminals in each switch position according to the table.

Mirror Switch:

Terminal / Position	1	2	3	4	7	8	9	10
UP					○			○
DOWN				○				○
LEFT						○		○
RIGHT			○					○
L		○						○
R	○							○

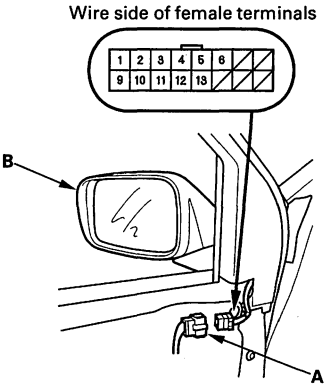
4. If the continuity is not as specified, remove the screws and replace the power mirror switch.

Power Mirror Actuator Test

NOTE: The power mirror actuator can be tested by using the HDS and following these steps:

- Select BODY ELECTRICAL from the SYSTEM SELECT menu.
- Select FUNCTION TEST, and then the appropriate power mirror function test.

1. Remove the door panel (see page 20-8).
2. Disconnect the 16P connector (A) from the power mirror actuator (B).



3. Check actuator operation by connecting power and ground according to the table.

LEFT

Terminal / Position	9	10	11
TILT UP	⊖	⊕	
TILT DOWN	⊕	⊖	
SWING LEFT		⊕	⊖
SWING RIGHT		⊖	⊕

RIGHT

Terminal / Position	9	10	11
TILT UP		⊖	⊕
TILT DOWN		⊕	⊖
SWING LEFT	⊖	⊕	
SWING RIGHT	⊕	⊖	

4. If the mirror fails to work properly, replace the mirror actuator.

Defogger Test

5. Measure the resistance between the No. 1 and No. 2 terminals of the 16P connector. There should be about 8 Ω or less. If there is no continuity, check for an open circuit.

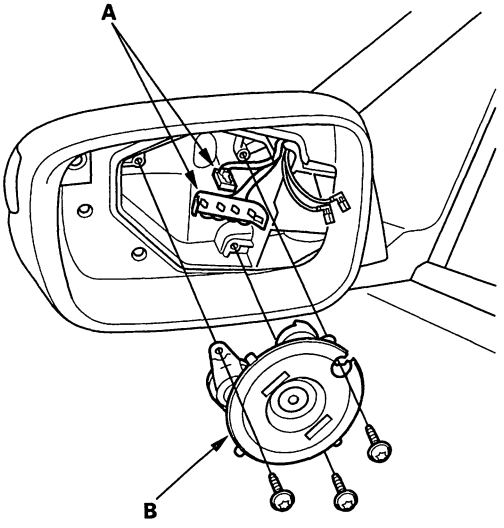
BACK

Protected by AR

Power Mirror Actuator Replacement

Actuator Replacement

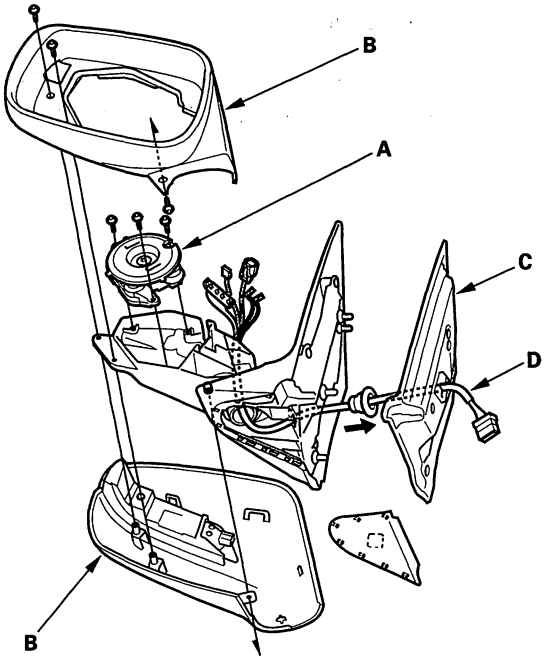
1. Remove the mirror holder (see page 20-43).
2. Remove the three TORX screws using a tamperproof T10 TORX bit.
3. Remove the connectors (A) and the actuator (B).



4. Install the actuator in the reverse order of removal.

Actuator Harness Replacement

1. Remove the mirror holder (see page 20-43).
2. Remove the power mirror (see page 20-43).
3. Remove the three TORX screws from the actuator (A) using a tamperproof T10 TORX bit.



4. Remove the three TORX screws from the housing (B) using a tamperproof T10 TORX bit.
5. Disconnect the connectors from the actuator and the side turn signal light.
6. Remove the gasket (C) and the harness (D) from the power mirror.

(cont'd)

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Power Mirror Actuator Replacement (cont'd)

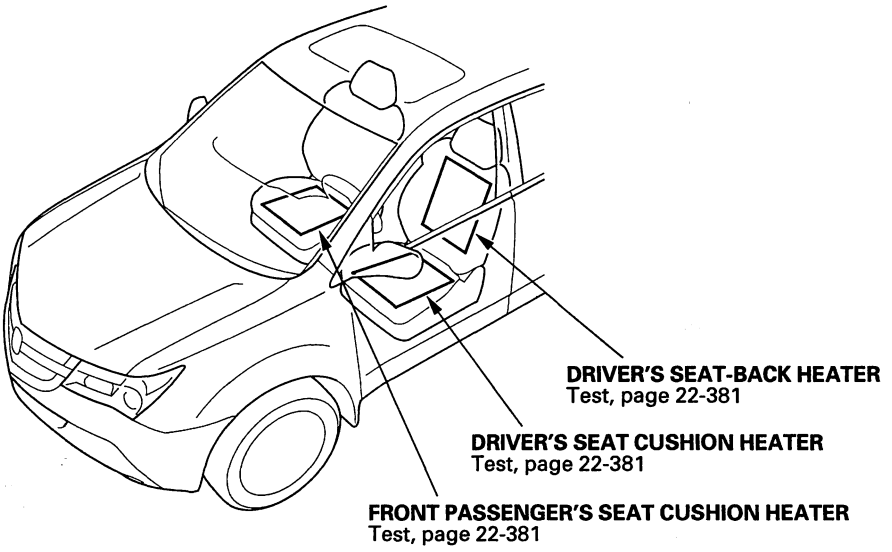
7. Route the wire harness of the new actuator through the hole in the bracket and the gasket in the reverse order of removal.
8. Connect the connectors to the actuator and the side turn signal light securely.
9. Install the actuator, housing and the gasket in the reverse order of removal.
10. Install the power mirror on the door, and make sure the actuator, mirror defogger, and side turn signal light operation.

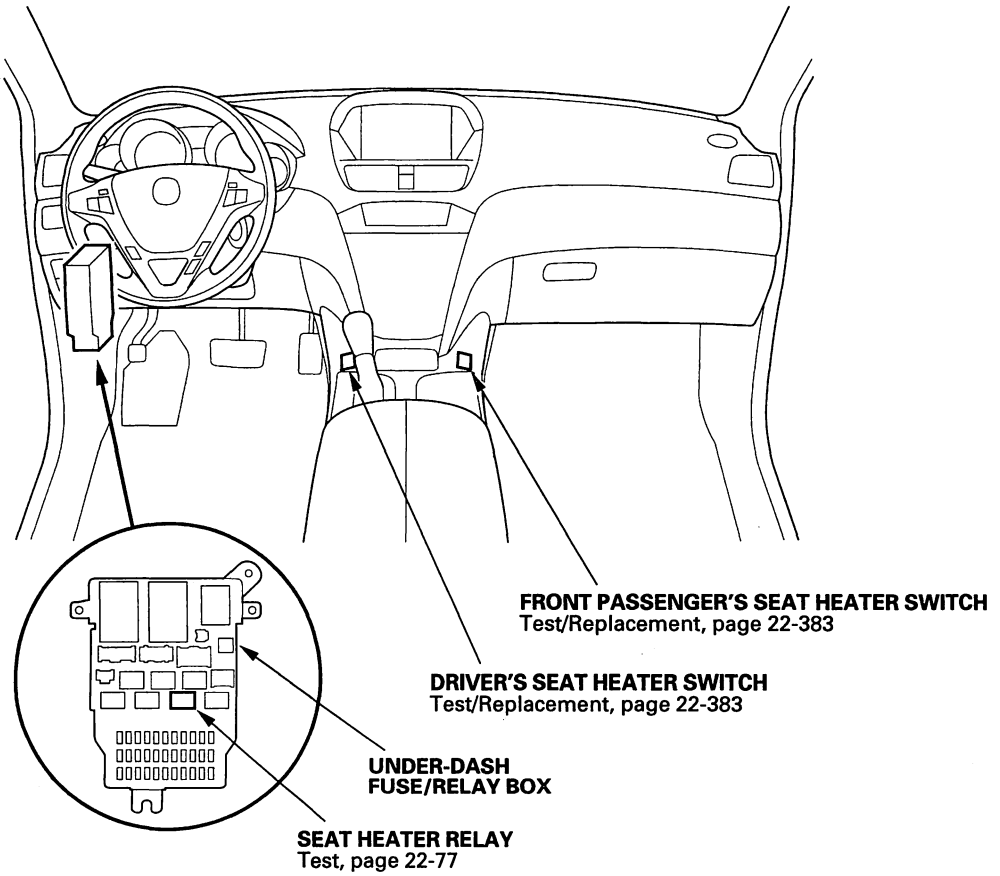
BACK

Protected by AR

Seat Heaters

Component Location Index



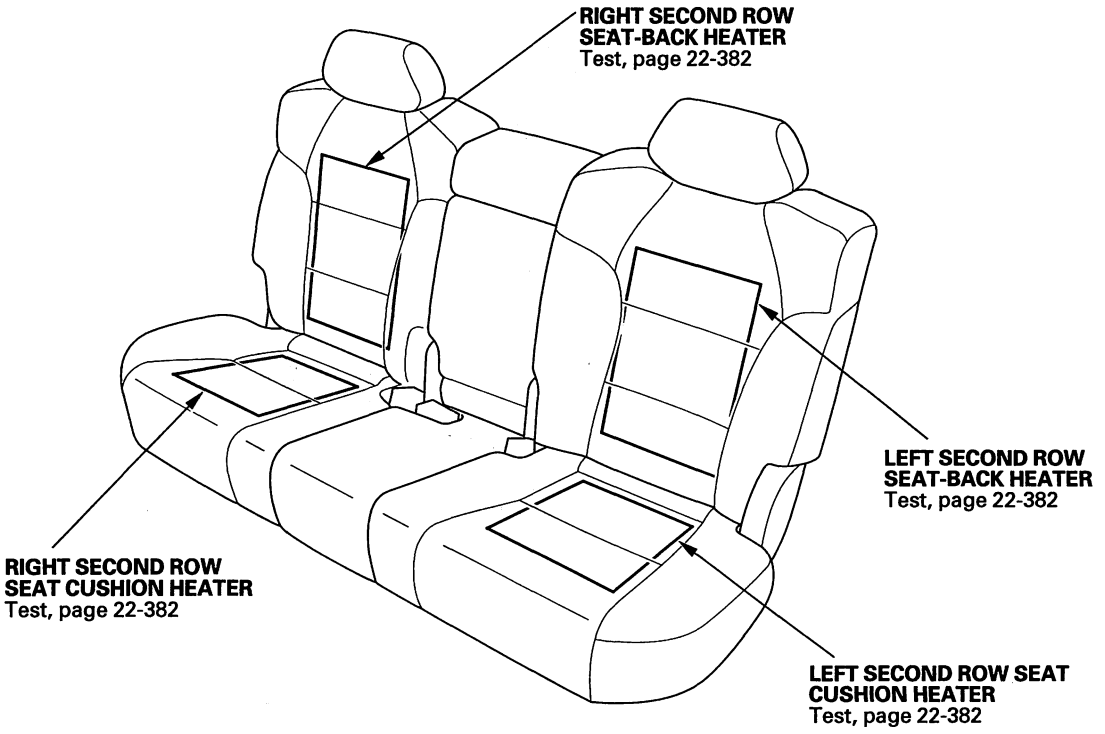


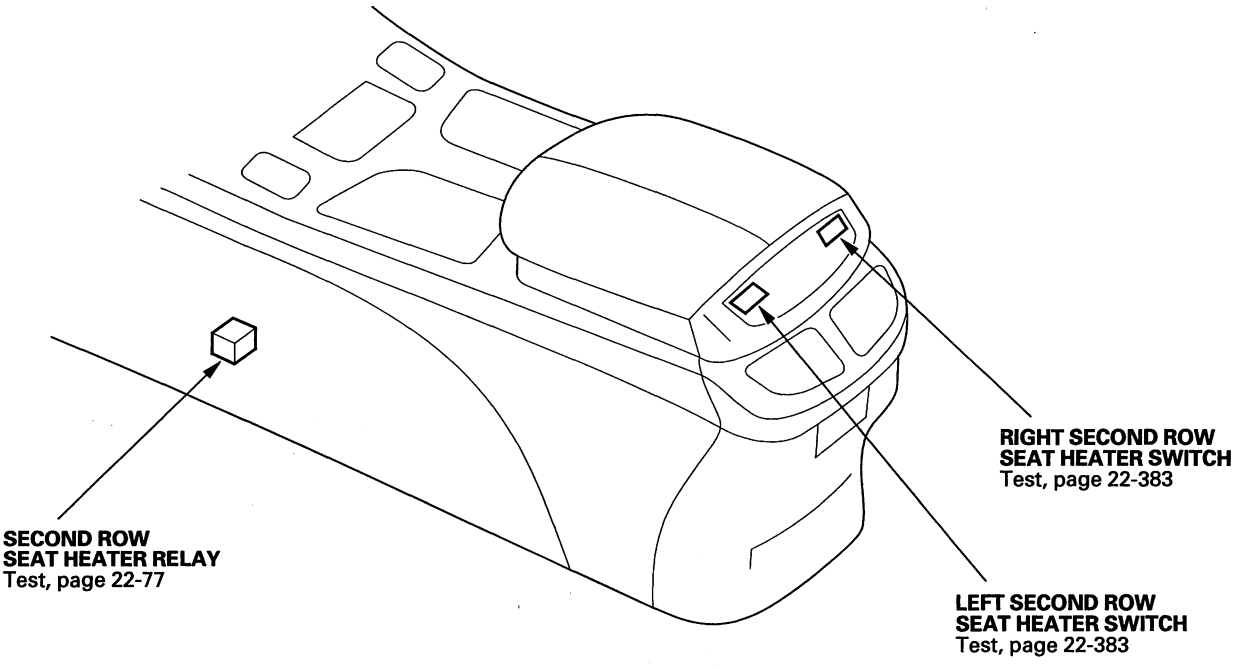
(cont'd)

Protected by AR

Seat Heaters

Component Location Index (cont'd)

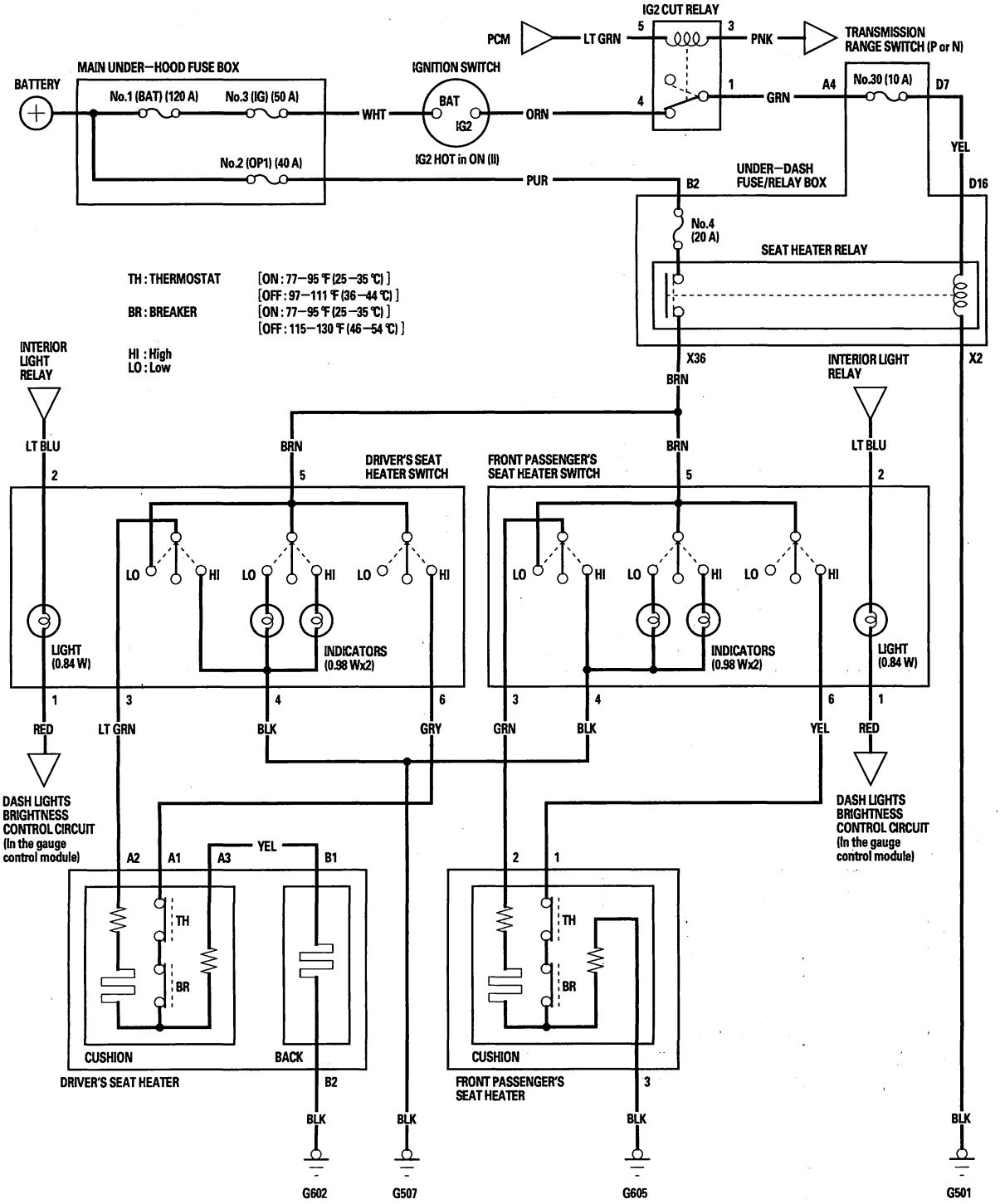




BACK

Protected by AR

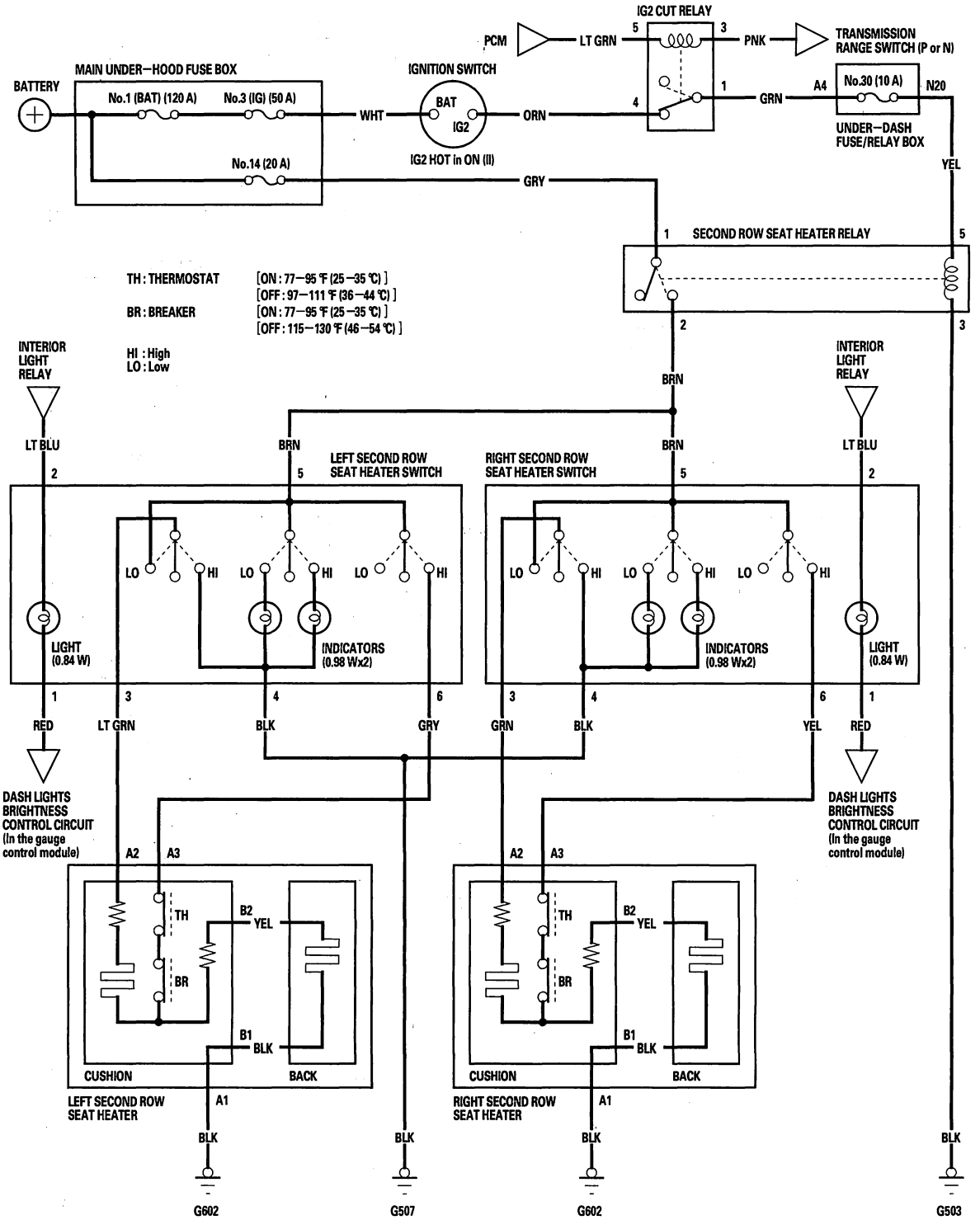
Circuit Diagram - Front Seat



Protected by AR

Seat Heaters

Circuit Diagram - Second Row Seat



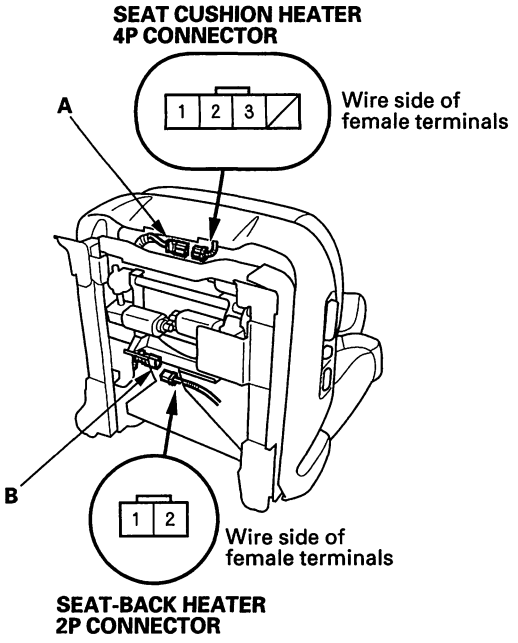
BACK

Protected by AR

Seat Heater Test

Driver's Seat

1. Remove the driver's seat (see page 20-141).
2. Disconnect the 4P connector (A) and 2P connector (B) from the seat heater.



Seat-back

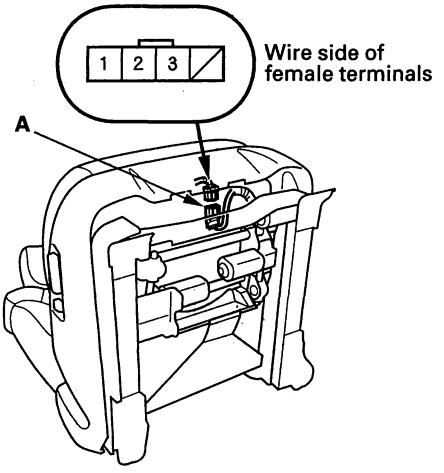
3. Check for continuity between the seat-back heater 2P connector No. 1 and No. 2 terminals. There should be continuity.

Seat Cushion

4. Check for continuity between the seat cushion heater 4P connector No. 1 and No. 2 terminals, and the No. 1 and No. 3 terminals. There should be continuity.
5. If the continuity is not as specified, replace the appropriate seat heater.

Front Passenger's Seat

1. Remove the passenger's seat (see page 20-141).
2. Disconnect the 4P connector (A) from the seat heater.



3. Check for continuity between the seat heater 4P connector No. 1 and No.3 terminals, and No. 2 and No. 3 terminals. There should be continuity.
4. If the continuity is not as specified, replace the seat heater.

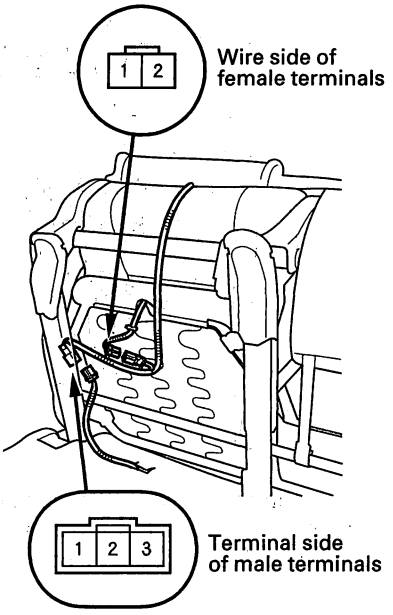
(cont'd)

Protected by AR

Seat Heater Test (cont'd)

Second Row Seat

1. Remove the second row seat (see page 20-156).
2. Disconnect the 3P connector (A) and 2P connector (B) from the seat heater.



Seat-back

3. Check for continuity between the seat-back heater 2P connector No. 1 and No. 2 terminals. There should be continuity.

Seat Cushion

4. Check for continuity between the seat cushion heater 3P connector No. 2 and No. 3 terminals. There should be continuity.
5. Connect the 2P connector, and check for continuity between the seat cushion heater 3P connector No. 1 and No. 2 terminals. There should be continuity.
6. If the continuity is not as specified, replace the appropriate seat heater.

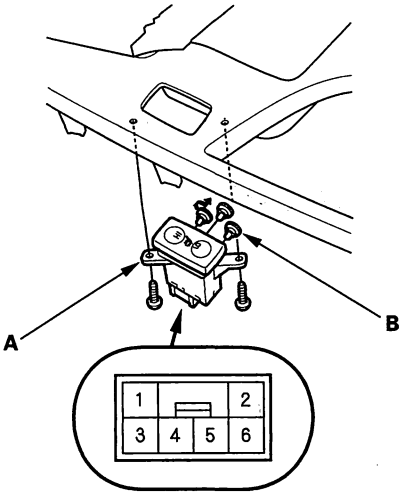
BACK

Protected by AR

Switch Test/Replacement

Front Seat Heater

1. Remove the center console panel (see page 20-107).
2. Disconnect the 6P connector from the seat heater switch (A).



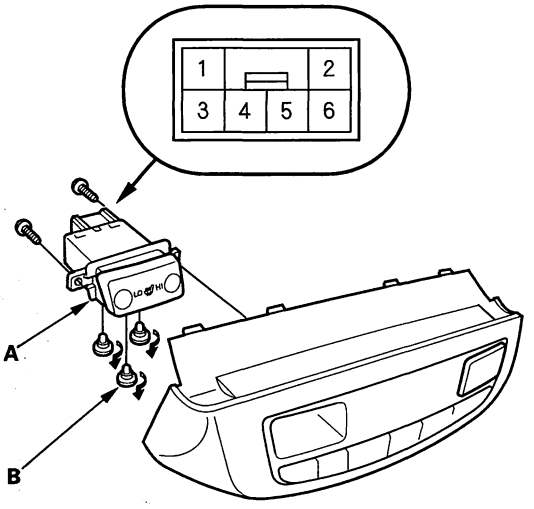
3. Remove the two screws and the switch.
4. Check for continuity between the terminals in each switch position according to the table.

Position		Terminal 1		2	3	4		5	6
ON	HIGH	○	○	○	○	○	○	○	
	LOW	○	○	○		○	○	○	
OFF		○	○	○					

5. If the continuity is not as specified, replace the illumination bulbs (B) or the switch.

Second Row Seat Heater

1. Remove the center console rear trim (see page 20-110).
2. Disconnect the 6P connector from the seat heater switch (A).



3. Remove the two screws and the switch.
4. Check for continuity between the terminals in each switch position according to the table.

Position		Terminal 1		2	3	4		5	6
ON	HIGH	○	○	○	○	○	○	○	
	LOW	○	○	○		○	○	○	
OFF		○	○	○					

5. If the continuity is not as specified, replace the illumination bulbs (B) or the switch.

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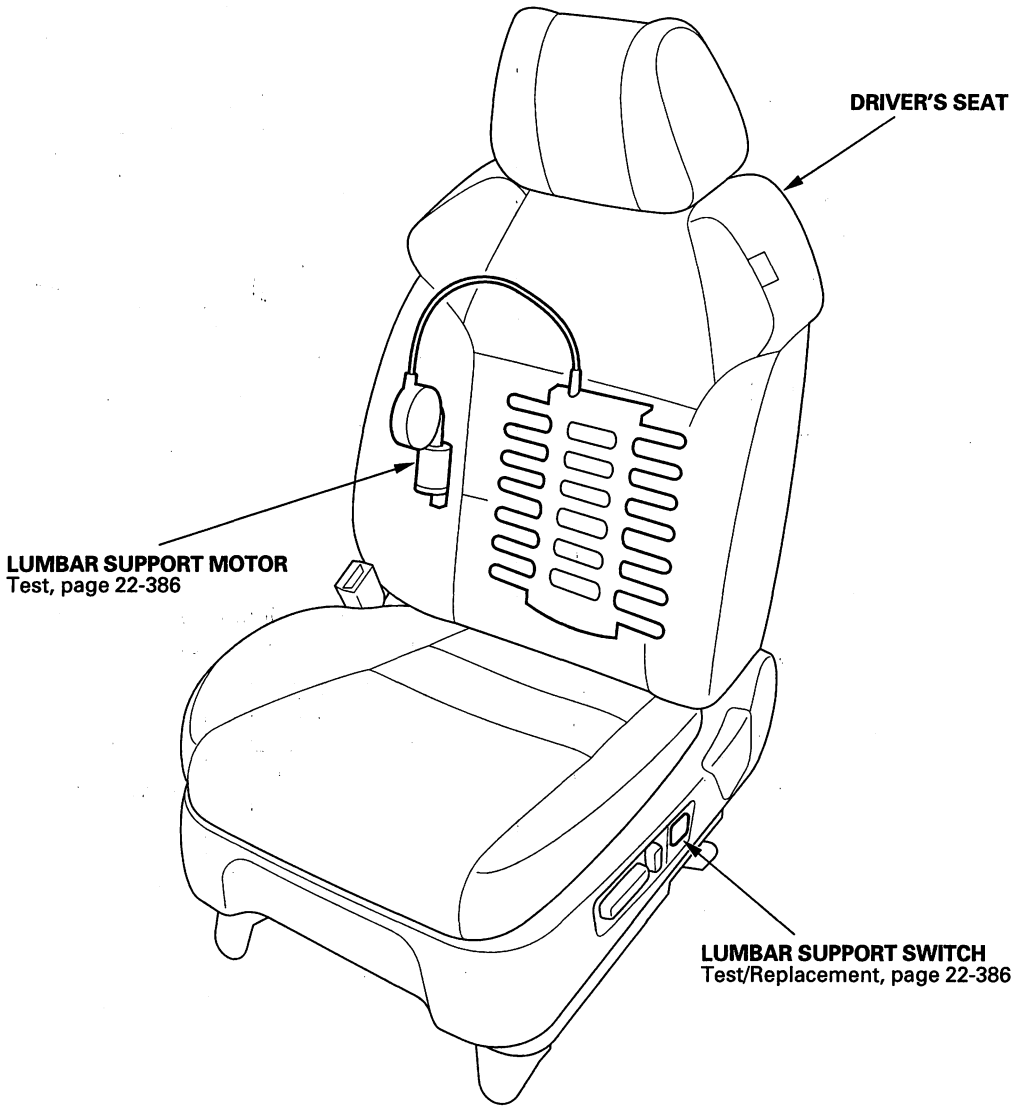
Power Lumbar Support

Component Location Index



BACK

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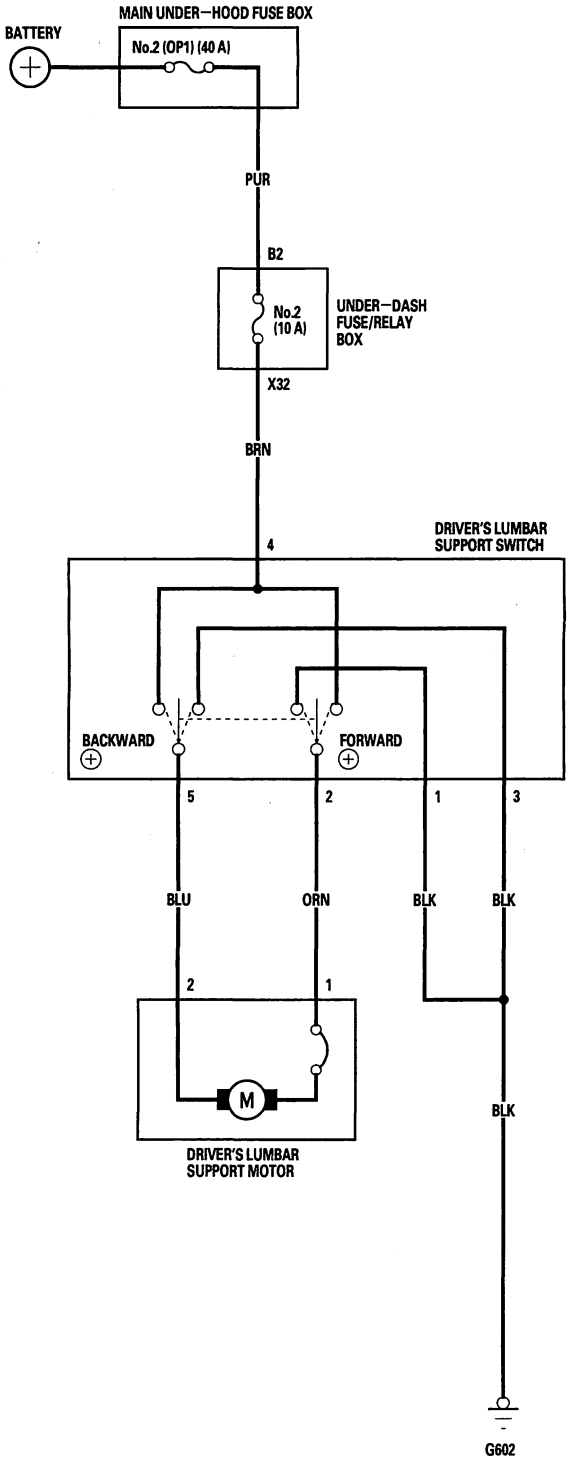
Circuit Diagram



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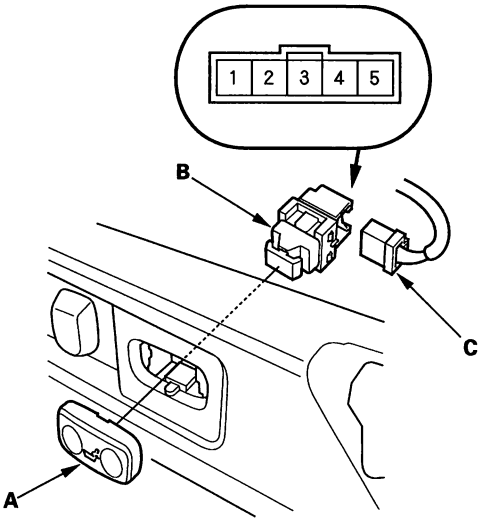
Power Lumbar Support

Switch Test/Replacement

1. Separate the lumbar support switch cover (A) from the switch (B).



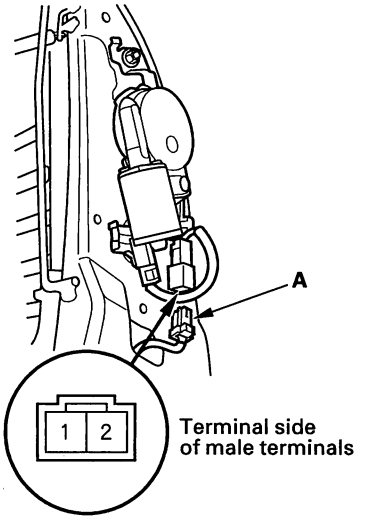
2. Disconnect the 5P connector (C) from the switch.
3. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position	1	2	3	4	5
Forward		○	○	○	○
Backward	○	○		○	○

4. If the continuity is not as specified, replace the switch.

Motor Test

1. Remove the front seat-back cover (see page 20-150).
2. Disconnect the 2P connector (A) from the lumbar support motor.



3. Test the motor by applying battery voltage and body ground to the terminals.

Terminal / Position	1	2
Forward	⊕	⊖
Backward	⊖	⊕

4. If the motor does not run or fails to run smoothly, replace it (see page 20-149).

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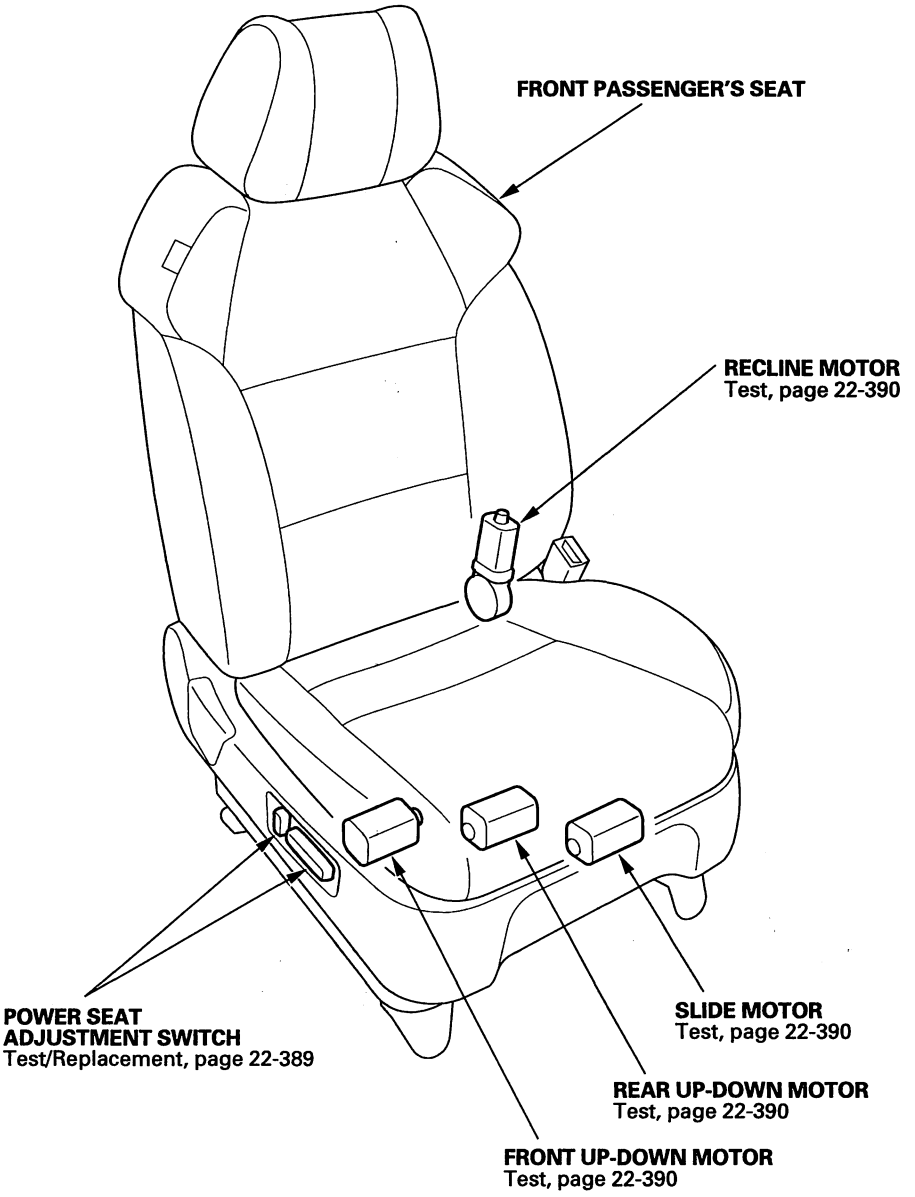
Power Seats

Component Location Index

For the driver's power seat, refer to the Driving Position Memory System (DPMS)
page 22-414



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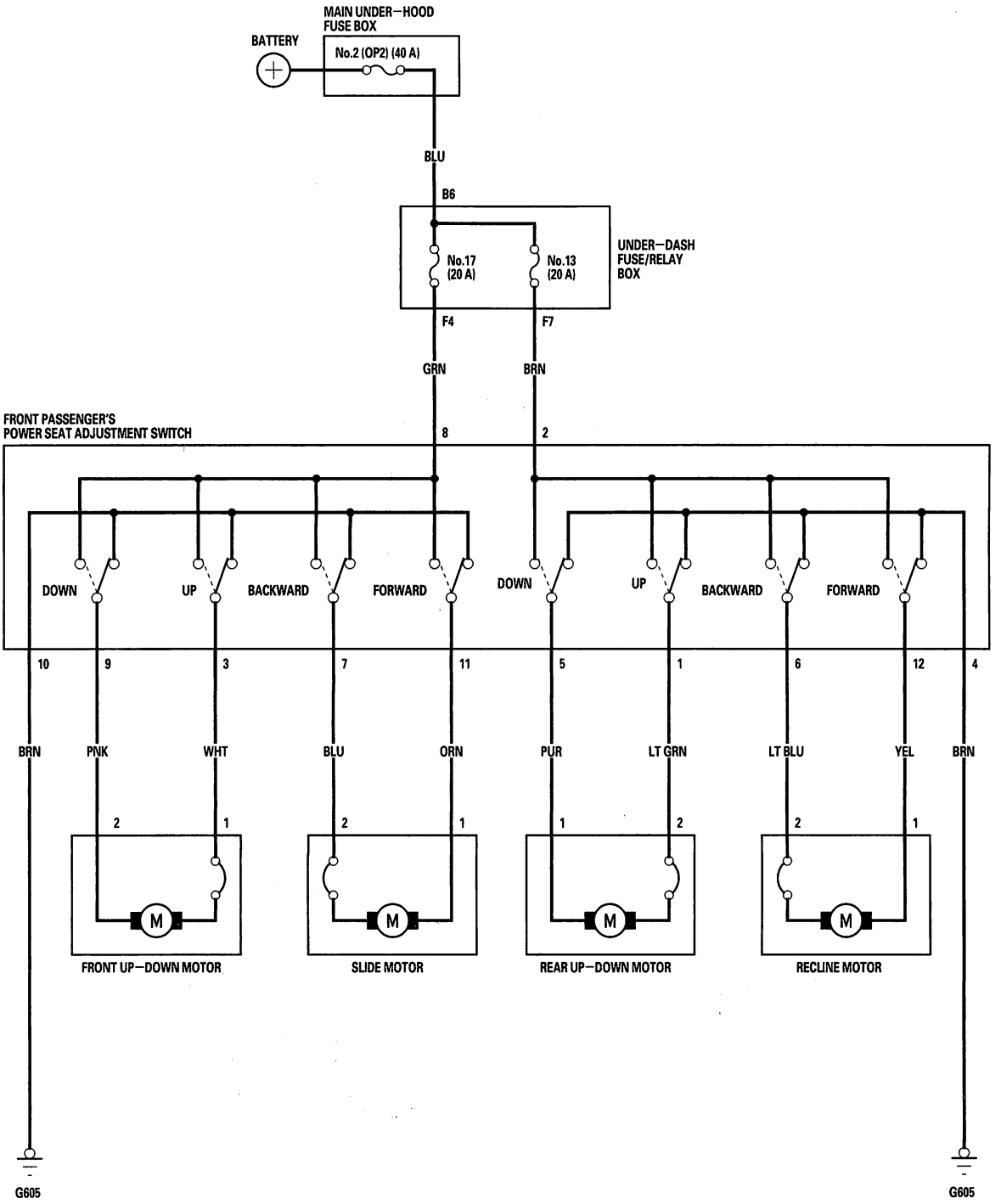
Power Seats

Circuit Diagram - Front Passenger's Power Seat



BACK

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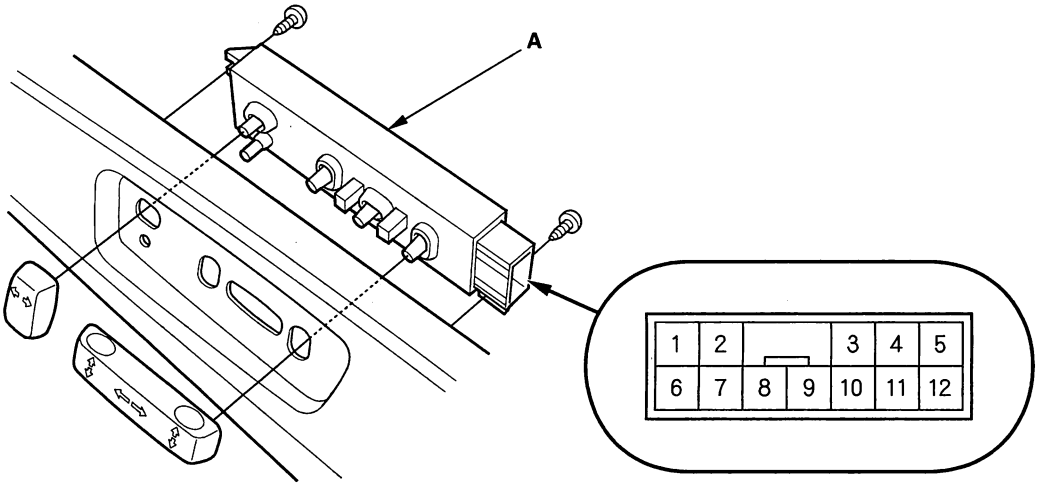
Power Seat Adjustment Switch Test/Replacement

Passenger's Switch

1. Remove the power seat adjustment switch knobs and recline cover from the passenger's seat, then remove the power seat switch (see page 20-144).

2. Disconnect the 12P connector from the power seat adjustment switch (A).



3. Reinstall the adjustment switch knobs to the switch.

4. Check for continuity between the terminals in each switch position according to the table.

Position \ Terminal		1	2	3	4	5	6	7	8	9	10	11	12
SLIDE SWITCH	Forward							○	○		○	○	
	Backward							○	○		○	○	
RECLINE SWITCH	Forward		○		○	○	○						○
	Backward		○		○		○						○
FRONT UP-DOWN SWITCH	UP			○					○	○	○		
	DOWN			○					○	○	○		
REAR UP-DOWN SWITCH	UP	○	○		○	○							
	DOWN	○	○		○	○							

5. If the continuity is not as specified, replace the switch.

BACK

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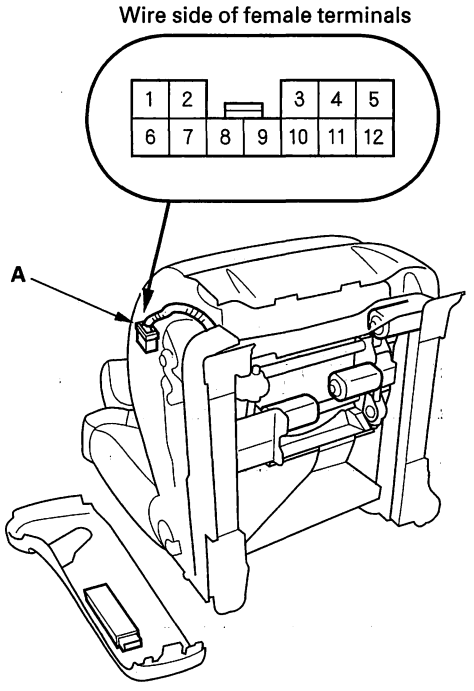
Front Passenger's Power Seat Motor Test

1. Remove the front passenger's seat (see page 20-141).
2. Remove the power seat adjustment switch (see page 22-239) and disconnect the 12P connector (A) from the switch.



3. At the power seat adjustment switch 12P connector, test the motor by applying battery power and ground to the terminals according to the table.

Slide motor:

Terminal / Position	7	11
Forward	⊖	⊕
Backward	⊕	⊖

Recline motor:

Terminal / Position	6	12
Forward	⊖	⊕
Backward	⊕	⊖

Front up-down motor:

Terminal / Position	3	9
UP	⊕	⊖
DOWN	⊖	⊕

Rear up-down motor:

Terminal / Position	1	5
UP	⊕	⊖
DOWN	⊖	⊕

4. If the motor does not run or fails to run smoothly, check for an open in the front passenger's seat wire harness between the power seat adjustment switch and each motor. If the wire harness is OK, replace the appropriate motor (see page 20-144).

NOTE: The motors are not available separately. The slide and up-down motors are part of the slide/up-down adjuster. The recline motor is part of the recline adjuster.

BACK

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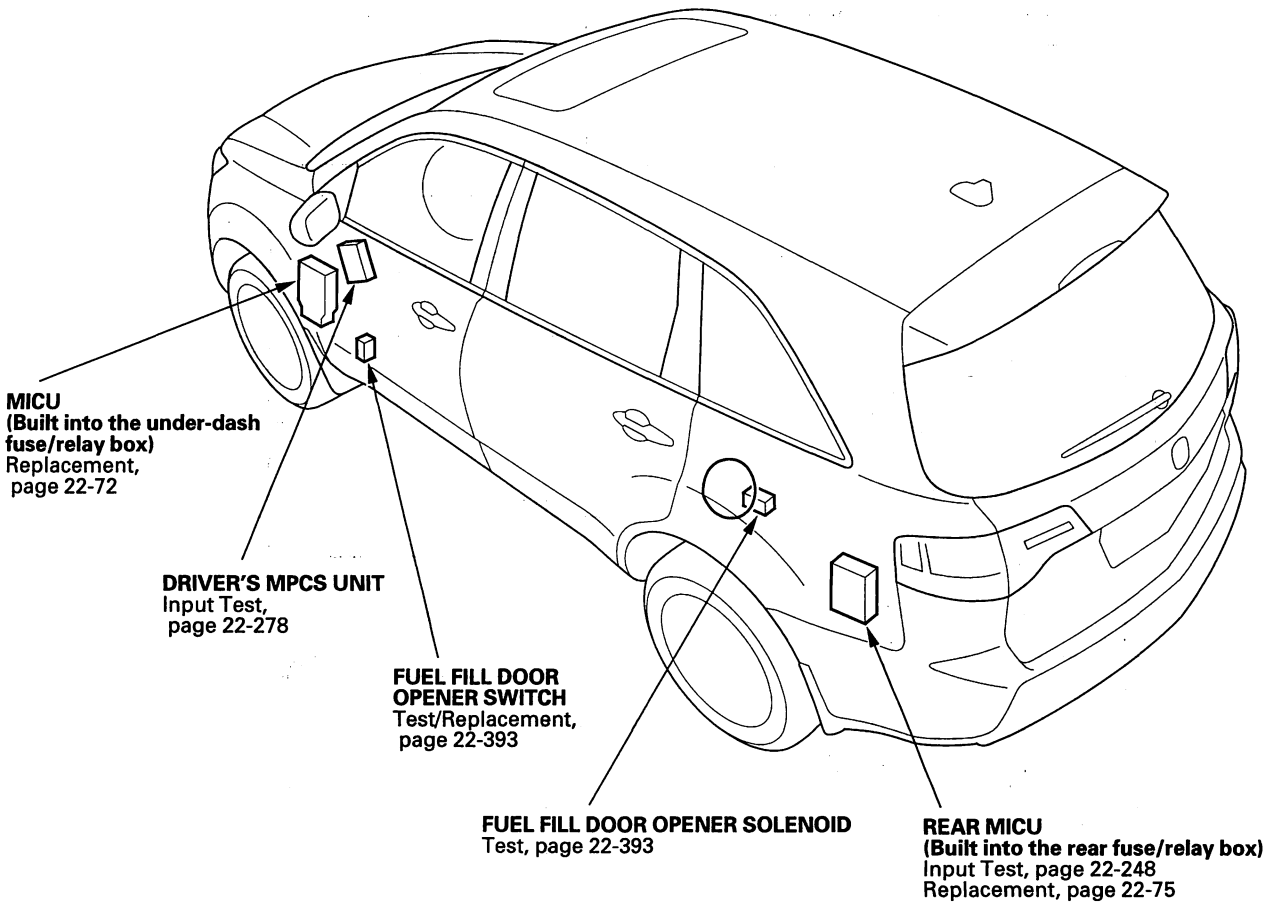
Fuel Fill Door Opener

Component Location Index



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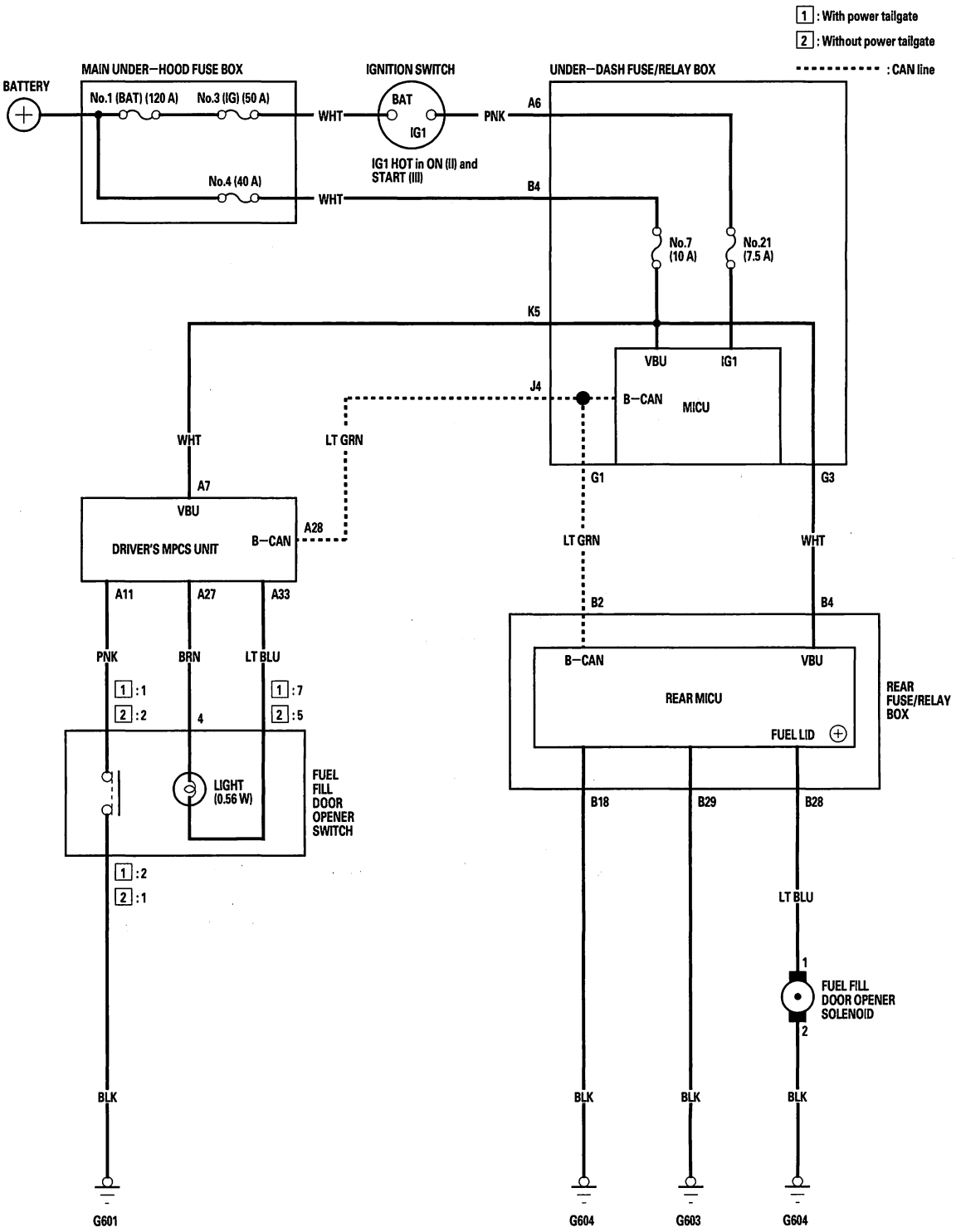
Fuel Fill Door Opener

Circuit Diagram



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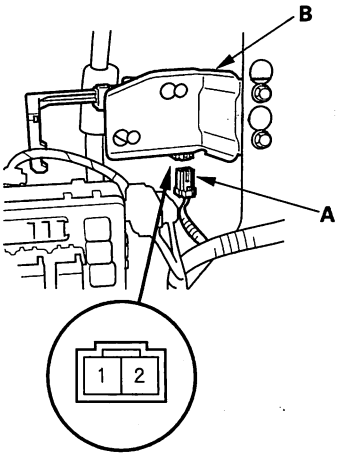
Fuel Fill Door Opener Solenoid Test

NOTE: Before testing, check the B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Open the tailgate, and remove the left side trim panel (see page 20-90).
2. Disconnect the 2P connector (A) from the fuel fill door opener solenoid (B).



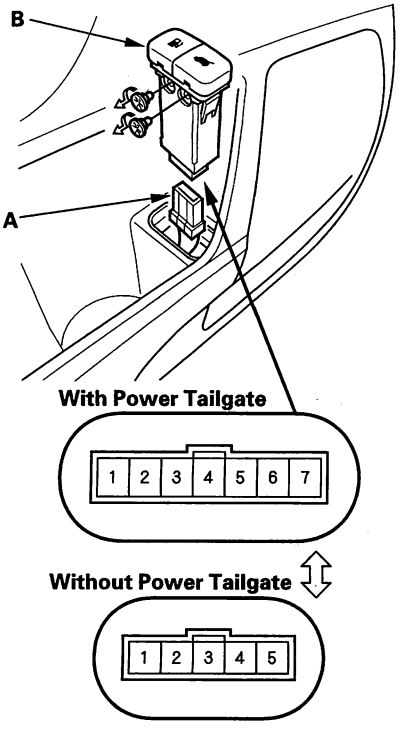
3. Check solenoid operation by connecting power to the No. 1 terminal and ground to the No. 2 terminal. To prevent damage to the solenoid, apply battery voltage only momentarily. The solenoid should work.
4. If the solenoid does not work as specified, replace it.

Fuel Fill Door Opener Switch Test/ Replacement

NOTE: Before testing, check the B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Remove the driver's door panel (see page 20-8).
2. Disconnect the 5P (or 7P)* connector (A) from the fuel fill door opener switch (B).

*: With power tailgate



3. Check for continuity between the No. 1 and No. 2 terminals.
   - There should be continuity with the switch pressed.
   - There should be no continuity with the switch released.
4. If the continuity is not as specified, replace the switch.

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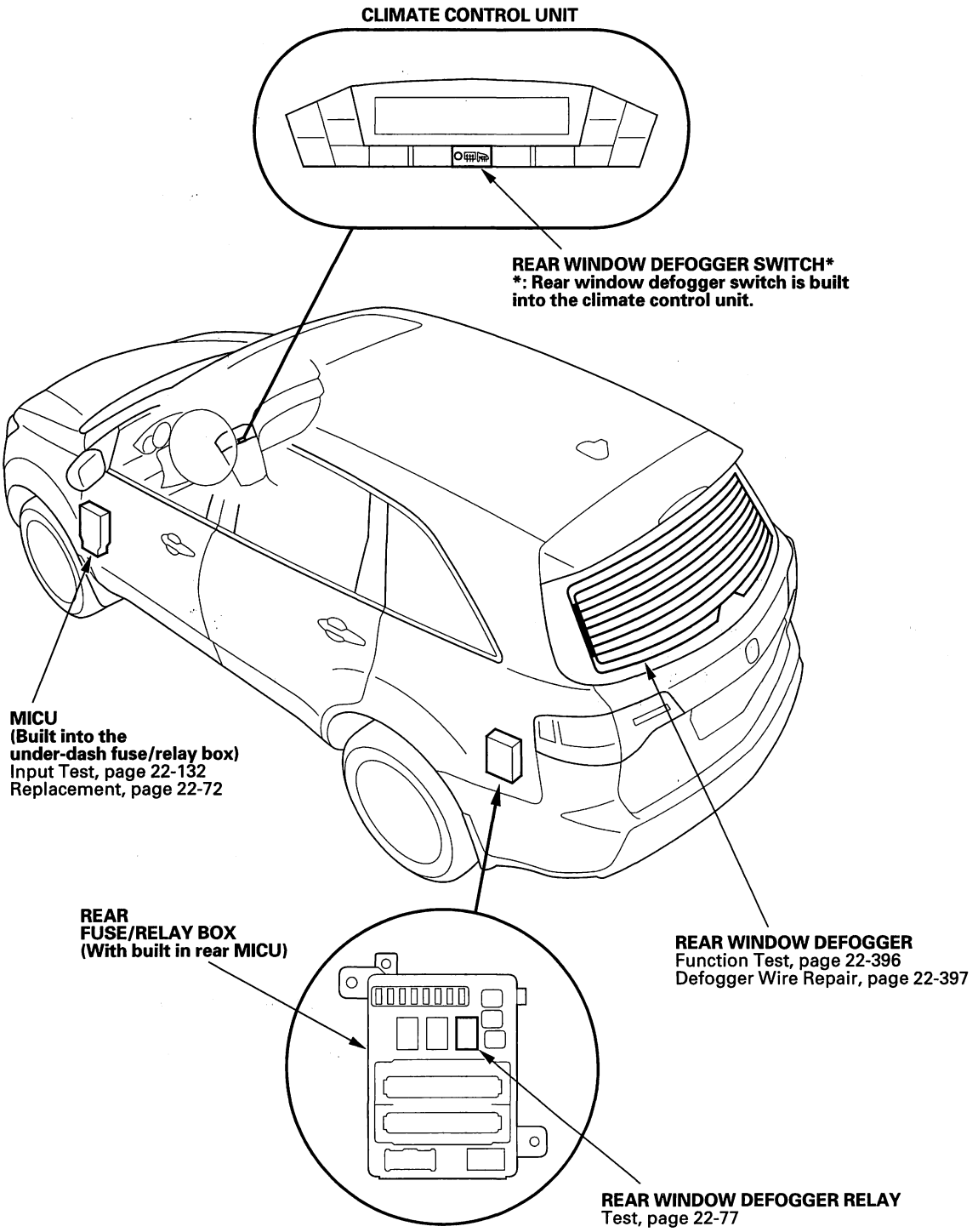
Rear Window Defogger

Component Location Index



BACK

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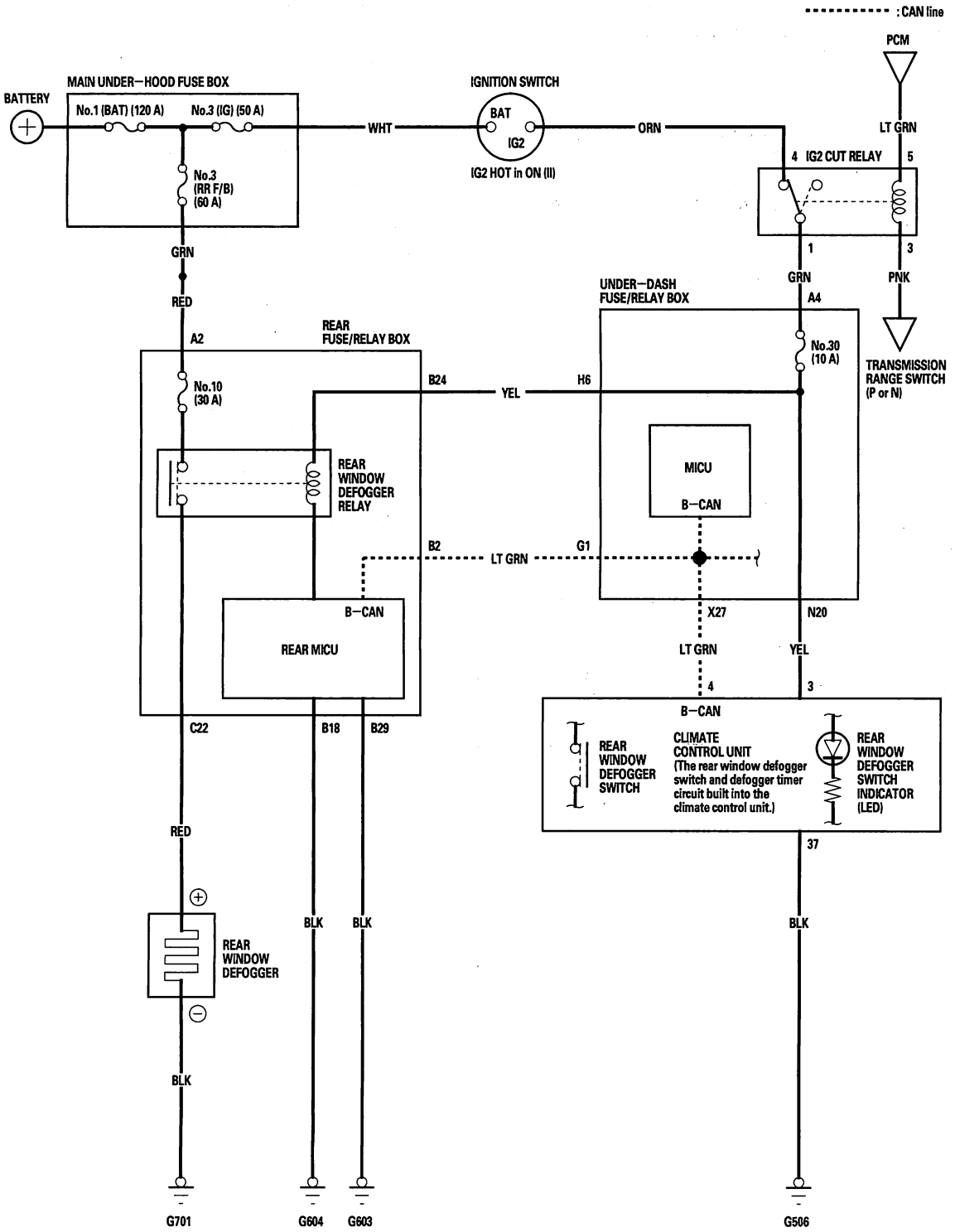
Circuit Diagram



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Rear Window Defogger

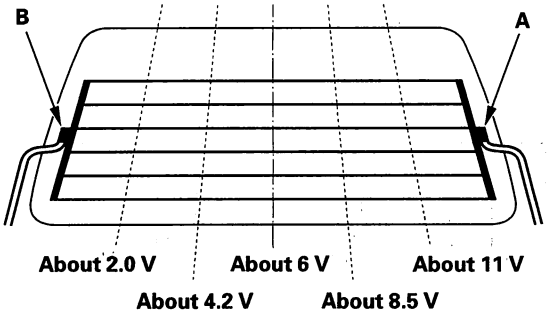
Function Test

Before troubleshooting the rear window defogger circuit, perform multiplex integrated control system troubleshooting using B-CAN System Diagnosis Test Mode A (see page 22-112).

NOTE:
- Be careful not to scratch or damage the defogger wires with the tester probe.
- Before testing, check the No. 30 (10 A) fuse in the under-dash fuse/relay box and the No. 10 (30 A) fuse in the rear fuse/relay box.

1. Measure the voltage between the positive terminal (A) and body ground with the ignition switch and defogger switch ON.
   There should be battery voltage.

   - If there is no voltage, check for:
     – Faulty rear window defogger relay.
     – Faulty rear MICU.
     – Faulty climate control unit.
     – An open in the RED wire to the positive terminal.
   - If there is voltage, go to step 2.



2. Disconnect the negative terminal (B) from the rear window defogger.

3. Check for continuity between the negative terminal and body ground.

   If there is no continuity, check for an open in the wire or poor ground (G701). If there is continuity, go to step 4.

4. Reconnect the negative terminal to the rear window defogger.

5. Turn the ignition switch ON (II) and the rear window defogger switch ON.

6. Touch the voltmeter positive probe to the each points on each defogger wire, and the negative probe to the negative terminal.

   - If the voltage is as specified, the defogger wire up to that point is OK.
   - If the voltage is not as specified, repair the defogger wire.

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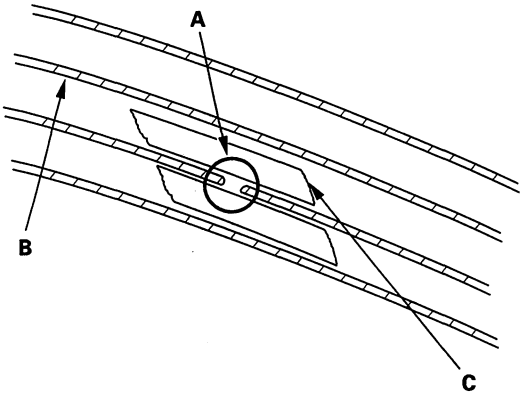
Defogger Wire Repair

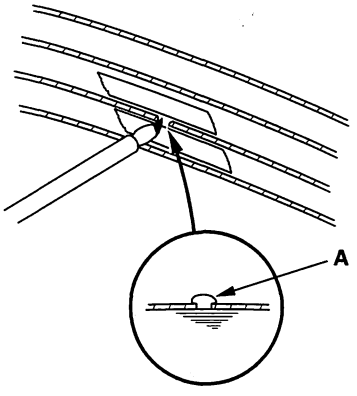
NOTE: To make an effective repair, the broken section must be no longer than 1 inch (25 mm).

1. Lightly rub the area around the broken section (A) with fine steel wool, then clean it with isopropyl alcohol.



2. Carefully mask above and below the broken portion of the defogger wire (B) with cellophane tape (C).

3. Using a small brush, apply a heavy coat of silver conductive paint (commercially available) extending about 1/8" on both sides of the break. Allow 25 minutes to dry.



4. Perform the function test to confirm that the wire is repaired.

5. Apply a second coat of paint in the same way. Let it dry 3 hours before removing the tape.

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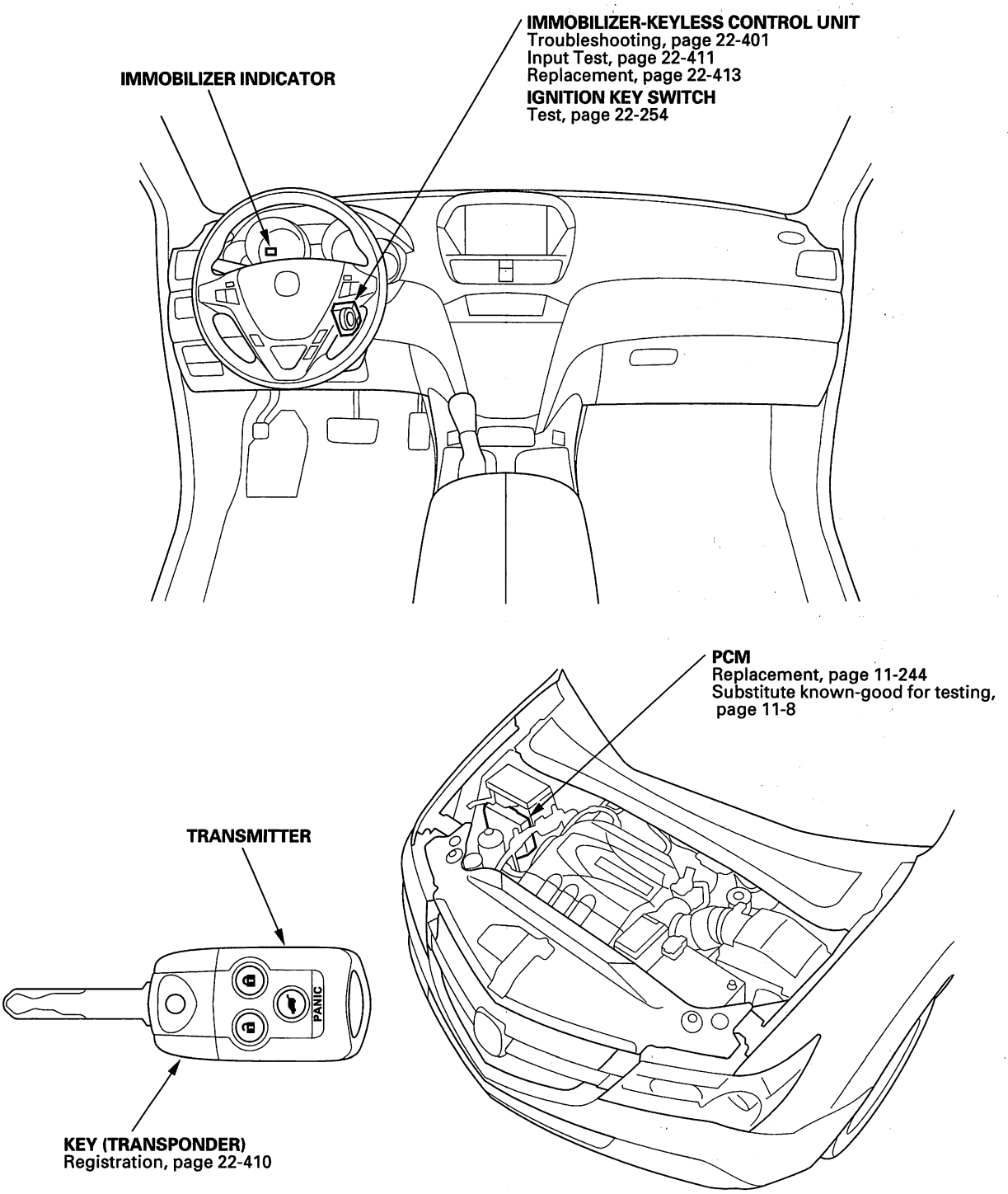
Immobilizer System

Component Location Index



BACK

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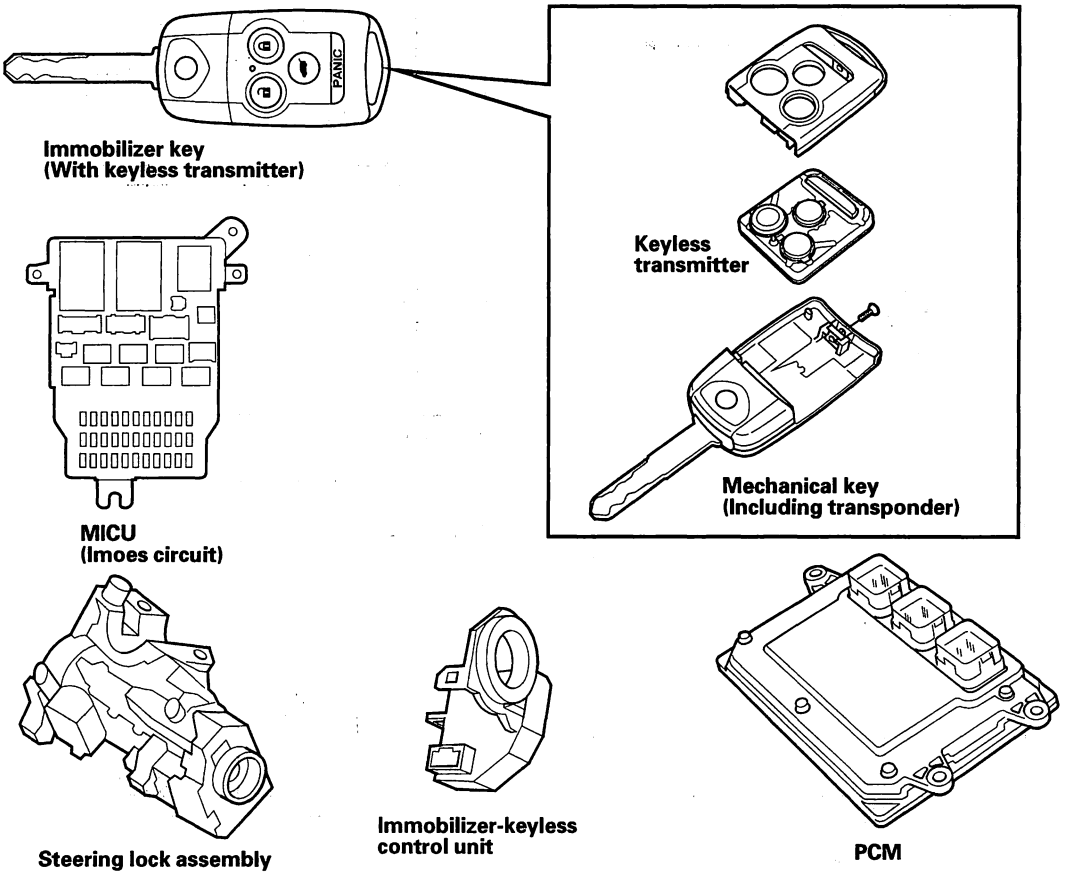
System Description

The vehicle is equipped with an immobilizer system that will disable the vehicle unless a programmed ignition key is used.
This system consists of a transponder, a keyless transmitter, immobilizer-keyless control unit, immobilizer indicator, IMOES unit (built into the MICU), and the PCM.
When the immobilizer key (programmed by the HDS) is inserted into the ignition switch and turned to the ON (II) position, the immobilizer-keyless control unit sends power to the transponder in the ignition key. The transponder then sends a coded signal back to the immobilizer-keyless control unit which then sends a coded signal to the IMOES unit, which confirms the code and signals the PCM to continue to supply power to the fuel pump circuit.



If the wrong key has been used or the code was not received or recognized by the unit, the vehicle will not start, then shut off, and the indicator will quickly flash once, then it will blink until the ignition switch is turned OFF. When the ignition switch is turned OFF, the indicator will blink ten times to signal that the unit has reset correctly, then the indicator will go off.

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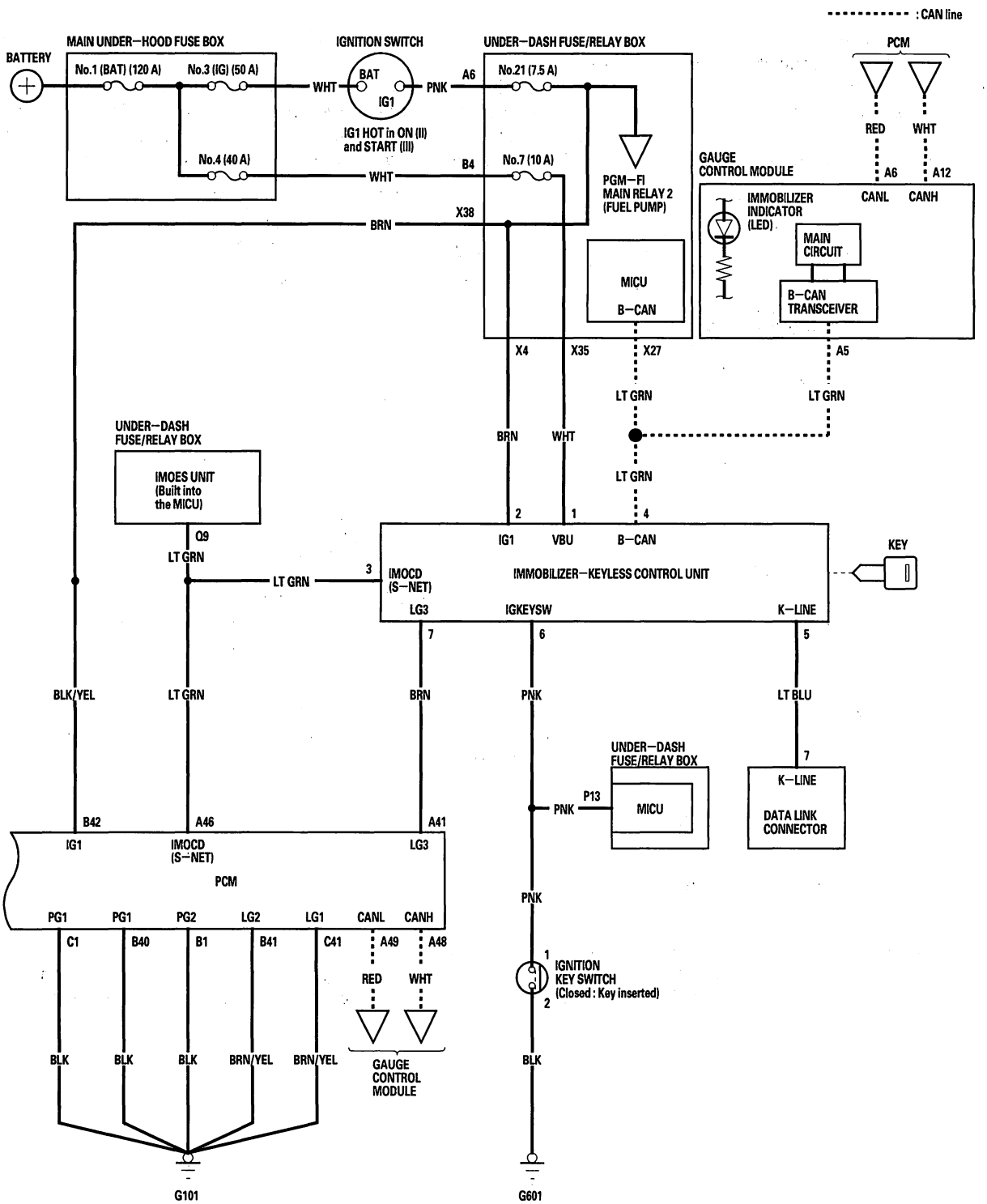
Immobilizer System

Circuit Diagram



BACK

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DTC Troubleshooting

DTC B1905: Immobilizer-Keyless Control Unit Lost Communication with Driver's MPCS Unit (DRLOCKSW Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1905 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the immobilizer-keyless control unit and the driver's MPCS unit. ■
5. Check for DTCs with the HDS.

   Are DTCs B1013, B1065, B1182, and/or B1356 also indicated?

   YES—Do the driver's MPCS unit input test (see page 22-137). ■

   NO—Do the immobilizer-keyless control unit input test (see page 22-411). ■

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DTC Troubleshooting (cont'd)

DTC B1906: Immobilizer-Keyless Control Unit Lost Communication with Gauge Control Module (A/T Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1906 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the immobilizer-keyless control unit and the gauge control module. ■
5. Check for DTCs with the HDS.

   Are DTCs B1061, B1359, B1808, and B1956 also indicated?

   YES—Do the gauge control module input test (see page 22-334). ■

   NO—Do the immobilizer-keyless control unit input test (see page 22-411). ■

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Symptom Troubleshooting Information

General Check before Troubleshooting

Before troubleshooting the immobilizer system, check the following general items to minimize troubleshooting time:

- If the battery is low; fully charge the battery, then troubleshoot the immobilizer system.
- The ignition key is not a genuine Honda part; use the Honda-approved key blank, register the key, then troubleshoot the immobilizer system.
- Check to see if a key ring, keys, or a key case is used; remove the key from it, and troubleshoot the immobilizer system with a key only.
- Check to see if an aftermarket electrical part is attached; remove it, then troubleshoot the immobilizer system.

Symptom Troubleshooting Using the Immobilizer Indicator Lighting Pattern

The blinking pattern of the immobilizer indicator light can help troubleshoot the condition of the immobilizer system. Following are descriptions of the four possible patterns.

Normal operation
If the immobilizer code is identified, the immobilizer indicator comes on for a maximum of 2 seconds, then goes off after turning the ignition switch ON (II).
The immobilizer indicator does not come on when the ignition switch is turned OFF.

Immobilizer code is not identified
If the immobilizer code is not identified, the immobilizer indicator comes on for a maximum of 2 seconds, then blinks after turning the ignition switch ON (II). The immobilizer indicator blinks ten times, then goes off when the ignition switch is turned OFF.
The state of the immobilizer key registration and the IMOCD line can be checked by doing a SYSTEM CHECK with the HDS (see page 22-406).

Immobilizer indicator does not come on
If the immobilizer indicator does not come on after turning the ignition switch ON (II), an open or short in the F-CAN lines between the PCM and the gauge control module. Watch the malfunction indicator lamp (MIL). If the MIL stays on, go to the PGM-FI system troubleshooting (see page 11-3).

Immobilizer indicator does not go off
If the immobilizer indicator does not go off after turning the ignition switch ON (II), do the gauge control module self-diagnostic function (see page 22-315). If the indicator drive circuit is OK, do the SYSTEM CHECK with the HDS.

(cont'd)

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Symptom Troubleshooting Information (cont'd)

Symptom Troubleshooting Using Malfunctioning Circuit Functions

If a malfunction occurs in the immobilizer circuit, use the table to cross-reference the malfunctioning function to the line(s) that should be checked table:

Function / Line Error		Immobilizer Indicator	Engine Start	Key Registration	Tester Communication	Keyless Operation
Terminal No.	Cause of Malfunction					
1	VBU line open or short	Comes on, then goes off.	Possible	Impossible	Possible	Impossible
2	IG1 line open or short	Blinking	Impossible	Impossible	Impossible	Possible
3	IMOCD (S-NET) line open or short	Blinking	Impossible	Impossible	Impossible	Possible
4	B-CAN line open or short	Comes on, then goes off.	Possible	Impossible	Immobilizer: Possible Keyless: Impossible	Impossible
5	K-LINE line open or short	Comes on, then goes off.	Possible	Impossible	Impossible	Possible
6	KEYSW line open	Comes on, then goes off.	Possible	Possible	Possible	Possible (in spite of the key is in the ignition switch)
	KEYSW line short to ground					Impossible (panic only works with ignition switch OFF)
7	GND (LG) line open	Blinking	Impossible	Impossible	Impossible	Impossible

System Check and Status Log

NOTE: The HDS can be used to:
- Check the state of the immobilizer key registration and the IMOCD (S-NET) line by doing a SYSTEM CHECK.
- Check the number of times the immobilizer control unit-receiver doesn't permit the engine to run by checking the STATUS LOG.

1. Connect the HDS to the data link connector, then turn the ignition switch ON (II) and follow the prompts to the MAIN MENU.

   NOTE: If the HDS does not communicate with the vehicle, go to the DLC circuit troubleshooting (see page 11-223).

2. At the MAIN MENU, enter IMMOBILIZER, then select the IMMOBILIZER SETUP.

3. Do the SYSTEM CHECK. If there is a system check number, do the troubleshooting for the item indicated.

4. Check the status log using the HDS. Troubleshoot the line with the highest counts. If all the lines are "0" zero, the problem may not be caused by the immobilizer system, check for ignition or fuel problems.

   NOTE: Once repaired, clear the status log by removing the No. 4 (40 A) fuse in the main under-hood fuse box or disconnecting the battery.

BACK

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Symptom Troubleshooting

1. Troubleshoot the immobilizer system by the order of the priority shown:

Order of Priority	Symptom	Possible cause
1	Immobilizer indicator blinks after the ignition switch is turned OFF.	Symptom troubleshooting (see page 22-408).
2	Engine does not start with the immobilizer key.	Symptom troubleshooting (see page 22-409).
3	Immobilizer indicator does not come on.	Check the MIL indication. • If the MIL comes on, go to the PGM-FI System MIL circuit troubleshooting (see page 11-222). • If the MIL does not come on, replace the gauge control module.
4	Immobilizer indicator does not go off.	Symptom troubleshooting (see page 22-409).

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Immobilizer System

System Check

1. Connect the HDS to the data link connector.
2. Turn the ignition switch ON (II).
3. Monitor the System Check in the Immobilizer Info with the HDS.
4. If the HDS displays the "Immobilizer system is normal", the immobilizer system is OK. If the HDS displays any other messages, check as follows:

Status Log No.	System Check	Possible Failures
A-1	Immobilizer system is not normal	• This key is not registered in the immobilizer-keyless control unit. Try to register keys by using "KEYS". • The communication was not good between the antenna and the immobilizer key by influence of metal such as key chains. • The communication was not good between the antenna and the immobilizer key by battery voltage low.
A-2	Immobilizer system is not normal	• Intermittent interruption between transponder and immobilizer-keyless control unit. • The immobilizer key type is different. It is not for this vehicle but for another one or for other company's one. • Key failure (transponder failure) • The communication was not good between the antenna and the immobilizer key by influence of metal such as key chains. • The communication was not good between the antenna and the immobilizer key by battery voltage low.
A-3	Immobilizer system is not normal	• The ignition switch was turned ON (II) with a non-immobilizer key. • The immobilizer key type is different. It is not for this vehicle but for another one or for other company's one. • Key failure (transponder failure) • The communication was not good between the antenna and the immobilizer key by influence of metal such as key chains. • The communication was not good between the antenna and the immobilizer key by battery voltage low. • Immobilizer-keyless control unit failure
B-1	Immobilizer system is not normal	• The PCM was not registered. Try to register the PCM by using "REPLACE PCM". • The communication was not good between the PCM and the immobilizer-keyless control unit by battery voltage low. • The communication was not good between the immobilizer-keyless control unit and the PCM by influence of some noise.
B-2	Immobilizer system is not normal	• The PCM was not registered. Try to register the PCM by using "REPLACE PCM". • The communication was not good between the PCM and the immobilizer-keyless control unit by battery voltage low. • The communication was not good between the immobilizer-keyless control unit and the PCM by influence of some noise.
D-1	Immobilizer system is not normal	• Harness short from the PCM to the immobilizer-keyless control unit. (IMOCD/S-NET line short) • The communication was not good between the PCM and the immobilizer-keyless control unit by battery voltage low. • The communication was not good between the immobilizer-keyless control unit and the PCM by influence of some noise. • Immobilizer-keyless control unit failure • PCM failure
D-3	Immobilizer system is not normal	• Blown fuse • Harness open from the PCM to the immobilizer-keyless control unit. • The communication was not good between the PCM and the immobilizer-keyless control unit by battery voltage low. • The communication was not good between the immobilizer-keyless control unit and the PCM by influence of some noise. • Immobilizer-keyless control unit failure • PCM failure

BACK

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Status Log

If you suspect there is a immobilizer system problem, check the status log.

1. Connect the HDS to the data link connector.
2. Turn the ignition switch ON (II).
3. On the HDS screen, select Honda systems, select immobilizer set-up, select immobilizer information, then select status log.
4. Check the Status log count. Troubleshoot the status with the highest count first. If no counts are listed, the immobilizer system is OK. Continue with normal symptom troubleshooting.

Status Log No.	Detected Item	Probable Cause
A-1	KEY CODE MISMATCH (Code format normal, but code data is mismatch)	1. The key was not registered 2. Interference from metal such as key chains 3. Low battery voltage
A-2	KEY CODE MISMATCH (Code format failure)	1. Ignition switch was turned ON (II) with another type of immobilizer key or aftermarket key 2. Interference from metal such as key chains 3. Low battery voltage
A-3	KEY CODE MISMATCH (No key code or non-immobilizer key)	1. Ignition switch was turned ON (II) with another type of immobilizer key or aftermarket key 2. Interference from metal such as key chains 3. Low battery voltage 4. Key failure 5. Immobilizer-keyless control unit failure
B-1	PCM CODE MISMATCH (Code format normal, but code data is mismatch)	1. PCM was not registered correctly 2. Low battery voltage 3. Poor or loose terminal connections at the immobilizer-keyless control unit 4. Communication line electrical noise
B-2	PCM MISMATCH (Code format failure)	1. PCM was not registered correctly 2. Low battery voltage 3. Poor or loose terminal connections at the immobilizer-keyless control unit 4. Communication line electrical noise
D-1	IMOCD/S-NET LINE PROBLEM (Short to ground)	1. Low battery voltage 2. Poor or loose terminal connections at the immobilizer-keyless control unit and the PCM 3. Communication line electrical noise
D-3	IMOCD/S-NET LINE PROBLEM (Open line or PCM failure)	1. Open or short in the harness from the PCM to the immobilizer-keyless control unit 2. Low battery voltage 3. Poor or loose terminal connections at the immobilizer-keyless control unit and the PCM 4. Communication line electrical noise

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Symptom Troubleshooting

Immobilizer indicator blinks

NOTE: Before troubleshooting, check the items listed in "General Check before Troubleshooting".

1. Turn the ignition switch OFF.
2. Connect the HDS, then turn the ignition switch ON (II).
3. Enter the IMMOBILIZER, then select the IMMOBILIZER SETUP.
4. Check the SYSTEM CHECK and STATUS LOG information.

   Is the SYSTEM CHECK indicated?

   YES—Troubleshoot the immobilizer system according to the result of the SYSTEM CHECK/ STATUS LOG (see page 22-406). ■

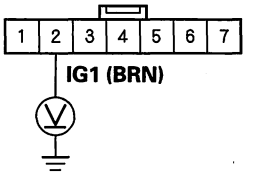
   NO—Go to step 5.
5. Turn the ignition switch OFF.
6. Enter the vehicle, and remove the ignition key from the ignition switch, then close the all doors.
7. Operate the keyless transmitter LOCK and UNLOCK several times in the vehicle.

   Do the door lock actuators work normally?

   YES—Go to step 8.

   NO—Check for a poor ground (G101) and/or an open in the wire between the immobilizer-keyless control unit 7P connector No. 7 terminal and PCM connector A (49P) No. 41 terminal. ■
8. Turn the ignition switch ON (II).
9. Measure the voltage between the immobilizer-keyless control unit 7P connector No. 2 terminal and body ground.

IMMOBILIZER-KEYLESS CONTROL UNIT 7P CONNECTOR



Wire side of female terminals

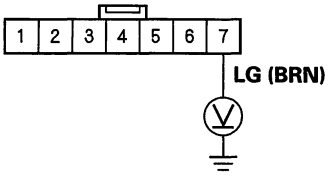
Is there battery voltage?

YES—Go to step 10.

NO—Check fuse No. 21 (7.5 A) in the under-dash fuse/relay box or for an open in the BRN wire between the under-dash fuse-relay box and the immobilizer-keyless control unit. ■

10. Measure the voltage at the immobilizer-keyless control unit 7P connector No. 7 terminal and body ground.

IMMOBILIZER-KEYLESS CONTROL UNIT 7P CONNECTOR



Wire side of female terminals

Is there less than 0.5 V?

YES—Replace the immobilizer-keyless control unit. ■

NO—Check for a poor ground (G101) and/or repair poor connection or open between the immobilizer-keyless control unit 7P connector No. 7 terminal and PCM connector A (49P) No. 41 terminal. ■

BACK

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Engine does not start with the immobilizer key

NOTE: Before troubleshooting, check the items listed in "General Check before Troubleshooting" and "How to Troubleshoot" (see page 22-403).

1. Try to start the engine.

   Does the engine start?

   YES—Intermittent failure, the vehicle is OK at this time. Check status log (see page 22-407). ■

   NO—Go to step 2.

2. Turn the ignition switch OFF.

3. Turn the ignition switch ON (II), and check the immobilizer indicator indication.

   Does the indicator quickly flash twice and turn off?

   YES—Go to step 4.

   NO—Do the immobilizer-keyless control unit input test (see page 22-411). ■

4. Turn the ignition switch to START (III).

   Does the starter crank?

   YES—Go to step 5.

   NO—Go to Starting System troubleshooting and check the starter motor circuit. ■

5. Try to start the engine with a different known-good immobilizer key.

   Does the engine start?

   YES—Replace the immobilizer key. ■

   NO—Go to the PGM-FI System Symptom Troubleshooting. ■

Immobilizer indicator does not go off

1. Turn the ignition switch OFF.

2. Connect the HDS to the data link connector.

3. Turn the ignition switch ON (II).

4. Enter the IMMOBILIZER, then select the IMMOBILIZER INFORMATION.

5. Do the SYSTEM CHECK with the HDS.

   Is N-1 OK indicated?

   YES—Do the gauge control module self-test. If the gauge control module is faulty, replace it. ■

   NO—Substitute a known-good immobilizer-keyless control unit, then register it and recheck. If the symptom goes away, replace the original immobilizer-keyless control unit. ■

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Immobilizer Key Registration

NOTE:
- The HDS is required for registration of the immobilizer keys.
- Check for aftermarket electrical equipment that can cause problems with transponder operation.
- The immobilizer-keyless control unit can store up to six immobilizer Keys.

Add one new key

1. Have a registered key, a new immobilizer key, and the first password from the iN system.
2. Connect the HDS to the data link connector.
3. Turn the ignition switch ON (II).
4. Select "IMMOBILIZER" from the "SYSTEM SELECT" menu.
5. Select "Add and Delete Keys", then "Add 1 key".
6. Do the registration according to the instructions on the HDS screen.
7. Check if the engine can be started by the newly registered key. Check the keyless remote operation to make sure that it functions properly.

Delete or add multiple keys

NOTE:
- If any of the registered keys were lost, do the following procedure to delete the lost registered key.
- When deleting keys, it is necessary to delete all stored remote transmitters. Refer to the keyless transmitter programming to delete and reprogram the remotes (see page 22-177).

1. Have all registered keys, all new keys, and the first password.
2. Connect the HDS to the data link connector.
3. Turn the ignition switch ON (II).
4. Select "IMMOBILIZER" from the "SYSTEM SELECT" menu.
5. Select "Add and Delete Keys", or "Delete or Add Multiple Keys".
6. Do the registration according to the instruction of HDS screen.
7. Check if the engine can be started by all the registered keys.

All keys are lost

NOTE: When deleting keys, it is necessary to delete all stored remote transmitters. Refer to the keyless transmitter programming to delete and reprogram the remotes (see page 22-177).

1. Prepare all new keys and have the immobilizer PCM code.
2. Connect the HDS to the data link connector.
3. Turn the ignition switch ON (II).
4. Select "IMMOBILIZER" from the "SYSTEM SELECT" menu.
5. Select "Add and Delete Keys", then "ALL KEYS LOST".
6. Do the registration according to the instruction of HDS screen.
7. Check if the engine can be started by all the registered keys.

BACK

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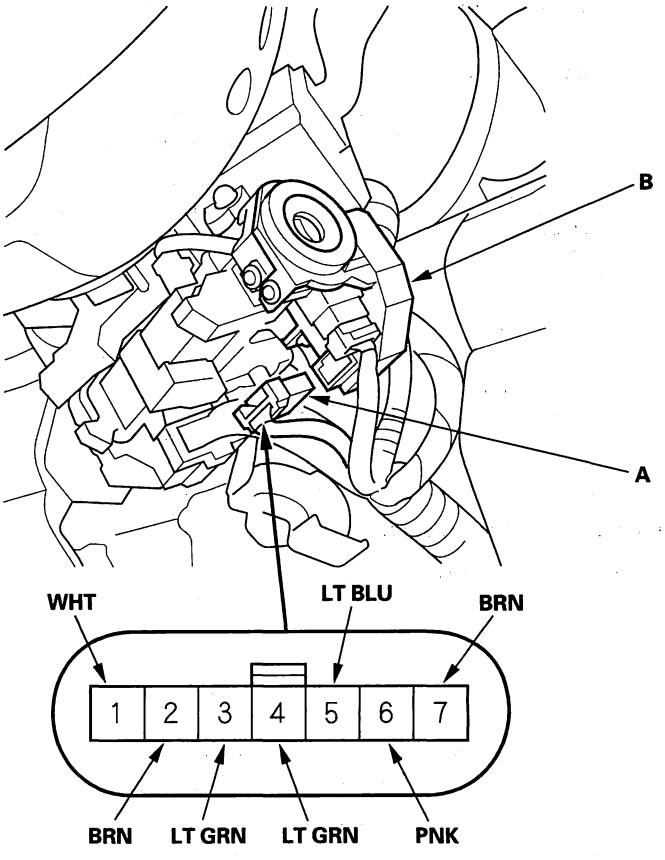
Immobilizer-keyless Control Unit Input Test

NOTE: Before troubleshooting the immobilizer system, troubleshoot the B-CAN System Diagnosis Test Mode A (see page 22-112) and check the No. 21 (7.5 A) and No. 7 (10 A) fuses in the under-dash fuse/relay box.

1. Remove the steering column covers (see page 20-129).

2. Disconnect the 7P connector (A) from the immobilizer-keyless control unit (B).



Wire side of female terminals

3. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

(cont'd)

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Immobilizer-keyless Control Unit Input Test (cont'd)

4. With the connector still disconnected, make these input tests at the connector.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
3	LT GRN	Immobilizer-keyless control unit 7P, the PCM connector A (49P), and the MICU 14P connector disconnected.	Check for continuity between the No. 3 terminal and the PCM connector A (49P) No. 46 terminal: There should be continuity.	An open in the wire
			Check for continuity between the No. 3 terminal and under-dash fuse/relay box connector Q (14P) No. 9 terminal: There should be continuity.	
			Check for continuity between the No. 3 terminal and body ground: There should be no continuity.	A short in the wire
4	LT GRN	Immobilizer-keyless control unit 7P, the under-dash fuse/relay box connector X (39P) disconnected.	Check for continuity between the No. 4 terminal and under-dash fuse/relay box connector X (39P) No. 27 terminal: There should be continuity.	An open in the wire
			Check for continuity between the No. 4 terminal and body ground: There should be no continuity.	A short in the wire
5	LT BLU	Immobilizer-keyless control unit 7P disconnected.	Check for continuity between the No. 5 terminal and the data link connector (16P) No. 7 terminal: There should be continuity.	An open in the wire
			Check for continuity between the No. 5 terminal and body ground: There should be no continuity.	A short in the wire

5. Reconnect the connectors to the immobilizer-keyless control unit, and make these input tests at the connector.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the immobilizer-keyless control unit must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
1	WHT	Under all conditions	Measure the voltage between the No. 1 terminal and body ground: There should be battery voltage.	• Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • An open in the wire
2	BRN	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
7	BRN	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G101) • An open in the wire • Faulty PCM
6	PNK	Ignition key inserted into the ignition switch	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G601) • Faulty ignition key switch • An open in the wire

BACK

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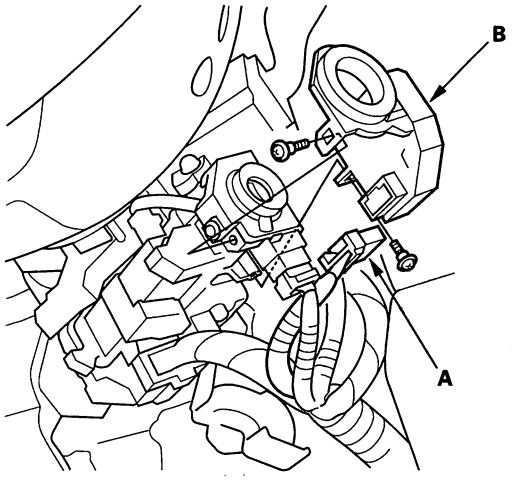
Immobilizer-keyless Control Unit Replacement

NOTE: All registered keys (with built in remote transmitter) are necessary for replacement of the immobilizer-keyless control unit.

1. Remove the driver's dashboard lower cover (see page 20-119).
2. Remove the steering column covers (see page 20-129).
3. Disconnect the 7P connector (A) from the immobilizer-keyless control unit (B).



4. Remove the two screws and the immobilizer-keyless control unit from the ignition key cylinder.
5. Install the immobilizer-keyless control unit in the reverse order of removal.
6. After replacement, turn the ignition switch ON (II).
7. Connect the HDS to the data link connector.
8. Select "IMMOBI" from the "System Select" menu.
9. Select "immobilizer Setup" from the "Mode Menu".
10. Select "Replace Imm Unit".
11. Operate according to instructions of a screen of HDS.
12. After HDS operation, check the immobilizer system.
13. Verify the operation of every key and remote transmitter.

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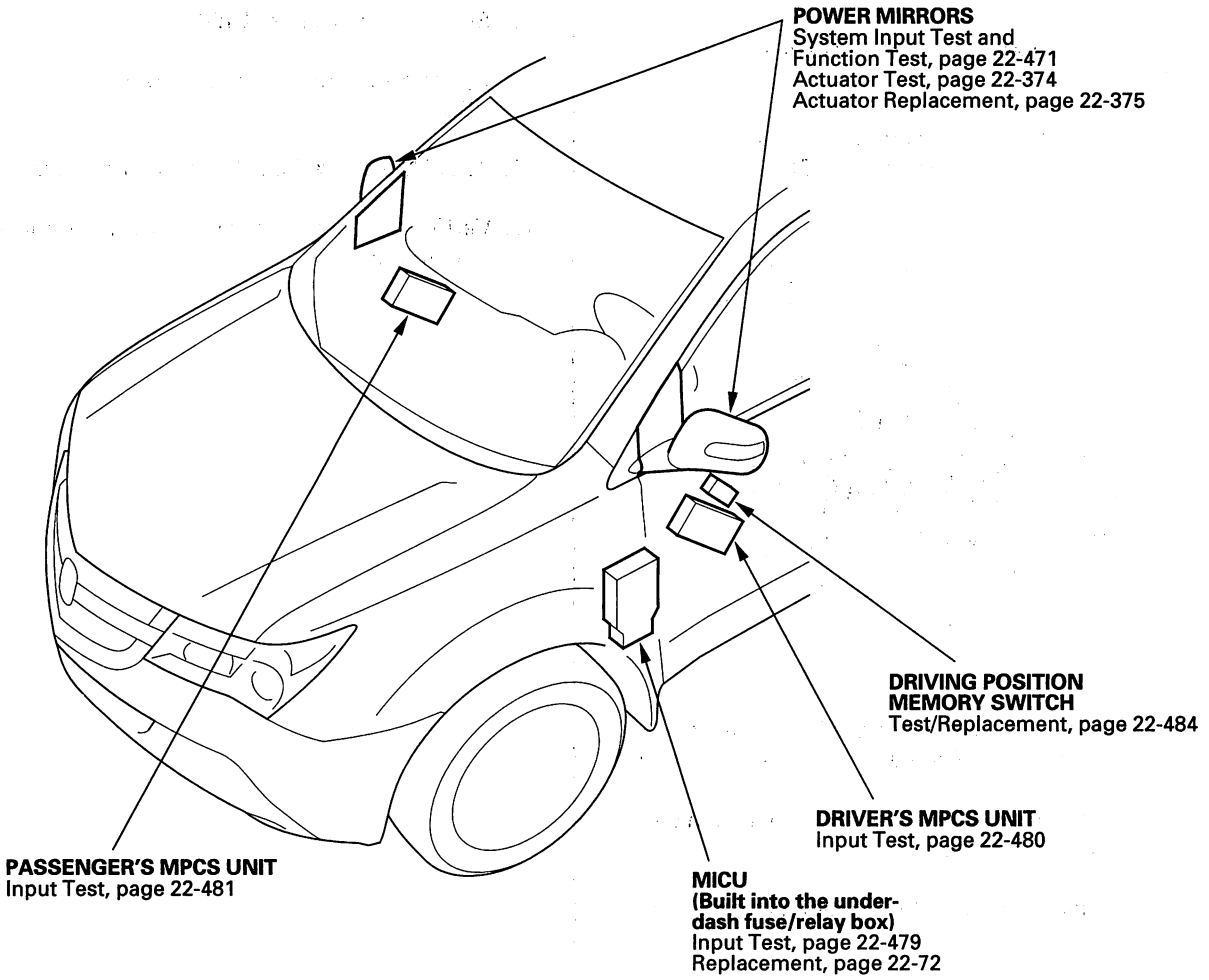
Driving Position Memory System (DPMS)

Component Location Index



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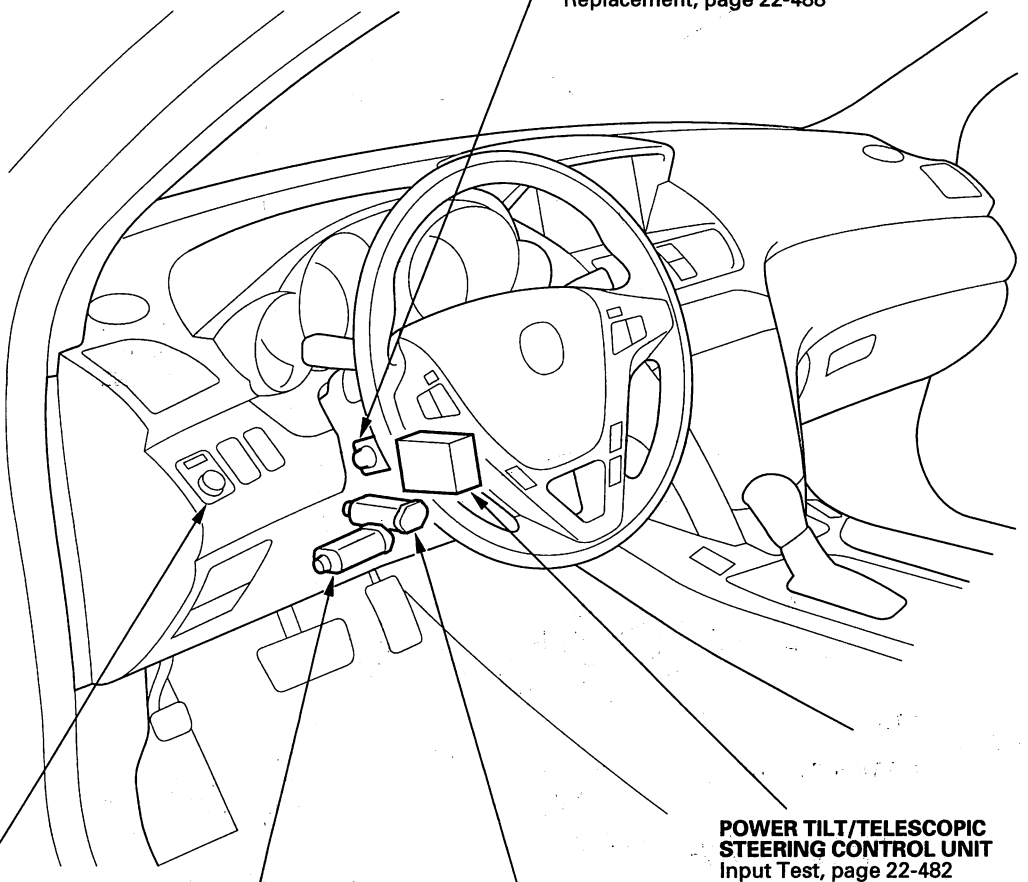

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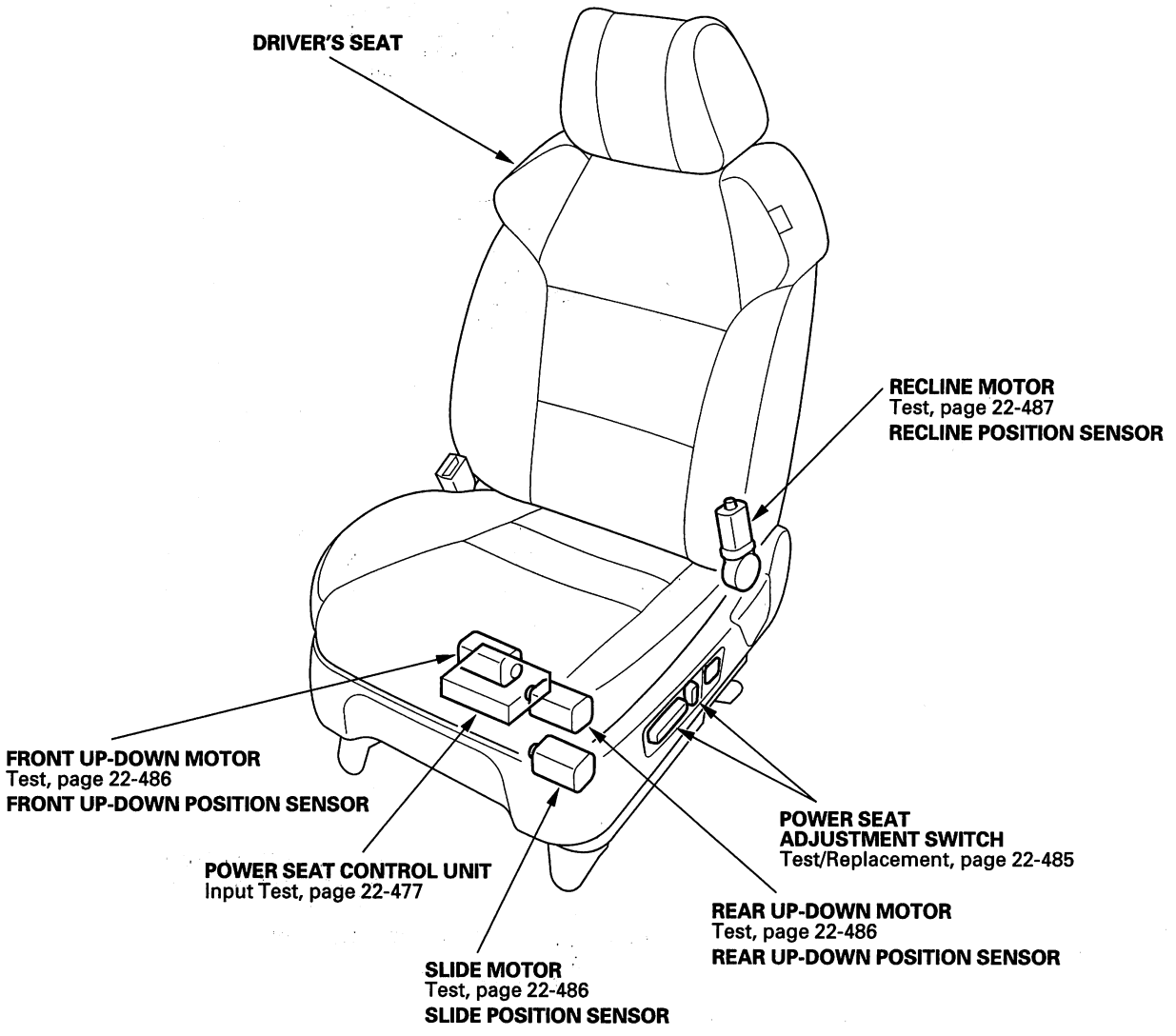
Driving Position Memory System (DPMS)

Component Location Index (cont'd)



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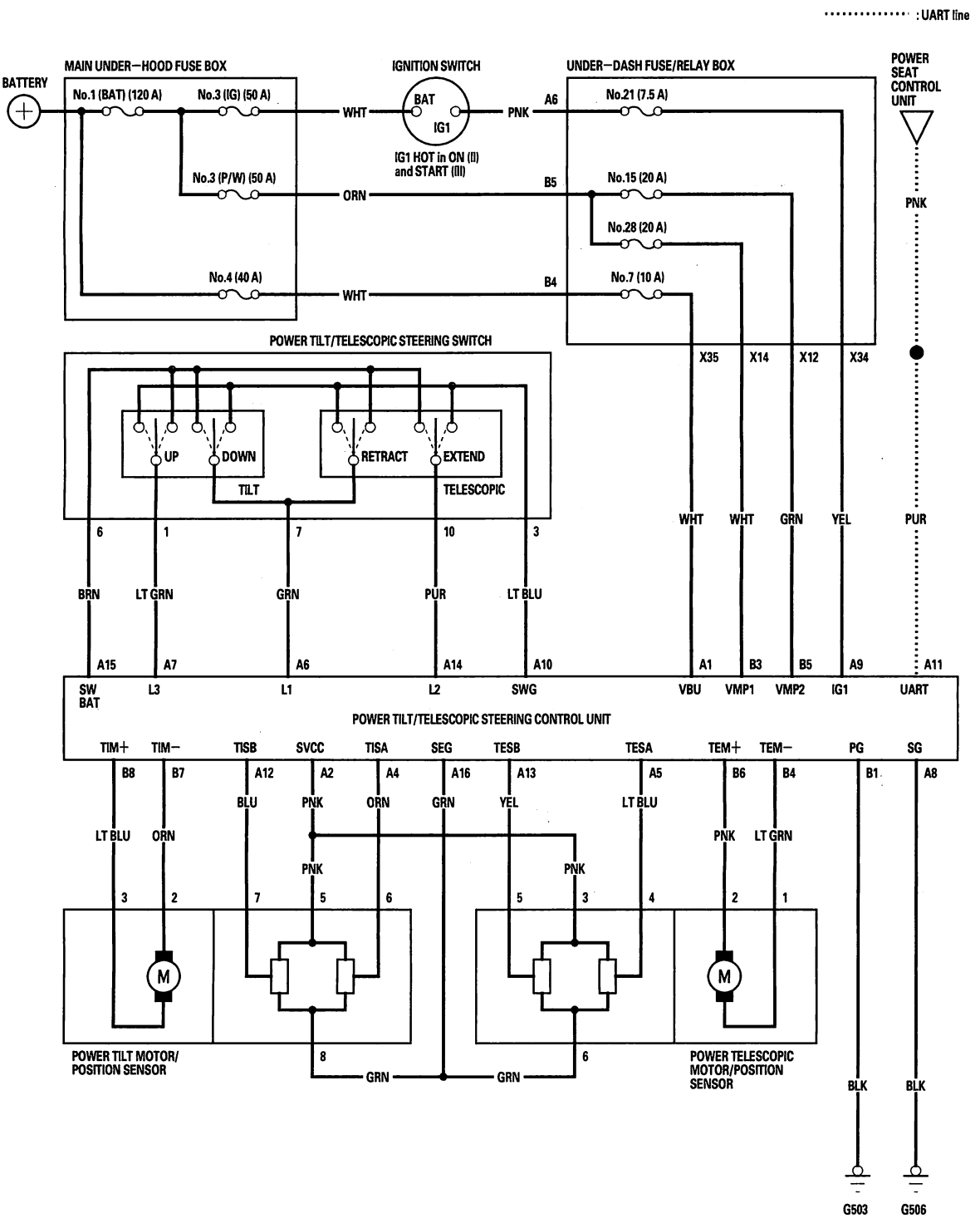
Circuit Diagram - Power Tilt/Telescopic Steering



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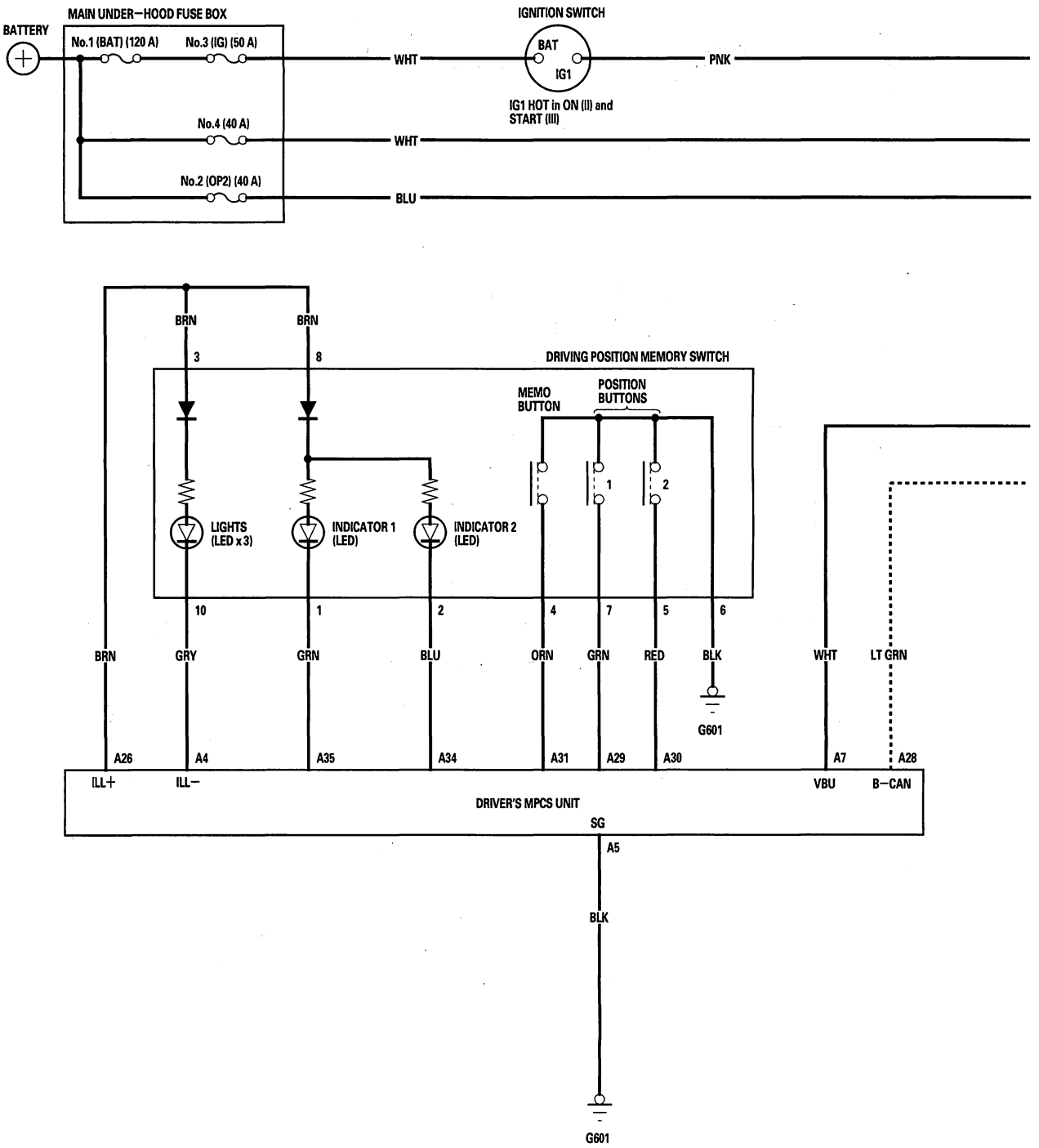
Driving Position Memory System (DPMS)

Circuit Diagram - Power Seat



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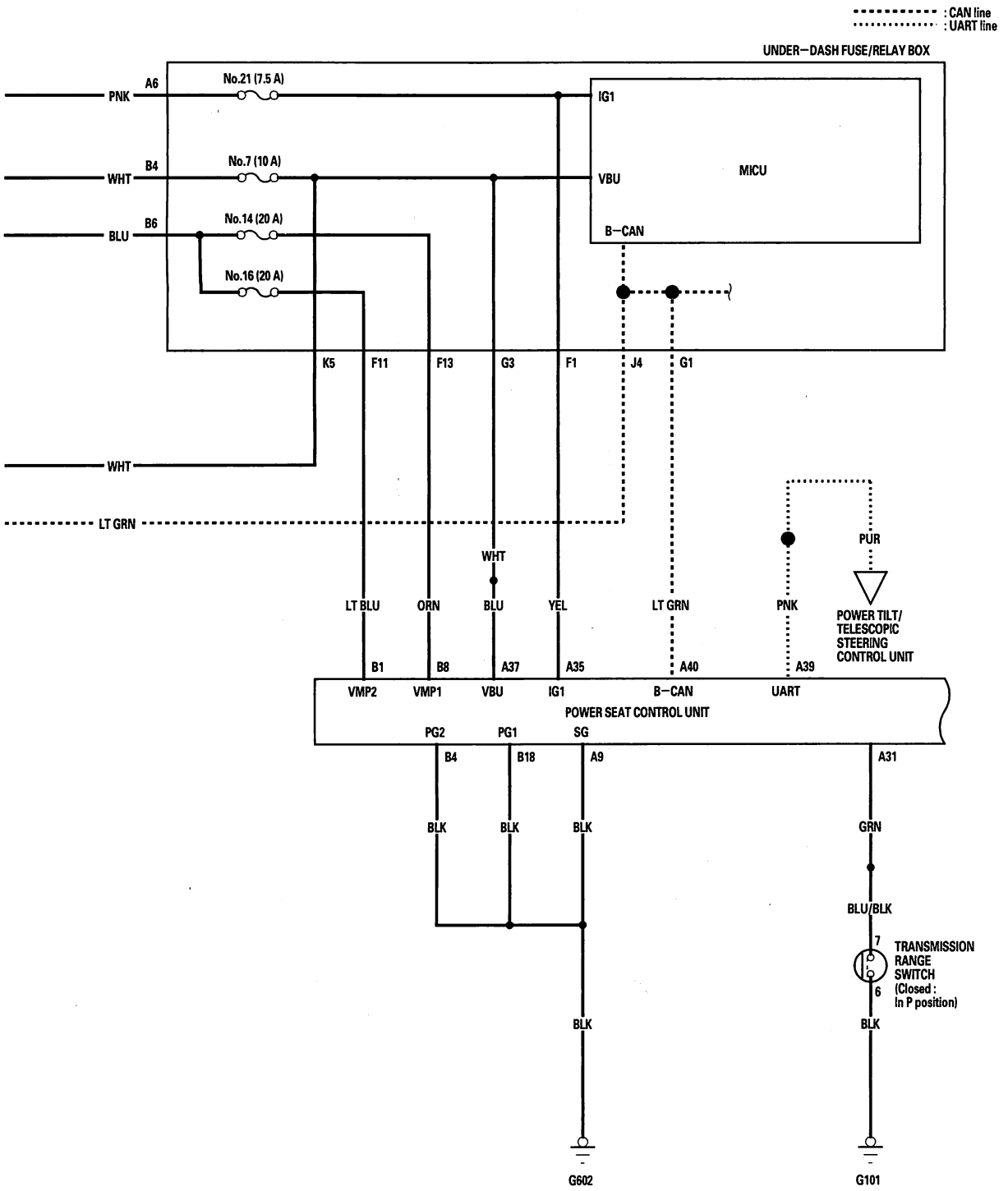

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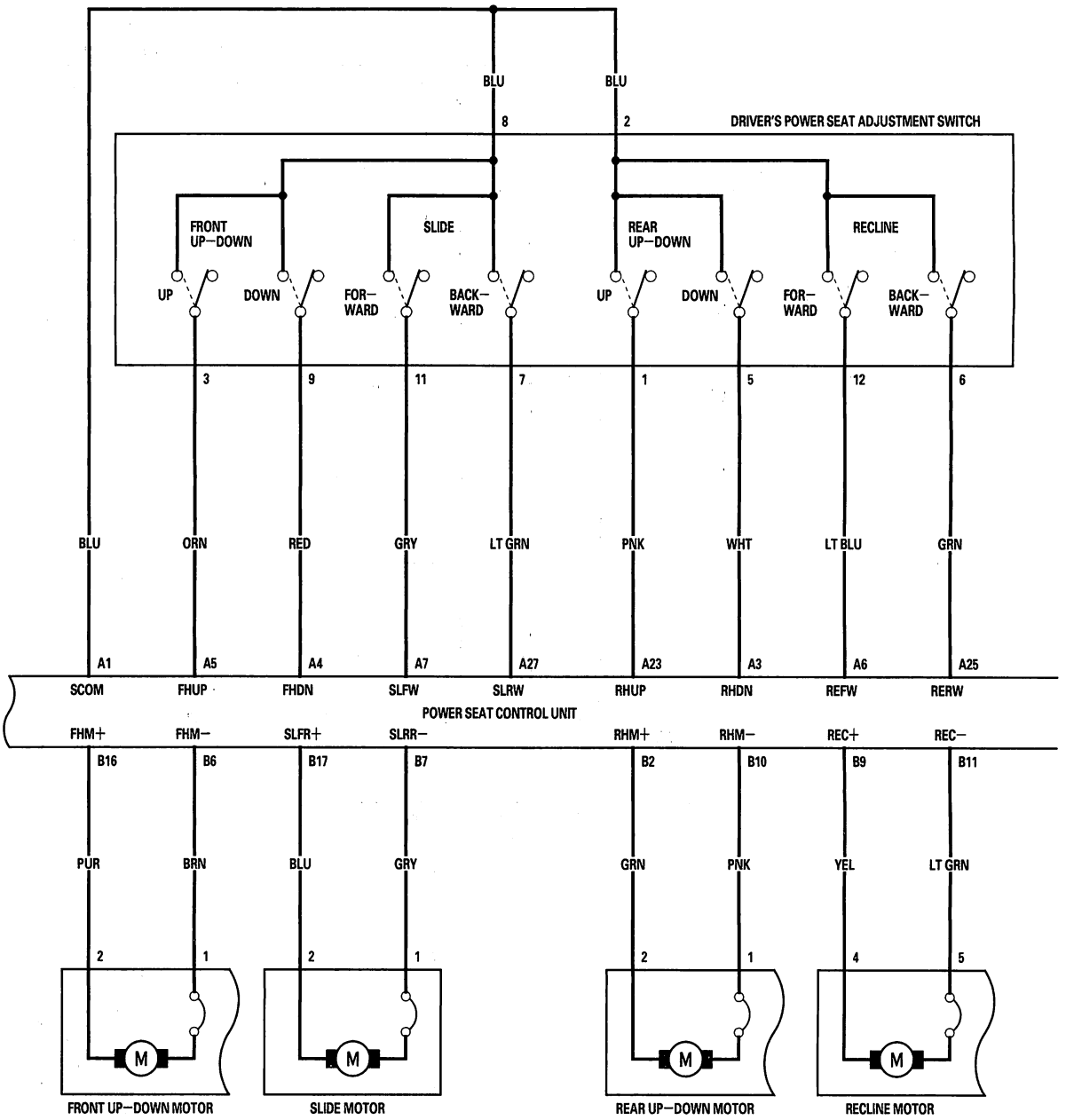
Driving Position Memory System (DPMS)

Circuit Diagram - Power Seat (cont'd)



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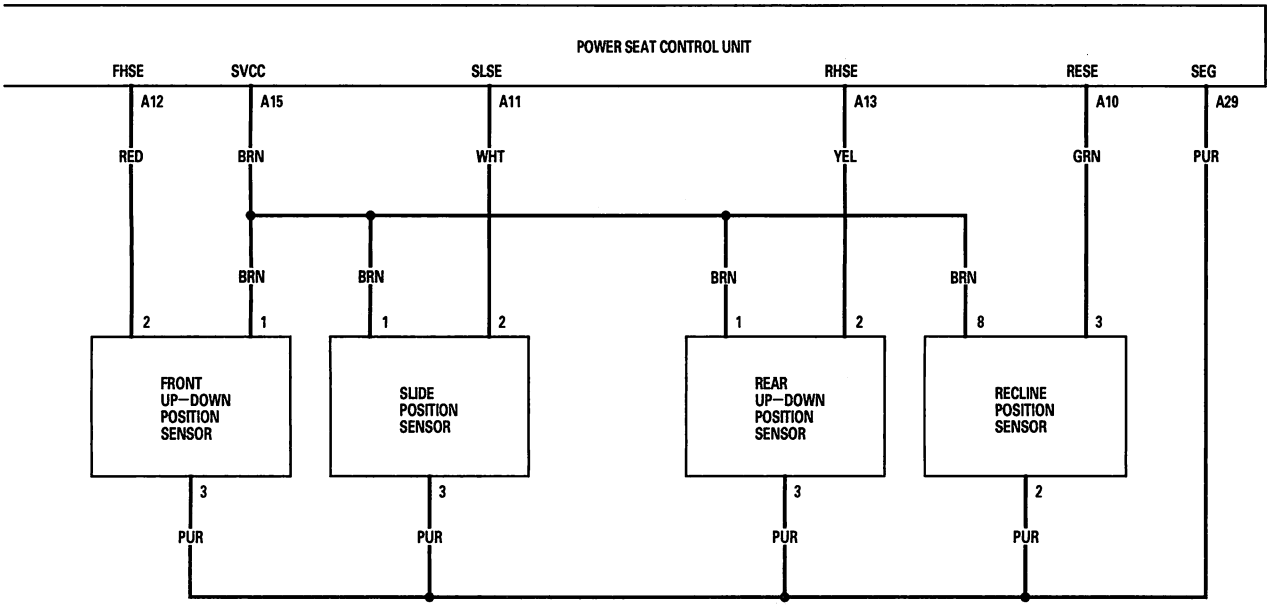

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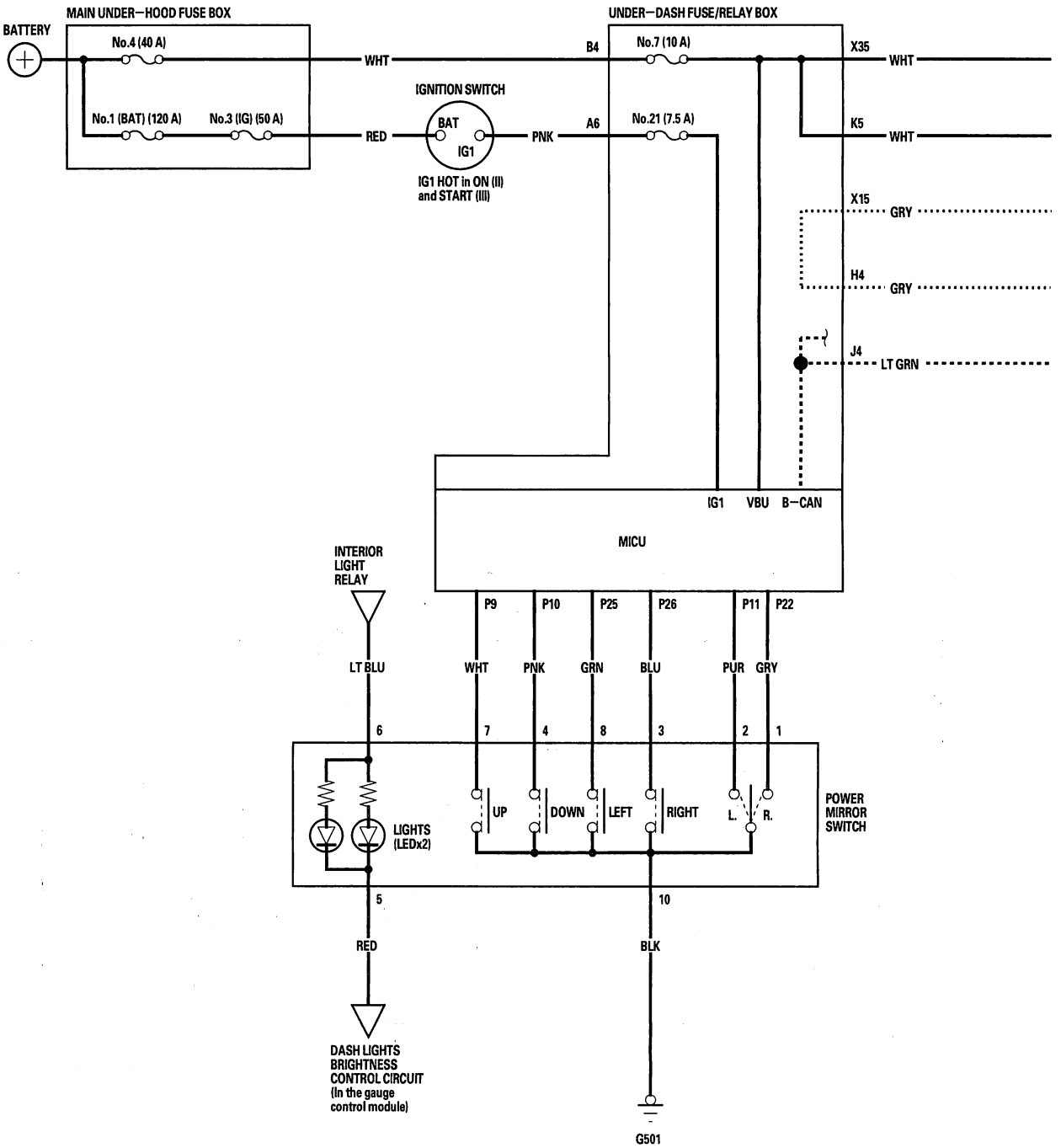
Driving Position Memory System (DPMS)

Circuit Diagram - Power Mirror



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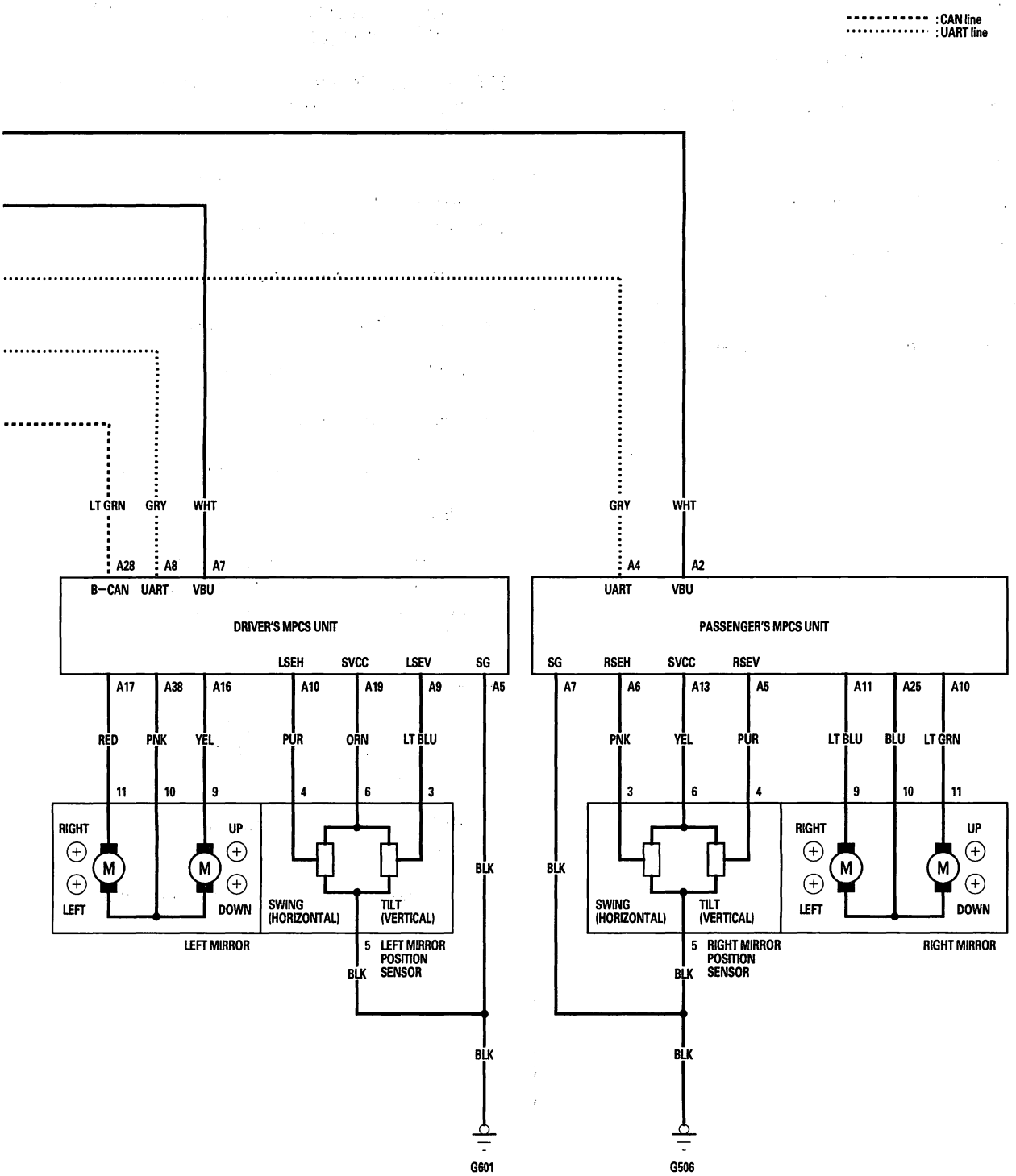

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DTC Troubleshooting

DTC B1802: Power Seat Control Unit Internal (EEPROM) Error

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1802 indicated?

   YES—Replace the power seat control unit. ■

   NO—Intermittent failure, the system is OK at this time. ■

DTC B1805: Power Seat Control Unit Lost Communication with Gauge Control Module (VSP/NE Message)

DTC B1808: Power Seat Control Unit Lost Communication with Gauge Control Module (A/T Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1805 and/or B1808 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power seat control unit and the gauge control module. ■

5. Check for DTCs with the HDS.

   Are DTCs B1011, B1060, B1061, B1205, B1357, B1359, B1408, B1805, B1806, B1906, and B2160 also indicated?

   YES—Do the gauge control module input test (see page 22-334). ■

   NO—Replace the power seat control unit. ■

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DTC B1806: Power Seat Control Unit Lost Communication with MICU (MICU Message)

DTC B1810: Power Seat Control Unit Lost Communication with MICU (MIRRORSW Message)

DTC B1811: Power Seat Control Unit Lost Communication with MICU (DOORSW Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1806, B1810, and/or B1811 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connection between the power seat control unit and the MICU. ■
5. Check for DTCs with the HDS.

   Are DTCs B1055, B1057, B1157, B1159, B1255, B1355, B1955, B2155, B2156, and B2161 also indicated?

   YES—Do the MICU input test (see page 22-132). ■

   NO—Do the power seat control unit input test (see page 22-477). ■

DTC B1812: Power Seat Control Unit Lost Communication with Driver's MPCS Unit (MEMSW Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1812 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power seat control unit and the driver's MPCS unit. ■
5. Check for DTCs with the HDS.

   Are DTCs B1013, B1015, B1065, B1182, B1356, B1358, and B1905 also indicated?

   YES—Do the driver's MPCS unit input test (see page 22-278). ■

   NO—Do the power seat control unit input test (see page 22-477). ■

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DTC Troubleshooting (cont'd)

DTC B1825: Power Seat Slide Motor Pulse Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

DTC B1825 is stored when the slide switch is operated more than 1 second after the seat slides to the most forward or most backward position, even when the system is OK.

1. Turn the ignition switch OFF and then back ON (II).
2. Clear the DTCs with the HDS.
3. Operate the power seat adjustment switch in all directions for more than 1 second each.
4. Check for DTCs with the HDS.

   Is DTC B1825 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the slide position sensor is OK at this time. Check for loose or poor connections at the power seat control unit connector.■
5. Check for DTCs with the HDS.

   Is DTC B1836 also indicated?

   YES—Troubleshoot B1836 first.■

   NO—Go to step 6.
6. Check for DTCs with the HDS.

   Are DTCs B1826, B1827 and/or B1828 also indicated?

   YES—Go to step 17.

   NO—Go to step 7.
7. Turn the ignition switch OFF, and then back ON (II).
8. Operate the slide switch for 2 seconds, and check the slide motor operation.

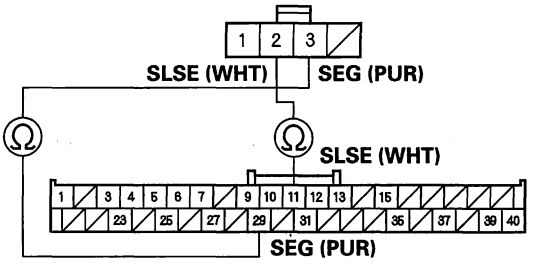
   Does the slide motor run smoothly?

   YES—Go to step 9.

   NO—Go to step 26.
9. Turn the ignition switch OFF.
10. Disconnect the power seat control unit connector A (40P).
11. Disconnect the slide position sensor 4P connector.
12. Check for continuity between the power seat control unit connector A (40P) terminals No. 11 and No. 29 and the slide position sensor 4P connector No. 2 and No. 3 terminals respectively.

SLIDE POSITION SENSOR 4P CONNECTOR

Wire side of female terminals



Wire side of female terminals

POWER SEAT CONTROL UNIT CONNECTOR A (40P)

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire.■

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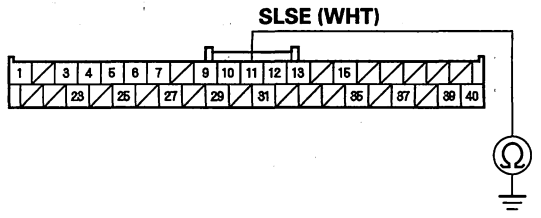
13. Check for continuity between body ground and the power seat control unit connector A (40P) No. 11 terminal.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

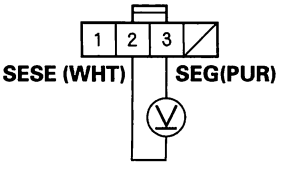
NO—Go to step 14.

14. Reconnect power seat control unit connector A (40P).

15. Turn the ignition switch ON (II).

16. Measure the voltage between the slide position sensor 4P connector No. 2 (+) and No. 3 (−) terminals.

SLIDE POSITION SENSOR 4P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Faulty slide position sensor, replace the slide motor. ■

NO—If there is no voltage, replace the power seat control unit. If there is battery voltage, repair a short in the wire (sensor line). ■

17. Turn the ignition switch OFF.

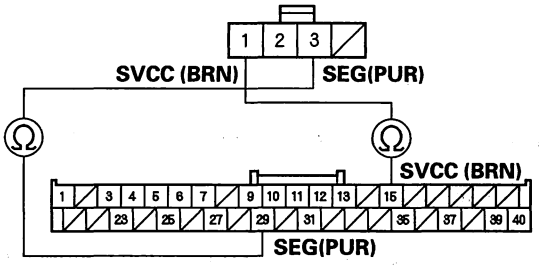
18. Disconnect power seat control unit connector A (40P).

19. Disconnect the slide position sensor 4P connector.

20. Check for continuity between the power seat control unit connector A (40P) No. 15 and No. 29 terminals and the slide position sensor 4P connector No. 1 and No. 3 terminals respectively.

SLIDE POSITION SENSOR 4P CONNECTOR

Wire side of female terminals



POWER SEAT CONTROL UNIT CONNECTOR A (40P)

Wire side of female terminals

Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire. ■

21. Disconnect the 4P connector from the front up-down position sensor and the rear up-down position sensor, then disconnect the recline motor/ lumbar support motor 8P connector.

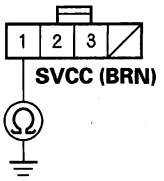
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

22. Check for continuity between body ground and the slide position sensor 4P connector No. 1 terminal.

SLIDE POSITION SENSOR 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

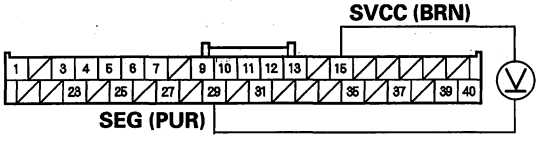
NO—Go to Step 23.

23. Reconnect the power seat control unit connector A (40P).

24. Turn the ignition switch ON (II).

25. Measure the voltage the between power seat control unit connector A (40P) No. 15 and No. 29 terminals.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there battery voltage when the slide switch is operated?

YES—Replace the slide motor/position sensor. ■

NO—Replace the power seat control unit. ■

26. Turn the ignition switch OFF.

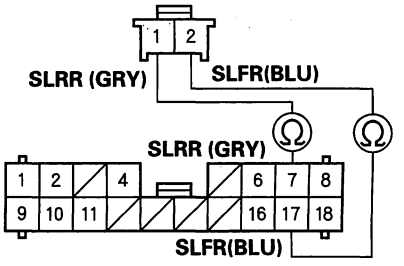
27. Disconnect the power seat control unit connector B (18P).

28. Disconnect the slide motor 2P connector.

29. Check for continuity between the power seat control unit connector B (18P) No. 7 and No. 17 terminals and the slide motor 2P connector No. 1 and No. 2 terminals respectively.

SLIDE MOTOR 2P CONNECTOR

Wire side of female terminals



POWER SEAT CONTROL UNIT CONNECTOR B (18P)

Wire side of female terminals

Is there continuity?

YES—Go to step 30.

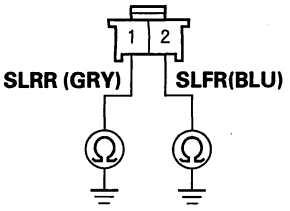
NO—Repair open in the wire. ■

BACK

Protected by AR

30. Check for continuity between body ground and the slide motor 2P connector No. 1 and No. 2 terminals individually.

SLIDE MOTOR 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

NO—Go to step 31.

31. Test the slide motor (see page 22-486).

Is the motor OK?

YES—Replace the power seat control unit. ■

NO—Replace the slide motor/position sensor. ■

Protected by AR

DTC Troubleshooting (cont'd)

DTC B1826: Power Seat Front Up-down Motor Pulse Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

DTC B1826 is stored when the front up-down switch is operated more than 1 second after the seat moves to the most up or most down position, even when the system is OK.

1. Turn the ignition switch OFF and then back ON (II).
2. Clear the DTCs with the HDS.
3. Operate the power seat adjustment switch in all directions for more than 1 second each.
4. Check for the DTCs with the HDS.

   Is DTC B1826 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the front up-down motor/position sensor is OK at this time. Check for loose or poor connections at the power seat control unit connectors.■
5. Check for DTCs with the HDS.

   Is DTC B1836 also indicated?

   YES—Troubleshoot B1836 first.■

   NO—Go to step 6.
6. Check for DTCs with the HDS.

   Are DTCs B1825, B1827 and/or B1828 also indicated?

   YES—Go to step 17.

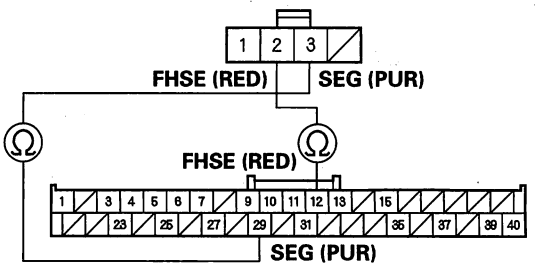
   NO—Go to step 7.
7. Turn the ignition switch OFF, and then back ON (II).
8. Operate the front up-down switch for 2 seconds, and check the front up-down motor operation.

   Does the front up-down motor run smoothly?

   YES—Go to step 9.

   NO—Go to step 26.
9. Turn the ignition switch OFF.
10. Disconnect the power seat control unit connector A (40P).
11. Disconnect the front up-down position sensor 4P connector.
12. Check for continuity between the power seat control unit connector A (40P) No. 12 and No. 29 terminals and the front up-down position sensor 4P connector No. 2 and No. 3 terminals respectively.

FRONT UP-DOWN POSITION SENSOR 4P CONNECTOR
Wire side of female terminals



POWER SEAT CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals

Is there continuity?

YES—Go to step 13.

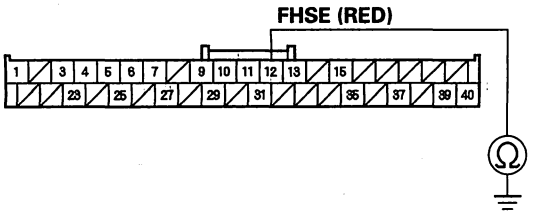
NO—Repair open in the wire.■

BACK

Protected by AR

13. Check for continuity between the power seat control unit connector A (40P) No. 12 terminal and body ground.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

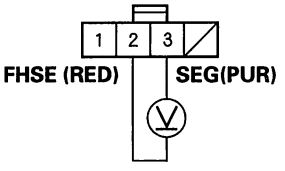
NO—Go to step 14.

14. Reconnect power seat control unit connector A (40P).

15. Turn the ignition switch ON (II).

16. Measure the voltage between the front up-down position sensor 4P connector No. 2 (+) and No. 3 (−) terminals.

FRONT UP-DOWN POSITION SENSOR 4P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Faulty front up-down position sensor, replace the front up-down motor. ■

NO—If there is no voltage, replace the power seat control unit. If there is battery voltage, repair a short in the wire (sensor line). ■

17. Turn the ignition switch OFF.

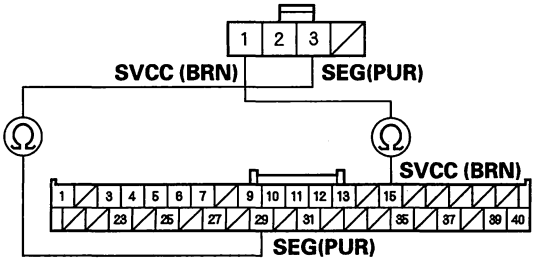
18. Disconnect the power seat control unit connector A (40P).

19. Disconnect the front up-down position sensor 4P connector.

20. Check for continuity between the power seat control unit connector A (40P) No. 15 and No. 29 terminals and the front up-down position sensor 4P connector No. 1 and No. 3 terminals respectively.

FRONT UP-DOWN POSITION SENSOR 4P CONNECTOR

Wire side of female terminals



POWER SEAT CONTROL UNIT CONNECTOR A (40P)

Wire side of female terminals

Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire. ■

21. Disconnect the 4P connector from the slide position sensor and the rear up-down position sensor, then disconnect the recline motor/lumbar support motor 8P connector.

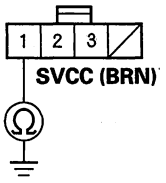
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

22. Check for continuity between body ground and the front up-down position sensor 4P connector No. 1 terminal.

FRONT UP-DOWN POSITION SENSOR 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire.■

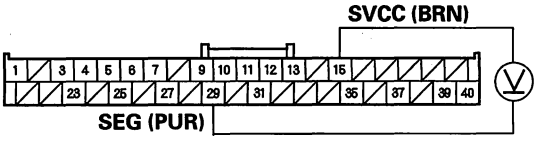
NO—Go to step 23.

23. Reconnect power seat control unit connector A (40P).

24. Turn the ignition switch ON (II).

25. Measure the voltage between the power seat control unit connector A (40P) No. 15 and No. 29 terminals.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there battery voltage when the front up-down switch is operated?

YES—Replace the front up-down motor/position sensor.■

NO—Replace the power seat control unit.■

26. Turn the ignition switch OFF.

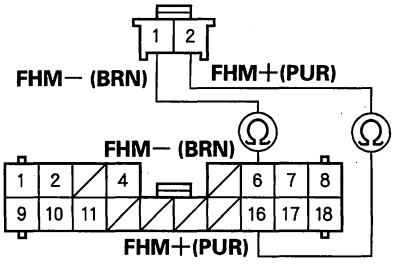
27. Disconnect the power seat control unit connector B (18P).

28. Disconnect the front up-down motor 2P connector.

29. Check for continuity between the power seat control unit connector B (18P) No. 6 and No. 16 terminals and the front up-down motor 2P connector No. 1 and No. 2 terminals respectively.

FRONT UP-DOWN MOTOR 2P CONNECTOR

Wire side of female terminals



POWER SEAT CONTROL UNIT CONNECTOR B (18P)

Wire side of female terminals

Is there continuity?

YES—Go to step 30.

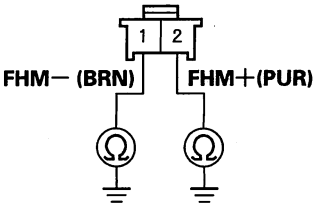
NO—Repair open in the wire.■

BACK

Protected by AR

30. Check for continuity between body ground and the front up-down motor 2P connector No. 1 and No. 2 terminals individually.

FRONT UP-DOWN MOTOR 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire.■

NO—Go to step 31.

31. Test the front up-down motor (see page 22-486).

Is the motor OK?

YES—Replace the power seat control unit.■

NO—Replace the front up-down motor/position sensor.■

Protected by AR

DTC Troubleshooting (cont'd)

DTC B1827: Power Seat Rear Up-down Motor Pulse Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

DTC B1827 is stored when the rear up-down switch is operated more than 1 second after the seat moves to the most up or most down position, even when the system is OK.

1. Turn the ignition switch OFF and then back ON (II).
2. Clear the DTCs with the HDS.
3. Operate the power seat adjustment switch in all directions for more than 1 second each.
4. Check for the DTCs with the HDS.

   Is DTC B1827 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the rear up-down motor/position sensor is OK at this time. Check for loose or poor connections at the power seat control unit connectors.■
5. Check for DTCs with the HDS.

   Is DTC B1836 also indicated?

   YES—Troubleshoot B1836 first.■

   NO—Go to step 6.
6. Check for DTCs with the HDS.

   Are DTCs B1825, B1826, and/or B1828 also indicated?

   YES—Go to step 17.

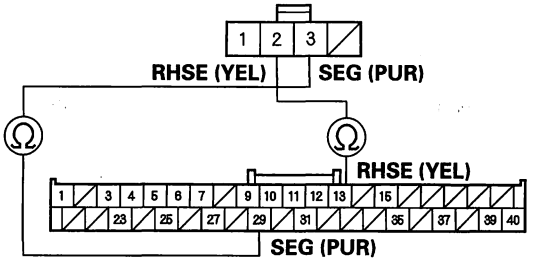
   NO—Go to step 7.
7. Turn the ignition switch OFF, and then back ON (II).
8. Operate the rear up-down switch for 2 seconds, and check the rear up-down motor operation.

   Does the rear up-down motor run smoothly?

   YES—Go to step 9.

   NO—Go to step 26.
9. Turn the ignition switch OFF.
10. Disconnect the power seat control unit connector A (40P).
11. Disconnect the rear up-down position sensor 4P connector.
12. Check for continuity between the power seat control unit connector A (40P) No. 13 and No. 29 terminals and the rear up-down position sensor 4P connector No. 2 and No. 3 terminals respectively.

REAR UP-DOWN POSITION SENSOR 4P CONNECTOR
Wire side of female terminals



POWER SEAT CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals

Is there continuity?

YES—Go to step 13.

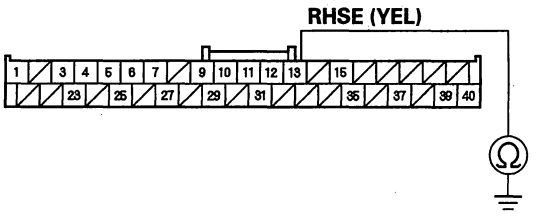
NO—Repair open in the wire.■

BACK

Protected by AR

13. Check for continuity between the power seat control unit connector A (40P) No. 13 terminal and body ground.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

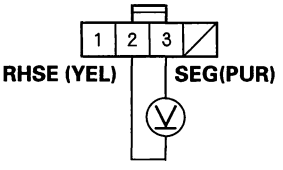
NO—Go to step 14.

14. Reconnect the power seat control unit connector A (40P).

15. Turn the ignition switch ON (II).

16. Measure the voltage between the rear up-down position sensor 4P connector No. 2 (+) and No. 3 (−) terminals.

REAR UP-DOWN POSITION SENSOR 4P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Faulty rear up-down position sensor, replace the rear up-down motor. ■

NO—If there is no voltage, replace the power seat control unit. If there is battery voltage, repair a short in the wire (sensor line). ■

17. Turn the ignition switch OFF.

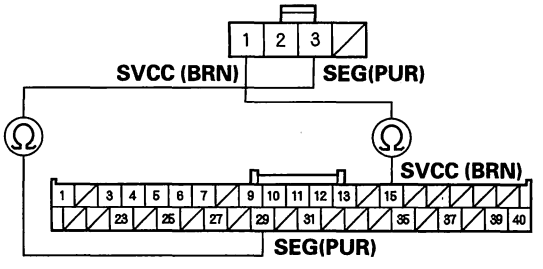
18. Disconnect the power seat control unit connector A (40P).

19. Disconnect the rear up-down position sensor 4P connector.

20. Check for continuity between the power seat control unit connector A (40P) No. 15 and No. 29 terminals and the rear up-down position sensor 4P connector No. 1 and No. 3 terminals respectively.

REAR UP-DOWN POSITION SENSOR 4P CONNECTOR

Wire side of female terminals



POWER SEAT CONTROL UNIT CONNECTOR A (40P)

Wire side of female terminals

Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire. ■

21. Disconnect the 4P connector from the slide position sensor and the front up-down position sensor, then disconnect the recline motor/lumbar support motor 8P connector.

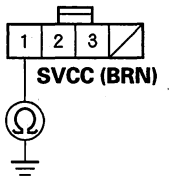
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

22. Check for continuity between body ground and the rear up-down position sensor 4P connector No. 1 terminal.

REAR UP-DOWN POSITION SENSOR 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire.■

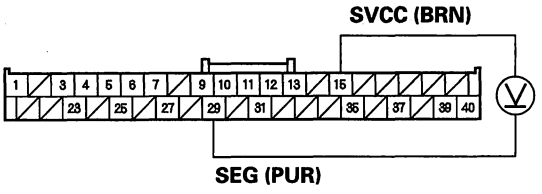
NO—Go to step 23.

23. Reconnect the power seat control unit connector A (40P).

24. Turn the ignition switch ON (II).

25. Measure the voltage between the power seat control unit connector A (40P) No. 15 and No. 29 terminals.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there battery voltage when the rear up-down switch is operated?

YES—Replace the rear up-down motor/position sensor.■

NO—Replace the power seat control unit.■

26. Turn the ignition switch OFF.

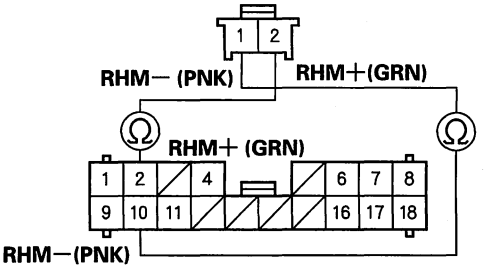
27. Disconnect the power seat control unit connector B (18P).

28. Disconnect the rear up-down motor 2P connector.

29. Check for continuity between the power seat control unit connector B (18P) No. 2 and No. 10 terminals and the rear up-down motor 2P connector No. 1 and No. 2 terminals respectively.

REAR UP-DOWN MOTOR 2P CONNECTOR

Wire side of female terminals



POWER SEAT CONTROL UNIT CONNECTOR B (18P)

Wire side of female terminals

Is there continuity?

YES—Go to step 30.

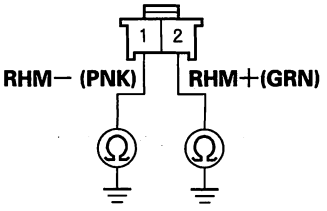
NO—Repair open in the wire.■

BACK

Protected by AR

30. Check for continuity between body ground and the rear up-down motor 2P connector No. 1 and No. 2 terminals individually.

REAR UP-DOWN MOTOR 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 31.

31. Test the rear up-down motor (see page 22-486).

Is the motor OK?

YES—Replace the power seat control unit. ■

NO—Replace the rear up-down motor/position sensor. ■

Protected by AR

DTC Troubleshooting (cont'd)

DTC B1828: Power Seat Recline Motor Pulse Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

DTC B1828 is stored when the recline switch is operated more than 1 second after the seat back reclines to the most forward or most backward position, even when the system is OK.

1. Turn the ignition switch OFF and then back ON (II).
2. Clear the DTCs with the HDS.
3. Operate the power seat adjustment switch in all directions for more than 1 second each.
4. Check for the DTCs with the HDS.

   Is DTC B1828 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the recline motor/position sensor is OK at this time. Check for loose or poor connections at the power seat control unit connector.■
5. Check for DTCs with the HDS.

   Is DTC B1836 also indicated?

   YES—Troubleshoot B1836 first.■

   NO—Go to step 6.
6. Check for DTCs with the HDS.

   Are DTCs B1825, B1826, and/or B1827 also indicated?

   YES—Go to step 17.

   NO—Go to step 7.
7. Turn the ignition switch OFF, and then back ON (II).
8. Operate the recline switch for 2 seconds, and check the recline motor operation.

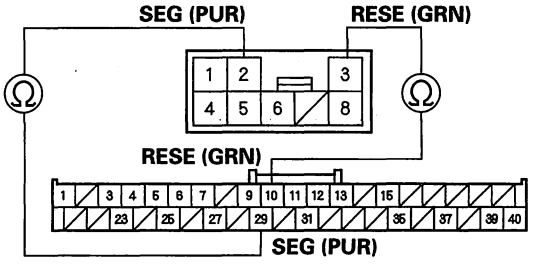
   Does the recline motor run smoothly?

   YES—Go to step 9.

   NO—Go to step 26.
9. Turn the ignition switch OFF.
10. Disconnect the power seat control unit connector A (40P).
11. Disconnect the recline motor/lumbar support motor subharness 8P connector.
12. Check for continuity between the power seat control unit connector A (40P) No. 10 and No. 29 terminals and the recline motor/lumbar support motor subharness 8P connector No. 2 and No. 3 terminals respectively.

RECLINE MOTOR/LUMBAR SUPPORT MOTOR SUBHARNESS 8P CONNECTOR

Terminal side of male terminals



POWER SEAT CONTROL UNIT CONNECTOR A (40P)

Wire side of female terminals

Is there continuity?

YES—Go to step 13.

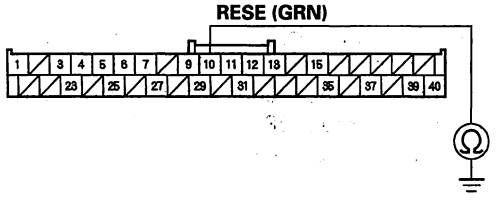
NO—Repair open in the wire.■

BACK

Protected by AR

13. Check for continuity between the power seat control unit connector A (40P) No. 10 terminal and body ground.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

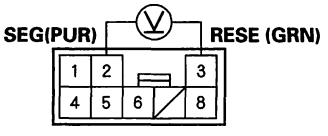
NO—Go to step 14.

14. Reconnect power seat control unit connector A (40P).

15. Turn the ignition switch ON (II).

16. Measure the voltage between the recline motor/lumbar support motor subharness 8P connector No. 3 (+) and No. 2 (—) terminals.

RECLINE MOTOR/LUMBAR SUPPORT MOTOR SUBHARNESS 8P CONNECTOR



Terminal side of male terminals

Is there about 5 V?

YES—Check for an open/short in the wire of the recline motor/lumbar support motor subharness. If the harness is OK, replace the recline motor/position sensor. ■

NO—If there is no voltage, replace the power seat control unit. If there is battery voltage, repair short in the wire (sensor line). ■

17. Turn the ignition switch OFF.

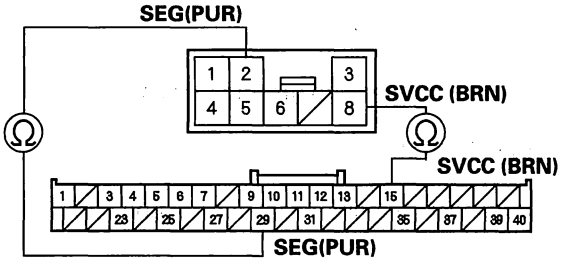
18. Disconnect the power seat control unit connector A (40P).

19. Disconnect the recline motor/lumbar support motor subharness 8P connector.

20. Check for continuity between the power seat control unit connector A (40P) No. 15 and No. 29 terminals and the recline motor/lumbar support motor subharness 8P connector No. 2 and No. 8 terminals respectively.

RECLINE MOTOR/LUMBAR SUPPORT MOTOR SUBHARNESS 8P CONNECTOR

Terminal side of male terminals



POWER SEAT CONTROL UNIT CONNECTOR A (40P)

Wire side of female terminals

Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire. ■

21. Disconnect the 4P connector from the slide position sensor, the front up-down position sensor, and the rear up-down position sensor.

(cont'd)

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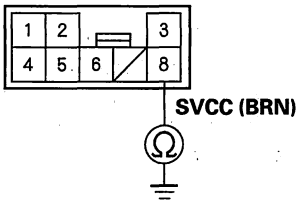
DTC Troubleshooting (cont'd)

22. Check for continuity between body ground and the recline motor/lumbar support subharness 8P connector No. 8 terminal.

RECLINE MOTOR/LUMBAR SUPPORT MOTOR SUBHARNESS 8P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair short to ground in the wire.■

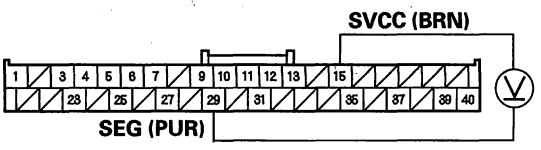
NO—Go to step 23.

23. Reconnect the power seat control unit connector A (40P).

24. Turn the ignition switch ON (II).

25. Measure the voltage between the power seat control unit connector A (40P) No. 15 and No. 29 terminals.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there battery voltage when the recline switch is operated?

YES—Replace the recline motor/position sensor.■

NO—Replace the power seat control unit.■

26. Turn the ignition switch OFF.

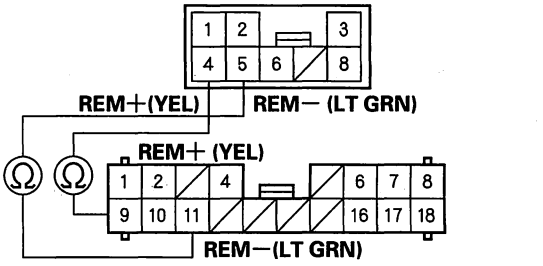
27. Disconnect the power seat control unit connector B (18P).

28. Disconnect the recline motor/lumbar support motor subharness 8P connector.

29. Check for continuity between the power seat control unit connector B (18P) No. 9 and No. 11 terminals and the recline motor/lumbar support motor subharness 8P connector No. 4 and No. 5 terminals respectively.

RECLINE MOTOR/LUMBAR SUPPORT MOTOR SUBHARNESS 8P CONNECTOR

Terminal side of male terminals



POWER SEAT CONTROL UNIT CONNECTOR B (18P)

Wire side of female terminals

Is there continuity?

YES—Go to step 30.

NO—Repair open in the wire.■

BACK

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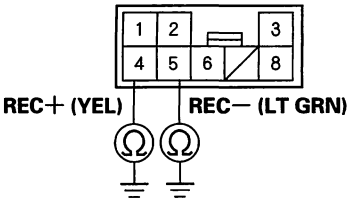
30. Check for continuity between body ground and the recline motor/lumbar support motor subharness 8P connector No. 4 and No. 5 terminals individually.

RECLINE MOTOR/LUMBAR SUPPORT MOTOR SUBHARNESS 8P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

NO—Go to step 31.

31. Test the recline motor (see page 22-486).

Is the motor OK?

YES—Replace the power seat control unit. ■

NO—Replace the recline motor/position sensor. ■

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DTC Troubleshooting (cont'd)

DTC B1829: A/T P Signal and VSS Signal Mismatch

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Start the engine.
3. Test drive at 6 mph (10 km/h) for 10 seconds.
4. Check for the DTCs with the HDS.

   Is DTC B1829 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections at the power seat control unit connector. ■
5. Check the P indicator of the shift position indicator and the MIL.

   Does the P indicator and MIL come on?

   YES—Troubleshoot the automatic transmission system. ■

   NO—Go to step 6.
6. Check for the gauge control module DTCs with the HDS.

   Are there any DTCs indicated?

   YES—Troubleshoot the gauge control module. ■

   NO—Replace the power seat control unit. ■

BACK

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DTC B1835: Tilt/Telescopic Switch Signal Input Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then back ON (II).
3. Operate the tilt/telescopic switch in each direction for more than 3 seconds each.
4. Check for DTCs with the HDS.

   Is DTC B1835 indicated?

   YES—Go to step 5.

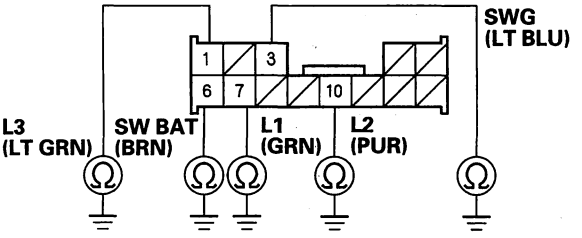
   NO—Intermittent failure. The power tilt/telescopic steering system is OK at this time. Check for loose or poor connections at the tilt/telescopic switch connector and at the power tilt/telescopic control unit connector. ■
5. Turn the ignition switch OFF.
6. Test the tilt/telescopic switch (see page 22-488).

   Is the switch OK?

   YES—Go to step 7.

   NO—Replace the switch. ■
7. Disconnect power tilt/telescopic steering control unit connector A (16P).
8. Disconnect the tilt/telescopic switch 13P connector.
9. Check for continuity between body ground and tilt/telescopic switch 13P connector terminals No. 1, No. 3, No. 6, No. 7, and No. 10 individually.

TILT/TELESCOPIC SWITCH 13P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 10.

(cont'd)

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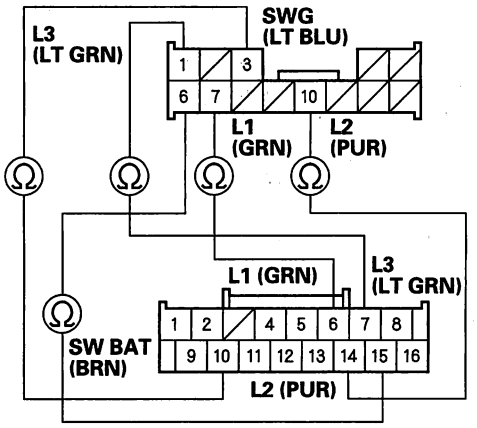
DTC Troubleshooting (cont'd)

10. Check for continuity between power tilt/telescopic steering control unit connector A (16P) terminals No. 7, No. 6, No. 10, No. 14, and No. 15 and the tilt/telescopic switch 13P connector terminals No. 1, No. 7, No. 3, No. 10, and No. 6 respectively.

TILT/TELESCOPIC SWITCH 13P CONNECTOR
Wire side of female terminals



POWER TILT/TELESCOPIC STEERING CONTROL UNIT CONNECTOR A (16P)
Wire side of female terminals

Is there continuity?

YES—Replace the power tilt/telescopic steering control unit. ■

NO—Repair open in the wire. ■

BACK

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DTC B1836: Power Seat Position Sensor Circuit Short

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

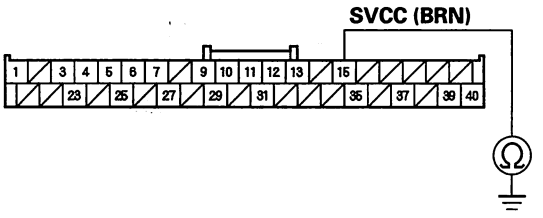
1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF and then back ON (II).
3. Operate the power seat adjustment switch in all direction for more than 1 second each.
4. Check for DTCs with the HDS.

   Is DTC B1836 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the driving position memory system is OK at this time. Check for loose or poor connections at the power sear control unit connectors. ■
5. Turn the ignition switch OFF.
6. Disconnect power seat control unit connector A (40P).
7. Disconnect the 4P connectors from the slide position sensor, the front up-down position sensor, and the rear up-down position sensor, and disconnect the 8P connector from the recline motor/lumber support motor subharness.
8. Check for continuity between power seat control unit connector A (40P) terminal No. 15 and body ground.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

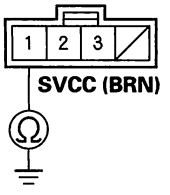
Is there continuity?

YES—Repair short to ground in the wire. ■

NO—Go to step 9.

9. Check for continuity between body ground (motor body) and the No. 1 terminal of the slide position sensor, the front up-down position sensor, and the rear up-down position sensor.

SLIDE POSITION SENSOR CONNECTOR (3P)
FRONT UP-DOWN POSITION SENSOR CONNECTOR (3P)
REAR UP-DOWN POSITION SENSOR CONNECTOR (3P)



Terminal side of male terminals

Is there continuity?

YES—Replace the motor/position sensor that has continuity. ■

NO—Go to step 10.

(cont'd)

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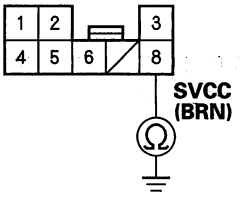
DTC Troubleshooting (cont'd)

10. Check for continuity between body ground (seat frame) and the No. 8 terminal of the recline motor/lumber support motor subharness.

RECLINE MOTOR/LUMBAR SUPPORT MOTOR 8P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Check for a short to ground in the wire of the recline motor/lumber support motor subharness. If the harness is bad, repair it, if the harness is OK, replace the recline motor/position sensor. ■

NO—Replace the power seat control unit. ■

BACK

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DTC B1837: Driving Position Memory Recall Timeout

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTC with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Move the steering position to the full tilt up and full telescopic out positions with the power tilt/telescopic steering switch.
4. Move both power mirrors to the full up and full left positions with the power mirror switch.
5. Move the power seat to the full front up and full rear up positions, then slide the seat all the way back and completely recline the seat-back backward with the power seat adjustment switch.
6. Put this seating position into memory with the driving position memory switch.
7. Manually move the seat away from the positions just memorized.
8. Recall the memory positions with the driving position memory switch.
9. Wait for 3 minutes.
10. Check for DTCs with the HDS.

    Are any DTCs indicated?

    YES—Go to step 11.

    NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
11. Check for DTCs with the HDS.

    Are any DTCs other than B1837 indicated?

    YES—Go to the indicated DTCs troubleshooting. ■

    NO—Go to step 12.
12. Clear the DTCs with the HDS, and wait for 6 seconds.
13. Move the motors shown one at a time, and check the operation time.

    - Steering tilt motor up and down
    - Steering telescopic motor pulled and pushed
    - Power mirror actuator (up, down, left, right)
    - Power seat (slide forward/backward, recline forward/backward, front up-down, rear up-down)

    Does any motor fail to run smoothly?

    YES—Go to the failed motor test:

    - Power tilt/telescopic motor test (see page 22-488).
    - Power mirror actuator test (see page 22-374).
    - Power seat motor test (see page 22-486).

    If the motor is OK, check the engagement of the motor gear. ■

    NO—Go to the each input test:

    - Power seat control unit input test (see page 22-477). ■
    - Power tilt/telescopic steering control unit input test (see page 22-482). ■
    - Driver's MPCS unit input test (see page 22-278). ■

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DTC Troubleshooting (cont'd)

DTC B1840: Tilt Motor Pulse Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Operate the tilt switch in each direction for more than 1 second.
4. Check for DTCs with the HDS.

   Is DTC B1840 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Clear the DTCs with the HDS.

   Is DTC B1841 also indicated?

   YES—Go to step 17.

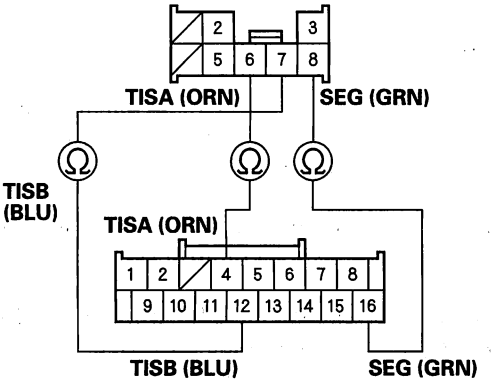
   NO—Go to step 6.
6. Clear the DTCs with the HDS.
7. Turn the ignition switch OFF, and then back ON (II).
8. Operate the tilt switch for 2 seconds, and check the tilt motor operation.

   Does the tilt motor run smoothly?

   YES—Go to step 9.

   NO—Go to step 26.
9. Turn the ignition switch OFF.
10. Disconnect power tilt/telescopic control unit connector A (16P).
11. Disconnect the tilt motor/position sensor 8P connector.
12. Check for continuity between power tilt/telescopic control unit connector A (16P) terminals No. 4, No. 12, and No.16 and tilt motor/position sensor 8P connector terminals No. 6, No. 7, and No. 8 respectively.

TILT MOTOR/POSITION SENSOR 8P CONNECTOR
Wire side of female terminals



POWER TILT/TELESCOPIC CONTROL UNIT CONNECTOR A (16P)
Wire side of female terminals

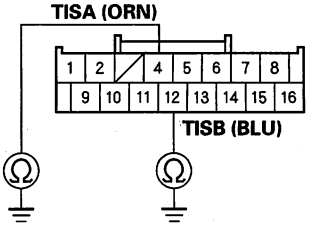
Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire.■

13. Check for continuity between body ground and power tilt/telescopic control unit connector A (16P) terminals No. 4 and No. 12 individually.

POWER TILT/TELESCOPIC CONTROL UNIT CONNECTOR A (16P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire.■

NO—Go to step 14.

BACK

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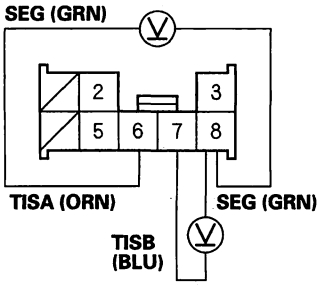
14. Reconnect power tilt/telescopic control unit connector A (16P).

15. Turn the ignition switch ON (II).

16. Measure the voltage between tilt motor/position sensor 8P connector terminals No. 6 and No. 8 and between terminals No. 7 and No. 8.

TILT MOTOR/POSITION SENSOR 8P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Faulty tilt motor/position sensor, replace the tilt motor assembly. ■

NO—If there is no voltage, replace the power tilt/telescopic control unit. If there is battery voltage, repair short in the wire. ■

17. Turn the ignition switch OFF.

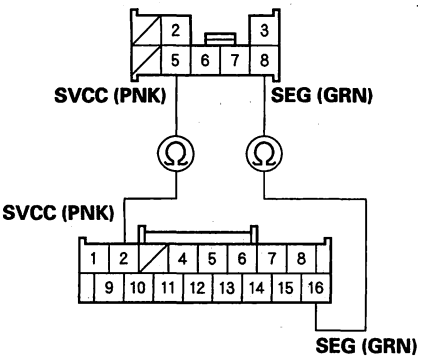
18. Disconnect power tilt/telescopic control unit connector A (16P).

19. Disconnect the tilt motor/position sensor 8P connector.

20. Check for continuity between power tilt/telescopic control unit connector A (16P) terminals No. 2 and No. 16 and tilt motor/position sensor 8P connector terminals No. 5 and No. 8 respectively.

TILT MOTOR/POSITION SENSOR 8P CONNECTOR

Wire side of female terminals



POWER TILT/TELESCOPIC CONTROL UNIT CONNECTOR A (16P)

Wire side of female terminals

Is there continuity?

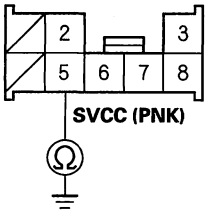
YES—Go to step 21.

NO—Repair open in the wire. ■

21. Disconnect the telescopic motor/position sensor 6P connector.

22. Check for continuity between tilt motor/position sensor 8P connector terminal No. 5 and body ground.

TILT MOTOR/POSITION SENSOR 8P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 23.

(cont'd)

BACK

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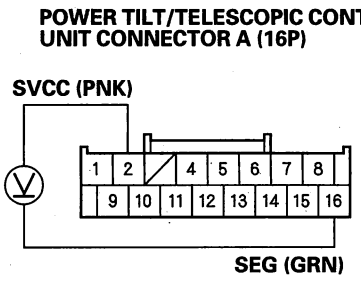
DTC Troubleshooting (cont'd)

23. Reconnect power tilt/telescopic control unit connector A (16P).

24. Turn the ignition switch ON (II).

25. Measure the voltage between power tilt/telescopic control unit connector A (16P) terminals No. 2 and No. 16.



Wire side of female terminals

Is there battery voltage when the tilt switch is operated?

YES—Faulty tilt motor/position sensor, replace the tilt motor assembly.■

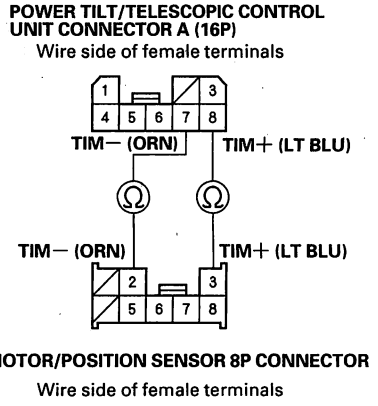
NO—Replace the power tilt/telescopic control unit.■

26. Turn the ignition switch OFF.

27. Disconnect power tilt/telescopic control unit connector B (8P).

28. Disconnect the tilt motor/position sensor 8P connector.

29. Check for continuity between power tilt/telescopic control unit connector B (8P) terminals No. 7 and No. 8 and tilt motor/position sensor 8P connector terminals No. 2 and No. 3 respectively.

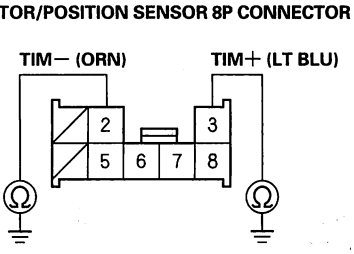


Is there continuity?

YES—Go to step 30.

NO—Repair open in the wire.■

30. Check for continuity between body ground and tilt motor/position sensor 8P connector terminals No. 2 and No. 3 individually.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire.■

NO—Go to step 31.

31. Test the tilt motor (see page 22-488).

Is the motor OK?

YES—Replace the power tilt/telescopic control unit.■

NO—Replace the tilt motor/position sensor.■

BACK

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DTC B1841: Telescopic Motor Pulse Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Operate the telescopic switch in each direction for more than 1 second.
4. Check for DTCs with the HDS.

   Is DTC B1841 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
5. Clear the DTCs with the HDS.

   Is DTC B1840 also indicated?

   YES—Go to step 17.

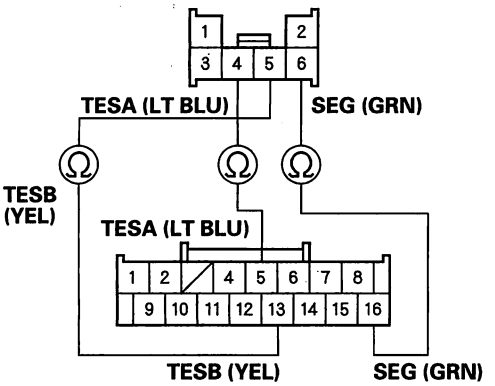
   NO—Go to step 6.
6. Clear the DTCs with the HDS.
7. Turn the ignition switch OFF and then back ON (II).
8. Operate the telescopic switch for 2 seconds, and check the telescopic motor operation.

   Does the tilt motor run smoothly?

   YES—Go to step 9.

   NO—Go to step 26.
9. Turn the ignition switch OFF.
10. Disconnect power tilt/telescopic control unit connector A (16P).
11. Disconnect the telescopic motor/position sensor 6P connector.
12. Check for continuity between power tilt/telescopic control unit connector A (16P) terminals No. 5, No. 13, and No.16 and telescopic motor/position sensor 6P connector terminals No. 4, No. 5, and No. 6 respectively.

TELESCOPIC MOTOR/POSITION SENSOR 6P CONNECTOR
Wire side of female terminals



POWER TILT/TELESCOPIC CONTROL UNIT CONNECTOR A (16P)
Wire side of female terminals

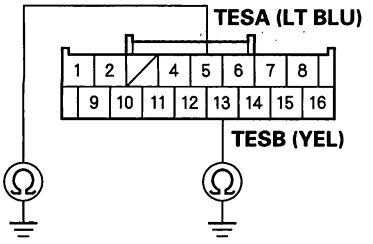
Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire. ■

13. Check for continuity between body ground and power tilt/telescopic control unit connector A (16P) terminals No. 5 and No. 13 individually.

POWER TILT/TELESCOPIC CONTROL UNIT CONNECTOR A (16P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 14.

(cont'd)

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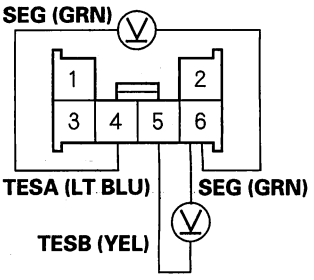
DTC Troubleshooting (cont'd)

14. Reconnect power tilt/telescopic control unit connector A (16P).

15. Turn the ignition switch ON (II).

16. Measure the voltage between telescopic motor/position sensor 6P connector terminals No. 4 and No. 6 and between terminals No. 5 and No. 6.

TELESCOPIC MOTOR/POSITION SENSOR 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Faulty telescopic motor/position sensor, replace the telescopic motor assembly. ■

NO—If there is no voltage, replace the power tilt/telescopic control unit. If there is battery voltage, repair a short in the wire. ■

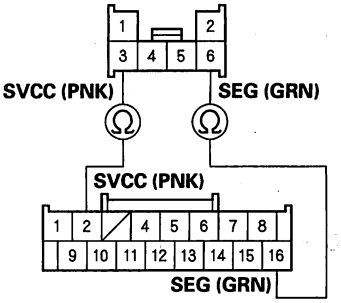
17. Turn the ignition switch OFF.

18. Disconnect power tilt/telescopic control unit connector A (16P).

19. Disconnect the telescopic motor/position sensor 6P connector.

20. Check for continuity between power tilt/telescopic control unit connector A (16P) terminals No. 2 and No. 16 and telescopic motor/position sensor 6P connector terminals No. 3 and No. 6 respectively.

TELESCOPIC MOTOR/POSITION SENSOR 6P CONNECTOR
Wire side of female terminals



POWER TILT/TELESCOPIC CONTROL UNIT CONNECTOR A (16P)
Wire side of female terminals

Is there continuity?

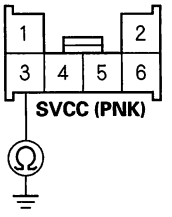
YES—Go to step 21.

NO—Repair open in the wire. ■

21. Disconnect the tilt motor/position sensor 8P connector.

22. Check for continuity between telescopic motor/position sensor 6P connector terminal No. 3 and body ground.

TELESCOPIC MOTOR/POSITION SENSOR 6P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 23.

BACK

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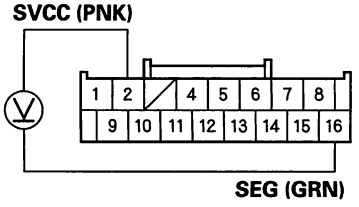
23. Reconnect power tilt/telescopic control unit connector A (16P).

24. Turn the ignition switch ON (II).

25. Measure the voltage between power tilt/telescopic control unit connector A (16P) terminals No. 2 and No. 16.

POWER TILT/TELESCOPIC CONTROL UNIT CONNECTOR A (16P)



Wire side of female terminals

Is there battery voltage when the telescopic switch is operated?

YES—Faulty telescopic motor/position sensor, replace the telescopic motor assembly. ■

NO—Replace the power tilt/telescopic control unit. ■

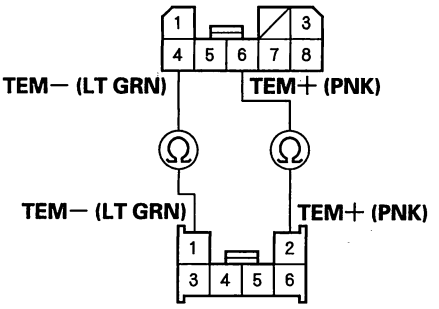
26. Turn the ignition switch OFF.

27. Disconnect power tilt/telescopic control unit connector B (8P).

28. Disconnect the telescopic motor/position sensor 6P connector.

29. Check for continuity between power tilt/telescopic control unit connector B (8P) terminals No. 4 and No. 6 and telescopic motor/position sensor 6P connector terminals No. 1 and No. 2 respectively.

POWER TILT/TELESCOPIC CONTROL UNIT CONNECTOR A (16P)
Wire side of female terminals



TELESCOPIC MOTOR/POSITION SENSOR 6P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 30.

NO—Repair open in the wire. ■

(cont'd)

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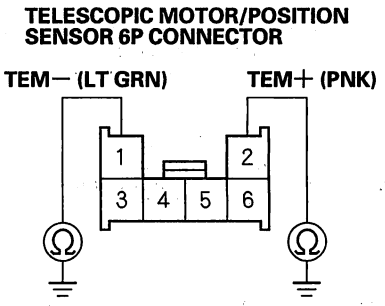
DTC Troubleshooting (cont'd)

30. Check for continuity between body ground and telescopic motor/position sensor 6P connector terminals No. 1 and No. 2 individually.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire.■

NO—Go to step 31.

31. Test the telescopic motor (see page 22-488).

Is the motor OK?

YES—Replace the power tilt/telescopic control unit.■

NO—Replace the telescopic motor/position sensor.■

BACK

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DTC B1842: Power Tilt/Telescopic Position Sensor Power Supply Circuit (SVCC Line) Short

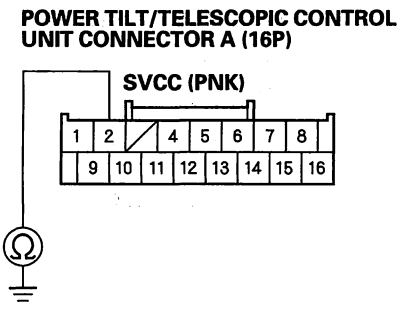
NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Operate the tilt/telescopic switch in each direction for more than 1 second.
4. Check for DTCs with the HDS.

   Is DTC B1842 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
5. Turn the ignition switch OFF.
6. Disconnect power tilt/telescopic control unit connector A (16P).
7. Disconnect the telescopic motor/position sensor 6P connector.
8. Disconnect the tilt motor/position sensor 8P connector.
9. Check for continuity between power tilt/telescopic control unit connector A (16P) terminal No. 2 and body ground.

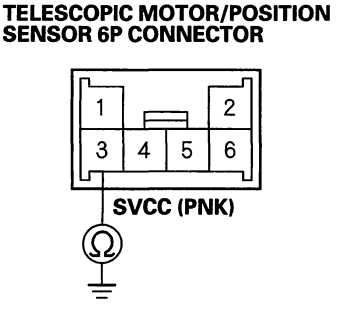


Wire side of female terminals

   Is there continuity?

   YES—Repair short in the wire. ■

   NO—Go to step 10.
10. At the sensor side, check for continuity between telescopic motor/position sensor 6P connector terminal No. 3 and body ground (motor body).



Terminal side of male terminals

   Is there continuity?

   YES—Replace the telescopic motor/position sensor. ■

   NO—Go to step 11.

(cont'd)

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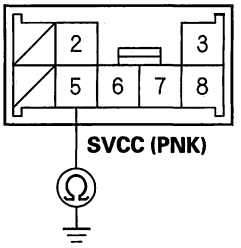
DTC Troubleshooting (cont'd)

11. At the sensor side, check for continuity between tilt motor/position sensor 8P connector terminal No. 5 and body ground (motor body).

TILT MOTOR/POSITION SENSOR 8P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Replace the tilt motor/position sensor. ■

NO—Replace the power tilt/telescopic control unit. ■

BACK

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DTC B1843: Power Seat Control Unit Lost Communication with Power Tilt/Telescopic Steering Control Unit (UART line)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Check for DTCs with the HDS.

   Is DTC B1843 indicated?

   YES—Go to step 4.

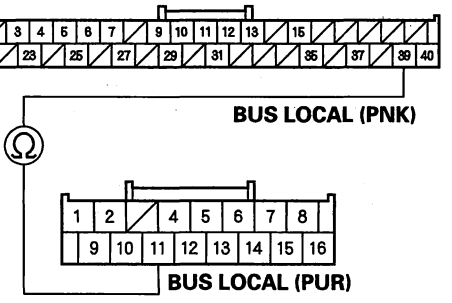
   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
4. Move the tilt/telescopic steering in each direction with the tilt/telescopic switch.

   Does the tilt/telescopic steering move in each direction smoothly?

   YES—Go to step 5.

   NO—Go to step 10.
5. Turn the ignition switch OFF.
6. Disconnect the power seat control unit connector A (40P).
7. Disconnect power tilt/telescopic control unit connector A (16P).
8. Check for continuity between power seat control unit connector A (40P) terminal No. 39 and power tilt/telescopic control unit connector A (16P) terminal No. 11.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)
Wire side of female terminals



POWER TILT/TELESCOPIC STEERING CONTROL UNIT CONNECTOR A (16P)
Wire side of female terminals

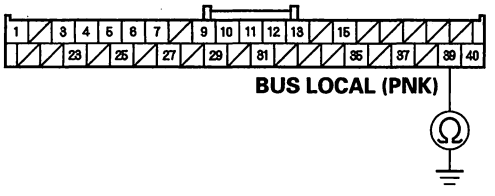
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire. ■

9. Check for continuity between power seat control unit connector A (40P) terminal No. 39 and body ground.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Substitute a known-good power tilt/telescopic control unit and recheck. If DTC B1843 is still indicated, replace the power seat control unit. ■

(cont'd)

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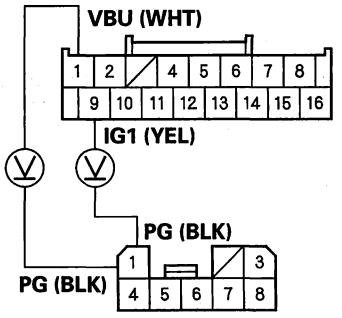
DTC Troubleshooting (cont'd)

10. Turn the ignition switch OFF.
11. Disconnect power tilt/telescopic control unit connectors A (16P) and B (8P).
12. Turn the ignition switch ON (II).
13. Measure the voltage between power tilt/telescopic control unit connector A (16P) terminal No. 9 and connector B (8P) terminal No. 1, and between connector A (16P) terminal No. 1 and connector B (8P) terminal No. 1.

POWER TILT/TELESCOPIC STEERING CONTROL UNIT CONNECTOR A (16P)
Wire side of female terminals



POWER TILT/TELESCOPIC STEERING CONTROL UNIT CONNECTOR B (8P)
Wire side of female terminals

Is there battery voltage?

YES—Replace the power tilt/telescopic control unit. ■

NO—Do the power tilt/telescopic control unit input test (see page 22-482). ■

BACK

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DTC B1844: Power Seat Slide Switch Circuit Malfunction

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

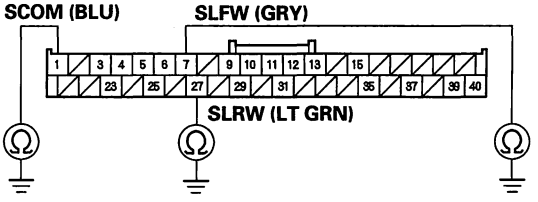
1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Operate the slide switch in each direction for more than 1 second.
4. Check for DTCs with the HDS.

   Is DTC B1844 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
5. Turn the ignition switch OFF.
6. Disconnect power seat control unit connector A (40P).
7. Disconnect the power seat adjustment switch 12P connector.
8. Check for continuity between body ground and power seat control unit connector A (40P) terminals No. 1, No. 7, and No. 27 individually.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

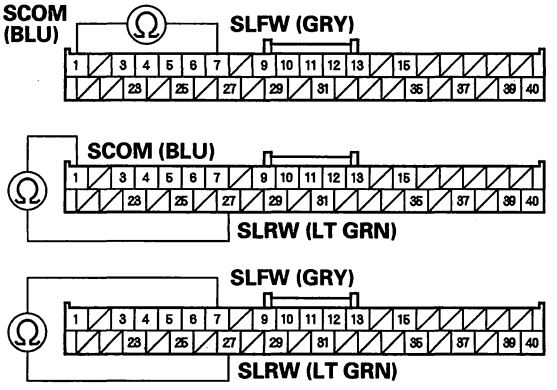
YES—Repair short in the wire. ■

NO—Go to step 9.

9. Check for continuity between these power seat control unit connector A (40P) terminals:

   - No. 1 and No. 7
   - No. 1 and No. 27
   - No. 7 and No. 27

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 10.

10. Test the power seat adjustment switch (see page 22-485).

    Is the switch OK?

    YES—Replace the power seat control unit. ■

    NO—Replace the power seat adjustment switch. ■

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DTC Troubleshooting (cont'd)

DTC B1845: Power Seat Recline Switch Circuit Malfunction

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

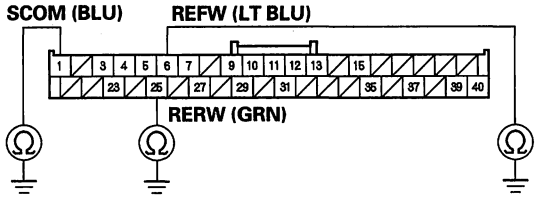
1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Operate the recline switch in each direction for more than 1 second.
4. Check for DTCs with the HDS.

   Is DTC B1845 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
5. Turn the ignition switch OFF.
6. Disconnect power seat control unit connector A (40P).
7. Disconnect the power seat adjustment switch 12P connector.
8. Check for continuity between body ground and power seat control unit connector A (40P) terminals No. 1, No. 6, and No. 25 individually.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

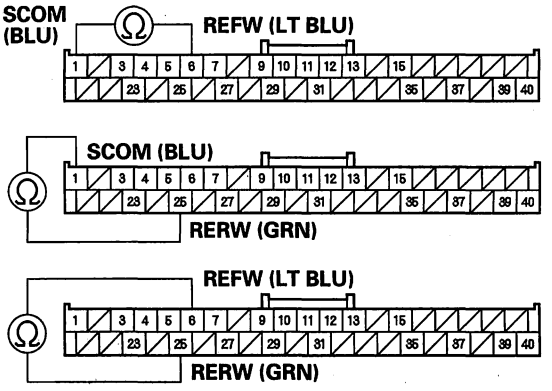
YES—Repair short in the wire. ■

NO—Go to step 9.

9. Check for continuity between these power seat control unit connector A (40P) terminals:

   - No. 1 and No. 6
   - No. 1 and No. 25
   - No. 6 and No. 25

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 10.

10. Test the power seat adjustment switch (see page 22-485).

    Is the switch OK?

    YES—Replace the power seat control unit. ■

    NO—Replace the power seat adjustment switch. ■

BACK

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DTC B1846: Power Seat Front Up-Down Switch Circuit Malfunction

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

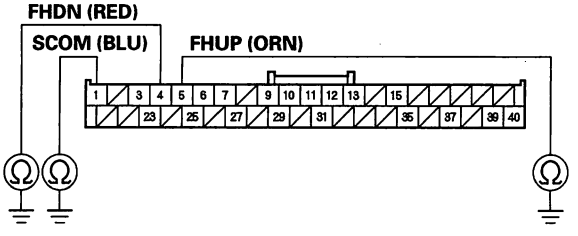
1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Operate the front up-down switch in each direction for more than 1 second.
4. Check for DTCs with the HDS.

   Is DTC B1846 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
5. Turn the ignition switch OFF.
6. Disconnect power seat control unit connector A (40P).
7. Disconnect the power seat adjustment switch 12P connector.
8. Check for continuity between body ground and power seat control unit connector A (40P) terminals No. 1, No. 4, and No. 5 individually.

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

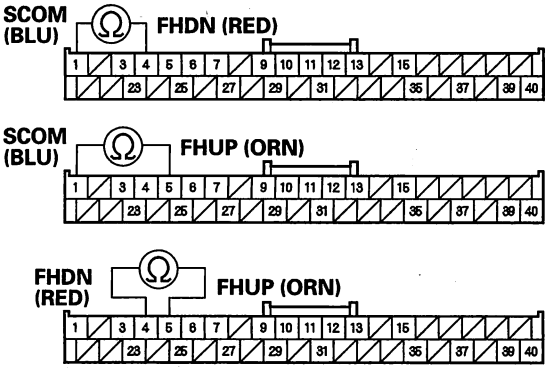
Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 9.

9. Check for continuity between these power seat control unit connector A (40P) terminals:
   - No. 1 and No. 4
   - No. 1 and No. 5
   - No. 4 and No. 5

POWER SEAT CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 10.

10. Test the power seat adjustment switch (see page 22-485).

    Is the switch OK?

    YES—Replace the power seat control unit. ■

    NO—Replace the power seat adjustment switch. ■

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DTC Troubleshooting (cont'd)

DTC B1847: Power Seat Rear Up-Down Switch Circuit Malfunction

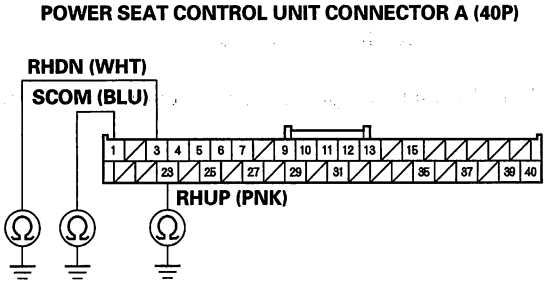
NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Operate the rear up-down switch in each direction for more than 1 second.
4. Check for DTCs with the HDS.

   Is DTC B1847 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
5. Turn the ignition switch OFF.
6. Disconnect power seat control unit connector A (40P).
7. Disconnect the power seat adjustment switch 12P connector.
8. Check for continuity between body ground and power seat control unit connector A (40P) terminals No. 1, No. 3, and No. 23 individually.



Wire side of female terminals

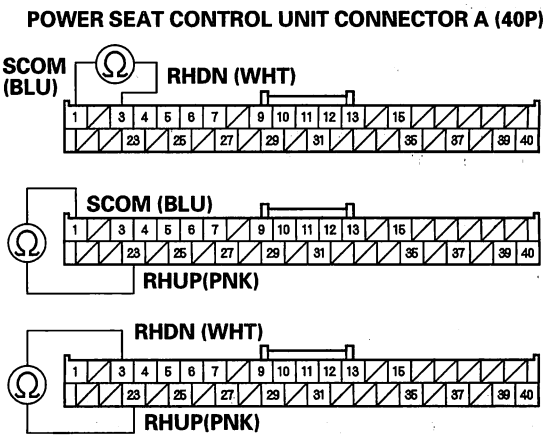
Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 9.

9. Check for continuity between these power seat control unit connector A (40P) terminals:

   - No. 1 and No. 3
   - No. 1 and No. 23
   - No. 3 and No. 23



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 10.

10. Test the power seat adjustment switch (see page 22-485).

    Is the switch OK?

    YES—Replace the power seat control unit. ■

    NO—Replace the power seat adjustment switch. ■

BACK

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DTC B2182: Left Power Mirror Horizontal Sensor Signal Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Move the left power mirror in each direction with the power mirror switch.
4. Check for DTCs with the HDS.

   Is DTC B2182 indicated?

   YES—Go to step 5.

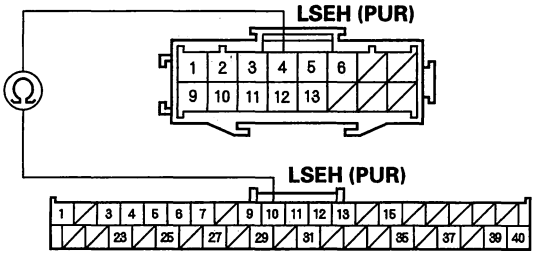
   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
5. Select POWER SEAT/POWER MIRROR from the BODY ELECTRICAL SYSTEM SELECT menu, and enter the DATA LIST.
6. Check the NORMAL/ABNORMAL information of the DRIVER DOOR MIRROR HORIZONTAL SENSOR in the DATA LIST.

   Is the information indicator ABNORMAL?

   YES—Go to step 7.

   NO—Replace the driver's MPCS unit. ■
7. Turn the ignition switch OFF.
8. Disconnect driver's MPCS unit connector A (40P).
9. Disconnect the left power mirror 16P connector.
10. Check for continuity between driver's MPCS unit connector A (40P) terminal No. 10 and left power mirror 16P connector terminal No. 4.

LEFT POWER MIRROR 16P CONNECTOR
Terminal side of male terminals



DRIVER'S MPCS UNIT CONNECTOR A (40P)
Wire side of female terminals

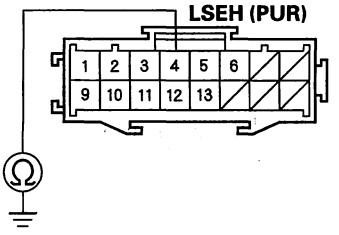
Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire. ■

11. Check for continuity between left power mirror 16P connector terminal No. 4 and body ground.

LEFT POWER MIRROR 16P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

NO—Go to step 12.

(cont'd)

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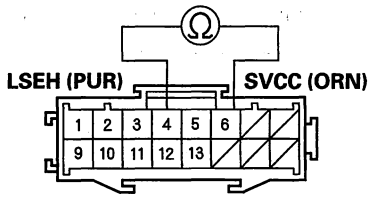
DTC Troubleshooting (cont'd)

12. Check for continuity between left power mirror 16P connector terminals No. 4 and No. 6.

LEFT POWER MIRROR 16P CONNECTOR



Terminal side of male terminals

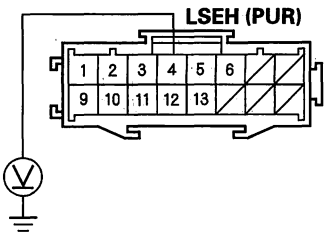
Is there continuity?

YES—Repair short in the wires. ■

NO—Go to step 13.

13. Reconnect driver's MPCS unit connector A (40P).
14. Turn the ignition switch ON (II).
15. Measure the voltage between left power mirror 16P connector terminal No. 4 and body ground.

LEFT POWER MIRROR 16P CONNECTOR



Terminal side of male terminals

Is there about 5 V?

YES—Replace the left power mirror. ■

NO—Replace the driver's MPCS unit. ■

BACK

Protected by AR

DTC B2183: Left Power Mirror Vertical Sensor Signal Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Move the left power mirror in each direction with the power mirror switch.
4. Check for DTCs with the HDS.

   Is DTC B2183 indicated?

   YES—Go to step 5.

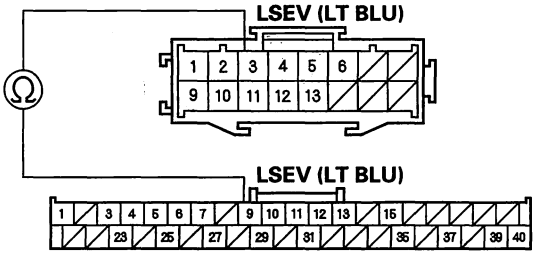
   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Select POWER SEAT/POWER MIRROR from the BODY ELECTRICAL SYSTEM SELECT menu, and enter the DATA LIST.
6. Check the NORMAL/ABNORMAL information of the DRIVER DOOR MIRROR VERTICAL SENSOR in the DATA LIST.

   Is the information indicator ABNORMAL?

   YES—Go to step 7.

   NO—Replace the driver's MPCS unit.■
7. Turn the ignition switch OFF.
8. Disconnect driver's MPCS unit connector A (40P).
9. Disconnect the left power mirror 16P connector.
10. Check for continuity between driver's MPCS unit connector A (40P) terminal No. 9 and left power mirror 16P connector terminal No. 3.

LEFT POWER MIRROR 16P CONNECTOR
Terminal side of male terminals



DRIVER'S MPCS UNIT CONNECTOR A (40P)
Wire side of female terminals

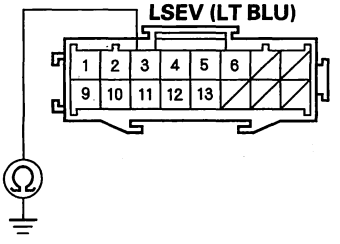
Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire.■

11. Check for continuity between left power mirror 16P connector terminal No. 3 and body ground.

LEFT POWER MIRROR 16P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair short to ground in the wire.■

NO—Go to step 12.

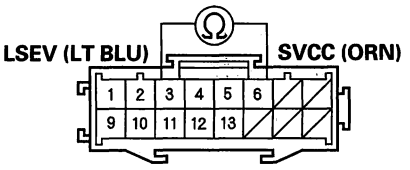
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

12. Check for continuity between left power mirror 16P connector terminals No. 3 and No. 6.

LEFT POWER MIRROR 16P CONNECTOR



Terminal side of male terminals

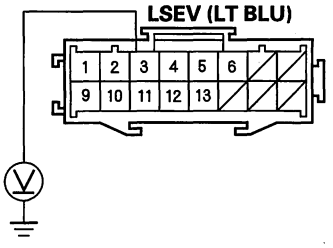
Is there continuity?

YES—Repair short in the wires.■

NO—Go to step 13.

13. Reconnect driver's MPCS unit connector A (40P).
14. Turn the ignition switch ON (II).
15. Measure the voltage between left power mirror 16P connector terminal No. 3 and body ground.

LEFT POWER MIRROR 16P CONNECTOR



Terminal side of male terminals

Is there about 5 V?

YES—Replace the left power mirror.■

NO—Replace the driver's MPCS unit.■

BACK

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DTC B2184: Right Power Mirror Horizontal Sensor Signal Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Move the right power mirror in each direction with the power mirror switch.
4. Check for DTCs with the HDS.

   Is DTC B2184 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■
5. Select POWER SEAT/POWER MIRROR from the BODY ELECTRICAL SYSTEM SELECT menu, and enter the DATA LIST.
6. Check the NORMAL/ABNORMAL information of the ASSISTANT DOOR MIRROR HORIZONTAL SENSOR in the DATA LIST.

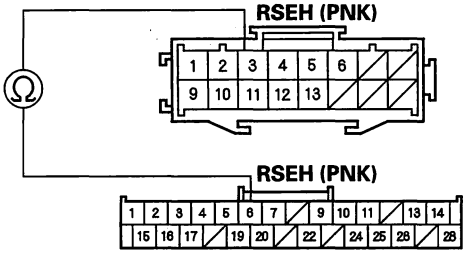
   Is the information indicator ABNORMAL?

   YES—Go to step 7.

   NO—Replace the passenger's MPCS unit. ■
7. Turn the ignition switch OFF.
8. Disconnect passenger's MPCS unit connector A (28P).
9. Disconnect the right power mirror 16P connector.
10. Check for continuity between passenger's MPCS unit connector A (28P) terminal No. 6 and right power mirror 16P connector terminal No. 3.

RIGHT POWER MIRROR 16P CONNECTOR

Terminal side of male terminals



PASSENGER'S MPCS UNIT CONNECTOR A (28P)

Wire side of female terminals

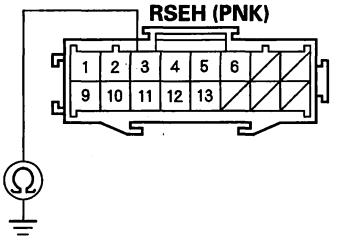
Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire. ■

11. Check for continuity between right power mirror 16P connector terminal No. 3 and body ground.

RIGHT POWER MIRROR 16P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

NO—Go to step 12.

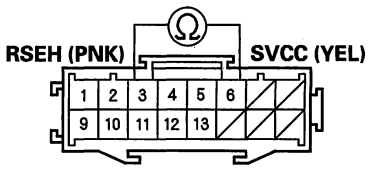
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

12. Check for continuity between right power mirror 16 P connector terminals No. 3 and No. 6.

RIGHT POWER MIRROR 16P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair short in the wires.■

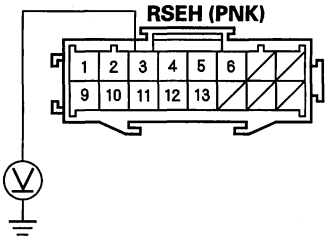
NO—Go to step 13.

13. Reconnect passenger's MPCS unit connector A (28P).

14. Turn the ignition switch ON (II).

15. Measure the voltage between right power mirror 16P connector terminal No. 3 and body ground.

RIGHT POWER MIRROR 16P CONNECTOR



Terminal side of male terminals

Is there about 5 V?

YES—Replace the right power mirror.■

NO—Replace the passenger's MPCS unit.■

BACK

Protected by AR

DTC B2185: Right Power Mirror Vertical Sensor Signal Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Move the right power mirror in each direction with the power mirror switch.
4. Check for DTCs with the HDS.

   Is DTC B2185 indicated?

   YES—Go to step 5.

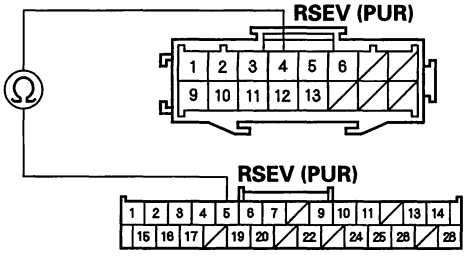
   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Select POWER SEAT/POWER MIRROR from the BODY ELECTRICAL SYSTEM SELECT menu, and enter the DATA LIST.
6. Check the NORMAL/ABNORMAL information of the ASSISTANT DOOR MIRROR VERTICAL SENSOR in the DATA LIST.

   Is the information indicator ABNORMAL?

   YES—Go to step 7.

   NO—Replace the passenger's MPCS unit.■
7. Turn the ignition switch OFF.
8. Disconnect passenger's MPCS unit connector A (28P).
9. Disconnect the right power mirror 16P connector.
10. Check for continuity between passenger's MPCS unit connector A (28P) terminal No. 5 and right power mirror 16P connector terminal No. 4.

RIGHT POWER MIRROR 16P CONNECTOR
Terminal side of male terminals



PASSENGER'S MPCS UNIT CONNECTOR A (28P)
Wire side of female terminals

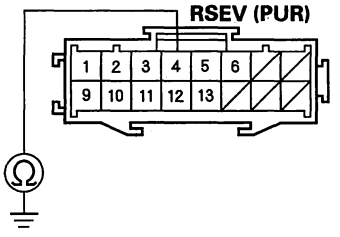
Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire.■

11. Check for continuity between right power mirror 16P connector terminal No. 4 and body ground.

RIGHT POWER MIRROR 16P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair short to ground in the wire.■

NO—Go to step 12.

(cont'd)

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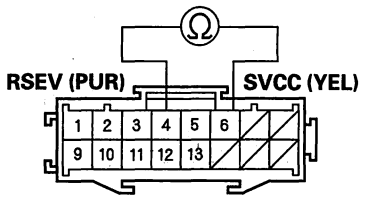
DTC Troubleshooting (cont'd)

12. Check for continuity between right power mirror 16 P connector terminals No. 4 and No. 6.

RIGHT POWER MIRROR 16P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair short in the wires. ■

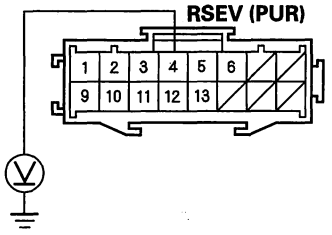
NO—Go to step 13.

13. Reconnect passenger's MPCS unit connector A (28P).

14. Turn the ignition switch ON (II).

15. Measure the voltage between right power mirror 16P connector terminal No. 4 and body ground.

RIGHT POWER MIRROR 16P CONNECTOR



Terminal side of male terminals

Is there about 5 V?

YES—Replace the right power mirror. ■

NO—Replace the passenger's MPCS unit. ■

BACK

Protected by AR

System Input Test and Function Test

1. Connect the HDS to the DLC.
2. Turn the ignition switch ON (II).
3. From the BODY ELECTRICAL SYSTEM SELECTION menu, select POWER SEAT/POWER MIRROR, then DTCs.
   - If DTCs are found, troubleshoot the DTCs using B-CAN System Diagnosis Test Mode A (see page 22-112).
   - If no DTCs are found, go to step 4.
4. Exit the DTC mode, and select DATA LIST from the POWER SEAT/POWER MIRROR TEST MODE MENU.
5. Test each input and monitor each output under the condition shown below:
   - If the data list indication is correct, continue to the next switch. If all switches are OK, go to step 6.
   - If the data list indication is not correct, do the appropriate test at the control unit and terminal indicated in the table.
     – Voltage drop tests should be done with the ignition switch ON (II) and all connectors connected and the meter negative test lead attached to a good body ground, unless specified otherwise.
     – Continuity tests should be done with the ignition switch OFF and indicated terminals disconnected.

Data List Input/ Command	Condition: Data List Indication	Control Unit/Terminal Number/ Test (If applicable)	Possible cause if result is not obtained
Door Mirror UP switch	Mirror select switch in LEFT, then RIGHT Mirror up switch pressed: ON Mirror up switch released: OFF	MICU/P9 (WHT) Mirror select switch UP: 0 V Center or DOWN: 5 V	• Faulty switch (see page 22-374) • An open in the wire • A short in the wire • Faulty control unit
Door Mirror Select in LEFT selection	Mirror select switch in LEFT position: ON Select switch in CENTER or RIGHT position: OFF	MICU/P11 (PUR) Mirror select switch LEFT: 0 V Center or RIGHT: 5 V	• Faulty switch (see page 22-374) • An open in the wire • A short in the wire • Faulty control unit
Door Mirror DOWN switch	Mirror select switch in LEFT, then RIGHT Mirror down switch pressed: ON Mirror switch released: OFF	MICU/P10 (PNK) Mirror select switch DOWN: 0 V Center or UP: 5 V	• Faulty switch (see page 22-374) • An open in the wire • A short in the wire • Faulty control unit
Door Mirror Select in RIGHT selection	Mirror select switch in RIGHT position: ON Select switch in CENTER or LEFT position: OFF	MICU/P22 (GRY) Mirror select switch RIGHT: 0 V Center or LEFT: 5 V	• Faulty switch (see page 22-374) • An open in the wire • A short in the wire • Faulty control unit
Door Mirror LEFT switch	Mirror select switch in LEFT, then RIGHT Mirror left switch pressed: ON Mirror switch released: OFF	MICU/P25 (GRN) Mirror select switch LEFT: 0 V Center or RIGHT: 5 V	• Faulty switch (see page 22-374) • An open in the wire • A short in the wire • Faulty control unit
Door Mirror RIGHT switch	Mirror select switch in LEFT, then RIGHT Mirror right switch pressed: ON Mirror switch released: OFF	MICU/P26 (BLU) Mirror select switch RIGHT: 0 V Center or LEFT: 5 V	• Faulty switch (see page 22-374) • An open in the wire • A short in the wire • Faulty control unit

(cont'd)

Protected by AR

Driving Position Memory System (DPMS)

System Input Test and Function Test (cont'd)

Data List Input/ Command	Condition: Data List Indication	Control Unit/Terminal Number/ Test (If applicable)	Possible cause if result is not obtained
Slide Switch Forward	Slide switch forward: ON Switch released: OFF	Power seat control unit/A1, A7 (GRY) Slide switch forward: 0 V Switch released: 5 V	• Faulty switch (see page 22-485) • An open in the wire • A short in the wire • Faulty control unit
Slide Switch Backward	Slide switch backward: ON Switch released: OFF	Power seat control unit/A1, A27 (LT GRN) Slide switch backward: 0 V Switch released: 5 V	• Faulty switch (see page 22-485) • An open in the wire • A short in the wire • Faulty control unit
Recline Switch Forward	Recline switch forward: ON Switch released: OFF	Power seat control unit/A1, A6 (LT BLU) Recline switch forward: 0 V Switch released: 5 V	• Faulty switch (see page 22-485) • An open in the wire • A short in the wire • Faulty control unit
Recline Switch Backward	Recline switch backward: ON Switch released: OFF	Power seat control unit/A1, A25 (GRN) Recline switch backward: 0 V Switch released: 5 V	• Faulty switch (see page 22-485) • An open in the wire • A short in the wire • Faulty control unit
Front Up-Down Switch Up	Front up-down switch up: ON Switch released: OFF	Power seat control unit/A1, A5 (ORN) Front up-down switch up: 0 V Switch released: 5 V	• Faulty switch (see page 22-485) • An open in the wire • A short in the wire • Faulty control unit
Front Up-Down Switch Down	Front up-down switch down: ON Switch released: OFF	Power seat control unit/A1, A4 (RED) Front up-down switch down: 0 V Switch released: 5 V	• Faulty switch (see page 22-485) • An open in the wire • A short in the wire • Faulty control unit
Rear Up-Down Switch Up	Rear up-down switch up: ON Switch released: OFF	Power seat control unit/A1, A23 (PNK) Rear up-down switch up: 0 V Switch released: 5 V	• Faulty switch (see page 22-485) • An open in the wire • A short in the wire • Faulty control unit
Rear Up-Down Switch Down	Rear up-down switch down: ON Switch released: OFF	Power seat control unit/A1, A3 (WHT) Rear up-down switch up: 0 V Switch released: 5 V	• Faulty switch (see page 22-485) • An open in the wire • A short in the wire • Faulty control unit
Ignition Switch for Power Seat Control	Ignition switch ON (II): ON Ignition switch OFF: OFF	Power seat control unit/A35 (YEL) Ignition switch ON (II): 12 V	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire • Faulty control unit
A/T Gear Position Switch (P)	Transmission range switch P position: ON Any other position than P: OFF	Power seat control unit/A31 (GRN) Transmission range switch P: 0 V	• Faulty transmission range switch • An open in the wire • Faulty control unit
Seat MEMO Switch	Seat MEMO switch pressed: ON Switch released: OFF	Driver's MPCS unit/A31 (ORN) Seat MEMO switch pressed: 0 V Switch released: 5 V more	• Faulty switch (see page 22-484) • An open in the wire • A short in the wire • Faulty control unit • Poor ground (G601)
Driver 1 Position Switch	Driver position 1 switch pressed: ON Switch released: OFF	Driver's MPCS unit/A29 (GRN) Driver's position 1 switch pressed: 0 V Switch released: 5 V more	• Faulty switch (see page 22-484) • An open in the wire • A short in the wire • Faulty control unit • Poor ground (G601)
Driver 2 Position Switch	Driver position 2 switch pressed: ON Switch released: OFF	Driver's MPCS unit/A30 (RED) Driver's position 2 switch pressed: 0 V Switch released: 5 V more	• Faulty switch (see page 22-484) • An open in the wire • A short in the wire • Faulty control unit • Poor ground (G601)

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Data List Input/ Command	Condition: Data List Indication	Control Unit/Terminal Number/ Test (If applicable)	Possible cause if result is not obtained
Column Tilt Up Switch	Steering tilt switch up: ON Switch released: OFF	Power tilt/telescopic steering control unit/A15 (BRN), A7 (LT GRN) Switch in TILT UP: 0 V Switch released: Battery voltage	• Faulty switch (see page 22-488) • An open in the wire • A short in the wire • Faulty control unit
Column Tilt Down Switch	Steering tilt switch down: ON Switch released: OFF	Power tilt/telescopic steering control unit/A15 (BRN), A6 (GRN) Switch in TILT DOWN: 0 V Switch released: Battery voltage	• Faulty switch (see page 22-488) • An open in the wire • A short in the wire • Faulty control unit
Column Telescopic Extend Switch	Steering telescopic switch extend: ON Switch released: OFF	Power tilt/telescopic steering control unit/A15 (BRN), A14 (PUR) Switch in TELESCOPIC EXTEND: 0 V Switch released: Battery voltage	• Faulty switch (see page 22-488) • An open in the wire • A short in the wire • Faulty control unit
Column Telescopic Retract Switch	Steering telescopic switch retract: ON Switch released: OFF	Power tilt/telescopic steering control unit/A15 (BRN), A6 (GRN) Switch in TELESCOPIC RETRACT: 0 V Switch released: Battery voltage	• Faulty switch (see page 22-488) • An open in the wire • A short in the wire • Faulty control unit
Ignition Switch (IG1)	Ignition switch ON (II): ON Ignition switch OFF: OFF	Power tilt/telescopic steering control unit/A9 (YEL) Ignition switch ON (II): 12 V	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire • Faulty control unit
Slide Sensor	Seat moving forward or backward: ON Seat not moving: OFF	Power seat control unit/A11 (WHT) Pulses as seat moves: 2.5 V average	• Faulty sensor • An open in the wire • Faulty control unit
Front Up-Down Sensor	Seat front moving up/down: ON Seat not moving: OFF	Power seat control unit/A12 (RED) Pulses as seat moves: 2.5 V average	• Faulty sensor • An open in the wire • Faulty control unit
Recline Sensor	Seat back moving forward or backward: ON Seat not moving: OFF	Power seat control unit/A10 (GRN) Pulses as seat moves: 2.5 V average	• Faulty sensor • An open in the wire • Faulty control unit
Rear Up-Down Sensor	Seat rear moving up/down: ON Seat not moving: OFF	Power seat control unit/A13 (YEL) Pulses as seat moves: 2.5 V average	• Faulty sensor • An open in the wire • Faulty control unit
Column Tilt Sensor Up/Down	Steering tilting up/down: ON Steering not moving: OFF	Power tilt/telescopic steering control unit/A2 (PNK) to A16 (GRN) as steering moves: 12 V A16 (GRN) to A13 (YEL), A5 (LT BLU) Pulses as steering moves: 2.5 V average	• Faulty sensor • An open in the wire(s) • Faulty control unit
Column Telescopic Sensor Extend/ Retract	Steering telescopic extend/ retract: ON Steering not moving: OFF	Power tilt/telescopic steering control unit/A2 (PNK) to A16 (GRN) as steering moves: 12 V A16 (GRN) to A12 (BLU), A4 (ORN) Pulses as steering moves: 2.5 V average	• Faulty sensor • An open in the wire(s) • Faulty control unit

(cont'd)

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Driving Position Memory System (DPMS)

System Input Test and Function Test (cont'd)

Data List Input/ Command	Condition: Data List Indication	Control Unit/Terminal Number/ Test (If applicable)	Possible cause if result is not obtained
Left mirror horizontal sensor	Left mirror moves left/right: NORMAL Left mirror does not move: ABNORMAL	Driver's MPCS unit/A10 (PUR), A19 (ORN) Left mirror moving from full left to full right: A10 (about 0.5 V to 4.5 V), A19 (5 V or more)	• Faulty sensor • An open in the wire • Faulty control unit
Left mirror vertical sensor	Left mirror moves up/down: ON Left mirror stopped: OFF	Driver's MPCS unit/A9 (LT BLU), A19 (ORN) Left mirror moving from full left to full right: A9 (about 0.5 V to 4.5 V), A19 (5 V or more)	• Faulty sensor • An open in the wire • Faulty control unit
Right door mirror horizontal sensor	Right mirror moves left/right: ON Right mirror stopped: OFF	Passenger's MPCS unit/A6 (PNK), A13 (YEL) Right mirror moving from full left to full right: A6 (about 0.5 V to 4.5 V), A13 (5 V or more)	• Faulty sensor • An open in the wire • Faulty control unit
Right door mirror vertical sensor	Right mirror moves up/down: ON Right mirror stopped: OFF	Passenger's MPCS unit/A5 (PUR), A13 (YEL) Right mirror moving from full left to full up: A5 (about 0.5 V to 4.5 V), A13 (5 V or more)	• Faulty sensor • An open in the wire • Faulty control unit
DPMS MEM switch	Driving position memory switch MEMO button pushed: ON Switch released: OFF	Driver's MPCS unit/A31 (ORN) Driving position memory switch MEMO button pushed: A31 (about 1 V or less) MEMO button released: A31 (5 V or more)	• Faulty switch • An open in the wire • A short in the wire • Faulty control unit
DPMS POS1 switch	Driving position memory switch POS1 button pushed: ON Switch released: OFF	Driver's MPCS unit/A29 (GRN) Driving position memory switch MEMO button pushed: A29 (about 1 V or more) MEMO button released: A29 (5 V or more)	• Faulty switch • An open in the wire • A short in the wire • Faulty control unit
DPMS POS2 switch	Driving position memory switch POS2 button pushed: ON Switch released: OFF	Driver's MPCS unit/A30 (RED) Driving position memory switch MEMO button pushed: A30 (about 1 V or more) MEMO button released: A30 (5 V or more)	• Faulty switch • An open in the wire • A short in the wire • Faulty control unit

BACK

Protected by AR

6. Exit the DATA LIST and select FUNCTION TEST.

7. Do each of the function tests listed in the table shown. The appropriate output should occur.

- If the function operates normally, go to the next function test. If all function tests operate normally, the system is OK.
- If the function does not occur, do the appropriate test at the control unit and terminal indicated in the table.
  - Voltage drop tests should be done with the ignition switch ON and all connectors connected.
  - Continuity tests should be done with the ignition switch OFF and indicated terminals disconnected.
  - Jumper tests should be done according to the instructions indicated.
- If the test indicates that the component operates normally, but the function will not operate by doing the function test or the normal use of the component, the control unit that operates that function must be faulty; replace it.
- If the test indicates that the component does not operate normally, check for an open or short in the harnesses between the component and the control unit. If the harness is OK, replace the component.

Function Test	Component and Operation	Control Unit/Terminal Number/Test (If applicable)	Possible cause if result is not obtained
Power Seat: Slide Motor-Full Forward	Seat slides forward	Power seat control unit/B8 (ORN), A9 (BLK), B7 (GRY), B17 (BLU) Disconnect the power seat control unit connectors A and B. Connect B8 to B17 and B7 to A9; driver's seat should slide forward.	• Faulty motor • An open in the wire • A short in the wire
Power Seat: Slide Motor-Full Backward	Seat slides backward	Power seat control unit/B8 (ORN), A9 (BLK), B7 (GRY), B17 (BLU) Disconnect the power seat control unit connectors A and B. Connect B8 to B7 and B17 to A9; driver's seat should slide forward.	• Faulty motor • An open in the wire • A short in the wire
Power Seat: Front UP-DOWN Motor-Full Up	Front of seat moves up	Power seat control unit/B8 (ORN), A9 (BLK), B6 (BRN), B16 (PUR) Disconnect the power seat control unit connectors A and B. Connect B8 to B16 and B6 to A9; front of driver's seat should move up.	• Faulty motor • An open in the wire • A short in the wire
Power Seat: Front UP-DOWN Motor-Full Down	Front of seat moves down	Power seat control unit/B8 (ORN), A9 (BLK), B6 (BRN), B16 (PUR) Disconnect the power seat control unit connectors A and B. Connect B8 to B6 and B16 to A9; front of driver's seat should move down.	• Faulty motor • An open in the wire • A short in the wire
Power Seat: Rear Up-Down Motor-Full Up	Rear of seat moves up	Power seat control unit/B1 (LT BLU), A9 (BLK), B2 (GRN), B10 (PNK) Disconnect the power seat control unit connectors A and B. Connect B1 to B2 and B10 to A9; rear of driver's seat should move up.	• Faulty motor • An open in the wire • A short in the wire
Power Seat: Rear Up-Down Motor-Full Down	Rear of seat moves down	Power seat control unit/B1 (LT BLU), A9 (BLK), B2 (GRN), B10 (PNK) Disconnect the power seat control unit connectors A and B. Connect B1 to B10 and B2 to A9; rear of driver's seat should move down.	• Faulty motor • An open in the wire • A short in the wire

(cont'd)

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System Input Test and Function Test (cont'd)

Function Test	Component and Operation	Control Unit/Terminal Number/Test (If applicable)	Possible cause if result is not obtained
Power Seat: Recline Motor-Full Forward	Seat back moves forward	Power seat control unit/B1 (LT BLU), A9 (BLK), B9 (YEL), B11 (LT GRN) Disconnect the power seat control unit connectors A and B. Connect B1 to B11 and B9 to A9; driver's seat back should move forward.	• Faulty motor • An open in the wire • A short in the wire
Power Seat: Recline Motor-Full Backward	Seat back moves backward	Power seat control unit/B1 (LT BLU), A9 (BLK), B9 (YEL), B11 (LT GRN) Disconnect the power seat control unit connectors A and B. Connect B1 to B9 and B11 to A9; driver's seat back should move backward.	• Faulty motor • An open in the wire • A short in the wire
Column Tilt Up	Power tilt/telescopic steering tilts up	Power tilt/telescopic steering control unit/B1 (BLK), B3 (WHT), B7 (ORN), B8 (LT BLU) Disconnect the tilt/telescopic steering control unit connectors A and B. Connect B3 to B7 and B1 to B8; steering tilts up.	• Faulty motor • An open in the wire • A short in the wire
Column Tilt Down	Power tilt/telescopic steering tilts down	Power tilt/telescopic steering control unit/B1 (BLK), B3 (WHT), B7 (ORN), B8 (LT BLU) Disconnect the tilt/telescopic steering control unit connectors A and B. Connect B3 to B8 and B1 to B7; steering tilts down.	• Faulty motor • An open in the wire • A short in the wire
Column Telescopic Extend	Power tilt/telescopic steering telescopic extend	Power tilt/telescopic steering control unit/B1 (BLK), B3 (WHT), B6 (PNK), B4 (LT GRN) Disconnect the tilt/telescopic steering control unit connectors A and B. Connect B3 to B4 and B1 to B6; steering telescopic extend.	• Faulty motor • An open in the wire • A short in the wire
Column Telescopic Retract	Power tilt/telescopic steering telescopic retract	Power tilt/telescopic steering control unit/B1 (BLK), B3 (WHT), B6 (PNK), B4 (LT GRN) Disconnect the tilt/telescopic steering control unit connectors A and B. Connect B3 to B6 and B1 to B4; steering telescopic retract.	• Faulty motor • An open in the wire • A short in the wire

BACK

Protected by AR

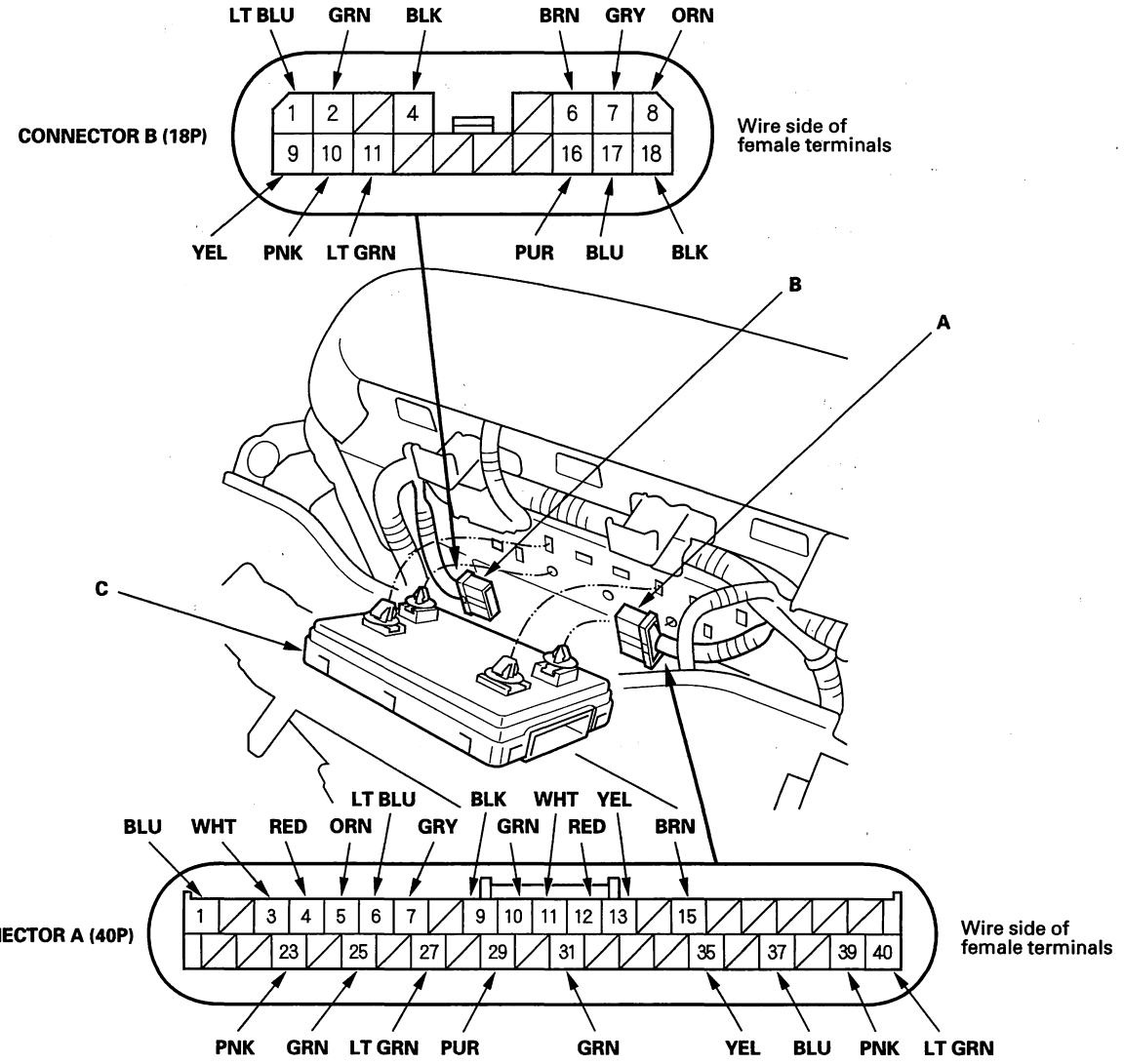
Power Seat Control Unit Input Test

NOTE: Before testing, troubleshoot the multiplex integrated control system first using B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Turn the ignition switch OFF.
2. Remove the driver's seat (see page 20-141).

   NOTE: Be careful not to scratch the interior trim.

3. Disconnect the 40P connector (A) and 18P connector (B) from the power seat control unit (C).



4. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 5.

(cont'd)

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Power Seat Control Unit Input Test (cont'd)

5. With the connectors still disconnected, make the input test at the connectors.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A37	BLU	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Blown No. 4 (40 A) fuse in the main under-hood fuse box • An open in the wire

6. Reconnect the connectors to the power seat control unit, and make these input tests at the connectors.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the control unit must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A9	BLK	Under all conditions	Check for voltage to ground: There should be less than 0.5 V.	• Poor ground (G602) • An open in the wire
B4	BLK			
B18	BLK			
A35	YEL	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
B1	LT BLU	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 2 (OP2) (40 A) fuse in the main under-hood fuse box • Blown No. 16 (20 A) fuse in the under-dash fuse/relay box • An open in the wire
B8	ORN	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 2 (OP2) (40 A) fuse in the main under-hood fuse box • Blown No. 14 (20 A) fuse in the under-dash fuse/relay box • An open in the wire
A31	GRN	Shift lever in P position	Check for voltage to ground: There should be less than 1 V.	• Faulty transmission range switch • An open in the wire
		Shift lever out of P position	Check for voltage to ground: There should be about 10 V.	A short to ground in the wire

BACK

Protected by AR

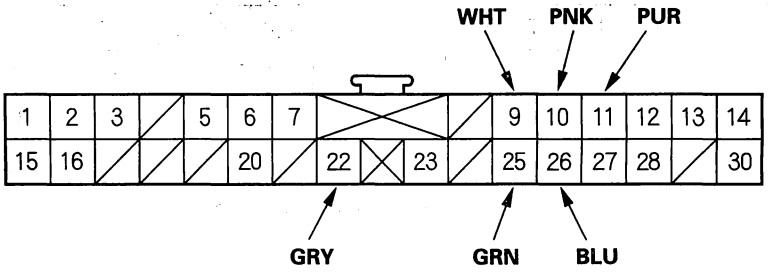
Power Mirror Circuit Input Test

NOTE: Before testing, troubleshoot the multiplex integrated control system first using B-CAN System Diagnosis Test Mode A (see page 22-112).

MICU

1. Turn the ignition switch OFF.
2. Remove the left side kick panel (see page 20-76).
3. Disconnect the under-dash fuse/relay box connector P (30P).

UNDER-DASH FUSE/RELAY BOX CONNECTOR P (30P)



Wire side of female terminals

4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 5.
5. Reconnect the connector to the under-dash fuse/relay box.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
P9	WHT	Power mirror switch in UP	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G501) • Faulty power mirror switch • An open in the wire
		Power mirror switch released	Measure the voltage to ground: There should be 5 V or more.	• Faulty power mirror switch • A short to ground in the wire
P10	PNK	Power mirror switch in DOWN	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G501) • Faulty power mirror switch • An open in the wire
		Power mirror switch released	Measure the voltage to ground: There should be 5 V or more.	• Faulty power mirror switch • A short to ground in the wire
P25	GRN	Power mirror switch in LEFT	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G501) • Faulty power mirror switch • An open in the wire
		Power mirror switch released	Measure the voltage to ground: There should be 5 V or more.	• Faulty power mirror switch • A short to ground in the wire
P26	BLU	Power mirror switch in RIGHT	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G501) • Faulty power mirror switch • An open in the wire
		Power mirror switch released	Measure the voltage to ground: There should be 5 V or more.	• Faulty power mirror switch • A short to ground in the wire
P11	PUR	Power mirror switch in L position	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G501) • Faulty power mirror switch • An open in the wire
		Power mirror switch released	Measure the voltage to ground: There should be 5 V or more.	• Faulty power mirror switch • A short to ground in the wire
P22	GRY	Power mirror switch in R position	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G501) • Faulty power mirror switch • An open in the wire
		Power mirror switch released	Measure the voltage to ground: There should be 5 V or more.	• Faulty power mirror switch • A short to ground in the wire

(cont'd)

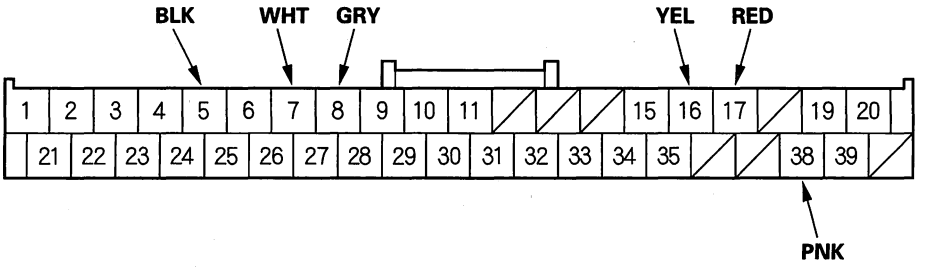
Protected by AR

Power Mirror Circuit Input Test (cont'd)

Driver's MPCS Unit

6. Remove the driver's door panel (see page 20-8).
7. Disconnect driver's MPCS unit connector A (40P).

DRIVER'S MPCS UNIT CONNECTOR A (40P)



Wire side of female terminals

8. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 9.
9. With the connector still disconnected, make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 10.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A5*	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G601) • Faulty power mirror switch • An open in the wire
A7*	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • An open in the wire
A8	GRY	Under all conditions	Check for continuity between the A8 terminal and passenger's MPCS unit connector A (28P) No. 4 terminal: There should be continuity.	• Faulty under-dash fuse/relay box • An open in the wire
A16 A38	YEL PNK	Under all conditions	Connect the A7 and A16 terminals, and A5 and A38 terminals: The left power mirror moves UP.	• Faulty left power mirror actuator • An open in the wire
A17 A38	RED PNK	Under all conditions	Connect the A7 and A17 terminals, and A5 and A38 terminals: The left power mirror swings LEFT.	• Faulty left power mirror actuator • An open in the wire

*: Reconnect the connector to the driver's MPCS unit.

BACK

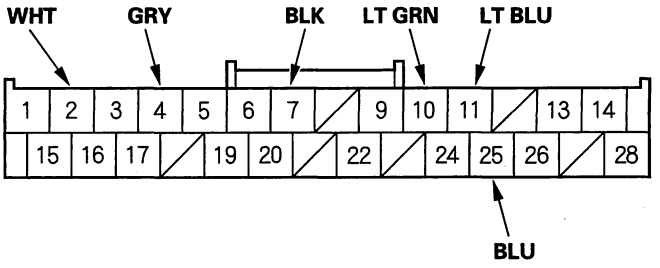
Protected by AR

Passenger's MPCS Unit

10. Remove the passenger's door panel (see page 20-8).

11. Disconnect the passenger's MPCS unit connector A (28P).

PASSENGER'S MPCS UNIT CONNECTOR A (28P)



Wire side of female terminals

12. Inspect the connector and socket terminals to be sure they are all making good contact.

- If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
- If the terminals look OK, go to step 13.

13. With the connector still disconnected, make these input tests at the connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 14.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A7*	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G506) • Faulty power mirror switch • An open in the wire
A2*	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • An open in the wire
A4	GRY	Under all conditions	Check for continuity between the A4 terminal and driver's MPCS unit connector A (40P) No. 8 terminal: There should be continuity.	• Faulty under-dash fuse/relay box • An open in the wire
A10 A25	LT GRN BLU	Under all conditions	Connect the A2 and A10 terminals, and A7 and A25 terminals: The right power mirror moves UP.	• Faulty right power mirror actuator • An open in the wire
A11 A25	LT BLU BLU	Under all conditions	Connect the A2 and A11 terminals, and A7 and A25 terminals: The left power mirror swings RIGHT.	• Faulty right power mirror actuator • An open in the wire

*: Reconnect the connector to the passenger's MPCS unit.

14. If multiple failures are found on the more than one control unit, replace the under-dash fuse/relay box (includes the MICU). If input failures are related to a particular control unit, replace the control unit.

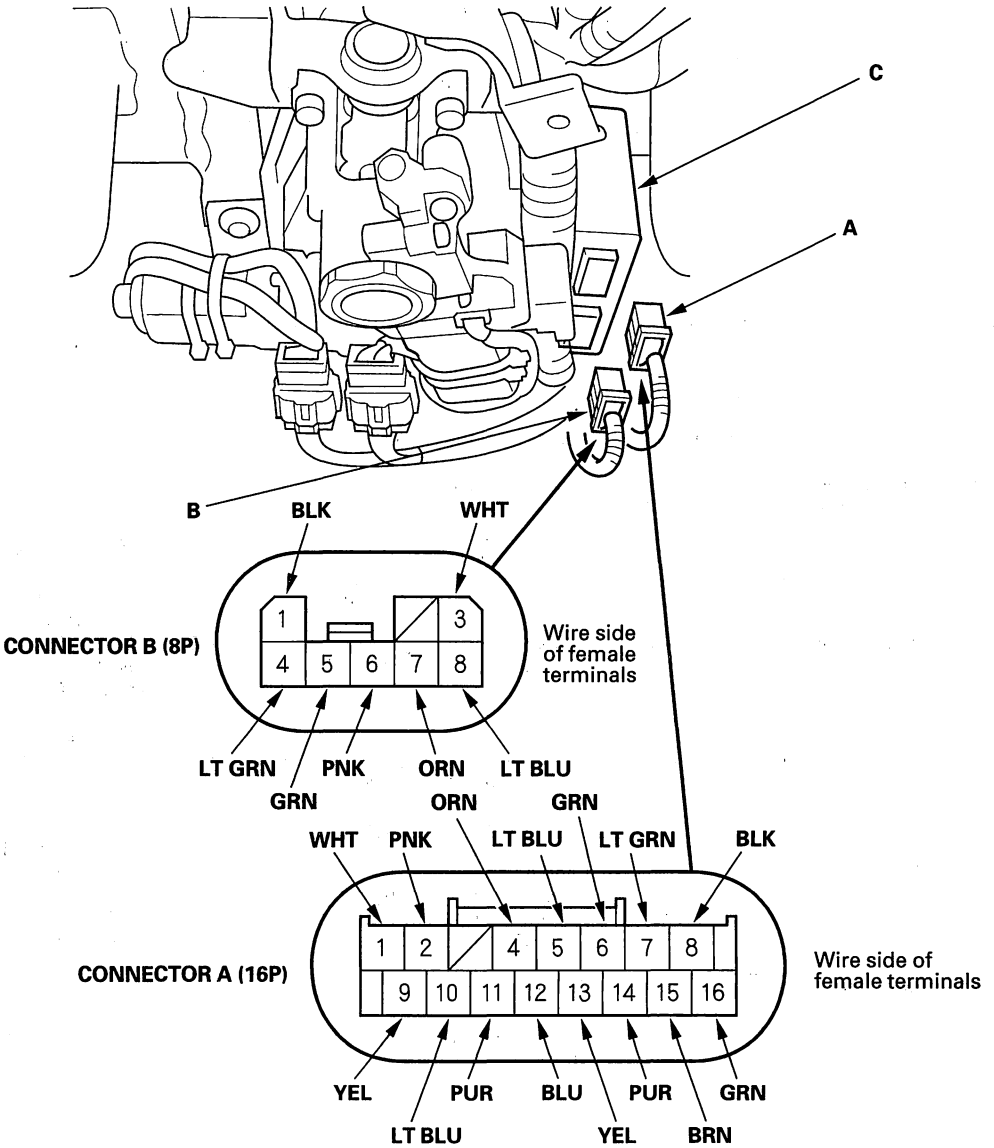
Protected by AR

Driving Position Memory System (DPMS)

Power Tilt/Telescopic Steering Control Unit Input Test

NOTE: Before testing, troubleshoot the multiplex integrated control system first using B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Turn the ignition switch OFF.
2. Remove the steering column cover (see page 20-129).
3. Disconnected the 16P connector (A) and 8P connector (B) from the power tilt/telescopic steering control unit (C).



4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 5.

BACK

Protected by AR

5. Reconnect the connectors to the power tilt/telescopic steering control unit, and make these input tests at the connectors.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the control unit must be faulty; replace it.

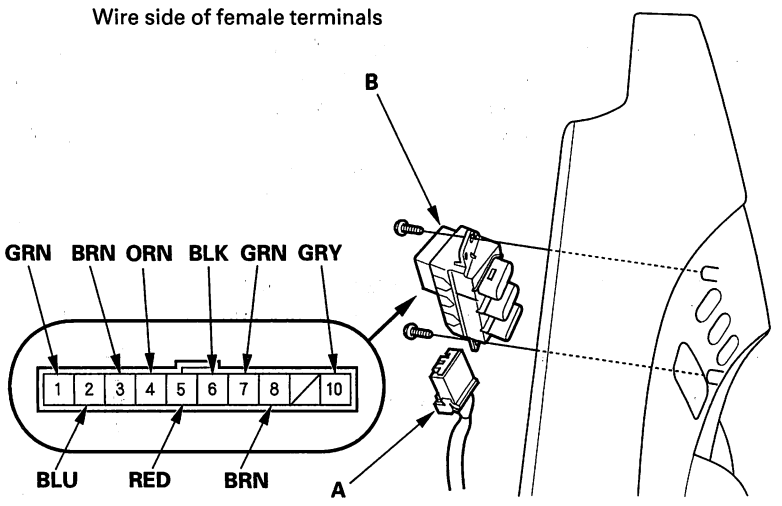
Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A8 B1	BLK	Under all conditions	Check for voltage to ground: There should be less than 0.5 V.	• Poor ground (G503, G506) • An open in the wire
A1	WHT	Under all conditions	Check for voltage to ground: There should be battery voltage.	• No. 4 (40 A) fuse in the main under-hood fuse box • Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • An open in the wire
A9	YEL	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
B3	WHT	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 2 (OP2) (40 A) fuse in the main under-hood fuse box • Blown No. 28 (20 A) fuse in the under-dash fuse/relay box • An open in the wire
B5	GRN	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 3 (P/W) (50 A) fuse in the main under-hood fuse box • Blown No. 15 (20 A) fuse in the under-dash fuse/relay box • An open in the wire

Protected by AR

Driving Position Memory System (DPMS)

Driving Position Memory Switch Test/Replacement

1. Remove the driver's door panel (see page 20-8).
2. Disconnect the 10P connector (A) from the memory switch (B).



3. Remove the two screws, then remove the switch from the door panel.
4. Check for continuity between the terminals in each switch position according to the table.

Position		Terminal 8		1	2	4	5	6	7
MEMO button	OFF								
	ON					○		○	
Position 1 button	OFF								
	ON							○	○
Position 2 button	OFF								
	ON						○	○	
Indicator 1		○	▷	○					
Indicator 2		○	▷		○				

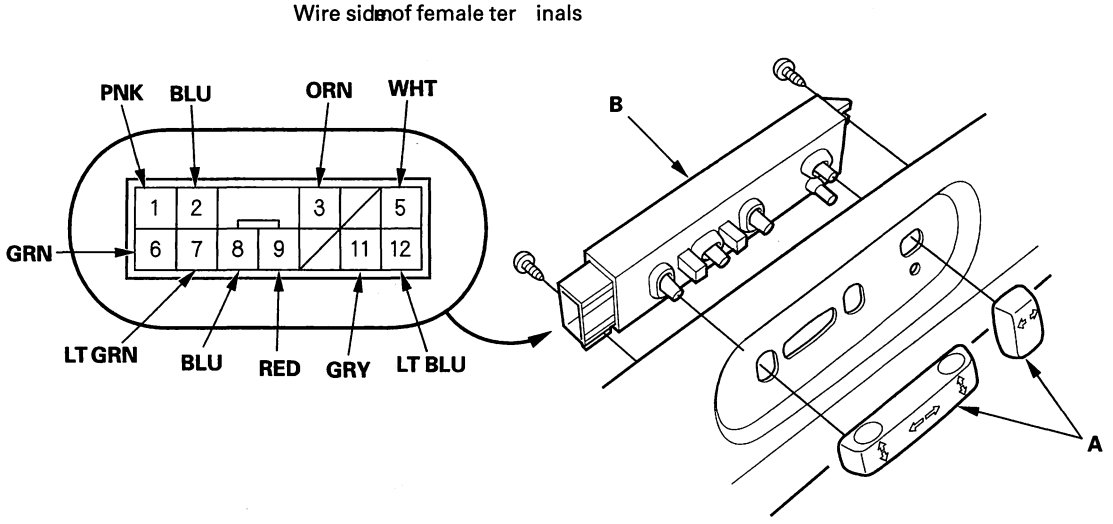
5. If the continuity is not as specified, replace the switch.

BACK

Protected by AR

Power Seat Adjustment Switch Test/Replacement

1. Remove the power seat adjustment switch knobs (A) and recline cover from the driver's power seat (see page 20-144), then remove the two screws and the power seat adjustment switch.



BLK

2. Disconnect the 12P connector from the power seat adjustment switch (B).

3. Reinstall the adjustment switch knobs to the switch.

4. Check for continuity between the terminals in each switch position according to the table.

Position \ Terminal		1	2	3	5	6	7	8	9	11	12
SLIDE SWITCH	FORWARD							○		○	
	BACKWARD						○	○			
RECLINE SWITCH	FORWARD		○								○
	BACKWARD		○			○					
FRONT UP-DOWN SWITCH	UP			○				○			
	DOWN							○	○		
REAR UP-DOWN SWITCH	UP	○	○								
	DOWN		○		○						

5. If the continuity is not as specified, replace the switch.

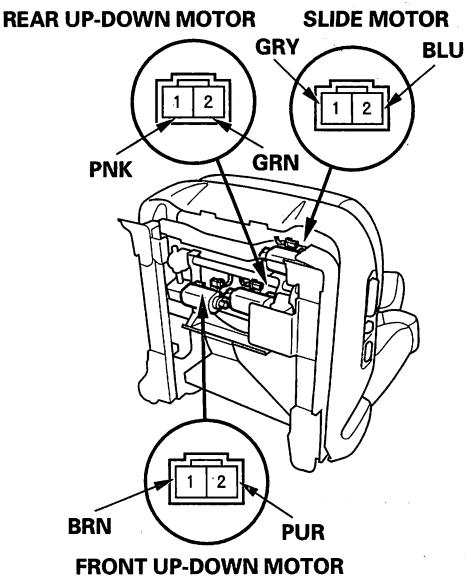
Protected by AR

Driver's Power Seat Motor Test

Slide motor, Front up-down motor, Rear up-down motor

1. Remove the driver's seat (see page 20-141).
2. Disconnect the 2P connector from each power seat motor.

   NOTE: All connectors are terminal side of male terminals.



3. Test each motor by connecting power and ground according to the table. When the motor stops running, disconnect battery power immediately.

Position		Terminal 1	Terminal 2
SLIDE MOTOR	FORWARD	⊖	⊕
	BACKWARD	⊕	⊖

Position		Terminal 1	Terminal 2
FRONT UP-DOWN MOTOR	UP	⊖	⊕
	DOWN	⊕	⊖

Position		Terminal 1	Terminal 2
REAR UP-DOWN MOTOR	UP	⊖	⊕
	DOWN	⊕	⊖

4. If the motor does not run or fails to run smoothly, replace it:

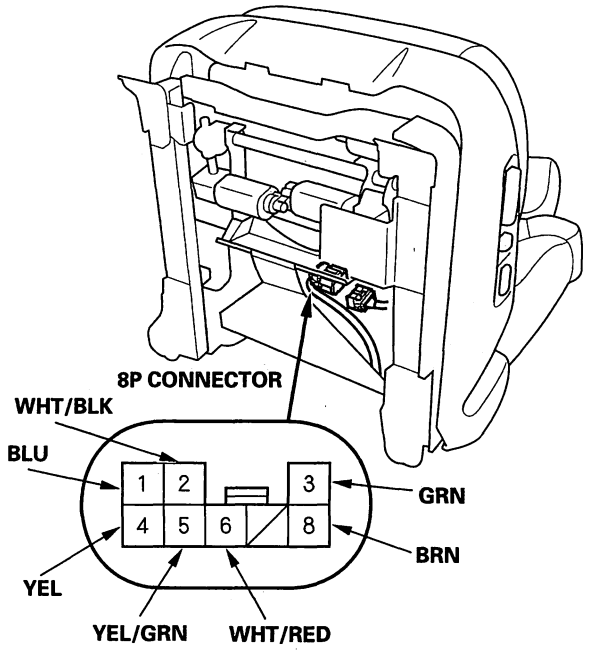
   - Slide motor (see page 20-144)
   - Front up-down motor (see page 20-144)
   - Rear up-down motor (see page 20-144)

BACK

Protected by AR

Recline motor

1. Remove the driver's seat (see page 20-141).
2. Disconnect the power seat wire harness 8P connector from the recline motor/lumbar support motor subharness.



3. Test motor by connecting power and ground according to the table. When the motor stops running, disconnect battery power immediately.

Position		Terminal 4	Terminal 5
RECLINE MOTOR	FORWARD	⊕	⊖
	BACKWARD	⊖	⊕

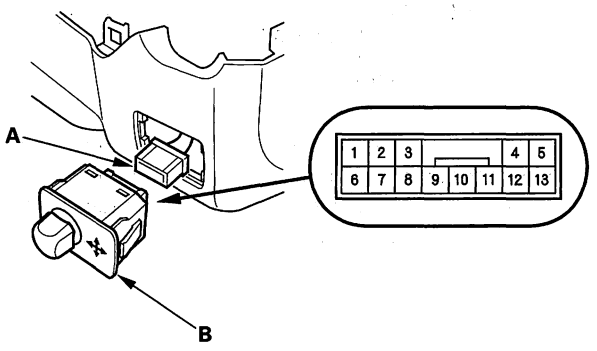
*: With ventilated seats

4. If the motor does not run or fails to run smoothly, check for an open in the wire between the 8P connector and recline motor. If the harness is OK, replace the recline motor (see page 20-148).

Protected by AR

Power Tilt/Telescopic Steering Switch Test/Replacement

1. Remove the steering column covers (see page 20-129).
2. Disconnect the 13P connector (A) from the power tilt/telescopic steering switch (B).



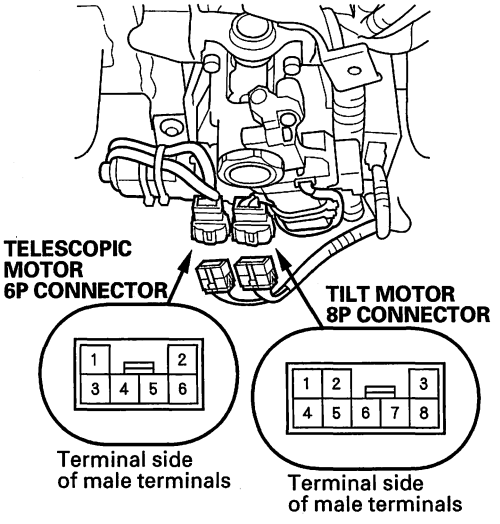
3. Check for continuity between the terminals in each switch position according to the table.

Position \ Terminal	1	3	6	7	10
TILT UP	○	○	○	○	
TILT DOWN	○	○		○	
TELESCOPIC PUSH		○	○	○	○
TELESCOPIC PULL		○	○	○	○

4. If the continuity is not as specified, replace the switch.

Power Tilt/Telescopic Steering Motor Test

1. Remove the steering column covers (see page 20-129).
2. Disconnect the 6P connector (A) and 8P connector (B) from the power tilt/telescopic steering motors.



3. Check each motor by connecting power and ground according to the table. When the motor stops running, disconnect battery power immediately.

TILT MOTOR:

Position \ Terminal	2	3
TILT UP	⊖	⊕
TILT DOWN	⊕	⊖

TELESCOPIC MOTOR:

Position \ Terminal	1	2
TELESCOPIC IN	⊖	⊕
TELESCOPIC OUT	⊕	⊖

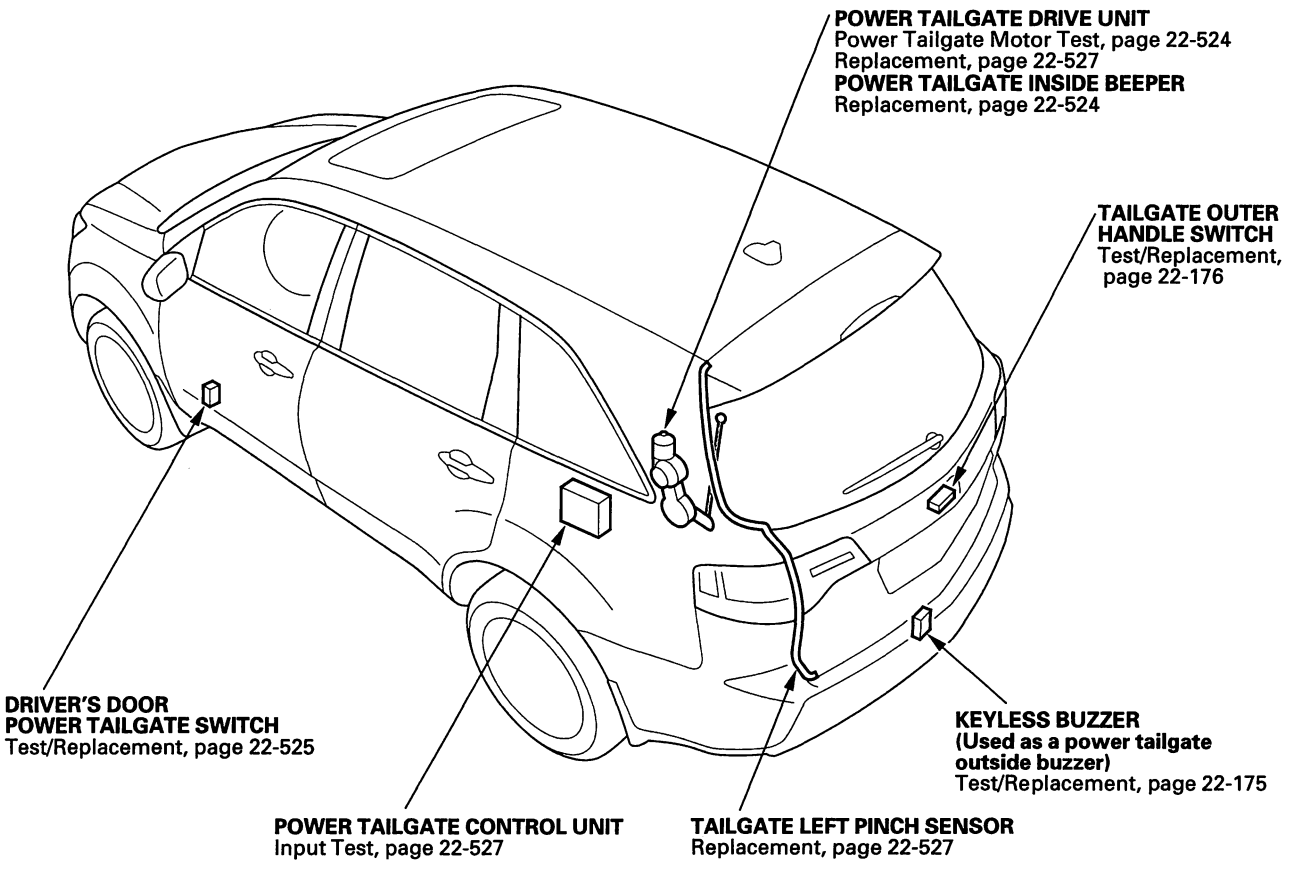
4. If the motor does not run or fails to run smoothly; replace the steering column assembly (see page 17-25).

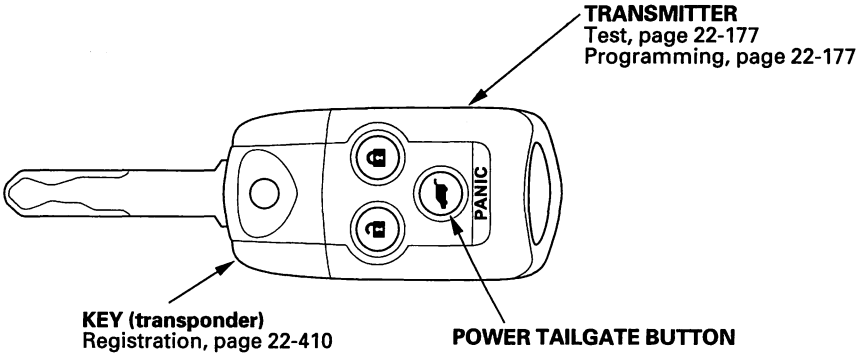
BACK

Protected by AR

Power Tailgate

Component Location Index

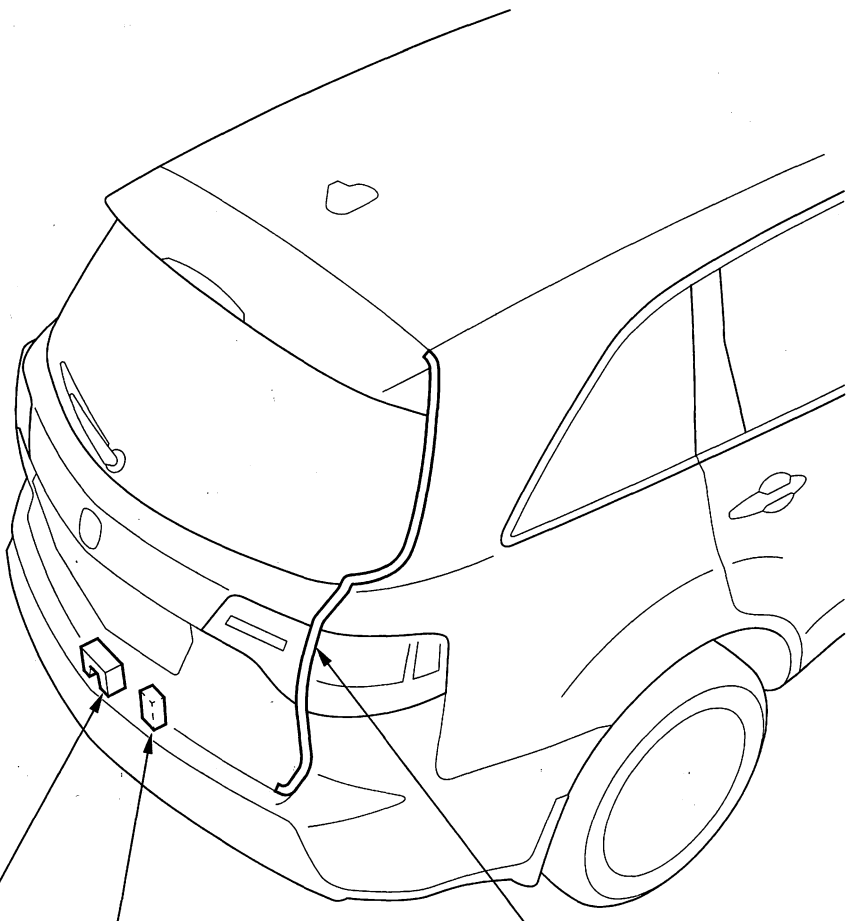




(cont'd)

Protected by AR

Component Location Index (cont'd)



INSIDE TAILGATE SWITCH
Test/Replacement, page 22-525

TAILGATE RIGHT PINCH SENSOR
Replacement, page 22-527

TAILGATE LATCH ASSEMBLY (CLOSER UNIT)
(Including closer motor and latch/ratchet switch)
Latch/Ratchet Switch Test, page 22-526
Closer Motor Test, page 22-526

BACK

Protected by AR

System Description

The power tailgate can be opened and closed automatically by operating the dashboard switch, outside handle switch (for open), inside switch (for close) or the keyless transmitter. The power tailgate has two safety functions for safeguarding passengers: obstruction detection , and fall-down detection.

Basic Operation

OPEN: The power tailgate can be opened by operating the driver's switch, outside handle, or the keyless transmitter under the following conditions:

- Tailgate is fully closed (full-latched position is detected.).
- Driver's door or Passenger's door lock knob switch is in UNLOCKED.
- The remote unlock button is pressed twice, and then the tailgate button is pressed and held for 2 seconds (unless customized setting are set to unlock all doors).
- Shift lever is in Park position.
- Vehicle speed is less than 1.2 mph (2 km/h).
- Closer unit detects the neutral position.
- Battery voltage (VBU) is more than 11 V.
- System is not in fail-safe mode.

CLOSE: The power tailgate can be closed by operating the driver's door tailgate switch, inside tailgate switch, or the keyless transmitter under the following conditions:

- Tailgate is fully open.
- Pinch sensor detects no obstruction.
- Closer unit detects the neutral position.
- Battery voltage (VBU) is more than 11 V.
- System is not in fail-safe mode.

Obstruction Detection Function

If any obstruction is detected while the tailgate is automatically opening or closing, the tailgate will stop and the reverse operation is activated. An obstruction is detected by the tailgate pinch sensor and the pulser in the drive unit. If the obstruction is detected when the shift lever is in any other position than P, or the vehicle speed exceeds 1.2 mph (2 km/h), the tailgate stops moving immediately.

(cont'd)

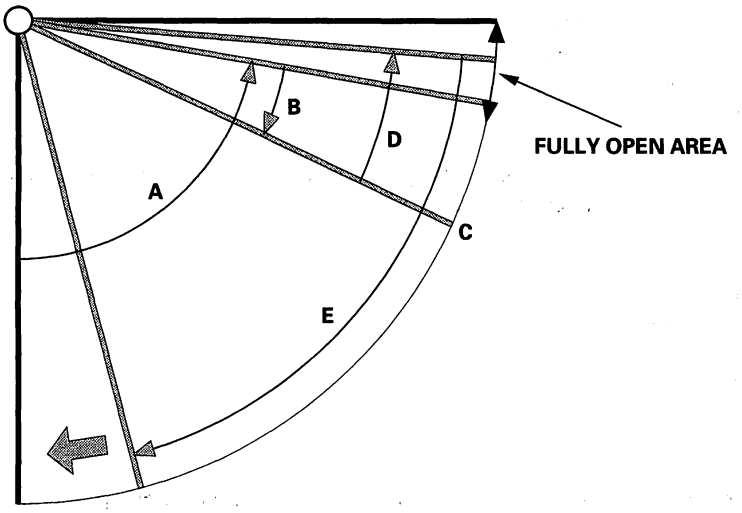
Protected by AR

System Description (cont'd)

Fall-down Detection Function

This function prevents the tailgate from suddenly falling down because of an accumulation of snow, or other causes. If the pulser in the drive unit detects abnormal pulses, the tailgate starts to open. If this operation is activated twice, the tailgate will close automatically. If the obstruction detection function detects any obstruction several times during this fall-down detection function, the tailgate stops moving.
NOTE: If the tailgate falls repeatedly, replace the tailgate support strut (see page 20-198).

A: Auto open action completed
B: Tailgate falling is detected
C: Clutch reconnect when falling is detected
D: Auto open action (power tailgate motor reverse action)
E: Close function activated from fully open position



Power Tailgate Buzzer Beep Pattern

Condition	Beep Pattern
When the tailgate starts to open automatically	Beeps 1 time
When the tailgate starts to close automatically	Beeps 1 time
When the reverse operation is started after the tailgate has detected any obstruction	Beeps 3 times
When the reverse operation is started by switch operation	Beeps 3 times
When the vehicle speed exceeds 1.2 mph (2 km/h) while the tailgate is opening automatically	Beeps intermittently until the condition is corrected
When the operating time is over	Beeps 3 times
When the vehicle speed exceeds 1.2 mph (2 km/h) while the tailgate is closing automatically	Beeps intermittently until the condition is corrected
When the tailgate is not fully-latched, and the following condition is met: The shift lever is any position other than P, and Brake pedal position switch and parking brake switch is OFF, and the vehicle speed exceeds 1.2 mph (2 km/h).	Beeps intermittently until the condition is corrected
When the tailgate fall-down detection function is activated	Beeps continuously

BACK

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Resetting the Power Tailgate Control Unit

If the battery terminal is disconnected or No. 7 (10 A) fuse in the under-dash fuse/relay box is removed while the power tailgate is operating, the power tailgate will not be able to open or close automatically until it is reset. To reset the system, fully close the tailgate manually. Once the battery terminals are reconnected or No. 7 (10 A) fuse in the under-dash fuse/relay box is replaced, the power tailgate system will automatically reset. Make sure the power tailgate operates properly.

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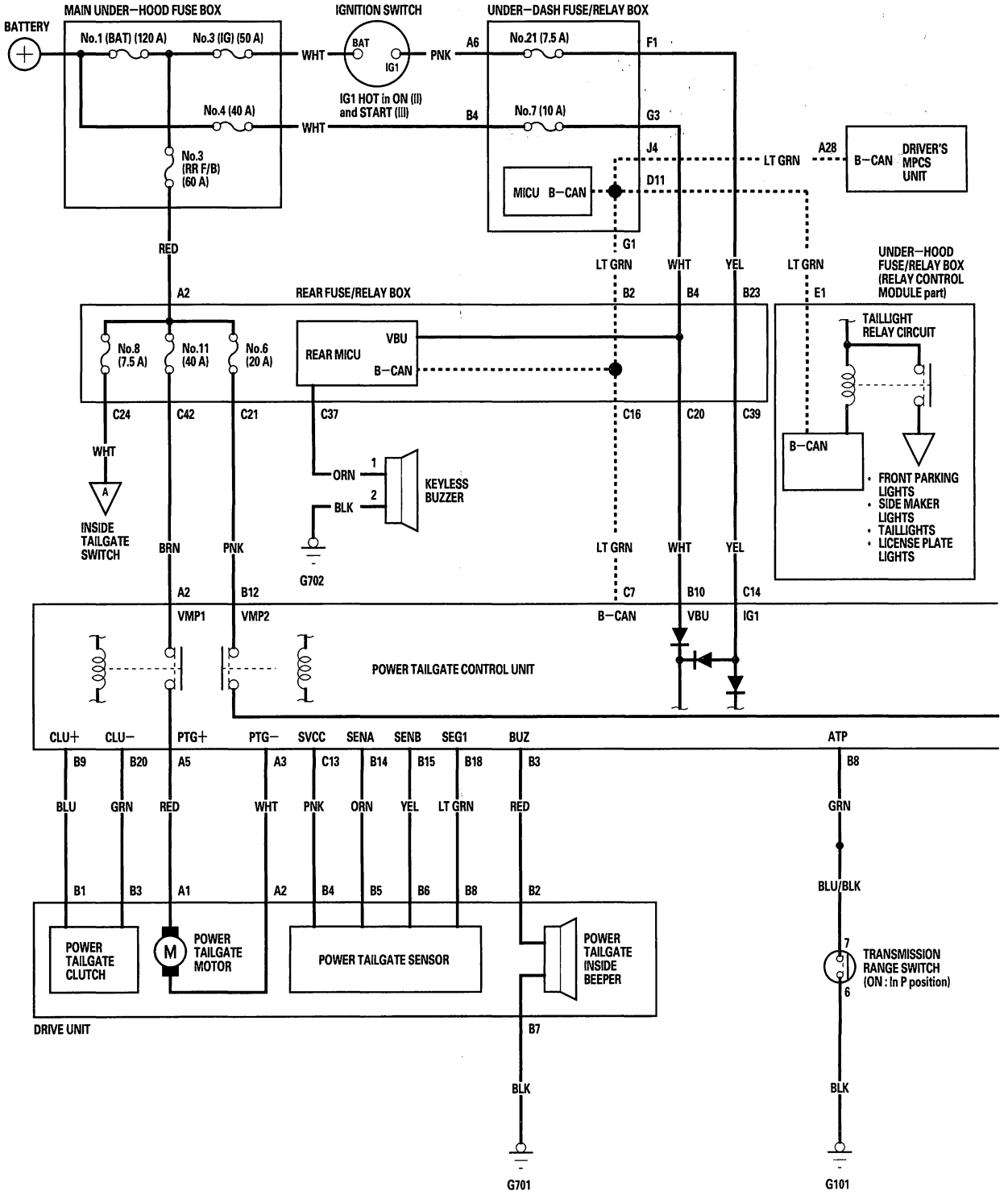
Power Tailgate

Circuit Diagram



BACK

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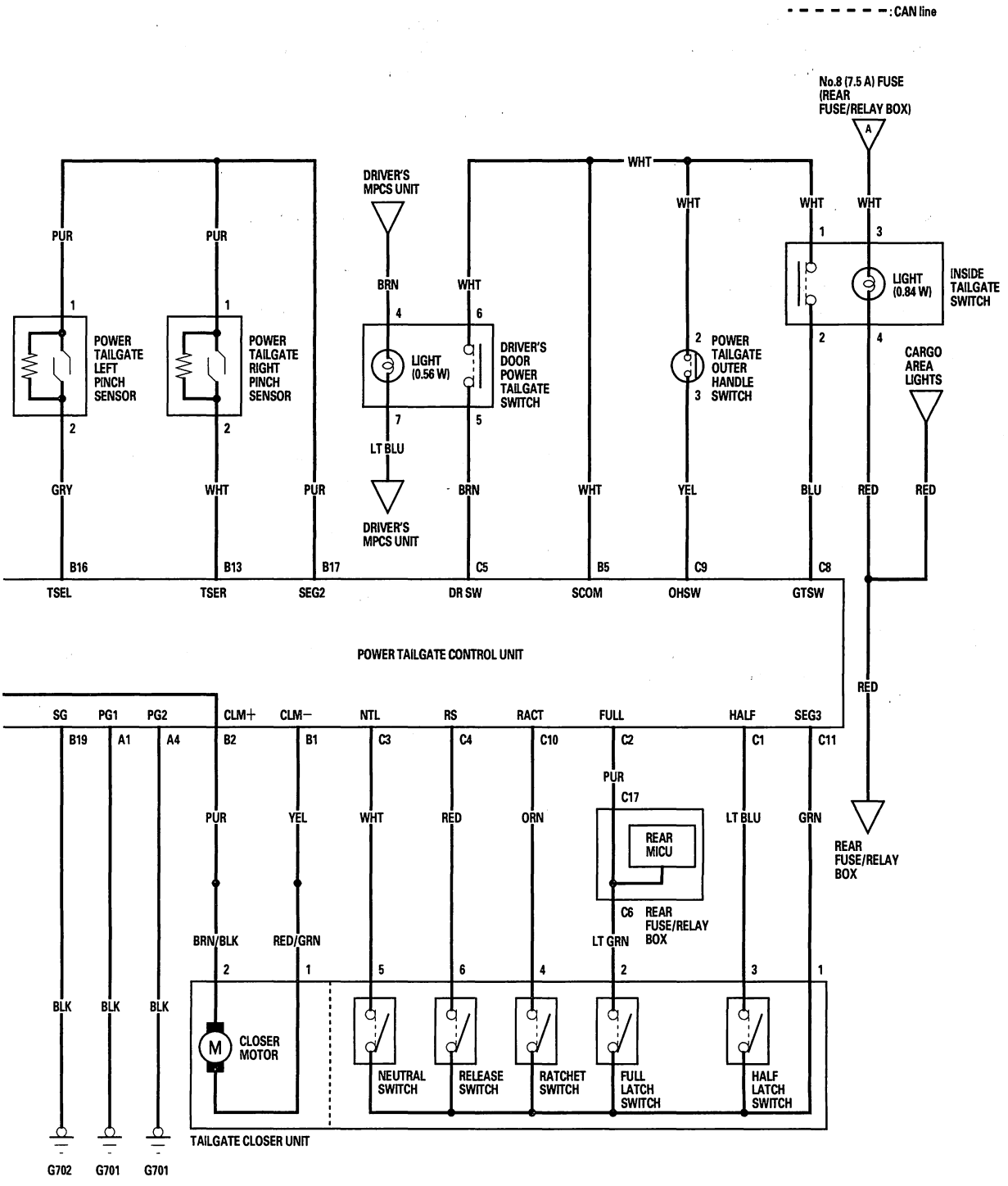

BACK

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DTC Troubleshooting

DTC B1352: Power Tailgate Control Unit Internal (EEPROM) Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Turn the ignition switch OFF.
2. Connect the HDS to the data link connector.
3. Remove the No. 7 (10 A) fuse from the under-dash fuse/relay box.
4. Wait for 1 minute, then reinstall the No. 7 (10 A) fuse to the under-dash fuse/relay box.
5. Close the tailgate manually (not with the power tailgate switch).
6. Turn the ignition switch ON (II).
7. Check for DTCs with the HDS.

   Is DTC B1352 indicated?

   YES—Replace the power tailgate control unit. ■

   NO—Intermittent failure, the power tailgate control unit is OK at this time. Check for loose or poor connections between the power tailgate control unit and the MICU. ■

DTC B1355: Power Tailgate Control Unit Lost Communication with MICU (MICU Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1355 indicated?

   YES—Go to Step 5.

   NO—Intermittent failure, the power tailgate control unit is OK at this time. Check for loose or poor connections between the power tailgate control unit and the MICU. ■

5. Check for DTCs with the HDS.

   Are DTCs B1055, B1157, B1160, B1255, B1955, B2155, and/or B1806 also indicated?

   YES—Do the MICU input test (see page 22-132). ■

   NO—Do the power tailgate control unit input test (see page 22-522). ■

BACK

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DTC B1356: Power Tailgate Control Unit Lost Communication with Driver's MPCS Unit (DRLOCKSW Message)

DTC B1358: Power Tailgate Control Unit Lost Communication with Driver's MPCS Unit (ASLOCKSW Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1356 and/or B1358 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the driver's MPCS unit. ■
5. Check for DTCs with the HDS.

   Are DTCs B1013, B1015, B1065, B1182, and B1905 also indicated?

   YES—Do the driver's MPCS unit input test (see page 22-278). ■

   NO—Do the power tailgate control unit input test (see page 22-522). ■

DTC B1357: Power Tailgate Control Unit Lost Communication with Gauge Control Module (VSP/NE Message)

DTC B1359: Power Tailgate Control Unit Lost Communication with Gauge Control Module (A/T Message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1357 and/or B1359 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the gauge control module. ■
5. Check for DTCs with the HDS.

   Are DTCs B1011, B1060, B1061, B1205, B1206, B1207, B1906, B1956, and/or B2160 also indicated?

   YES—Do the gauge control module input test (see page 22-334). ■

   NO—Do the power tailgate control unit input test (see page 22-522). ■

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DTC Troubleshooting (cont'd)

DTC B1375: Driver's Door Power Tailgate Switch Circuit Malfunction

NOTE: If the power tailgate motor does not operate, test the motor first.

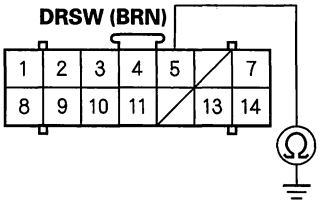
1. Turn the ignition switch OFF, and then back ON (II).
2. Clear the DTCs with the HDS.
3. Operate the dashboard power tailgate switch for more than 1 second.
4. Check for DTCs with the HDS.

   Is DTC B1375 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the driver's door power tailgate switch. ■
5. Turn the ignition switch OFF.
6. Disconnect the 5P connector from the driver's door power tailgate switch.
7. Disconnect the power tailgate control unit connector C (14P).
8. Check for continuity between the power tailgate control unit connector C (14P) No. 5 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR C (14P)



Wire side of female terminals

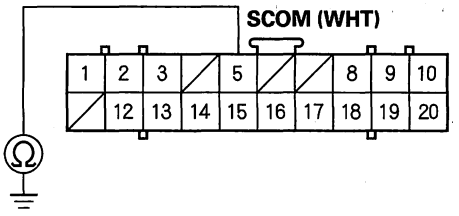
Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 9.

9. Disconnect the power tailgate control unit connector B (20P).
10. Check for continuity between the power tailgate control unit connector B (20P) No. 5 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 11.

11. Do the driver's door power tailgate switch test (see page 22-525).

    Is the switch OK?

    YES—Replace the power tailgate control unit. ■

    NO—Replace the driver's door power tailgate switch. ■

BACK

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DTC B1376: Tailgate Outer Handle Switch Circuit Malfunction

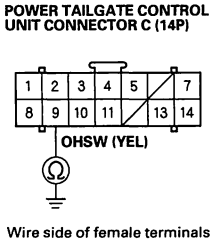
NOTE: If the power tailgate motor does not operate, test the motor first.

1. Turn the ignition switch OFF, and then back ON (II).
2. Clear the DTCs with the HDS, and wait for 2 seconds.
3. Pull the tailgate outer handle for more than 2 seconds.
4. Check for DTCs with the HDS.

   Is DTC B1376 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections at the power tailgate control unit and at the tailgate outer handle switch. ■
5. Turn the ignition switch OFF.
6. Open the power tailgate with the keyless transmitter.
7. Disconnect the 3P connector from the tailgate outer handle switch.
8. Disconnect the power tailgate control unit connector C (14P).
9. Check for continuity between the power tailgate control unit connector C (14P) No. 9 terminal and body ground.



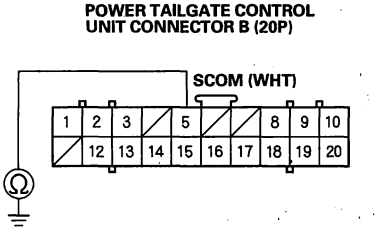
Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to Step 10.

10. Disconnect the power tailgate control unit connector B (20P).
11. Check for continuity between the power tailgate control unit connector B (20P) No. 5 terminal and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 12.

12. Test the tailgate outer handle switch (see page 22-176).

    Is the switch OK?

    YES—Replace the power tailgate control unit. ■

    NO—Replace the tailgate outer handle switch. ■

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DTC Troubleshooting (cont'd)

DTC B1377: Inside Tailgate Switch Circuit Malfunction

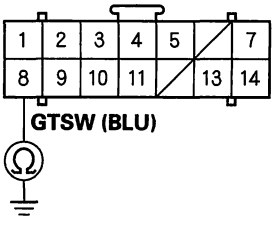
1. Turn the ignition switch OFF, and then back ON (II).
2. Clear the DTCs with the HDS.
3. Open the tailgate with the keyless transmitter.
4. Push the inside tailgate switch for more than 2 seconds.
5. Check for DTCs with the HDS.

   Is DTC B1377 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the inside tailgate switch. ■
6. Turn the ignition switch OFF.
7. Disconnect the 5P connector from the inside tailgate switch.
8. Disconnect the power tailgate control unit connector C (14P).
9. Check for continuity between the power tailgate control unit connector C (14P) No. 8 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR C (14P)



Wire side of female terminals

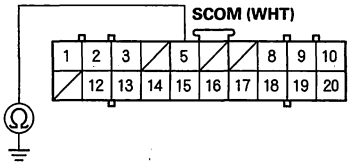
Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 10.

10. Disconnect the power tailgate control unit connector B (20P).
11. Check for continuity between the power tailgate control unit connector B (20P) No. 5 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 12.

12. Test the inside tailgate switch (see page 22-525).

    Is the switch OK?

    YES—Replace the power tailgate control unit. ■

    NO—Replace the inside tailgate switch. ■

BACK

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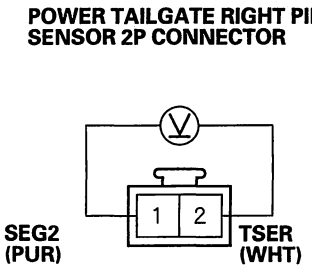
DTC B1378: Power Tailgate Right Pinch Sensor Circuit Malfunction

1. Open the tailgate manually or with the keyless transmitter.
2. Close the tailgate with the keyless transmitter or driver's door power tailgate switch.
3. Turn the ignition switch OFF, and then back ON (II).
4. Clear the DTCs with the HDS.
5. Check for DTCs with the HDS.

   Is DTC B1378 indicated?

   YES—Go to step 6.

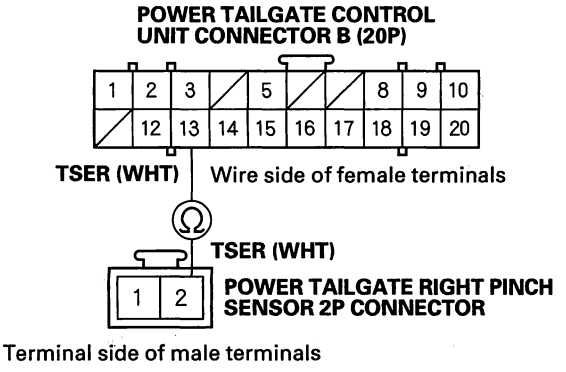
   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the power tailgate right pinch sensor. ■
6. Turn the ignition switch OFF.
7. Disconnect the 2P connector from the power tailgate right pinch sensor.
8. Turn the ignition switch ON (II).
9. Measure the voltage between the harness side of the power tailgate right pinch sensor 2P connector No. 2 (+) and No. 1 (−) terminals.



   Is there battery voltage?

   YES—Replace the power tailgate right pinch sensor. ■

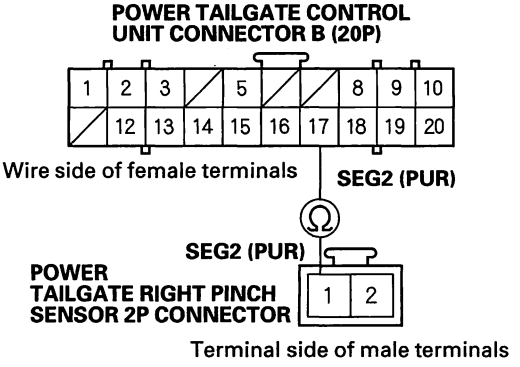
   NO—Go to step 10.
10. Turn the ignition switch OFF.
11. Disconnect the power tailgate control unit connector B (20P).
12. Check for continuity between the power tailgate control unit connector B (20P) No. 13 terminal and the power tailgate right pinch sensor 2P connector No. 2 terminal.



   Is there continuity?

   YES—Go to step 13.

   NO—Repair open in the wire. ■
13. Check for continuity between the power tailgate control unit connector B (20P) No. 17 terminal and the power tailgate right pinch sensor 2P connector No. 1 terminal.



   Is there continuity?

   YES—Replace the power tailgate control unit. ■

   NO—Repair open in the wire. ■

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DTC Troubleshooting (cont'd)

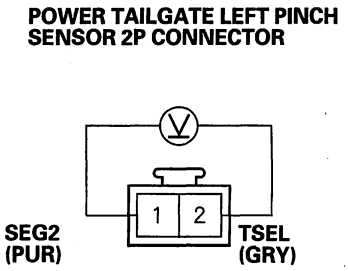
DTC B1379: Power Tailgate Left Pinch Sensor Circuit Malfunction

1. Open the tailgate manually or with the keyless transmitter.
2. Close the tailgate with the keyless transmitter or driver's door power tailgate switch.
3. Turn the ignition switch OFF, and then back ON (II).
4. Clear the DTCs with the HDS.
5. Check for DTCs with the HDS.

   Is DTC B1379 indicated?

   YES—Go to step 6.

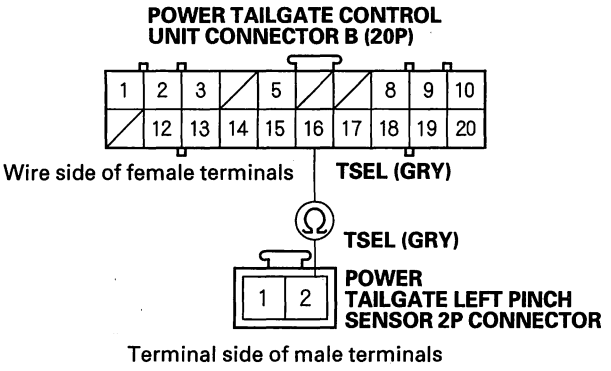
   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the power tailgate left pinch sensor. ■
6. Turn the ignition switch OFF.
7. Disconnect the 2P connector from the power tailgate left pinch sensor.
8. Turn the ignition switch ON (II).
9. Measure the voltage between the harness side of the power tailgate left pinch sensor 2P connector No. 2 (+) and No. 1 (−) terminals.



   Is there battery voltage?

   YES—Replace the power tailgate left pinch sensor. ■

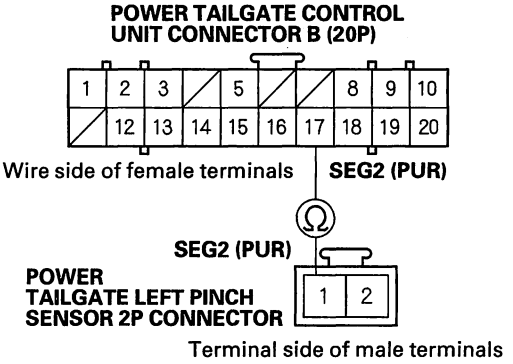
   NO—Go to step 10.
10. Turn the ignition switch OFF.
11. Disconnect the power tailgate control unit connector B (20P).
12. Check for continuity between the power tailgate control unit connector B (20P) No. 16 terminal and the power tailgate left pinch sensor 2P connector No. 2 terminal.



   Is there continuity?

   YES—Go to step 13.

   NO—Repair open in the wire. ■
13. Check for continuity between the power tailgate control unit connector B (20P) No. 17 terminal and the power tailgate left pinch sensor 2P connector No. 1 terminal.



   Is there continuity?

   YES—Replace the power tailgate control unit. ■

   NO—Repair open in the wire. ■

BACK

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DTC B1380: Power Tailgate Closer Unit Neutral Switch Circuit Malfunction

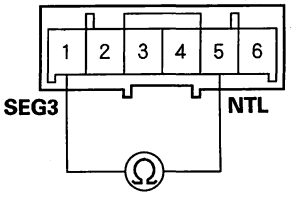
1. Open the tailgate with the tailgate outer handle.
2. Close the tailgate manually.
3. Turn the ignition switch OFF, and then back ON (II).
4. Clear the DTCs with the HDS.
5. Check for DTCs with the HDS.

   Is DTC B1380 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the power tailgate closer unit. ■
6. Open the tailgate with the power tailgate outer handle.
7. Turn the ignition switch OFF.
8. Disconnect the 6P connector from the power tailgate closer unit.
9. Check for continuity between the power tailgate closer unit 6P connector No. 1 and No. 5 terminals.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

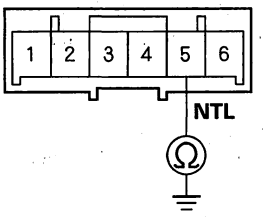
Is there continuity?

YES—Faulty neutral switch, replace the power tailgate closer unit. ■

NO—Go to step 10.

10. Check for continuity between the power tailgate closer unit 6P connector No. 5 terminal and body ground.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

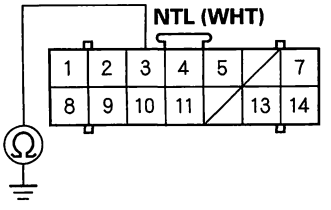
Is there continuity?

YES—Replace the power tailgate closer unit. ■

NO—Go to step 11.

11. Disconnect the power tailgate control unit connector C (14P).
12. Check for continuity between the power tailgate control unit connector C (14P) No. 3 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR C (14P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

NO—Go to step 13.

(cont'd)

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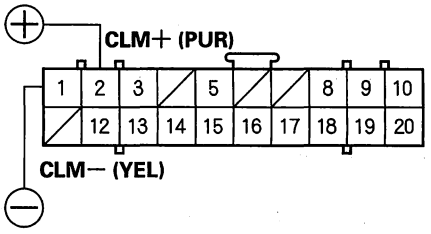
DTC Troubleshooting (cont'd)

13. Turn the tailgate lock latch to the fully-closed position using a screwdriver.

14. Disconnect the 20P connector from the power tailgate control unit connector B (20P).

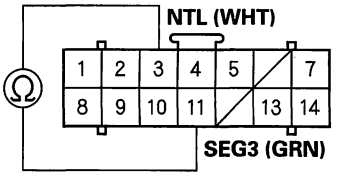
15. Connect battery power to the power tailgate control unit connector B (20P) No. 2 terminal and ground the No. 1 terminal momentarily. (The motor should run in the release direction.)

POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



16. Check for continuity between the power tailgate control unit connector C (14P) No. 3 and No. 11 terminals.

POWER TAILGATE CONTROL UNIT CONNECTOR C (14P)



Wire side of female terminals

Is there continuity?

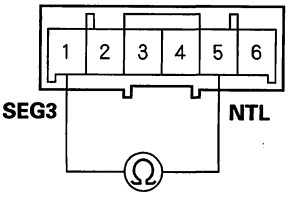
YES—Replace the power tailgate control unit. ■

NO—Go to step 17.

17. Disconnect the 6P connector from the tailgate closer unit.

18. Check for continuity between the power tailgate closer unit 6P connector No. 1 and No. 5 terminals.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair open in the wire between the power tailgate closer unit and power tailgate control unit. ■

NO—Replace the power tailgate closer unit. ■

BACK

Protected by AR

DTC B1381: Power Tailgate Closer Unit Release Switch Circuit Malfunction

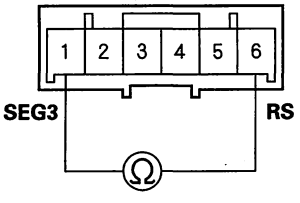
1. Open the tailgate with the tailgate outer handle switch.
2. Close the tailgate manually.
3. Turn the ignition switch OFF, and then back ON (II).
4. Clear the DTCs with the HDS.
5. Check for DTCs with the HDS.

   Is DTC B1381 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the tailgate closer unit. ■
6. Open the tailgate with the tailgate outer handle.
7. Turn the ignition switch OFF.
8. Disconnect the 6P connector from the power tailgate closer unit.
9. Check for continuity between the power tailgate closer unit 6P connector No. 1 and No. 6 terminals.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

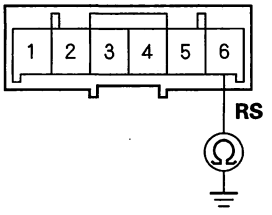
Is there continuity?

YES—Faulty release switch, replace the power tailgate closer unit. ■

NO—Go to step 10.

10. Check for continuity between the power tailgate closer unit 6P connector No. 6 terminal and body ground.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

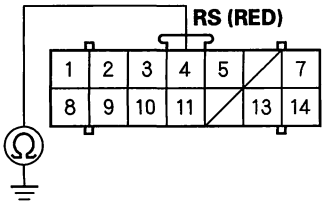
Is there continuity?

YES—Replace the power tailgate closer unit. ■

NO—Go to Step 11.

11. Disconnect the power tailgate control unit connector C (14P).
12. Check for continuity between the power tailgate control unit connector C (14P) No. 4 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR C (14P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

NO—Go to step 13.

(cont'd)

Protected by AR

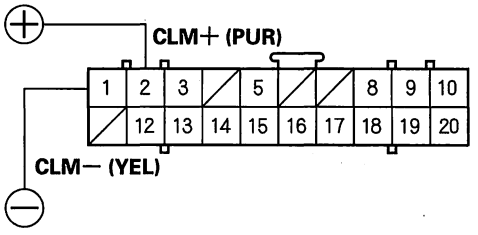
DTC Troubleshooting (cont'd)

13. Turn the tailgate lock latch to the fully-closed position using a screwdriver.

14. Disconnect the power tailgate control unit connector B (20P).

15. Connect battery power to the power tailgate control unit connector B (20P) No. 2 terminal and ground the No. 1 terminal momentarily. (The motor should run in the release direction.)

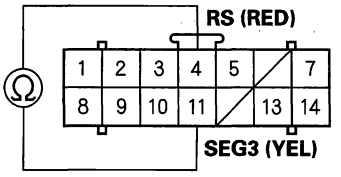
POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

16. Check for continuity between the power tailgate control unit connector C (14P) No. 4 and No. 11 terminals.

POWER TAILGATE CONTROL UNIT CONNECTOR C (14P)



Wire side of female terminals

Is there continuity?

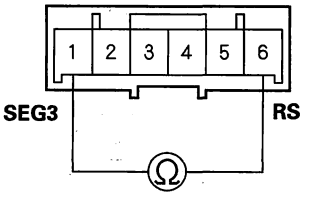
YES—Replace the power tailgate control unit. ■

NO—Go to step 17.

17. Disconnect the 6P connector from the tailgate closer unit.

18. Check for continuity between the power tailgate closer unit 6P connector No. 1 and No. 6 terminals.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair open in the wire between the power tailgate closer unit and power tailgate control unit. ■

NO—Replace the power tailgate closer unit. ■

BACK

Protected by AR

DTC B1382: Power Tailgate Closer Unit Full Latch Switch Circuit Malfunction

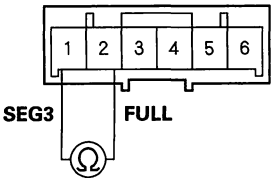
1. Open the tailgate with the tailgate outer handle.
2. Close the tailgate manually.
3. Turn the ignition switch OFF, and then back ON (II).
4. Clear the DTCs with the HDS.
5. Check for the DTCs with the HDS.

   Is DTC B1382 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the power tailgate closer unit. ■
6. Open the tailgate with the tailgate outer handle.
7. Turn the ignition switch OFF.
8. Turn the tailgate lock latch to the fully-closed position using a screwdriver.
9. Disconnect the 6P connector from the power tailgate closer unit.
10. Check for continuity between the power tailgate closer unit 6P connector No. 1 and No. 2 terminals.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

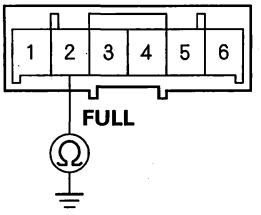
Is there continuity?

YES—Faulty full latch switch, replace the power tailgate closer unit. ■

NO—Go to step 11.

11. Check for continuity between the power tailgate closer unit 6P connector No. 2 terminal and body ground.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

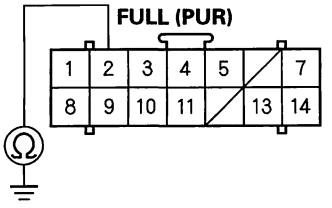
Is there continuity?

YES—Replace the tailgate closer unit. ■

NO—Go to Step 12.

12. Disconnect the power tailgate control unit connector C (14P).
13. Check for continuity between the power tailgate control unit connector C (14P) No. 2 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR C (14P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between the power tailgate control unit and the rear fuse/relay box or between the rear fuse/relay box and the power tailgate closer unit. If the wire harness are OK, replace the MICU-rear junction box. ■

NO—Go to step 14.

(cont'd)

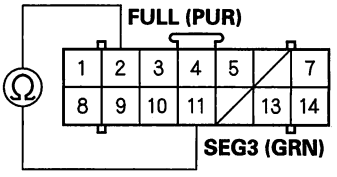
Protected by AR

DTC Troubleshooting (cont'd)

14. Turn the tailgate emergency lever to release the tailgate lock latch from the fully-locked position to release position.

15. Check for continuity between the power tailgate control unit connector C (14P) No. 2 and No. 11 terminals.

POWER TAILGATE CONTROL UNIT CONNECTOR C (14P)



Wire side of female terminals

Is there continuity?

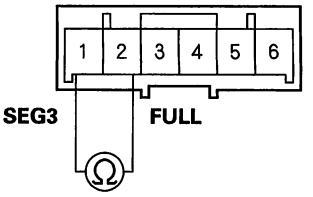
YES—Replace the power tailgate control unit. ■

NO—Go to step 16.

16. Disconnect the 6P connector from the power tailgate closer unit.

17. Check for continuity between the power tailgate closer unit 6P connector No. 1 and No. 2 terminals.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair open in the wire between the power tailgate closer unit and power tailgate control unit. ■

NO—Replace the power tailgate closer unit. ■

BACK

Protected by AR

DTC B1383: Power Tailgate Closer Unit Ratchet Switch Circuit Malfunction

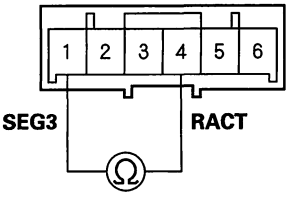
1. Open the tailgate with the tailgate outer handle.
2. Close the tailgate manually.
3. Turn the ignition switch OFF, and then back ON (II).
4. Clear the DTCs with the HDS.
5. Check for DTCs with the HDS.

   Is DTC B1383 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the power tailgate closer unit. ■
6. Open the tailgate with the tailgate outer handle.
7. Turn the ignition switch OFF.
8. Disconnect the 6P connector from the power tailgate closer unit.
9. Check for continuity between the power tailgate closer unit 6P connector No. 1 and No. 4 terminals.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

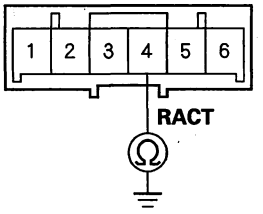
Is there continuity?

YES—Faulty ratchet switch, replace the power tailgate closer unit. ■

NO—Go to step 10.

10. Check for continuity between the power tailgate closer unit 6P connector No. 4 terminal and body ground.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

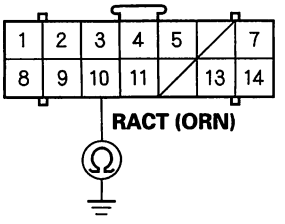
Is there continuity?

YES—Replace the tailgate closer unit. ■

NO—Go to Step 11.

11. Disconnect the power tailgate control unit connector C (14P).
12. Check for continuity between the power tailgate control unit connector C (14P) No. 10 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR C (14P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Go to step 13.

(cont'd)

Protected by AR

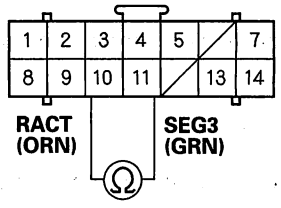
DTC Troubleshooting (cont'd)

13. Turn the tailgate lock latch to the fully-locked position using a screwdriver.

14. Turn the tailgate emergency lever to release the tailgate lock latch from the fully-locked position to release position.

15. Check for continuity between the power tailgate control unit connector C (14P) No. 10 and No. 11 terminals.

POWER TAILGATE CONTROL UNIT CONNECTOR C (14P)



Wire side of female terminals

Is there continuity?

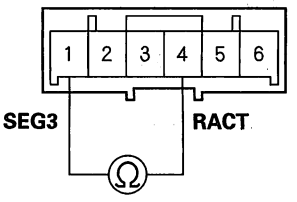
YES—Replace the power tailgate control unit. ■

NO—Go to step 16.

16. Disconnect the 6P connector from the power tailgate closer unit.

17. Check for continuity between the power tailgate closer unit 6P connector No. 1 and No. 4 terminals.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair open in the wire between the power tailgate closer unit and power tailgate control unit. ■

NO—Replace the power tailgate closer unit. ■

BACK

Protected by AR

DTC B1384: Power Tailgate Closer Unit Half Latch Switch Circuit Malfunction

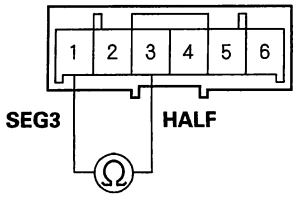
1. Open the tailgate with the tailgate outer handle.
2. Close the tailgate manually.
3. Turn the ignition switch OFF, and then back ON (II).
4. Clear the DTCs with the HDS.
5. Check for DTCs with the HDS.

   Is DTC B1384 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the tailgate closer unit. ■
6. Open the tailgate with the tailgate outer handle.
7. Turn the ignition switch OFF.
8. Turn the tailgate lock latch to the fully-closed position using a screwdriver.
9. Disconnect the 6P connector from the power tailgate closer unit.
10. Check for continuity between the power tailgate closer unit 6P connector No.1 and No.3 terminals.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

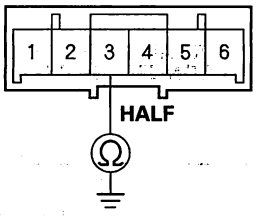
Is there continuity?

YES—Faulty half latch switch, replace the power tailgate closer unit. ■

NO—Go to step 11.

11. Check for continuity between the power tailgate closer unit 6P connector No. 3 terminal and body ground.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

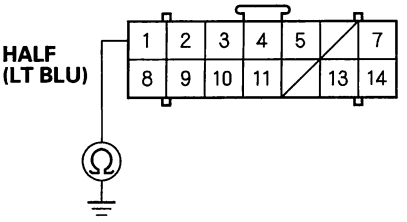
Is there continuity?

YES—Replace the power tailgate closer unit. ■

NO—Go to Step 12.

12. Disconnect the power tailgate control unit connector C (14P).
13. Check for continuity between the power tailgate control unit connector C (14P) No. 1 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR C (14P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

NO—Go to step 14.

(cont'd)

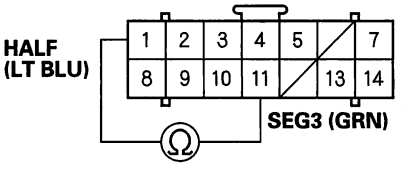
Protected by AR

DTC Troubleshooting (cont'd)

14. Turn the emergency lever of the tailgate and release the tailgate lock latch from the fully-locked position.

15. Check for continuity between the power tailgate control unit connector C (14P) No. 1 and No. 11 terminals.

POWER TAILGATE CONTROL UNIT CONNECTOR C (14P)



Wire side of female terminals

Is there continuity?

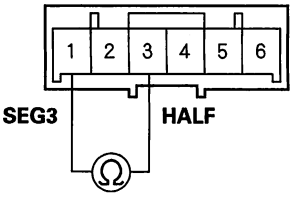
YES—Replace the power tailgate control unit. ■

NO—Go to step 16.

16. Disconnect the 6P connector from the power tailgate closer unit.

17. Check for continuity between the power tailgate closer unit 6P connector No. 1 and No. 3 terminals.

POWER TAILGATE CLOSER UNIT 6P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair open in the wire between the power tailgate closer unit and power tailgate control unit. ■

NO—Replace the power tailgate closer unit. ■

BACK

Protected by AR

DTC B1386: Power Tailgate Sensor Pulse A Circuit Malfunction

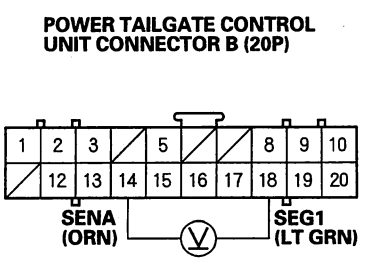
NOTE: If the motor does not operate, do the power tailgate motor test (see page 22-524).

1. Open the tailgate with the tailgate outer handle.
2. Close the tailgate automatically with the keyless transmitter or inside tailgate switch.
3. Turn the ignition switch OFF, and then back ON (II).
4. Clear the DTCs with the HDS.
5. Check for DTCs with the HDS.

   Is DTC B1386 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the drive unit.■
6. Turn the ignition switch OFF.
7. Connect the voltmeter to the power tailgate control unit connector B (20P) No. 14 and No. 18 terminals.
8. Measure the voltage between the power tailgate control unit connector B (20P) No. 14 and No. 18 terminals while the tailgate is opening and closing with the keyless transmitter or inside tailgate switch.



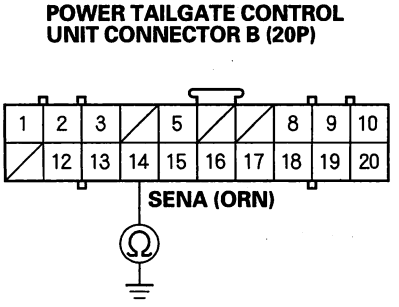
Wire side of female terminals

Does it alternate between about 0 V and 5 V?
NOTE: Digital voltmeter will read about 2.5 V.

YES—Replace the power tailgate control unit.■

NO—Go to step 9.

9. Disconnect the power tailgate control unit connector B (20P).
10. Disconnect the 8P connector from the drive unit.
11. Check for continuity between the power tailgate control unit connector B (20P) No. 14 terminal and body ground.



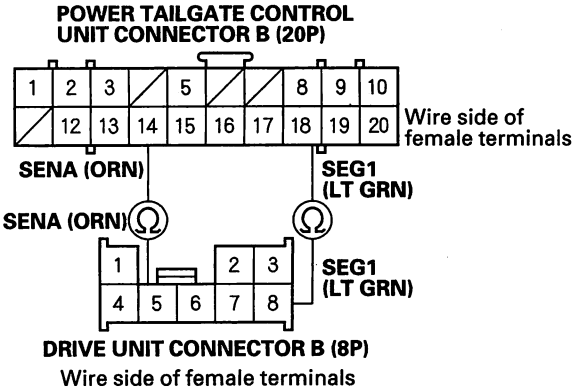
Wire side of female terminals

Is there continuity?

YES—Repair short in the wire.■

NO—Go to step 12.

12. Check for continuity between the power tailgate control unit connector B (20P) No. 14 and No. 18 terminals and drive unit connector B (8P) No. 5 and No. 8 terminals respectively.



Is there continuity?

YES—Faulty power tailgate sensor A, replace the drive unit.■

NO—Repair open in the wire.■

Protected by AR

DTC Troubleshooting (cont'd)

DTC B1387: Power Tailgate Sensor Pulse B Circuit Malfunction

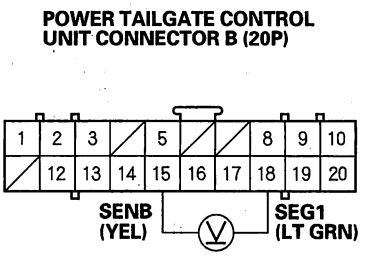
NOTE: If the motor does not operate, do the power tailgate motor test (see page 22-524).

1. Open the tailgate with the tailgate outer handle.
2. Close the tailgate automatically with the keyless transmitter or inside tailgate switch.
3. Turn the ignition switch OFF, and then back ON (II).
4. Clear the DTCs with the HDS.
5. Check for DTCs with the HDS.

   Is DTC B1387 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the drive unit.■
6. Turn the ignition switch OFF.
7. Connect the voltmeter to the power tailgate control unit B connector (20P) No. 15 and No. 18 terminals.
8. Measure the voltage between the power tailgate control unit connector B (20P) No. 15 and No. 18 terminals while the tailgate is opening and closing with the keyless transmitter or inside tailgate switch.



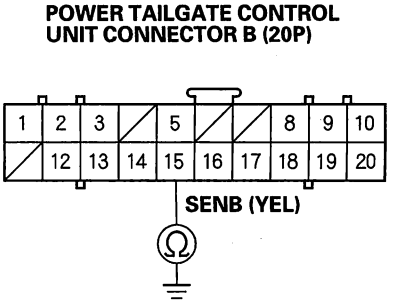
Wire side of female terminals

Does it alternate between about 0 V and 5 V?
NOTE: Digital voltmeter will read about 2.5 V.

YES—Replace the power tailgate control unit.■

NO—Go to step 9.

9. Disconnect the power tailgate control unit connector B (20P).
10. Disconnect the 8P connector from the drive unit.
11. Check for continuity between the power tailgate control unit connector B (20P) No. 15 terminal and body ground.



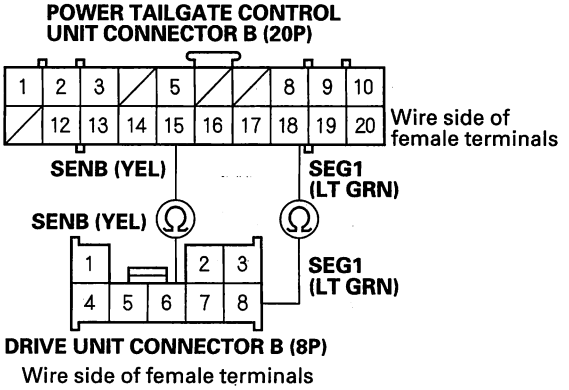
Wire side of female terminals

Is there continuity?

YES—Repair short in the wire.■

NO—Go to step 12.

12. Check for continuity between the power tailgate control unit connector B (20P) No. 15 and No. 18 terminals and drive unit connector B (8P) No. 6 and No. 8 terminals.



Wire side of female terminals

Is there continuity?

YES—Faulty power tailgate sensor B, replace the drive unit.■

NO—Repair open in the wire.■

BACK

Protected by AR

DTC B1388: Power Tailgate Motor Circuit Malfunction

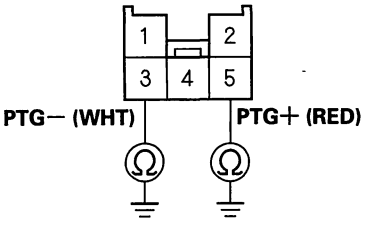
1. Open the tailgate.
2. Close the tailgate automatically with the keyless transmitter or inside tailgate switch.
3. Turn the ignition switch OFF, and then back ON (II).
4. Clear the DTCs with the HDS.
5. Check for DTCs with the HDS.

   Is DTC B1388 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the drive unit. ■
6. Turn the ignition switch OFF.
7. Disconnect the 2P connector from the drive unit.
8. Check for continuity between the power tailgate control unit connector A (5P) No. 3 and No. 5 terminals and body ground respectively.

POWER TAILGATE CONTROL UNIT CONNECTOR A (5P)



Wire side of female terminals

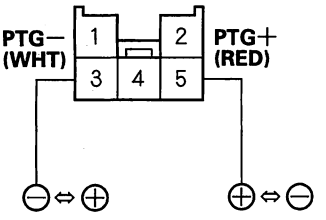
Is there continuity?

YES—Repair short in the wire. ■

NO—Go to step 9.

9. Connect battery power to the power tailgate control unit connector A (5P) No. 3 (or No. 5) terminal and ground the No. 5 or (No. 3) terminal.

POWER TAILGATE CONTROL UNIT CONNECTOR A (5P)



Wire side of female terminals

10. Check the power tailgate motor operation.

    Does the motor run normally?

    YES—Go to step 11.

    NO—Faulty power tailgate motor, replace the drive unit. ■
11. Disconnect the 20P connector from the power tailgate control unit connector B (20P).

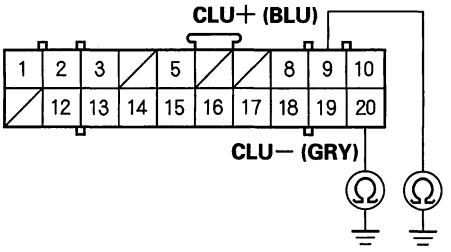
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

12. Check for continuity between the power tailgate control unit connector B (20P) No. 9 and No. 20 terminals and body ground respectively.

POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

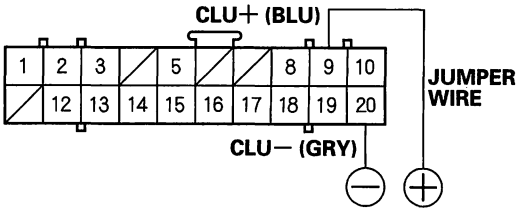
Is there continuity?

YES—Repair short in the wire.■

NO—Go to step 13.

13. Connect battery power to the power tailgate control unit connector B (20P) No. 9 terminal and ground the No. 20 terminal. Check for clutch operation.

POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

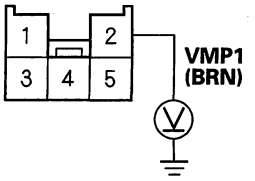
Can you hear the clutch operate?

YES—Go to step 14.

NO—Faulty power tailgate clutch, replace the drive unit.■

14. Measure the voltage between the power tailgate control unit connector A (5P) No. 2 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR A (5P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 15.

NO—Check the No. 11 (40 A) fuse in the rear fuse/relay box. If the fuse is OK, check for an open in the wire between the rear fuse/relay box and the power tailgate control unit.■

BACK

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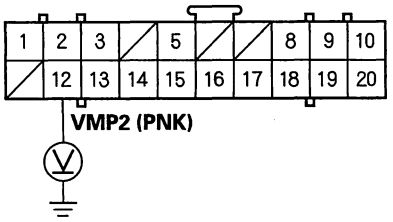
15. Measure the voltage between the power tailgate control unit connector B (20P) No. 12 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

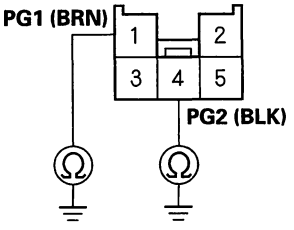
Is there battery voltage?

YES—Go to step 16.

NO—Check the No. 6 (20 A) fuse in the rear fuse/relay box. If the fuse is OK, check for an open in the wire between the rear fuse/relay box and the power tailgate control unit. ■

16. Check for continuity between the power tailgate control unit connector A (5P) No. 1 and No. 4 terminals and body ground respectively.

POWER TAILGATE CONTROL UNIT CONNECTOR A (5P)



Wire side of female terminals

Is there continuity?

YES—Replace the power tailgate control unit. ■

NO—Repair open in the wire or poor ground (G701, G702). ■

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DTC Troubleshooting (cont'd)

DTC B1389: Power Tailgate Motor Clutch Circuit Malfunction

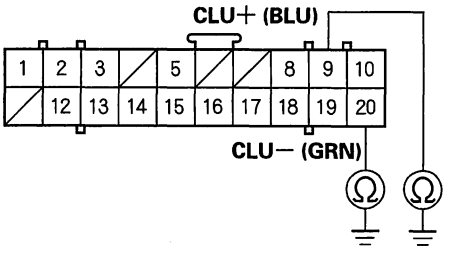
1. Open the tailgate.
2. Close the tailgate automatically with the keyless transmitter or inside tailgate switch.
3. Turn the ignition switch OFF, and then back ON (II).
4. Clear the DTCs with the HDS.
5. Check for DTCs with the HDS.

   Is DTC B1389 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the drive unit. ■
6. Turn the ignition switch OFF.
7. Open the tailgate.
8. Disconnect the power tailgate control unit connector B (20P).
9. Check for continuity between the power tailgate control unit connector B (20P) No. 9 and No. 20 terminals and body ground respectively.

POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

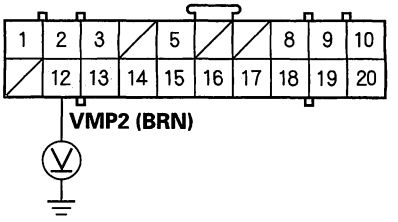
Is there continuity?

YES—Repair short in the wire. If the wire is OK, replace the drive unit. ■

NO—Go to step 10.

10. Measure the voltage between the power tailgate control unit connector B (20P) No. 12 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there battery voltage?

YES—Replace the power tailgate control unit. ■

NO—Check the No. 11 (20 A) fuse in the rear fuse/relay box. If the fuse is OK, check for an open in the wire between the rear fuse/relay box and the power tailgate control unit. ■

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DTC B1390: Power Tailgate Closer Function Error

1. With the tailgate closed, pull the tailgate outer handle and wait for 10 seconds.
2. Turn the ignition switch OFF, and then back ON (II).
3. Clear the DTCs with the HDS.
4. Listen for the sound of the latch releasing.

   Is there sound?

   YES—Go to step 5.

   NO—Go to Step 7.
5. Check for DTCs with the HDS.

   Is DTC B1390 indicated?

   YES—Go to step 6.

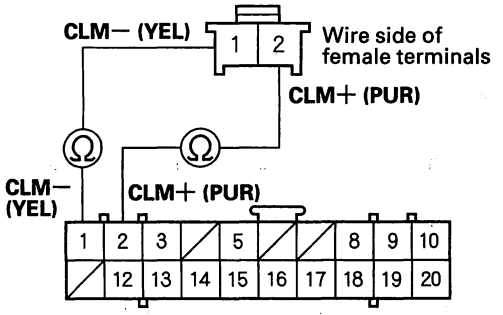
   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the power tailgate control unit and the closer motor. ■
6. Check for DTCs with the HDS.

   Are DTCs B1380, B1381, B1382, B1383, and/or B1384 also indicated?

   YES—Troubleshoot the indicated DTCs. ■

   NO—Replace the power tailgate control unit and recheck the system. ■
7. Turn the ignition switch OFF.
8. Open the tailgate.
9. Disconnect the 2P connector from the power tailgate closer motor.
10. Disconnect the power tailgate control unit connector B (20P).
11. Check for continuity between the power tailgate control unit connector B (20P) No. 1 and No. 2 terminals and the power tailgate closer motor 2P connector No. 1 and No. 2 terminals respectively.

POWER TAILGATE CLOSER MOTOR 2P CONNECTOR



Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire. ■

(cont'd)

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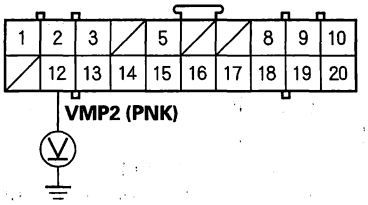
DTC Troubleshooting (cont'd)

12. Measure the voltage between the power tailgate control unit connector B (20P) No. 12 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there battery voltage?

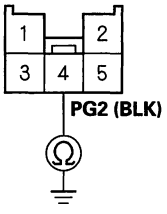
YES—Go to step 14.

NO—Check for No. 6 (20 A) fuse in the rear fuse/relay box. If the fuse is OK, check for an open in the wire between the rear fuse/relay box and power tailgate control unit. ■

13. Disconnect the power tailgate control unit connector A (5P).

14. Check for continuity between the power tailgate control unit connector A (5P) No. 4 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR A (5P)



Wire side of female terminals

Is there continuity?

YES—Go to step 15.

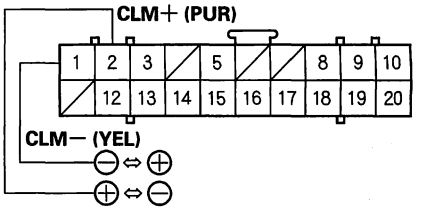
NO—Repair open in the wire or poor ground (G701). ■

15. Turn the tailgate lock latch to the fully-closed position using a screwdriver.

16. Reconnect the power tailgate closer motor 2P connector.

17. Connect battery power to the power tailgate control unit connector B (20P) No. 2 (or No. 1) terminal and ground the No. 1 (or No. 2) terminal momentarily.

POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

Does the motor run smoothly?

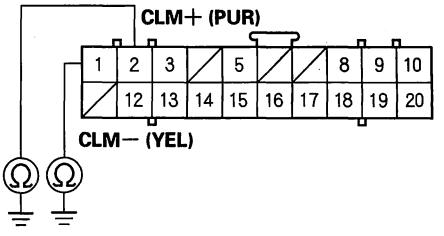
YES—Replace the power tailgate control unit. ■

NO—Go to step 18.

18. Reconnect the 6P connector to the power tailgate closer unit.

19. Check for continuity between the power tailgate control unit connector B (20P) No. 1 and No. 2 terminals and body ground respectively.

POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there continuity?

YES—Go to step 20.

NO—Go to step 22.

20. Disconnect the 6P connector from the power tailgate closer unit.

BACK

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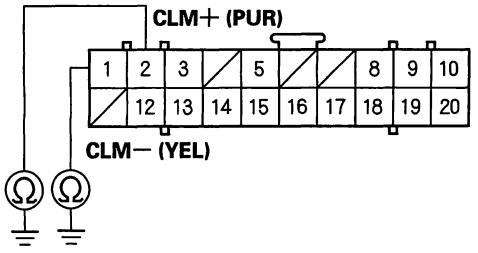
21. Check for continuity between the power tailgate control unit connector B (20P) No. 1 and No. 2 terminals and body ground respectively.

POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

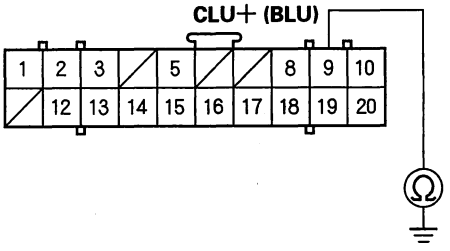
Is there continuity?

YES—Repair short in the wire. ■

NO—Replace the power tailgate closer unit. ■

22. Check for continuity between the power tailgate control unit connector B (20P) No. 9 terminal and body ground.

POWER TAILGATE CONTROL UNIT CONNECTOR B (20P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire. ■

NO—Check for No. 6 (20 A) fuse in the rear fuse/relay box. If the fuse is OK, check for an open in the wire between the rear fuse/relay box and power tailgate control unit. ■

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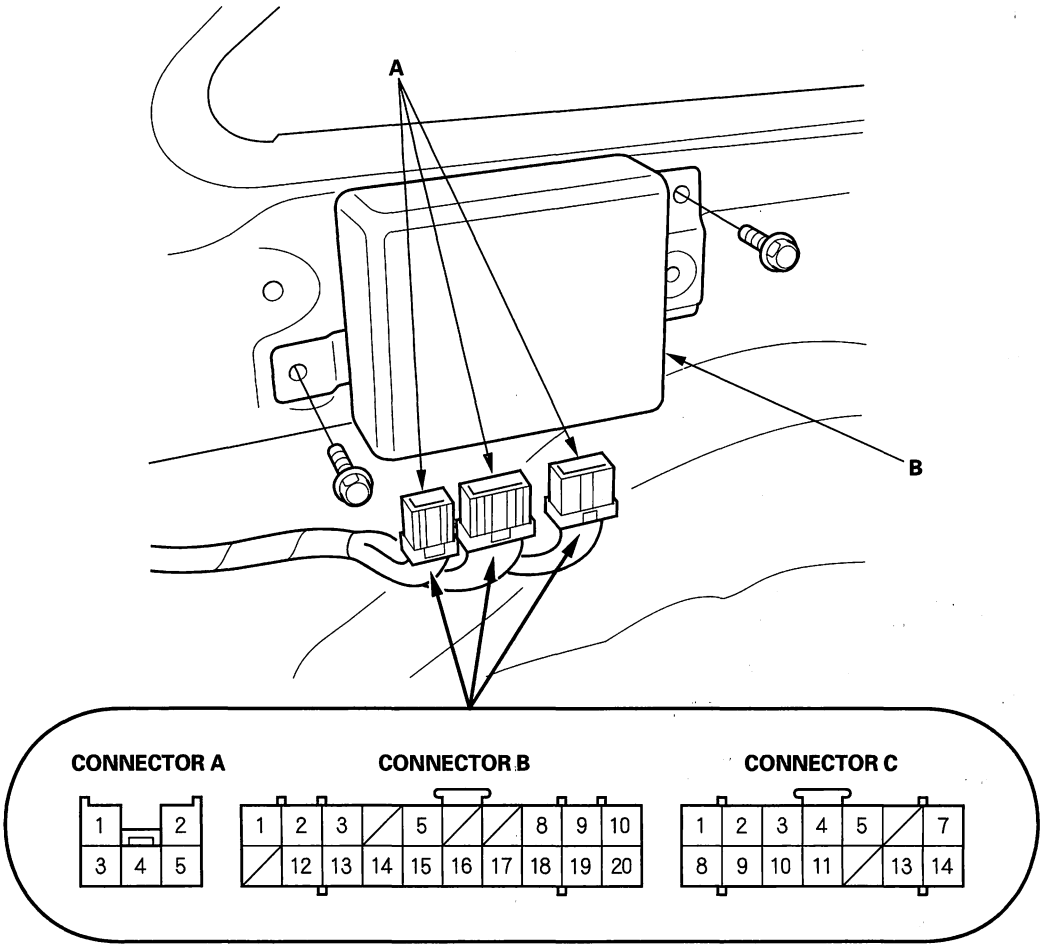
Control Unit Input Test

NOTE: Before testing, troubleshoot the multiplex integrated control system using B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Turn the ignition switch OFF.
2. Remove the left rear pillar trim (see page 20-92).
3. Disconnect the 20P, 14P, and 5P connectors (A) from the power tailgate control unit (B).



Wire side of female terminals

4. Inspect all the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 5.

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5. With the connectors still disconnected, make these input tests at the connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B3	RED	Under all conditions	Connect B10 terminal to B3 terminal with a jumper wire: The beeper should sound.	• Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Faulty beeper • Poor ground (G701) • An open in the wire

6. Reconnect all connectors to the power tailgate control unit, and make these input tests at the appropriate connector.

- If the test indicates a problem, find and correct the cause, then recheck the system.
- If the input test proves OK, replace the power tailgate control unit.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A2	BRN	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 11 (40 A) fuse in the raer fuse/relay box • An open in the wire
B12	PNK	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 6 (20 A) fuse in the rear fuse/relay box • Blown No. 3 (60 A) fuse in the under-hood fuse/relay box • An open in the wire
B10	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 7 (10 A) fuse in the under-dash fuse/relay box • Blown No. 15 (40 A) fuse in the under-hood fuse/relay box • An open in the wire
C14	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 21 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
A1	BRN	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G701) • An open in the wire
A4 B19	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G701, G702) • An open in the wire
B8	GRN	Shift lever in P position	Measure the voltage to ground: There should be less than 1 V.	• Faulty transmission range switch • Poor ground (G101, G102) • An open in the wire

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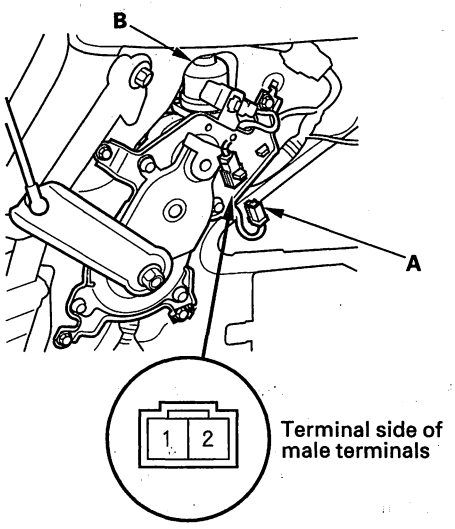
Power Tailgate

Power Tailgate Motor Test

1. Open the tailgate and remove the left rear pillar trim (see page 20-85).
2. Disconnect the 2P connector (A) from the power tailgate motor (B).



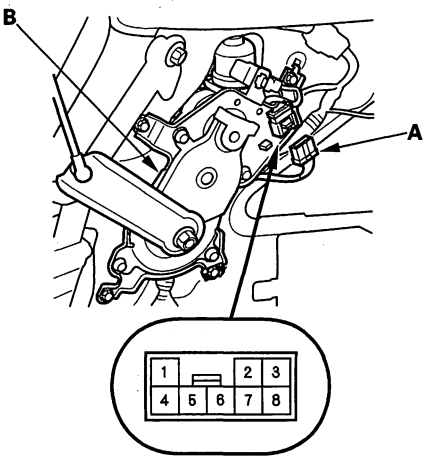
3. Close the tailgate manually.
4. Check the motor operation by connecting battery power to the No. 1 terminal and ground to the No. 2 terminal. The motor should run (tailgate open).

   NOTE: Be careful not to pinch your hands.

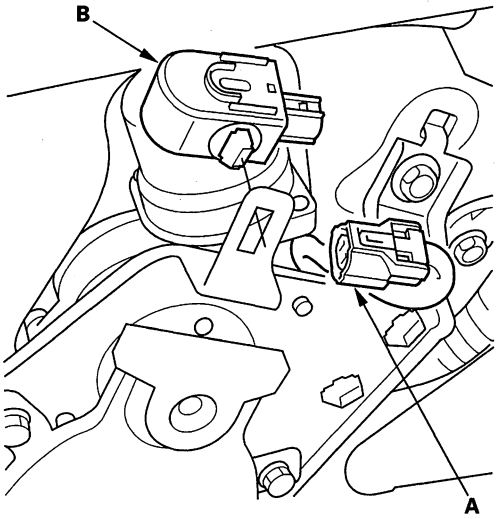
5. After opening the tailgate, connect battery power to the No. 2 terminal and ground the No. 1 terminal. The motor should run (tailgate closed).
6. If the motor does not run or fails to run smoothly, replace the drive unit assembly (see page 22-527).

Power Tailgate Inside Beeper Test/ Replacement

1. Open the tailgate and remove the left rear pillar trim (see page 20-85).
2. Disconnect the 8P connector (A) form the power tailgate drive unit (B).



3. Test the beeper by connecting battery power to the No. 2 terminal and ground to the No. 7 terminal. The beeper should sound.
4. if the beeper does not sound, disconnect the 2P connector (A) and check for an open in the wire between the 2P connector and the 8P connector. If the wire harness is OK, replace the beeper (B).



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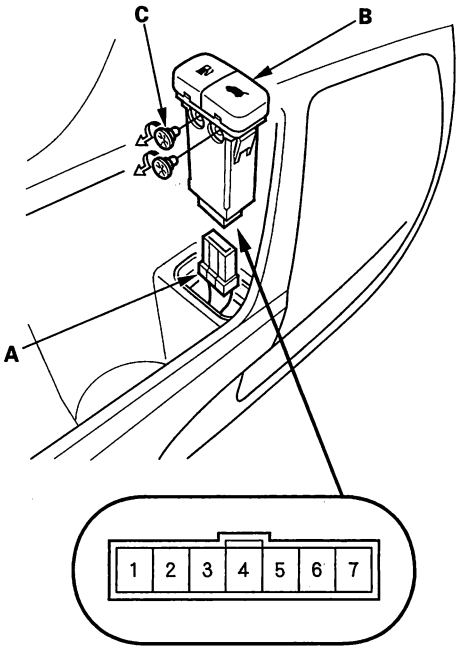
Driver's Door Power Tailgate Switch Test/Replacement

1. Remove the driver's door panel (see page 20-8).
2. Disconnect the 7P connector (A) from the fuel fill door opener/driver's door power tailgate switch (B), then push the switch out from behind the door panel.



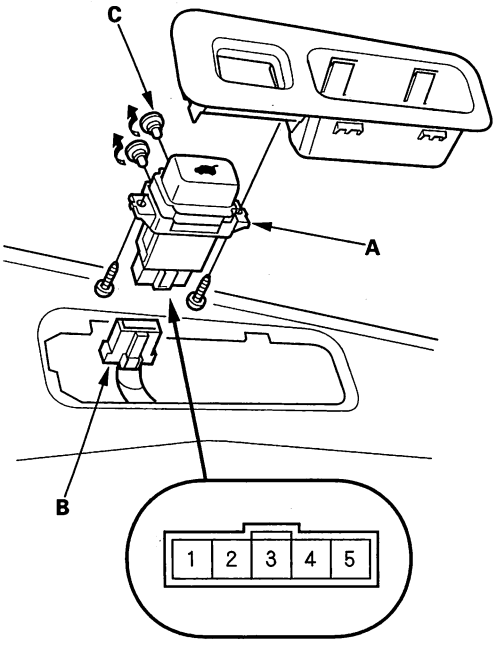
3. Check for continuity between the terminals in each switch position according to the table.

Position \ Terminal	5	6	4		7
ON	○	○	○	⊘	○
OFF					

4. If the continuity is not as specified, replace the bulbs (C) or the switch.

Inside Tailgate Switch Test/ Replacement

1. Carefully pry out the inside tailgate switch (A), and disconnect the 5P connector (B) from switch.



2. Check for continuity between the terminals in each switch position according to the table.

Position \ Terminal	1	2	3		4
ON	○	○	○	⊘	○
OFF					

3. If the continuity is not as specified, replace the bulbs (C) or the switch.

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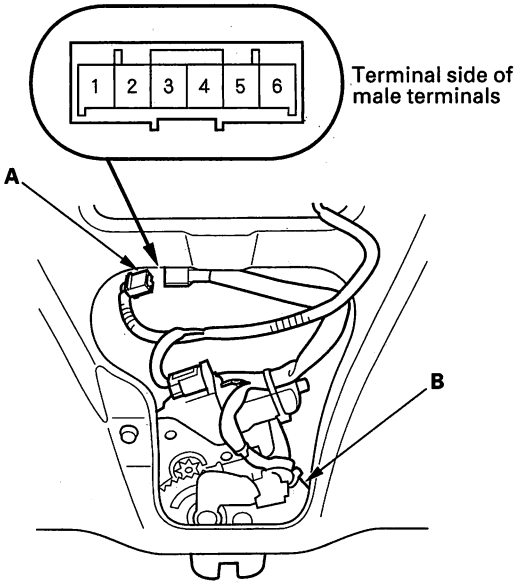
Power Tailgate Latch/Ratchet Switch Test

1. Remove the tailgate trim panel (see page 20-96).
2. Disconnect the 6P connector (A) from the tailgate closer unit (B).



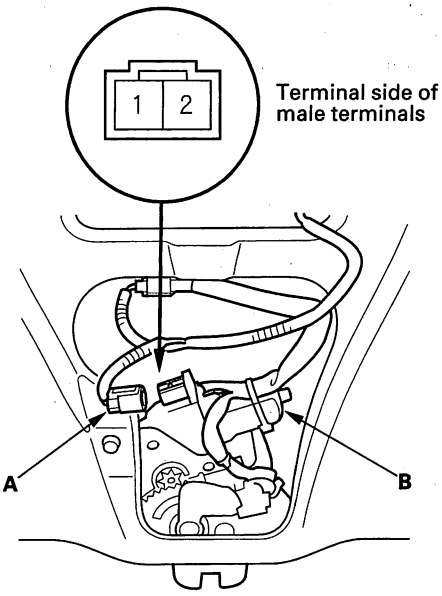
3. Check for continuity between the terminals in each latch position according to the table.

Terminal / Position	1	4	2	3
Full latched	○—○			
Between the fully-latched position to released position	○—○—○			
Released	○———○———○			

4. If the continuity is not as specified, replace the tailgate latch assembly (see page 20-228).

Power Tailgate Closer Motor Test

1. Remove the tailgate trim panel (see page 20-96).
2. Disconnect the 2P connector (A) from the closer motor (B).



3. Check motor operation by connecting battery power to the tailgate closer unit 2P connector No. 2 terminal and ground to the No. 1 terminal. To prevent damage to the motor, apply battery voltage only momentarily. The motor should run.
4. If the motor does not run or fails to run smoothly, replace the tailgate latch assembly (see page 20-228).

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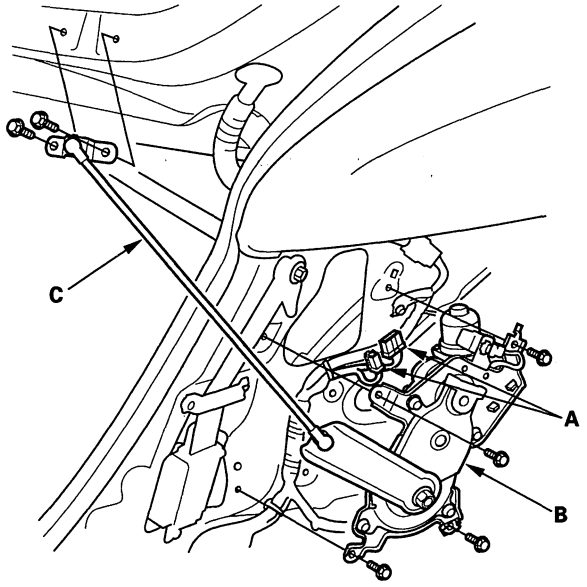
Drive Unit Replacement

1. Remove the rear pillar trim (see page 20-85).
2. Disconnect the 2P and 8P connectors (A) from the drive unit (B).

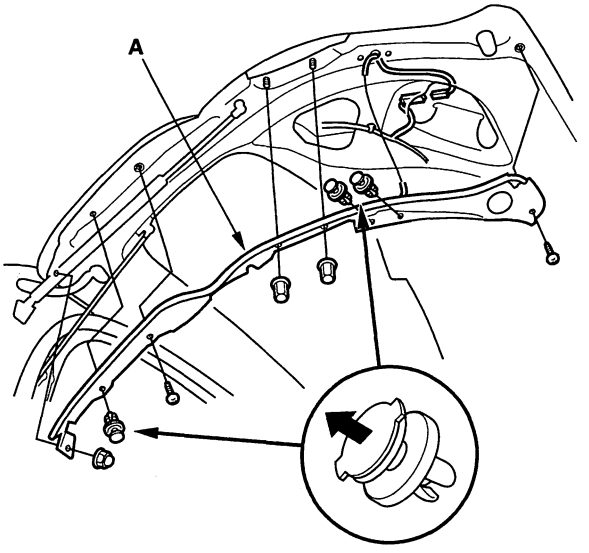


3. Carefully remove the bolts and support strut (C) from the tailgate.
4. Remove the mounting bolts and drive unit.
5. Install in the reverse order of removal.

Pinch Sensor Replacement

1. Open the tailgate.
2. Remove the clips, screws and nuts from the pinch sensor (A).

   NOTE: The illustration shows left side pinch sensor, right side is symmetrical.



3. Disconnect the 2P connector (B) from the pinch sensor.
4. Install in the reverse order of removal.

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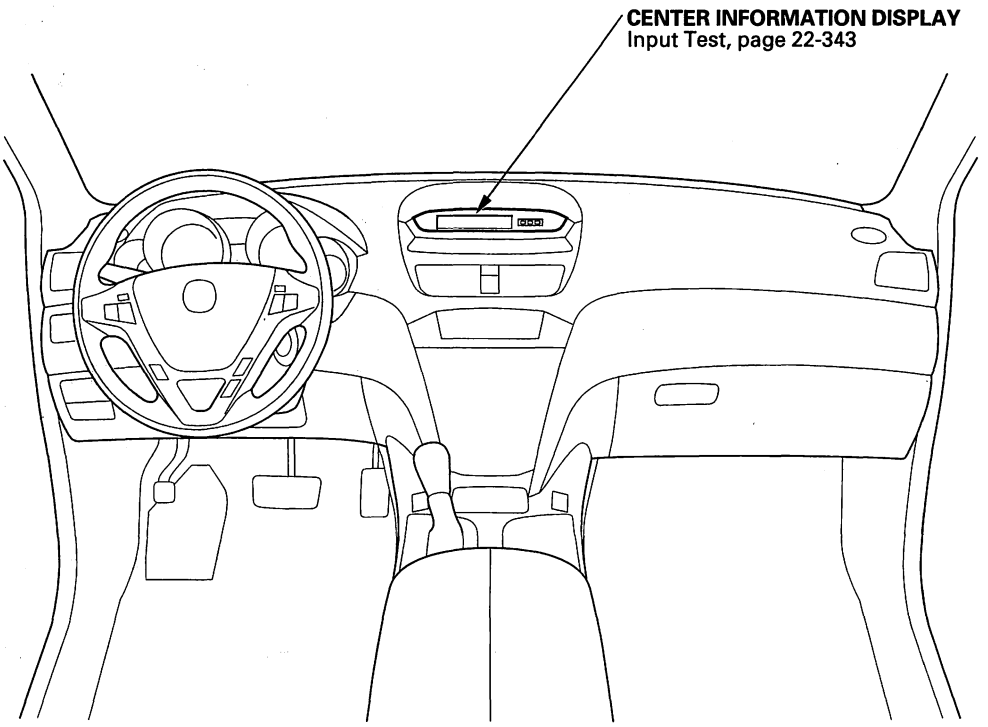
Clock

Component Location Index



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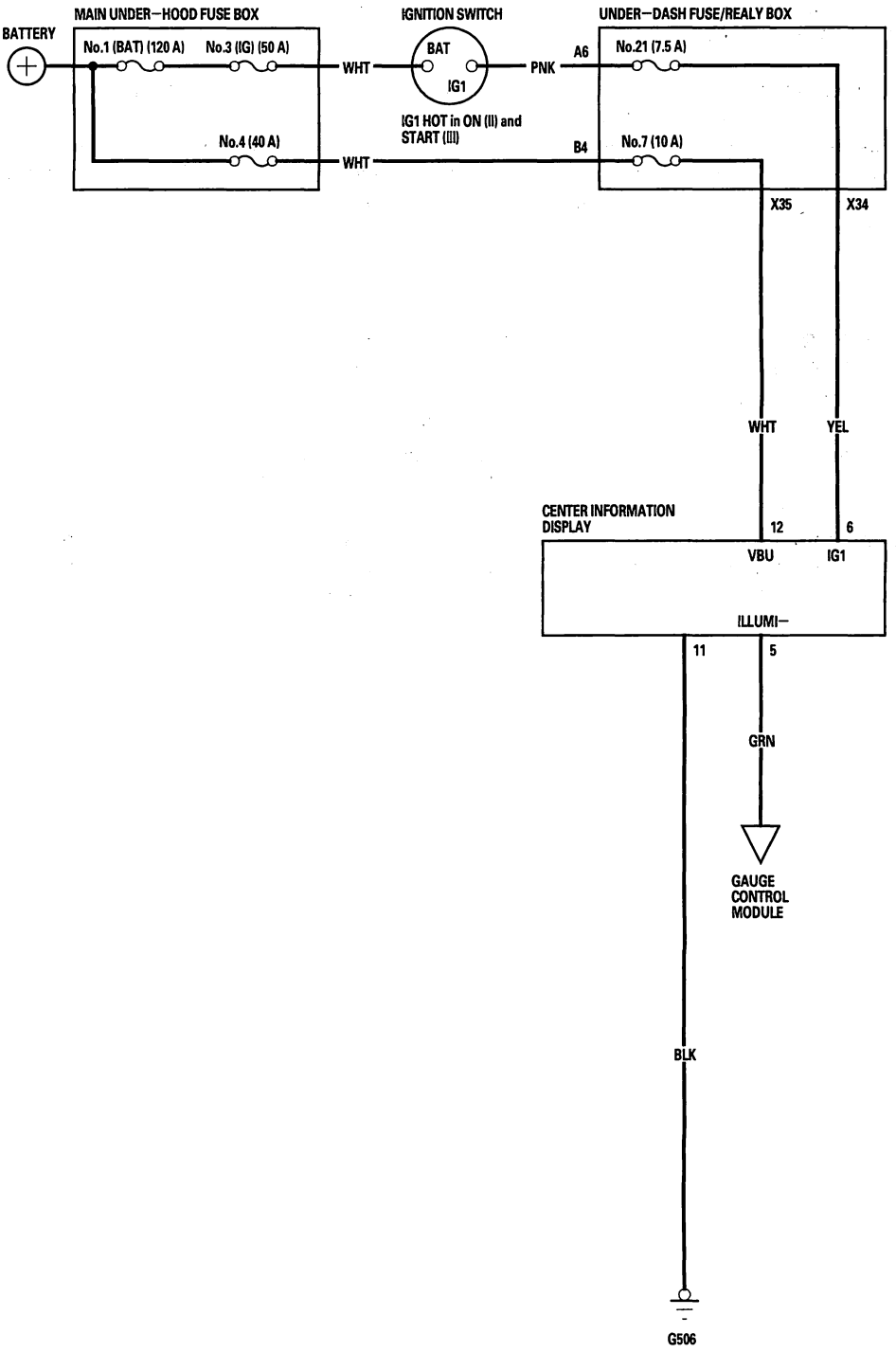
Circuit Diagram



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SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If Audio, Entertainment, Navigation, and Telematics maintenance is required)

The Acura MDX SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done only by an authorized Acura dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Acura dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags and/or side airbags.
- Do not bump or impact the SRS unit, front impact sensors, side impact sensors, or roll rate sensor when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.

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Audio, Entertainment, Navigation, and Telematics

Audio, Navigation, and Telematics

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HandsFreeLink System

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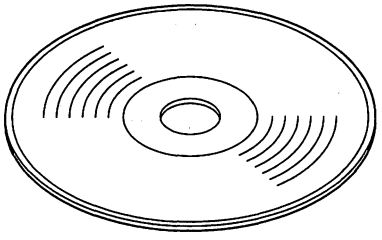
Special Tools

Ref. No.	Tool Number	Description	Qty
①	07AAZ-SDBA100	Diagnostics CD	1
②	07AAZ-SDBA200	Skip Test CD	1
③	07AAZ-SDBA300	Skip Test CD	1
④	07PAZ-0010100	SCS Service Connector	1



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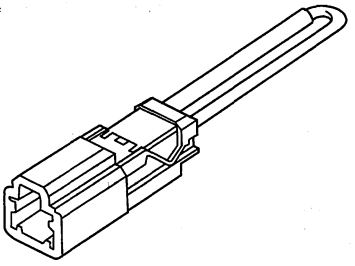

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DTC Troubleshooting Index

HandsFreeLink Control Unit

DTC	Description	DTC type	Page
B1750	Communication bus line error	Loss of communication	(see page 22-129)
B1775	Microphone input/output short to power/open	Signal error	(see page 23-262)
B1776	Microphone input/output short to ground/open	Signal error	(see page 23-263)
B1779	HFL switch or HFL-voice control switch (HFL talk/HFL back buttons) circuit open/short	Signal error	(see page 23-265)
B1780	HFL-voice control switch (HFL TALK/HFL BACK buttons) circuit short	Signal error	(see page 23-266)
B1785	Incorrect configuration (VEHINFO frame)	Signal error	(see page 23-267)
B1786	HandsFreeLink control unit lost communication with gauge control module (VEHINFO frame)	Signal error	(see page 23-268)
B1792	HandsFreeLink control unit internal error	Internal error	(see page 23-270)

AcuraLink Control Unit

DTC	Description	DTC type	Page
B2200	Communication bus line error	Loss of communication	(see page 22-129)
B2202	AcuraLink control unit EEPROM error	Internal error	(see page 23-241)
B2204	B-CAN communication line error	Loss of communication	(see page 23-241)
B2205	F-CAN communication line error	Loss of communication	(see page 23-242)
B2207	Navigation unit lost communication with AcuraLink control unit	Loss of communication	(see page 23-243)
B2208	HandsFreeLink control unit lost communication with AcuraLink control unit	Loss of communication	(see page 23-246)
B2209	AcuraLink control unit internal error	internal error	(see page 23-249)
B2240	XM antenna error	Signal error	(see page 23-250)

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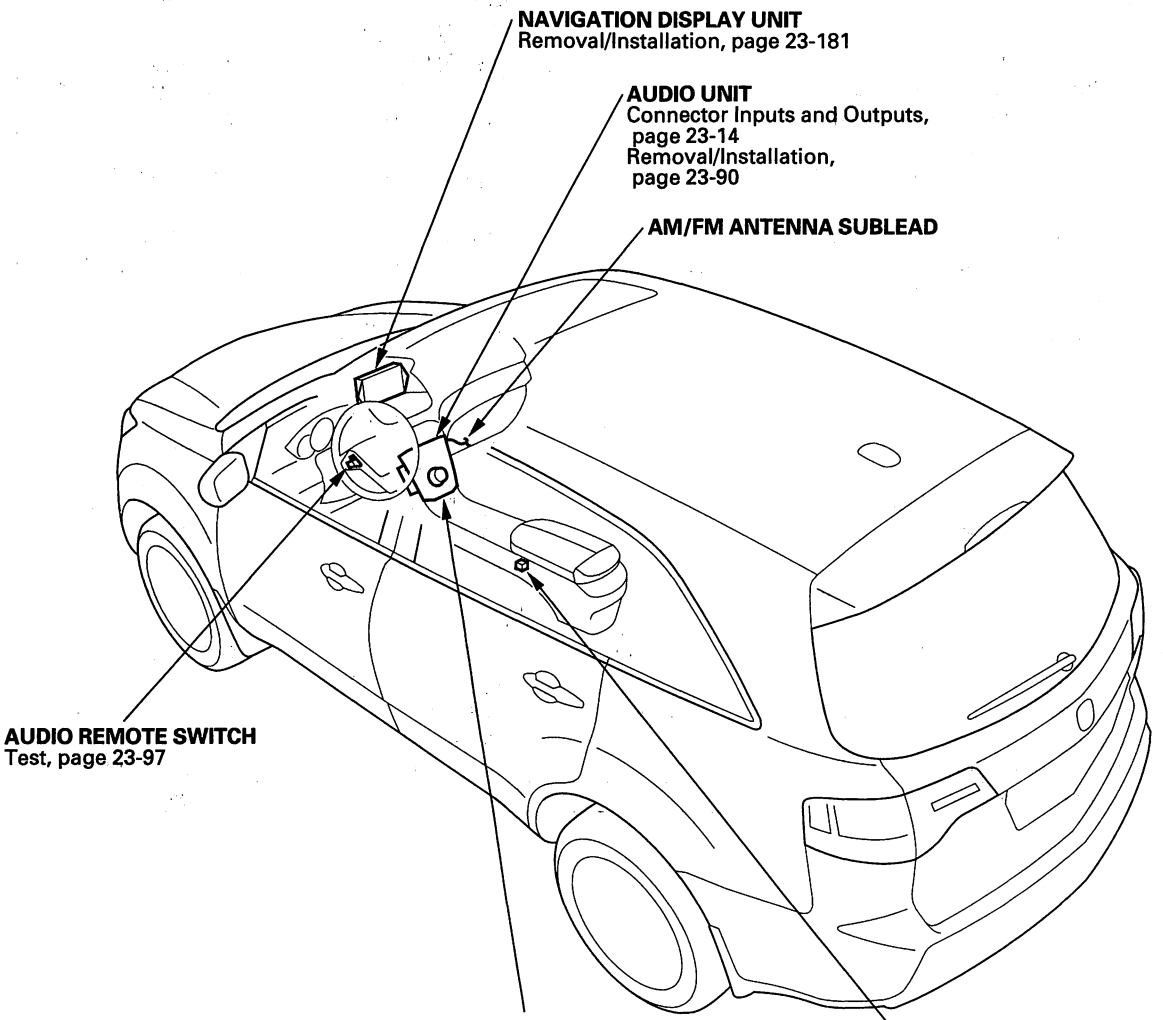
Audio System

Component Location Index



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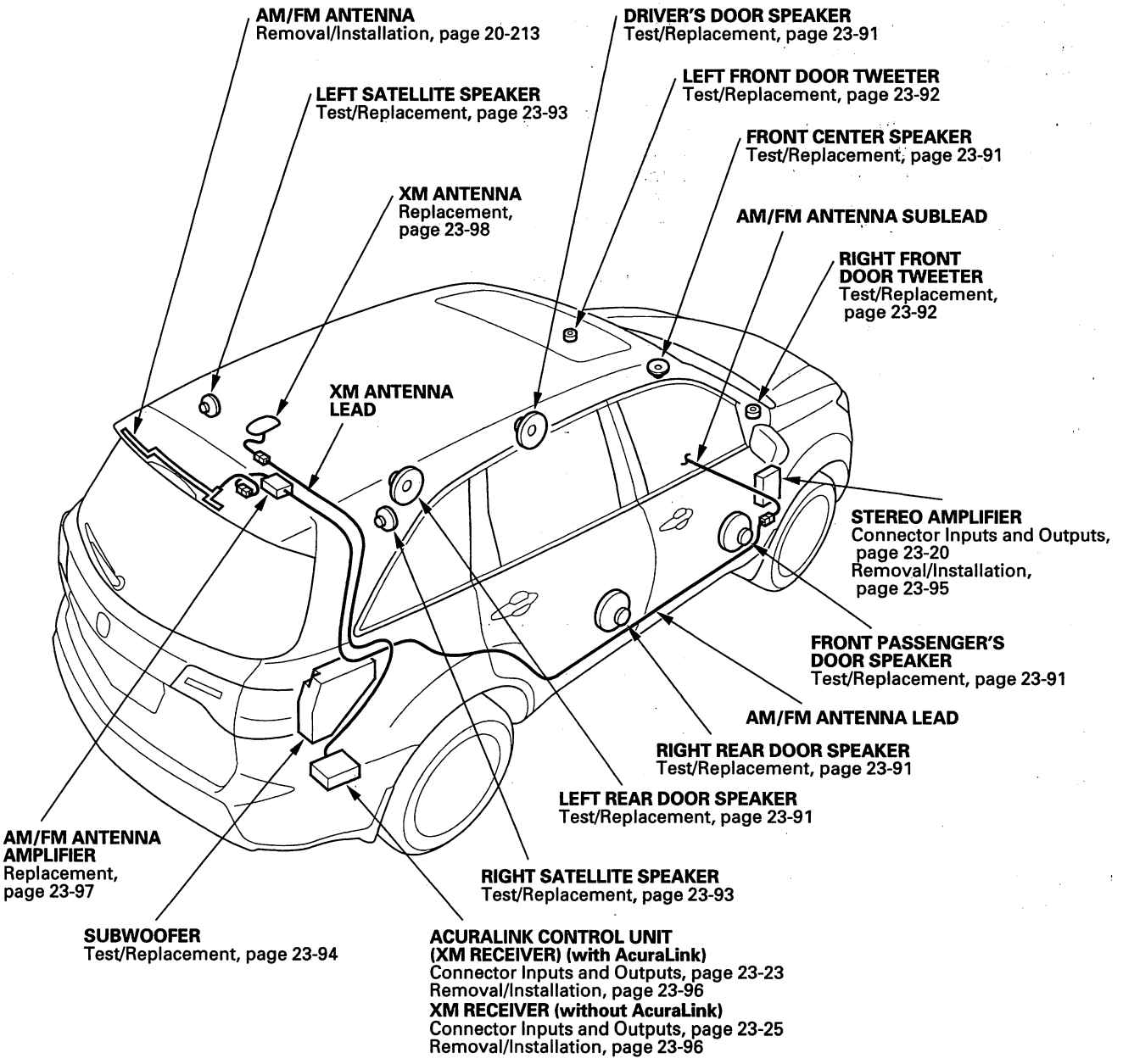

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Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Poor AM or FM radio reception or interference	Symptom Troubleshooting (see page 23-38)	Antenna lead short or open in the wire
Power switch will not turn ON (No information display and no sound)	Symptom Troubleshooting (see page 23-41)	
Power will not turn OFF	Symptom Troubleshooting (see page 23-42)	
No sound is heard from speaker(s) (display is normal) (with navigation)	Symptom Troubleshooting (see page 23-43)	
No sound is heard from speaker(s) (display is normal) (without navigation)	Symptom Troubleshooting (see page 23-50)	
Audio system sound is weak or distorted (display is normal)	Symptom Troubleshooting (see page 23-55)	
Radio preset memory is lost	Symptom Troubleshooting (see page 23-55)	
Volume does not change	Symptom Troubleshooting (see page 23-56)	
Volume does not increase with speed	Symptom Troubleshooting (see page 23-57)	
Volume is too high or too low when driving at freeway speeds	Symptom Troubleshooting (see page 23-58)	
Radio tuner does not change stations	Symptom Troubleshooting (see page 23-59)	
Display does not dim or brighten with dimmer	Symptom Troubleshooting (see page 23-59)	
Audio unit button illumination does not work	Symptom Troubleshooting (see page 23-62)	
Audio disc does not load	Symptom Troubleshooting (see page 23-62)	
Audio disc does not eject	Symptom Troubleshooting (see page 23-63)	
Audio disc does not play	Symptom Troubleshooting (see page 23-63)	
Audio disc skips	Symptom Troubleshooting (see page 23-64)	Tire pressure (over-inflated)
Audio disc changer does not load all six discs	Symptom Troubleshooting (see page 23-65)	
Audio disc changer does not move between discs	Symptom Troubleshooting (see page 23-65)	

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Symptom	Diagnostic procedure	Also check for
Error code: XM NO SIGNAL or XM ANTENNA is displayed	Symptom Troubleshooting (see page 23-66)	
XM radio display is blank and no station information is displayed (with AcuraLink)	Symptom Troubleshooting (see page 23-68)	
XM radio display is blank and no station information is displayed (without AcuraLink)	Symptom Troubleshooting (see page 23-72)	
XM radio preset memory is lost (with AcuraLink)	Symptom Troubleshooting (see page 23-75)	
XM radio preset memory is lost (without AcuraLink)	Symptom Troubleshooting (see page 23-76)	
Poor or no sound with XM radio (Audio unit does display XM channels)	Symptom Troubleshooting (see page 23-77)	
Audio remote switch does not work properly	Symptom Troubleshooting (see page 23-80)	
Audio unit button does not work	Symptom Troubleshooting (see page 23-82)	
Audio unit disc indicator does not work	Symptom Troubleshooting (see page 23-83)	
Security indicator does not work properly	Symptom Troubleshooting (see page 23-83)	

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Audio System

System Description

Overview

The audio unit acts as the processor for all audio functions. You can select the audio functions from the audio panel, the audio remote (on steering wheel), or by using the navigation voice control system. The audio display provides the current front and rear audio status. For vehicles with the navigation option, additional audio information is available by touching the audio button. (See the owner's manual for more details.)

Each audio component passes its audio or audio signal to the audio unit. In addition, it communicates with the audio unit via the GA-Net bus. Any open connection in this circuit will cause audio and navigation functions to appear inoperative.

With the ELS and the premium sound system, an audio amplifier unit powers the speakers.

The 6 DVD-A (6 CD) changer output can be directed to the audio unit.

The XM can be output to either the front or the RES (rear entertainment system). However, if the XM is playing in the front, the CD changer cannot be used for the RES. The RES (built into the audio unit) can be used to play a CD in the rear.

A security signal is daisy-chained between the audio, RES and navigation components for integration into the vehicle's alarm system.

Speed-sensitive volume compensation (SVC)

Some audio systems are equipped with speed-sensitive volume compensation (SVC). The navigation or audio unit receives the vehicle speed pulse (VSP) from the PCM. The system processes the speed input and increases the navigation or audio system volume level as the vehicle speed increases to compensate for the various interior noise that occurs at higher speeds. When the vehicle slows down, the volume returns to its normal level. The SVC has four settings: SVC OFF, LOW MID and HIGH that can be adjusted using the navigation or audio unit. The SVC comes from the factory with the MID set as the default.

To change the audio unit SVC setting, press the "tune folder sound" knob repeatedly until the SVC is displayed, Rotate the knob to adjust the SVC to the desired setting (SVC OFF, LOW MID, or HIGH).

To change the navigation unit SVC setting, press the AUDIO button, and then select the SOUND icon on the navigation display. Press the navigation display to select the desired setting (OFF, LOW, MID, HI).

BACK

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Overview

The optional navigation system provides voice control for radio, XM, CD player and RES functions. The GA-Net (audio unit) communicates the voice control commands. When using the talk back or route guidance (RG), only the center speaker is muted and the front speakers give the navigation instructions. When using HFL/AcuraLink, the center speaker, the rear speakers, and the subwoofer are muted and the front speakers give the telephone sound. When using HFL/AcuraLink and RG or talk back, the center speaker, the rear speakers, and the subwoofer are muted and the front speakers give the telephone sound and the navigation instructions, but not the RES headphones. GA-Net bus passes the muting commands. For more information, see the navigation section. The outline of the audio interruption function is shown in the following table.

Contents	Audio output					
	Center CH	Left front CH	Right front CH	Right rear CH	Left rear CH	Subwoofer CH
Talk back	MUTE	Navigation sound	Navigation sound	Audio	Audio	Audio
Route guidance	MUTE	Navigation sound	Navigation sound	Audio	Audio	Audio
OnStar/HFL/AcuraLink	MUTE	Telephone sound	Telephone sound	MUTE	MUTE	MUTE
OnStar/HFL/AcuraLink and RG or talk back	MUTE	Telephone sound and navigation sound	Telephone sound and navigation sound	MUTE	MUTE	MUTE

(cont'd)

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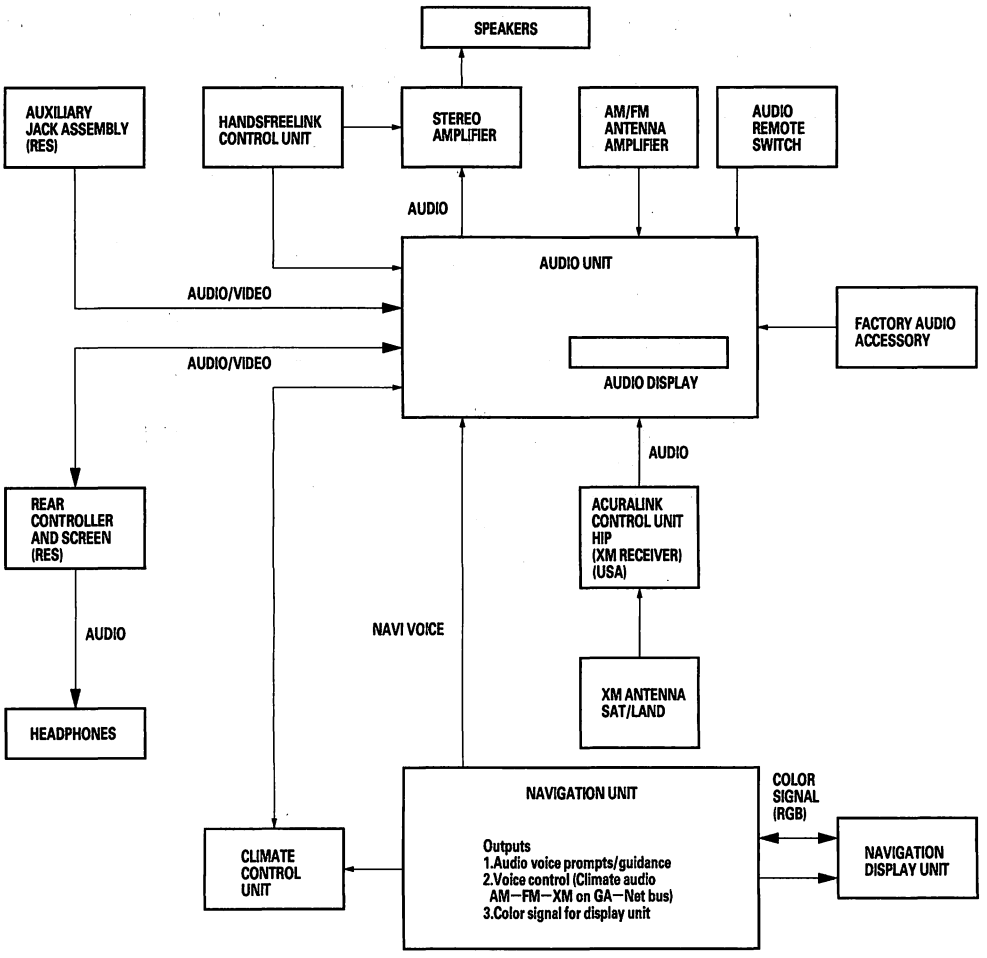
Audio System

System Description (cont'd)

System Diagram



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NOTE: All items may not apply to this vehicle. See the Owner's Manual for more information.

Audio Glossary

Item	Definition
Active noise control	The active noise control system cancels some of the vehicle noise. This occurs in the 1,500—2,400 rpm range. Microphones detect the low frequency sound, and the system outputs a cancelling sound from the audio speaker.
AM (Amplitude Modulation)	The type of transmission used in the standard radio broadcast band from 530 to 1705 kHz.
Amplifier	A device that increases the level of a signal by increasing the current or voltage.
Antenna	A device used to send or receive electromagnetic waves through the air.
ATA (PC Card)	A type of card that has been tested for use in playing WMA, and MP3 music files in the PC Card slot. Sizes of up to 1 GB have been tested.
Audio remote switch	The switches on the steering wheel that control the audio system.
Auxiliary jack	Allows the customer to use a portable audio device to input music recordings.
Balance	A control that changes the relative volume of the left and right channels.
Band	A range of frequencies between two definite limits. Bands are assigned by the Federal Communications Commission for specific uses.
Bass	An adjustment for the low frequency sounds of around 160 Hz and below.
Byte	A unit of storage for computer files and memory. A CD holds approximately 700 million bytes.
Cassette	Audio or video magnetic tape container having two reels. Customers can insert it for recording or play back.
Compact flash	A standard for small-size (3 x 4 cm) , memory cards used in mobile computers, PDAs, digital cameras. Compact flash memory cards are available in size of 32 Mb up to 4 GB or more and can be played in the audio PC slot. Sizes above 1 GB has not been tested.
CD (Compact Disc)	A 4.5-inch plastic disc containing digital audio recording that is played optically on a laser equipped player. Never use discs with a paper label. In a hot car, labels can curl up and jam the unit.
CD (audio disc) changer	CD player that can store and play more than one CD. Two types are available. Some units accept CDs fed into the changer one at a time, and others accept a magazine (with CD's stacked in a container).
CD player	A component designed to play compact disc CD recording using a laser optical pickup. The signal from a CD player usually requires amplification.
Distortion	Inexact reproduction of an audio signal caused by playing music at levels the audio system cannot handle.
Dolby (noise reduction)	A processing system developed by Dolby Laboratories that reduce the background noise on recording media. The result is a cleaner playback from the audio system.
DVD (Digital Versatile Disc)	A 4.5-inch CD-like format used for storing movies with digital audio and video features. The DVD-A format is a DVD format designed for DVD audio systems. Some vehicles can play DVD and DVD-A formats.
Equalizer	A device that changes the relative volume of individual frequency bands to suit personal tasted of the listener.
Fader	The control that adjusts the relative volume levels of front and rear speakers in a four-speaker system.
Format	To prepare a PC Card to receive files this function is performed on a PC. Always choose either FAT or FAT32 as the NTSF format is not accepted by the system. Pick the default sectors for the format method selected.
FM (Frequency Modulation)	The modulation used for radio and television sound transmission in most of the world. Less prone to interference than AM. The FM broad cast band covers roughly 87 to 108 MHz.

(cont'd)

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System Description (cont'd)

Audio Glossary

Item	Definition
GA-Net	The GA-Net allows the audio unit to communicate with all the audio and navigation components in a vehicle. If there is an open in the GA-Net, components or the entire audio and navigation system may appear inoperative.
GB (Gigabyte)	A unit of memory or disk storage equal to billion bytes (1000 million bytes).
HDD	Abbreviation for hard disc drive. They are sensitive to heat and it is not recommended that they be used in the PC card slot for playing audio files.
Hertz (HZ)	The unit of frequency equal to one cycle per second (cps). One kilohertz (kHz) equals 1,000 cps; one megahertz (MHz) equals 1 million cps.
Integrated amplifier	A component that combines a pre amp and a power amp into a single unit. A receiver combines an integrated amp and a tuner into a single unit.
Jewel case	The hard plastic case that contains a compact disc or DVD. Always use a jewel case to prevent scratches on the underside of a CD or DVD.
LCD (Liquid Crystal Display)	A type of digital display that changes reflectance or transmittance when an electrical field is applied to it.
MB (Megabyte)	A unit of memory or disc storage equal to 1 million bytes.
Memory	Circuitry or devices that hold information in electrical or magnetic form, such as the AM/FM radio presets.
Megabyte (M byte)	One million bytes. Written as 1 MB. Megabytes are used as a measure of digital storage space. For example, a CD can hold 650 MB.
Mic	An abbreviation for microphone. For vehicles with navigation, the microphone accepts navigation voice commands to control audio and navigation functions.
MP3 music files	MP3 is an audio coding format. MP3 is a poplar audio compression format on the Internet and computers. CDs, and PC Card with these files can be played on some vehicle's audio system.
Mute	When the navigation gives guidance, the front speakers are muted (no music). When you use the voice control system, all of the speakers are muted.
Noise	Unwanted random sounds like buzzing, hiss, pops, static, whine, etc.
PC card	The slot used for playing MP3 and WMA music files. The PC Card is usually a combination of a small flash card in a PCMCIA adaptor that slides into the slot. The ATA, SD, and compact flash types of cards have been tested up to 1 GB.
PCMCIA	A computer standard for the slot that the PC card slides into. Another term for the PC card slot.
Processor	The part of an audio device that performs task/calculations. In the audio unit the processor handles muting to allow the navi to speak voice commands, and the decoding/playback of the sound files etc.
Radio	A head unit that combines a tuner, a preamplifier, and often a power-amplifier.
SCF (Cold Start Fix) screens	These screens are displayed if the system requires a GPS initialization. The vehicle should be moved outside into an open area away from buildings/power lines.
Stereo	A recording of at least two channels where you can hear sound or music from the left or right side.
SD (Secure Digital) card	This compact type of memory card allows for fast data transfer and has built-in security functions. SD cards have a small write-protection switch on the side.
Shield	A metallic foil or braided wire layer surrounding conductors which are designed to prevent electrostatic or electromagnetic interference (noise) from external sources such as buzzing, or popping sounds heard on the speakers.
Speaker (Loudspeaker)	A device that converts electrical energy into acoustical energy (sound).
Speed-sensitive volume compensation (SVC)	The SVC increases the audio volume to compensate for increased interior noise when the vehicle drivers at freeway speeds.
Subwoofer	A loudspeaker made to reproduce the lowest audio frequencies, approx 25 Hz to 125 Hz.

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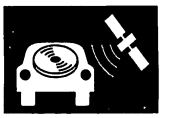

Audio Glossary

Item	Definition
Track	A sound recording on a CD, tape, or PC Card.
Treble	An adjustment to control the "volume" of the high frequency sounds.
Tuner	A component (or part of a component) that receives radio signals and selects one broadcast from many.
Tweeter	A speaker designed to reproduce the higher frequencies (treble) only.
Voice coil	A coil of wire wrapped around a tube and then attached to the speaker cone or diaphragm. When an audio signal is applied, the coil becomes an electromagnet and interacts with the permanent magnet causing the come or diaphragm to vibrate. We interpret this vibrations as sound.
Volume control	Allows you to control the loudness of the music.
WMA music file	Windows Media Audio File. This is an accepted format for music files to be played on either a CD or a PC Card.
Woofer	A speaker that is designed to reproduce bass frequencies only.
XM radio	Satellite based radio transmission, which also uses a ground based repeater network to ensure seamless reception. The channels originate from XM's broadcast center, in Washington, DC, and uplink to two satellites. These satellites transmit the signal across the entire continental United States.
XM receiver	The external component that receives and processes the XM signals from the XM satellites, and terrestrial (land) stations. The audio unit communicates to the XM receiver over the GA-Net bus.

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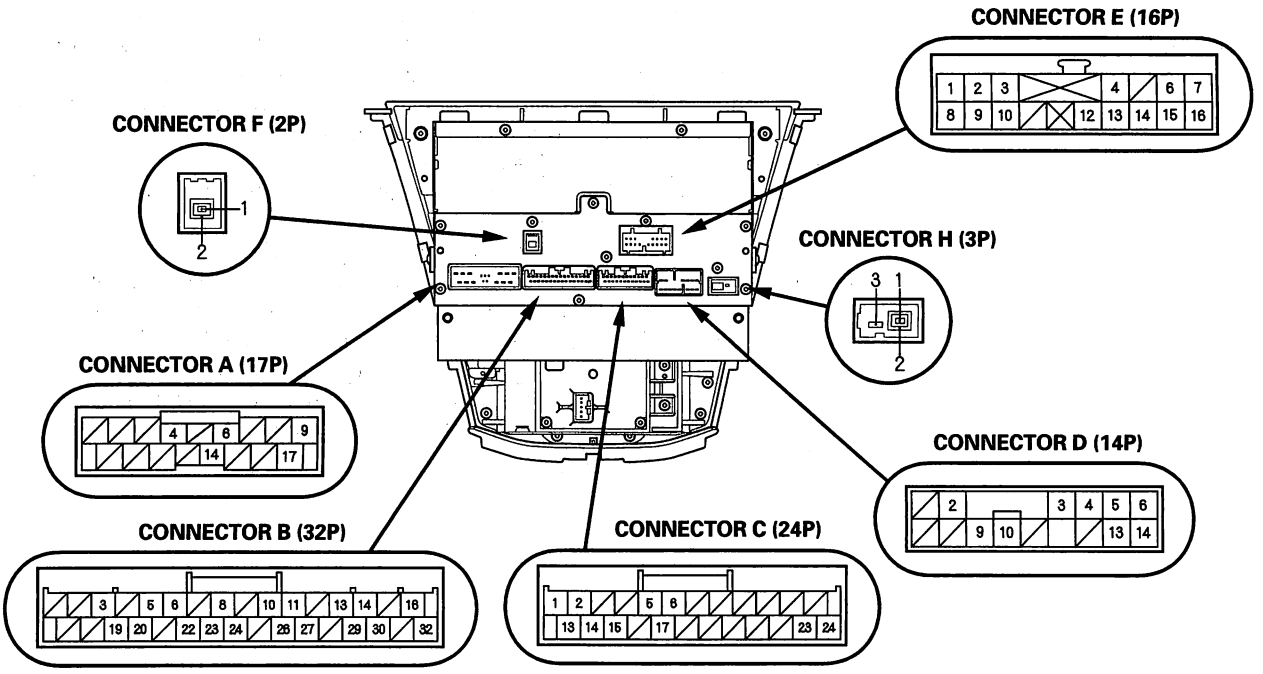
System Description (cont'd)

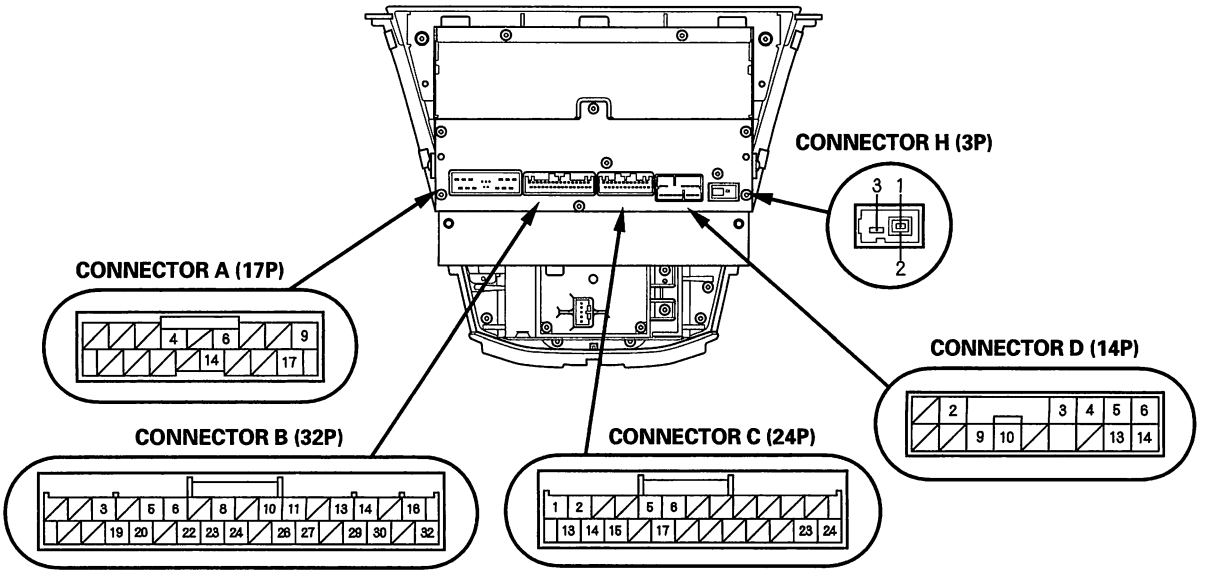
Audio Unit Connector for Inputs and Outputs

When replacing an audio unit connector, match the wires to the cavities listed in the following tables.

With navigation/With rear entertainment system



With navigation/Without rear entertainment system



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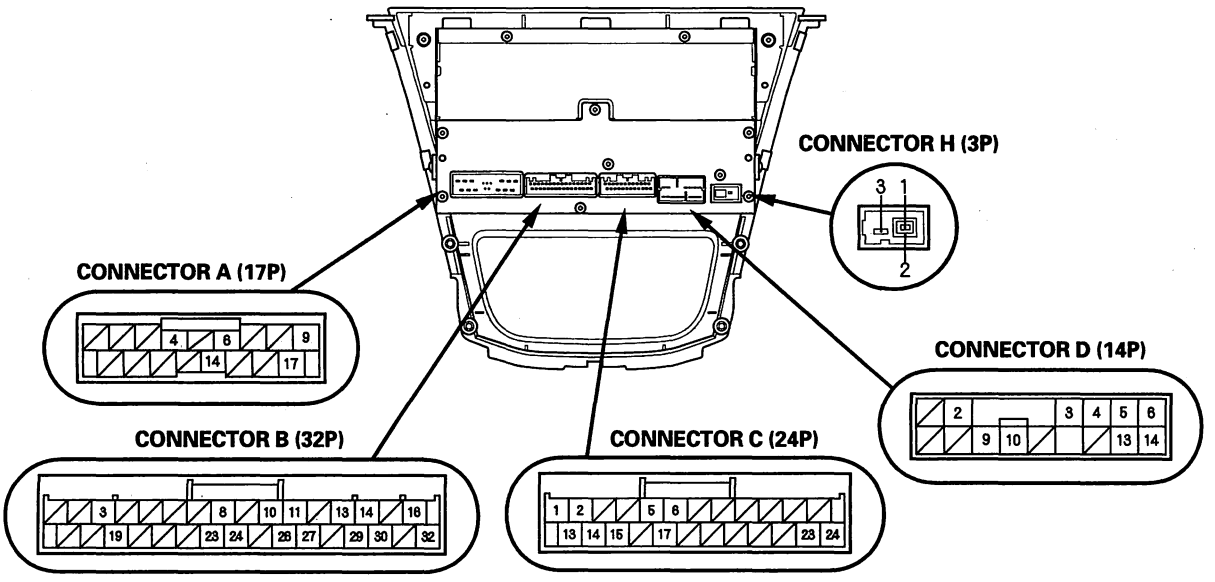
Audio Unit Connector for Inputs and Outputs

When replacing an audio unit connector, match the wires to the cavities listed in the following tables.

Without navigation/Without rear entertainment system



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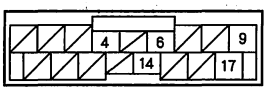
System Description (cont'd)

CONNECTOR A (17P)

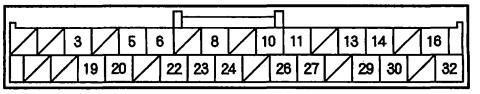


Terminal side of male terminals

Cavity	Wire	Connects to
A4	LT GRN *1	Rear controller and screen (SCTY4)
	RED *2	MICU (SCTY1)
A6	LT BLU	MICU (K-LINE)
A9	BLK	Ground (G504)
A14	PUR	ACC (audio power supply)
A17	WHT	Constant power

* 1: With navigation
* 2: Without navigation

CONNECTOR B (32P)



Terminal side of male terminals

Cavity	Wire	Connects to
B3	BRN	Audio remote ground
B5	GRN*	Stereo amplifier (RS485+)
B6	BLU*	Stereo amplifier (RS485−)
B8	RED	Stereo amplifier (FL PRE IN−)
B10	PNK	Stereo amplifier (FR PRE IN−)
B11	PUR	Stereo amplifier (RL PRE IN−)
B13	YEL	Stereo amplifier (RR PRE IN−)
B14	RED	Stereo amplifier (SW PRE IN−)
B16	PNK	Stereo amplifier (CTR PRE IN−)
B19	ORN	Audio remote
B20	PNK*	Stereo amplifier (RS 485 GND)
B22	BRN*	Stereo amplifier (RS 485 SH)
B23	LT GRN	Stereo amplifier (+B)
B24	GRN	Stereo amplifier (FL PRE IN+)
B26	BLU	Stereo amplifier (FR PRE IN+)
B27	LT BLU	Stereo amplifier (RL PRE IN+)
B29	BRN	Stereo amplifier (RR PRE IN+)
B30	GRN	Stereo amplifier (SW PRE IN+)
B32	BLU	Stereo amplifier (CTR PRE IN+)

*: With navigation

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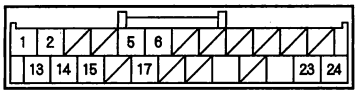
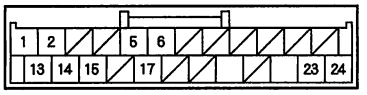
CONNECTOR C (24P) (With rear entertainment)



Terminal side of male terminals

Cavity	Wire	Connects to
C1	PNK	Auxiliary jack assembly (AUX AUDIO R/L GND)
C2	BRN	Auxiliary jack assembly (AUX AUDIO R/L SH)
C5	PUR	XM receiver, HandsFreeLink control unit (LINE OUT−)
C6	BRN	XM receiver, HandsFreeLink control unit (LINE OUT+)
C13	BLU	Auxiliary jack assembly (AUX AUDIO R)
C14	GRN	Auxiliary jack assembly (AUX AUDIO L)
C15	WHT	Auxiliary jack assembly (CONN CHK)
C17	LT BLU	XM receiver, HandsFreeLink control unit (LINE OUT+)
C23	LT GRN	XM receiver (B-CAN)
C24	BLU	Climate control unit (HVAC BUS)

CONNECTOR C (24P) (Without rear entertainment)



Terminal side of male terminals

Cavity	Wire	Connects to
C1	RED	Auxiliary jack assembly (AUX SIG GND)
C2	BRN	Auxiliary jack assembly (SH AUX)
C5	PUR	XM receiver, HandsFreeLink control unit (LINE OUT−)
C6	BRN	XM receiver, HandsFreeLink control unit (LINE OUT+)
C13	BLK	Auxiliary jack assembly (AUX RCH)
C14	WHT	Auxiliary jack assembly (AUX LCH)
C15	LT BLU	Auxiliary jack assembly (AUX DET)
C17	LT BLU	XM receiver, HandsFreeLink control unit (LINE OUT+)
C23	LT GRN	XM receiver (B-CAN)
C24	BLU	Climate control unit (HVAC BUS)

(cont'd)

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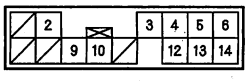
System Description (cont'd)

CONNECTOR D (14P)

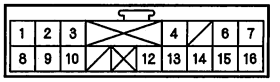


Terminal side of male terminals

Cavity	Wire	Connects to
D2*	RED	XM receiver (ACC)
D3	BRN	XM receiver, Navigation unit, Navigation display unit (GANET BUS SH)
D4	BRN	XM receiver (GANET AUDIO SH)
D5	RED	XM receiver (GANET AUDIO R+)
D6	BLK	XM receiver (GANET AUDIO L+)
D9	GRN	XM receiver, Navigation unit, Navigation display unit (GANET BUS +)
D10	RED	XM receiver, Navigation unit, Navigation display unit (GANET BUS −)
D13	WHT	XM receiver (GANET AUDIO R−)
D14	GRN	XM receiver (GANET AUDIO L−)

*: Without AcuraLink

CONNECTOR E (16P)



Terminal side of male terminals

Cavity	Wire	Connects to
E1	BRN	Auxiliary jack assembly (AUX VIDEO IN SH)
E2	LT BLU	Auxiliary jack assembly (AUX VIDEO IN GND)
E3	BRN	Rear controller and screen (RR NTSC SH)
E4	YEL	Rear controller and screen (SYSTEM ACC)
E6	BRN	Rear controller and screen (RR BUS SH)
E7	PUR	Rear controller and screen (RR BUS−)
E8	PUR	Auxiliary jack assembly (AUX VIDEO IN)
E9	PNK	Rear controller and screen (RR NTSC GND)
E10	BLU	Rear controller and screen (RR NTSC)
E12	BLK	Rear controller and screen (RES AUDIO OUT R)
E13	BRN	Rear controller and screen (RES AUDIO OUT SH)
E14	RED	Rear controller and screen (RES AUDIO OUT L)
E15	WHT	Rear controller and screen (RES AUDIO OUT GND)
E16	LT BLU	Rear controller and screen (RR BUS+)

BACK

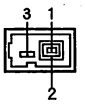
Protected by AR

CONNECTOR F (2P)

Terminal side of male terminals

Cavity	Wire	Connects to
F1	———	Rear controller and screen (DIG AUDIO SIG)
F2	———	Rear controller and screen (DIG AUDIO SH)

CONNECTOR H (3P)



Terminal side of male terminals

Cavity	Wire	Connects to
H1	———	Antenna module unit (SIG)
H2	———	Antenna module unit (SH (AM/FM))
H3	———	Antenna module unit (ANT+B)

(cont'd)

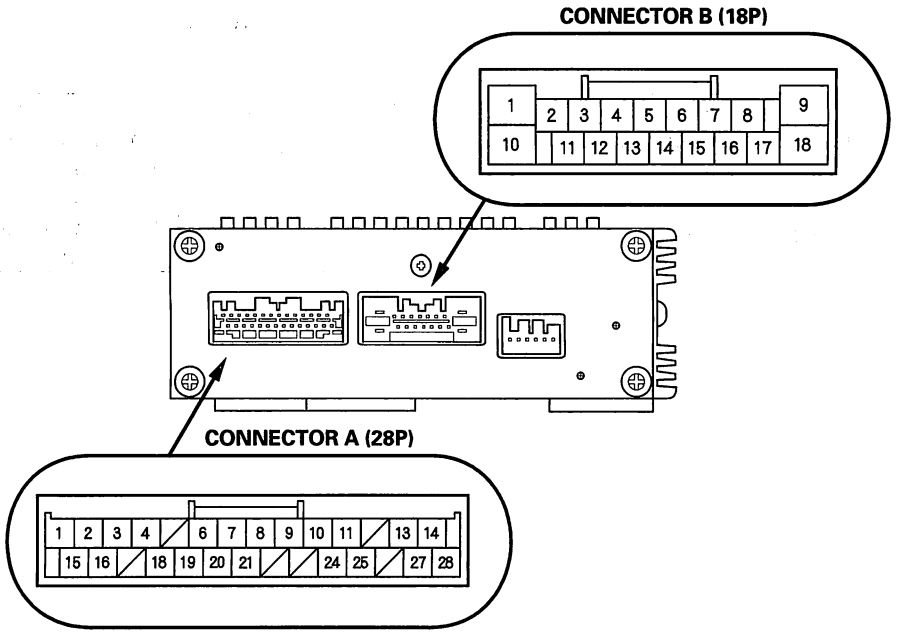
Protected by AR

System Description (cont'd)

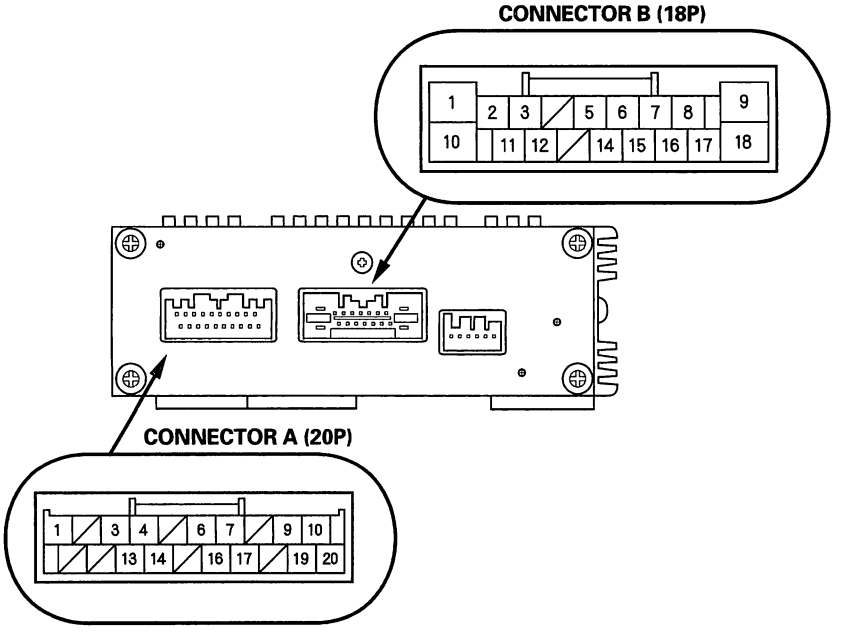
Stereo Amplifier Connector for Inputs and Outputs

When replacing a stereo amplifier connector, match the wires to the cavities listed in the following tables.

With navigation



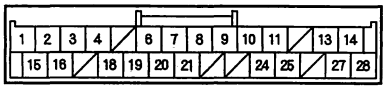
Without navigation



BACK

Protected by AR

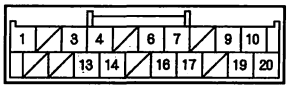
CONNECTOR A (28P) (With navigation)



Terminal side of male terminals

Cavity	Wire	Connects to
A1	BLU	Audio unit (RS 485−)
A2	PNK	Audio unit (RS 485 GND)
A3	LT GRN	Audio unit (+B)
A4	BLU	Audio unit (CTR PRE IN+)
A6	GRN	Audio unit (SW PRE IN+)
A8	BRN	Navigation unit (RG SH)
A9	LT BLU	Navigation unit (RG GND)
A10	GRN	Audio unit (FL PRE IN+)
A11	BLU	Audio unit (FL PRE IN+)
A13	LT BLU	Audio unit (RL PRE IN+)
A14	BRN	Audio unit (RR PRE IN+)
A15	GRN	Audio unit (RS 485+)
A16	BRN	Audio unit (RS 485 SH)
A18	PNK	Audio unit (CTR PRE IN−)
A19	RED	Audio unit (SW PRE IN−)
A20	WHT	Audio unit (GANET AUDIO R−)
A21	PUR	Navigation unit (RG L+)
A24	RED	Audio unit (FL PRE IN−)
A25	PNK	Audio unit (FR PRE IN−)
A27	PUR	Audio unit (RL PRE IN−)
A28	YEL	Audio unit (RR PRE IN−)

CONNECTOR A (20P) (Without navigation)



Terminal side of male terminals

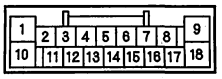
Cavity	Wire	Connects to
A1	LT GRN	Audio unit (+B)
A3	BLU	Audio unit (CTR PRE IN+)
A4	GRN	Audio unit (SW PRE IN+)
A6	GRN	Audio unit (FL PRE IN+)
A7	BLU	Audio unit (FR PRE IN+)
A9	LT BLU	Audio unit (RL PRE IN+)
A10	BRN	Audio unit (RR PRE IN+)
A13	PNK	Audio unit (CTR PRE IN−)
A14	RED	Audio unit (SW PRE IN−)
A16	RED	Audio unit (FL PRE IN−)
A17	PNK	Audio unit (FR PRE IN−)
A19	PUR	Audio unit (RL PRE IN−)
A20	YEL	Audio unit (RR PRE IN−)

(cont'd)

Protected by AR

System Description (cont'd)

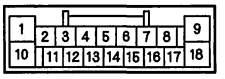
CONNECTOR B (18P) (With navigation)



Terminal side of male terminals

Cavity	Wire	Connects to
B1	PNK	Subwoofer (WOOFER PRE−)
B2	PNK	Front center speaker (CTR SPKR−)
B3	ORN	Right rear door speaker (RR R SPKR−)
B4	PUR	Left rear door speaker (RR L SPKR−)
B5	BLK	Right satellite speaker (R D-PLR SPKR−)
B6	BRN	Front passenger's door speaker (FR R SPKR−)
B7	GRN	Driver's door speaker (FR L DR SPKR−)
B8	GRY	Left satellite speaker (D-PLR SPKR−)
B9	BLK	Ground (G504)
B10	BLU	Subwoofer (WOOFER PRE+)
B11	BLK	Front center speaker (CTR SPKR+)
B12	BLU	Right rear door speaker (RR R SPKR+)
B13	PNK	Left rear door speaker (RR L SPKR+)
B14	RED	Right satellite speaker (R D-PLR SPKR+)
B15	RED	Front passenger's door speaker (FR R SPKR+)
B16	WHT	Driver's door speaker (FR L DR SPKR+)
B17	BLU	Left satellite speaker (L D-PLR SPKR+)
B18	PUR	Stereo amplifier (+B)

CONNECTOR B (18P) (Without navigation)



Terminal side of male terminals

Cavity	Wire	Connects to
B1	PUR	Left rear door speaker (RR L SPKR−)
B2	GRN	Driver's door speaker, Left tweeter (FR L DR SPKR−)
B3	GRY	Subwoofer (L D-PLR SPKR−)
B5	ORN	Right rear door speaker (RR R SPKR−)
B6	BRN	Front passenger's door speaker, Right tweeter (FR R SPKR−)
B7	PNK	Front center speaker (CTR SPKR−)
B8	BLK	Subwoofer (R D-PLR SPKR−)
B9	BLK	Ground (G504)
B10	PNK	Left rear door speaker (RR L SPKR+)
B11	WHT	Driver's door speaker, Left tweeter (FR L DR SPKR+)
B12	BLU	Subwoofer (L D-PLR SPKR+)
B14	BLU	Right rear door speaker (RR R SPKR+)
B15	RED	Front passenger's door speaker, Right tweeter (FR R SPKR+)
B16	BLK	Front center speaker (CTR SPKR+)
B17	RED	Subwoofer (R D-PLR SPKR+)
B18	PUR	Stereo amplifier (+B)

BACK

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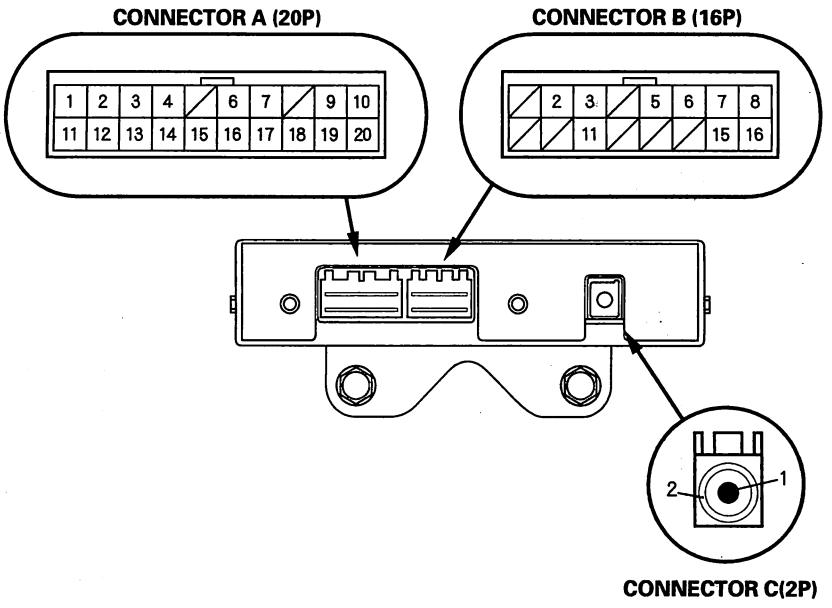
AcuraLink Control Unit (XM Receiver) Connector for Inputs and Outputs (With AcuraLink)

When replacing an AcuraLink Control Unit (XM receiver) connector, match the wires to the cavities listed in the following tables.

With AcuraLink

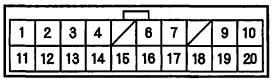


(cont'd)

Protected by AR

System Description (cont'd)

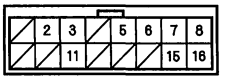
CONNECTOR A (20P) (With navigation)



Terminal side of male terminals

Cavity	Wire	Connects to
A1	WHT	XM receiver (+B)
A2	PUR	XM receiver (ACC)
A3	WHT	Navigation unit (NV RX+)
A4	GRN	Navigation unit (NV TX+)
A6	WHT	Gauge control module (CAN HI)
A7	GRN	Audio unit, Navigation unit, Navigation display unit (GANET BUS+)
A9	BLK	Audio unit (GANET AUDIO L+)
A10	RED	Audio unit (GANET AUDIO R+)
A11	BLK	Ground (G606)
A12	YEL	XM receiver (IG1)
A13	RED	Navigation unit (NV RX−)
A14	BLK	Navigation unit (NV TX−)
A15	BRN	Navigation unit (NV SH)
A16	RED	Gauge control module (CAN LO)
A17	RED	Audio unit, Navigation unit, Navigation display unit (GANET BUS−)
A18	BRN	Audio unit, Navigation unit, Navigation display unit (GANET BUS SH)
A19	GRN	Audio unit (GANET AUDIO L−)
A20	WHT	Audio unit (GANET AUDIO R+)

CONNECTOR B (16P) (With navigation)



Terminal side of male terminals

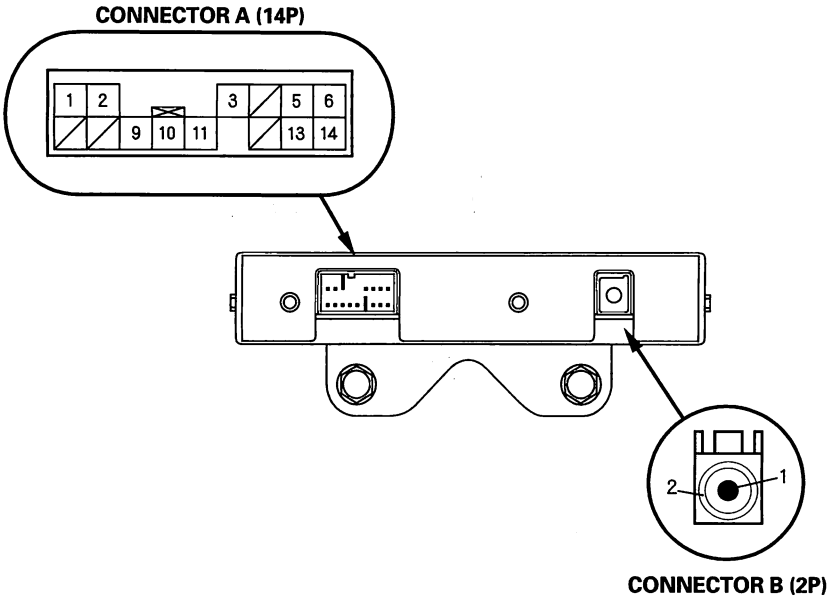
Cavity	Wire	Connects to
B2	BRN	Audio unit, HandsFreeLink control unit (LINE OUT SH)
B3	LT BLU	Audio unit, HandsFreeLink control unit (LINE OUT+)
B5	LT GRN	Audio unit, HandsFreeLink control unit, Multiplex integrated control unit (B-CAN)
B6	BRN	HandsFreeLink control unit, Navigation unit (HFT COMM SH)
B7	GRN	HandsFreeLink control unit, Navigation unit (HFT COMM 3)
B8	RED	Handsfreelink control unit, Navigation unit (HFT COMM 1)
B11	PUR	Audio unit, HandsFreeLink control unit (LINE OUT−)
B15	BLK	HandsFreeLink control unit, Navigation unit (HFT COMM 4)
B16	WHT	HandsFreeLink control unit, Navigation unit (HFT COMM 2)

BACK

Protected by AR

XM Receiver Connector for Inputs and Outputs (With out AcuraLink)

When replacing an XM receiver connector, match the wires to the cavities listed in the following tables.



Cavity	Wire	Connects to
A1	WHT	XM receiver (+B)
A2	RED	XM receiver (ACC)
A3	BRN	Audio unit, Navigation unit, Navigation display unit (GANET BUS SH)
A5	RED	Audio unit (GANET AUDIO R+)
A6	BLK	Audio unit (GANET AUDIO L+)
A9	GRN	Audio unit, Navigation unit, Navigation display unit (GANET BUS+)
A10	RED	Audio unit, Navigation unit, Navigation display unit (GANET BUS−)
A11	BLK	Ground (G606)
A13	WHT	Audio unit (GANET AUDIO R−)
A14	GRN	Audio unit (GANET AUDIO L−)

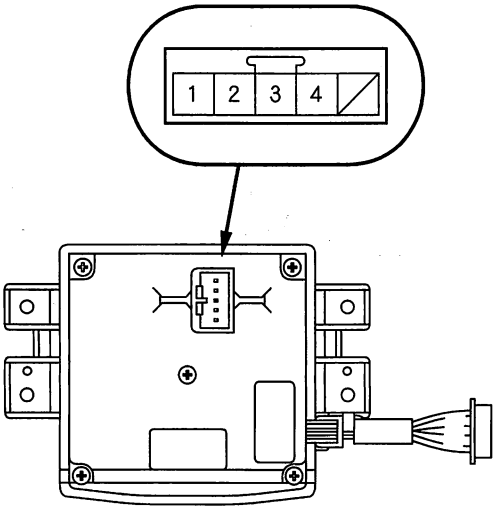
(cont'd)

Protected by AR

System Description (cont'd)

Interface Dial Connector for Inputs and Outputs

When replacing an interface dial connector, match the wires to the cavities listed in the following table.



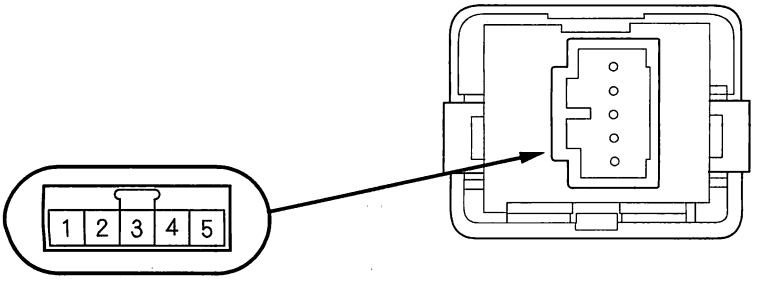
Cavity	Wire	Connects to
1	WHT	Navigation unit (JOG)
2	BRN	Navigation unit (Shield)
3	BLK	Ground (G506)
4	PUR	ACC (interface dial power supply)

BACK

Protected by AR

Auxiliary Jack Assembly Connector for Inputs and Outputs (Without rear entertainment)

When replacing an auxiliary jack assembly connector, match the wires to the cavities listed in the following table.

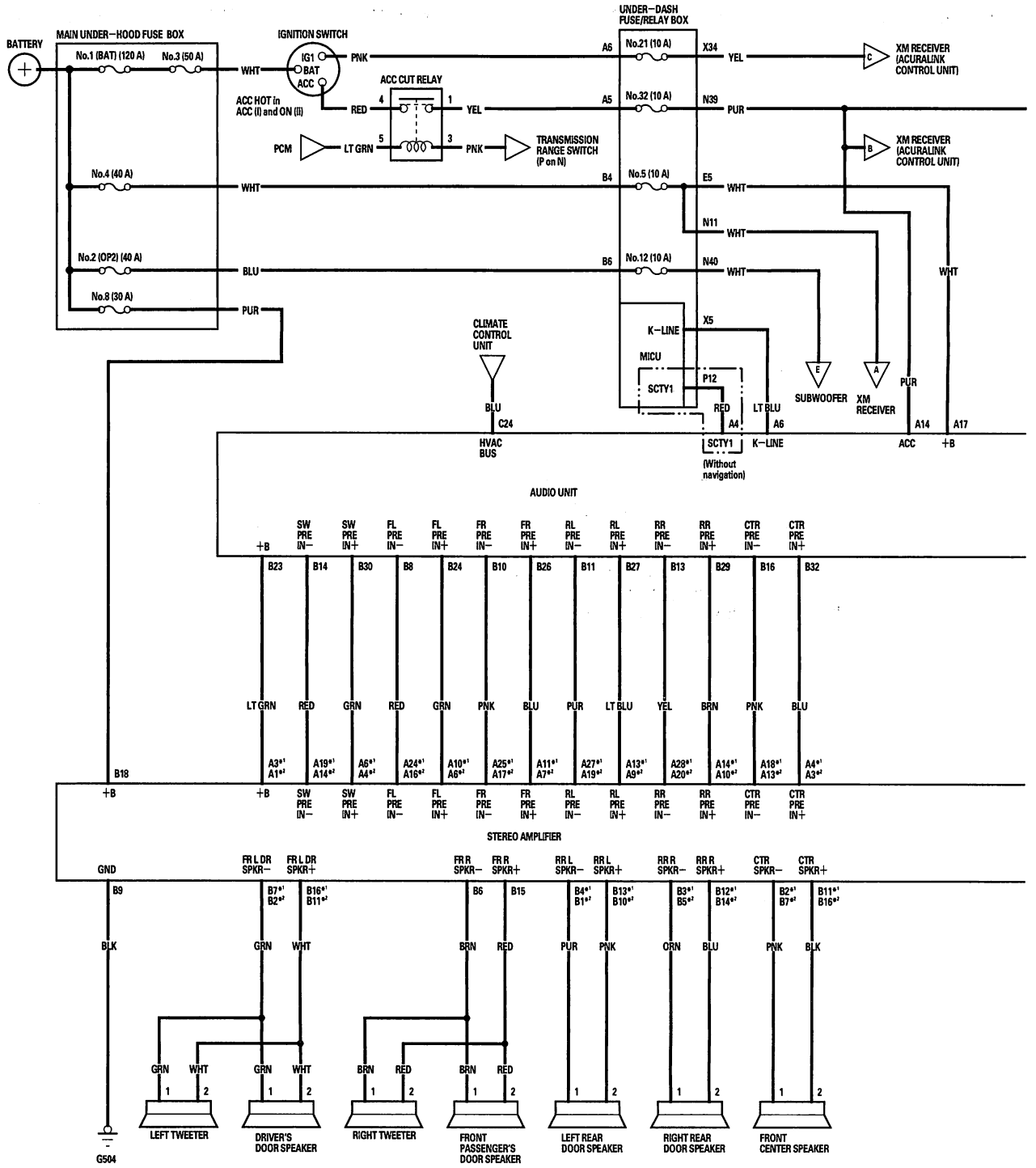


Cavity	Wire	Connects to
1	LT BLU	Audio unit (AUX DET)
2	GRY	Audio unit (SH AUX)
3	RED	Audio unit (AUX SIG GND)
4	WHT	Audio unit (AUX LCH)
5	BLK	Audio unit (AUX RCH)

Protected by AR

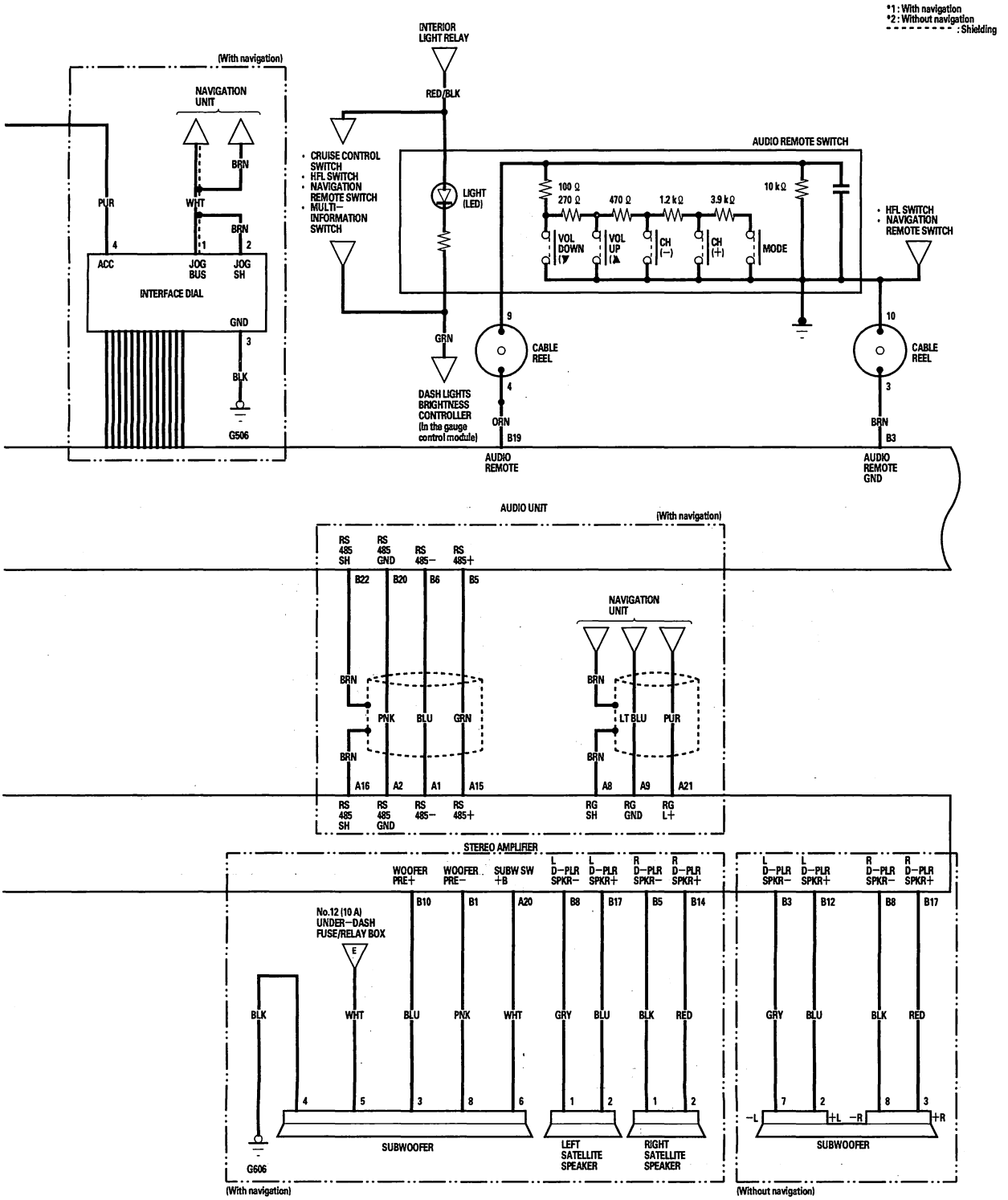
Audio System

Circuit Diagram



BACK

Protected by AR



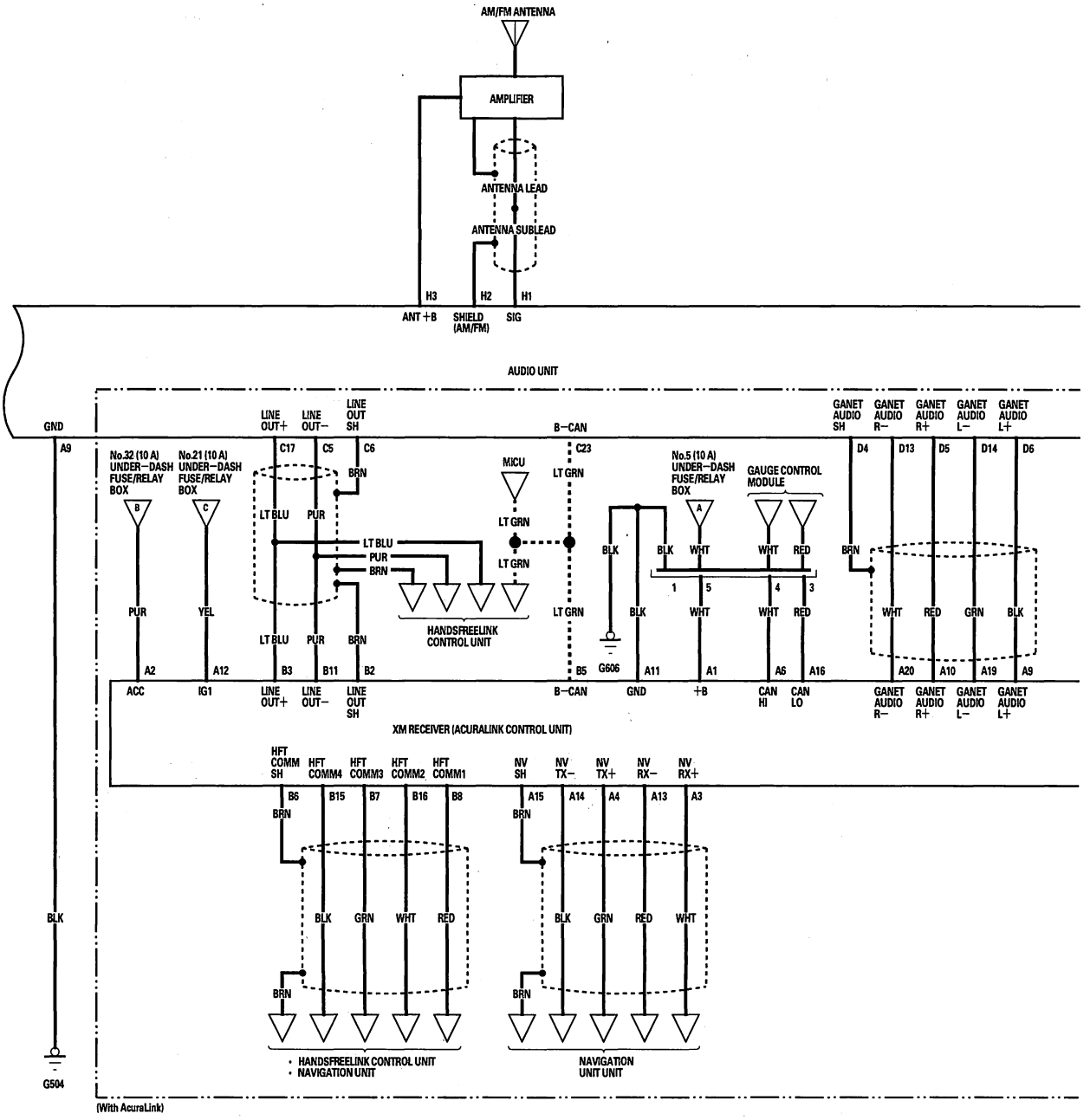
(cont'd)

BACK

Protected by AR

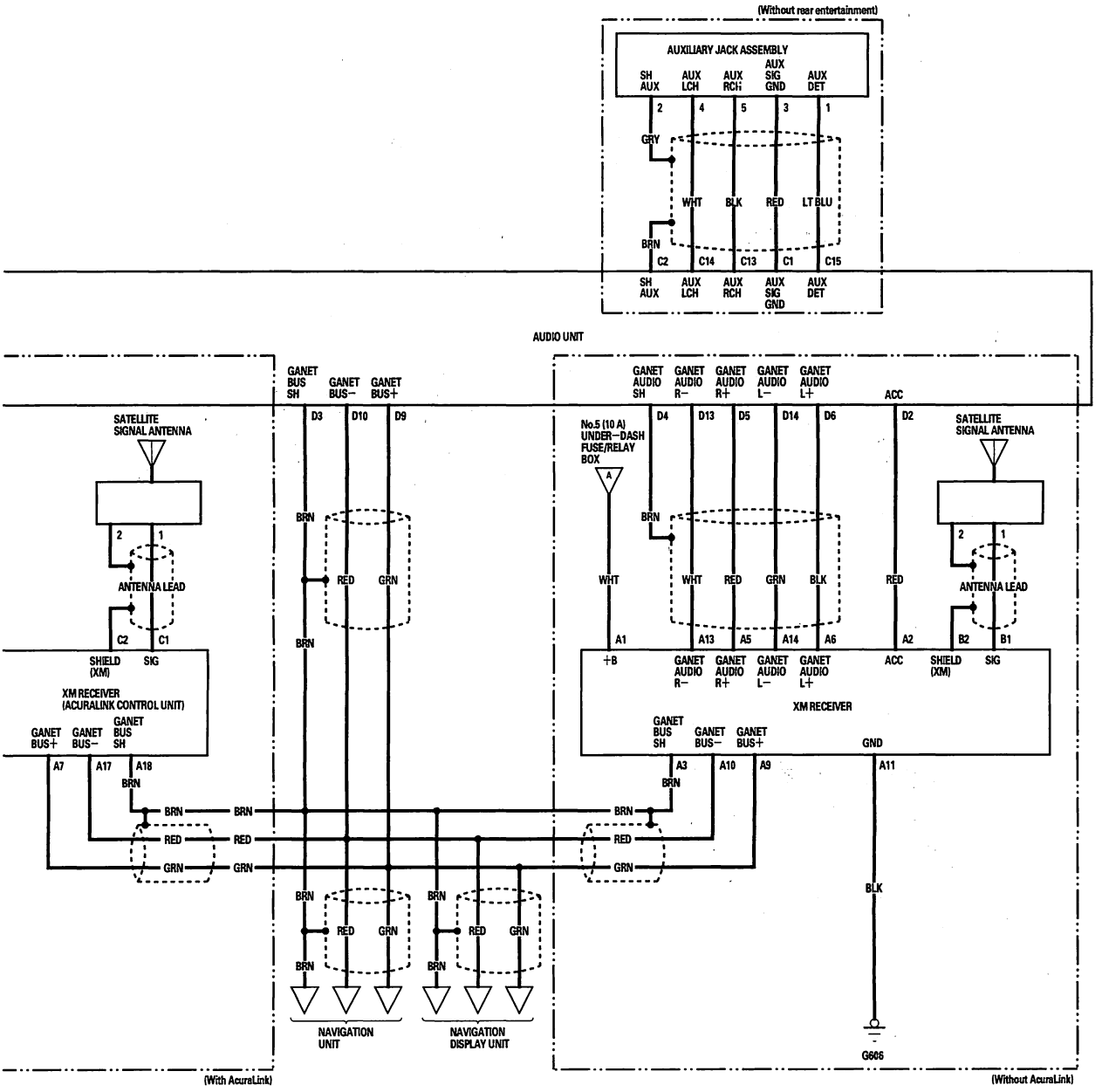
Audio System

Circuit Diagram (cont'd)



BACK

Protected by AR



BACK

Protected by AR

Audio System

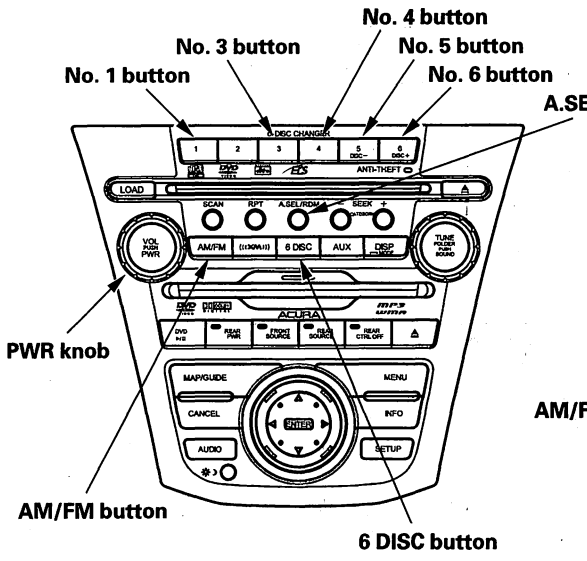
Self-diagnostic Function

The audio system has a self-diagnostic function. To run the self-diagnostic function, do the following:

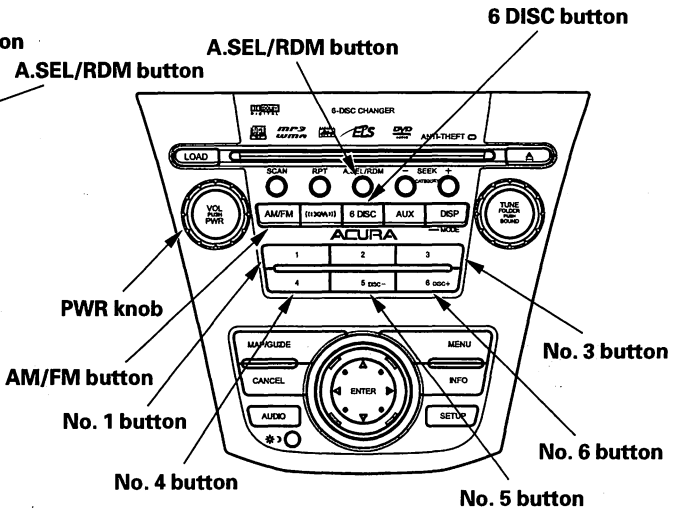
How to check for audio system condition

1. Turn the ignition switch to the ACC (I) or ON (II) position.
2. Turn on the audio unit.
3. Push and hold the "No. 1" and "No. 6" buttons. While holding the buttons, push the "VOL push PWR" knob to ON. Release the buttons and the self-diagnostic function with begin.

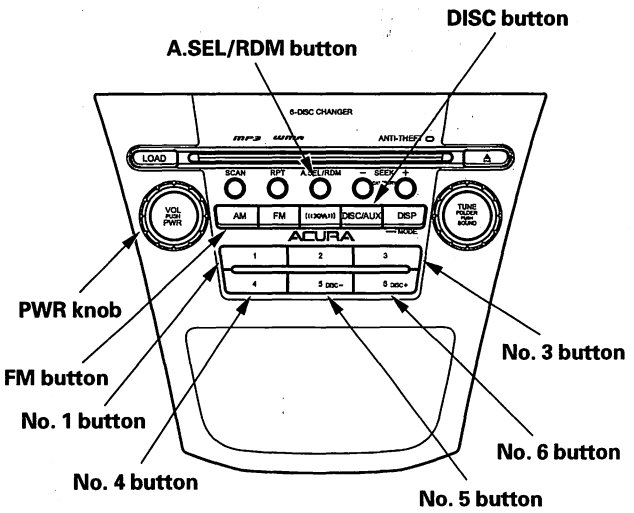
With rear entertainment system



Except rear entertainment system
With navigation system



Without navigation system



BACK

Protected by AR

4. By pressing a preset button, the input will trigger the diagnostic mode that is assigned to that preset switch.

"No. 3" button
Entire LCD lighting/light-out mode: Turns on/off the entire LCD to show the presence or absence of an LCD failure.

"No. 4" button
Duty (for the Illumination dim) indication mode: Indicates the duty for the Illumination dim.

"No. 5" button
Vehicle speed pulse indication mode: Indicates the vehicle speed pulse.

"6 Disc" or "DVD" button (Push and hold 5 sec.)
DRAM residual quantity indication mode: Indicates the DRAM residual quantity.

"AM" or "FM" button (Push and hold 5 sec.)
Reception level check mode: Indicates the reception level. When entering the reception level check mode, the AM/FM or FM button is used to change the S-METER, OFFSET, MP and USN (A/I).

"A.SEL/ROM" button
Bus line check mode: The audio communication line is checked between the DSP, EEPROM, and TUNER.

(cont'd)

Protected by AR

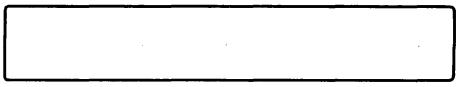
Self-diagnostic Function (cont'd)

Display Specifications

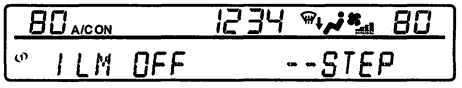
NOTE: Any other diagnostic screens shown are for audio manufactures purpose only.

Entry LCD Lighting (No. 3 button)

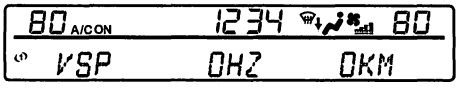
Entry LCD Light-outs (No. 3 button)



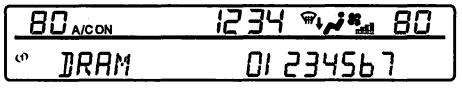
Duty (for the illumination) indication (No. 4 button)



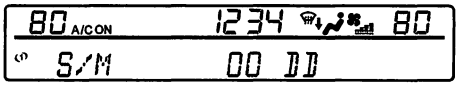
Vehicle speed pulse indication (No. 5 button)



DRAM residual quantity indication (6 DISC or DVD button)

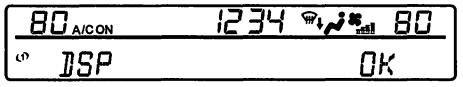


Reception level indication (AM/FM or FM button)

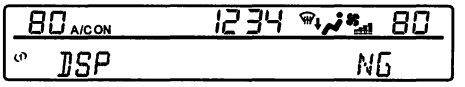


Bus line indication (A.SEL/ROM button)

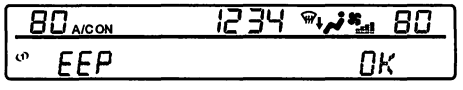
DSP communication OK



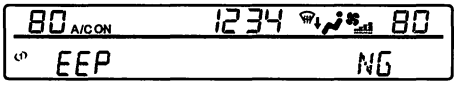
DSP communication NG



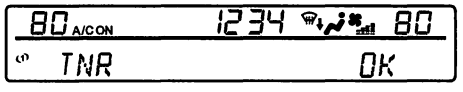
EEPROM communication OK



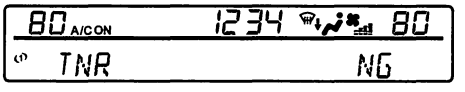
EEPROM communication NG



TUNNER communication OK



TUNNER communication NG



BACK

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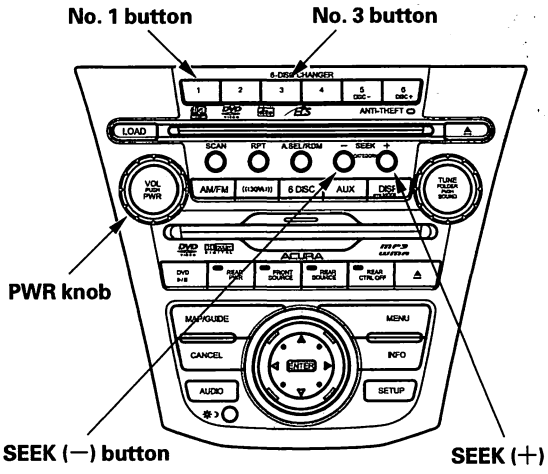
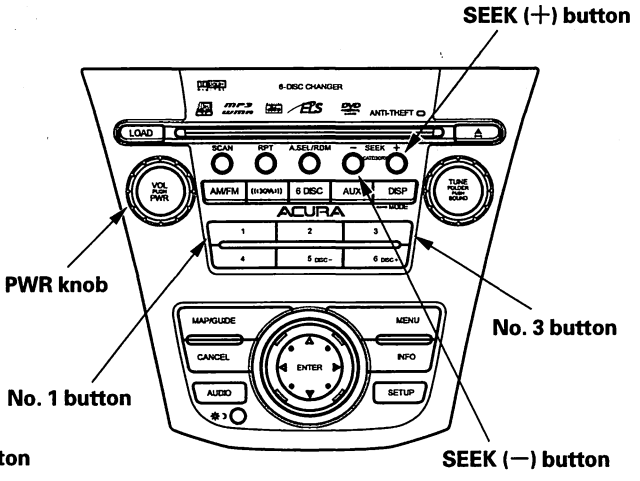
Speaker check mode

1. Turn the ignition switch to the ACC (I) or ON (II) position.
2. Push and hold the "No. 1" and "No. 3" buttons. While holding the buttons, push the "VOL push PWR" knob to ON. Release the buttons and the speaker check mode will begin. A tone or low-frequency hum should sound from one speaker.
3. Each time you press the "SEEK" or "CH" button, the speaker outputs a beep sound in the listed order.

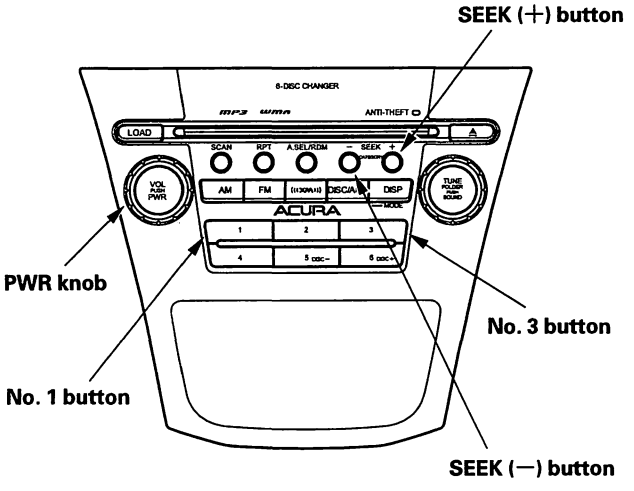
With rear entertainment system

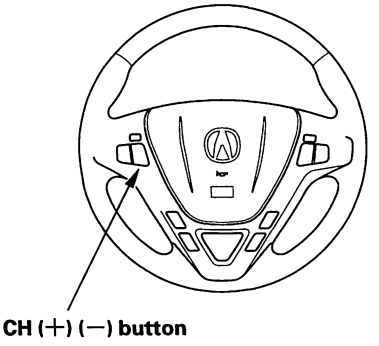


Except rear entertainment system
With navigation system



Without navigation system





(cont'd)

Protected by AR

Self-diagnostic Function (cont'd)

Display Specifications

(+) is pressed: ①→②→③→④→⑤→⑥→⑦→⑧→⑨
(−) is pressed: ①→⑨→⑧→⑦→⑥→⑤→④→③→②

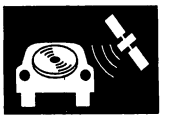
	Speaker	Displayed Segments	Remarks
①	Driver's door speaker and left tweeter	LEFT FRONT	
②	Center speaker	CENTER	
③	Front Passenger's door speaker and left tweeter	RIGHT FRONT	
④	Right rear door speaker	RIGHT REAR	
⑤	Right satellite speaker	RIGHT SURROUND	
⑥	Subwoofer	SUBWOOFER	
⑦	Left rear door speaker	LEFT SURROUND	
⑧	Left satellite speaker	LEFT REAR	
⑨	All Speakers	ALL SPEAKERS	

NOTE: Any other diagnostic screens shown are for the audio manufactures purpose only.

4. The speaker check mode will ends when you turn the audio unit off, or turn the ignition switch off.

BACK

Protected by AR



Error Codes

The audio system displays error codes when a problem is detected with the CD disc changer, the audio disc, the XM radio, or the anti-theft code.

CD Error Codes

Error Code Displayed	Possible Cause	Solution
DISC READ	Cannot read disc.	Eject the disc and try another one, or the disc is installed up side down.
DISC ERROR	There is a problem with the disc player. A common problem is disc labels coming off the disc while in the player.	Try to eject the disc and try another one. If there is still a problem, replace the navigation unit or audio unit.
HEAT ERROR	Disc player is hot. This can happen if the vehicle is parked out in the hot sun all day.	Park the vehicle in a cooler place for a while and try the disc player again. If the error code is still present, try another disc. If the error code is still present, replace the navigation unit or audio unit.
Focus Error	Possibly DVD inserted in unit, or CD installed up side down.	Eject CD and try a known-good CD.
File Error	Audio unit cannot read the files on the CD or CD-R.	• Verify that CD/CD-R file names end in "CDA" or "WMA." • Verify that CD-R discs with compressed music formats end in "MP3" or "WMA." • Other file formats like I-tunes or "Ogg" are not recognized. • WMA files may have (DRM) copy protection and cannot be read.
Mech Error	• CD label jammed in the mechanism. • CD eject mechanism or motor is inoperative. • CD spindle motor won't spin up the CD.	Press the EJECT button and hold it for 5 seconds. If the CD does not eject, try again. If the CD still won't eject, replace the unit.

XM Error Codes

Error Code Displayed	Possible Cause	Solution
LOADING	XM radio is acquiring audio or program information.	Wait until the radio receives the information.
OFF AIR	XM channel not in service.	Try another XM channel.
NO SIGNAL	Loss of signal.	Both terrestrial and satellite antennas have lost signal. Park the vehicle outside with a clear view of the southern horizon.
UPDATING	XM radio is receiving information update from the network.	This message will disappear once the update finishes.
CHECK ANTENNA ANTENNA ERROR	XM antenna error.	Repair open or short in the satellite antenna. Substitute the XM antenna with a known-good one, and recheck. If the error is gone, replace the original XM antenna. If the error is still present, replace the antenna lead.
———	No signal from XM.	Check a known-good vehicle with XM radio. If the known-good vehicle has the same symptoms, contact XM satellite radio at (800) 852—9696.

Audio Unit Error Codes

Error Code Displayed	Possible Cause	Solution
CODE ERROR E	Anti-theft code mismatch (1st try).	Enter the correct anti-theft code.
CODE ERROR 1	Anti-theft code mismatch (10th try).	Remove fuse No. 5 (10 A) in the under-dash fuse/relay box, then reinsert it. You will have 10 more tries to enter the correct anti-theft code.

Protected by AR

Symptom Troubleshooting

Poor AM or FM radio reception or interference

NOTE: Check the radio reception in an open area. Poor reception/interference can be caused by the following:
- The radio station is far away.
- Tall buildings, mountains, or high-voltage power lines are nearby.

1. Do the seek stop test (see page 23-88).

   Is the test vehicle within 10 % of the known-good vehicle?

   YES—Multipath interference or weak station. Operation is normal.■

   NO—Go to step 2.

2. Check if the radio reception/interference is the same in several locations.

   Is the reception/interference the same?

   YES—Go to step 3.

   NO—Multipath interference or weak station. Operation is normal.■

3. Check the reception/interference while the engine is running.

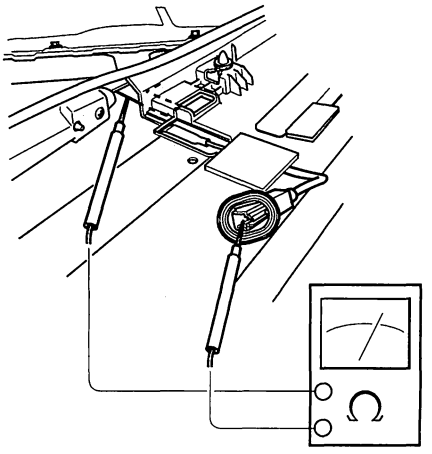
   Is there noise (static or whine) only with the engine running?

   YES—Check the antenna and radio grounds. If OK, check the charging system and the ignition system.■

   NO—Go to step 4.

4. Remove the tailgate spoiler trim (see page 20-213).

5. Touch one tester probe to the antenna element 1P connector No. 1 terminal, and the other tester probe at the antenna element to check for continuity. Repair if there is continuity.



6. Go into the self-diagnostic mode and use the "Tuner communication check mode" (see page 23-32).

   Is the tuner communication OK?

   YES—Go to step 7.

   NO—Audio unit is faulty, replace the audio unit.■

7. Remove the audio unit (see page 23-90). Check that the AM/FM antenna lead and sub-lead are properly connected.

   Are they connected properly?

   YES—Go to step 8.

   NO—Reconnect the connector, and recheck the function.■

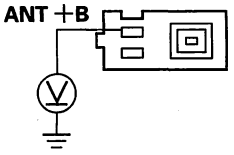
BACK

Protected by AR

8. Disconnect the AM/FM antenna amplifier 3P connector.

9. With the radio turned ON, measure the voltage between AM/FM antenna amplifier 3P connector No. 3 terminal and body ground.

AM/FM ANTENNA AMPLIFIER 3P CONNECTOR



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 14.

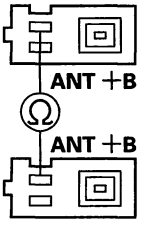
NO—Go to step 10.

10. Remove the audio unit (see page 23-90).

11. Disconnect audio unit connector H (3P).

12. Check for continuity between the audio unit connector H (3P) No. 3 terminal and AM/FM antenna amplifier 3P connector No. 3 terminal.

AUDIO UNIT CONNECTOR H (3P)
Terminal side of female terminals



AM/FM ANTENNA AMPLIFIER 3P CONNECTOR
Terminal side of female terminals

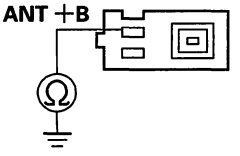
Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between audio unit and the AM/FM antenna amplifier. Also check the antenna lead/sublead connector. ■

13. Check for continuity between the audio unit connector H (3P) No. 3 terminal and body ground.

AUDIO UNIT CONNECTOR H (3P)



Terminal side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between audio unit and the AM/FM antenna amplifier. ■

NO—Audio unit is faulty, replace the audio unit. ■

(cont'd)

Protected by AR

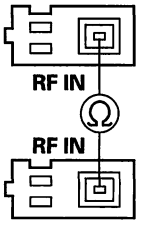
Symptom Troubleshooting (cont'd)

14. Remove the audio unit (see page 23-90).

15. Disconnect audio unit connector H (3P).

16. Check for continuity between the audio unit connector H (3P) No. 1 terminal and AM/FM antenna amplifier 3P connector No. 1 terminal.

AUDIO UNIT CONNECTOR H (3P)
Terminal side of female terminals



AM/FM ANTENNA AMPLIFIER 3P CONNECTOR
Terminal side of female terminals

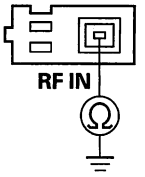
Is there continuity?

YES—Go to step 17.

NO—AM/FM antenna lead and/or sublead is faulty, replace the AM/FM antenna lead and/or sublead. ■

17. Check for continuity between the audio unit connector H (3P) No. 1 terminal and body ground.

AUDIO UNIT CONNECTOR H (3P)



Terminal side of female terminals

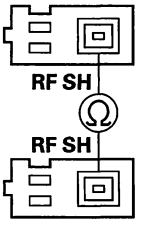
Is there continuity?

YES—AM/FM antenna lead and/or sublead is faulty, replace the AM/FM antenna lead and/or sublead. ■

NO—Go to step 18.

18. Check for continuity between the audio unit connector H (3P) No. 2 terminal and AM/FM antenna amplifier 3P connector No. 2 terminal.

AUDIO UNIT CONNECTOR H (3P)
Terminal side of female terminals



AM/FM ANTENNA AMPLIFIER 3P CONNECTOR
Terminal side of female terminals

Is there continuity?

YES—Go to step 19.

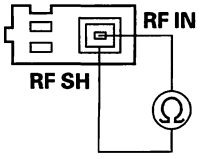
NO—AM/FM antenna lead and/or sublead is faulty, replace the AM/FM antenna lead and/or sublead. ■

BACK

Protected by AR

19. Check for continuity between the audio unit connector H (3P) terminal No. 1 and No.2.

AUDIO UNIT CONNECTOR H (3P)



Terminal side of female terminals

Is there continuity?

YES—Replace the AM/FM antenna and recheck. If the reception is still poor, replace the audio unit. ■

NO—AM/FM antenna lead and/or sublead is faulty, replace the AM/FM antenna lead and/or sublead. ■

Power switch will not turn ON (No information display and no sound)

NOTE: Always check the connectors for poor connections or loose terminals.

1. With the ignition switch ON (II), push the power switch ON to see if audio unit turns ON.

   Does the audio unit display operate properly, and the audio unit sound normal?

   YES—Intermittent failure, the system is OK at this time. ■

   NO—Go to step 2.

2. Turn the ignition switch OFF.

3. Check the No. 5 (10 A) fuse and No. 32 (10 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 4.

   NO—Replace the fuse, and recheck. ■

4. Remove the audio unit (see page 23-90). Check that the audio unit connectors are properly connected.

   Is it connected properly?

   YES—Go to step 5.

   NO—Repair poor connections and reconnect the connector, and recheck the function. ■

5. Disconnect the audio unit connector A (17P).

6. Turn the ignition switch ON (II).

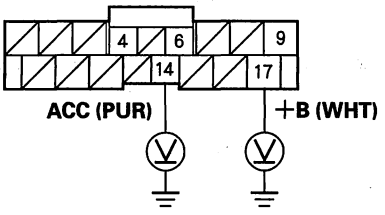
(cont'd)

Protected by AR

Symptom Troubleshooting (cont'd)

7. Measure the voltage between No. 14 and 17 terminals of audio unit connector A (17P) and body ground.

AUDIO UNIT CONNECTOR A (17P)



Wire side of female terminals

Is there battery voltage?

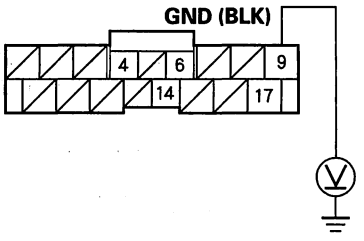
YES—Go to step 8.

NO—Repair open in the wire(s) between the No. 5 (10 A) and No. 32(10 A) fuses in the under-dash fuse/relay box and the audio unit.■

8. Reconnect the audio unit connector A (17P).

9. Measure the voltage between audio unit connector A (17P) terminal No. 9 and body ground.

AUDIO UNIT CONNECTOR A (17P)



Wire side of female terminals

Is there less than 0.1 V?

YES—Audio unit is faulty, replace the audio unit.■

NO—Repair open in the wire between the audio unit connector A (17P) terminal No. 9 and body ground (G504) (see page 22-32).■

Power will not turn OFF

1. With the ignition switch ON (II), push the power switch OFF or turn the ignition switch OFF to see if the audio unit turns OFF.

Does the audio unit turn OFF?

YES—Operation is normal.■

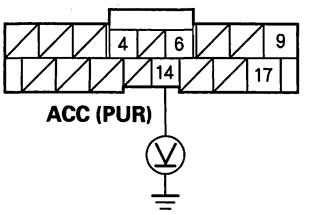
NO—Go to step 2.

2. Turn the ignition switch OFF.

3. Remove the audio unit (see page 23-90). Disconnect the audio unit connector A (17P).

4. Measure the voltage between the No. 14 terminal of audio unit connector A (17P) and body ground.

AUDIO UNIT CONNECTOR A (17P)



Wire side of female terminals

Is there voltage?

YES—Check for short to power on the PUR wire.■

NO—Audio unit is faulty, replace the audio unit.■

BACK

Protected by AR

No sound is heard from speaker(s) (display is normal) (with navigation)

NOTE:
- Set the fader and balance positions to the center.
- Before doing troubleshooting, do the power switch will not turn ON troubleshooting (see page 23-41).
- On vehicles equipped with navigation and HandsFreeLink, verify the voice systems are not activated. Press each system's back button to return the audio unit to the normal operating mode.
- Always check the connectors for poor connections or loose terminals.

1. Check that the volume button is not set to the min level.

   Is it at the MIN level?

   YES—Raise the volume level, and recheck the function.■

   NO—Go to step 2.

2. Check the NAVIGATION VOICE MUTE COMMAND and HANDSFREELINK MUTE COMMAND.

   Are the NAVIGATION VOICE MUTE COMMAND and HANDSFREELINK MUTE COMMAND set?

   YES—Cancel the NAVIGATION VOICE MUTE COMMAND by depressing the voice command and HANDSFREELINK MUTE COMMAND back button, then recheck the function.

   NO—Go to step 3.

3. Do the speaker check mode with the self-diagnostic function (see page 23-35).

   Did all speakers produce a tone?

   YES—Go to step 10.

   NO—Go to step 4.

4. Check the subwoofer for tone.

   Did the subwoofer make a tone?

   YES—Go to step 5.

   NO—Go to step 28.

5. Turn the ignition switch OFF.

6. Check the faulty speaker(s) for damage.

   Is there any damage?

   YES—Replace the speaker and recheck.■

   NO—Go to step 7.

7. Remove the faulty speaker(s) that has no sound (see page 23-91), and disconnect its connector.

8. Check the speaker connector for a loose or poor connection.

   Reconnect the speaker connector, and recheck the symptom; is the condition still present?

   YES—Go to step 9.

   NO—Intermittent failure. Operation is normal.■

9. Test the speaker(s) (see page 23-91).

   Is the speaker OK?

   YES—Go to step 10.

   NO—Replace the speaker(s).■

10. Do the audio unit self-diagnostic function DSP unit communication check (see page 23-32).

    Is the DSP communication OK?

    YES—Go to step 11.

    NO—Audio unit is faulty, replace the audio unit.■

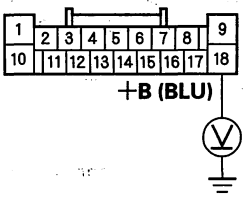
(cont'd)

Protected by AR

Symptom Troubleshooting (cont'd)

11. Disconnect stereo amplifier connector B (18P).
12. Turn the ignition switch ON (II).
13. Measure the voltage between stereo amplifier connector B (18P) No. 18 terminal and body ground.

STEREO AMPLIFIER CONNECTOR B (18P)



Wire side of female terminals

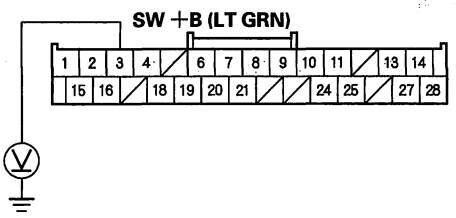
Is there battery voltage?

YES—Go to step 14.

NO—Repair open in the wire between No. 8 (30 A) fuse in the under-dash fuse/relay box and stereo amplifier connector B (18P) No. 18 terminal. ■

14. Disconnect stereo amplifier connector A (28P).
15. Measure the voltage between stereo amplifier connector A (28P) No. 3 terminal and body ground.

STEREO AMPLIFIER CONNECTOR A (28P)



Wire side of female terminals

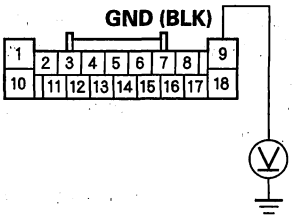
Is there battery voltage?

YES—Go to step 16.

NO—Repair open in the wire between the stereo amplifier connector A (28P) No. 3 terminal and audio unit connector B (32P) No. 23 terminal. ■

16. Reconnect the stereo amplifier connector B (18P).
17. Measure the voltage between stereo amplifier connector B (18P) No. 9 terminal and body ground.

STEREO AMPLIFIER CONNECTOR B (18P)



Wire side of female terminals

Less than 0.1 V?

YES—Go to step 18.

NO—Repair open to the body ground in the wire between the stereo amplifier connector B (18P) No. 9 terminal and body ground (G504) (see page 22-32). ■

BACK

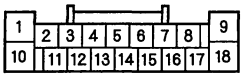
Protected by AR

18. Disconnect stereo amplifier connector B (18P) and speaker connector.

19. Check for continuity between body ground and stereo amplifier connector B (18P) according to the table.

Speaker	Stereo amplifier connector	Wire color
Front center speaker	B11 (+)	BLK
	B2 (−)	PNK
Driver's door speaker, Left tweeter	B16 (+)	WHT
	B7 (−)	GRN
Front passenger's door speaker, Right tweeter	B15 (+)	RED
	B6 (−)	BRN
Left rear door speaker	B13 (+)	PNK
	B4 (−)	PUR
Right rear door speaker	B12 (+)	BLU
	B3 (−)	ORN
Left satellite speaker	B17 (+)	BLU
	B8 (−)	GRY
Right satellite speaker	B14 (+)	RED
	B5 (−)	BLK
Subwoofer	B10 (+)	BLU
	B1 (−)	PNK

STEREO AMPLIFIER CONNECTOR B (18P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire(s) between the stereo amplifier and the speaker(s). ■

NO—Go to step 20.

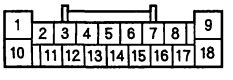
20. Measure the resistance between stereo amplifier connector B (18P) according to the table.

Speaker	Stereo amplifier connector	Wire color
Front center speaker	B11 (+)	BLK
	B2 (−)	PNK
Driver's door speaker, Left tweeter	B16 (+)	WHT
	B7 (−)	GRN
Front passenger's door speaker, Right tweeter	B15 (+)	RED
	B6 (−)	BRN
Left rear door speaker	B13 (+)	PNK
	B4 (−)	PUR
Right rear door speaker	B12 (+)	BLU
	B3 (−)	ORN
Left satellite speaker	B17 (+)	BLU
	B8 (−)	GRY
Right satellite speaker	B14 (+)	RED
	B5 (−)	BLK
Subwoofer	B10 (+)	BLU
	B1 (−)	PNK

Resistance

Front center speaker:	**4 Ω**
Driver's door speaker, Left tweeter:	**2 Ω**
Front passenger's door speaker, Right tweeter:	**2 Ω**
Left rear door speaker:	**2 Ω**
Right rear door speaker:	**2 Ω**
Left satellite speaker:	**4 Ω**
Right satellite speaker:	**4 Ω**
Subwoofer:	**2 Ω**

STEREO AMPLIFIER CONNECTOR B (18P)



Wire side of female terminals

Is the resistance the same as indicated?

YES—Go to step 21.

NO—Repair open in the wire between the stereo amplifier and the speaker(s). ■

(cont'd)

Protected by AR

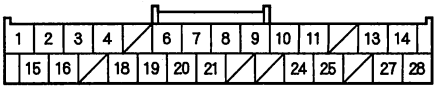
Symptom Troubleshooting (cont'd)

21. Disconnect audio unit connector B (32P).

22. Check for continuity between the following terminals of the stereo amplifier connector A (28P) and audio unit connector A (32P).

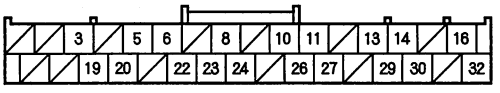
Stereo amplifier connector	Audio unit connector	Wire color
A1	B6	LT BLU
A2	B20	PNK
A15	B5	GRN

STEREO AMPLIFIER CONNECTOR A (28P)



Wire side of female terminals

AUDIO UNIT CONNECTOR B (32P)



Wire side of female terminals

Is there continuity?

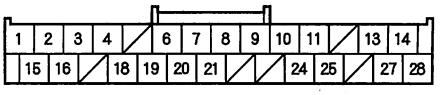
YES—Go to step 23.

NO—Repair open in the wire between the stereo amplifier and audio unit.■

23. Check for continuity between the terminals of stereo amplifier connector A (28P) according to the table.

From terminal	To terminal
A1	A2, A15, A16
A2	A15, A16

STEREO AMPLIFIER CONNECTOR A (28P)



Wire side of female terminals

Is there continuity between any of the terminals?

YES—Repair short in the wire(s) between audio unit and stereo amplifier (replace appropriate shield harness).■

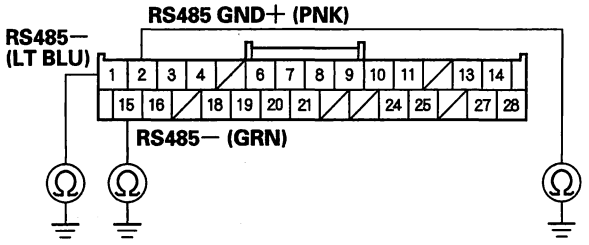
NO—Go to step 24.

BACK

Protected by AR

24. Check for continuity between body ground and stereo amplifier connector A (28P) terminal No. 1, 2 and 15 individually. Then check for continuity between the same terminals listed in the table and the audio unit connector A (25P) No. 15 terminal (the harness shield).

STEREO AMPLIFIER CONNECTOR A (28P)



Wire side of female terminals

Is there continuity?

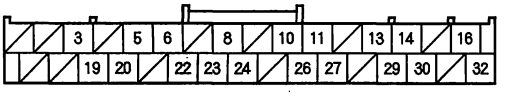
YES—Repair short to body ground in the wire(s) between stereo amplifier and audio unit or short between the shield wires (replace the appropriate shielded harness).■

NO—Go to step 25.

25. Check for continuity between audio unit connector B (32P) and stereo amplifier connector A (28P) according to the table.

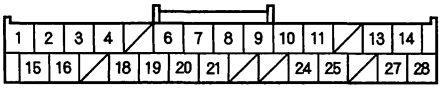
Audio unit connector	Stereo amplifier connector	Wire color
B32	A4	BLU
B16	A18	PNK
B24	A10	GRN
B8	A24	RED
B26	A11	BLU
B10	A25	PNK
B27	A13	LT BLU
B11	A27	PUR
B29	A14	BRN
B13	A28	YEL
B14	A19	RED
B30	A6	GRN

AUDIO UNIT CONNECTOR B (32P)



Wire side of female terminals

STEREO AMPLIFIER CONNECTOR A (28P)



Wire side of female terminals

Is there continuity?

YES—Go to step 26.

NO—Repair open in the appropriate wire(s) between the audio unit and stereo amplifier.■

(cont'd)

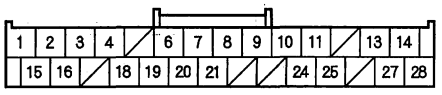
Protected by AR

Symptom Troubleshooting (cont'd)

26. Check for continuity between stereo amplifier connector A (28P) and body ground according to the table.

stereo amplifier connector	Wire color
A4	BLU
A18	PNK
A10	GRN
A24	RED
A11	BLU
A25	PNK
A13	LT BLU
A27	PUR
A14	BRN
A28	YEL
A19	RED
A6	GRN

STEREO AMPLIFIER CONNECTOR A (28P)



Wire side of female terminals

Is there continuity?

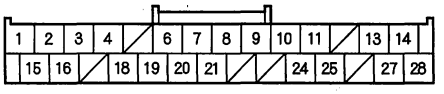
YES—Repair short body ground in the wire(s) between the audio unit and stereo amplifier.■

NO—Go to step 27.

27. Check for continuity between the terminals of stereo amplifier connector A (28P) according to the table.

From terminal	To terminals
A4	A18, A10, A24, A11, A25, A13, A27, A14, A28
A18	A10, A24, A11, A25, A13, A27, A14, A28
A10	A24, A11, A25, A13, A27, A14, A28
A24	A11, A25, A13, A27, A14, A28
A11	A25, A13, A27, A14, A28
A25	A13, A17, A14, A28
A13	A27, A14, A28
A27	A14, A28
A14	A28

STEREO AMPLIFIER CONNECTOR A (28P)



Wire side of female terminals

Is there continuity between any of the terminals?

YES—Repair short in the wire(s) between audio unit and stereo amplifier (replace appropriate shield harness).■

NO—Substitute a known-good audio unit and recheck. If the symptom/indicated goes away, replace the original audio unit. If the symptom is still present, substitute a known-good stereo amplifier and recheck. If the symptom indicated goes away, replace the original stereo amplifier.■

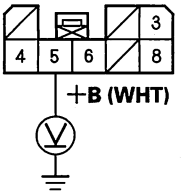
BACK

Protected by AR

28. Disconnect the subwoofer 8P connector.

29. Measure the voltage between subwoofer 8P connector No. 5 terminal and body ground.

SUBWOOFER 8P CONNECTOR



Wire side of female terminals

Is there battery voltage?

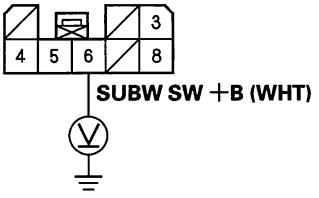
YES—Go to step 30.

NO—Repair open in the between the subwoofer 8P connector No. 5 terminal and No. 12 (10 A) fuse in the under-dash fuse/relay box. ■

30. Turn the ignition switch ON (II).

31. Measure the voltage between subwoofer 8P connector No. 6 terminal and body ground.

SUBWOOFER 8P CONNECTOR



Wire side of female terminals

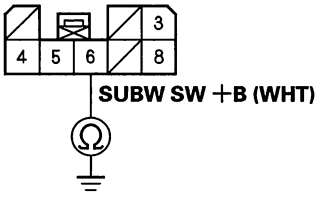
Is there battery voltage?

YES—Go to step 31.

NO—Repair open in the between the stereo amplifier connector A (28P) No. 20 terminal and subwoofer 8P connector No. 6 terminal. ■

32. Check for continuity between body ground and subwoofer 8P connector No. 6 terminal.

SUBWOOFER 8P CONNECTOR



Wire side of female terminals

Is there continuity?

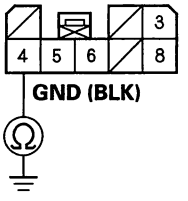
YES—Repair short to body ground in the wire(s) between the stereo amplifier and subwoofer. ■

NO—Go to step 33.

33. Turn the ignition switch OFF.

34. Check for continuity between subwoofer 8P connector No. 4 terminal and body ground.

SUBWOOFER 8P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 5.

NO—Repair open to the body ground in the wire between the subwoofer 8P connector No. 4 terminal and body ground (G606) (see page 22-38). ■

Protected by AR

Symptom Troubleshooting (cont'd)

No sound is heard from speaker(s) (display is normal) (without navigation)

NOTE:
- Set the fader and balance positions to the center.
- Before doing troubleshooting, do the power switch will not turn ON troubleshooting (see page 23-41).
- Always check the connectors for poor connections or loose terminals.

1. Check that the volume button is not set to the min level.

   Is it at the MIN level?

   YES—Raise the volume level, and recheck the function. ■

   NO—Go to step 2.

2. Do the speaker check mode with the self-diagnostic function (see page 23-35).

   Did all speakers produce a tone?

   YES—Go to step 8.

   NO—Go to step 3.

3. Turn the ignition switch OFF.

4. Check the faulty speaker(s) for damage.

   Is there any damage?

   YES—Replace the speaker and recheck. ■

   NO—Go to step 5.

5. Remove the speaker(s) that has no sound (see page 23-91), and disconnect its connector.

6. Check the speaker connector for a loose or poor connection.

   Reconnect the speaker connector, and recheck the symptom; is the condition still present?

   YES—Go to step 7.

   NO—Intermittent failure. Operation is normal. ■

7. Test the speaker(s) (see page 23-91).

   Is the speaker OK?

   YES—Go to step 8.

   NO—Replace the speaker(s). ■

8. Do the audio unit self-diagnostic function DSP unit communication check (see page 23-32).

   Is the DSP communication OK?

   YES—Go to step 9.

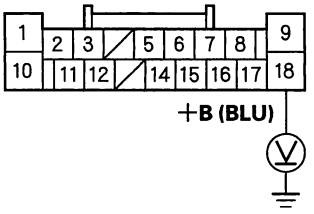
   NO—Audio unit is faulty, replace the audio unit (see page 23-90). ■

BACK

Protected by AR

9. Disconnect stereo amplifier connector B (18P).
10. Turn the ignition switch ON (II).
11. Measure the voltage between stereo amplifier connector B (18P) No. 18 terminal and body ground.

STEREO AMPLIFIER CONNECTOR B (18P)



Wire side of female terminals

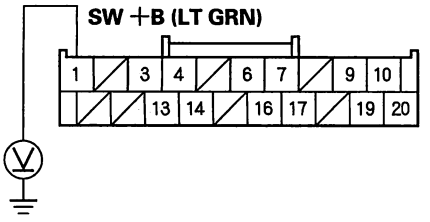
Is there battery voltage?

YES—Go to step 12.

NO—Repair open in the between No. 8 (30 A) fuse in the under-dash fuse/relay box and stereo amplifier connector B (18P) No. 18 terminal. ■

12. Disconnect stereo amplifier connector A (20P).
13. Measure the voltage between stereo amplifier connector A (20P) No. 1 terminal and body ground.

STEREO AMPLIFIER CONNECTOR A (20P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 14.

NO—Repair open in the between the stereo amplifier connector A (20P) No. 1 terminal and audio unit connector B (32P) No. 23 terminal. ■

(cont'd)

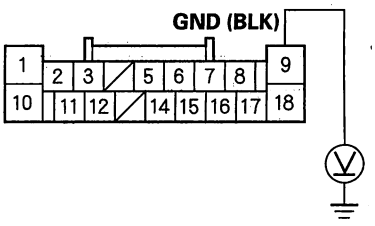
Protected by AR

Symptom Troubleshooting (cont'd)

14. Reconnect the stereo amplifier connector B (18P).

15. Measure the voltage between stereo amplifier connector B (18P) No. 9 terminal and body ground.

STEREO AMPLIFIER CONNECTOR B (18P)



Wire side of female terminals

Is there less than 0.1 V?

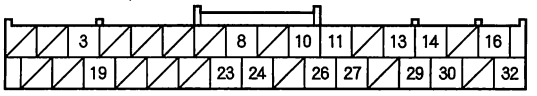
YES—Go to step 16.

NO—Repair open to the body ground in the wire between the stereo amplifier connector B (18P) No. 9 terminal and body ground (G504) (see page 22-32).■

16. Check for continuity between audio unit connector B (32P) and stereo amplifier connector A (20P) according to the table.

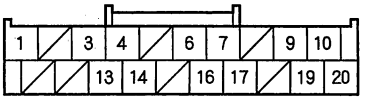
Audio unit connector	Stereo amplifier connector	Wire color
B32	A3	BLU
B16	A13	PNK
B24	A6	GRN
B8	A16	RED
B26	A7	BLU
B10	A17	PNK
B27	A9	LT BLU
B11	A19	PUR
B29	A10	BRN
B13	A20	YEL

AUDIO UNIT CONNECTOR (32P)



Wire side of female terminals

STEREO AMPLIFIER CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Go to step 17.

NO—Repair open in the appropriate wire(s) between the audio unit and stereo amplifier.■

BACK

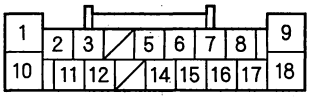
Protected by AR

17. Disconnect stereo amplifier connector B (18P) and speaker connector.

18. Check for continuity between body ground and stereo amplifier connector B (18P) according to the table.

Speaker	Stereo amplifier connector	Wire color
Front center speaker	B16 (+)	BLK
	B7 (−)	PNK
Driver's door speaker, Left tweeter	B11 (+)	WHT
	B2 (−)	GRN
Front passenger's door speaker, Right tweeter	B15 (+)	RED
	B6 (−)	BRN
Left rear door speaker	B10 (+)	PNK
	B1 (−)	PUR
Right rear door speaker	B14 (+)	BLU
	B5 (−)	ORN
Subwoofer	B12 (+)	BLU
	B3 (−)	GRY
	B17 (+)	RED
	B8 (−)	BLK

STEREO AMPLIFIER CONNECTOR B (18P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire(s) between the stereo amplifier and the speaker(s).■

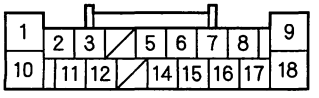
NO—Go to step 19.

19. Measure the resistance between stereo amplifier connector B (18P) according to the table.

Speaker	Stereo amplifier connector	Wire color
Front center speaker	B16 (+)	BLK
	B7 (−)	PNK
Driver's door speaker, Left tweeter	B11 (+)	WHT
	B2 (−)	GRN
Front passenger's door speaker, Right tweeter	B15 (+)	RED
	B6 (−)	BRN
Left rear door speaker	B10 (+)	PNK
	B1 (−)	PUR
Right rear door speaker	B14 (+)	BLU
	B5 (−)	ORN
Subwoofer	B12 (+)	BLU
	B3 (−)	GRY
	B17 (+)	RED
	B8 (−)	BLK

Resistance
Front center speaker: **4 Ω**
Driver's door speaker, Left tweeter: **2 Ω**
Front passenger's door speaker, Right tweeter: **2 Ω**
Left rear door speaker: **2 Ω**
Right rear door speaker: **2 Ω**
Subwoofer: **2 Ω**

STEREO AMPLIFIER CONNECTOR B (18P)



Wire side of female terminals

Is the resistance the same as indicated?

YES—Go to step 20.

NO—Repair open in the wire between the stereo amplifier and the speaker(s).■

(cont'd)

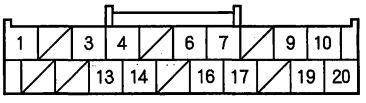
Protected by AR

Symptom Troubleshooting (cont'd)

20. Check for continuity between stereo amplifier connector A (20P) and body ground according to the table.

stereo amplifier connector	Wire color
A3	BLU
A13	PNK
A6	GRN
A16	RED
A7	BLU
A17	PNK
A9	LT BLU
A19	PUR
A10	BRN
A20	YEL
A14	RED
A4	GRN

STEREO AMPLIFIER CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

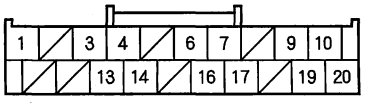
YES—Repair short to body ground in the wire(s) between the audio unit and stereo amplifier.■

NO—Go to step 21.

21. Check for continuity between the terminals of stereo amplifier connector A (20P) according to the table.

From terminal	To terminals
A3	A13, A6, A16, A7, A17, A9, A19, A10, A20
A13	A6, A16, A7, A17, A9, A19, A10, A20
A6	A16, A7, A17, A9, A19, A10, A20
A16	A7, A17, A9, A19, A10, A20
A7	A17, A9, A19, A10, A20
A17	A9, A19, A10, A20
A9	A19, A10, A20
A19	A10, A20
A10	A20

STEREO AMPLIFIER CONNECTOR A (20P)



Wire side of female terminals

Is there continuity between any of the terminals?

YES—Repair short in the wire(s) between audio unit and stereo amplifier (replace appropriate shield harness).■

NO—Substitute a known-good audio unit and recheck. If the symptom/indicated goes away, replace the original audio unit. If the symptom is still present, substitute a known-good stereo amplifier and recheck. If the symptom indicated goes away, replace the original stereo amplifier.■

BACK

Protected by AR

Audio system sound is weak or distorted (display is normal)

1. Check for sound in each mode (AM, FM, XM, and disc).

   Is there sound from the speakers, and is the sound quality normal in each mode?

   YES—Intermittent failure. The system is OK at this time. Check for loose connections at the audio unit, the amplifier, and each speaker. ■

   NO—Speakers all work, sound quality is poor. ■

   - If sound is poor only with XM radio, or the XM radio does not function, go to poor or no sound with XM radio (see page 23-77).
   - If the sound is poor only with AM or FM, go to poor radio reception or interference (see page 23-38).
   - If the sound is poor in all modes, go to sound quality diagnosis (see page 23-84).

Radio preset memory is lost

NOTE: If only XM stations are lost, go to XM radio preset memory is lost (with AcuraLink) (see page 23-75) or XM radio preset memory is lost (without AcuraLink) (see page 23-76).

1. Set each of the radio station preset buttons.

   Do each of the preset buttons set properly?

   YES—Go to step 2.

   NO—Go to step 4.

2. Turn the ignition switch OFF for 1 minute, then turn it back to ON (II).

3. Test all the preset buttons for proper recall operation.

   Do the preset buttons recall the set radio stations?

   YES—System is normal at this time. Check connections at the audio unit. ■

   NO—Go to step 4.

4. Inspect the under-dash fuse/relay box No. 5 (10 A) fuse.

   Is it OK?

   YES—Go to step 5.

   NO—Replace the fuse and reset. If it fails again, repair the short to ground in the harness. ■

5. Remove the audio unit (see page 23-90).

6. Turn the ignition switch ON (II).

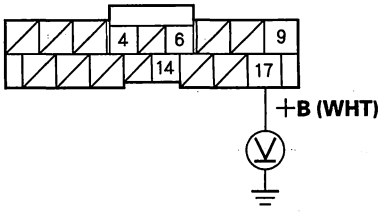
(cont'd)

Protected by AR

Symptom Troubleshooting (cont'd)

7. Measure the voltage between the audio unit connector A (17P) terminal No. 17 and body ground.

AUDIO UNIT CONNECTOR A (17P)



Wire side of female terminals

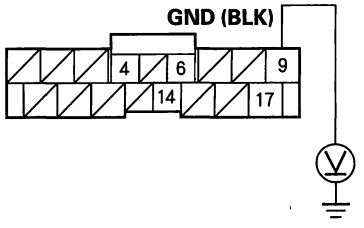
Is there battery voltage?

YES—Go to step 8.

NO—An open wire between the under-dash fuse/relay box and audio unit A17 terminal. ■

8. Measure the voltage between the audio unit connector A (17P) terminal No. 9 and body ground.

AUDIO UNIT CONNECTOR A (17P)



Wire side of female terminals

Is there less than 0.1 V?

YES—Replace the audio unit. ■

NO—An open wire between the audio unit connector A (17P) terminal No. 9 and body ground (G504). ■

Volume does not change

NOTE: Set the fader and balance positions to the center.

1. Listen for sound from the speakers.

Is the sound normal?

YES—Go to step 2.

NO—Go to audio system sound is weak or distorted (see page 23-55), or no sound is heard from speakers (see page 23-43). ■

2. Operate the volume knob to see if the volume changes.

Does the volume change?

YES—Operation is normal. ■

NO—Substitute a known-good audio unit and recheck. If the symptom/indication goes away, replace the original audio unit. If the symptom is still present, substitute a known-good audio panel and recheck. If the symptom/indication goes away, replace the original audio panel. ■

BACK

Protected by AR

Volume does not increase with speed

1. Verify the (SVC) mode setting in the navigation or audio unit sound set-up.

   Is the (SVC) set to off?

   YES—Change the setting to "Mid" and reset (see page 23-8). ■

   NO—Go to step 2.

2. Do the self-diagnostic function for the vehicle speed pulse indication (see page 23-32).

   Does the self-diagnostic function indicate a VSP signal?

   YES—Substitute a known-good navigation or audio unit and retest. If the symptom/indication goes away, replace the original navigation or audio unit. ■

   NO—Go to step 3.

3. Check for B-CAN codes with the HDS.

   Are there any gauge module B-CAN codes?

   YES—Go to test mode A (see page 22-112). ■

   NO—Go to step 4.

4. Inspect the VSP signal in the navigation system (see page 23-165). ■

   Does the VSP change from 0 to 1 when the vehicle is moving?

   YES—Substitute a known-good audio unit, then retest the VSP signal in the audio self-diagnostic test. If the speed is shown, replace the original audio unit. If so speed is shown, substitute a known-good navigation unit. ■

   NO—Inspect the VSP circuit (see page 23-123). ■

Protected by AR

Symptom Troubleshooting (cont'd)

Volume is too high or too low when driving at freeway speeds

1. Test-drive the vehicle at highway speeds, and monitor volume level.

   Is the volume level too high or too low?

   YES—Go to step 2.

   NO—Intermittent failure, the system is OK at this time. ■

2. Change the (SVC) mode setting in sound set-up to "Mid" (see page 23-8).

   Is the volume level still too high, or too low?

   YES—Replace the audio unit (see page 23-90). ■

   NO—Improper (SVC) setting for clients sound taste. ■

BACK

Protected by AR

Radio tuner does not change stations

1. Check the audio information on the display panel.

   Does the audio information display properly?

   YES—Go to step 2.

   NO—Go to power switch will not turn ON (see page 23-41). ■

2. Operate the tuning knob to see if the radio station changes.

   Does the radio station change?

   YES—Intermittent failure, the turning knob is OK at this time. ■

   NO—Replace the audio unit. ■

Display does not dim or brighten with dimmer

NOTE: Always check the connectors for poor connections or loose terminals.

1. Turn the ignition switch ON (II).
2. Turn the headlight switch to the parking or headlight on position.
3. Check the display of the climate control unit.

   Does the climate control illumination change with dimmer?

   YES—Go to step 4.

   NO—Go to climate control power and ground circuit troubleshooting (see page 21-93). ■

4. Check the No. 7 (10 A) fuse and the No. 32 (10 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 5.

   NO—Replace the fuse, and recheck. ■

5. Remove the audio unit (see page 23-90). Check that the audio unit and climate control unit connectors are properly connected.

   Are they connected properly?

   YES—Go to step 6.

   NO—Repair poor connections and reconnect the connector, and recheck the function. ■

(cont'd)

Protected by AR

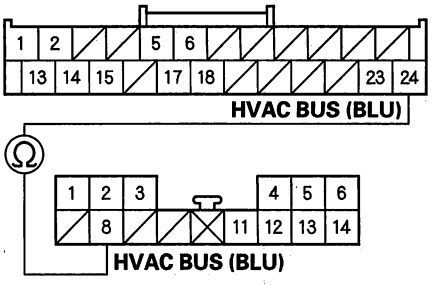
Symptom Troubleshooting (cont'd)

6. Turn the ignition switch OFF.

7. Disconnect audio unit connector C (24P) and climate control unit connector B (14P).

8. Check for continuity between the audio unit connector C (24P) No. 24 terminal and climate control unit connector B (14P) No. 8 terminal.

AUDIO UNIT CONNECTOR C (24P)
Wire side of female terminals



CLIMATE CONTROL UNIT CONNECTOR B (14P)
Wire side of female terminals

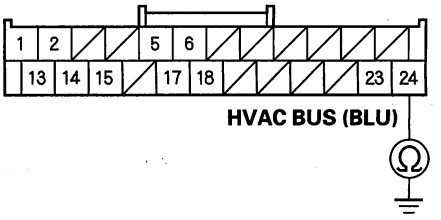
Is there continuity?

YES—Go to step 9.

NO—Repair open in the wire between the audio unit connector C (24P) No. 24 terminal and climate control unit connector B (14P) No. 8 terminal. ■

9. Check for continuity between the body ground and audio unit connector C (24P) No. 24 terminal.

AUDIO UNIT CONNECTOR C (24P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the audio unit and climate control unit. ■

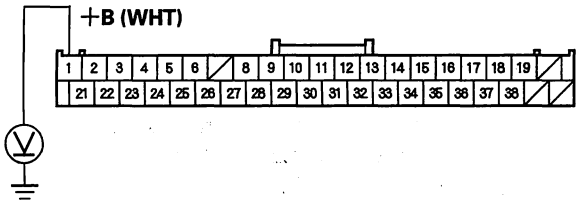
NO—Go to step 10.

BACK

Protected by AR

10. Disconnect climate control unit connector A (40P).
11. Measure the voltage between No. 1 terminal of climate control unit connector A (40P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

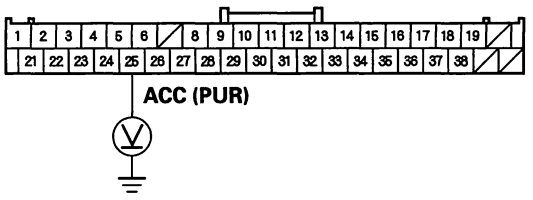
Is there battery voltage?

YES—Go to step 12.

NO—Repair open in the wire(s) between No. 7 (10 A) fuse in the under-dash fuse/relay box and the climate control unit.■

12. Turn the ignition switch ON (II).
13. Measure the voltage between No. 25 terminal of climate control unit connector A (40P) and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

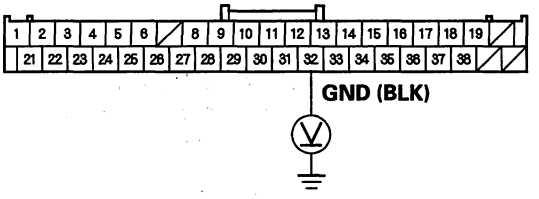
Is there battery voltage?

YES—Go to step 14.

NO—Repair open in the wire(s) between the 32 (10 A) fuse in the under-dash fuse/relay box and the climate control unit.■

14. Turn the ignition switch OFF.
15. Reconnect the audio unit connector A (17P).
16. Turn the ignition switch ON (II).
17. Measure the voltage between climate control unit connector A (40P) terminal No. 37 and body ground.

CLIMATE CONTROL UNIT CONNECTOR A (40P)



Wire side of female terminals

Is there less than 0.1 V?

YES—Substitute a known-good climate control unit, and recheck. If the symptom/indicated goes away, replace the original climate control unit. If the symptom is still present, substitute a known-good audio unit and recheck. If the symptom/indicated goes away, replace the original audio unit.■

NO—Repair open in the wire between the climate control unit connector A (40P) terminal No. 37 and body ground (G506) (see page 22-32).■

Protected by AR

Symptom Troubleshooting (cont'd)

Audio unit button illumination does not work

NOTE: Always check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Turn the combination lighting switch to the parking light position.
3. Check the illumination of the audio unit buttons.

   Are the buttons illuminated?

   YES—All buttons illuminated: Intermittent problem: the audio unit is OK at this time. Check for loose or poor connections at the audio unit connector C (24P).■
   Some button(s) illuminated: Audio panel is faulty, replace the audio panel.■

   NO—Go to step 4.
4. Check the illumination of several other buttons not related to the audio system.

   Are the buttons illuminated?

   YES—Go to the B-CAN line troubleshooting (see page 23-227). If the B-CAN line is OK, substitute a known-good audio unit and recheck. If the symptom/indicated goes away, replace the original audio unit. If the symptom is still present, substitute a known-good audio panel and recheck. If the symptom/indicated goes away, replace the original audio panel.■

   NO—Troubleshoot the interior lights. Start by checking the No. 22 (7.5 A) fuse in the under-hood fuse/relay box. If the fuse is OK, check the interior light relay.

Audio disc does not load

NOTE:
- Disc labels should not be used in the audio unit. They may damage the player mechanism.
- Make sure the CD disc is compatible with the system (see the owner's manual for more information).

1. Insert a known-good disc to see if the symptom can be duplicated.

   Does the disc load?

   YES—Operation is normal. If the disc loads normally, but will not play, go to audio disc does not play (see page 23-63).■

   NO—Go to step 2.
2. Insert another disc.

   Does the disc load?

   YES—The original disc is faulty.■

   NO—Replace the audio unit.■

BACK

Protected by AR

Audio disc does not eject

NOTE: Disc labels should not be used in the audio unit. They may damage the player mechanism.

1. Turn on the audio system.

   Does the system turn on?

   YES—Go to step 2.

   NO—Go to power switch will not turn ON (see page 23-41). ■

2. Check to see if the disc ejects correctly with no binding by pushing the EJECT button.

   Is it normal?

   YES—Operation is normal. ■

   NO—Replace the audio unit. ■

Special tools required
Diagnostics CD 07AAZ-SDBA100

Audio disc does not play

1. Try loading a disc.

   Does the disc load?

   YES—Go to step 2.

   NO—Go to disc does not load (see page 23-62). ■

2. Insert another audio disc to see if the symptom can be duplicated.

   Does the disc play?

   YES—Operation is normal. ■

   NO—Go to step 3.

3. Insert audio diagnostic CD (T/N 07AAZ-SDBA100) in the audio unit.

   Does the disc play?

   YES—The original disc is faulty or has an unreadable format. ■

   NO—Replace the audio unit. ■

Protected by AR

Symptom Troubleshooting (cont'd)

Special tools required
- Diagnostics CD 07AAZ-SDBA100
- Skip test CD 07AAZ-SDBA200
- Skip test CD 07AAZ-SDBA300

Audio disc skips

1. Confirm the vehicles tires are properly inflated.

2. Check the client's CD for scratches and fingerprints.

   NOTE: The following test should be done with the audio unit bass and treble set to the client's listening settings. When comparing to known-good vehicles, do the comparison on the same model and trim level.

3. Test-drive to identify when the client's CD skips. The audio diagnostic CD (T/N 07AAZ-SDBA100) can be used if the client's CD is not available; use tracks 10—12.

   Does the CD skip?

   YES—Go to step 4.

   NO—Operation is normal. ■

4. Compare the client's skipping CD to a known-good vehicle under the same conditions.

   Does the CD skip in the known-good vehicle under the same conditions?

   YES—The CD player operation is normal, the problem is with the client's CD. ■

   NO—Go to step 5.

   NOTE: Do the following test with vehicle parked and the engine running.

5. Insert the diagnostic skip test CD (T/N 07AAZ-SDBA300). Play tracks 2—11, and note on which number track(s) the CD starts skipping. Do the same test on a known-good vehicle.

   Does the CD skip on same track(s) as the known-good vehicle?

   YES—Operation is normal. ■

   NO—Go to step 6.

6. Insert the diagnostic skip test CD (T/N 07AAZ-SDBA200). Play tracks 7—11 and tracks 13—15 and note on which number track(s) the CD starts skipping. Do the same test on a known-good vehicle.

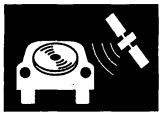
   Does the CD skip on same track(s) as the known-good vehicle?

   YES—Operation is normal. ■

   NO—Replace the audio unit. ■

BACK

Protected by AR



Audio disc changer does not load all six discs

NOTE: Disc labels should not be used in the audio unit. They may damage the player mechanism.

1. Try loading six discs into the audio unit.

   Does the audio unit accept all six disks?

   YES—Intermittent failure, the audio unit is OK at this time. ■

   NO—Go to step 2.

2. Try loading the disc player with six known-good discs.

   Does the audio unit accept all six disks?

   YES—At least one of the original discs is faulty. ■

   NO—Replace the audio unit. ■

Audio disc changer does not move between discs

NOTE: Disc labels should not be used in the audio unit. They may damage the player mechanism.

1. Insert six discs into the audio unit and see if the changer moves between discs.

   Does the changer operate normally?

   YES—Intermittent failure, the disc changer is OK at this time. ■

   NO—Go to step 2.

2. Insert six known-good disks into the audio unit.

   Does the changer operate normally?

   YES—At least one of the original discs is faulty. ■

   NO—Replace the audio unit. ■

Protected by AR

Symptom Troubleshooting (cont'd)

Error code: XM NO SIGNAL or XM ANTENNA is displayed

NOTE:
- Check XM radio reception in an open area. Poor reception/interference can be caused by tall buildings, mountains, or high-voltage power lines.
- If you can only tune to channel 000,001,174 and 247, make sure the audio unit is set to channel mode (see owner's manual), if it is set to channel mode, call XM radio customer support and check the account activation status.
- If you replace the XM receiver, the Acuralink must be reactivated by Acura Client Services.

1. Park vehicle outside with a clear view of the southern horizon.

   Does the XM radio receive a signal?

   YES—Reception interference operation is normal.■

   NO—With AcuraLink: Go to step 2.
   Without AcuraLink: Go to step 8.

2. Check XM antenna 2P connector and XM receiver (AcuraLink control unit) connector C (2P).

   Are the connectors connected?

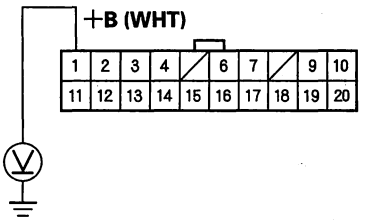
   YES—Go to step 3.

   NO—Reconnect XM antenna 2P connector and XM receiver (AcuraLink control unit) connector C (2P), recheck XM radio operation. If the signal is restored, operation is normal. If signal is not restored go to step 3.

3. Turn the ignition switch to OFF (0).

4. Measure the voltage between XM receiver (AcuraLink control unit) connector A (20P) No. 1 terminal and body ground.

XM RECEIVER (ACURALINK CONTROL UNIT) CONNECTOR A (20P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 5.

NO—Repair open in the wire between No. 5 (10 A) fuse in the under-dash fuse/relay box and XM receiver (AcuraLink control unit) connector A (20P) No. 1 terminal.■

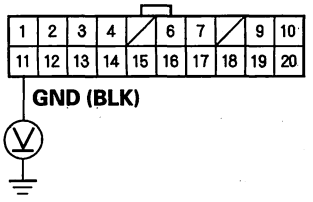
BACK

Protected by AR

5. Reconnect the XM receiver (AcuraLink control unit) connector A (20P).

6. Check the voltage between XM receiver (AcuraLink control unit) connector A (20P) No. 11 terminal and body ground.

XM RECEIVER (ACURALINK CONTROL UNIT) CONNECTOR A (20P)



Wire side of female terminals

Is there less than 0.1 V?

YES—Go to step 7.

NO—Repair open in the wire between XM receiver (AcuraLink control unit) connector A (20P) No. 11 terminal and body ground (G606) (see page 22-38). ■

7. Substitute known-good XM antenna.

Does the XM radio receiver a signal?

YES—Replace XM antenna (see page 23-98). ■

NO—Substitute a known-good XM antenna lead. If the XM receiver (AcuraLink control unit) receives a signal, replace the original XM antenna lead. If the XM receiver (AcuraLink control unit) does not receive a signal, substitute a known-good XM receiver (AcuraLink control unit). ■

8. Check XM antenna 2P connector and XM receiver connector B (2P).

Are the connectors connected?

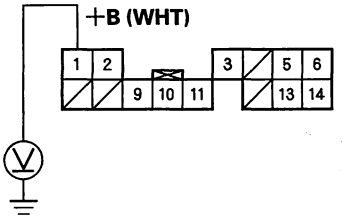
YES—Go to step 9.

NO—Reconnect XM antenna 2P connector and XM receiver connector B (2P), recheck XM radio operation. If the signal restored, operation is normal. If signal not restored go to step 3.

9. Turn the ignition switch to OFF (0).

10. Measure the voltage between XM receiver connector A (14P) No. 1 terminal and body ground.

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 11.

NO—Repair open in the wire between No. 5 (10 A) fuse in the under-dash fuse/relay box and XM receiver connector A (14P) No. 1 terminal. ■

(cont'd)

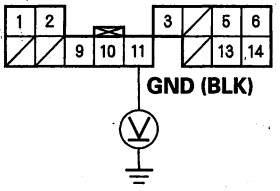
Protected by AR

Symptom Troubleshooting (cont'd)

11. Reconnect the XM receiver connector A (14P).

12. Measure the voltage between XM receiver connector A (14P) No. 11 terminal and body ground.

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

Is there less than 0.1 V?

YES—Go to step 13.

NO—Repair open in the wire between XM receiver connector A (14P) No. 11 terminal and body ground (G606) (see page 22-38).■

13. Substitute known-good XM antenna.

Does the XM radio receiver a signal?

YES—Replace XM antenna (see page 23-98).■

NO—Substitute a known-good XM antenna lead. If the XM receiver receives a signal, replace the original XM antenna lead. If the XM receiver does not receive a signal, substitute a known-good XM receiver unit.■

XM radio display is blank and no station information is displayed (with AcuraLink)

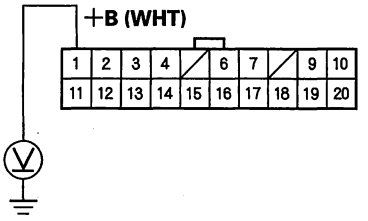
NOTE:
- Always check the connectors for poor connections or loose terminals.
- If you replace the XM receiver, the Acuralink must be reactiveted by Acura Client Services.

1. Turn the ignition switch to LOCK (0).

2. Disconnect the XM receiver (AcuraLink control unit) connector A (20P).

3. Measure the voltage between XM receiver (AcuraLink control unit) connector A (20P) No. 1 terminal and body ground.

XM RECEIVER (ACURALINK CONTROL UNIT) CONNECTOR A (20P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 4.

NO—Repair open in the between No. 5 (10 A) fuse in the under-dash fuse/relay box and XM receiver (AcuraLink control unit) connector A (20P) No. 1 terminal.■

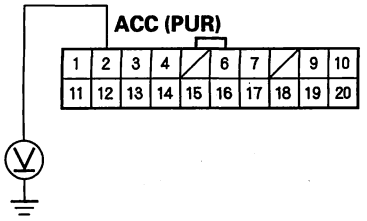
BACK

Protected by AR

4. Turn the ignition switch ON (II).

5. Measure the voltage between XM receiver (AcuraLink control unit) connector A (20P) No. 2 terminal and body ground.

XM RECEIVER (ACURALINK CONTROL UNIT) CONNECTOR A (20P)



Wire side of female terminals

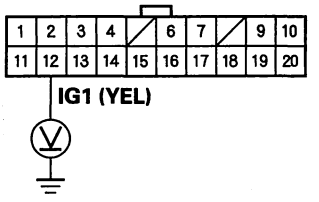
Is there battery voltage?

YES—Go to step 6.

NO—Repair open in the wire between No. 32 (10 A) fuse in the under-dash fuse/relay box and XM receiver (AcuraLink control unit) connector A (20P) No. 2 terminal. ■

6. Measure the voltage between XM receiver (AcuraLink control unit) connector A (20P) No. 12 terminal and body ground.

XM RECEIVER (ACURALINK CONTROL UNIT) CONNECTOR A (20P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 7.

NO—Repair open in the wire between No. 21 (10 A) fuse in the under-dash fuse/relay box and XM receiver (AcuraLink control unit) connector A (20P) No. 12 terminal. ■

(cont'd)

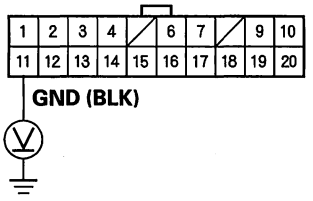
Protected by AR

Symptom Troubleshooting (cont'd)

7. Reconnect the XM receiver (AcuraLink control unit) connector A (20P).

8. Measure the voltage between XM receiver (AcuraLink control unit) connector A (20P) No. 11 terminal and body ground.

XM RECEIVER (ACURALINK CONTROL UNIT) CONNECTOR A (20P)



Wire side of female terminals

Is there less than 0.1 V?

YES—Go to step 9.

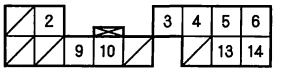
NO—Repair open in the wire between XM receiver (AcuraLink control unit) connector A (20P) No. 11 terminal and body ground (G606) (see page 22-38). ■

9. Disconnect audio unit connector D (14P), XM receiver (AcuraLink control unit) connector A (20P), navigation unit connector A (20P), and navigation display unit 20P connector.

10. Check for continuity between the following terminals of the audio unit connector D (14P) and XM receiver (AcuraLink control unit) connector A (20P).

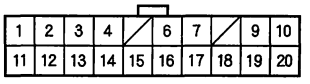
Audio unit connector	XM receiver (AcuraLink control unit) connector	Wire color
D3	A18	BRN
D9	A7	GRN
D10	A17	RED

AUDIO UNIT CONNECTOR D (14P)



Wire side of female terminals

XM RECEIVER (ACURALINK CONTROL UNIT) CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Go to step 11.

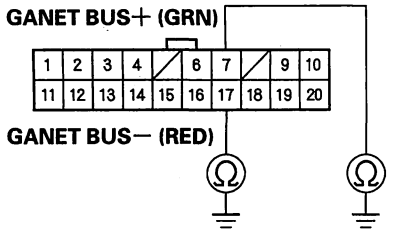
NO—Repair open in the wire(s) between audio unit and XM receiver (AcuraLink control unit). ■

BACK

Protected by AR

11. Check for continuity between body ground and XM receiver (AcuraLink control unit) connector A (20P) terminals No. 7 and 17 individually.

XM RECEIVER (ACURALINK CONTROL UNIT) CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

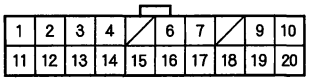
YES—Repair short to body ground in the wire(s) between the audio unit and XM receiver (AcuraLink control unit) or between the shield wires (replace the applicable shield harness). ■

NO—Go to step 12.

12. Check for continuity between the terminal of XM receiver (AcuraLink control unit) connector A (20P) according to the cable.

From terminal	To terminals
A7	A17, A18
A17	A18

XM RECEIVER (ACURALINK CONTROL UNIT) CONNECTOR A (20P)



Wire side of female terminals

Is there continuity between any of the terminals?

YES—Repair short in the wire(s) between the audio unit and XM receiver (AcuraLink control unit) (replace the appropriate shield harness). ■

NO—Substitute a known-good audio unit and recheck. If the symptom/indicated goes away, replace the original audio unit. If the symptom is still present, substitute a known-good XM receiver (AcuraLink control unit) and recheck. If the symptom indicated goes away, replace the original XM receiver (AcuraLink control unit). ■

BACK

Protected by AR

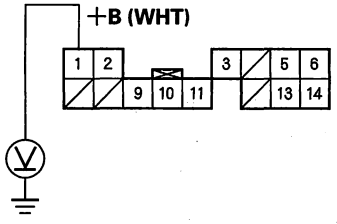
Symptom Troubleshooting (cont'd)

XM radio display is blank and no station information is displayed (Without AcuraLink)

NOTE: If you can only tune to channel 000, 001, 174, and 247, make sure the audio unit is set to channel mode (see the owner's manual). If it is set to channel mode, call XM radio customer support and check the account activation status.

1. Turn the ignition switch to ACC (I).
2. Disconnect XM receiver connector A(14P).
3. Measure the voltage between XM receiver connector A (14P) No. 1 terminal and body ground.

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

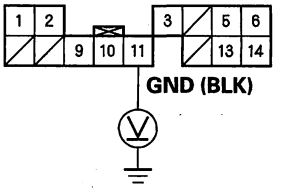
Is there battery voltage?

YES—Go to Step 4.

NO—Repair open in the wire between No. 5 (10 A) fuse in the under-dash fuse/relay box and XM receiver connector A (14P) No. 1 terminal.■

4. Measure the voltage between XM receiver connector A (14P) No. 11 terminal and body ground.

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

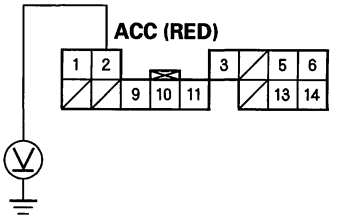
Is there less than 0.1V?

YES—Go to Step 5.

NO—Repair open in the wire between XM receiver connector A (14P) No. 11 terminal and body ground (G606) (see page 22-38).■

5. Turn the ignition switch OFF.
6. Reconnect XM receiver connector A (14P).
7. Measure the voltage between XM receiver connector A (14P) No. 2 terminal and body ground.

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

Is there 10 volts or more present?

YES—Go to step 8.

NO—Substitute a known- good XM receiver and recheck. If 10 volts or more are present, replace the original XM receiver (see page 23-96).■

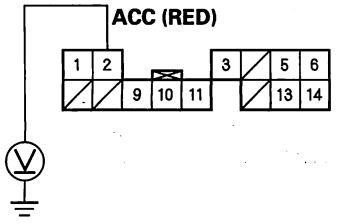
BACK

Protected by AR

8. Turn the ignition switch ON (II).

9. Measure the voltage between XM receiver connector A (14P) No. 2 terminal and body ground.

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

Is there less than 0.5V?

YES—Go to step 10.

NO—Substitute a known- good audio unit and recheck. If 0.5 volts or less are present, replace the original audio unit (see page 23-90).■

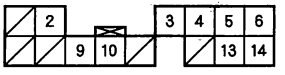
10. Turn the ignition switch to LOCK(0).

11. Disconnect audio unit connector D(14P), XM receiver connector A (14P), navigation unit connector A (20P), and navigation display unit 20P connector.

12. Check for continuity between the following terminals of the audio unit connector D (14P) and XM receiver A (14P).

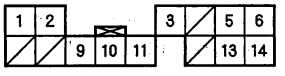
Audio unit connector	XM Receiver connector	Wire color
D3	A3	BRN
D9	A9	GRN
D10	A10	RED

AUDIO UNIT CONNECTOR D (14P)



Wire side of female terminals

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire(s) between audio unit and XM receiver.■

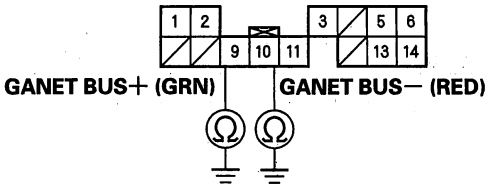
(cont'd)

Protected by AR

Symptom Troubleshooting (cont'd)

13. Check for continuity between body ground and XM receiver connector A (14P) terminals No. 9 and 10 individually.

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

Is there continuity?

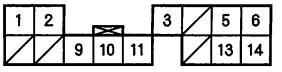
YES—Repair short to body ground in the wire(s) between the audio unit and XM receiver or a short between the shield wires (replace the applicable shielded harnass). ■

NO—Go to Step 14.

14. Check for continuity between the terminals of XM receiver connector A(14P) according to the cable.

From terminal	To terminals
D3	A9, A10
A9	A10

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

Is there continuity between any of the terminals?

YES—Repair short in the wire(s) between the audio unit and XM receiver (replace the appropriate shield harness). ■

NO—Substitute a known-good audio unit and recheck. If the symptom/indicated goes away, replace the original audio unit. If the symptom is still present, substitute a known-good XM receiver and recheck. If the symptom/indicated goes away, replace the original XM receiver. ■

BACK

Protected by AR

XM radio preset memory is lost (with AcuraLink)

NOTE:
- Always check the connectors for poor connections or loose terminals.
- If you can only tune to channel 000, 001, 174, and 247, make sure the audio unit is set to channel mode (see owners manual), if it is set to channel mode, call XM Satellite Radio customer support and check the account activation status.
- If you replace the XM receiver, the AcuraLink must be reactivated by Acura Client Services.

1. Set each of the XM radio channel preset buttons.

   Do each of the XM radio channel preset buttons set properly?
   YES—Go to step 2.
   NO—Go to Step 6.

2. Turn the ignition switch OFF for 1 minute, then turn it back to ON (II).

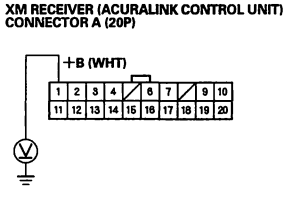
3. Test all of the XM radio channel preset buttons for proper recall operation.

   Do the preset buttons recall the set radio stations?
   YES—System is normal at this time. Check connections at the audio unit.■
   NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).

5. Disconnect XM receiver (AcuraLink control unit) connector A (20P).

6. Measure the voltage between XM receiver (AcuraLink control unit) connector A (20P) terminal No. 1 and body ground.

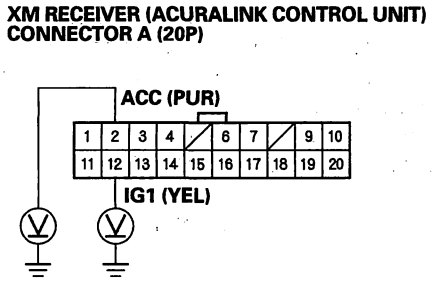


Wire side of female terminals

Is there battery voltage?
YES—Go to Step 7.
NO—Repair open in the wire between the under-dash fuse/relay box and XM receiver (AcuraLink control unit) connector A (20P) terminal No. 1.■

7. Turn the ignition switch ON (II).

8. Measure the voltage between XM receiver (AcuraLink control unit) connector A (20P) terminals No. 2, and No. 12 and body ground individually.

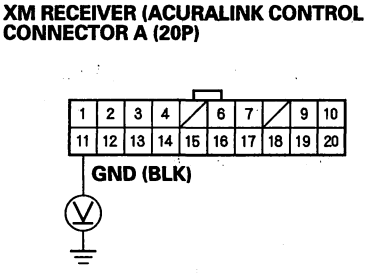


Wire side of female terminals

Is there battery voltage?
YES—Go to Step 9.
NO—Repair open in the wire between the under-dash fuse-relay box and XM receiver (AcuraLink control unit) connector A (20P) terminals No. 2 and No. 12.■

9. Reconnect XM receiver (AcuraLink control unit) connector A (20P).

10. Measure the voltage between XM receiver (AcuraLink control unit) connector A (20P) terminal No. 11 and body ground.



Wire side of female terminals

Is there less than 0.1 V?
YES—Replace the XM receiver (AcuraLink control unit).■
NO—Repair open in the wire between XM receiver (AcuraLink control unit) connector A (20P) terminals No. 11 and body ground (G606) (see page 22-38).■

BACK

Protected by AR

Symptom Troubleshooting (cont'd)

XM radio preset memory is lost (without AcuraLink)

NOTE:
- Always check the connectors for poor connections or loose terminals.
- If you can only tune to channel 000, 001, 174, and 247, make sure the audio unit is set to channel mode (see owners manual), if it is set to channel mode, call XM Satellite Radio customer support and check the account activation status.
- If you replace the XM receiver, the AcuraLink must be reactivated by Acura Client Services.

1. Set each of the XM radio channel preset buttons.

   Do each of the XM radio channel preset buttons set properly?
   YES—Go to step 2.
   NO—Go to Step 6.

2. Turn the ignition switch OFF for 1 minute, then turn it back to ON (II).

3. Test all of the XM radio channel preset buttons for proper recall operation.

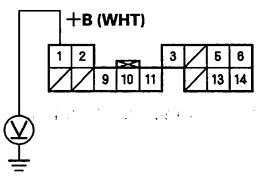
   Do the preset buttons recall the set radio stations?
   YES—System is normal at this time. Check connections at the audio unit.■
   NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).

5. Disconnect XM receiver connector A (14P).

6. Measure the voltage between XM receiver connector A (14P) terminal No. 1 and body ground.

XM RECEIVER CONNECTOR A (14P)



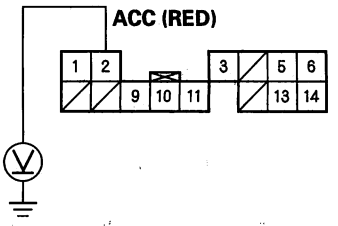
Wire side of female terminals

Is there battery voltage?
YES—Go to Step 7.
NO—Repair open in the wire between the under-dash fuse/relay box and XM receiver connector A (14P) terminal No. 1.■

7. Turn the ignition switch ON (II).

8. Measure the voltage between XM receiver connector A (14P) terminal No. 2, and body ground individually.

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

Is there battery voltage?

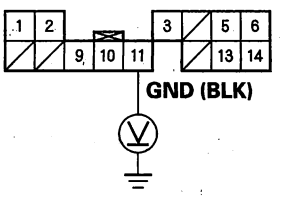
YES—Go to Step 9.

NO—Repair open in the wire between the under-dash fuse-relay box and XM receiver connector A (14P) terminal No. 2.■

9. Reconnect XM receiver connector A (14P).

10. Measure the voltage between XM receiver connector A (14P) terminal No. 11 and body ground.

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

Is there less than 0.1 V?

YES—Replace the XM receiver.■

NO—Repair open in the wire between XM receiver connector A (14P) terminals No. 11 and body ground (G606) (see page 22-38).■

BACK

Protected by AR

Poor or no sound with XM radio (Audio unit does display XM channels)

NOTE:
- Check the XM radio reception in an open area. Poor reception/interference can be caused by nearby tall buildings, mountains, or high-voltage power lines.
- Always check the connectors for poor connections or loose terminals.
- If you can only tune to channel 000, 001, 174, and 247, make sure the audio unit is set to channel mode (see owners manual), if it is set to channel mode, call XM Satellite Radio customer support and check the account activation status.
- If you replace the XM receiver, the AcuraLink must be reactivated by Acura Client Services.

1. Turn the ignition switch to ACC (I).
2. Turn on the audio unit and select XM radio.
3. Check for an error message on the display.

   Are there any messages displayed?

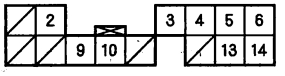
   YES—Go to error code list (see page 23-37).■

   NO—
   - With AcuraLink: Go to step 4.
   - Without AcuraLink: Go to step 8.

4. Disconnect audio unit connector D (14P) and the XM receiver (AcuraLink control unit) connector A (20P).
5. Check for continuity between audio unit connector D (14P) and XM receiver (AcuraLink control unit) connector A (20P) according to the table.

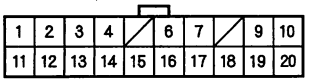
Audio unit connector	XM Receiver (AcuraLink control unit) connector	Wire color
D6	A9	BLK
D14	A19	GRN
D5	A10	RED
D13	A20	WHT

AUDIO UNIT CONNECTOR D (14P)



Wire side of female terminals

XM RECEIVER (ACURALINK CONTROL UNIT) CONNECTOR A(20P)



Wire side of female terminals

Is there continuity?

YES—Go to Step 6.

NO—Repair open in the wire(s) between the audio unit and XM receiver (AcuraLink control unit) or replace the appropriate shielded harness.■

(cont'd)

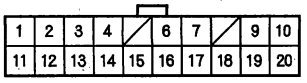
Protected by AR

Symptom Troubleshooting (cont'd)

6. Check for continuity to body ground between the terminals of XM receiver (AcuraLink control unit) connector A(20P) and body ground according to the table. Then check for continuity between the same terminals listed in the table and the audio unit connector D (14P) No. 4 terminal (the harness shield).

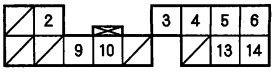
XM Receiver (AcuraLink control unit) connector	Wire color
A9	BLK
A10	RED
A19	GRN
A20	WHT

XM RECEIVER (ACURALINK CONTROL UNIT) CONNECTOR A (20P)



Wire side of female terminals

AUDIO UNIT CONNECTOR D (14P)



Wire side of female terminals

Is there continuity?

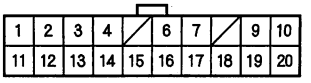
YES—Replace the shielded wires between the audio unit and XM receiver (AcuraLink control unit). ■

NO—Go to Step 7.

7. Check for continuity between the terminals of XM receiver (AcuraLink control unit) connector A(20P) according to the cable.

From terminal	To terminals
A9	A10, A19, A20
A10	A19, A20
A19	A20

XM RECEIVER (ACURALINK CONTROL UNIT) CONNECTOR A (20P)



Wire side of female terminals

Is there continuity between any of the terminals?

YES—Repair short in the wire(s) between the audio unit and XM receiver (AcuraLink control unit). ■

NO—Substitute a known-good audio unit and recheck. If the symptom/indicated goes away, replace the original audio unit. If the symptom is still present, substitute a known-good XM receiver (AcuraLink control unit) and recheck. If the symptom/indication goes away, replace the original XM receiver (AcuraLink control unit). ■

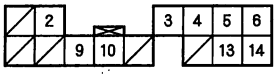
BACK

Protected by AR

8. Check for continuity between audio unit connector D (14P) and XM receiver connector A (14P) according to the table.

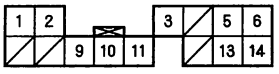
Audio unit connector	XM receiver connector	Wire color
D6	A6	BLK
D14	A14	GRN
D5	A5	RED
D13	A13	WHT

AUDIO UNIT CONNECTOR D (14P)



Wire side of female terminals

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

Is there continuity?

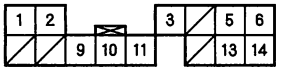
YES—Go to Step 6.

NO—Repair open in the wire(s) between the audio unit and XM receiver.■

9. Check for continuity between XM receiver connector A(14P) and body ground according to the table. Then check for continuity between the same terminals listed in the table and the audio unit connector D (14P) No. 4 terminal (the harness shield).

XM receiver connector	Wire color
A5	RED
A6	BLK
A13	WHT
A14	GRN

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the audio unit and XM receiver or a short between the shield wires (replace the applicable shielded harness).■

NO—Go to Step 10.

(cont'd)

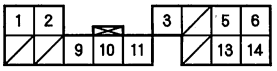
Protected by AR

Symptom Troubleshooting (cont'd)

10. Check for continuity between the terminals of XM receiver connector A(14P) according to the cable.

From terminal	To terminals
A5	A6, A13, A14
A6	A13, A14
A13	A14

XM RECEIVER CONNECTOR A (14P)



Wire side of female terminals

Is there continuity between any of the terminals?

YES—Repair short in the wire(s) between the audio unit and XM receiver.■

NO—Substitute a known-good audio unit and recheck. If the symptom/indicated goes away, replace the original audio unit. If the symptom is still present, substitute a known-good XM receiver and recheck. If the symptom/indication goes away, replace the original XM receiver.■

Audio remote switch does not work properly

NOTE: Always check the connectors for poor connections or loose terminals.

1. Test the audio remote switch (see page 23-97).

   Is the audio remote switch OK?

   YES—Intermittent failure, the audio remote switch and audio unit are OK at this time.■

   NO—Go to step 2.

2. Check the audio unit operation (volume up, volume down, CH (—), CH (+), MODE).

   Is the audio unit operation OK?

   YES—Operation is normal.■

   NO—Go to step 3.

3. Remove the audio unit (see page 23-90).

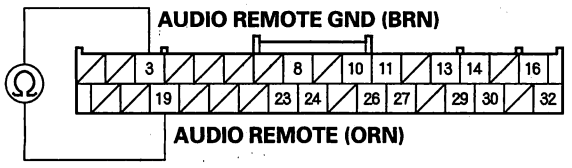
4. Disconnect the audio unit connector B (32P).

BACK

Protected by AR

5. Reconnect the audio remote switch. While moving the steering wheel about 3/4 turn left and right, measure the resistance between the audio unit connector B (32P) No. 3 and No. 19 terminals as specified in the table.

AUDIO UNIT CONNECTOR B (32P)



Wire side of female terminals

AUDIO REMOTE SWITCH TABLE

Button held down	VOL DOWN	VOL UP	CH (−)	CH (+)	MODE	(NONE)
Resistance	about 100 Ω	about 370 Ω	about 840 Ω	about 2 kΩ	about 4 kΩ	10 kΩ

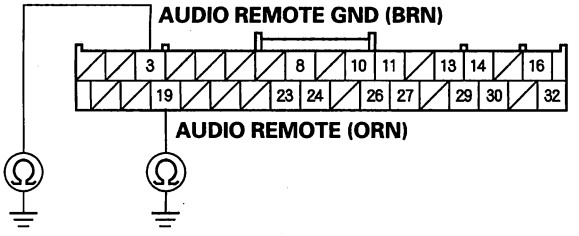
Is the resistance OK?

YES—Go to step 6.

NO—Repair open or high resistance in the circuit between the audio unit and the audio remote switch. If the wires are OK, replace the cable reel (see page 24-154).■

6. Check for continuity between body ground and the No. 3 and No. 19 terminals of audio unit connector B (32P) individually.

AUDIO UNIT CONNECTOR B (32P)



Wire side of female terminals

Is there continuity?

YES—Repair the short to body ground in the circuit between the audio unit and the audio remote switch. If the wires are OK, replace the cable reel (see page 24-149).■

NO—Replace the audio unit (see page 23-90).■

Protected by AR

Symptom Troubleshooting (cont'd)

Audio unit button does not work

NOTE: In order to troubleshoot the main power switch, go to "Power switch will not turn on" (see page 23-41).

1. Refer to the following switch list, and find the appropriate switch for each button. Then perform the following exercise to identify the switch that does not work by operating various buttons which only belong to that switch.

   Switch list
   Switch A: AM/FM, XM, 6DDISC, AUX, DISP, SCAN, RPT, ASEL/RDM, SEEK±, DVD, REAR PWR, FRONT SOURCE, REAR SOURCE, REAR CTRL, ELECT, ROAD, PWR, SOUND, 1-6
   Switch B: INFO, MAP/GUIDE, MENU, CANCEL, SET UP, AUDIO, interface dial, display

2. Check to see if the buttons that do not function all belong to switch A.

   Are they all switch A's?

   YES—Substitute a known-good audio unit and recheck. If the symptom/indicated goes away, replace the original audio unit. If the symptom is still present, substitute a known-good audio panel and recheck. If the symptom/indication goes away, replace the original audio panel.■

   NO—Go to Step 3.

3. Check to see if the buttons that do not function belong to switch B.

   Are they switch B's?

   YES—Faulty audio-HVAC display panel and audio unit. Replace the audio-HVAC display module.■

   NO—Check the connections between the interface dial and audio panel, and recheck the function. If the symptom is still present, substitute a known-good audio unit and recheck. If the symptom/indication goes away, replace the original audio unit. If the symptom is still present, substitute a known-good audio panel and recheck. If the symptom/indication goes away, replace the original audio panel.■

BACK

Protected by AR

Audio unit disc indicator does not work

NOTE: Disc with labels should not be used in the audio unit.They may damage the player mechanism.

1. Turn on the audio system.

2. Insert a known-good disc or press the EJECT button.

   Is the DISC indicator (LED) indicated?

   YES—The audio unit is OK at this time. Check for loose or poor connections at audio unit and audio panel. ■

   NO—Substitute a known-good audio unit and recheck. If the symptom/indication goes away, replace the original audio unit. If the symptom is still present, substitute a known-good audio panel and recheck. If the symptom/indication goes away, replace the original audio panel. ■

Security indicator does not work properly

NOTE:
- The system will not operate without the 4-digit security (anti-theft) code.
- Before troubleshooting, confirm that a 4-digit security (anti-theft) code is recorded.

1. Turn off the audio system.

   Is the security indicator (LED) light on (blink)?

   YES—Go to Step 2.

   NO—Substitute a known-good audio unit and recheck. If the symptom/indicated goes away, replace the original audio unit. If the symptom is still present, substitute a known-good audio panel and recheck. If the symptom/indicated goes away, replace the original audio panel. ■

2. Turn on the audio system.

   Is the security indicator (LED) light out?

   YES—The audio unit is OK at this time. Check for loose or poor connections at audio unit and audio panel. ■

   NO—Substitute a known-good audio unit and recheck. If the symptom/indicated goes away, replace the original audio unit. If the symptom is still present, substitute a known-good audio panel and recheck. If the symptom/indicated goes away, replace the original audio panel. ■

Protected by AR

Sound Quality Diagnosis

Special tools required
Diagnostics CD 07AAZ-SDBA100

Use the following tests to check sound quality.

NOTE: Before beginning the following tests, write down the client's bass, treble, fader and balance settings, then set them to their center positions for the testing.

Left/Right Channel ID

Do this test to confirm proper channel routing.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit.
2. Play track No. 1 (left, both, right channel ID) at a normal, or slightly higher than normal, volume level.
3. The voice should be audible only from the channel or channels when indicated.
   - If the channel ID is correct for each side, go to phase test.
   - If the channel ID is not correct, check for
     – Shorted speaker wire
     – Faulty amplifier
     – Faulty audio unit

Special tools required
Diagnostics CD 07AAZ-SDBA100

Use the following tests to check sound quality.

NOTE: Before beginning the following tests, write down the client's bass, treble, fader and balance settings, then set them to their center positions for the testing.

Phase Test

Do this test to confirm proper speaker phasing.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit.
2. Play track No. 2 (phase) at a normal, or slightly higher than normal, volume level.
3. The voice should sound centered and forcused when it is in-phase.
4. The voice should sound diffused, and have "less base" when it is out of phase.
   - If the voice changes from in-phase to out of phase as indicated by the prompt, the phasing is correct. Go to electrical noise test (see page 23-85).
   - If the voice always sounds out of phase, phasing is not correct. Check for
     – Crossed speaker wire
     – Faulty amplifier
     – Faulty audio unit

BACK

Protected by AR

Special tools required
Diagnostics CD 07AAZ-SDBA100

Electrical Noise Test

Do this test to check for electrical noise being induced into the audio system.

NOTE: Electrical noise may be caused by outside sources that cannot be handled by the audio system. Make sure you remove any cell phones and/or turn off any aftermarket devices before beginning this test.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit.

2. Play track No. 4 (digital zero) at a normal, or slightly higher than normal, volume level.

3. Operate any electrical device that may create electrical noise in the audio system, including starting the engine.

4. Play track No. 5 (near digital zero) at a normal, or slightly higher than normal, volume level.

5. Operate any electrical device that may create electrical noise in the audio system, including starting the engine.

6. Play track No. 6 (SNR) at a normal, or slightly higher than normal, volume level.

7. Operate any electrical device that may create electrical noise in the audio system, including starting the engine.

   - If no abnormal noise is heard, go to the individual speaker test (see page 23-86).
   - If the noise is present only during the SNR track, replace the audio unit.
   - If the noise is heard during the digital zero or near digital zero track, check for
     – Poor ground at the audio unit, amplifier, engine, or battery cable
     – Pinched or shorted speaker or amplifier wire
     – Faulty amplifier
     – Faulty audio unit
     – Other faulty components causing excessive electrical noise (ignition coils, alternator, door lock actuators, etc.). Disconnect any suspect components, and then replay the tracks that were originally noisy. If the noise is gone, check the component's circuit and the component.

Protected by AR

Sound Quality Diagnosis (cont'd)

Special tools required
Diagnostics CD 07AAZ-SDBA100

Individual Speaker Test

Do this test to identify a faulty speaker.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit.
2. Play track No. 30 (steady 300 Hz tone) at a normal, or slightly higher than normal, volume level.
3. Listen to each speaker for poor sound compared to the other channels. Use the audio unit's fader and balance settings to help isolate the channel with the problem.
   - If the sound quality produced by a specific speaker is poor, substitute it with a known-good speaker. If the poor sound quality continues, go to the sound balance test (see page 23-86).
   - If the sound quality is OK, go to the sound balance test (see page 23-86).

Special tools required
Diagnostics CD 07AAZ-SDBA100

Sound Balance Test

Perform this test to identify a faulty channel or speaker.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit.
2. Confirm the bass and treble are set to the center positions.
3. Play track No. 3 (pink noise) at a normal, or slightly higher than normal, volume level.
4. A "static" type sound should be heard through all speakers.
5. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit of a known-good vehicle.
6. Set the bass and treble to the center positions.
7. Play track No. 3 (pink noise) all the same level as was played in step 3.
8. Compare the sounds made by the two vehicles.
   - If the sound does not have as much bass, check the subwoofer and circuit.
   - If the sound does not have enough "hiss," check the tweeters and their circuits.

BACK

Protected by AR

Special Tools Required
Diagnostics CD 07AAZ-SDBA100

Frequency Sweep

Do this test to find rattles or reverberations that may cause a perception of poor sound quality.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit.
2. Play track No. 13 (sweep from 500 Hz to 35 Hz) at a normal, or slightly higher than normal, volume level.
3. Listen to each speaker for poor sound quality or reverberations caused by specific frequencies. Use the voice-over to estimate the frequency that causes the vibration. Use the audio unit's fader and balance settings to help isolate the channel with the problem.
   - If vibrations or poor sound quality are heard, go to step 4.
   - If no vibrations or poor sound quality are heard, go to sound judging (see page 23-87).
4. Choose the appropriate track from No. 14 to 25 (small range frequency sweep) or 26 to 53 (single frequencies) to recreate the frequency that caused the poor sound quality or vibration witnessed in step 3; this aids in diagnosis of the cause.

   NOTE: When you get to the track that recreates the problem, select the repeat function on the audio unit, this will help you isolate the cause.
5. Replace or insulate the source of the vibration or, if the speaker is the source of the poor sound quality, replace it.

Special tools required
Diagnostics CD 07AAZ-SDBA100

Sound Judging

Do this test to compare overall sound quality, imaging, and dynamics between the client's vehicle and a known-good vehicle. Only use a vehicle of the same model and trim level for this test.

1. In the client's vehicle, set the bass, treble, fader, and balance settings to the client's normal settings that were written down before beginning the test.
2. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit.
3. Play tracks No. 7 to 12 (sound quality, midland, dynamics, and imaging demonstration tracks) at a normal, or slightly higher than normal, volume level. Write down the volume setting being used.
4. Listen to areas of the track that stand out as being either very clear or poorer than other areas of the track.
5. In a known-good vehicle, insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit.
6. Play the tracks at the same volume level and the same bass, treble, balance, and fader settings as used in step 3 in the client's vehicle.
7. Listen to the same area of the track that stood out as being either very clear or poorer than other areas of the track.

(cont'd)

Protected by AR

Sound Quality Diagnosis (cont'd)

8. Compare the client's vehicle's sound quality results the known-good vehicle's results.

   - If the sound quality in the client's vehicle is comparable to the sound quality in the known-good vehicle, then the client's vehicle is operating as designed.
   - If the sound quality is not comparable, check these items in order.
     – Loose or improperly installed speakers or other hardware that may create interference from the vibrations generated by the speakers
     – Poor power or ground to the stereo amplifier
     – Damaged speaker(s)
     – Faulty amplifier
     – Faulty audio unit

Seek Stop Test

Do this test to check the performance of the audio unit's AM and FM reception. Refer to symptom troubleshooting: audio sound weak or distorted, or no sound is heard from speakers (display is normal) (see page 23-43) before continuing with this test.

NOTE:
- Window tint, aftermarket theft-recovery devices and other aftermarket devices may affect reception.
- Changes in cloud cover and other atmospheric conditions will affect the ability of the audio unit to receive radio signals.

1. Park the client's vehicle in an open area away from buildings or other obstructions.
2. Park a known-good vehicle (same year, model, and trim level) next to the client's vehicle, facing the same direction.
3. Start the engine in the client's vehicle, and turn on the radio.
4. Set the FM receiver to 87.7 MHz.
5. Press the "Seek +" button, and record the first station that the audio unit locks onto.
6. Press the "Seek +" button repeatedly, and write down each station that the audio unit locks onto until the station recorded in step 5 is reached again.
7. Set the AM receiver to 530 kHz.
8. Press the "Seek +" button, and record the first station that the audio unit locks onto.
9. Press the "Seek +" button repeatedly, and write down each station that the audio unit locks onto until the station recorded in step 8 is reached again.

BACK

Protected by AR

10. Turn the ignition switch to LOCK (0).

11. Start the engine in the known-good vehicle, and then perform steps 4 thru 10 on the known-good vehicle.

12. Compare the number of stations received in steps 6 and 9 in the client's vehicle with the number of stations received in the known-good vehicle.

    - If the number of stations received is the same, or within 10 %, the audio unit's tuner performance is OK. The problem may be atmospheric conditions, multi-path interference, or other obstructions to the radio signal.
    - If the client's vehicle receives fewer stations by at least 10 %, go to step 2 of poor radio reception or interference (see page 23-38).

Protected by AR

Audio Unit Removal/Installation

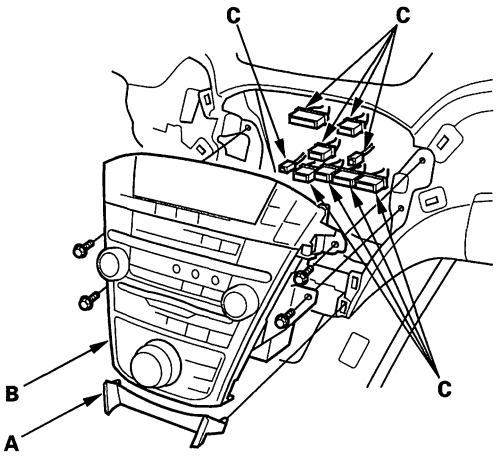
SRS components are located in this area. Review the SRS component locations (see page 24-18), and the precautions and procedures (see page 24-20) before performing repairs or service.

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the dashboard and related parts.
- Lay a workshop towel under the parts when working on them to protect the face panel from scratches or other damage.

1. Make sure you have anti-theft codes for the audio system.

2. Remove the driver's inner dashboard trim (see page 20-118), and front passenger's dashboard trim (see page 20-123).

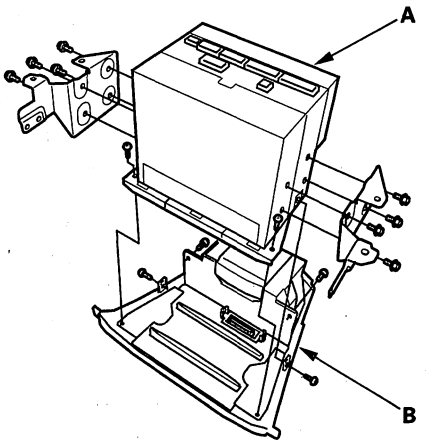
3. Remove the console lower trim panel (A) and the self tapping screws, then pull out the audio unit (B).



4. Disconnect the connectors (C), then remove the audio unit.

5. Remove the climate control unit (see page 21-114).

6. Remove the screws and the audio unit (A) from the audio panel (B).



7. Install the audio unit in the reverse order of removal, and note these items:

   - Make sure all the connectors and the antenna lead are secure.
   - Enter the anti-theft codes for the audio system, and set the clock.
   - If necessary, enter the navigation system code.

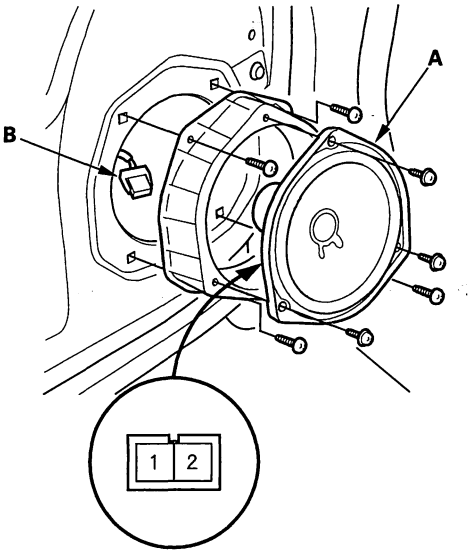
BACK

Protected by AR

Speaker Test/Replacement

Door Speaker

1. Remove the door panel.
   - Front: (see page 20-8)
   - Rear: (see page 20-22)
2. Remove the three mounting screws from the speaker (A).

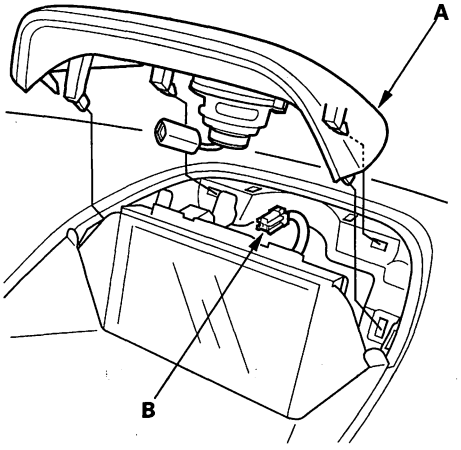


3. Disconnect the 2P connector (B), and remove the speaker.
4. Measure the resistance between the No. 1 and No. 2 terminals there should be about 2 Ω.
5. If the resistance is not as specified, replace the door speaker.

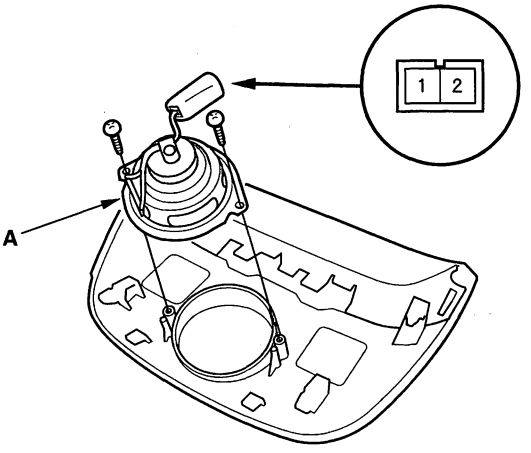
Center Speaker

NOTE:
- Put on gloves to protect your hands.
- Take care not scratch the dashboard.

1. Remove the dashboard upper visor (A).



2. Disconnect the 2P connector (B).
3. Remove the screws and the speaker (A).



4. Measure the resistance between No. 1 and No. 2 terminals there should be about 4 Ω.
5. If the resistance is not as specified, replace the front center speaker.

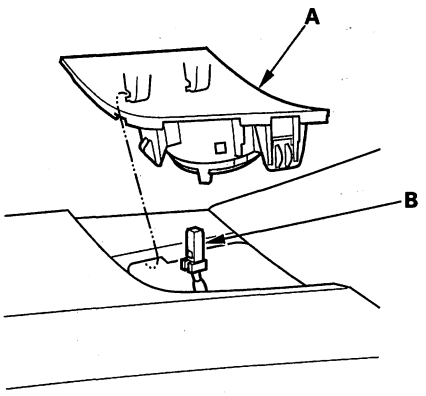
(cont'd)

Protected by AR

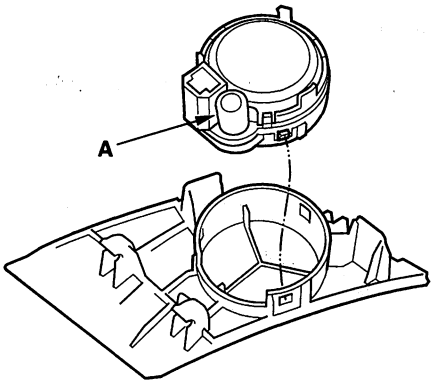
Speaker Test/Replacement (cont'd)

Tweeter

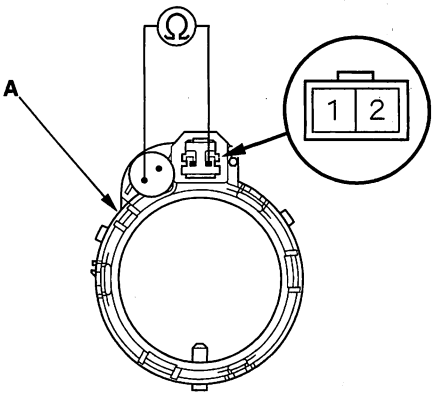
1. Carefully pry the tweeter grille (A) out of the dashboard. Be careful not to damage the tweeter grille and the dashboard.



2. Disconnect the 2P connector (B) from the tweeter.
3. Remove the tweeter speaker from the speaker grille.



4. Check the capacitor (A) condition. If any malfunction is found, replace the tweeter.
5. Measure the resistance between the tweeter (A) terminal No. 2 and the outside terminal of the capacitor.
   There should be about 6 Ω.



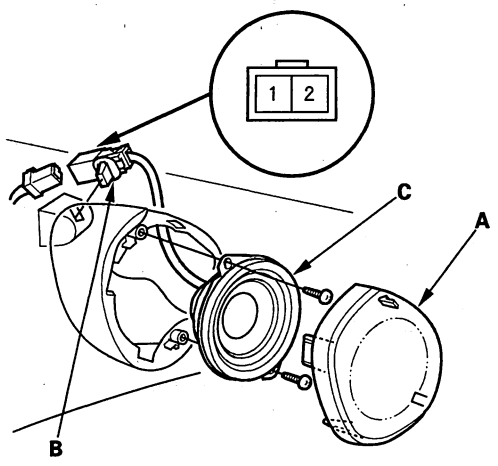
6. If the resistance is not as specified, replace the tweeter.

BACK

Protected by AR

Satellite Speaker

1. Remove the quarter pillar trim (see page 20-85).
2. Remove the speaker grille (A) and connector clip (B).



3. Remove the screws and the satellite speaker (C).
4. Measure the resistance between the No. 1 and No. 2 terminals there should be about 4 Ω.
5. If the resistance is not as specified, replace the satellite speaker.

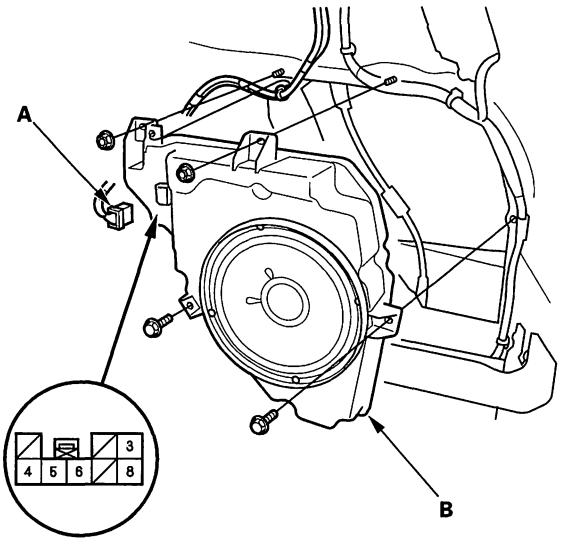
(cont'd)

Protected by AR

Speaker Test/Replacement (cont'd)

Subwoofer/amplifier unit (With navigation)

1. Remove the right rear side trim panel (see page 20-92).
2. Disconnect the 8P connector (A), then remove the bolts, nuts and pull out the subwoofer (B).



Input Test

1. With the connector still disconnected, make the input tests at the connector according to the table.

Terminal	Test
5	Measure the voltage to ground with all conditions: There should be battery voltage.
6	Measure the voltage to ground with audio power switch ON: There should be battery voltage.

2. Reconnect the connector to the subwoofer/amplifier unit, and make the input test at the connector according to the table.

Terminal	Test
4	Measure the voltage to ground with all conditions: There should be less than 1 V.

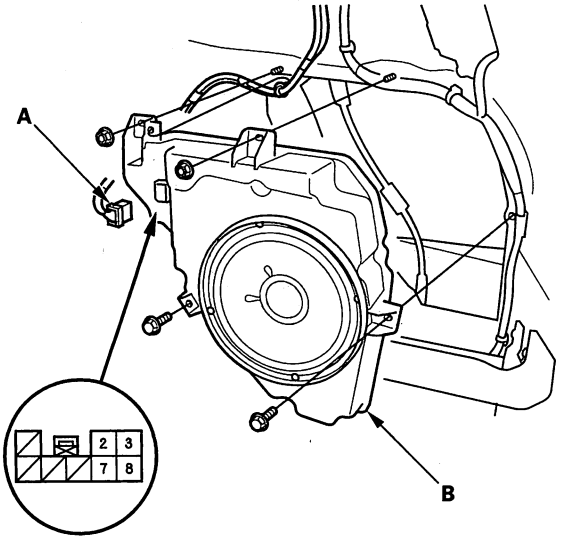
3. If the input test proves OK and the subwoofer has no sound, replace the faulty subwoofer/amplifier unit.

BACK

Protected by AR

Subwoofer (Without navigation)

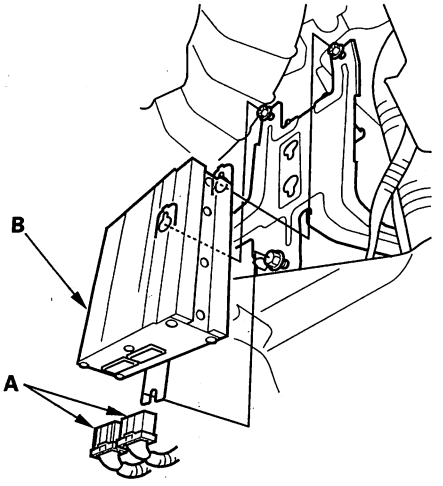
1. Remove the right rear side trim panel (see page 20-92).
2. Disconnect the 8P connector (A), then remove the bolts, nuts and pull out the subwoofer (B).



3. Measure the resistance between the No. 2 and No. 7 terminals and No. 3 and No. 8 there should be about 2 Ω.
4. If the resistance is not as specified, replace the subwoofer.

Stereo Amplifier Removal/ Installation

1. Remove the glove box (see page 20-125) and passenger's dashboard under cover (see page 20-127).
2. Disconnect the connectors (A).



3. Loosen the bolts, then pull out the stereo amplifier (B).
4. Install the stereo amplifier in the reverse order of removal.

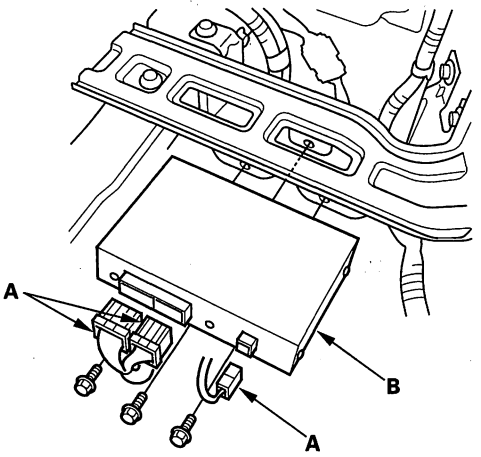
Protected by AR

AcuraLink Control Unit (XM Receiver) Removal/Installation

With AcuraLink:
NOTE: The AcuraLink must be reactivated by Acura Client Services when:
- The AcuraLink control unit (XM receiver) is replaced.
- DATA RESET was selected while in the self-diagnostic function.
- Vehicle ownership changes.

1. Remove the right rear side trim panel (see page 20-92).

2. Disconnect the connectors (A), then remove the bolts and pull out the AcuraLink control unit (XM receiver) (B).

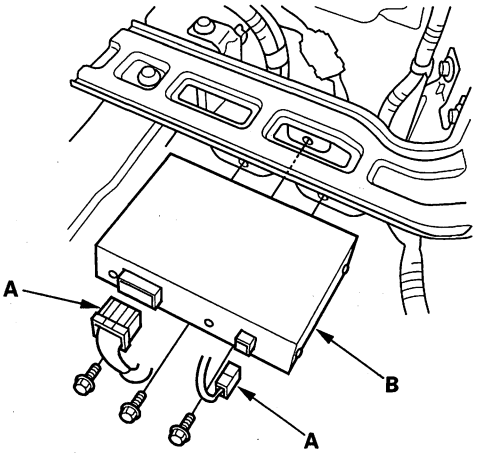


3. Install the AcuraLink control unit (XM receiver) in the reverse order of removal.

XM Receiver Removal/Installation

1. Remove the right rear side trim panel (see page 20-92).

2. Disconnect the connector (A), then remove the bolts and pull out the XM receiver (B).



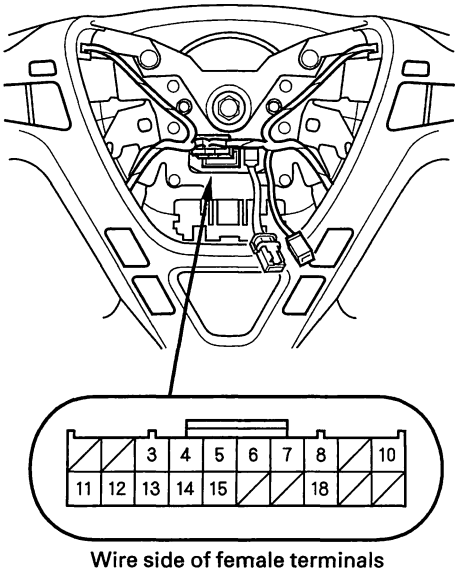
3. Install the XM receiver in the reverse order of removal.

BACK

Protected by AR

Audio Remote Switch Test

1. Remove the driver's airbag assembly (see page 24-137).
2. Remove the 20P connector from the cable reel.



Wire side of female terminals

3. Measure the resistance between the No. 9 and No. 10 terminals in each switch position according to the table.

Position	Resistance
OFF	About 10 kΩ
MODE	About 4 kΩ
CH (+)	About 2 kΩ
CH (−)	About 840 Ω
▲ (VOL. UP)	About 370 Ω
▼ (VOL. DOWN)	About 100 Ω

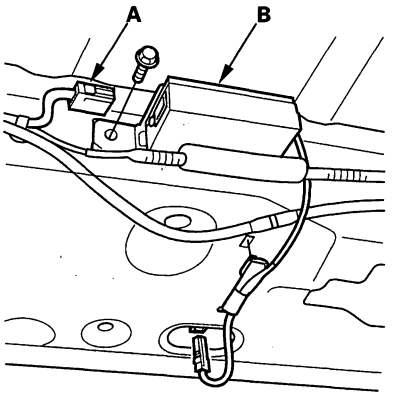
4. If the resistance is not as specified, replace the audio remote switch (see page 17-22).
5. Use a diode tester between the terminals in each switch position according to the table.

Terminal	12		11
	○	⊣◁	○

6. If the diode test is not as specified, replace the audio remote switch (see page 17-22).

AM/FM Antenna Amplifier Replacement

1. Remove the headliner (see page 20-101).
2. Disconnect the connector (A) from the AM/FM antenna amplifier (B).



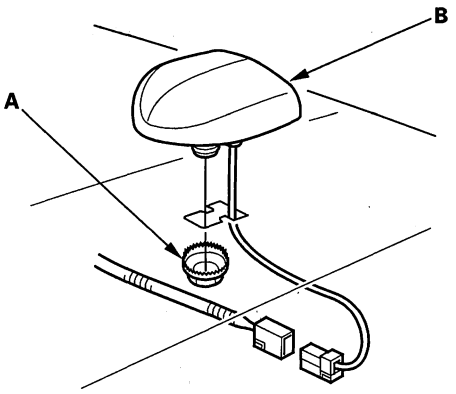
3. Remove the bolt and AM/FM antenna amplifier.
4. Install the unit in the reverse order of removal.

BACK

Protected by AR

XM Antenna Replacement

1. Remove the headliner (see page 20-101).
2. Remove the nut (A) from the XM antenna (B).

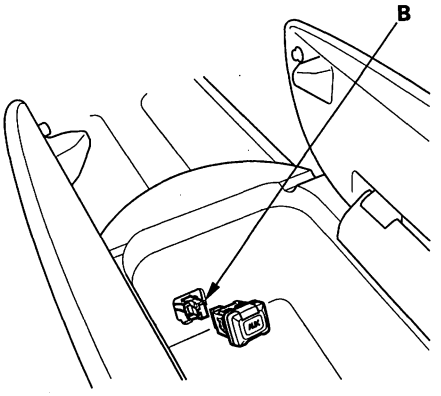


3. Disconnect the connector (C) and remove the XM antenna.
4. Install the XM antenna in the reverse order of removal.

Auxiliary Jack Assembly Replacement

Without Rear Entertainment

1. Open the center console.
2. Carefully pull out the auxiliary jack assembly (A), then disconnect the 5P connector (B).



3. Install the reverse order of removal.

BACK

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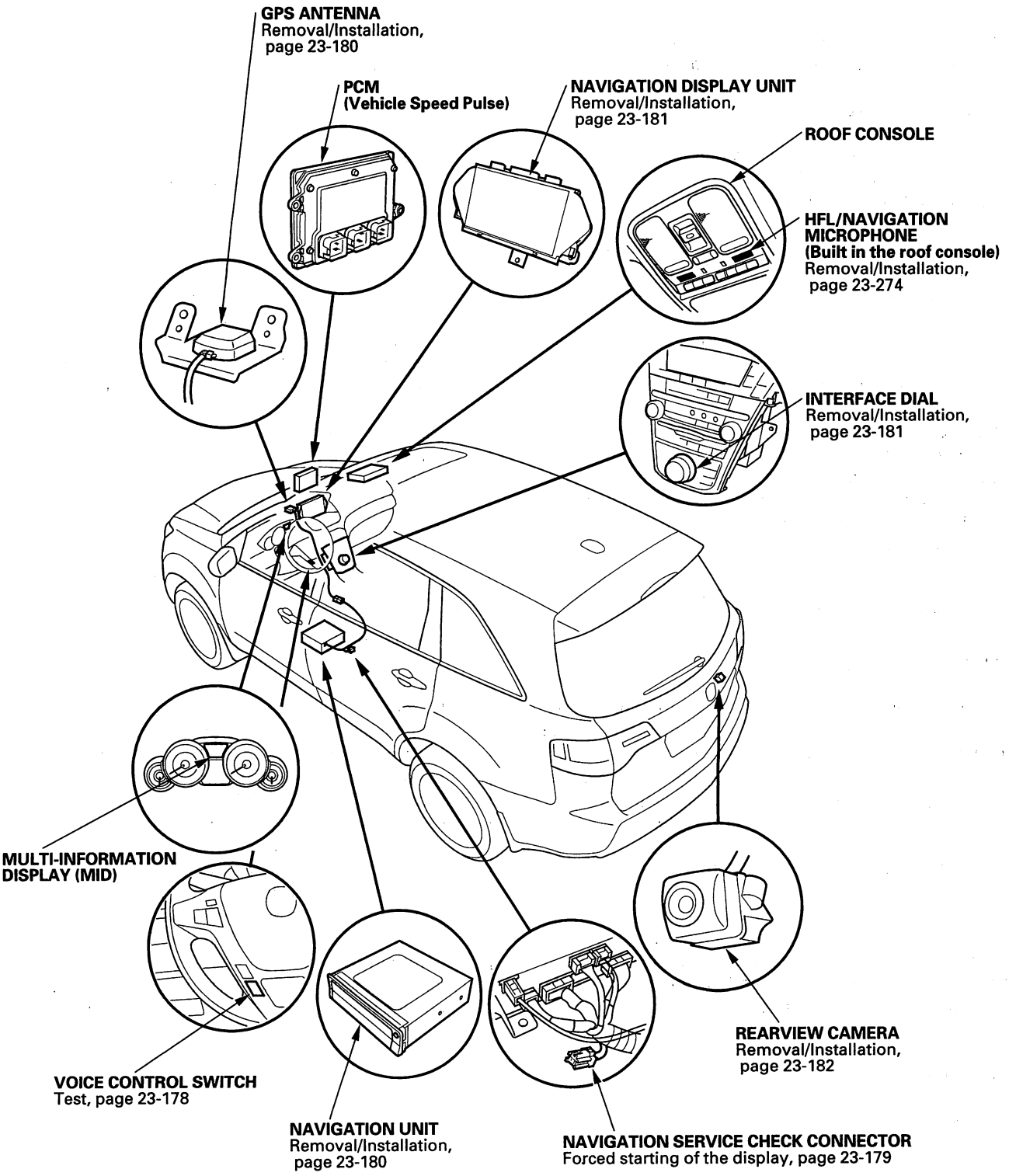
Navigation System

Component Location Index



BACK

Protected by AR

General Troubleshooting Information

General Operation

Refer to the Navigation System Manual for the navigation system operating procedures.

Anti-theft Feature

The navigation system and audio unit have a coded theft protection circuit. Be sure to get the client's anti-theft security codes number before;

- Disconnecting the battery.
- Disconnecting the navigation unit 8P connector.
- Removing the No. 7 (10 A) fuse from the under-dash fuse/relay box.

After service, reconnect power to the navigation unit, and turn the ignition switch ON (II). Enter the 4-digit anti-theft security code, then select "Done".

If the code cannot be found, use the Interactive Network (*i*N) to look it up. You can view the serial number in the Navi ECU diagnostic screen (see page 23-161). Also, you can find the serial number on the navigation unit that is stored under the driver's seat. The serial number is on a label on the bottom of the unit.

When replacing the navigation unit, be sure to give the client's the new anti-theft security code.

Symptom Diagnosis

Certain circumstances and system limitations will result in occasional vehicle positioning errors. Some client's may think this indicates a problem with the navigation system when, in fact, the system is normal. Keep the following items in mind when interviewing client's about symptoms of the navigation system.

Self-Inertial Navigation Limitations

The limitations of the self-inertial portion of the navigation system (the yaw rate sensor and the vehicle speed signal) can cause some discrepancies between the vehicle's actual position and the indicated vehicle position (GPS vehicle position).

The following circumstances may cause vehicle positioning errors:

- Moving the vehicle with the engine stopped and the vehicle stopped, such as by ferry or tow truck, or if the vehicle is spun on a turn table.
- Tire slippage, changes in tire rolling diameters, and some driving situations may cause discrepancies in travel distances. Examples of this include:
  - Continuous tire slippage on a slippery surface
  - Driving with snow chains mounted
  - Abnormal tire pressure
  - Incorrect tire size
  - Frequent lane changes across a wide highway
  - Continuous driving on a straight or gently curving highway
  - Very bumpy roads
- Tolerances in the system and map inaccuracies sometimes limit how precisely the vehicle position is indicated. Examples of this include:
  - Driving on roads not shown on the map (map matching is not possible)
  - Driving on a road that winds in one direction, such as a loop bridge, an interchange, or a spiral parking garage
  - Driving on a road with a series of sharp hair-pin turns
  - Driving near a gradual highway exit or transition
  - Driving on one of two close parallel roads
  - Making many 90 degree turns

Global Positioning System (GPS) Limitations

The GPS cannot detect the vehicle's position or elevation during the following instances:

- For the first 5 to 10 minutes after reconnecting the battery (This can take as long as 45 minutes).
- When the satellite signals are blocked by tall buildings, mountains, tunnels, large trees, inside parking structures or large trucks.
- When the GPS antenna is blocked by metallic window tinting or by an object placed above it in the vehicle. The GPS antenna requires a clear unobstructed view of the sky.
- When the satellite signals are blocked by the operation of some electronic aftermarket accessories including, but not limited, to non-OEM in-dash entertainment units (radio, CD players/changers, radar detectors, and theft recovery systems), and cell phones placed near the navigation system.

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The accuracy of GPS is reduced during these instances:

- Metallic window tinting above the GPS antenna
- When only three or less satellite signals can be received (Four satellite signals are required for accurate positioning).
- When the satellite control centers are experiencing problems.
- When driving near high tension power lines.
- When the satellite signals are blocked by the operation of some electronic aftermarket accessories including, but not limited, to non-OEM in-dash entertainment units (radio, CD players/changers, radar detectors, and theft recovery systems), and cell phones placed near the navigation system.

Muting Logic

Whenever the navigation system is giving guidance, only the front speakers are muted. When the voice control system is being used, all of the speakers are muted. If the HandsFreeLink is in use, the voice control system is unavailable to the navigation system.

LCD Display Unit Limitations

NOTE: The screen is not touch sensitive. Use the interface dial and buttons to select items on the screen.

- In cold temperatures, the display may stay dark for the first 2 or 3 minutes until it warms up.
- When the display is too hot because of direct summer sunlight, it will remain dark until the temperature drops (you may see an error message displayed stating this fact).
- When the humidity is high and the interior temperature is low, the display may appear cloudy. The display will clear up after some use.
- Fingerprints on the screen may sometimes be noticeable because of the panel's low-reflection coating. Clean the screen with a soft, damp cloth. You may use a mild cleaner intended for eye glasses or computer screens.

Symptom Duplication

- When the symptom can be duplicated, verify that it is not a characteristic of the system. Review the navigation manual and compare it to a known-good vehicle (with the same software and database), under the same conditions. If the symptom is not the same as the known-good vehicle, follow the self-diagnostic procedures and the appropriate troubleshooting procedures.
- When the symptom does not reappear or only reappears intermittently, ask the client about the conditions when the symptom occured.
  - Always ask the client to demonstrate the problem.
  - Try to establish possible user error or misunderstanding of the system.
  - Try to establish if outside interference may have been the cause.
  - Try to duplicate the symptom under the same conditions the client experienced.
  - Vibration, temperature extremes, and moisture (dew, humidity) are factors that are difficult to duplicate.
  - Inspect the vehicle for after-market electronic devices (vehicle locators, amps, radar detectors, etc) that may be hidden.

Service Precautions

- If the navigaition unit needs to be replaced, you can back-up the navigation data and transfer it to a new navigation unit. See save users memory (see page 23-174).
- Before disconnecting the battery, make sure you have the anti-theft codes for the audio and the navigation system. Audio remembers presets even if the battery is disconnected. Also obtain any PGM-FI or transmission DTCs and freeze frame data (which will be lost when the PCM loses power).
- When the battery is disconnected, the internal GPS clock is reset to "0:00". The clock will reset to the correct time after the system finishes GPS initialization.
- After reconnecting the battery, you have to wait to get the initial signal from the satellite. It will take from 10 to 45 minutes.
- Verify map matching.
- Before returning the vehicle, enter the audio and navigation anti-theft security code. The audio system remembers the audio presets, even when the battery is disconnected.
- Adjust the time zone and daylight savings in the setup clock settings found in the navigation system.

(cont'd)

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General Troubleshooting Information (cont'd)

System Initialization

If for any reason, you lose power to the navigation system (like the battery was disconnected), the navigation system requires initialization. Once completed, your system is ready to use.

This initialization requires the following:

- Entering the 4-digit anti-theft security code to "unlock" the system
- GPS initialization (may not be needed depending of the length of time the system was without power)
- Map matching to align the GPS to a location on the map

Entering Security Code

The navigation system and audio unit have a coded theft protection circuit. Make sure you have the anti-theft security codes number before;

- Disconnecting the battery
- Disconnecting the navigation unit 8P connector
- Removing the No. 7 (10 A) fuse from the under-dash fuse/relay box

After service, reconnect power to the navigation unit, and turn the ignition switch ON (II). Enter the 4-digit navigation anti-theft security code, then select "Done". Enter the 5-digit audio anti-theft security code.

When replacing the navigation unit or audio unit, be sure to give the client the new anti-theft security codes.

GPS initialization

NOTE: You must park the vehicle outside with a clear view of the southern sky.

Depending on the length of time the battery was disconnected, your system may require GPS initialization. If it does, the following screen appears:

*****Wait*****
The system is acquiring its GPS signal.
This could take up to 10 minutes.
• Engine must be running
• Vehicle must be parked outside, away from buildings
• Do not move the vehicle at this time

If this procedure is not necessary, the system proceeds directly to the Disclaimer screen. During initialization, the system searches for all available GPS satellites, and obtains their orbital information. During this procedure, park the vehicle out in the open with a clear view of the sky.

If the navigation system finds the satellites properly, this box clears, and changes to the Disclaimer screen. If within 10 minutes the system fails to locate a sufficient number of satellites to locate your position, the following screen appears.

Navigation system is unable acquire a proper GPS signal.
• Move vehicle to another location
• Turn the ignition switch off
• Disconnect the battery for 30 minutes to clear the GPS receiver's memory
• Reconnect the battery and follow the screen prompts

If this is displayed, turn off the engine, then restart the vehicle and move it to a different location. If you now see the Disclaimer screen, the GPS initialization is complete.

NOTE:

- The average acquiring time is less than 10 minutes, but it can take as long as 45 minutes.
- If the system is still unable to acquire a signal, follow the instructions on the screen. If this screen appears again, go to troubleshooting for the GPS icon is white or not shown (see page 23-141).

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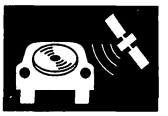

Map Matching

This part of the initialization matches the GPS coordinates with a road on the map screen. To perform this part of the procedure, ensure that the navigation system is displaying a map. Check the "GPS" icon in the upper left corner of the screen, it should be "Green" when the vehicle is parked outside, with the correct color labeled DVD installed in the navigation unit. Drive the vehicle on a mapped road shown on the map screen. Do not enter a destination at this time. When the name of the current road you are driving on, appears at the bottom of the screen, the entire procedure is complete. Your system is now ready to use.

Obtaining A Navigation DVD

If the navigation DVD is lost or damaged, or you need a yearly updated DVD, you have two ways to purchase one. You can either call (888) 549-3798, or order on-line at www.acura.com "ORDER NAVIGATION DVD" link.

Both methods require a credit card. The DVD for this model has a white label, and cannot be ordered through the parts system. The following DVDs will not work in this navigation system:

- Earlier model navigation DVDs (black or orange label)
- Map software programs manufactured by other companies
- DVD movies, or DVDs containing audio recordings

Update DVDs are available for purchase usually in the fall of each year. They may contain the following:

- Enhanced maps and points of interest (POI) coverage
- Fixes for minor software bugs
- Additional features

NOTE:
- Updating is optional, and there is no program to provide free DVDs containing yearly mapping updates.
- Map matching must be done any time the DVD is removed or replaced.

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Navigation System

Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Navigation system stays on the GPS initialization screen	System Initialization (see page 23-102)	• Navigation unit • GPS antenna/cable is disconnected or damaged • Harness/fuses/switches
Vehicle position icon constantly leaves road, moves erratically, or is very far from actual position	Symptom Troubleshooting (see page 23-136)	• Navigation unit • GPS antenna/cable • PCM (speed and fuel pulses) • Harness/fuses/switches
System always comes up in in—line diagnostic mode	Symptom Troubleshooting (see page 23-157)	
Navigation system will not accept security code	Symptom Troubleshooting (see page 23-147)	Wrong color DVD
Navigation frequently asks for anti-theft code and needs GPS initialization	Symptom Troubleshooting (see page 23-151)	• Loss of voltage or poor ground (G605) • Navigation unit • Low battery voltage • Harness/fuses/switches
GPS icon is white or not shown	Symptom Troubleshooting (see page 23-141)	• Navigation unit • Aftermarket accessories connected to the system • GPS antenna/cable • Harness/fuses/switches
Vehicle icon wanders across the map when driving (does not follow a displayed road) or map or vehicle ICON spins	Symptom Troubleshooting (see page 23-146)	• Navigation unit • GPS antenna/cable • PCM (speed signal)
No picture is displayed	Symptom Troubleshooting (see page 23-134)	• Navigation unit • Display unit • Harness/fuses/switches
Picture has lines/rolls/other issues or is an odd color	Symptom Troubleshooting (see page 23-138)	• Navigation unit • Aftermarket accessories connected to the system • Display unit • Harness/fuses/switches
Picture is missing a color or tone or is an odd color	Symptom Troubleshooting (see page 23-137)	• Navigation unit • Wrong color DVD installed • Display unit • Aftermarket accessories connected to the system • Harness/fuses/switches
Traffic information is not being shown on map screen	Symptom Troubleshooting (see page 23-152)	• Client account status • Area outage • Area not covered • Traffic icons are turned OFF • AcuraLink (XM receiver) • Navigation unit • Harness/fuses/switches
No real time traffic on the display screen	Symptom Troubleshooting (see page 23-155)	

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Symptom	Diagnostic procedure	Also check for
Display day/night mode does not work	Symptom Troubleshooting (see page 23-145)	• Display brightness set to "High" • Display unit • Gauge control module (CAN) • Harness/fuses/switches
System locks up or freezes constantly	Symptom Troubleshooting (see page 23-146)	• Navigation unit • Wrong color DVD installed • Harness/fuses/switches • Damage DVD
Voice guidance cannot be heard, is broken up, or there is static	Symptom Troubleshooting (see page 23-141)	• Volume or voice feedback setting (see Owner's manual) • Navigation unit • Audio unit/amplifier • Harness/fuses/switches
Voice control does not work/ respond	Symptom Troubleshooting (see page 23-143)	Navigation unit microphone harness/ switches HandsFreeLink control unit
Navigation cannot control A/C by voice	Symptom Troubleshooting (see page 23-145)	• Wrong color DVD installed • Harness/fuses/switches • Wrong navigation unit (model code)
Navigation cannot control XM radio	Symptom Troubleshooting (see page 23-151)	
Navigation cannot control audio/ disc/rear entertainment	Symptom Troubleshooting (see page 23-148)	Wrong color DVD
Interface dial buttons do not work	Symptom Troubleshooting (see page 23-139)	• Navigation unit • Display unit • Interface dial • Harness/fuses/switches
Today's Destinations button is dim and not selectable in the Enter destination by screen (grayed-out)	The client has not entered a group of locations for Today's Destinations. This is normal. The button is only selectable if the client is using this function.	See Owner's Manual
Some set-up and information functions of the navigation system are grayed-out and do not work		Client did not select "OK" from Disclaimer screen. Refer to System Function Diagram (see page 23-118).
Previous Destinations button is dim and not selectable in the Enter destination by screen (grayed-out)	The vehicle may be new, or the client deleted the destination. Enter a destination, and allow the system to route to it. After the trip, the Previous Destinations button will be selectable.	
Address cannot be found or system gives poor routing	Verify proper operation and system limitations using the owner's manual	• Database limitations (address not in database) • Wrong color DVD installed

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Symptom Troubleshooting Index (cont'd)

Symptom	Diagnostic procedure	Also check for
Rearview camera does not come on or work properly	Symptom Troubleshooting (see page 23-149)	• Software for the latest updates • No backup signal • Wrong disc installed in navigation unit • Harness
The map will not display the Southern portion of the U.S. or the Northern parts of Canada	North American coverage is different for USA/Canada markets. See the "Version" Diagnostic Screen (see page 23-172) for details on coverage differences.	See Owner's Manual
Navigation stays on with ignition switch off	Symptom Troubleshooting (see page 23-148)	• Harness/fuses/switches • Aftermarket accessories connected to the system
DVD screen error messages	Symptom Troubleshooting (see page 23-144)	• Navigation unit • Wrong color DVD installed • Display unit • Damaged DVD
Navigation system will not go beyond the disclaimer screen and displays the OK button		• Wrong color DVD installed • Scratched or damaged DVD • Navigation unit
The navigation anti-theft code card is lost or missing	See anti-theft feature (see page 23-100)	
The vehicle icon lags behind when the vehicle turns	See self-inertial navigation limitations (see page 23-100)	• Aftermarket accessories connected to the system • GPS anttenna/cable
Navigation screen is darker than normal or takes time to start up when it is cold	See LCD unit limitations (see page 23-101)	
The navigation clock is off by 1 to 3 hours after replacing the navigation unit	See service precautions (see page 23-101)	• Perform map matching (see page 23-103) • GPS antenna/cable • Check and adjust the clock settings
A new navigation DVD is needed	See obtaining a navigation DVD (see page 23-103)	

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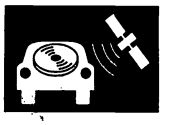

System Description

Overview

The navigation system is a highly-sophisticated, hybrid locating system that uses satellites and a map database to show you where you are and to help guide you to a desired destination.

The navigation system receives signals from the global positioning system (GPS), a network of 24 satellites in orbit around the earth. By receiving signals from several of these satellites, the navigation system can determine the latitude, longitude, and elevation of the vehicle. In addition, signals from the system's yaw rate sensor and the PCM (vehicle speed pulse) enable the system to keep track of the vehicle's direction and speed of travel.

This hybrid system has advantages over a system that is either entirely self-contained or one that relies totally on the GPS. For example, the self-contained portion of the system can keep track of vehicle position even when satellite signals cannot be received. When the navigation system is on, the GPS can keep track of the vehicle position even when the vehicle is transported by ferry.

The navigation system applies all location, direction, and speed information to maps and calculates a route to the destination entered. As you drive to that destination, the system provides both visual and audio guidance.

This navigation system also has voice recognition that allows voice control of most of the navigation functions. The Navigation TALK and BACK buttons on the steering wheel activate the voice control. The voice control also allows control of the audio and climate functions.

The illumination signal (headlights ON) is used by the navigation unit to automatically switch the display between "Night" and "Day" brightness modes. When the instrument panel brightness control is set to full brightness (hold both "+" and "—" key at the same time), the navigation system stays in the day mode, even with the headlights on.

The GA-NET II communication bus passes information back and forth between the display panel control unit, the navigaition unit and the RES/audio system. The information passed on this bus is audio climate control settings directed by the navigaition unit.

The "Comm. Bus" connects the HFL, XM (HIP) (AcuraLink), and navigation units. This bus supports these functions:

- The navigation control unit receives traffic and AcuraLink message information from the AcuraLink Control unit.
- The navigation control unit sends a POI phone number (on the "Calculate route to" screen) to the HandsFreeLink control unit for dialing.
- If vehicle problems are detected, and the client's cellular contract includes data service, then the AcuraLink control unit can send vehicle data to the HFL unit for transmitting back to the AcuraLink servers.
- The AcuraLink server can pass additional problem details back through the AcuraLink Control unit, to the navigation unit for display.

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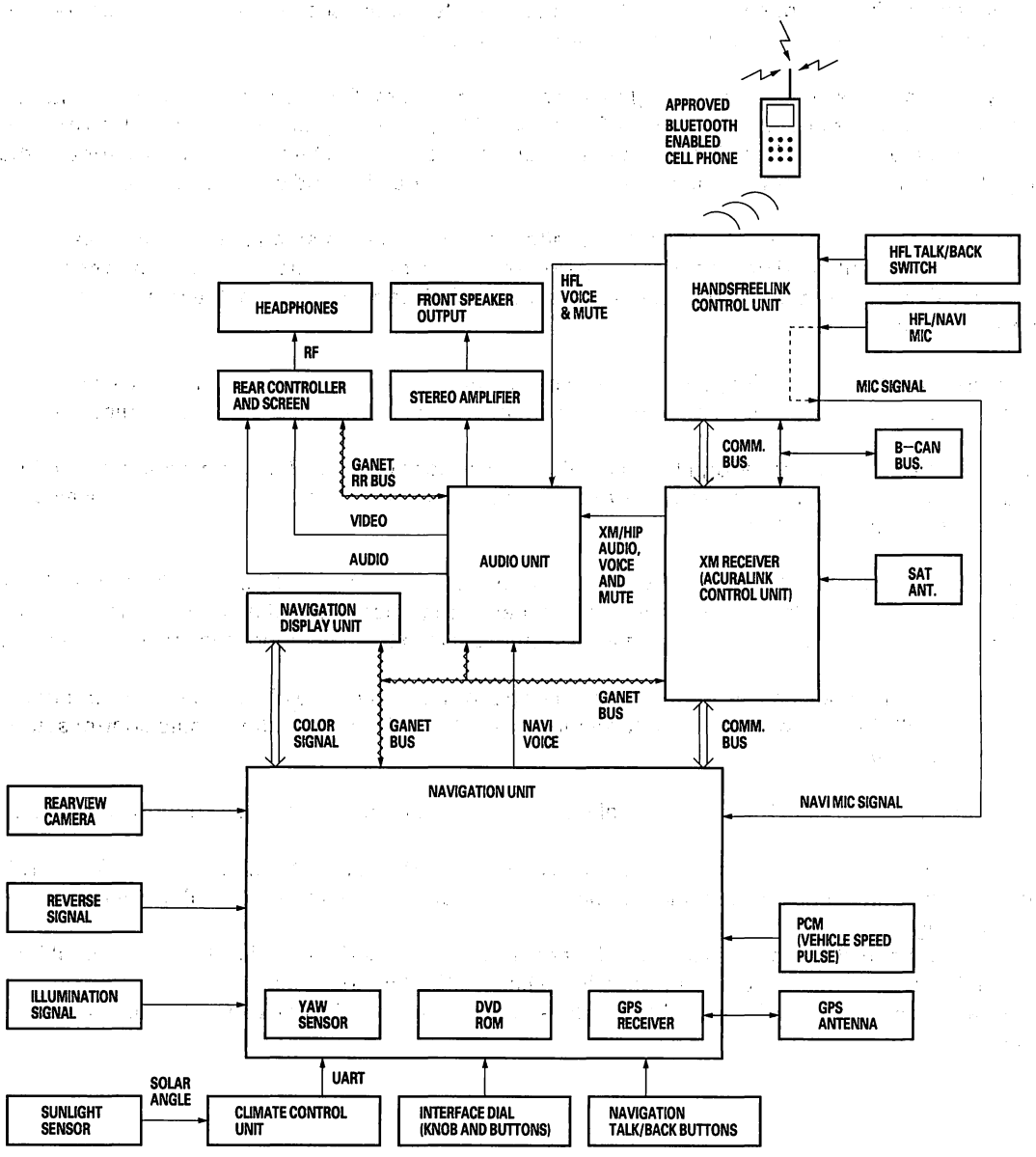
Navigation System

System Description (cont'd)

System Diagram



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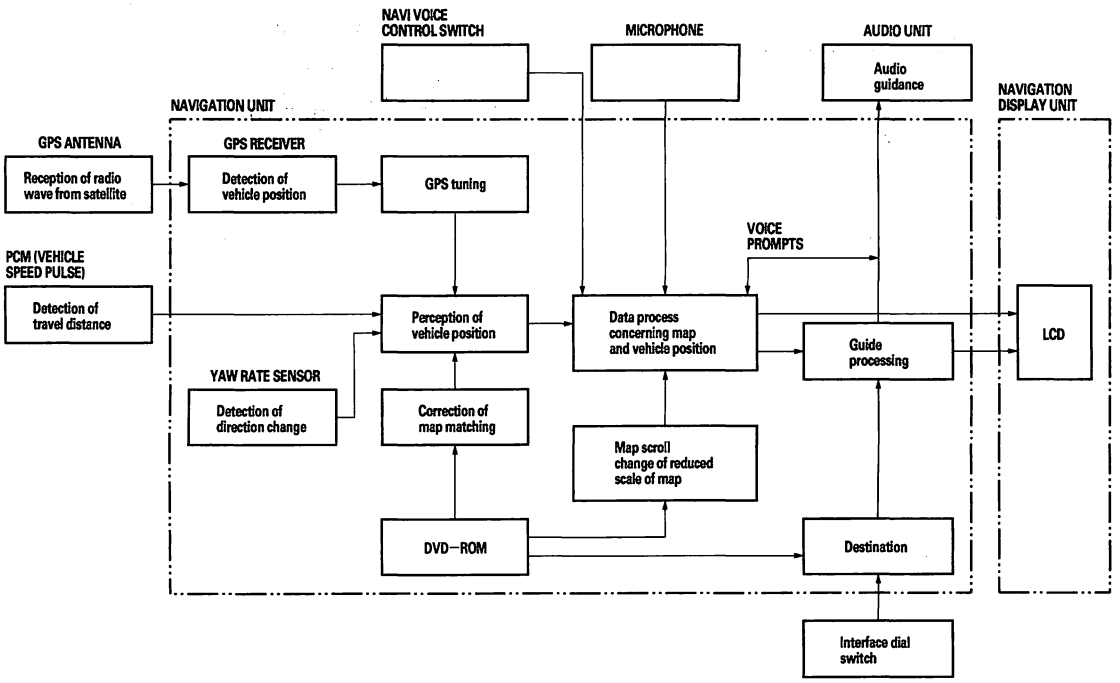
Navigation Function

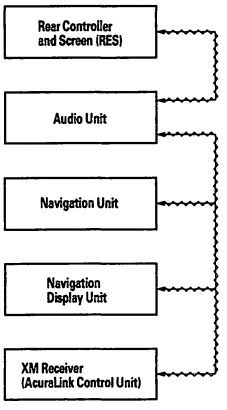
The navigation system is composed of the navigation unit, the PCM (vehicle speed signal), the GPS antenna, the microphone, the voice control switch, the audio unit, the display unit, and the interface dial.

Function Diagram



GA-Net Bus Configration

The GA-Net bus passes audio and navigation commands throughout the navigation and RES/audio components. These commands include navigation audio/XM selections by voice, and XM station and music title names. Because the entire bus is interconnected between components, an open or short in the GA-Net bus harness may cause any or all of these functions to become inoperative.



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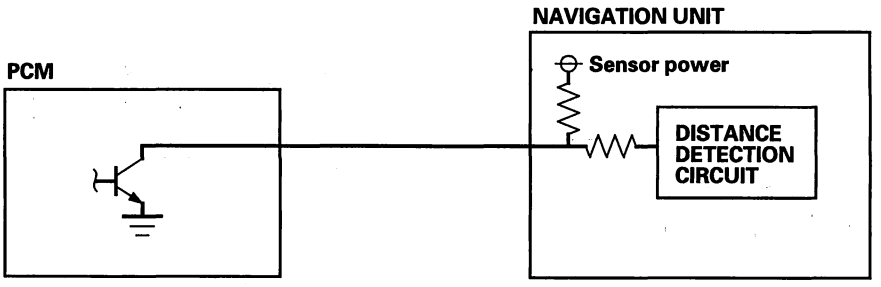
System Description (cont'd)

Vehicle Speed Pulse
The vehicle speed pulse is sent by the PCM. The PCM receives a signal from the countershaft speed sensor, then processes the signal and transmits it to the speedometer and other systems.



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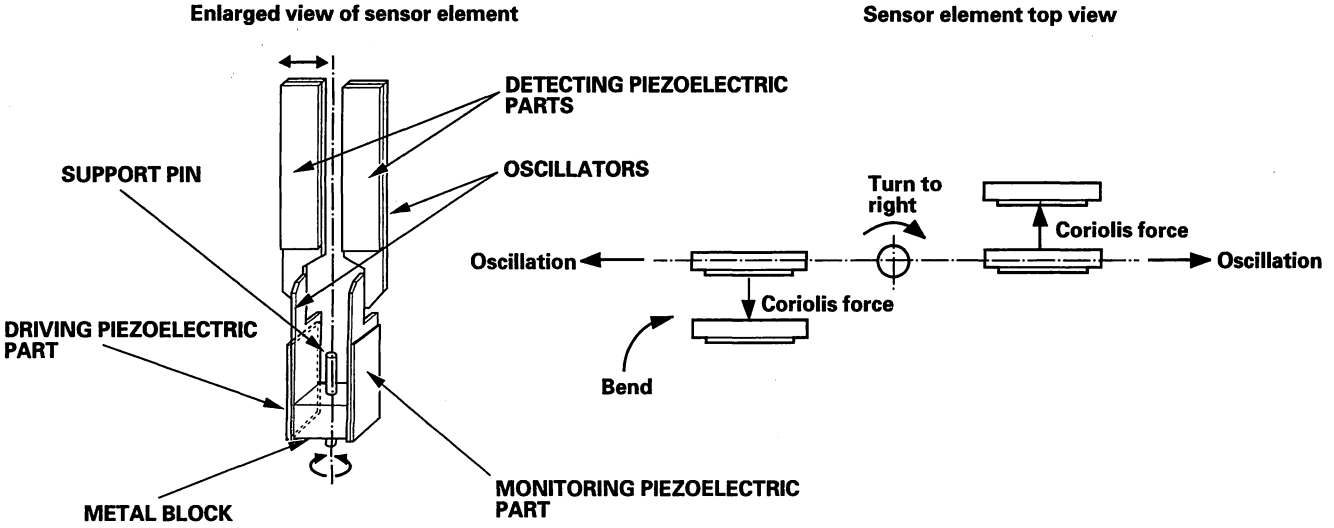
Yaw Rate-Lateral Acceleration Sensor
The yaw rate-lateral acceleration sensor (located in the navigation unit) detects the direction change (angular speed) of the vehicle. The sensor is an oscillation gyro built into the navigation unit.

Sensor Element Structure
The sensor element is shaped like a tuning fork, and it consists of the piezoelectric parts, the metal block, and the support pin. There are four piezoelectric parts: one to drive the oscillators, one to monitor and maintain the oscillation at a regular frequency, and two to detect angular velocity. The two oscillators, which have a 90-degree twist in the center, are connected at the bottom by the metal block and supported by the support pin. A detection piezoelectric part is attached to the top of each oscillator. The driving piezoelectric part is attached to the bottom of one oscillator, and the monitoring piezoelectric part is attached to the bottom of the other oscillator.

Oscillation Gyro Principles
The piezoelectric parts have "electric/mechanical transfer characteristics. " They bend vertically when voltage is applied to both sides of the parts, and voltage is generated between both sides of the piezoelectric parts when they are bent by an external force. The oscillation gyro functions by utilizing this characteristic of the piezoelectric parts and "Coriolis force. " (Coriolis force deflects moving objects as a result of the earth's rotation.) In the oscillation gyro, this force moves the sensor element when angular velocity is applied.

Operation
1. The driving piezoelectric part oscillates the oscillator by repeatedly bending and returning when an AC voltage of 6 kHz is applied to the part. The monitoring-side oscillator resonates because it is connected to the driving-side oscillator by the metal block.
2. The monitoring piezoelectric part bends in proportion to the oscillation and outputs voltage (the monitor signal). The navigation unit control circuit controls the drive signal to stabilize the monitor signal.
3. When the vehicle is stopped, the detecting piezoelectric parts oscillate right and left with the oscillators, but no signal is output because the parts are not bent (no angular force).
4. When the vehicle turns to the right, the sensor element moves in a circular motion with the right oscillator bending forward and the left oscillator bending rearward. The amount of forward/rearward bend varies according to the angular velocity of the vehicle.
5. The detecting piezoelectric parts output voltage (the yaw rate signal) according to the amount of bend. The amount of vehicle direction change is determined by measuring this voltage.



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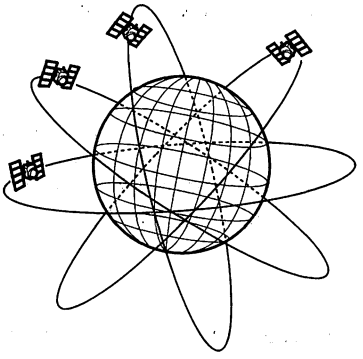
Navigation System

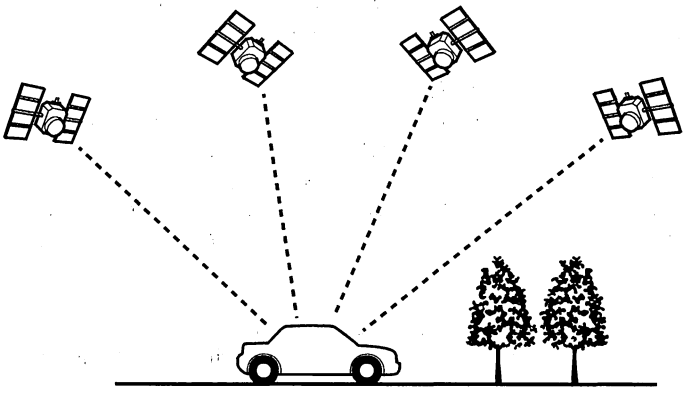
System Description (cont'd)

Global Positioning System (GPS)
The global positioning system (GPS) enables the navigation system to determine the current position of the vehicle by using the signals transmitted from the satellites in orbit around the earth. The satellites transmit the satellite identification signal, orbit information, transmission time signal, and other information. When the GPS receiver receives a signal from four or more satellites simultaneously, it calculates the current position of the vehicle based on the distance to each satellite and the satellite's position in its respective orbit.

Position detection Image with GPS satellite



NOTE: Four satellites on each of 6 orbits.



Precision of GPS
The precision of the GPS varies according to the number of satellites from which signals are received and the view of the sky. The precision is indicated by the color and shape of the GPS icon shown on the display.

GPS ICON	NUMBER OF SATELLITES	CONDITION	DESCRIPTION
No GPS icon shown	2 or less	Impossible to detect vehicle position	GPS function is normal. The satellite signals received by the GPS are too few to detect the vehicle position.
Square GPS icon shown with white "GPS"	3	Vehicle position detectable in 2 dimensions (longitude and latitude)	The longitude and latitude of the vehicle position can be detected. (Less precise than detection in three dimensions)
Cube GPS icon shown with green "GPS"	4 or more	Vehicle position detectable in 3 dimensions (longitude, latitude and elevation)	The longitude, latitude and the altitude of the vehicle position can be detected. (More precise than detection in two dimensions)

GPS Antenna and clock
The GPS antenna amplifies and transmits the signals received from the satellites to the GPS receiver.

GPS Receiver
The GPS receiver is built into the navigation unit. It calculates the vehicle position by receiving the signal from the GPS antenna. The current time vehicle position and signal reception condition are transmitted from the GPS receiver to the navigation control unit to adjust the vehicle position and clock.

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Navigation Unit
The navigation unit calculates the vehicle position and guides you to the destination. The unit performs map matching correction, GPS correction, and distance tuning. It also controls the menu functions and the DVD-ROM drive, and interprets voice commands. With control of all these items, the navigation unit makes the navigation picture signal, then it transmits the signal to the display panel control unit and audio driving instructions to the audio unit.

Calculation of Vehicle Position
The navigation unit calculates the vehicle position (the driving direction and the current position) by receiving the directional change signals from the yaw rate sensor and the travel distance signals from vehicle speed pulse (VSP) signal of the PCM.

Map Matching Tuning
The map matching occurs when you drive the vehicle along a mapped road until the road name appears of the bottom of the screen. The map data transmitted from the DVD-ROM is checked against the vehicle position data, and the vehicle position is indicated on the nearest road. Map matching tuning does not occur when the vehicle travels on a road not shown on the map, or when the vehicle position is far away from a road on the map.

GPS Tuning
The GPS tuning is accomplished by indicating the vehicle position as the GPS's vehicle position. The navigation unit compares its calculated vehicle position data with the GPS vehicle position data. If there is large difference between the two, the indicated vehicle position is adjusted to the GPS vehicle position.

Distance Tuning
The distance tuning reduces the difference between the travel distance signal from the VSP and the distance data on the map. The navigation unit compares its calculated vehicle position data with the GPS vehicle position data. The navigation unit then decreases the tuning value when the vehicle position is always ahead of the GPS vehicle position, and it increases the tuning value when the vehicle position is always behind the GPS vehicle position.

Route Guidance
The navigation unit can calculate different routes to a selected destination. You have five options:

- Direct Route-Calculate a route that is the most direct.
- Easy Route-Calculate a route that minimizes the number of turns needed.
- Minimize Freeways-Calculate a route that avoids freeway travel. If that is not possible, keep the amount of freeway travel to a minimum.
- Minimize Toll Roads-Calculate a route that avoids or minimizes travel on toll roads.
- Maximize Freeways-Calculate a route that uses freeways as much as possible.

Audio Guidance
The navigation unit transmits audio driving instructions before entering an intersection or passing a junction. The audio instructions come through the audio unit to the center speaker.

NOTE: The front speakers are muted whenever the navigation system is giving guidance commands, and all of the speakers are muted when the voice control system is being used.

Solar Angle
The climate control unit uses the sun's angle, along with the sunlight sensor, to control the driver/passenger A/C air flow.

Off Road Tracking (breadcrumbs)
Off road tracking dots that can be followed on the map to retrace your route back to a mapped (digitized) road.

Clock and Time Zone
The clock set up allows you to set daylight savings time, auto time zone and time adjustment.

(cont'd)

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System Description (cont'd)

Muting Signal Logic
The audio muting logic is orchestrated by the audio unit. The audio unit determines what audio source has priority to use the speakers.

The priority of the audio sources is as follows:

HandsFreeLink has the highest priority, followed by, AcuraLink, navigation, and finally the radio/CD-DVD player. The priority is passed by HandsFreeLink and AcuraLink to the audio unit by dedicated mute wires. The navigation mute signal is passed to the stereo amplifier.

The navigation unit temporarily disables the voice control buttons, but allows guidance to be heard. In addition, the audio unit suppresses the output from the audio unit, XM receiver, disc player, or other audio accessories.

When the navigation system sends out a voice route guidance command, the door speakers are muted, and the navigation voice is heard in the center speaker.

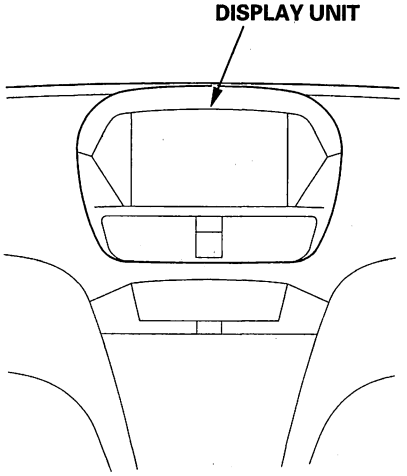
When the navigation voice control system is in use, all of the speakers are muted, and the navigation voice prompts are heard from the center speaker.

DVD-ROM
The DVD includes:
- Map Data
- Point of interest (POI)
- Navigation software

Audio Unit
The audio unit receives the voice guidance instructions from the navigation unit, and transmits the instructions through the center speaker even when the audio system is in use.

NOTE: If the navigation volume is turned OFF, this feature is disabled.

Display Unit
The display unit uses a liquid crystal display (LCD). The LCD is a 8-inch-diagonal, thin film transistor (TFT), stripe type with 336,960 picture elements. The color film and fluorescent light are laid out on the back of the liquid crystal film.



BACK

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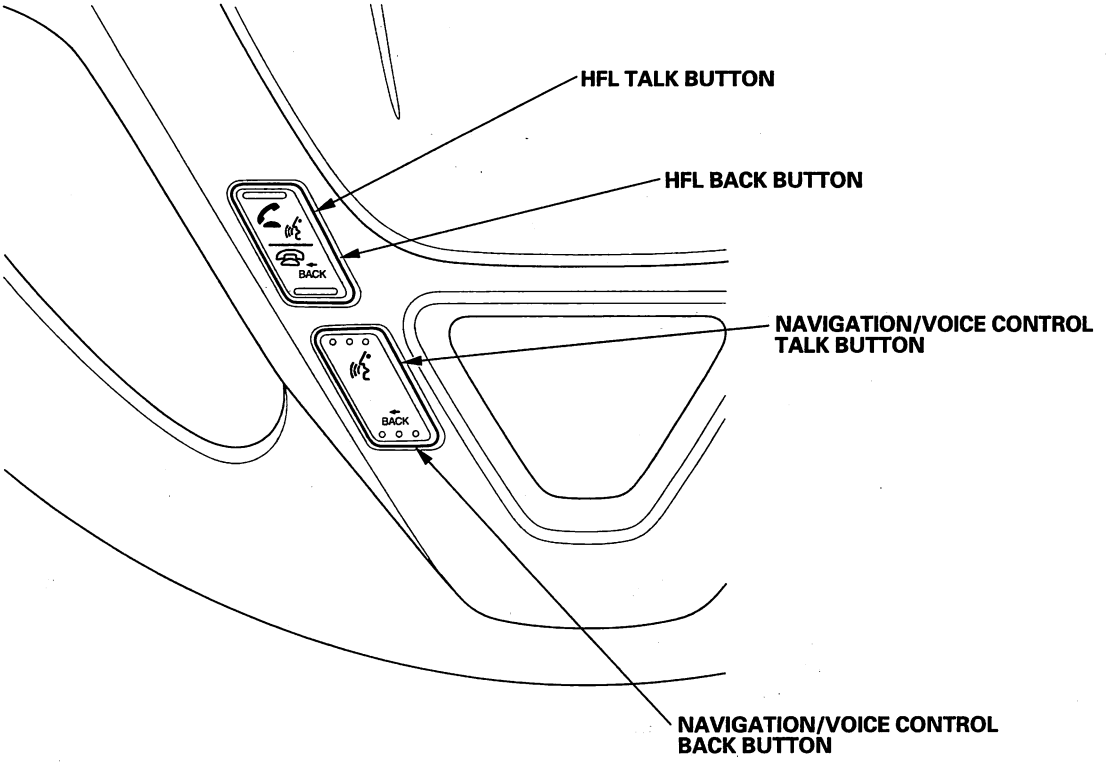
Microphone (Mic)
Receives voice commands and transmits them to the navigation unit or HandsFreeLink unit for interpretation. Both system share the same microphone.

TALK Button
Activates the voice control system in the navigation unit to accept voice commands.

BACK Button
Returns the display to the previous screen (similar function as the CANCEL button).



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System Description (cont'd)

Glossary

The following is a glossary of terms pertaining to the Voice Recognition Navigation System.

Item	Definition
AcuraLink	This device receives information from the XM satellites and passes XM audio information to the audio unit. In addition, traffic information is sent to the navigation unit.
B-CAN	Body CAN Bus (see CAN)
Breadcrumbs (White dots)	Off road tracking dots that can be followed on the map to retrace your route back to a mapped (digitized) road. This function can be turned on/off in Setup screen 1.
CAN	Controller Area Network. This communication network allows processors in the vehicle to send/receive information. The fuel pulses used by the MID trip computer are received from the PCM using the F-CAN (Fast Controller Area Network) bus.
CPU	Central Processing Unit. The main device within the navigation unit that coordinates the rest of the electronic functions.
CSS	Countershaft (Output) Speed Sensor. This sensor reads the output shaft speed at the transmission and provides a speed pulse to the PCM.
Database	This consists of the Map data, and the POI (Points Of Interest) data stored on the DVD.
DBW	Drive By Wire. Allows electrical control of the throttle without the need of a mechanical linkage.
DCA	Detailed Coverage Area. Main metropolitan areas in the Lower 48 states, and Canada are mapped to this level. See the navigation system manual for a list of these areas.
DTC	Diagnostic Trouble Codes. Use the PGM Tester, or HDS tablet to obtain, and troubleshoot the cause of these codes.
Dead reckoning	The use of the speed signal, and yaw rate sensor to position the vehicle on the map even when tall buildings, or driving in a tunnel obscures the GPS signal
Digitized road	A road that appears on the navigation screen. The road name will appear at the bottom of the navigation screen. If the user drives "off road" the navigation system will display "Not on a digitized road", and after 1/2 mile, the "breadcrumbs" will appear.
Disclaimer screen	Screen containing cautionary information. It is meant to be read carefully, and acknowledged by the customer when using the navigation system.
DVD or DVD-ROM	Digital Versatile Disk. The navigation program and database resides on this disk. See the Navigation Owner's Manual for information on how to order a replacement or an update DVD.
ECM	Engine Control Module. Typically referred to as the ECM.
FAQ	Frequency Asked Questions. See the navigation system manual for a list of the customer FAQs, and troubleshooting information.
F-CAN	Fast CAN Bus (see CAN)
GPS	Global Positioning System. A network of 24 satellites in orbit around the earth. The navigation system can simultaneously receive signals from up to 12 satellites to accurately position the vehicle on the map.
HDS	Honda Diagnostic System. A hand held tablet PC used for diagnosing vehicle problems. This device can be used to obtain DTC codes for diagnosis of the navigation system and CAN related problems.
HFL	HandsFreeLink uses Bluetooth technology as a wireless link between it and an approved Bluetooth compatible cell phone. See the vehicle Owner's manual or Quick Start Guide for more information.
HIP (AcuraLink)	Honda Information Platform (see AcuraLink)
H/U	Head Unit. The audio unit in the dash.
Initialization	This refers to the period needed to re-acquire the GPS satellite orbital information whenever the navigation system power has been disconnected. This can take from 10 to 45 minutes.
Interface Dial	This control device consists of a rotating knob and the buttons surrounding it. This device allows control of the navigation, audio, and climate functions displayed on the screen.
LCD	Liquid Crystal Display (the navigation screen)
Map matching	The received GPS information allows the navigation system to position the vehicle on the map. Map matching has occurred if the map screen is displaying the current street name in the bottom-shaded area.

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Item	Definition
Mic	Abbreviation for the microphone used for receiving voice commands. It is located near the map light in the ceiling.
MID	Multi-Information Display
MW	Maneuver Window. While on-route to a destination, this window displays information about the next maneuver.
Navi	Abbreviation for the Navigation System.
Off-road tracking	See "Breadcrumbs"
Off route	This occurs when the user leaves mapped roads. Off road tracking dots (breadcrumbs) are displayed if the option is enabled in the setup menu. The user can use them to return to a mapped road. The bottom of the navigation screen will say "Not on a digitized road"
Outlying areas	These are rural areas that typically have only their main roads mapped. All other roads are shown in light brown for reference only, since they have not been verified.
Paired	Linking your cell phone to the HFL
PC card slot	The PC Card (PCMCIA, type II) slot is for factory use only. Make sure that the sliding door is closed at all times, if opened, an error message is displayed on the screen.
PCM	Powertrain Control Module. This unit supplies the navigation system speed signal, Also refered to as PCM.
PCMCIA	A computer industry defined term referring to the PC Card slot standard.
PIN	Personal Identification Number, a random 4 digit number created by the customer to protect personal information.
POI	Point Of Interest. These are the businesses, schools, etc. found under the "places" option on the main menu.
Polygon	Colored areas on the map screen denoting parks, schools, etc. See the Navigation System Manual "Driving to Your Destination" for a list of the assigned colors.
QWERTY	Keyboard layout resembling the typewriter keys. The keyboard layout can be changed to an alphabetical layout in the Setup mode.
SCS connector	The "service check signal" 2-pin connector used to put the navigation system into the diagnostic mode.
Security code	Code needed to activate the navigation system. You can get the security code from the "iN" by entering the navigation unit serial number. You can find the serial number on the diagnostic screens (unit check, Navi ECU),or on the underside of the navigation unit.
Tuning	A continual update of internal navigation system scaling factors. See the individual sensor tuning discussions under either "System Description", or "System Diagnosis Mode" (see page 23-157) in this manual.
Unverified streets	These streets have not been verified for turn restrictions, one-way, etc. They are shown in light brown on the map. You can enter address destinations in these areas, but depending on your "Unverified Routing" choice in setup, voice guidance may end at the last verified street closest to your destination.
Verified streets	These streets consist of the detailed metropolitan coverage areas, and all other inter-town connection roads. These roads are shown in black or red on the map. (interstates are red)
VP	Vehicle Position. When in map mode, this circular icon shows the vehicle position on the map.
VR	Voice Recognition. This allows voice control of many of the navigation functions. The hardware consists of the microphone, voice control switch (TALK/BACK buttons), and the center speaker. See the overview for more information.
VSP	Vehicle Speed Pulse. This pulse signal coming from the PCM (via the CSS) is used to update the Vehicle position on the map. These pulses do not indicate direction (forward or backward). When in reverse, the navigation receives a signal and directs the VP to move backwards on the map.
XM	This device receives information from the XM satellites and passes XM audio information to the audio unit. In addition, traffic information is sent to the navigation unit.
Yaw sensor	This device is located in the navigation system control unit and senses the side-to-side twisting force generated when the vehicle turns. See a detailed description of how this sensor works in this manual.

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BACK

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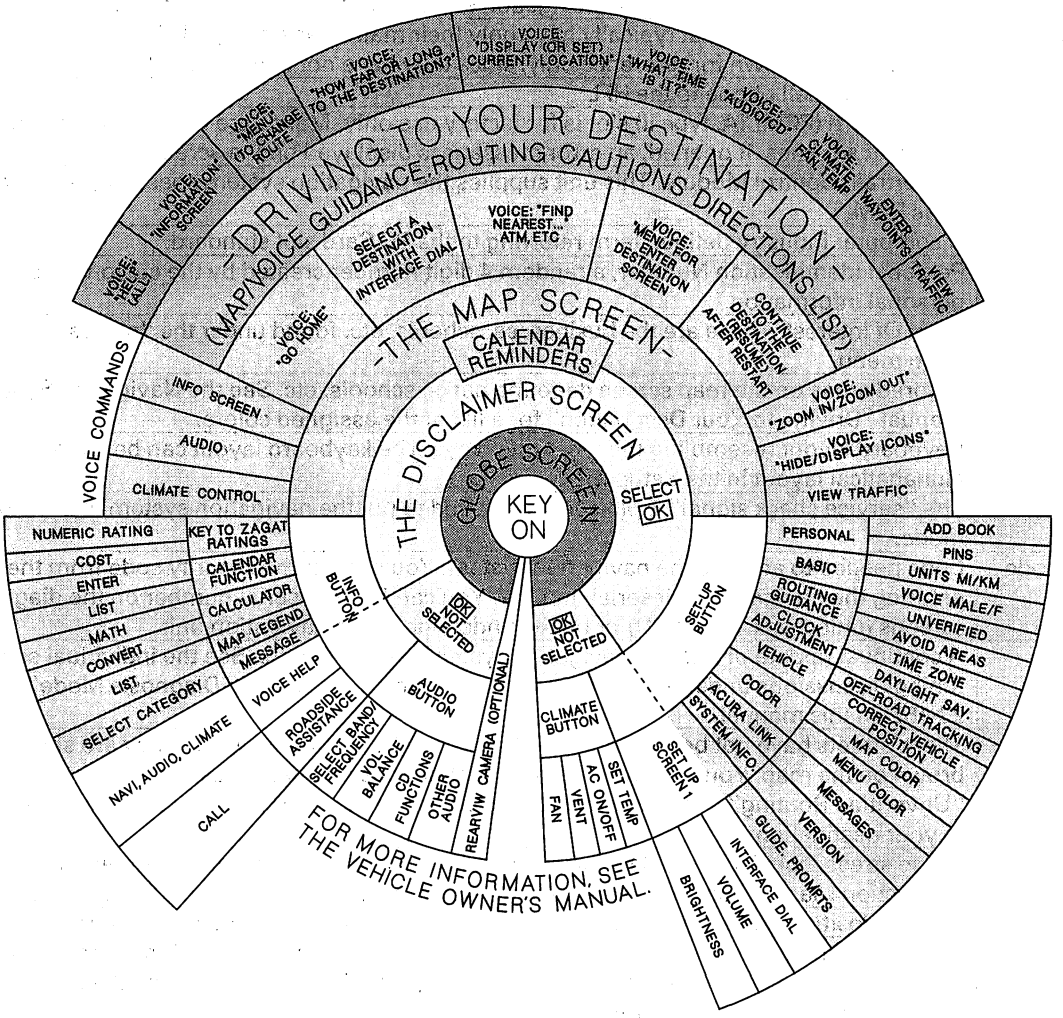
System Description (cont'd)

System Function Diagram

This diagram shows the features of the navigation system starting at the center and working outward in layers. The navigation program starts at "Key ON", and then displays the globe screen. Once the disclaimer screen is acknowledged, the next shaded portions of the diagram become active. However, some functions of the INFO and SET UP buttons, and all functions of the AUDIO and A/C buttons can be accessed immediately after the globe screen (white).

The items above the map screen show various ways to set a destination, such as "Go Home." Once you begin driving to your destination, you are provided with map/voice guidance, routing cautions (in unverified areas), and a directions list. While driving to your destination, use the voice control system as much as possible to interact with the navigation, audio, and climate control systems.



- Functions accessible at any time
- Disclaimer screen
- Map screen/voice commands to enter a destination
- Driving to your destination
- Voice commands while driving to your destination
- Globe screen

BACK

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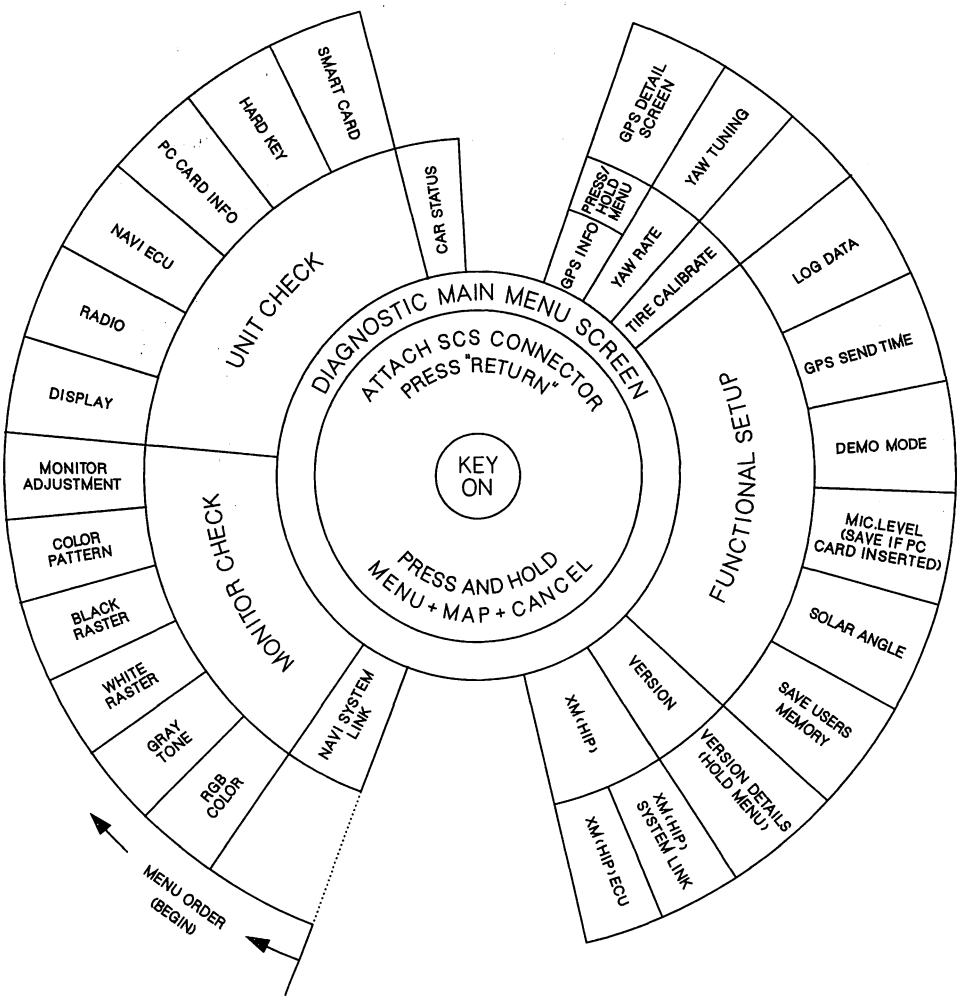
Diagnostic System Diagram
This diagram represents the diagnostic "slice" in the Navigation Functional diagram. The diagram shows an overview of the navigation diagnostic features starting at the center and working outward in layers. The diagram starts with "Key on". The diagram shows two ways to get to the diagnostic main menu:

- By starting the vehicle with the SCS connector plugged in, you will enter the diagnostic "System Links" screen. select "Return" to get to the main diagnostic menu.
- From any of the navigation Map or Menu screens, press and simultaneously hold the keys Menu + Map + Cancel.

The diagram shows the available diagnostic menu choices, starting at the bottom left, and moving clockwise. In most cases, do not clear or change settings in any diagnostic screen unless instructed to do so in the explanation, or by the factory.

If the factory asks you to insert a PCMCIA memory card into the "PC Slot," then the features specified on the diagram as "(Card)" are available.



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BACK

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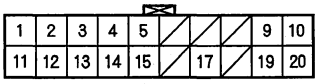
System Description (cont'd)

Navigation Unit Inputs and Outputs for Connector A (20P)



Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	WHT	R SIG (Red signal)	Red color signal	0—1 V	If open: Red color missing (see "RGB Color" diagnostic). If short to ground: Red color missing (see "RGB Color" diagnostic).
2	RED	G SIG (Green signal)	Green color signal	0—1 V	If open: Green color missing (see "RGB Color" diagnostic). If short to ground: Green color missing (see "RGB Color" diagnostic).
3	BLK	SH SIG (Shield signal)	Shield for terminal No. 1, 2, 11, 12, 13	0 V	If open: No change to display. If short to ground: No change to display.
4	YEL	A/C-SI (Air conditioner serial in)	Communication signal for climate control unit	——	If open: HVAC cannot be controlled by the navigation system. If short to ground: HVAC cannot be controlled by the navigation system.
5	YEL	ILL (+) (Illumination positive)	Parking light on signal	Lights on: battery voltage, Lights off: 0 V	If open: When brightness="Auto," night mode for the display is inoperative when lights on. If short to ground: daytime mode regardless of the condition of a light switch.
9	BLK	GA NET BUS SH (GA-NET bus shield)	Shield for display bus terminal No. 10, 20	0 V	If open: No change to display. If short to ground: No change to display.
10	GRN	GA NET BUS + (GA-NET bus positive)	Date bus (+) GA-Net	0—5 V pulses average 2.5 V depends on bus traffic	If open: Navigation buttons do not work. If short to ground: Navigation buttons do not work.

BACK

Protected by AR

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
11	YEL	B SIG (Blue signal)	Blue color signal	0—1 V AC	If open: Blue color missing (see "RGB Color" diagnostic). If short to ground: Blue color missing (see "RGB Color" diagnostic).
12	GRN	C SIG (Composite signal)	Composite video (vertical/horizontal) Synchronizing signal	0.3 V AC	If open: Picture rolls horizontally, colors still visible. If short to ground: Picture rolls horizontally, colors still visible.
13	BLK	GND SIG (Ground signal)	Ground for color signal	0 V	If open: No change to display. If short to ground: No change to display.
14	RED	A/C-SO (Air conditioner serial out)	Communication signal for climate control unit	———	If open: HVAC cannot be controlled by the navigation system. If short to ground: HVAC cannot be controlled by the navigation system.
15	BLU	A/C-CLK (Air conditioner clock)	Check signal for climate control unit	———	If open: HVAC cannot be controlled by the navigation system. If short to ground: HVAC cannot be controlled by the navigation system.
17	WHT	JOG BUS (Jog bus)	Interface dial operation signal	0—5 V pulses	If open: You cannot operate navigation system If short to ground: You cannot operate navigation system
19	BLK	JOG SH (Jog shield)	Shield for interface dial signal	———	———
20	RED	DISP BUS (—) (Display bus negative)	Date bus (—) GA-Net	0—5 V pulses nominally 2.5 V	If open: Navigation buttons do not work. If short to ground: Hard buttons work OK.

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BACK

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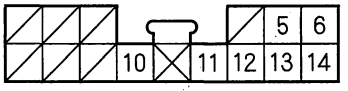
System Description (cont'd)

Navigation Unit Inputs and Outputs for Connector B (14P)



Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
5	PUR	RG L (+) (Route guidance voice left positive)	Left audio signal of voice guidance, and Voice Recognition (VR) prompts	Audio signal 0.004—0.04 V	If open: If voice activated, radio speakers buzz; if voice off, no effect. If short to ground: If voice activated, radio speakers buzz; if voice off, no effect.
6	PUR	HFL MIC OUT+ (HFL mic signal positive)	Microphone output signal positive	4—5 V (TALK button pressed)	If open: microphone signal shown as red in diagnostic screens: "Navi System Link" and Functional Setup "Mic Level." If short to ground: microphone signal shown as red in diagnostic screens: "Navi System Link" and Functional Setup "Mic Level."
10	PUR	NAVI REMOTE SW (Navigation remote switches)	Steering switch output	4—5 V (TALK button pressed) 2.5—3 V (BACK button pressed)	If open: Steering wheel TALK and BACK buttons do not work. If short to ground: Steering wheel TALK, and BACK buttons do not work.
11	BLK	RG SH (Route guidance shield)	Shield for terminal No. 5, 12	0 V	If open: No effect on voice output. If short to ground: No effect on voice output.
12	LT BLU	RG GND (Route guidance ground)	Ground for voice guidance, and Voice Recognition (VR) prompts	0 V	If open: No effect on voice output. If short to ground: No effect on voice output.
13	BLK	HFL MIC OUT SH (HFL mic signal shield)	Shield for terminal No. 6, 14	0 V	If open: No effect on voice control. If short to ground: No effect on voice control.
14	LT BLU	HFL MIC OUT— (HFL mic signal negative)	Ground for microphone signal	0 V	If open: microphone signal shown as red in diagnostics: "Navi System Link" and Functional Setup "Mic Level." If short to ground: No effect on voice recognition.

BACK

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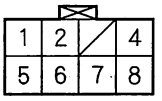
Navigation Unit Inputs and Outputs for Connector C (8P)



Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	WHT	+B (+B Power source)	Continuous power source	Battery voltage	If open: Display picture goes out (display back light still on). NOTE: System will reboot to "enter code" screen. If short to ground: Blows fuse No. 5 (10A) in the under-dash fuse/relay box.
2	PUR	ACC (Accessory)	Power source for accessories	Battery voltage at ACC (I)	If open: Display picture goes out (display back light still on). If short to ground: Blows fuse No. 32 (10 A) in the under-dash fuse/relay box.
4	BLK	GND (Ground) (G605)	Ground for navigation unit	0 V	If open: No effect on system. If short to ground: No effect on system.
5	BRN	BACK LT (Back light or reverse signal)	Reverse signal of select lever from "Multiplex Integrated Control Unit" (A/T) or backup light switch (M/T)	In reverse, battery voltage: Otherwise 0 V	If open: Navigation never sees reverse. Diagnostic screen "Car Status," "Back"=0. If short to ground: Blows fuse No. 21 (7.5 A) in the driver's under-dash fuse/relay box.
6	BLU	VSP (Vehicle speed pulse)	Vehicle speed pulse signal from PCM	Pulses 0—5 V: Average 2.5 V, when moving	If open: No vehicle speed pulses. Diagnostic screen "Car Status," VSP Navi=0. If short to ground: No vehicle speed pulses. Diagnostic screen "Car Status," VSP Navi=0.
7	GRY	DIAG+ (Diagnostic positive)	Service check signal for navigation system	5—6 V	If open: No effect on system. If short to ground: System goes into diagnostic mode at key ON (I) and (II).
8	YEL	DIAG— (Diagnostic negative)	Ground for service check signal	0 V	If open: The system will not go into diagnostic mode when using the SCS jumper. If short to ground: No effect on system.

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BACK

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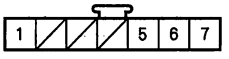
System Description (cont'd)

Navigation Unit Inputs and Outputs for Connector D (7P)



Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
D1	WHT	CAMERA VCC (VCC supply)	Power source for rearview camera	7 V	If open: No rearview camera image. If short to ground: When put into reverse, the navigation screen goes black (backlight still operative).
D5	BLK	VIDEO (Video camera)	Video signal for rearview camera	0.3 V	If open: No rearview camera image. If short to ground: When put into reverse, the navigation screen goes black (backlight still operative).
D6	BLK	CAMERA SH (Shield and ground for camera)	Shield for terminal No. 1 to No. 7	0 V	If open: No rearview camera image. If short to ground: No change to rearview camera image.
D7	RED	CAMERA ADPT (Adaptive camera)	Control signal for rearview camera	0 V	If open: No change to rearview camera image. If short to ground: No change to rearview camera image.

BACK

Protected by AR

Navigation Unit Inputs and Outputs for Connector E (2P)

Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	———	GPS	GPS signal	5 V	If open: GPS icon on screen is white, system links screen ANT shows "NG." If short to body ground: Same as open.
2	———	GND GPS	Ground for GPS signal	0 V	If open: GPS icon on screen is white, system links screen ANT shows "NG." If short to body ground: No effect on system.

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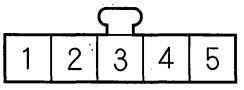
BACK

Protected by AR

System Description (cont'd)

Navigation Unit Inputs and Outputs for Connector F (5P)



Wire side of female terminals

With AcuraLink

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	WHT	HFL COMM3 (HFL communication 3)	Communication signal for HFL	———	Solid red HFL icon in Navi System Link
2	RED	HFL COMM4 (HFL communication 4)	Communication signal for HFL	———	Solid red HFL icon in Navi System Link
3	GRN	HFL COMM1 (HFL communication 1)	Communication signal for HFL	———	HFL icon in Navi System Link changes between red and green
4	BLK	HFL COMM2 (HFL communication 2)	Communication signal for HFL	———	HFL icon in Navi System Link changes between red and green
5	BLK	SH HFL (Shield HFL)	Shield for terminal No.1, 2, 3, 4	———	———

Without AcuraLink

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	RED	HFL COMM3 (HFL communication 3)	Communication signal for HFL	———	Solid red HFL icon in Navi System Link
2	WHT	HFL COMM4 (HFL communication 4)	Communication signal for HFL	———	Solid red HFL icon in Navi System Link
3	GRN	HFL COMM1 (HFL communication 1)	Communication signal for HFL	———	HFL icon in Navi System Link changes between red and green
4	BLK	HFL COMM2 (HFL communication 2)	Communication signal for HFL	———	HFL icon in Navi System Link changes between red and green
5	BRN	SH HFL (Shield HFL)	Shield for terminal No.1, 2, 3, 4	———	———

BACK

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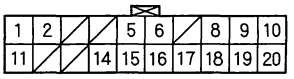
Navigation Display Unit Inputs and Outputs for 20P Connector



Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	WHT	+B (+B power source)	Continuous power source	Battery voltage	If open: Screen completely off (no backlight visible). If short to ground: Blows fuse No. 7 (10 A) in the under-dash fuse/relay box.
2	PUR	ACC (Accessory)	Power source for accessory	Battery voltage at ACC (I)	If open: Display and buttons do not work. If short to ground: Blows fuse No. 32 (10 A) in the under-dash fuse/relay box.
5	GRN	GA NET BUS+ (GA-NET bus positive)	Data bus (+) GA-Net	0—5 V pulses average 2.5 V depends on bus traffic	If open: Navigation hard buttons do not work. If short to ground: Navigation hard buttons XM/ AcuraLink and RES do not work.
6	RED	SCTY (1) (Security positive)	Security signal	0 V	If open: If security system set, it will not trip when screen is removed. If short: If security system set, it will not trip when screen is removed.
8	WHT	R SIG (Red signal)	Red color signal	0—1 V	If open: Red color missing (see "RGB Color" diagnostic). If short to ground: Red color missing (see "RGB Color" diagnostic).
9	RED	G SIG (Green signal)	Green color signal	0—1 V	If open: Green color missing (see "RGB Color" diagnostic). If short to ground: Green color missing (see "RGB Color" diagnostic).
10	BLK	GND (Ground)	Ground for display unit	0 V	If open: No change to display. If short to ground: No change to display.
11	YEL	ILL (+) (Illumination positive)	Parking light on signal from dash and console light	Lights on: battery voltage, Lights off: 0 V	If open: When brightness "Auto," night mode for the display is inoperative when lights on. If short to ground: Blows small light relay in under-hood fuse/relay box.
14	GRY	GA NET BUS SH (GA-NET bus negative)	Shield for display bus terminal No. 5, 16)	0 V	If open: No change to display. If short to ground: No change to display.
15	RED	GA NET BUS— (GA-NET bus negative)	Date bus (—) GA-Net	0—5 V pulses average 2.5 V depends on bus traffic	If open: Navigation hard buttons do not work. If short to ground: Navigation hard buttons work OK.
16	PNK*1 LT GRN*2	SCTY (3, 4) (Security negative)	Security signal	0 V	If open: If security system set, it will not trip when screen is removed. If short: If security system set, it will not trip when screen is removed.
17	BLK	GND SIG (Ground signal)	Ground for color signal	0 V	If open: No change to display. If short to ground: No change to display.
18	YEL	B SIG (Blue signal)	Blue color signal	0—1 V	If open: Blue color missing (see "RGB Color" diagnostic). If short to ground: Blue color missing (see "RGB Color" diagnostic).
19	GRN	C SIG (Composite signal)	Composite video (vertical/horizontal) synchronizing signal	0.3 V	If open: Picture rolls horizontally, colors still visible. If short to ground: Picture rolls horizontally, colors still visible.
20	GRY	SIG SH (Signal shield)	Shield for terminal No. 8, 9, 17, 18, 19	0 V	If open: No change to display. If short to ground: No change to display.

* 1: With rear entertainment system
* 2: Without rear entertainment system

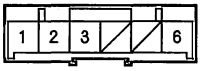
(cont'd)

BACK

Protected by AR

System Description (cont'd)

Rearview Camera Inputs and Outputs for 6P Connector



Terminal side of male terminals

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	RED	CAMERA ADPT (Adaptive camera)	Control signal for rearview camera	0 V	If open: No change to rearview camera image. If short to ground: No change to rearview camera image.
2	BLK	CAMERA SH (Shield and ground for camera)	Shield for terminal No. 5	0 V	If open: No rearview camera image. If short to ground: No change to rearview camera image.
3	BLK	CAMERA VIDEO (Video camera)	Video signal for rearview camera	0.3 V	If open: No rearview camera image. If short to ground: When put into reverse, navigation screen goes black (display backlight still operative).
6	WHT	CAMERA VCC (VCC supply)	Power source for rearview camera	8 V	If open: No rearview camera image. If short to ground: When put into reverse, navigation screen goes black (display backlight still operative).

BACK

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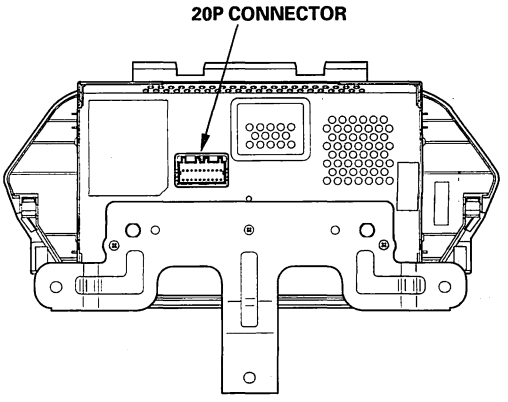
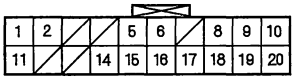
Circuit Diagram

Navigation display unit connector

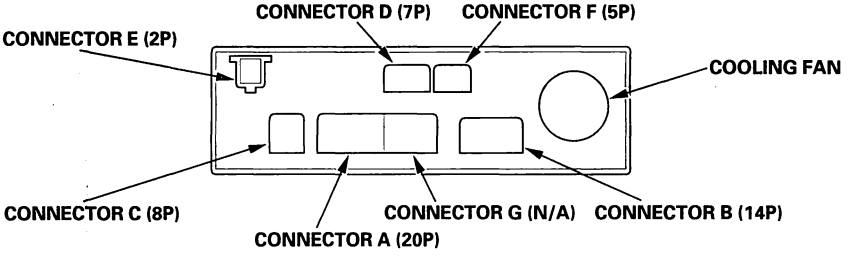


20P CONNECTOR

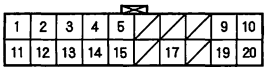


Wire side of female terminals

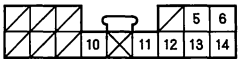
Navigation unit connector



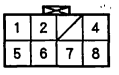
CONNECTOR A (20P)



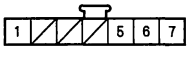
CONNECTOR B (14P)



CONNECTOR C (8P)

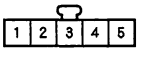


CONNECTOR D (7P)



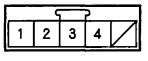
CONNECTOR E (2P)

CONNECTOR F (5P)

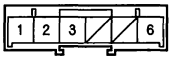


Wire side of female terminals

INTERFACE DIAL 5P CONNECTOR



REARVIEW CAMERA 6P CONNECTOR



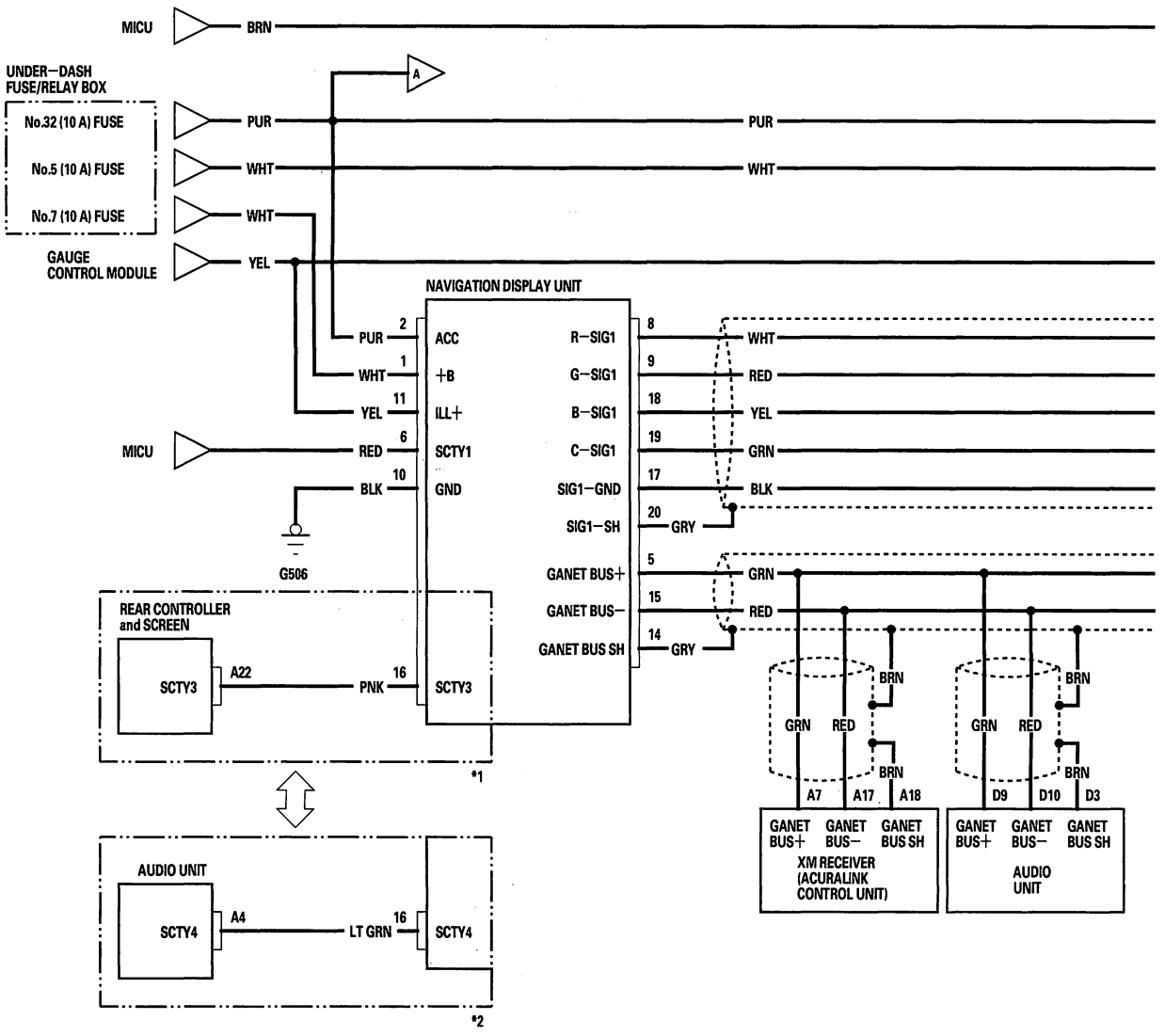
Terminal side of male terminals

(cont'd)

Protected by AR

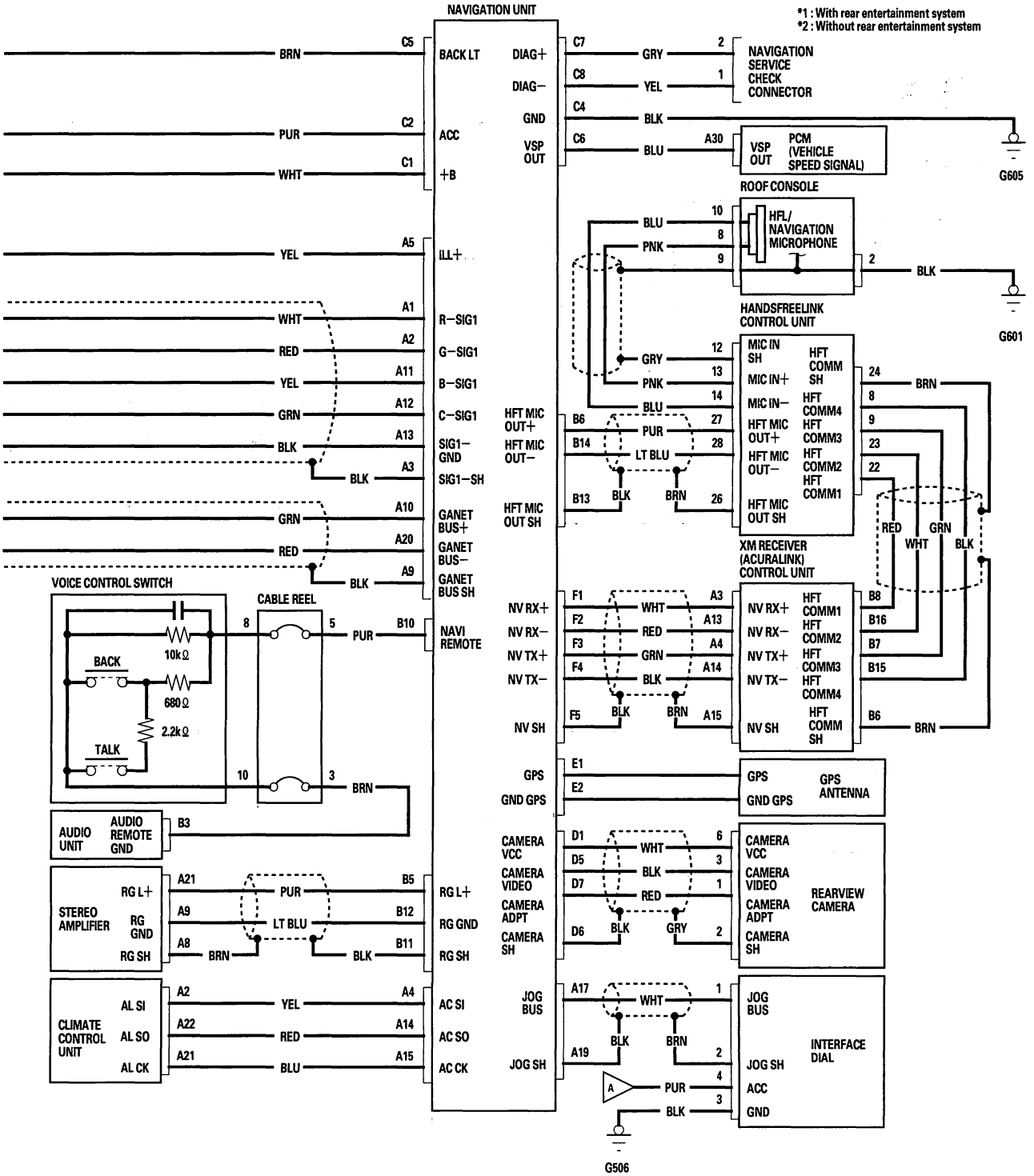
Circuit Diagram (cont'd)

With AcuraLink



BACK

Protected by AR



(cont'd)

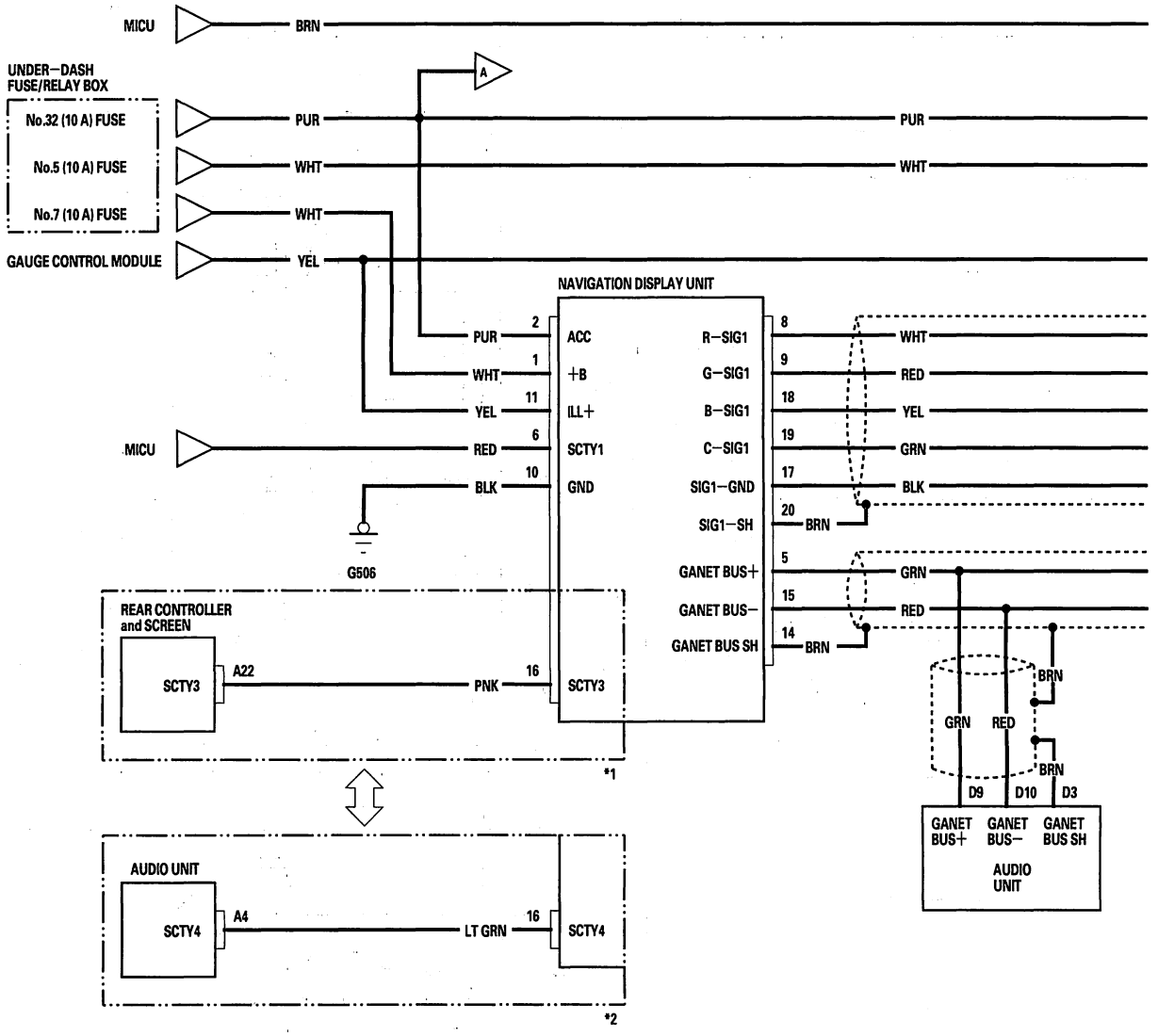
BACK

Protected by AR

Navigation System

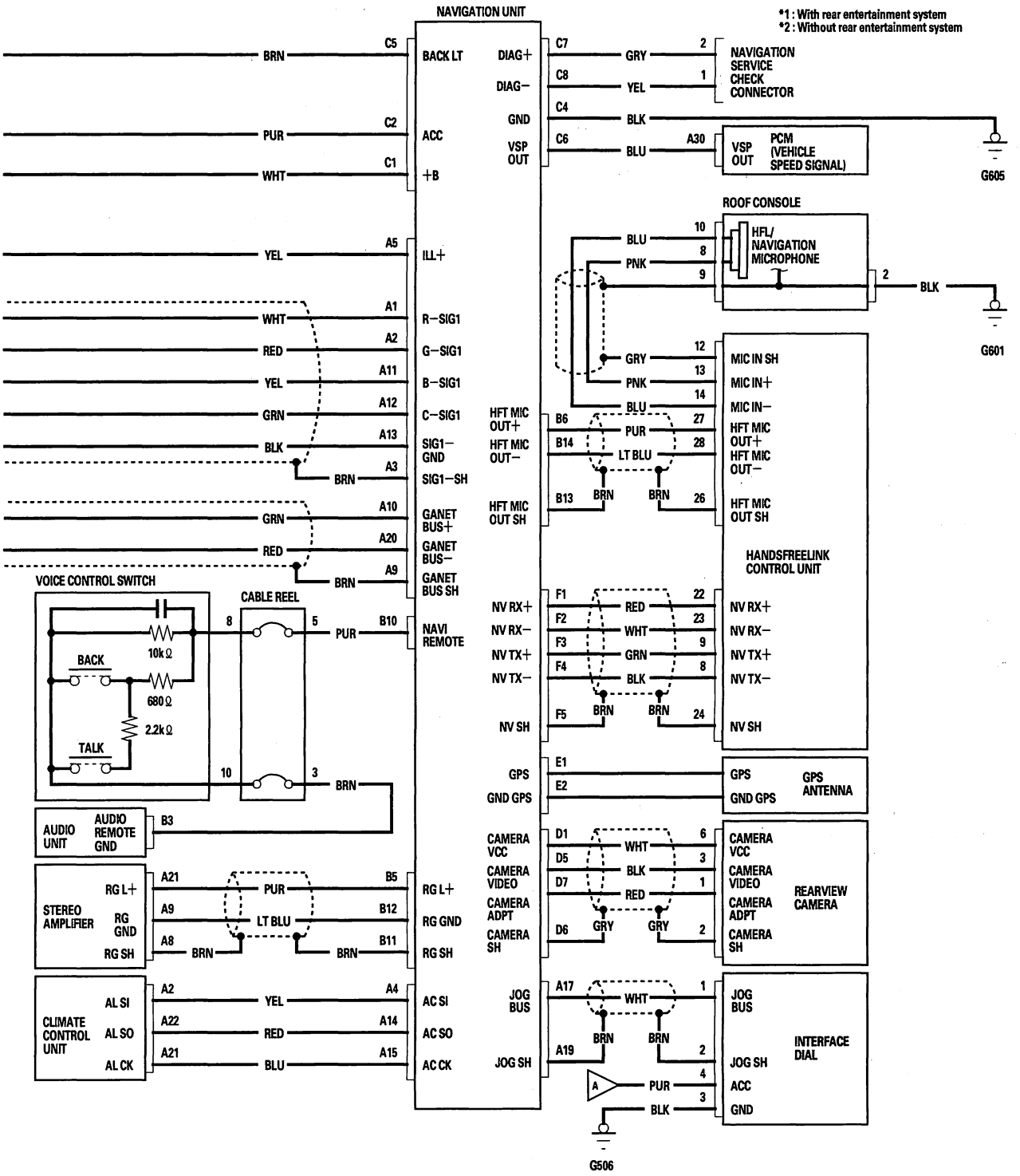
Circuit Diagram (cont'd)

Without AcuraLink



BACK

Protected by AR



BACK

Protected by AR

Symptom Troubleshooting

No picture is displayed

Diagnostic Test: Navi System Link

NOTE:
- Check the navigation volume level (see owner's manual for more information).
- Always check the connectors for poor connections or loose terminals.
- Before troubleshooting, make sure you have the navigation system anti-theft code.
- Confirm the correct DVD color and version disc is installed in the navigation unit (see page 23-172).

1. Check the No. 5 (10 A), No. 7 (10 A) fuse and No. 32 (10 A) fuse in the under-dash fuse relay box, and reinstall the fuses if they are OK.

   Are the fuses OK?

   YES—Go to step 2.

   NO—Replace the fuse and recheck.■

2. Turn the ignition switch to ACC (I).

3. Operate the radio and listen to the audio.

   Can you hear the audio?

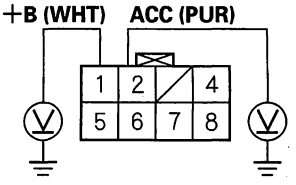
   YES—Go to step 4.

   NO—Check the ACC circuit.■

4. Turn the ignition switch ON (II).

5. Measure the voltage between body ground and navigation unit connector C (8P) terminals No. 1 and No. 2 individually.

NAVIGATION UNIT CONNECTOR C (8P)



Wire side of female terminals

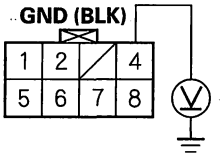
Is there battery voltage?

YES—Go to step 6.

NO—If the +B wire does not have voltage, repair open in the wire between the under-dash fuse relay box and the navigation unit. If the ACC wire does not have voltage, repair open in the wire between the under-dash fuse/relay box and the navigation unit.■

6. Measure the voltage between navigation unit connector C (8P) terminal No. 4 and body ground.

NAVIGATION UNIT CONNECTOR C (8P)



Wire side of female terminals

Is there less than 0.5 V?

YES—Go to step 7.

NO—Repair open in the wire between the navigation unit and body ground (G605) (see page 22-38).■

BACK

Protected by AR

7. Perform the forced starting of the display (see page 23-179).

   Is the diagnosis menu of the picture diagnosis displayed?

   YES—Go into the Diagnostic mode and use the "Navi System Link" diagnostic (see page 23-159) to check the links.■

   NO—Go to step 8.

8. Shield the display unit from the sun with your hand, and check that the display is back lit (only back light is ON.)

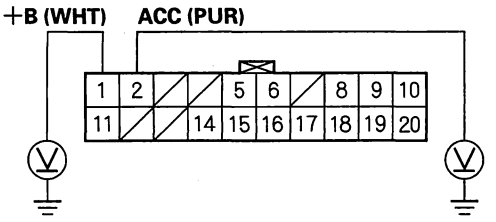
   Can you see the back light?

   YES—Replace the navigation unit (see page 23-180) and retest. If the problem is still present, replace the navigation display unit (see page 23-181).■

   NO—Go to step 9.

9. Measure the voltage between body ground and navigation display unit 20P connector terminal No. 1 and No. 2 individually.

NAVIGATION DISPLAY UNIT 20P CONNECTOR



Wire side of female terminals

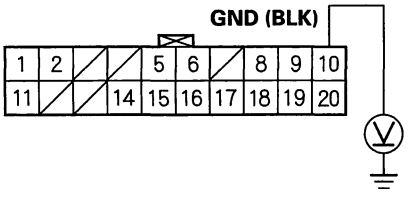
Is there battery voltage?

YES—Go to step 10.

NO—If the +B wire does not have voltage, repair open in the wire between the under-dash fuse relay box and the navigation display unit 20P connector. If the ACC wire does not have voltage, repair open in the wire between the under-dash fuse/relay box and the navigation display unit 20P connector.■

10. Measure the voltage between the navigation display 20P connector terminal No. 10 and body ground.

NAVIGATION DISPLAY UNIT 20P CONNECTOR



Wire side of female terminals

Is there less than 0.5 V?

YES—Replace the navigation display unit.■

NO—Repair open or poor connections between the navigation display and body ground (G506) (see page 22-32).■

Protected by AR

Symptom Troubleshooting (cont'd)

Vehicle position icon constantly leaves road, moves erratically, or is very far from actual position

NOTE:
- Check for aftermarket accessories that could interfere with the GPS signal.
- Check that the GPS antenna is plugged in.

1. Check the GPS icon on the navigation picture.

   Is the GPS icon white?

   YES—Do the troubleshooting for GPS icon is white or not shown (see page 23-141). ■

   NO—Go to step 2.

2. Go into the Diagnostic Menu, and use the "Yaw Rate" test (see page 23-167) to check the yaw rate sensor.

3. Go into the Diagnostic Menu, and use the "Car Status" test (see page 23-165) to check the vehicle speed pulse.

   Are the yaw rate sensor and vehicle speed pulse OK?

   YES—The problem may be normal. Check to see if the problem occurs in the same place. If it does, the problem could be in the database. Go to step 4.

   NO—If the problem is the yaw rate sensor, replace the navigation unit (see page 23-180). If the problem is the vehicle speed pulse, check for an open in the wire between the navigation unit and the PCM. If the wire is OK, troubleshoot the vehicle speed signal circuit. ■

4. Substitute a known-good navigation unit, and check to see if the problem occurs in the same place.

   Does the problem occur in the same place?

   YES—The problem is in the database. Report the problem according to the Navigation System Manual under "Reporting Errors." ■

   NO—Replace the original navigation unit (see page 23-180). ■

BACK

Protected by AR

Picture is missing a color or tone or is an odd color

NOTE:
- Confirm the correct DVD color and version disc is installed in the navigation unit (see page 23-179).
- Always check the connectors for poor connections or loose terminals.
- Before troubleshooting, get the navigation system anti-theft codes.
- After troubleshooting, enter the navigation system anti-theft codes.
- Check for aftermarket accessories that may interfere with the navigation system.

1. Go into the Diagnostic Menu, and use "RGB Color" test under Monitor Check (see page 23-160).

   Are the red, green, and blue colored circles shown?

   YES—The system is OK at this time.■

   NO—Go to step 2.

2. Turn the ignition switch to OFF.

3. Disconnect navigation unit connector A (20P) and the navigation display unit 20P connector.

4. Check for loose terminals at navigation unit connector A (20P) and the navigation display unit 20P connector.

   Are there loose terminals?

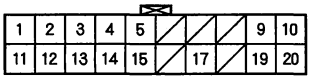
   YES—Repair the terminal.■

   NO—Go to step 5.

5. Check for continuity between the appropriate terminals of navigation unit connector A (20P) and the navigation display unit 20P connector based on the missing color(s).

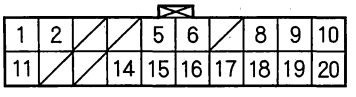
Missing color	Navigation unit connector A (20P)	Navigation display unit 20P connector	Wire color
Blue	A11	18	YEL
Green	A2	9	RED
Red	A1	8	WHT

NAVIGATION UNIT CONNECTOR A (20P)



Wire side of female terminals

NAVIGATION DISPLAY UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 6.

NO—There is an open in the circuit between the navigation display unit and the navigation unit. Check for poor connections or loose terminals at the navigation display unit and navigation units. If a poor connection or loose terminal is found, replace the affected shielded harness.■

(cont'd)

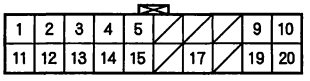
Protected by AR

Symptom Troubleshooting (cont'd)

6. Check for continuity between the appropriate terminals of navigation unit connector A (20P) and the navigation display unit 20P connector based on the missing color(s).

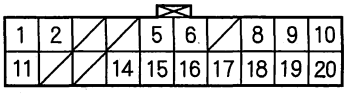
Missing color	Navigation unit connector A (12P)	Navigation display unit 20P connector
Blue	A11	10, 20
Green	A2	10, 20
Red	A1	10, 20

NAVIGATION UNIT CONNECTOR A (20P)



Wire side of female terminals

NAVIGATION DISPLAY UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—There is a short to body ground in the circuit between the navigation display unit and the navigation unit. Replace the affected shielded harness. ■

NO—Replace the navigation unit. If the problem is still unresolved, replace the navigation display unit. ■

Picture has lines/rolls/other issues or is an odd color

Diagnostic Test: Monitor Check

NOTE:
- Always compare the screen image to a known-good vehicle. If the screen looks the same, inform the client that it is characteristic of the system.
- Always check the connectors for poor connections or loose terminals.
- Before troubleshooting, make sure you have anti-theft codes for the audio system and navigation system.

1. Check for electronic aftermarket accessories (possibly hidden) mounted near the navigation display unit or the navigation unit.

   Are there any electronic accessories?

   YES—Disable the accessories, and recheck. ■

   NO—Go to step 2.

2. Start up the navigation picture.

   Is the picture scrolling horizontally (left to right or right to left)?

   YES—Check for an open or short to ground in the C SIG wire from navigation unit connector A (20P) terminal No. 12 to navigation display unit 20P connector terminal No. 19. Also check for a short to ground between navigation display unit 20P connector terminal No. 19 and terminal No. 20. ■

   NO—Go to step 3.

3. Go into the Diagnostic mode, and use "RGB Color" diagnostic under Monitor Check (see page 23-160).

   Is the picture missing a red, green or blue color?

   YES—Do troubleshooting for the picture is missing a color or tone or is an odd color (see page 23-137). ■

   NO—Go to step 4.

BACK

Protected by AR

4. Turn the ignition switch OFF.

5. Substitute a known-good navigation display unit (see page 23-180), and recheck.

   Is the picture OK?

   YES—Check for loose connections, then replace the original navigation display unit (see page 23-181). ■

   NO—Check for loose connections and recheck. If a poor connection or loose terminal is found, replace the shielded harness. If no poor or loose terminals are found, substitute a known-good navigation unit (see page 23-180) and recheck. If the problem is gone, replace the original navigation unit (see page 23-180). ■

Interface dial buttons do not work

NOTE:
- Confirm the correct DVD color and version disc is installed in the navigation unit (see page 23-179).
- Always check the connectors for poor connections or loose terminals.
- Before troubleshooting, get the navigation system anti-theft codes.
- After troubleshooting, enter the anti-theft codes for the audio system and navigation system.

1. Turn the ignition switch to ACC (I).

2. Go into the Diagnostic mode, and use "Hard Key" test under Unit Check (see page 23-161).

   Do the buttons work properly?

   YES—The system is OK at this time. ■

   NO—Go to step 3.

3. Try all the buttons on the navigation system.

   Is there a specific row or columns of buttons, set of buttons, or a certain button that does not respond properly (i.e. pressing a button in the lower left corner causes a button in the right lower corner to respond.)?

   YES—Replace the interface dial (see page 23-181). ■

   NO—Go to step 4.

(cont'd)

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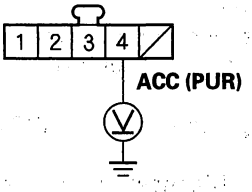
Symptom Troubleshooting (cont'd)

4. Turn the ignition switch ON (II).

5. Measure the voltage between the interface dial 5P connector terminal No. 4 and body ground.

INTERFACE DIAL 5P CONNECTOR



Wire side of female terminals

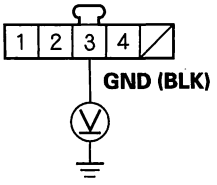
Is there battery voltage?

YES—Go to step 6.

NO—Repair open in the wire between the under-dash fuse/relay box and the interface dial. ■

6. Measure the voltage between interface dial 5P connector terminal No. 3 and body ground.

INTERFACE DIAL 5P CONNECTOR



Wire side of female terminals

Is there less than 0.5 V?

YES—Go to step 7.

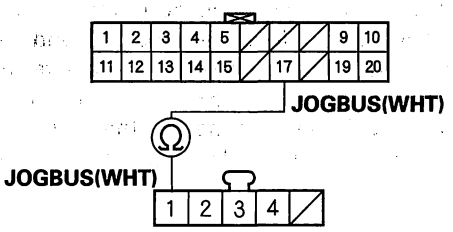
NO—Repair open in the wire between the interface dial and body ground (G506) (see page 22-32). ■

7. Turn the ignition switch OFF.

8. Disconnect the interface dial 5P connector and the navigation unit connector A (20P).

9. Check for continuity between navigation unit connector A (20P) terminal No. 17 and interface dial 5P connector terminal No. 1.

NAVIGATION UNIT CONNECTOR A (20P)
Wire side of female terminals



INTERFACE DIAL 5P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for an open in the wire between the navigation unit connector A (20P) terminal No. 19 and the interface dial 5P connector terminal No. 2. If the wire is OK, go to step 10. If the wire is open, repair the wire. ■

NO—There is an open in the circuit between the interface dial and the navigation unit. Check for poor connections or loose terminals at the interface dial and navigation unit. If a poor connection or loose terminals is found, replace the affected shielded harness. ■

10. Substitute a known-good interface dial (see page 23-181), and recheck.

Is the system OK?

YES—Replace the original interface dial (see page 23-181). ■

NO—Replace the navigation unit (see page 23-180). ■

BACK

Protected by AR

GPS icon is white or not shown

Diagnostic Test: Navi System Link

NOTE:
- With proper reception, the icon normally appears green.
- Make sure the GPS antenna is plugged in.
- Check for any aftermarket accessories that may be interfering with the GPS signal.
- Make sure the vehicle is parked outside and away from buildings.
- Refer to GPS Information (see page 23-166) for real-time satellite reception display.

1. Check for metallic window tint on the windshield and electronic aftermarket accessories (possibly hidden) mounted near the GPS antenna or the navigation unit.

   Is there metallic window tint or electronic accessories?

   YES—Remove tint or the accessories and recheck.■

   NO—Go to step 2.

2. Go into the Diagnostic mode, and use the "Navi System Link" diagnostic (see page 23-159) to check the GPS antenna.

   Is the ''GPS Ant'' icon red?

   YES—Check for a kinked, crushed, or disconnected GPS antenna wire. If icon is still red, replace the GPS antenna.■

   NO—Check that nothing is blocking the GPS antenna located under the rear shelf and recheck. Substitute a known-good GPS antenna, and recheck.■

   - If the symptom is gone, replace the GPS antenna.
   - If the symptom is still present, substitute a known-good navigation unit and recheck. If the symptom is gone, replace the original navigation unit (see page 23-180).

Voice guidance cannot be heard, is broken up, or there is too much static

Diagnostic Test: Navi System Link

NOTE:
- Check the navigation volume level (see Owner's Manual).
- Always check the connectors for poor connections or loose terminals.
- Before troubleshooting, get the audio system and the navigation system anti-theft codes.
- After troubleshooting, enter the anti-theft codes for the audio system and navigation system.

1. Press the display unit SET-UP button.

2. Check the volume and voice feedback setting for the navigation system in set-up.

   Is either set to OFF?

   YES—Set the voice feedback to ON and select an audible level for the volume.■

   NO—Go to step 3.

3. Check the radio operation.

   Can you hear the radio?

   YES—Go to step 4.

   NO—Troubleshoot audio system.■

4. Go into the Diagnostic mode, and use the "Navi System Link" diagnostic (see page 23-159) to check the radio.

   Is the ''Radio'' icon red?

   YES—Troubleshoot the audio system.■

   NO—Go to step 5.

5. Turn the ignition switch OFF.

6. Disconnect navigation unit connector B (14P) and the stereo amplifier connector A (28P).

(cont'd)

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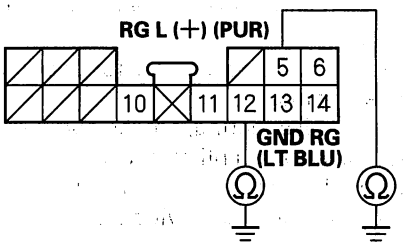
Symptom Troubleshooting (cont'd)

7. Check for continuity between body ground and navigation unit connector B (14P) terminals No. 5 and No. 12 individually.

NAVIGATION UNIT CONNECTOR B (14P)



Wire side of female terminals

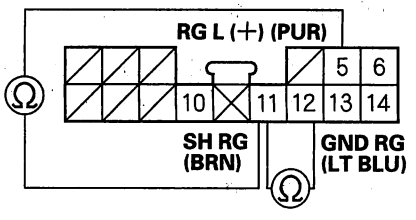
Is there continuity?

YES—Repair short to body ground in the wire between the navigation unit and stereo amplifier units. Replace the affected shielded harness.■

NO—Go to step 8.

8. Check for continuity between navigation unit connector B (14P) terminal No. 11 and terminals No. 5 and No. 12 individually.

NAVIGATION UNIT CONNECTOR B (14P)



Wire side of female terminals

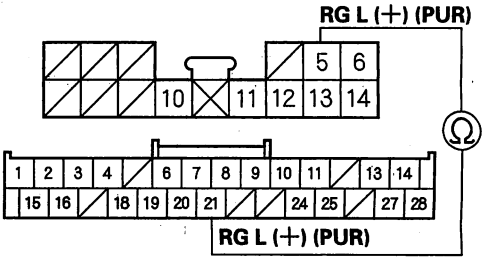
Is there continuity?

YES—Repair short to body ground in the wire between the navigation unit and stereo amplifier units. Replace the affected shielded harness.■

NO—Go to step 9.

9. Check for continuity between navigation unit connector B (14P) terminal No. 5 and the stereo amplifier unit connector A (28P) terminal No. 21.

NAVIGATION UNIT CONNECTOR B (14P)
Wire side of female terminals



STEREO AMPLIFIER UNIT CONNECTOR A (28P)
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

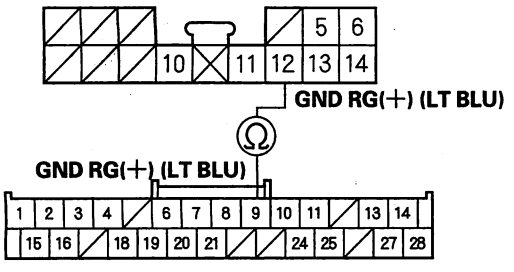
NO—There is an open in the circuit between the navigation unit and stereo amplifier. Check for poor connections or loose terminals at the stereo amplifier and navigation unit. If a poor connection or loose terminal is found, replace the affected shielded harness.■

BACK

Protected by AR

10. Check for continuity between navigation unit connector B (14P) terminal No. 12 and the stereo amplifier unit connector A (28P) terminal No. 9.

NAVIGATION UNIT CONNECTOR B (14P)
Wire side of female terminals



STEREO AMPLIFIER UNIT CONNECTOR A (28P)
Wire side of female terminals

Is there continuity?

YES—Go to step 11.

NO—There is an open in the circuit between the navigation unit and the stereo amplifier. Check for poor connections or loose terminals at the stereo amplifier and navigation unit. If a poor connection or loose terminal is found, replace the affected shielded harness.■

11. Substitute a known-good stereo amplifier, and recheck.

Is the system OK?

YES—Replace the stereo amplifier.■

NO—Replace the navigation unit (see page 23-180).■

Voice control does not work/respond

Diagnostic Test: Mic Level

NOTE:
- Before assuming that a voice complaint is hardware related, ensure that the voice control system is being operated correctly.
  - Make sure you are on the correct screen when trying to issue a voice command. For instance, the command "Find the nearest Italian Restaurant" only works on Map screen. (See the Navigation System manual for a complete list of allowed voice commands for the information being displayed).
  - Close the windows and moonroof.
  - Set the fan speed to low (1 or 2).
  - Adjust the air flow from the air conditioning vents so that they do not blow against the microphone on the ceiling. Pay particular attention to the passenger's side air vent adjustment. The microphone will pick up noise if the passenger's side vent is pointed directly at it, potentially rendering the Navi and HFL Voice Recognition inoperative.
  - Pause after pressing the TALK button then give a voice command clearly in a natural speaking voice. If the system cannot recognize your command, speak louder.
  - If the microphone picks up voices other than yours, the system may not interpret your voice commands correctly.
  - If you speak a command with something in your mouth, or your voice is too husky, the system may misunderstand your command.
- Always check the connectors for poor connections or loose terminals.
- Check for a loose roof console microphone; if it's loose, tighten it.
- Before troubleshooting, get the audio and navigation system anti-theft codes.
- After troubleshooting, enter the anti-theft codes for the audio system and navigation system.

(cont'd)

Protected by AR

Symptom Troubleshooting (cont'd)

1. Go into the Diagnostic Menu, and use the "Mic Level" test the under Functional Setup (see page 23-169) to check the operation of the TALK and BACK buttons.

   Are the TALK and BACK buttons operational?

   YES—Go to step 2.

   NO—Check for an open or short to ground on navigation unit connector B (14P) terminal No. 10. ■

2. Use the "Mic Level" diagnostic under Functional Setup (see page 23-169) to check the operation of the microphone.

   Is the microphone operational?

   YES—Check the operation of the voice control system (see the Navigation System Manual). ■

   NO—Check for a loose front map light (microphone) assembly. If OK, check for an open or short to ground on navigation unit connector B (14P) terminals No. 6 and No. 14. ■

DVD screen error messages

Diagnostic Test: Car Status

NOTE:
- Confirm the correct DVD color and version disc is installed in the navigation unit (see page 23-179).
- Refer to General Troubleshooting for a list of common DVD screen error messages and the probable causes (see page 23-177).
- Go into the Diagnostic mode and use the "Car Status" diagnostic (see page 23-165) to check the status of the DVD lid.
- Inspect the navigation DVD for scratches or damage.
- The following troubleshooting is for the error messages shown on the error message table (see page 23-177).

1. Check the DVD-ROM reading surface for scratches and finger prints.

   Are there any scratches or finger prints on the DVD-ROM reading surface?

   YES—Clean or replace the DVD-ROM (see page 23-179). ■

   NO—If the problem occurs occasionally when the system is cold, this is normal. If the problem occurs frequently when driving, replace the navigation unit (see page 23-180). ■

BACK

Protected by AR

Navigation cannot control A/C by voice

NOTE:
- Always check and repair all CAN DTCs before troubleshooting the navigation system.
- Always check the connectors for poor connections or loose terminals.
- Before troubleshooting, make sure you have the navigation system anti-theft codes.
- After troubleshooting, enter the anti-theft codes for the audio system and navigation system.
- Verify that the correct navigation unit is installed for this model. Go into the Diagnostic mode and use "Version" (see page 23-172).

1. Go into the Diagnostic Mode, and use the "Navi System Link" check (see page 23-159).

   Is the ''Air-con'' icon red?

   YES—Do the climate control system troubleshooting.■

   NO—Check for an open or short to ground between navigation unit connector A (20P) terminals No. 4, No. 14, and No. 15, and climate control unit connector A (40P) terminals No. 2, No. 21, and No. 22. If OK, check the climate control system for normal operation. If the climate control system works properly, substitute a known-good navigation unit and recheck.■

Display day/night mode does not work

NOTE:
- Check that the dash brightness setting is not set to high.
- Always check the connectors for poor connections or loose terminals.
- Before troubleshooting, get the navigation system anti-theft codes.
- After troubleshooting, enter the anti-theft codes for the audio system and navigation system.

1. Turn the headlights on, and adjust the dash brightness to the middle range.

   Does the display change to day and night modes when turning the headlights on and off?

   YES—The system is OK at this time.■

   NO—Go to step 2.

2. Go into the Diagnostic Mode, and use the "Car Status" diagnostic to check for an ILL signal (see page 23-165).

   Is the ''ILL'' signal OK?

   YES—The system is OK.■

   NO—Check the ILL+ circuit for an open or short to ground between the navigation unit and gauge control module. If OK, substitute a known-good navigation unit and recheck.■

Protected by AR

Symptom Troubleshooting (cont'd)

System locks up or freezes constantly

NOTE: Check the GPS and VSP signals in the GPS information check (see page 23-166) and car status (see page 23-165).

1. Start the engine, turn the ignition switch OFF, then turn the ignition switch ON (II).

   Does the system reboot?

   YES—The system is OK at this time.■

   NO—Check the DVD for the correct color, software version, scratches or damage and the navigation unit for water damage. If OK, go into the Diagnostic mode and do all of the "Unit Check" diagnostics (see page 23-161).■

Vehicle icon wanders across the map when driving (does not follow a displayed road) or map vehicle ICON spins

NOTE:
- This is not the same condition as when driving off-road (or on a fire or logging road).
- This condition is caused by a loss of map matching from a bad sensor input. Check for aftermarket or other objects that can block the GPS signal. Always perform Map matching (see page 23-103) before proceeding with the troubleshooting.

1. Go into the Diagnostic mode, and do the Navi System Link diagnostic (see page 23-159), the Navi ECU diagnostic under "Unit Check" (see page 23-161), the Car Status check (see page 23-165), the GPS Information check (see page 23-166), the GPS Detail check (see page 23-166), and the Yaw Rate check (see page 23-167).

   Are all the tests OK?

   YES—The system is OK at this time.■

   NO—Repair the affected system. If the problem persists, substitute a known-good navigation unit, and monitor the condition.■

BACK

Protected by AR

Navigation system will not accept security code

NOTE:
- The system will not operate without the 4-digit security (anti-theft) code. Follow the this procedure. (After 10 consecutive tries, you must cycle the key to continue trying)
- The "Navigation System Diagnosis and Core Return Form" is available online, under "Job aids" and can be printed out for recording this information. This information will help the Reman facility determine what caused the failure.

1. Go into the "System diagnosis menu" (see page 23-158), select "Unit check," and then "Navi ECU." A brief diagnostic will run for 20 seconds, and the serial number is then displayed.

   Is the serial number displayed?

   YES—Go to step 2.

   NO—Replace the navigation unit (see page 23-180). ■

2. Obtain the Serial Number (3 letters followed by 8 numbers) from the label on the underside of the navigation unit (not the display unit). Using the Serial Number, look up the navigation security code in the Interactive Network. (click: Service, Vehicle Information, Anti-Theft code Inquiry, and then select "Navigation" from the "product" dropdown box). Enter the serial number.

   Is a 4-digit code displayed?

   YES—Go to step 3.

   NO—Call the Warranty Department, the telephone number is listed in the PDI/TQI bulletin, to obtain the code. Then go to step 4.

3. Check the obtained code work to bypass the code screen.

   Does the code work?

   YES—The system is OK at this time. ■

   NO—Go to step 4.

4. Try entering four zeros (0000) in place for the code.

   Do the four zeros work to bypass the code screen?

   YES—Replace the control unit, and enter in the "problem description field" of the core return form: "Security code is 0000." ■

   NO—Replace the control unit, and enter in the "problem description field" of the core return form: "Won't take security code" (as proof, enclose the sticker that contains the Serial number and the Code). ■

Protected by AR

Symptom Troubleshooting (cont'd)

Navigation stays on with ignition switch off

NOTE:
- Check for aftermarket accessories that may interfere with the navigation system.
- Always check the connectors for poor connections or loose terminals.
- Before troubleshooting, get the navigation system anti-theft codes.
- After troubleshooting, re-enter the anti-theft code, and re-initialize the navigation system.
- The vehicle may have been used for a show event. Check for a short jumper harness in-line with the navigation unit "C" connector. If a jumper harness is present, remove it and return it to Tech Line.

1. Take the key out of the ignition switch.

   Does the navigation screen stay on?

   YES—Go to step 2.

   NO—The system is OK at this time. ■

2. Check for a short to power on navigation unit connector C (8P) terminal No. 2.

   Is there a short?

   YES—Troubleshoot the ACC circuit. ■

   NO—Replace the navigation unit (see page 23-180). ■

Navigation cannot control audio/disc/rear entertainment

Diagnostic Test: Navi System Link

1. Make sure the anti-theft code for the audio system is entered.

2. Go into the Diagnostic mode, and use the "Navi System Link" diagnostic (see page 23-159).

   Is the ''Radio'' icon red?

   YES—Do the troubleshooting for the voice guidance cannot be heard (see page 23-141). ■

   NO—Go to step 3.

3. Substitute a known-good navigation unit (see page 23-180), and recheck.

   Can the navi control audio/disc?

   YES—Replace the navigation unit (see page 23-180). ■

   NO—Do the audio system troubleshooting. ■

BACK

Protected by AR

Rearview camera does not come on or work properly

1. Turn the ignition switch ON (II), and start the engine.

   Does the Navigation screen come on and show an image when the vehicle is started?

   YES—Go to step 2.

   NO—Go to troubleshooting for "No picture is displayed" (see page 23-134).■

2. Go into the diagnostic menu and use the "Navi System Link" test (see page 23-159) to check the connection between the navigation unit and the rearview camera.

   Is the "R-camera" link on the screen?

   YES—Go to step 3.

   NO—Go to step 12.

3. Confirm the system connection.

   Is the "R-camera" link red on the screen?

   YES—Go to step 4.

   NO—Go to "Car Status" and check the BACK-Reverse indication status (see page 23-165).■

4. Check the connections between navigation unit connector D (7P) and the rearview camera connector (6P).

   Are the connections OK?

   YES—Go to step 5.

   NO—Reconnect the connectors.■

5. Disconnect navigation unit connector D (7P) and rearview camera connector (6P).

6. Check for continuity between the navigation unit connector D (7P) and the rearview camera connector (6P) according to the table.

Navigation unit connector	Rearview camera	Wire color
D1	6	WHT
D5	3	BLK
D7	1	RED
D6	2	GRY

   Is there continuity?

   YES—Go to step 7.

   NO—Repair open in the wire between navigation unit connector D (7P) and rearview camera connector (6P).■

7. Check for continuity between navigation unit connector D (7P) and body ground according to the table. Then check for continuity between the navigation unit connector D (7P) terminal No. 6, rearview camera 6P connector terminal No. 2 and same terminals.

Navigation unit connector	Wire color
D1	WHT
D5	BLK
D7	RED

   Is there continuity?

   YES—Repair short in the wire between navigation unit and the rearview camera, or replace the appropriate shielded harness.■

   NO—Go to step 8.

(cont'd)

Protected by AR

Symptom Troubleshooting (cont'd)

8. Turn the ignition switch ON (II), and measure the voltage between navigation unit connector D (7P) and body ground according to the table.

Navigation unit connector	Wire color
D1	WHT
D5	BLK
D7	RED
D6	GRY

Is there more than 0.5 V?

YES—Repair short to power in the wire between navigation unit and the rearview camera, or replace the appropriate shielded harness. ■

NO—Go to step 9.

9. Turn the ignition switch OFF.

10. Reconnect the rearview camera connector (6P).

11. Substitute and connect a known-good navigation unit and check the rearview camera image in reverse.

Is the rear view image OK?

YES—Replace the original navigation unit. ■

NO—Replace the rearview camera. ■

12. Press the "Return" in the upper light corner of the screen to return the main menu, then go to "Version" (see page 23-172).

13. Check the model code that is displayed.

Is the correct navigation unit model code displayed for this vehicle?

YES—Go to step 14.

NO—The wrong navigation unit is installed. Replace the navigation unit with the correct part. ■

14. Remove the DVD disc from the navigation unit and check the label color of the DVD disc.

Is the DVD disc label white (or possibly gray for Canada)?

YES—Reinsert the DVD disc, and go to step 4.

NO—Replace the DVD disc with the correct color. See the Obtaining a Navigation DVD in the "General Troubleshooting Information" (see page 23-100). ■

BACK

Protected by AR

Navigation cannot control XM radio

Diagnostic Test: Navi System Link

1. Make sure the anti-theft code for the audio system is entered.
2. Go into the Diagnostic mode, and use the "Navi System Link" diagnostic (see page 23-159).

   Is the "XM" icon red?

   YES—Do the troubleshooting for the voice guidance cannot be heard (see page 23-141).■

   NO—Go to step 3.
3. Substitute a known-good navigation unit (see page 23-180).

   Can the navi control XM radio?

   YES—Replace the navigation unit (see page 23-180). ■

   NO—Do the audio system troubleshooting.■

Navigation frequently asks for anti-theft code and needs GPS initialization

NOTE: This is often caused by a loss of battery power or a poor ground.

1. Check for an open on navigation unit connector C (8P) terminals No. 1 and No. 2.

   Are the circuits OK?

   YES—Replace the navigation unit.■

   NO—Repair the circuits.■

Protected by AR

Symptom Troubleshooting (cont'd)

Traffic information is not being shown on map screen

If your client complains that traffic is not being displayed, it could be because a traffic setting is not correct.

NOTE:
- The client's account must be active. Call XM customer care to verify the account status before troubleshooting.
- Currently, real-time traffic (display of traffic flow and/or incidents) is available in over 30 metropolitan areas, and it is likely to grow. The current list can be found at www.acura.com/realtimetraffic. The site also contains a traffic demo and FAQs.
- Traffic flow speed is displayed as bands of red, orange, and green alongside of the freeway. Some or all freeways in a covered city may not have traffic coverage. The link above shows the freeways covered for each city.
- Incident icons (yellow or red diamonds) point put accidents, construction areas, or weather conditions.
- Not all areas have "traffic flow" and "traffic icons." It is possible that an area may have one or the other.

Even if your area does not receive real-time traffic, complete the steps below to make sure the system is set up correctly.

1. Check if your area has real-time traffic coverage. From an iN workstation, go to www acura.com.

2. Make sure the keyless access remote is linked. When you turn the ignition switch ON (II) with a linked remote, you will see WELCOME DRIVER 1 or WELCOME DRIVER 2 on the multi-informaion display (MID).

   - If you see WELCOME DRIVER 1 or WELCOME DRIVER 2 on the MID, go to step 4.
   - If you do not see WELCOME DRIVER 1 or WELCOME DRIVER 2 on the MID, go to step 3.

3. Link the remote

   - Press and hold the LOCK and UNLOCK buttons on the remote until its LED blinks once.
   - Lock and unlock the driver's door once with the remote.

   NOTE: It's important to use the same remote (Driver 1 or Driver 2) that your client's used when they noticed problems with the real-time traffic monitor. This is because each remote will recall the customized settings and the data for that driver, including real-time traffic settings. Ideally, check both remotes to make sure the real-time traffic settings are correct.

BACK

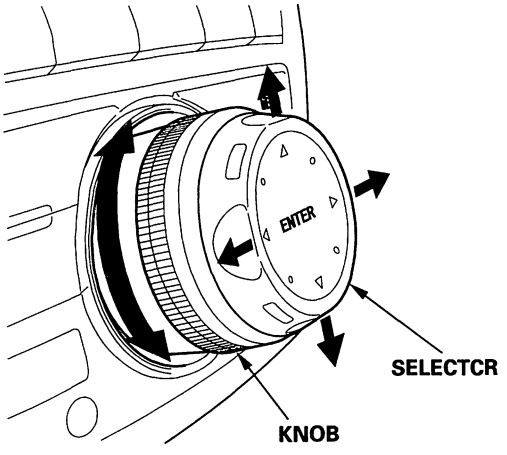
Protected by AR

4. Park the vehicle outside where you have a clear view of the southern sky. Turn on the XM radio, and make sure it receives at least channels 000, 001, 174, and 247 (XM's preview mode).

   - If the XM radio gets at least channels 000, 001, 174, and 247, go to step 5.
   - If the XM radio does not get at least channels 000, 001, 174, and 247, troubleshoot the XM radio, repair as needed then go to step 5.

5. In the lower left corner of the navi map screen make sure the scale is set to 1/2, 1, 2,or 5 miles. (The scale must be set to one of these values to see real-time traffic). To change the scale, turn the interface knob left or right as needed.

   NOTE: Many AcuraLink functions are selected using the interface dial at the center of the dashboard. The interface dial has two parts a gray knob behind a silver selector. The knob turns left and right. The selector can be pushed left, right, up, down, and in.



6. Check if the navi screen shows real-time traffic.

   - If you do not see real-time traffic, go to step 7.
   - If you see real-time traffic, or if you are not in an area that receives it, return the vehicle to your client.

7. Go into the map menu:

   - If you were using the interface selector to scroll on the map screen, press the MAP/GUIDE button.
   - Press the interface selection in.

8. In the map menu. turn the interface knob to show icon on map, then press the interface selector in. The traffic icon on the far left should be solid blue. If it is not blue, turn the interface knob until the traffic icon is outlined in blue, then press the selector in, and go to step 10.

   If the traffic icon does not change to solid blue, do the AcuraLink self-diagnostic function (see page 23-227), then go to step 9.

9. Reset the AcuraLink control unit, then repeat step 8:

   - With the ignition switch in the LOCK (0) position, pull the No. 5 (10 A) fuse from the under-dash fuse/relay box. Wait 20 seconds, then reinstall the fuse.
   - Enter the audio and navigation system anti-theft codes.

10. From the "map menu," go into icon options by pressing the interface selector to the right.

11. Turn the interface knob to traffic, then press the selector in.

12. Press the interface selector in to select traffic speeds. Turn the knob to traffic icons, and press the selector in again. Both traffic speeds and traffic icons must be solid blue. When both are solid blue, select done by pushing the selector to the right.

13. Check if the map screen shows real-time traffic.

    - If you do not see real-time traffic, go to step 14.
    - If you see real-time traffic, or if you are not in an area that receives it, return the vehicle to your client.

14. See if real-time traffic is currently being broadcast by checking real-time traffic on another real-time traffic equipped vehicle with a known-good navigation system. Wait about 5 minutes for the display screen to refresh.

    - If the other real-time traffic equipped vehicle displays real-time traffic, go to step 15.
    - If the other real-time traffic equipped vehicle does not display real-time traffic, call Acura Client Service at 800-382-2238 and ask about any known traffic system outages or blackouts in your area.

(cont'd)

Protected by AR

Symptom Troubleshooting (cont'd)

15. Reset the AcuraLink control unit

    - With the ignition switch in the LOCK (0) position, pull the No. 5 (10 A) fuse from the under-dash fuse/relay box. Wait 20 seconds, then reinstall the fuse.
    - Enter the audio and navigation system anti-theft codes.

16. Check if the map screen shows real-time traffic.

    - If you still do not see real-time traffic, go to step 17.
    - If you see real-time traffic, or if you are not in an area that receives it, return the vehicle to your client.

17. Make sure the vehicle's XM Navi Traffic account status is active.

    - Call XM at 800-852-9696.
    - From the automated menu, select 1 (dealers and retailers) and from the next menu, select 3 (technical support).
    - Ask the agent to check the XM Navi Traffic account status.
      – If the account is active and there are no known outages or blackouts, go to step 18.
      – If the account is inactive, get it activated, then ask for a rapid refresh. (A rapid refresh takes 15 to 30 minutes.)

18. Check if the map screen shows real-time traffic.

    - If you still do not see real-time traffic, go to step 19.
    - If you see real-time traffic, or if you are not in an area that receives it, return the vehicle to your client.

19. Install a known-good AcuraLink control unit, and check the real-time traffic.

    Does the map screen show real-time traffic?

    YES—Replace the AcuraLink control unit (XM receiver) and register it with XM radio and Acura client service. ■

    NO—Replace the navigation control unit (see page 23-180). ■

BACK

Protected by AR

No real-time traffic on the display screen

1. Do a VIN status inquiry, and check if the vehicle has any outstanding product updates for the AcuraLink control unit.

   - If there are no outstanding product updates, go to step 2.
   - If there are any outstanding product updates, complete them as appropriate.

2. Check if your area has Real-Time Traffic coverage. From an *i*N workstation, go to *www.acura.com/realtimetraffic*.

   NOTE: At this time, Real-Time Traffic covers many metropolitan areas. Check the website often; more coverage areas are continually being added.

3. Make sure the keyless access remote is linked. When you turn the ignition switch ON (II) with a linked remote, you should see WELCOME DRIVER 1 or WELCOME DRIVER 2 on the multi-information display (MID).

   - If you see WELCOME DRIVER 1 or WELCOME DRIVER 2 on the MID, go to step 5.
   - If you do not see WELCOME DRIVER 1 or WELCOME DRIVER 2 on the MID, go to step 4.

   NOTE: Make sure you are using the same remote (Driver 1 or Driver 2) that your client was using when problems were noticed with Real-Time Traffic. This is because each remote will recall the customized settings and data for that driver, including Real-Time Traffic settings. Ideally, check both remotes to make sure the Real-Time Traffic settings are correct.

4. Link the remote:

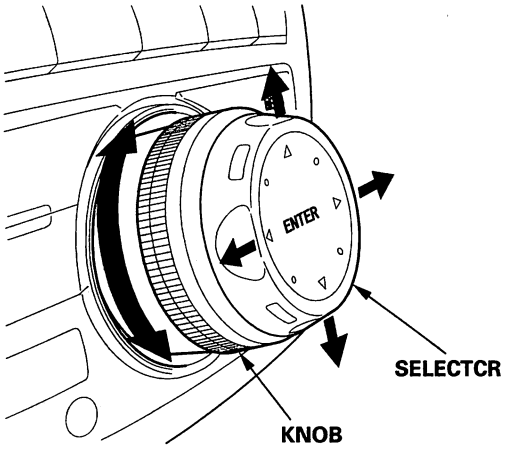
   - Press and hold the LOCK and UNLOCK buttons on the remote until its LED blinks once.
   - Lock and unlock the driver's door once with the remote.

5. Park the vehicle outside where you have a clear view of the southern sky. Turn on the XM radio, and make sure it gets at least channels 000, 001, 174, 247 (XM's preview mode).

   - If the XM radio gets at least channels 000, 001, 174, 247 go to step 6.
   - If the XM radio does not get at least channels 000, 001, 174, 247 troubleshoot the XM radio, repair as needed, then go to step 6.

6. In the lower left corner of the display screen, make sure the scale is set to 1/2, 1, 2,or 5 miles. (If the scale is not set to one of these values, you cannot see Real-Time Traffic.) To change the scale, turn the knob on the interface dial to the left or the right, as needed.

   NOTE: Many AcuraLink functions are selected using the interface dial at the center of the dashboard. The interface dial consists of a gray knob with a silver selector over it. The knob turns left and right; the selector moves right, left, up, down, and in.



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BACK

Protected by AR

Symptom Troubleshooting (cont'd)

7. Check if the display screen shows Real-Time Traffic.

   - If you do not see Real-Time Traffic, go to step 8.
   - If you see Real-Time Traffic, return the vehicle to your client.

8. Select the map menu, and press in the selector.

   NOTE: If you were using the selector to manually scroll the map, the map menu is not available. Press the MAP/GUIDE button instead.

9. Turn the knob to select Show Icon on Map, then press in the selector.

10. From the icon selection bar at the bottom of the display screen, select the Traffic icon. The icon should turn solid blue when you select it.

    - If the icon turns solid blue, go to step 13.
    - If the icon does not turn solid blue, go to step 11.

11. Turn the knob until the Traffic icon is outlined in blue, then press in the selector.

    - If the icon turns solid blue, go to step 13.
    - If the icon does not turn solid blue, do the AcuraLink self-diagnostic procedure (see page 23-227), then go to step 12.

12. Reset the AcuraLink control unit;

    - Make sure you have the anti-theft codes for the audio system and navigation system.
    - With the ignition switch turned to LOCK (0), pull the No. 5 (7.5 A) fuse from the driver's under-dash fuse/relay box. Wait 20 seconds, then reinstall the fuse.
    - Enter the anti-theft codes for the audio system and navigation system.

13. Select Icon Options by pushing the selector to the right.

14. From the Select category for icon settings: screen, turn the knob to Traffic, then press in the selector.

15. From the Select traffic info: screen, press in the selector to select Traffic Speeds. Turn the knob to Traffic Icons, and press in the selector again. Both Traffic Speeds and Traffic Icons must be solid blue. When both are solid blue, select DONE by pushing the selector to the right.

16. Check if the display screen shows Real-Time Traffic.

    - If you do not see Real-Time Traffic, go to step 17.
    - If you see Real-Time Traffic, return the vehicle to your client.

17. Check the display screen on another RL with a known-good navigation system, to make sure the XM NavTraffic signal is currently being broadcast. Wait about 5 minutes for the display screen to refresh.

    - If you see Real-Time Traffic on the other MDXs display screen, go to step 18.
    - If you do not see Real-Time Traffic on the other MDX display screen, call Acura Client Services at 800-382-2238, and ask about any known traffic system outages or blackouts in your area.

BACK

Protected by AR

18. Make sure your client's XM NavTraffic account status is active. This account must be active to get Real-Time Traffic:

    - Call XM at 800-852-9696.
    - From the automated menu, select 1 (dealers and retailers), and from the next menu, select 3 (technical support).
    - Ask the agent to check the XM NavTraffic account status:
      – If the account is active and there are no known outages or blackouts, go to step 20.
      – If the account is inactive, get it activated, and ask for a rapid refresh. (A rapid refresh takes about 15 to 30 minutes.). Then go to step 19.

19. Check if the display screen shows Real-Time Traffic.

    - If you still do not see Real-Time Traffic, go to step 20.
    - If you see Real-Time Traffic, return the vehicle to your client.

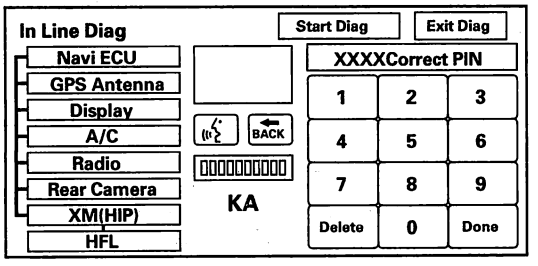
20. Substitute the AcuraLink control unit with a known-good unit, and check if the display screen shows Real-Time Traffic.

    - If you still do not see Real-Time Traffic, replace the navigation unit. ■
    - If you see Real-Time Traffic, replace the control unit. ■

System always comes up in in-line diagnostic mode

NOTE: If the vehicle left the factory in the factory diagnostic mode, you will see this screen every time you turn on the ignition.

When a navigation control unit is powered up for the first time at the factory or after replacement with a new or remanufactured navigation unit, the "factory diagnosis" screen (In Line Diag) shows up. Normally the factory performs the steps necessary to verify proper operation and terminate the "factory diagnostic ".
Until the proper confirmation sequence is performed, the screen will show up every time the vehicle is started.



Follow the steps below to prevent the screen from showing up in the future:

- Press and hold the buttons (Menu + Map/Guide + Cancel) for about 5 seconds (the "Select Diagnosis items" screen will appear).
- Press and hold the Map/Guide button for 5—10 seconds (A screen with a "Complete" button, will appear).
- Select "Complete", then "Return", and then turn the key off for 5 seconds. Do not disconnect the battery during this period as the unit is saving the setting to the SRAM memory. The InLine Diag should not appear again.
- Restart the vehicle, and confirm normal operation by completing the "TQI of the Navigation System" Service Bulletin.

(cont'd)

Protected by AR

System Diagnostic Mode (cont'd)

Start-up procedure and Diagnostic Menu

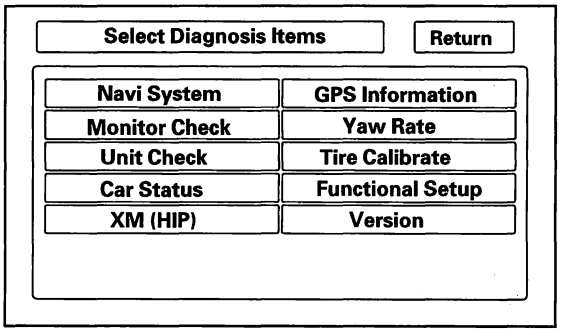
There are two ways to enter the diagnostic mode:

1. Connect the SCS connector (see page 23-179) to the navigation service connector located in the trunk. Then turn the ignition switch to the ON (II). The display will go directly to the diagnostic menu screen shown below.

   NOTE: When finished troubleshooting, make sure to remove the SCS connector.

2. Turn the ignition switch ON (II). Use the navigation display hard buttons as described below:

   Make sure the battery is connected then press and hold the three buttons (Menu, Map/Guide, and Cancel), and keep them pressed for approximately 5 seconds. The display screen will go directly to the "Select Diagnosis Items" menu shown below.



3. After the display changes to the Select Diagnosis Items menu, select the item you want to check and the diagnostic will start. To return to the previous screen, select "Return".

   - Navi System (Link)
   - Monitor Check
   - Unit Check
   - Car Status
   - XM (HIP)
   - GPS Information
   - Yaw Rate
   - Tire Calibrate
   - Functional Setup
   - Version

BACK

Protected by AR

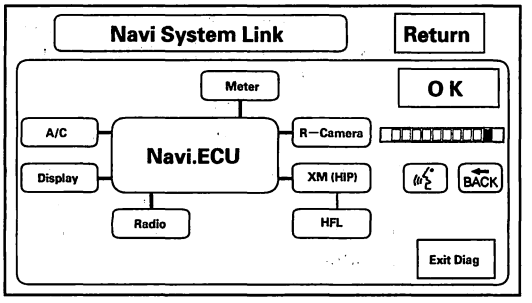
Navi System Link

- This diagnostic tests the cables connecting the navigation components. Ensure that the ignition switch is in the ON (II) position. When the diagnostic begins, you hear a "bong" sound. The system is in a "Detecting" mode, and is waiting for all items in white to be tested. This includes the navigation voice control (TALK/BACK) buttons, and microphone. Press the navigation TALK button on the steering wheel, and in a normal voice, say "testing." The TALK indicator on the screen should turn green, and the voice level indicator should move to at least the 6th bar to pass. Next, press the navigation BACK button. The "Back" indicator should turn green.
- If all of the communication lines connecting the system components, and the navigation TALK/BACK buttons/microphone check out OK (all block diagram items green), then the "OK" indicator turns green.
- If there is a problem with the system, the faulty system component item turns red, and the screen will show "NG" in red. Use the troubleshooting index, and other diagnostic screens to help locate the problem.
- The indication on the screen may not change until you cycle the ignition switch. After repairing the affected cable or system, repeat this diagnostic.

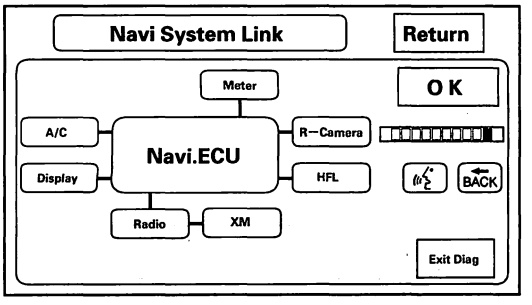
NOTE:
- Green boxes and green "OK" indicate that the communications lines (cables) are intact. This diagnostic does not necessarily imply that the individual components are functioning properly. For instance, the GPS antenna wire may be crushed, but still show as "green." A road test, or other diagnostic may be necessary to find the problem.
- A green box and link to the AcuraLink control unit (XM receiver) does not mean that the unit is receiving traffic information. Always verify that the client's account status is active, and compare to a known-good vehicle to ensure that there isn't local coverage problem.

- Select "Return" to return to the Diagnosis Menu.

USA model



Canada model



NOTE:
- The mic level indicator must reach the 6th bar or greater to pass the test.
- If the XM link is red or flashing red, go to audio system symptom troubleshooting (see page 23-32), or see XM (HIP) diagnostic screen.

(cont'd)

Protected by AR

System Diagnostic Mode (cont'd)

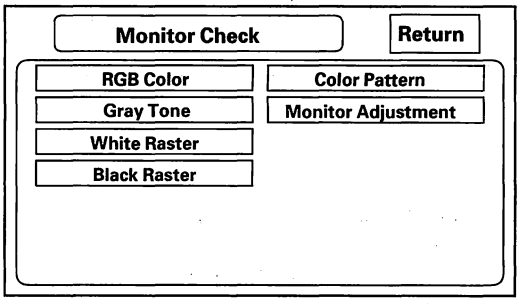
Monitor Check

Overview of display unit

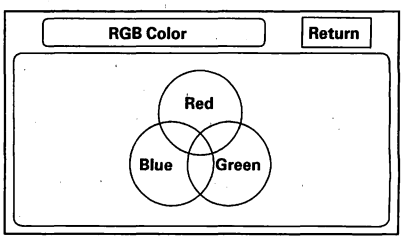
- The display unit communicates with the navigation unit over its own GA-Net bus. Information sent by the navigation unit to the display unit includes commands to control the LCD back light.
- The security system protects the navigation display unit by daisy-chaining the security signal through it, and then passing the signal to the audio unit.
- The illumination input from the gauge brightness control provides back lighting for the buttons surrounding the screen.

These screens allow you to troubleshoot the display unit. Select the item you want to troubleshoot, and follow the diagnostic instructions.

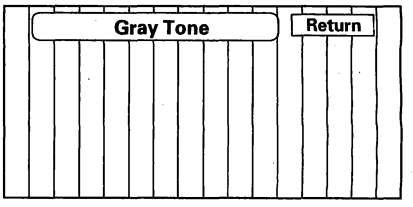
- RGB color
- Gray Tone
- White Raster
- Black Raster
- Color Pattern
- Monitor Adjustment



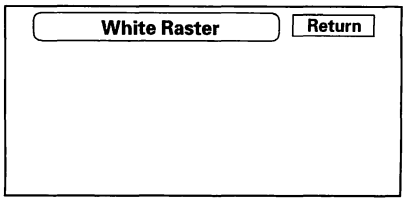
RGB Color
This screen verifies that the display unit is receiving the video (R, G, B and Composite sync) signals properly. The three primary colors should all be shown without distortion. The combination of all three should produce a central white section. If any of the colors are missing, troubleshoot for the color signal (see page 23-137). If the picture has lines in it or scrolls horizontally, or vertically, troubleshoot for a Composite sync problem (see page 23-138).



Gray Tone
This screen diagnoses problems with contrast. You should be able to see the changes from bar to bar across the scale. It is normal for the two bars on either side to appear the same.



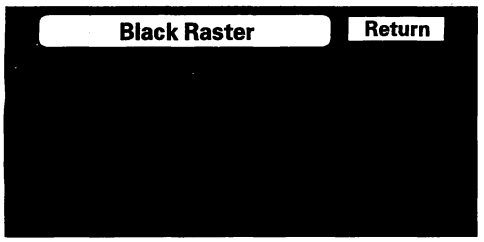
White Raster
The entire display must be white.



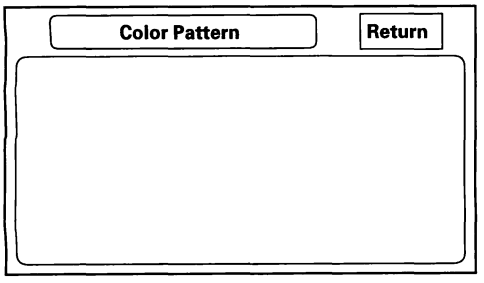
BACK

Protected by AR

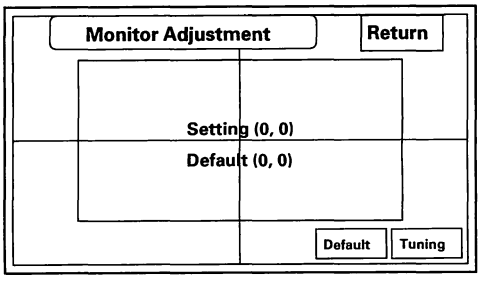
Black Raster
The entire display must be black.



Color Pattern
The chart below shows the colors being used for the map and menu screens. This is for factory use only. To check the color signal use the "RGB Color" diagnostic found under the Monitor Check.



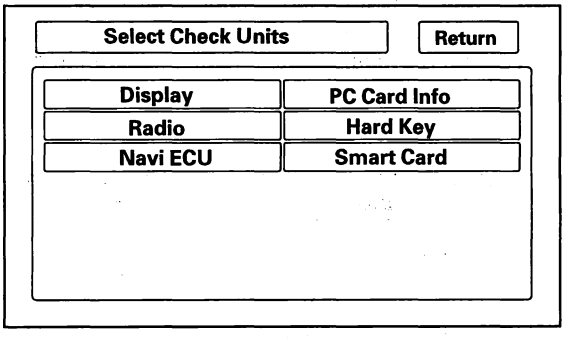
Monitor Adjustment
This allows you to center the navigation display. Use the joystick to move the picture up/down or left/right. It is unlikely that you will ever need to adjust the monitor position. The "Default" button will reset the display position to factory specifications.



Unit Check

To start the test, select the item you want to check starts.

- Display
- Radio
- Navi ECU
- PC Card Info
- Hard Key
- Smart Card



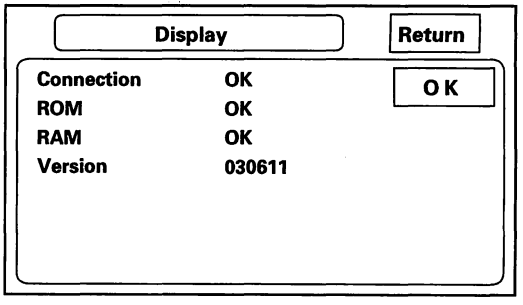
(cont'd)

Protected by AR

System Diagnostic Mode (cont'd)

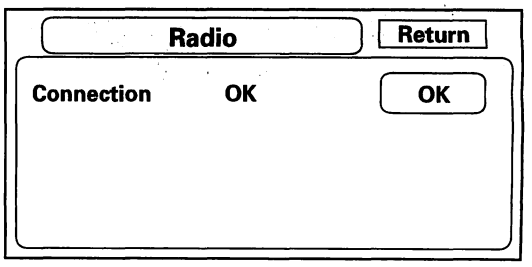
Display
This diagnostic performs additional checks on the communication bus between the control unit and the display. In addition, the internal electronics functionality are confirmed.

- When the connection is NG, first check for loose terminals at the navigation unit and the display unit connections. Next check for an open or short in the communication line between the navigation unit and the display unit. If you find the line has an open or short, replace the affected shielded harness.
- If the ROM or RAM is NG, replace the display unit.
- The version represents the software version in the display.



Radio
If the NG is indicated, check for loose audio unit connector.

NOTE: If the XM link was displayed red, but the radio link was displayed green in the navigation system link, refer to audio system symptom troubleshooting.



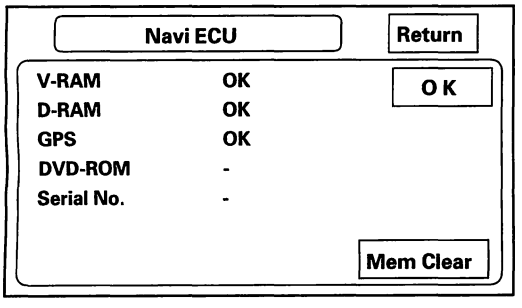
BACK

Protected by AR

Navi ECU
This screen looks for problems with the navigation unit. When you initiate this diagnosis, the navigation unit may delay up to a minute while the diagnosis runs.

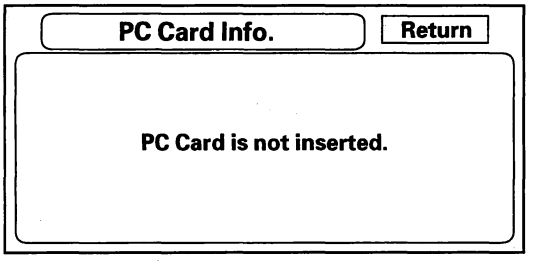
NOTE: Do not try to end this diagnostic by pressing "OK" or "Mem clear" before it finishes, otherwise the system may reboot.

- If "V-RAM" or "D-RAM" is NG, then replace the navigation unit.
- If "GPS" indicates "NG (ANT)," then check the entire GPS antenna wire from the navigation unit to the antenna. If the wire is crushed or damaged, try a known good antenna. If this diagnostic reads OK, then order a new GPS antenna. If the diagnostic still reads NG (ANT), then replace the navigation unit.
- "DVD ROM" represents the database version on the DVD. You can find this information in either the Setup Screen "Version," or in the Diagnostic Screen "Version."
- "Serial No." should be the same as the serial number found on the underside of the navigation unit. You need this number to obtain the security code from the Interactive Network (iN) system.
- The Mem Clr is for factory use and should not be used unless instructed by the factory.
  Selecting this will erase the client's settings, personal information, GPS orbital data, and anything else stored in memory.

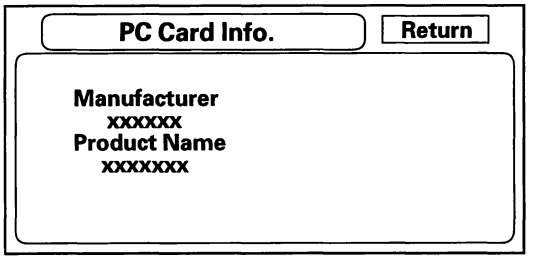


PC Card info.
There is no PC Card in the PC slot, and the screen should say, "PC Card is not inserted."

NOTE: Do not insert any card or object into the slot.



If the factory provides a PC card and instructs you to insert a card, then the screen displays the Manufacturer, and Product Name as shown in the following screen.



(cont'd)

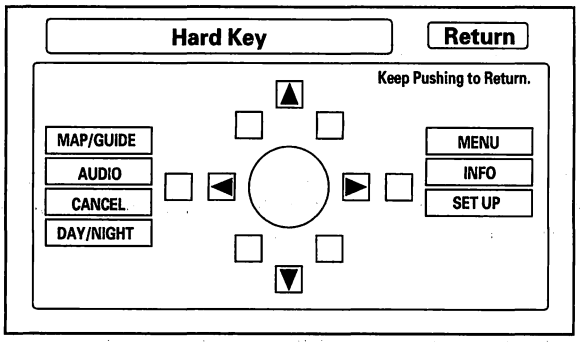
Protected by AR

System Diagnostic Mode (cont'd)

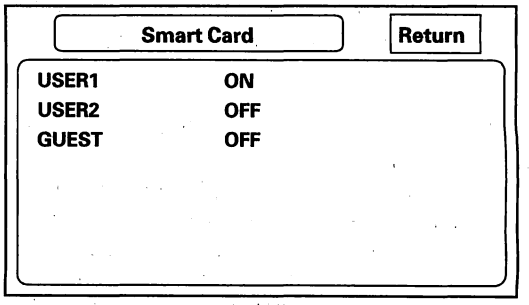
Hard Key
This diagnostic tests the interface dial, and the buttons that surround it. For this model, the interface dial and buttons do not use the GA-Net bus for communications.

To complete the test, touch each button on the vehicle's control panel, and move the interface dial to each indicated position. As each function is tested, the corresponding button on the display should highlight. To exit, push in and hold the selector knob.

NOTE: You cannot use the onscreen return button to exit this function.



Smart Card
If the smart card is being used, you can check the card condition.



BACK

Protected by AR

Car Status

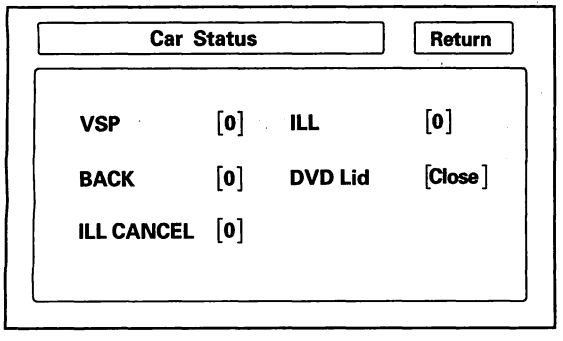
Use this screen to confirm that the navigation unit is properly receiving input signals. Signals equal to (0) are OFF, and signals equal to (1) are ON. If the value on the display does not match the actual vehicle status, then check the wire carrying the signal.

- VSP-Vehicle Speed Pulse from PCM
  (Pin 6 of C-connector)
  a) OFF (0) when vehicle is not moving
  b) ON (1) when vehicle is moving

The VSP comes from the PCM as a dedicated signal. Internally, the navigation unit compares the actual VP on the map against street data to adjust the pulse to speed scaling factor. As this scaling factor becomes more accurate, the "Level" gradually increases from 0 to 10 (see the Tire Calibrate diagnostic screen).

- BACK-Reverse indication from taillight relay
  (Pin 5 of C-connector)
  a) OFF (0) when the shift lever is in any position other than reverse
  b) ON (1) when the shift lever is in reverse

The Back signal is used by the navigation unit to allow the map screen to show the VP moving backwards when in reverse. This signal is needed because the Speed Pulse has no direction indication.



- ILL CANCEL
  This function is not applied to this model.

- ILL-Illumination Indication
  (Pin 5 of navigation unit A-connector)
  a) OFF (0) when parking lights, or headlights are off
  b) ON (1) when parking lights, or headlights are on

The navigation uses the signal to determine whether to put the navigation screen into the Day or Night brightness mode. (Setup screen 1)

- DVD Lid-senses if the DVD door is open
  a) (Close) when the door is closed
  b) (Open) when the door is open

The navigation unit has a micro switch to detect this. If open is indicated when the door is closed, replace the navigation unit.

(cont'd)

Protected by AR

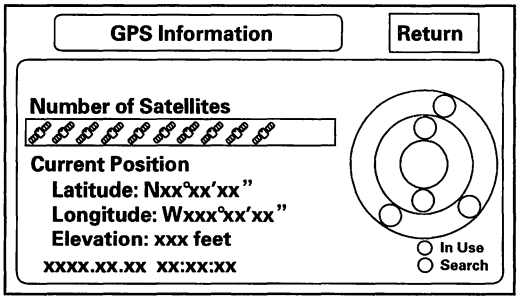
System Diagnostic Mode (cont'd)

GPS Information

This screen shows the current status of GPS reception. The circular diagram shows the current location of the GPS satellites (yellow numbers) as they would appear in the sky. The outer circle represents the horizon (0 degrees elevation). The middle and inner circles represents 30 and 60 degrees respectively. The very center of the diagram (90 degrees elevation) is directly overhead. Nearby obstructions, like tall buildings will block satellites in that direction. That is why it is necessary to be in an open area to effectively troubleshoot GPS reception issues. The satellite numbers shown on the diagram correspond to the "PRN" number in the "GPS Details" screen. There are always at least 24 "active" GPS satellites in orbit. Because satellites fail, and have to be removed from service, spares are always parked in orbit, ready to be activated. This is why the PRN (satellite ID number) can be greater than 24.

NOTE: To use this screen for troubleshooting, the vehicle should be outside away from buildings, tall trees, and high-tension wires for at least 10 minutes with the engine running.

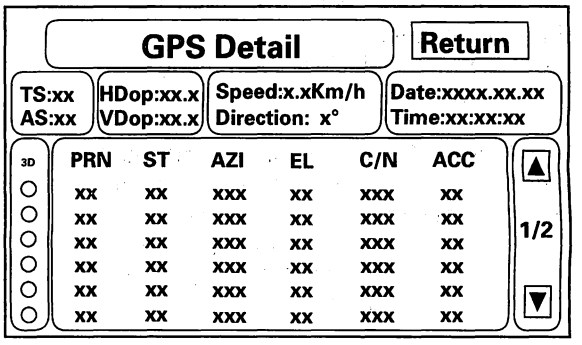
- The "Number of Satellites" box shows the number of acquired satellites (maximum of 12). It should contain four or more icons. If not troubleshoot for "GPS icon is white or not shown" (see page 23-141).
- The "Current Position" shows latitude, longitude, and elevation (in feet). If there are less than four satellites, the elevation can be grossly inaccurate.
- The Date/Time field shows the current date, and also GMI time.



NOTE: Pressing the "map guide" button displays the satellite number on each circle.

GPS Detail

By pressing and holding the MENU button for 10 seconds, a GPS Detail screen appears. This screen displays real time incoming satellite positional data when the vehicle is outside in the open. The information shown on this screen is for factory use.



- The box TS/AS and H Dop/V Dop is for factory use.
- The Speed and Direction information is updated in real time when driving.
- The Date/Time Information is the same as in Setup screen 2 "Adjust Time Zone/Clock."
- If the "3D" icon is shown above the yellow dots, this implies that at least four satellites are available for map positioning, and the "GPS" indicator on the map screen will be green. See the "Global Positioning System" detailed explanation in the "System Description".
- If the row of data in the table below begins with a "yellow dot", the AZI and EL fields can be used to locate each satellite on the circular GPS diagram (see prior screen).

BACK

Protected by AR

NOTE: The data shown in the GPS Detail screen is an example only.

The table of values shown on the screen below has the following columns:

Column	Description	Problem indication
Active	Active satellites (Yellow Dot)	If "3D" or "2D" is missing when the vehicle is parked outside, do the GPS icon is white or not shown troubleshooting (see page 23-141).
PRN	The satellite ID number	
ST	The status: 0 = cannot view or searching, 2 = acquiring	If all 0, then, do the GPS icon is white or not shown troubleshooting (see page 23-141).
AZI	Azimuth, the angle (0—360) clockwise from north	
EL	Elevation from the horizon (90 deg is overhead)	
C/N	N/A	Healthy signal is 49-52, no signal: 27-33
ACC	N/A	
△ 1/2 or 2/2 ▽	Shows view of all satellites in two screen views 1/2 or 2/2	

Yaw Rate

This diagnostic checks the yaw rate sensor in the control unit. This device detects when the vehicle turns, and repositions the vehicle position icon on the map screen. For more detailed information, see the yaw rate sensor theory of operation under "System Description" (see page 23-111).

- "Sensor" indicates the voltage output from the yaw rate sensor. It should indicate about 2.500 volts when stopped.
- "Offset" is the reference voltage or standard within the yaw rate sensor. It also should indicate about 2.500 volts when stopped.
- A "sensor" output voltage LOWER than the "Offset" voltage indicates that the vehicle is turning to the right.
  A "sensor" output voltage HIGHER than the "Offset" voltage indicates that the vehicle is turning to the left.
- The yaw rate offset, and sensor should both indicate about 2.500 volts when stopped. If either reads zero, or 5.000 volts, replace the navigation unit.
- The yaw rate offset and sensor should be within +/—0.01 V of each other when stopped. The sensor value should change relative to the offset as the car is turned while driving. If not, replace the navigation unit.

Example: Car stopped

Normal		**Abnormal**	
Offset	2.526 V	Offset	2.526 V
Sensor	2.516—2.536 V	Sensor	2.623 V

Example: Car turning

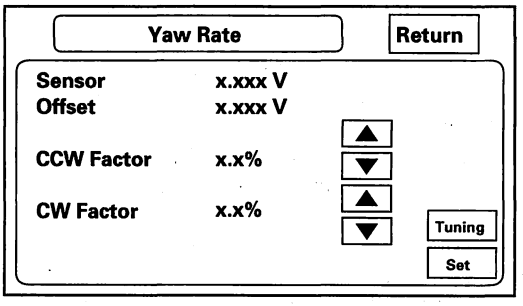
Normal		**Abnormal**	
Offset	2.526 V	Offset	2.526 V
Sensor	2.678 V (left turn) 2.478 V (right turn)	Sensor	2.623 V (no change on turns)

(cont'd)

Protected by AR

System Diagnostic Mode (cont'd)

- "Sensitivity study" represents the status of the internal tuning function. At initialization, this value starts at 6 and increases to # 10 as the internal correction values become more accurate.
- The settings "CCW Cal Factor," "CW Cal Factor," and "Set" are for factory use only. THIS SHOULD NEVER BE ADJUSTED.
- For detailed analysis of the yaw rate select "tuning."



Yaw Rate Tuning

This diagnostic allows you to graphically display problems with the yaw rate sensor.

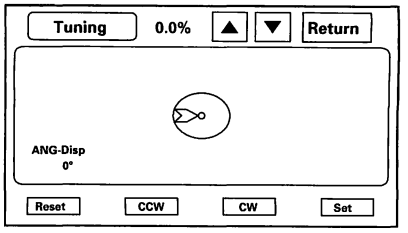
- The "ANG-Disp" value accumulates any differences between the "offset," and "sensor" voltages (see Yaw Rate diagnostic). When the sensor is functioning normally, the random changes in these two voltages generally cancels out, so the value is 0. However if one voltage is consistently higher than the other, then the "ANG-Disp" value accumulates the constant change.
- The "Reset" button temporarily clears the angular accumulation (ANG-Disp), and clears the display dots.
- Do not touch the "CCW," "CW," or "Set" buttons. These are used for factory setup only.

Two tests are explained below. For gross problems with the sensor, the stationary test usually confirms whether the sensor is defective. For yaw rate issues related to driving, perform the road test described below.

1. Stationary test: If the "VP" icon spins in place and the "ANG-Disp" value slowly increases or decreases in value, the yaw rate sensor is defective. Replace the navigation control unit.

2. Road test: Drive the vehicle on a very straight road. Enter the diagnostic mode, select "Yaw rate," and touch the "Tuning" button. While driving down a straight road, the white "dots" should trace a straight line across the screen. However, if you are driving on a straight road, and you notice the dots constantly dropping down or heading up as you drive, the navigation control unit's yaw sensor is defective. You can touch "Reset" to clear "ANG-Disp," and dotted lines.

   If either test above fails, please enter "Yaw rate sensor defective" for the problem description, on the "Navigation core return form."



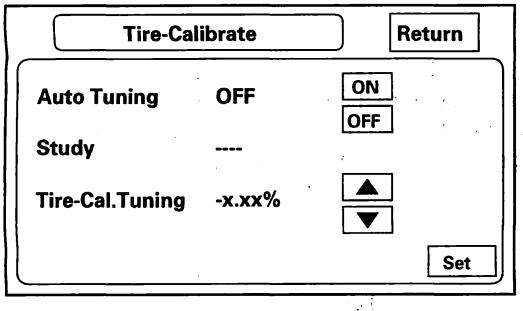
BACK

Protected by AR

Tire Calibrate

As the vehicle moves, the navigation system receives speed pulses from the PCM. These pulses are converted using a conversion factor to a mph speed that moves the vehicle position (VP) on the map. The navigation system has an internal tuning function that generates and refines this factor based on actual driving. The "Study" indicates the status of the tuning. At navigation initialization, it begins at 0, and increases to 10 as the navigation system is used.

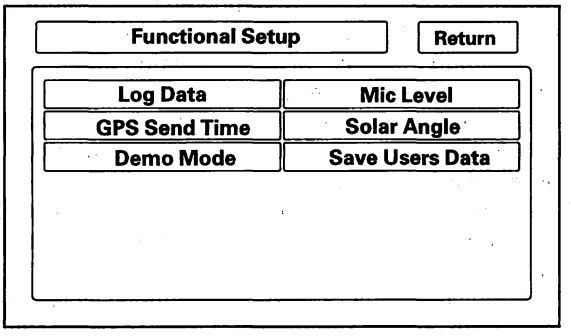
- The "Auto Tuning" is factory set to "ON," and should remain on.
- The "Study" indicates the tuning status. If it is less than 10, the unit is still calibrating.
- The "Tire-Cal. Tuning" and Set should not be used. It is for factory use only.



Functional Setup

Select the item you want to check.

- Log Data
- GPS Send Time
- Demo Mode
- Mic Level
- Solar Angle
- Save Users Data



(cont'd)

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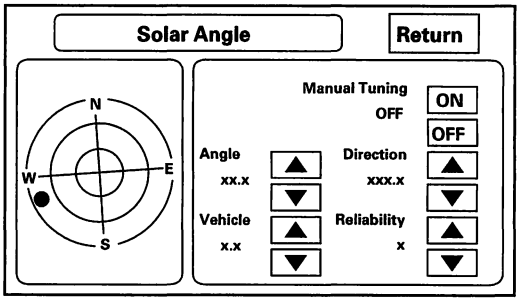
System Diagnostic Mode (cont'd)

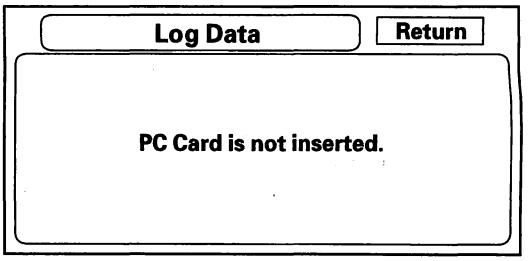
Solar Angle
This screen graphically displays the sun's position as determined by GPS. The HVAC system uses the navigation systems sun's angle, along with the sunlight sensor to control the driver/passenger A/C air flow. The heat that the climate control unit removes varies, depending on the angle of the sun entering the vehicle. This screen is for factory use only, and should not be adjusted.

- The screen shows a circular diagram of the sky oriented in the direction that the vehicle is pointing. During daylight hours a red dot is shown, representing the direction and elevation of the sun. The outer circle represents the horizon (0 degrees elevation). The middle circle is 30 degrees, the center circle is 60 degrees, and the very center is directly overhead (90 degrees).
- The "manual tuning" button should always be "OFF."
- The "Angle" is the angle that the sun (shown with red "dot") is above the horizon.
- The "vehicle" value represents the angle, clockwise from North, to the direction that the vehicle position (VP) icon is pointing (always points straight up).
- The "direction" value is the angle, measured clockwise from the VP (straight up) to the suns position.
- The reliability ranges from 1 to 3, and represents the accuracy of the Vehicle Position relative to the sun.

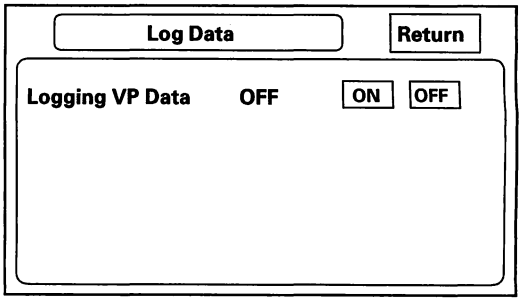


Log Data
This screen allows the factory to select log data to troubleshoot navigation system issues.

- Normally there is no card in the "PC Card Slot," and the PC slot door should always be closed. The screen should look like below.



- However, if the factory provides a PC card and instructs you to insert it into the card slot (label side up). If instructed by the factory, select "Gyro. Sensor Logs ON." Follow the factory procedure for gathering test data, and properly ending the test.



BACK

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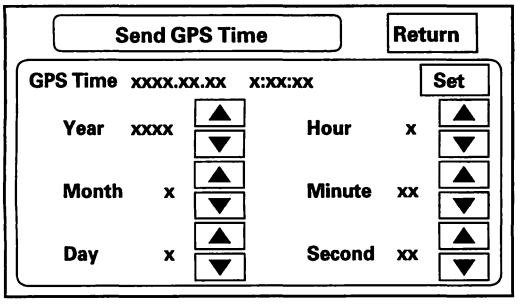
Send GPS Time

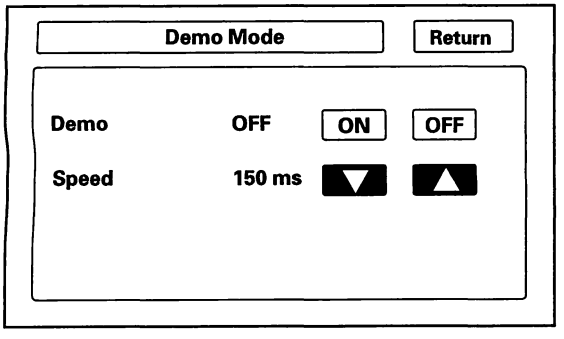
This screen is for factory use only. It allows adjustment of the GPS time. This display updates in real time.

- "GPS Time" is the time as received from the GPS satellites. It is in Greenwich Mean Time (GMT).
- Date, Hour, Minute, and "Set" should not be used.



Demo Mode

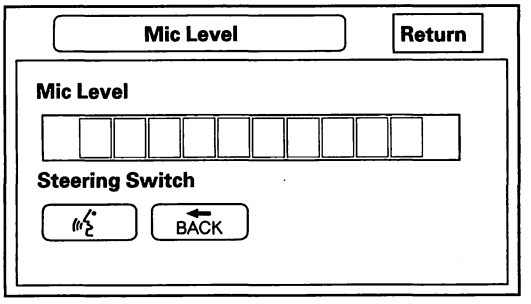
This screen is for factory use only, and should always be set to "OFF." Occasionally "DEMO" setting is turned "ON" when vehicles are being used at Auto Shows or similar events. Turning this feature on, allows the navigation system to automatically follow a route to a destination when the vehicle is stationary. The "Speed" can change the speed of the demo mode.



Mic Level

This diagnostic allows you to independently test the microphone and the NAVI TALK and BACK buttons. They are used to activate the voice control system. The microphone is located near the map light in the roof console. It is directional, and works best with the voice coming from the drivers seat.

- Press the TALK button on the steering wheel, and in a normal voice say "testing." The TALK indicator on the screen should momentarily turn green, and the text "Now Recording..." should appear in yellow. If the TALK indicator on the screen does not briefly turn green, then check the wiring from the steering wheel TALK button to the navigation unit. If there is no "Mic Level" movement when you speak, then you should check the wires running from the microphone in the roof console to the HFL unit and the navigation unit. If the wires are OK, the microphone must be faulty; replace the roof console (see page 20-101).
- Press the BACK button on the steering wheel. This should cause the BACK indicator on the screen to momentarily turn green. If it does not briefly turn to green, then check the wiring from the steering wheel BACK button to the navigation unit.



(cont'd)

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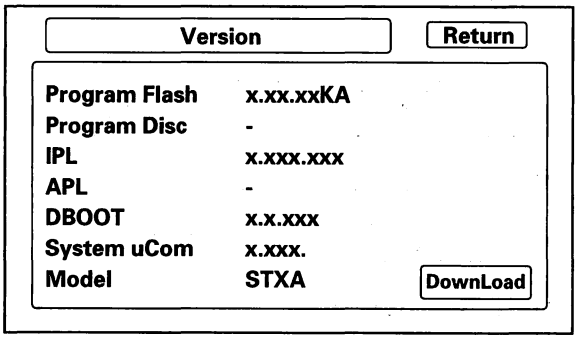
System Diagnostic Mode (cont'd)

Version

This screen displays the current version information for the navigation system software. In addition, this screen allows the loading of updated software if requested by the factory, or instructed by a Service Bulletin. Software may be loaded from a CD or a PC card.

- Program Flash: Displays the version of the navi software in memory.
- Program Disc: If displayed, this value represents the version of the navi software on the navi DVD. NOTE: The last two letters of the Program "Flash" or DVD fields indicate which DVD is installed in the unit. The letters "KA" imply that a "United States" DVD is installed. If the letters are KC, then a "Canada" DVD is installed. (See coverage discussion below.)
- IPL, APL, DBOOT, and System uCom, are all for factory use.
- Model: For this model, the field should begin with "STX."
- Download: Do not touch, unless instructed by the factory.

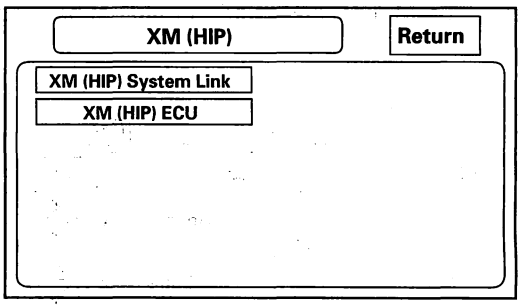


There are two navigation DVDs produced for this model.

- The white DVD labeled "United States" is for the US market and contains maps for the contiguous 48 US states, and some southern portions of Canada. Clients wanting additional northern coverage in Canada, can purchase a "Canada," DVD by contacting the DVD fulfillment desk.
- The gray DVD labeled "Canada," is for the Canada market, and contains maps for all of Canada, plus some of the northern US states. If clients with this DVD require full US coverage (including states like Florida and Texas), they may purchase a "United States" DVD by contacting the DVD fulfillment desk.

XM (HIP)

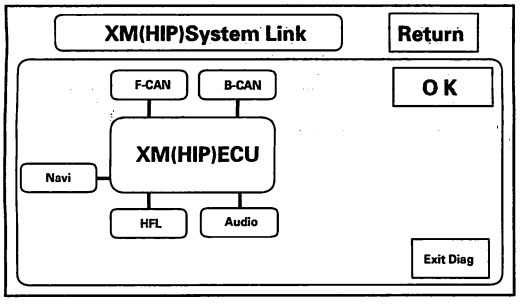
These screens allow troubleshooting of XM or HIP (AcuraLink) problems. Select the item you want to troubleshoot, and follow the diagnostic instructions.



BACK

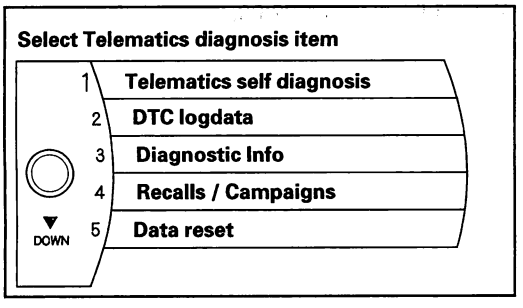
Protected by AR

XM (HIP) System Link
This diagnostic tests the cables connecting the XM (HIP) components.

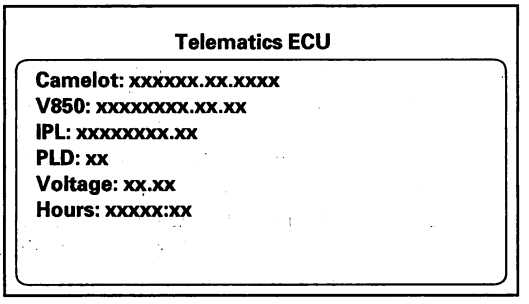


XM (HIP) ECU
Select the item you want to troubleshoot, and follow the diagnostic instructions.

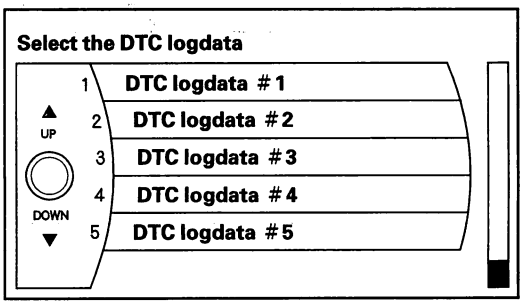
Note: Only select "DATA RESET" when instructed. Selecting "DATA RESET" will clear the AcuraLink registration, and the AcuraLink service will reset to the factory default. If the vehicle was already registered for the AcuraLink service, it will have to be reactivated by calling Acura Client Services before all features will be available. The reactivation will cause the Feature Guide to start over at the first message, which will result in the client getting repeated messages.



Telematics Self-Diagnosis
This screen used to do self-diagnosis for the XM (HIP).



DTC Log Data
You can check the DTC log data in this screen.



NOTE: When DTC B2200-B2249 is displayed. It is in engineering mode and is not for trouble diagnosis.

(cont'd)

Protected by AR

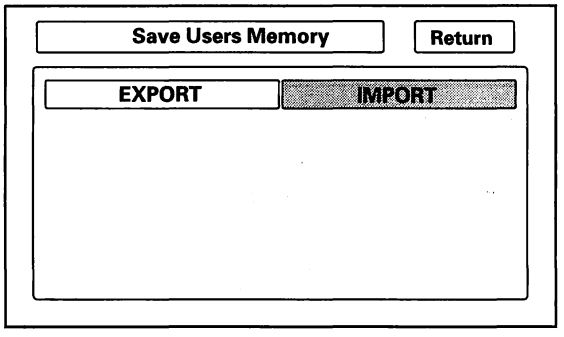
System Diagnostic Mode (cont'd)

Save users Memory

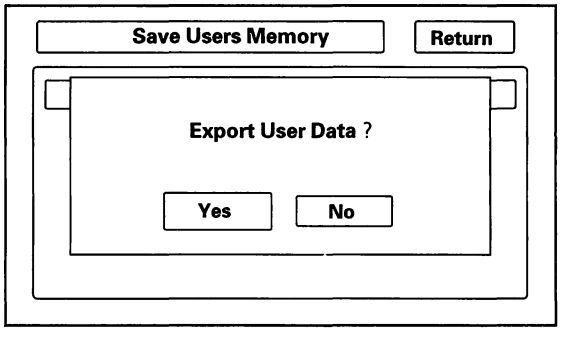
When replacing the navigation unit, this function allows the dealer to transfer the client's personal data to the new navigation unit

This is similar to saving and entering the client's audio presets when replacing an audio core. The transferred information includes their Setup settings, and personal addresses. The dealer inserts a PC card (like the PC card in the HDS), and then selects the "Save users Memory" function. The two functions in this diagnostic screen are Export and Import saves the client's data to the PC card, and Import moves the PC card files to the new core.

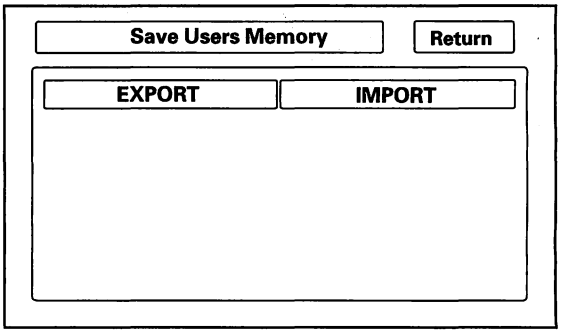
See the FAQs below for information regarding PC cards, and the use of this function.



Export
Select this button to move the client's data from the original navigation unit to the PC card. Select "YES" on the "Export User Data" Confirmation screen. The process takes only a couple of seconds. The system stores two small files on the card.



Import
After installing the client's original DVD in the new core, allow the system to boot up. Insert the PC card in the new core and enter the navigation diagnostic mode.



Select "YES" on the "Import Confirmation" screen.

Import moves the two files stored by the Export process from the PC card to the new navigation unit. When the transfer is finished (a few seconds) the system will automatically reboot. After the system reboots, remove the PC card from the PC slot.

If the Import button is grayed out, follow the troubleshooting in the FAQs below. The client's files can only be transferred to a new core if the "Model" and the "Program Flash" shown on the "Version" screen are the same. These files cannot be transferred from TSX to MDX, or from a MDX with version 1.07.00 to a MDX with version 1.32.00.

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Protected by AR

PC Card FAQs

Question	Answer
Where do we buy the flash memory or adaptors, and what do we ask for?	You needs a "PCMCIA type II" adaptor and a flash memory chip (see below for memory chip types). They can be purchased at a computer, or office supply store. The card will have the same size and shape as the PC card in the HDS. Adaptors that accept multiple flash types are not recommended.
What memory flash chips will work with what adaptors?	The flash memory devices that have been tested include Compact Flash (CF), and ATA style (like the card in the HDS). Other card types and flash memory chips may work, but have not been tested.
What capacity card do I need for this function?	A memory chip with capacity of 64 MB to 2 GB will work. The two files moved to the card during "export" are less than a Megabyte in size. An adaptor and flash memory can be obtained for less than 50 dollars.
Should the dealer have a dedicated card for the Export and Import navigation function?	Yes, treat the card as a dedicated "special tool" that should be used anytime your '07 or later client needs their navi personal files transferred to a new ECU core.
What device can I use to maintain the card, and delete files	Any computer store sells USB style PC card readers that accept the card, and allow you to perform file maintenance on your card. Most laptops will also accept the card.
Can we move the client's data to different models (like moving TSX navi data to a MDX)?	No, the files are model specific and will only load into a navi ECU with the same part number.
Can we move the client's data to the same vehicle with a different software version? (Like moving version 4.51)	The client's files can only be transferred to a new core, if the "Model" and the "Program Flash" shown on the "Version" screen are the same. Files cannot be transferred from TSX to MDX (different model code), or '07 MDX to '08 MDX (different versions)
The "Export" button is "grayed out" Why?	• A PC card with its media memory chip is not inserted properly. • Check the card's edge connector, and the pins inside the navigation unit (with a flashlight) for damage
The "Import" button is "grayed out". Why is this?	• A PC card with it's media memory chip is not inserted • The model code of the files stored during export do not match the model code of the new navi ECU • The version of the files from the original navi ECU are not the same as the version in the new ECU
Will other files on the card like images or music files prevent the Export/Import function from working?	No, the system simply adds two small files that are recognized by the new core when performing the Import function. However, if the card is full, the Export function won't work correctly.
Do I have to delete the files on the card after each transfer of the client's data?	After the transfer of client data to the new core, the files remain on the card. Since this is confidential information, we recommend that you delete these files after each use. Please note that each time you export navi files of the same model and version, the files are overwritten. If you do not delete the files after use, over time the card will accumulate two files for each version of the 5 or so Acura navi models.
What format should be used if the card needs reformatting?	It is unlikely that the card will ever need formatting, however the FAT file system should be used
I can't enter the navi diagnostic mode to do the Export/Import function. How can I transfer the client's data?	Some internal navi ECU failures may make it impossible to use the Export/Import function.

(cont'd)

Protected by AR

System Diagnostic Mode (cont'd)

Question	Answer
Why won't the Export or Import functions work? What do I check as part of troubleshooting?	• The card may not be fully inserted into the slot. Eject the card, and inspect for warping or damage to the edge connector. Never use excessive force to insert a card. This can result in damage to the pins in the rear of the slot. • The card may not contain files that are recognized by the new core. Navi date can only be transferred between cores with the same "Model code", and with the same navi "Program flash" version. • The flash memory chip type may not be accepted by the system. Only Compact Flash, and ATA cards have been tested. • The card's PCMCIA adaptor may be preventing a known good card from being recognize. Avoid multi slot type PCMCIA adaptors that accept several different flash memory types • The card may be full and as a result the files are stored, but without any data. Export and import appear to function, but move nothing. Delete unused files from the card. • There may not be any files on the card. If the card has a "write protection" switch, make sure it is turned off before attempting to use the Export function. • Although flash memory chips are reliable, occasionally they develop bad sectors or other formatting errors that prevents them from accepting files. The card should be reformatted using the FAT format. • The card may have been formatted using the format "NTFS". Only the "FAT" format is accepted by the system. • Hard Disc Drive (HDD) cards may not work properly in the system and can overheat or quit functioning, particularly in a hot vehicle. They are not recommended. • Before performing the import function, ensure that the client's original DVD is loaded into the new core and working properly.
Are there any error messages to tell me what is wrong?	There are no error message associated with the Import/Export feature. Follow the troubleshooting steps above.

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Protected by AR

Error Message Table

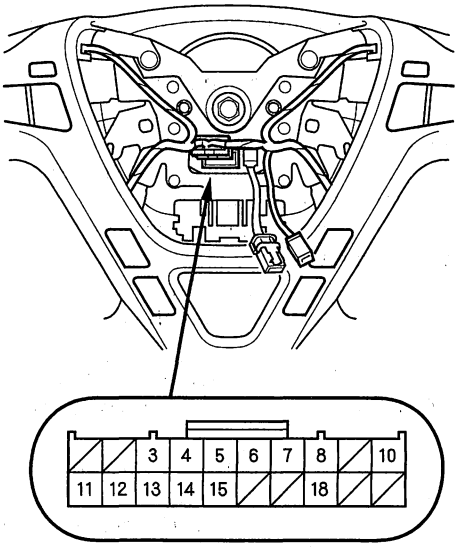
Screen Error Message	Solution
Navigation system is unable to acquire a proper GPS signal.	Make sure there is nothing on the dashboard blocking the GPS antenna. If not, move the vehicle to an open space away from tall buildings, trees, etc. Window tinting and after-market devices can affect the GPS reception.
Navigation unit door is open or No DVD disc installed. Please check system.	Make sure the navigation DVD is the correct color and is not scratched or damaged. Make sure it is installed with the label side up and the navigation unit door is snapped fully closed.
No DVD disc, please check system.	Check that the navigation DVD is installed with the label side up.
Display temp is too high. System will shut down until display cools down.	This message will appear briefly when the display temperature is too high, and then the display will turn off until the temperature cools down. The system will turn back on when the display cools down.
Outside temperature is low, system will take a while to start up.	The temperature is below −30 ℃ and the navigation unit has difficulties reading the DVD. The system will start up when the temperate warms up.
DVD disc reading error (unformatted), please consult your dealer.	Check the DVD for the correct color and software version. Also check for deep scratches or other damage. Make sure you are using an official Honda navigation DVD (white in color). The system cannot read other mapping databases or video DVDs. If the problem persists, see your dealer.
Route has not been completed. Please try again from a different location.	Routing to or from a place (new area) that is not in the database. Try planning a different route to or from a different location that is clearly displayed on the map (map matched).
No alternate route found. Original route will be guided.	No alternate route method was found. The original route method will be used.
This destination cannot be found in database.	The destination was not found in the database. Try another destination nearby, or select the destination with the joystick.

Protected by AR

Voice Control Switch Test

1. Remove the driver's airbag assembly (see page 24-137).

2. Remove the 20P connector from the cable reel.



Wire side of female terminals

3. Measure the resistance between the No. 8 and No. 18 terminals in each switch position according to the table.

Position	Resistance
OFF	About 10 kΩ
Talk button pressed	About 2.2 kΩ
Back button pressed	About 640 Ω

4. If the resistance is not as specified, replace the voice control switch (see page 17-23).

5. Use a diode tester between the terminals in each switch position according to the table.

Terminal	12		11
	○	⊣	○

6. If the diode test is not as specified, replace the voice control switch (see page 17-23).

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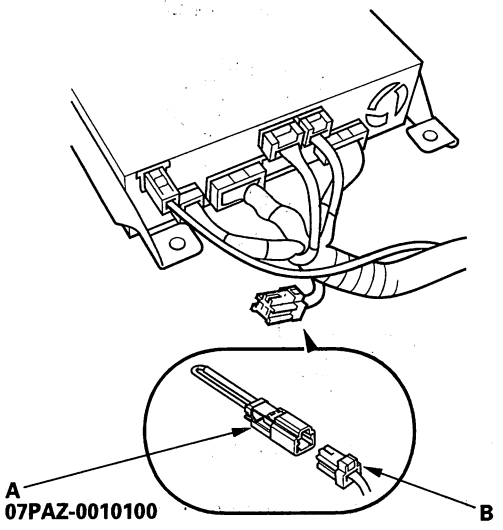
Protected by AR

Forced Starting of Display

Special tools required
SCS Service Connector 07PAZ-0010100

1. Turn the ignition switch OFF.
2. Connect the SCS service connector (A) to the navigation service connector (B) located behind the navigation unit.



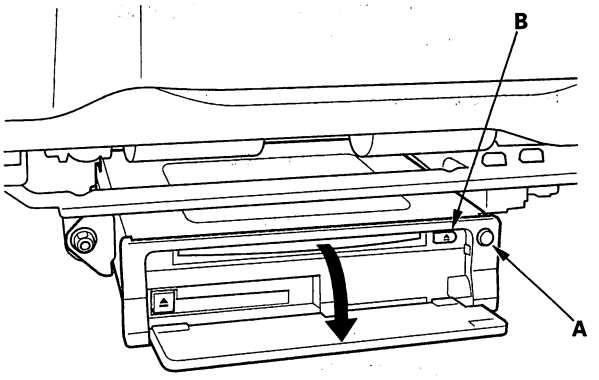
3. Turn the ignition switch ON (II).
4. Check that the diagnosis menu for the picture diagnosis starts up, and then changes to the system link menu.

   NOTE: If the display fails to display the system link screen, refer to no picture is displayed (see page 23-134).

DVD-ROM Replacement

NOTE: When the DVD-ROM is re-inserted or replaced, a map match must be done (see page 23-103).

1. Turn the ignition switch ON (II).
2. Push the open button (A) of the navigation unit located under the driver's seat.



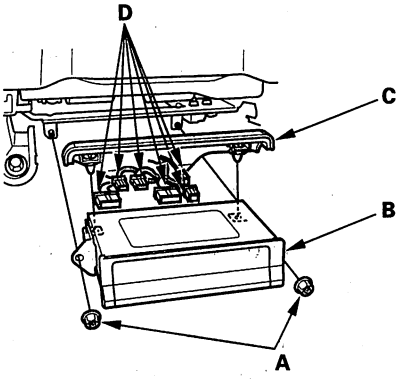
3. Press the EJECT button (B).
4. Remove the DVD-ROM.
5. Insert the new DVD-ROM with the white label facing up.
6. Close the front cover. Do not turn the ignition switch OFF; watch the navigation screen until the data is downloaded to the navigation unit.

Protected by AR

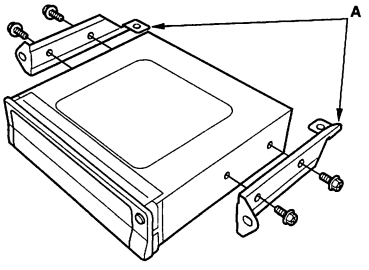
Navigation Unit Removal/ Installation

NOTE:
- If possible, have the client record any personal information from the navigation system that will be lost.
- If the navigation unit is replaced or disconnected, a Map Match must be done (see page 23-103).
- Dealer should do save users memory (see page 23-174) if replacing unit.

1. Remove the DVD-ROM (see page 23-179).
2. Remove the Driver's seat (see page 20-141).
3. Remove the two mounting nuts (A) from the navigation unit (B).



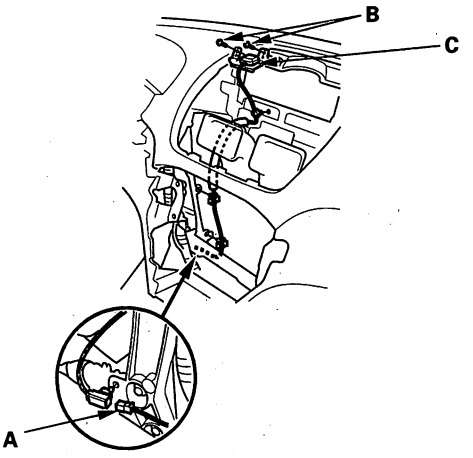
4. Remove the cover (C), then disconnect the navigation unit connectors (D).
5. Remove the bolts, and the brackets (A).



6. Install the unit in the reverse order of removal.
7. Install the DVD-ROM, then enter the 4-digit security code.
8. Do the system initialization (see page 23-102).
9. Give the new security code to the client.

GPS Antenna Removal/Installation

1. Remove the audio unit (see page 23-90).
2. Remove the display unit (see page 23-181).
3. Disconnect the GPS antenna connector (A), and remove the bolt (B).



4. Remove the GPS antenna (C).
5. Install the antenna in the reverse order of removal.

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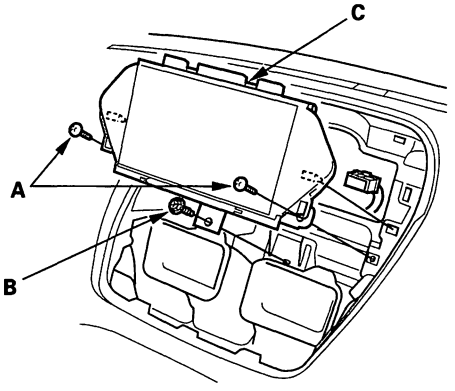
Protected by AR

Display Unit Removal/Installation

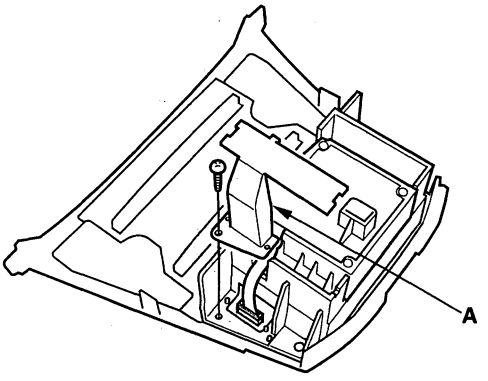
1. Remove the dashboard upper visor (see page 23-91).
2. Remove the two screws (A) and bolt (B), then remove the display unit (C).



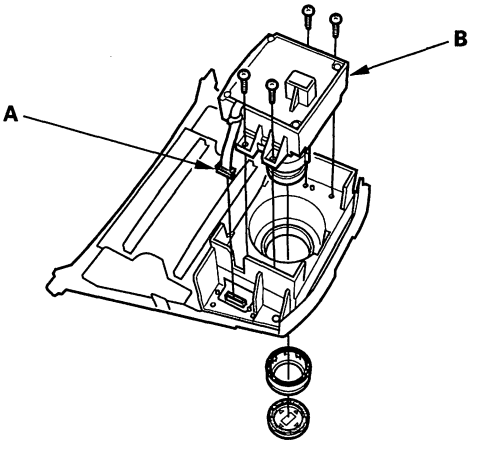
3. Disconnect the navigation display connector (D).
4. Install the unit in the reverse order of removal. Be careful not to drop the forward bolt behind the dashboard.

Interface Dial Removal/Installation

1. Remove the audio unit (see page 23-90).
2. Remove the harness cover (A).



3. Disconnect the interface dial connecter (A), then remove the interface dial (B).



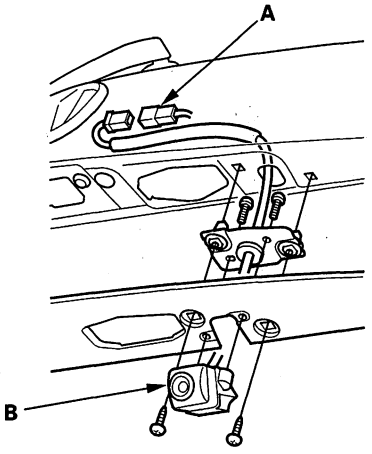
4. Install the dial in reverse order of removal.

Protected by AR

Rearview Camera Removal/Installation

1. Remove the rear license trim (see page 20-214) and tailgate lower trim panel (see page 20-96).

2. Disconnect the connector (A), then remove the screws and the rearview camera (B).



3. Install in the reverse order of removal.

BACK

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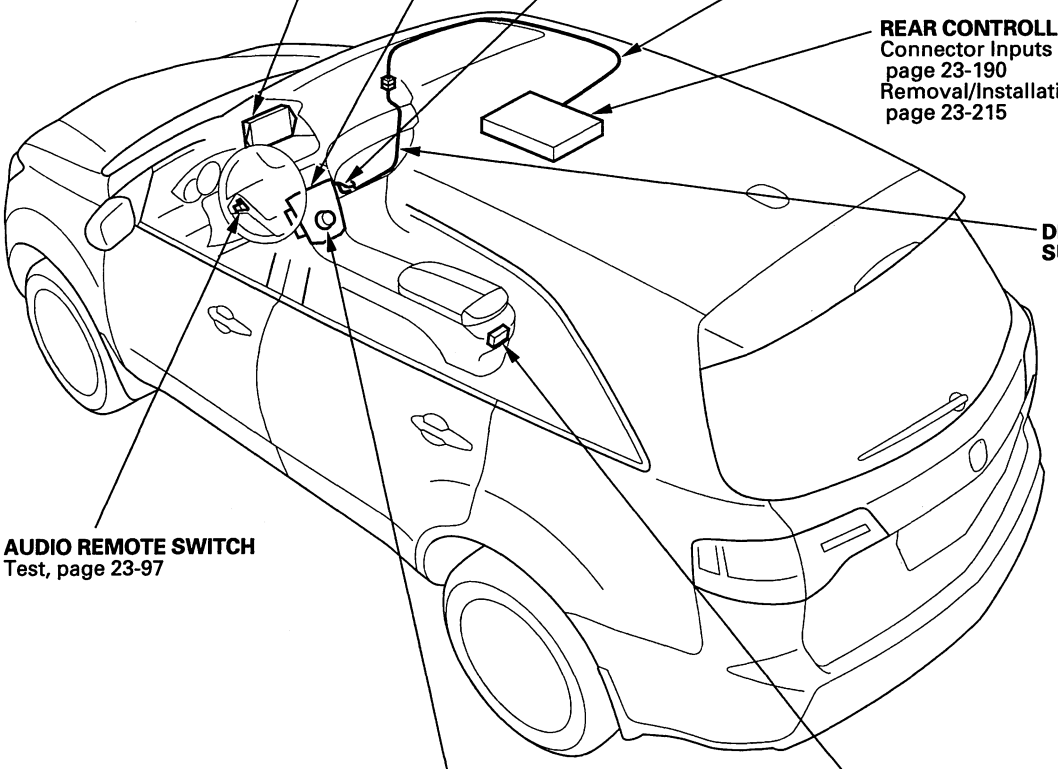
Component Location Index



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BACK

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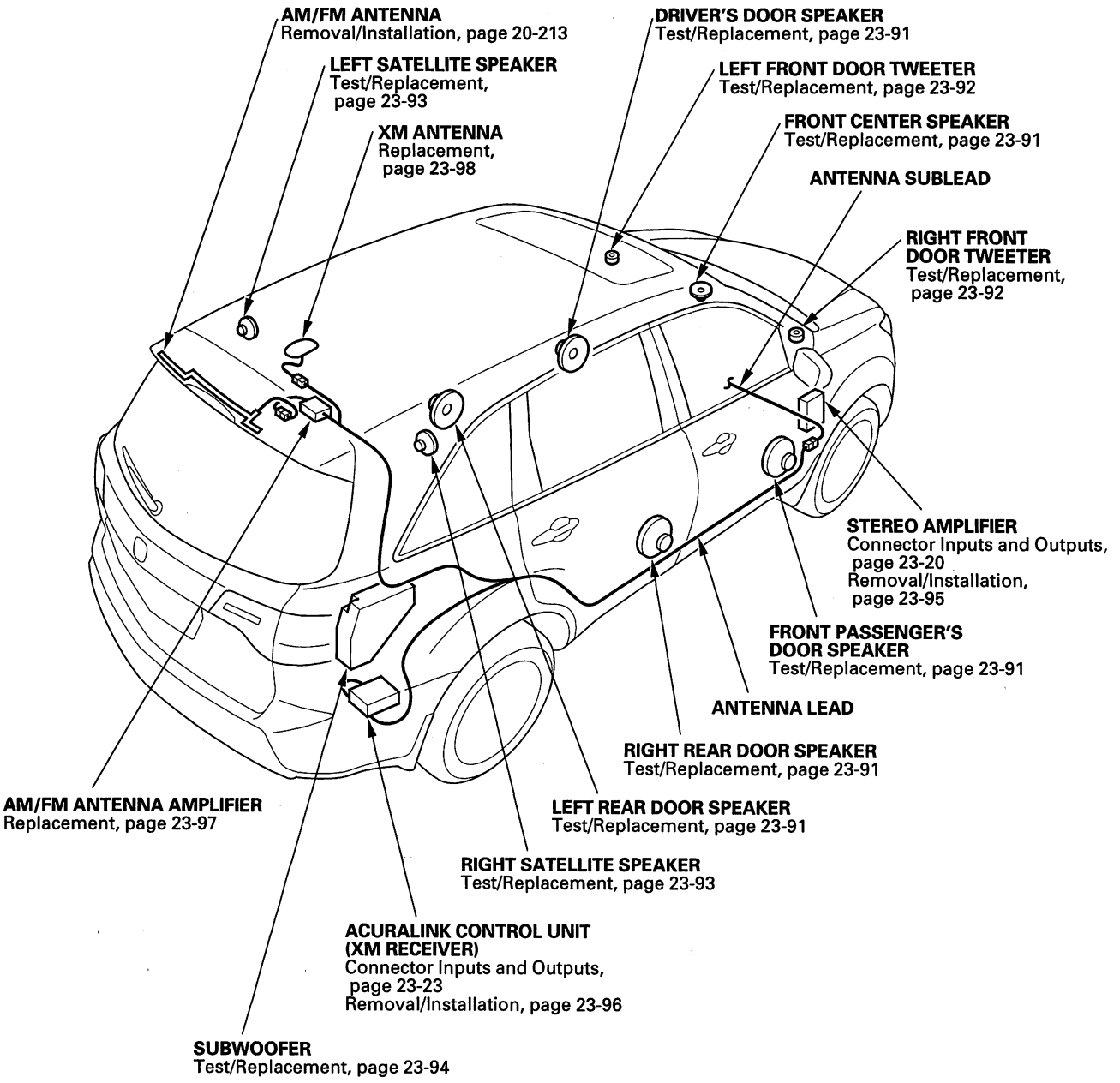
Rear Entertainment System

Component Location Index (cont'd)



BACK

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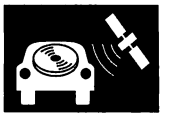

Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
RES disc does not load	Symptom Troubleshooting (see page 23-201)	• Peeled label stuck in player • Wrong type disc
RES disc does not eject	Symptom Troubleshooting (see page 23-201)	• Peeled label stuck in player • Wrong type disc
RES disc does not play	Symptom Troubleshooting (see page 23-202)	• Peeled label stuck in player • Wrong type disc
RES disc skips	Symptom Troubleshooting (see page 23-202)	• Peeled label stuck in player • Wrong type disc
Black picture is shown on the display	Symptom Troubleshooting (see page 23-203)	
White picture is shown on the display/display lock	Symptom Troubleshooting (see page 23-204)	
Display area picture has lines or has shifted	Symptom Troubleshooting (see page 23-204)	
Display does not go off when screen is closed	Symptom Troubleshooting (see page 23-205)	
No display appears on the rear controller indicator	Symptom Troubleshooting (see page 23-205)	
No sound/no display with auxiliary video unit inputs	Symptom Troubleshooting (see page 23-206)	• Poor connections or disconnect device • Low batteries in accessory device, or disconnected from power source
Wired headphone sound is weak, distorted, volume does not change, or there is no sound	Symptom Troubleshooting (see page 23-207)	
Wireless headphones do not work or there is static in DVD mode	Symptom Troubleshooting (see page 23-208)	
Wireless headphone sound is weak, sound is distorted, there is static, volume does not change, or there is no sound in all modes	Symptom Troubleshooting (see page 23-210)	Wireless headphone batteries (see page 23-217)
Wireless remote control does not work (all buttons)	Symptom Troubleshooting (see page 23-211)	Wireless remote control batteries (see page 23-218)
Wireless remote control does not work (source select buttons)	Symptom Troubleshooting (see page 23-211)	Wireless remote control batteries (see page 23-218)
Wireless remote control does not work (rear power button)	Symptom Troubleshooting (see page 23-212)	Wireless remote control batteries (see page 23-218)
Screen backlight does not dim/ remains dim	Symptom Troubleshooting (see page 23-212)	
An error code is displayed	Enter the self-diagnostic function with the wireless remote control (see page 23-196), then scroll to function 3.	
DVD player unit DISC IN indicator or DISC DISTINCTION indicator does not come on/does not go off	Symptom Troubleshooting (see page 23-214)	
Wireless remote control illumination does not come on	Symptom Troubleshooting (see page 23-214)	Wireless remote control batteries (see page 23-218)

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Rear Entertainment System

System Description

The rear entertainment system is composed of a special DVD player unit built into the audio unit, a rear controller, and screen wireless headphones, wireless remote control, and auxiliary jack assembly.

System Components

Audio Unit
- Provides rear system power
- Provides control for the rear functions
- Allows the rear display to show information about the rear system status
- Provides a method to stop the rear passenger's from having control of the rear system
- Built into the DVD player

Rear Screen
- Has a flip down 9" display
- Allows information on the LCD
- Display does not work when pushed beyond the detent
- Provides output for infrared (IR) headphones

Wireless Headphone
- Has automatic ON/OFF control
- Has volume control
- Works only in the second and third row seats, not outside the vehicle or in the front seats

Wireless Remote Control
Allows remote operation of the audio functions.

Auxiliary Jack Assembly
- Allows input from standard video game and video equipment using RCA connectors
- Provides three headphone connectors and separate volume controls

Audio Remote Switch
Allows operation of the audio functions from the steering wheel.

Voice Control Switch
Allows operation of the audio functions through the navigation system.

Navigation Display
Allows operation of the audio functions through the navigation system.

BACK

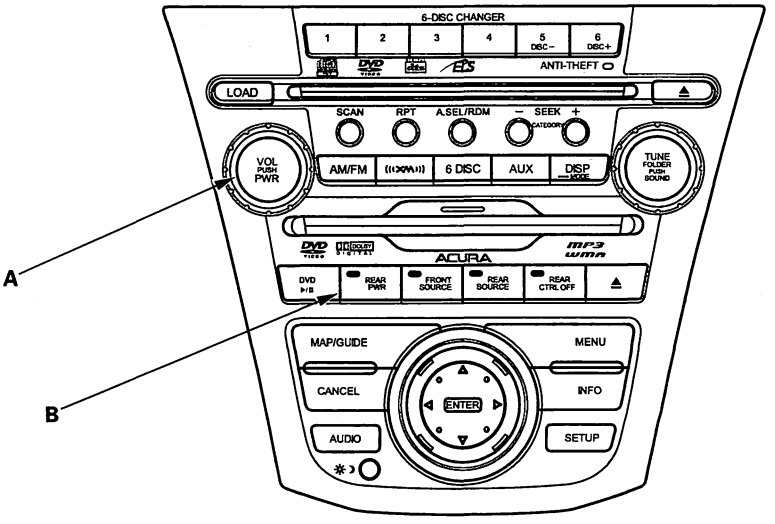
Protected by AR

Operating Method

NOTE: Refer to the Owner's Manual for full operation details.

Audio Unit

1. Turn the rear entertainment system ON.
   - After the main power switch "VOL PUSH PWR" (A) is turned ON, push "REAR PWR" switch (B) to turn the rear system ON. To turn the rear system OFF, push "REAR PWR", and to turn the whole system OFF, push "VOL PUSH PWR".



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BACK

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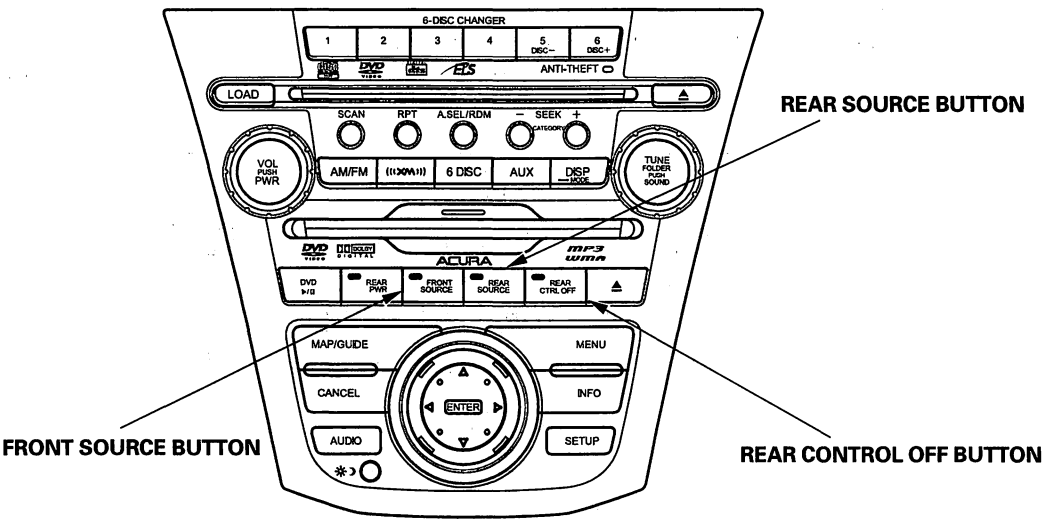
Rear Entertainment System

System Description (cont'd)

2. Using the select button.
   - Front source button, indicator light ON: control of front source from audio unit.
   - Rear source button, indicator light ON: control of rear source from audio unit.
   - The rear source will automatically revert back to front source after 10 seconds if no operation is done.



3. Rear Control Enable/Disable.
   - By pushing the "REAR CTRL OFF" button the LED indicator will be ON and the rear seat passenger's will not be able to control the system from the remote. The rear display will show rear control OFF. Press button again to enable.

BACK

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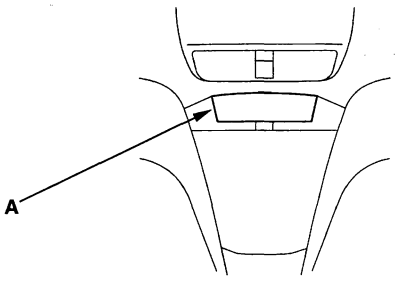
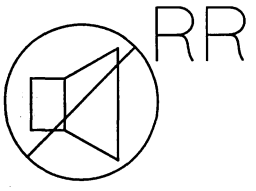
4. Viewing the display.
   • The display (A) (built into the climate control unit) indicates the status of the front and rear systems.



5. Rear speaker automatic OFF Function.
   • By turning the rear speaker OFF you can reduce the interference between the front source and the rear source (Headphone). The speaker will be turned ON/OFF automatically when the front and rear have different sources selected. When the rear speaker is in the OFF mode, the LCD display on the audio unit displays the rear speaker icon shown.

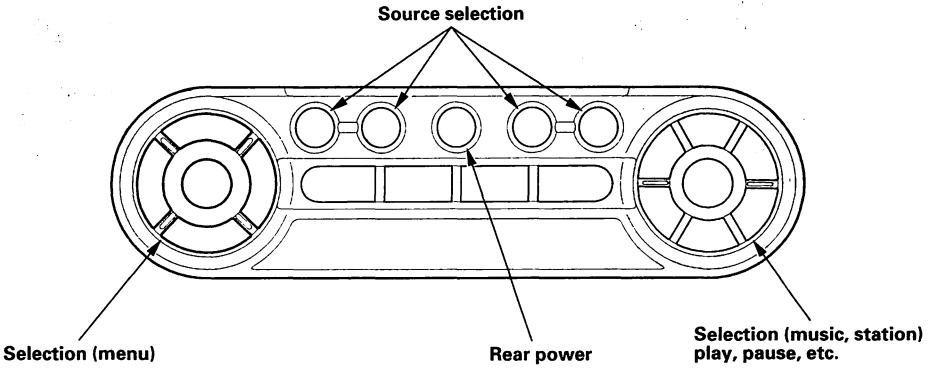
RR SP OFF:



Wireless Remote Control

Remote control switch use and function.

- With "Rear Power ON" and rear control enabled, the rear passengers can control the functions with the remote, except volume.
- Rear passenger can control the functions, unless the rear control has been turned off by the front user.



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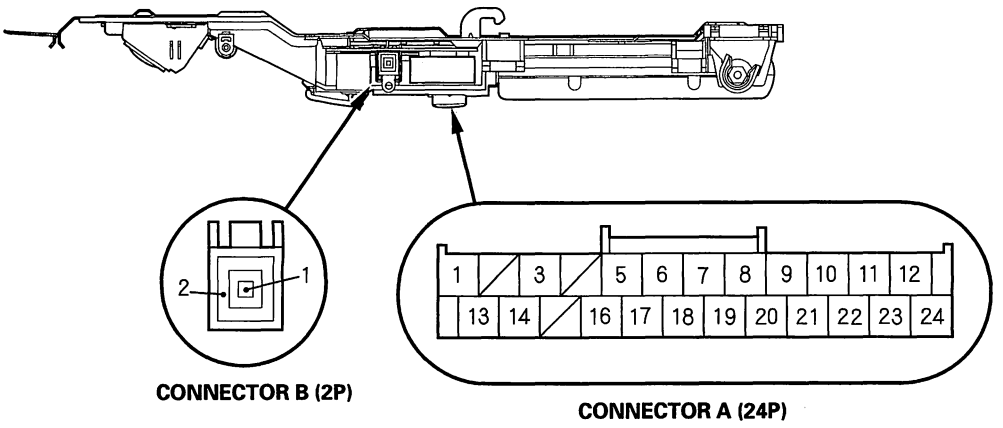
Protected by AR

System Description (cont'd)

Rear Controller and Screen Connector for Inputs and Outputs

When replacing a rear controller and screen connector, match the wires to the cavities listed in the following table.



CONNECTOR A (24P)

Cavity	Wire	Connect to
A1	GRN	Rear controller and screen (+B)
A3	LT BLU	Audio unit (RR BUS+)
A5	PNK	Audio unit (RR NTSC GND)
A6	WHT	Audio unit (RES AUDIO OUT GND)
A7	BRN	Audio unit (RES AUDIO OUT SH)
A8	PNK	Auxiliary jack assembly (HP R/L OUT GND)
A9	BRN	Auxiliary jack assembly (HP R/L OUT SH)
A10	LT GRN	Audio unit (SCTY4)
A11	LT BLU	Lights-on signal
A12	YEL	Audio unit (SYSTEM ACC)
A13	BRN	Audio unit (RR BUS SH)
A14	PUR	Audio unit (RR BUS−)
A16	BLU	Audio unit (RR NTCS)
A17	BRN	Audio unit (RR NTSC SH)
A18	RED	Audio unit (RES AUDIO OUT L)
A19	BLK	Audio unit (RES AUDIO OUT R)
A20	BLU	Auxiliary jack assembly (HP R OUT)
A21	GRN	Auxiliary jack assembly (HP L OUT)
A22	PNK	Navigation (SCTY3)
A23	RED	Dash lights brightness controller
A24	BLK	Ground (G506)

CONNECTOR B (2P)

Cavity	Wire	Connect to
B1	———	Audio unit (DIG AUDIO SIG)
B2	———	Audio unit (DIG AUDIO SH)

BACK

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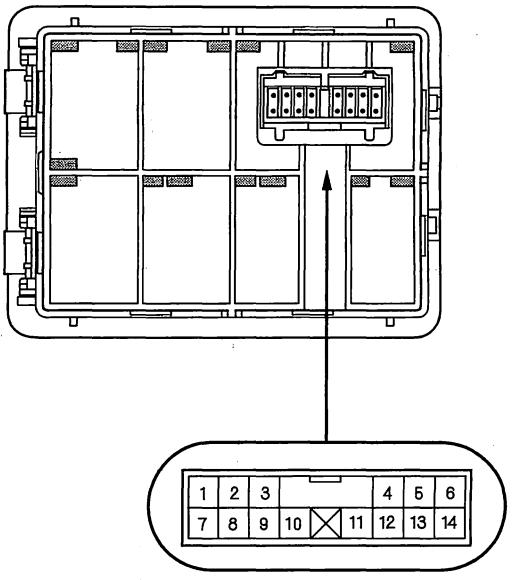
Auxiliary Jack Assembly Connector for Inputs and Outputs (With rear entertainment)

When replacing an auxiliary jack assembly connector, match the wires to the cavities listed in the following table.



Cavity	Wire	Connect to
1	RED	Dash lights brightness controller
2	LT BLU	Lights-on signal
3	BRN	Rear controller and screen (HP R/L OUT SH)
4	LT BLU	Audio unit (AUX VIDEO IN GND)
5	BRN	Audio unit (AUX AUDIO R/L SH)
6	WHT	Audio unit (COMN CHK)
7	PNK	Audio unit (HP R/L OUT GND)
8	BRN	Audio unit (AUX VIDEO IN SH)
9	PUR	Audio unit (AUX VIDEO IN)
10	GRN	Audio unit (AUX VIDEO L)
11	PNK	Audio unit (AUX AUDIO R/L GND)
12	BLU	Audio unit (AUX AUDIO R)
13	GRN	Audio unit (HP L OUT)
14	BLU	Audio unit (HP R OUT)

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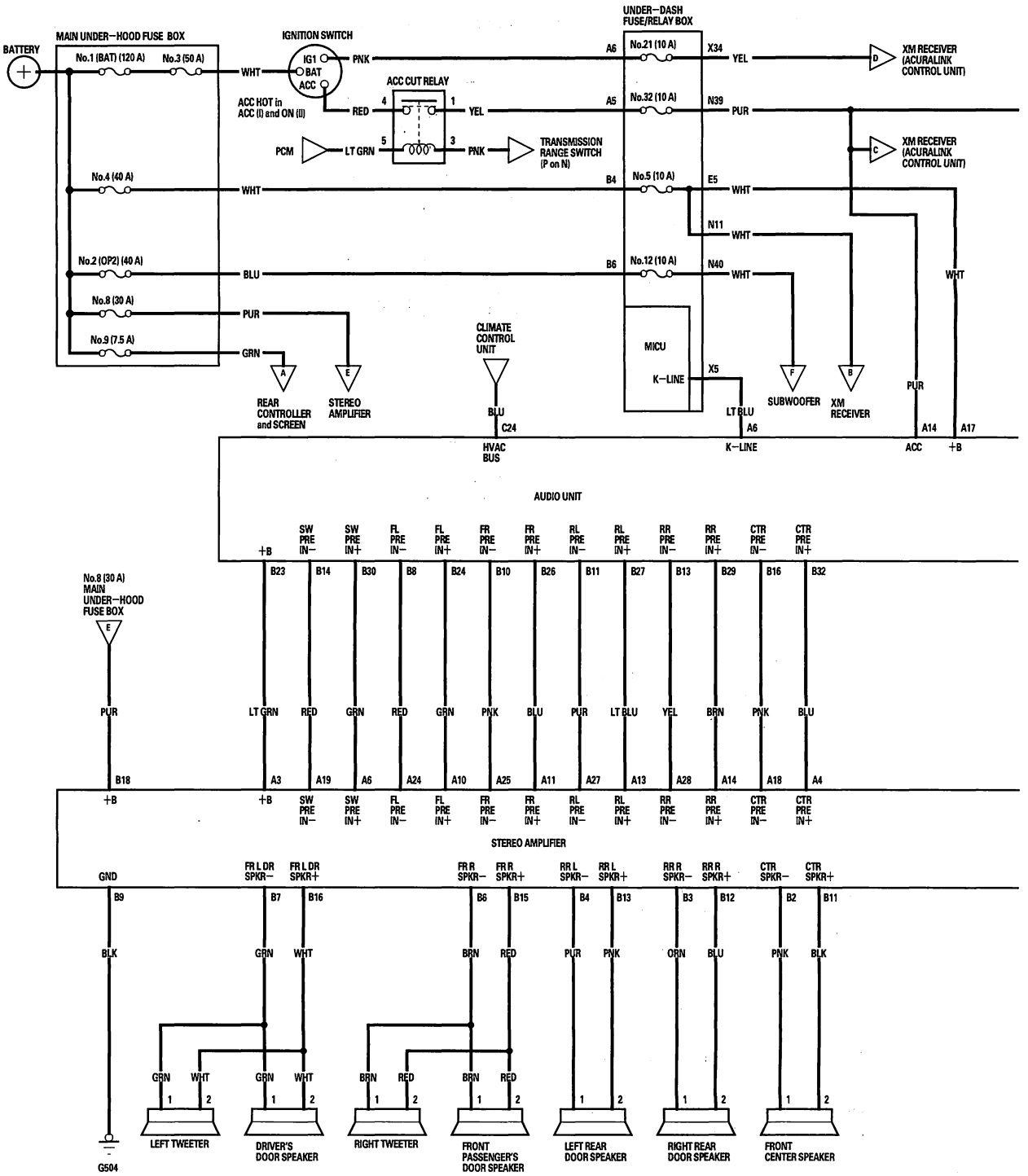
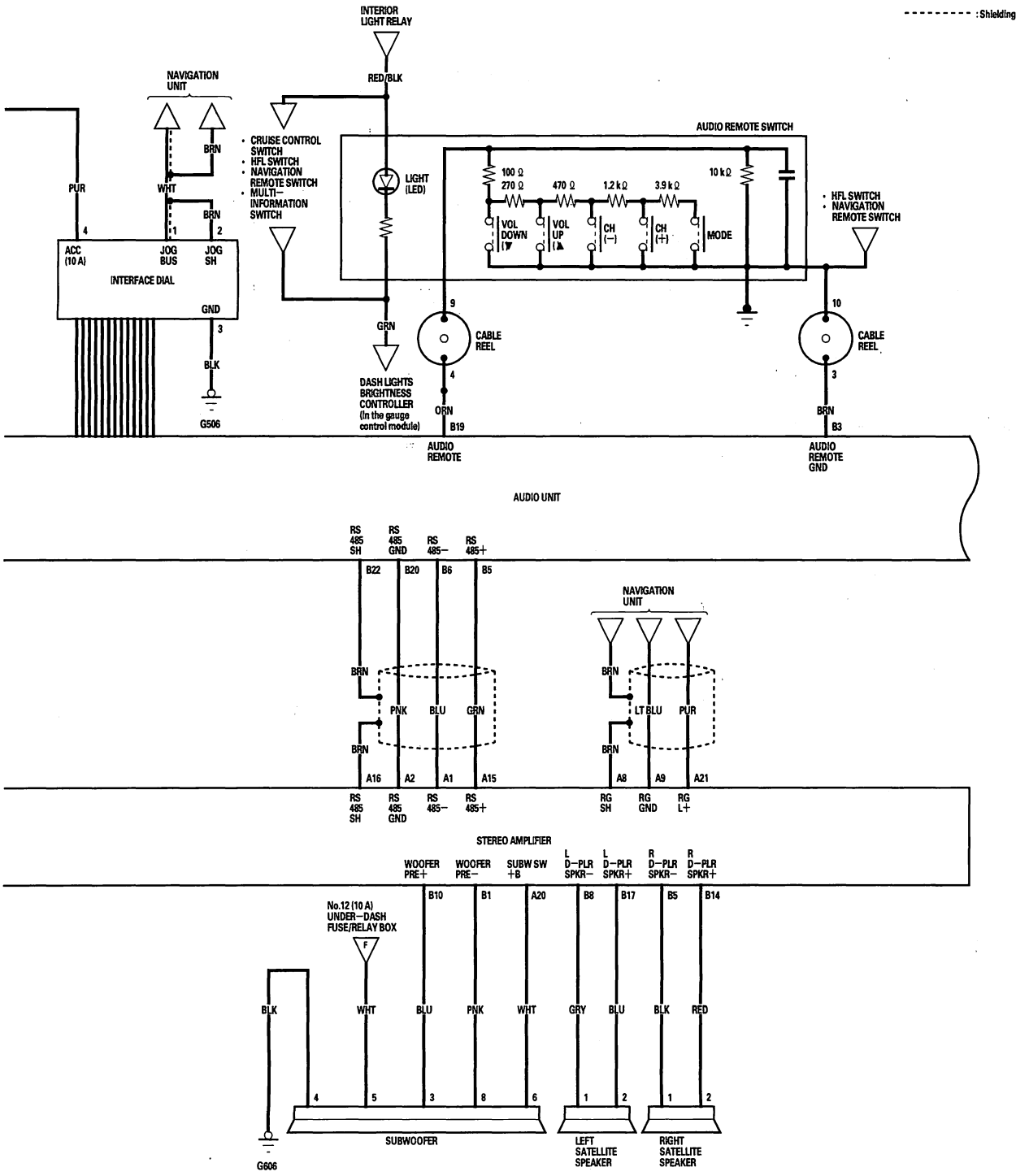
Rear Entertainment System

Circuit Diagram



BACK

Protected by AR



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BACK

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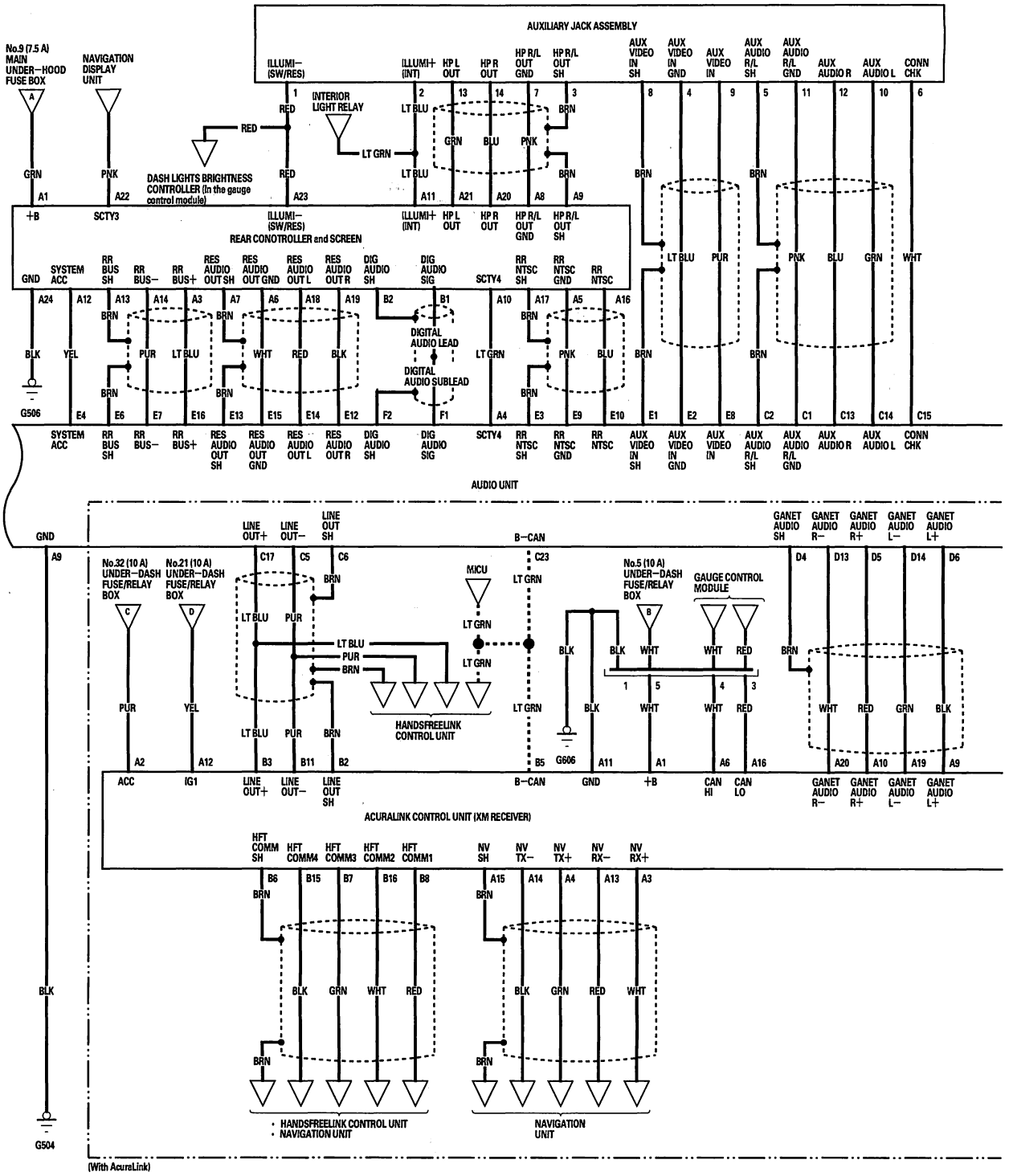
Rear Entertainment System

Circuit Diagram (cont'd)



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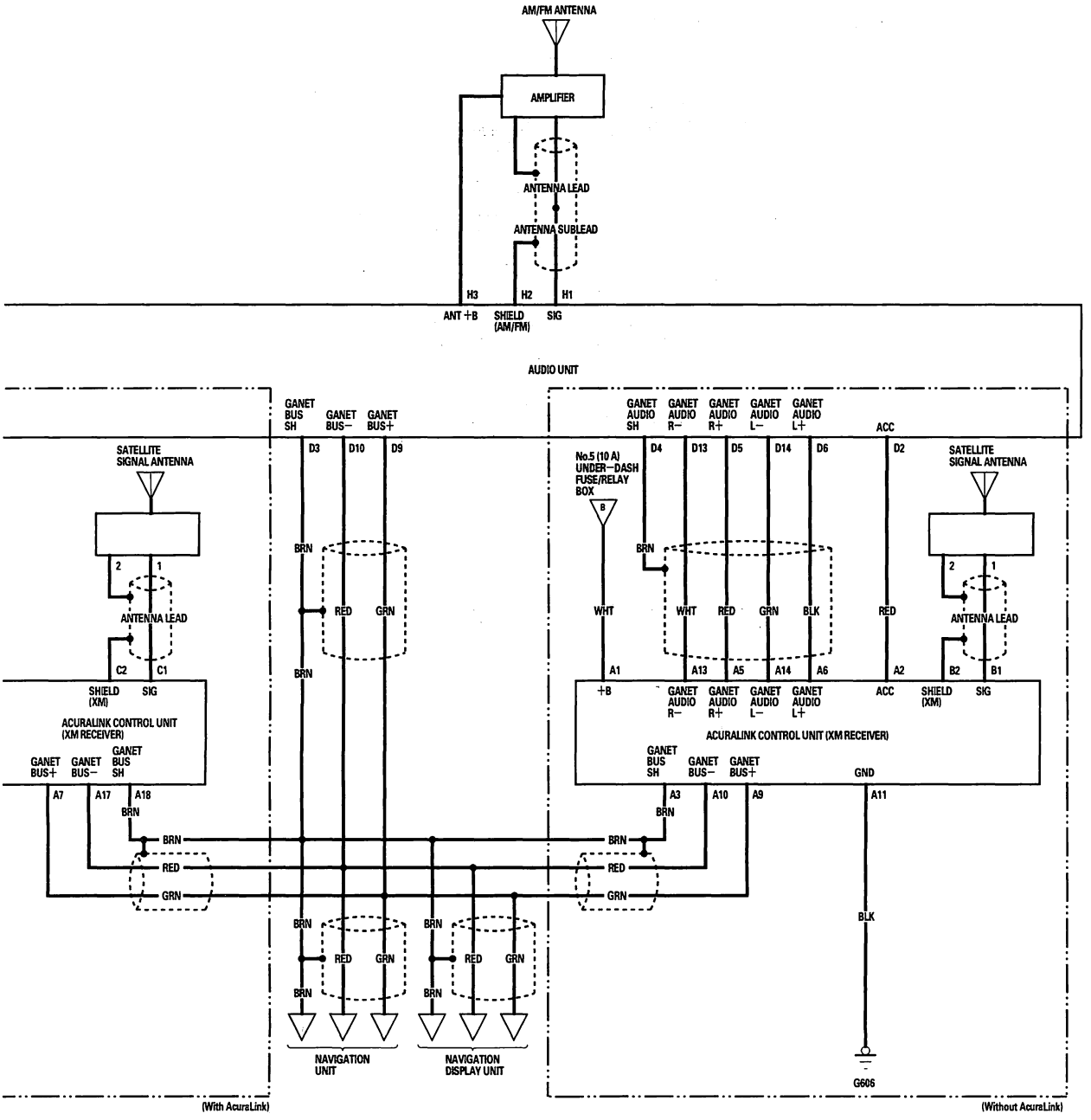
Protected by AR



BACK

Protected by AR

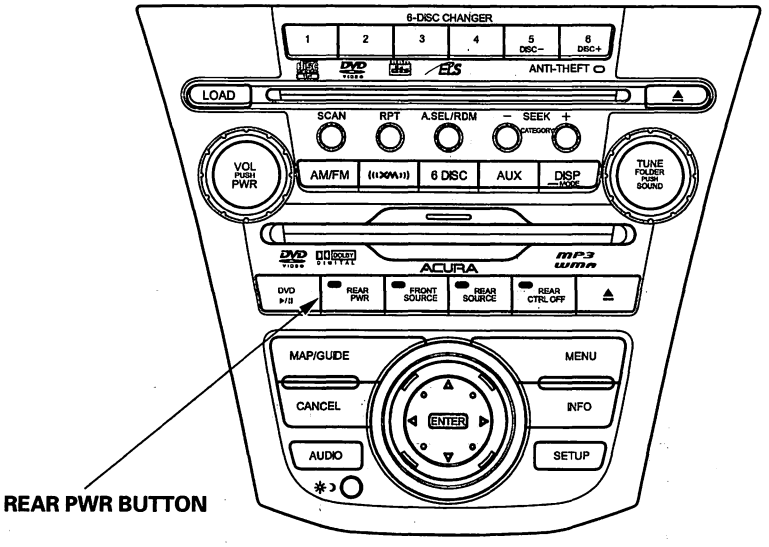
Rear Entertainment System

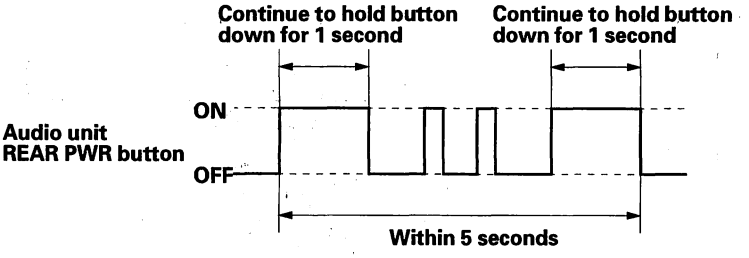
Self-diagnostic Function

The rear entertainment system has a self-diagnostic function that shows on the display. To run the self-diagnostic function, do the following:

How to Enter the Self-diagnostic Function with the Audio Unit

1. Turn the ignition switch to the ACC (I) position.
2. To run the self-diagnostic, press the REAR PWR button four times within 3 seconds and hold the REAR PWR button in on the fourth time until the diagnostic screen appears.



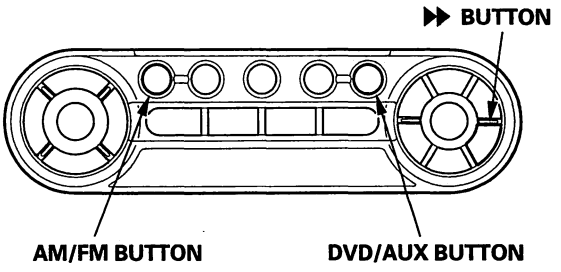


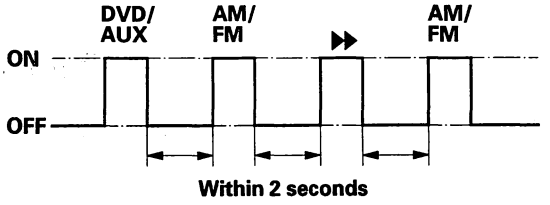
BACK

Protected by AR

How to Enter for Self-diagnostic Function with the Wireless Remote Control

1. Turn the ignition switch to the ACC (I) position.
2. To run the self-diagnostic, press the DVD/AUX button, the AM/FM button, the ▶▶ button, and then the AM/FM button again. The buttons must be pressed in that order, and within 2 seconds of each other (see table), and the self-diagnostic will begin.





Canceling the Self-diagnostic Function

Turn the ignition switch OFF to cancel the self-diagnostic function. After completing repair work, run the self-diagnostic function again to make sure that there are no other malfunctions.

(cont'd)

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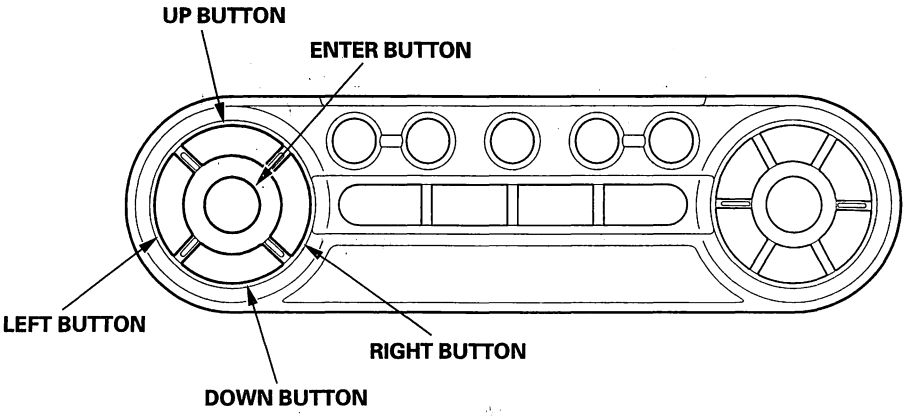
Self-diagnostic Function (cont'd)

Self-diagnostic Function Mode Select

Use the wireless, remote control to navigate within the self-diagnostic function.

LEFT/RIGHT button: Change the function mode
UP/DOWN button: Change the detection
ENTER button: Select the detection point



Function No.	Category		Check item or information	Judge display
1	CONNECT	RR DISP	Rear controller and screen connection check	OK or NG with GRN or RED
		H/U	Audio unit connection check	OK or NG with GRN or RED
		AUX	Auxiliary jack assembly connection check	OK or NG with GRN or RED
		XM	XM receiver connection check	OK or NG with GRN or RED
		DIGITAL LINE	Digital line connection check	OK or NG with GRN or RED
2	UNIT CHECK	DISPLAY VER	Rear controller and screen version and soft release day information	———
		SUB-M VER	Rear controller and screen sub u-com version and soft release day information	———
		COSD VER	Rear controller and screen COSD version and soft release day information	———
		OSD VER	Rear controller and screen COSD version and soft release day information	———
		RAM CHECK	Rear controller and screen RAM check	OK or NG
		DISP PANEL	Screen open or close condition	OPEN or NG
		+B VOLT	+B voltage	* * V or Err
		TEMP.	Screen temperature	* * h or Err

BACK

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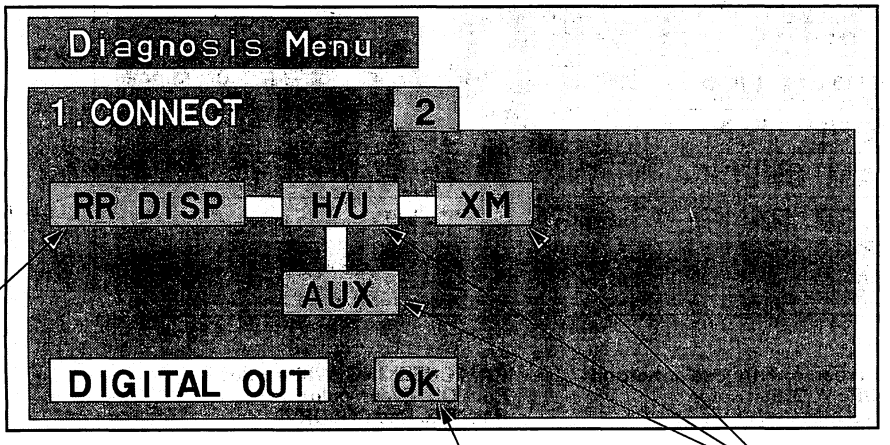
Self-diagnostic Function Mode Display

1. CONNECT
   The screen will display connection check status for each device while in this self-diagnostic mode.
   - If the RAM condition for the "RR DISP" (rear controller and screen) is faulty, the screen will display NG (red color).
   - If the connection for the "H/U" (audio unit) is "XM" (XM receiver), or "AUX" (auxiliary jack assembly) is faulty, the screen will display NG (red color).
   - If the digital line connection between the rear controller and screen and audio unit is faulty, the screen will display NG (red color).



RAM check
Connection OK: Green color
Connection NG: Red color

Digital line connection check
Connection OK: Green color
Connection NG: Red color

Connection check
Connection OK: Green color
Connection NG: Red color

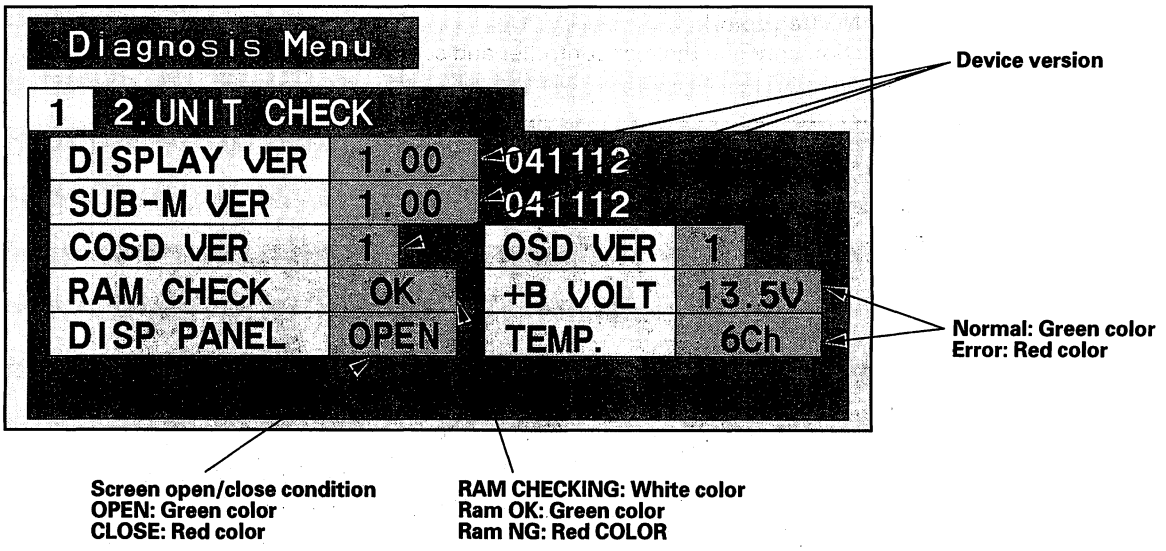
(cont'd)

Protected by AR

Rear Entertainment System

Self-diagnostic Function (cont'd)

2. UNIT CHECK
   The screen will display device version, self-diagnostic status and screen status while in this self-diagnostic mode.
   - If a connection to a device is no-good, the screen will display "———".
   - If there is a change (analog to digital) of signal error for the categories "+B VOLT" or "TEMP", the screen will display "Err".
   - The screen indicates open or closed condition of the screen.



BACK

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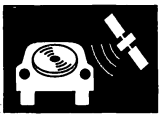


Symptom Troubleshooting

RES disc does not load

NOTE:
- Discs with labels should not be used in the DVD player unit (built into the audio unit). They may damage the player mechanism.
- Make sure the CD or DVD disc is compatible with the system (refer to the Owner's Manual for more information).

1. Try loading a disc.

   Does the disc load?

   YES—Intermittent failure, the DVD player unit is OK at this time. ■

   NO—Go to step 2.

2. Insert a known-good disc.

   Does the disc load?

   YES—The original disc is faulty. ■

   NO—Replace the audio unit (see page 23-90). ■

RES disc does not eject

NOTE: Discs with labels should not be used in the DVD player unit (built into the audio unit). They may damage the player mechanism.

1. Turn the ignition switch ON (II).

2. Try ejecting a disc.

   Does the disc eject?

   YES—Intermittent failure, the DVD player unit (built into the audio unit) is OK at this time. ■

   NO—Replace the audio unit (see page 23-90). ■

Protected by AR

Symptom Troubleshooting (cont'd)

RES disc does not play

NOTE:
- CD-R/RWs and DVD-R/RWs will not work in the DVD player unit (built into the audio unit).
- Damaged or contaminated discs may not always play properly.
- Discs with labels should not be used in the DVD player unit (built into the audio unit). They may damage the player mechanism.

1. Try loading a DVD.

   Does the DVD play (display and sound)?

   YES—Intermittent failure, the DVD player unit (built into the audio unit) is OK at this time. ■

   NO—Go to step 2.

2. Insert a known-good DVD.

   Does the DVD play (display and sound)?

   YES—The original DVD is faulty or is an unreadable format. ■

   NO—Go to step 3.

3. Check the "CONNECT" of the rear entertainment system self-diagnostic (see page 23-197).

   Is the audio unit connect condition OK?

   YES—Go to step 4.

   NO—Repair the poor connection in the audio unit connectors. ■

4. Substitute a known-good audio unit, then test the audio unit.

   Is the sound normal?

   YES—Replace the original audio unit. ■

   NO—Check for loose wires or poor connections at audio unit connectors, and recheck. ■

RES disc skips

NOTE:
- Copy protected material on a CD-R/RW or DVD-R/RW disc will skip or not play.
- Check for scratches, smudges, and fingerprints on the disc.

1. Try playing a disc.

   Does the disc skip?

   YES—Go to step 2.

   NO—Intermittent failure, the DVD player unit (built into the audio unit) is OK at this time. ■

2. Clean the disc, and recheck.

   Does the disc play properly?

   YES—The original disc was dirty. ■

   NO—Go to step 3.

3. Insert a known-good disc.

   Does the disc play properly?

   YES—The original disc is dirty or the wrong type. ■

   NO—Go to step 4.

4. Compare the disc skipping to a known-good vehicle under the same conditions.

   Does the known-good vehicle's disc skip under the same conditions (over the same bumps and on the same rough roads)?

   YES—Operation is normal. ■

   NO—Substitute a known-good audio unit, and recheck. If the symptom/indication goes away, replace the original audio unit. ■

BACK

Protected by AR

Black picture is shown on the display

NOTE: If the navigation system, or XM radio do not function properly, troubleshoot and resolve those problems first.

1. With the ignition switch ON (II), push the rear power switch ON to see if the screen turns ON.

   Does the screen come ON?

   YES—Operation is normal at this time. ■

   NO—Go to step 2.

2. Check for brightness settings in the display set up (refer to the Owner's Manual for more information).

   Are the display setting set properly?

   YES—Go to step 3.

   NO—Adjust the display setting and recheck the function. ■

3. Check the No. 9 (7.5 A) fuse in the main under-hood fuse box.

   Is the fuse OK?

   YES—Go to step 4.

   NO—Replace the fuse, and recheck. ■

4. Remove the display cover (see page 23-91). Then check that the rear controller and screen is properly connected.

   Is the rear controller and screen connected properly?

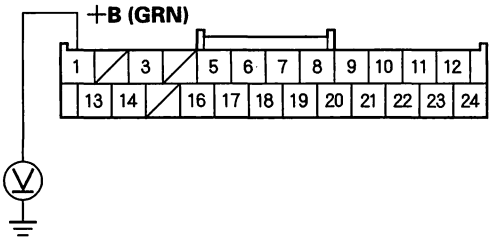
   YES—Go to step 5.

   NO—Reconnect the connector, and recheck the function. ■

5. Disconnect the rear controller and screen connector A (24P).

6. Measure the voltage between the No. 1 terminal of the rear controller and screen connector A (24P) and body ground.

REAR CONTROLLER AND SCREEN CONNECTOR A (24P)



Wire side of female terminals

Is there battery voltage?

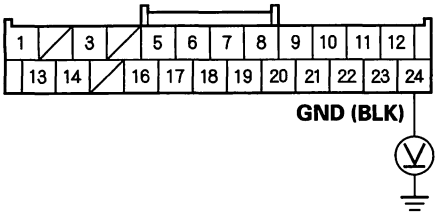
YES—Go to step 7.

NO—Repair open in the wire(s) between the No. 9 (7.5 A) fuse in the main under-hood fuse box and the rear controller and screen. ■

7. Reconnect the rear controller and screen connector A (24P).

8. Measure the voltage between the rear controller and screen connector A (24P) terminal No. 24 and body ground.

REAR CONTROLLER AND SCREEN CONNECTOR A (24P)



Wire side of female terminals

Is there less than 0.1 V?

YES—Replace the rear controller and screen. ■

NO—Repair open in the wire between the rear controller and screen connector A (24P) terminal No. 24 and body ground (G506). ■

Protected by AR

Symptom Troubleshooting (cont'd)

White picture is shown on the display/ display lock

1. With the ignition switch ON (II), push the rear power switch ON to see if the screen turns ON.

   Is it normal?

   YES—Operation is normal. ■

   NO—Go to step 2.

2. Run the rear entertainment system self-diagnostic (see page 23-196).

   Is it normal?

   YES—Operation is normal. ■

   NO—Substitute a known-good rear controller and screen, and recheck. If the symptom/indication goes away, replace the original rear controller and screen. ■

Display area picture has lines or has shifted

1. With the ignition switch ON (II), push the rear power switch ON to see if the screen turns ON.

   Does the screen come have lines or has the image shifted?

   YES—Go to step 2.

   NO—Operation is normal at this time. ■

2. Check the screen mode set up (refer to the Owner's Manual for more information).

   Are the settings set properly?

   YES—Substitute a known-good rear controller and screen, and recheck. If the symptom/indication goes away, replace the original rear controller and screen. ■

   NO—Adjust the display settings and recheck the function. ■

BACK

Protected by AR

Display does not go off when screen is closed

1. With the ignition switch ON (II) and screen open, push the rear power switch ON. Then close the screen by pivoting it up.

   Does the screen go off?

   YES—Operation is normal at this time.■

   NO—Go to step 2.

2. Check the lock switch.

   Does the screen close securely?

   YES—If the screen securely closes and the screen does not go off, replace it.■

   NO—Relock the screen, and recheck. If the screen will not securely lock into position, replace it.■

No display appears on the rear controller indicator

1. With the ignition switch ON (II), push the rear power switch ON to see if the screen turns ON.

   Does the screen come on?

   YES—Operation is normal at this time.■

   NO—Go to step 2.

2. Check the operation and display of the screen, the wireless remote control and the wireless headphone.

   Are the operation and display normal?

   YES—Faulty rear indicator.■

   NO—
   - Screen faulty: Go to the "Black picture is shown on the display" troubleshooting (see page 23-203).■
   - Wireless remote control faulty: Go to the "Wireless remote control does not work (all buttons)" troubleshooting (see page 23-211).■
   - Wireless headphone faulty: Go to the "Wireless headphone sound is weak, distorted, volume does not change, or there is no sound in all modes" troubleshooting (see page 23-210).■

Protected by AR

Symptom Troubleshooting (cont'd)

No sound/no display with auxiliary video unit inputs

NOTE:
- Check that the auxiliary device is properly connected, and has fresh batteries or power source connected.
- Do not connect an RCA type shorting plug with the auxiliary jack assembly 14P connector, or system damage may occur.

1. Connect an auxiliary video source, and check the volume/display operation.

   Is the display operate properly and does the audio shound normal?

   YES—Operation is normal at this time.■

   NO—Go to step 2.

2. Substitute a known-good auxiliary video unit and recheck.

   Does the auxiliary video unit operate properly?

   YES—Original auxiliary video unit faulty.■

   NO—Go to step 3.

3. Check the "CONNECT" of the rear entertainment system self-diagnostic (see page 23-197).

   Is the auxiliary jack assembly connect condition OK?

   YES—Go to step 8.

   NO—Go to step 4.

4. Remove the auxiliary jack assembly (see page 23-217). Check that the auxiliary jack assembly is properly connected.

   Is the auxiliary jack assembly connected properly?

   YES—Go to step 5.

   NO—Reconnect the connector, and recheck the function.■

5. Turn the ignition switch OFF.

6. Disconnect the audio unit connector C (24P), E (16P), and the auxiliary jack assembly 14P connector.

7. Check for continuity between audio unit connector C (24P), E (16P) and body ground according to the table. Then check same terminals for continuity to the harness shield terminals C2 and E1.

Audio unit connector	Wire color
E8	PUR
C14	GRN
C13	BLU
C1	PNK
E21	LT BLU

   Is there continuity?

   YES—Short in the wire between the audio unit and the auxiliary jack assembly. Replace the appropriate shielded harness.■

   NO—Go to step 8.

8. Check for continuity between the audio unit connector C (24P), E (16P) and auxiliary jack assembly 14P connector according to the table.

Audio unit connector	Auxiliary jack assembly connector	Wire color
E8	9	PUR
C14	10	GRN
C13	12	BLU
E2	4	LT BLU
C1	11	PNK

   Is there continuity?

   YES—Go to step 9.

   NO—Open in the wire between the audio unit and the auxiliary jack assembly. Replace the appropriate shielded harness.■

9. Connect an RCA type shorting plug to each audio input (R and L).

   NOTE: Do not connect the RCA type shorting plug with the auxiliary jack assembly 14P connected, or system damage may occur.

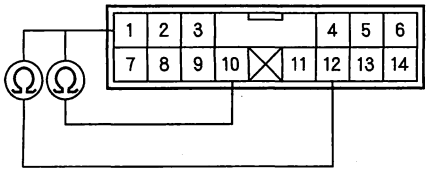
BACK

Protected by AR

10. Check for continuity between the following terminals of the auxiliary jack assembly.

    No. 10 ↔ No. 1
    No. 12 ↔ No. 1

AUXILIARY JACK ASSEMBLY



Terminal side of male terminals

Is there continuity?

YES—Go to step 11.

NO—Faulty auxiliary jack assembly. ■

11. Remove the RCA type shorting plug(s) and check the same terminals again for continuity.

Is there continuity?

YES—Faulty auxiliary jack assembly. ■

NO—Substitute a known-good audio unit and recheck. If the symptom/indicated goes away, replace the original audio unit. If the symptom is still present, substitute a known-good rear controller and screen and recheck. If the symptom/indicated goes away, replace the original rear controller and screen. ■

Wired headphone sound is weak, distorted, volume does not change, or there is no sound

1. Substitute a known-good wired headphone set and recheck.

   Does the symptom go away?

   YES—Original wired headphone set is faulty. ■

   NO—Go to step 2.

2. Plug the wired headphones into the other ports of the auxiliary jack assembly to check their condition.

   Do all the ports have the same symptom?

   YES—Go to step 3.

   NO—Faulty auxiliary jack assembly. ■

3. Check that the wired headphone jack is properly connected.

   Is the headphone jack connected properly?

   YES—Go to step 4.

   NO—Reconnect the wired headphone connector, and recheck the function. ■

4. Disconnect the auxiliary jack assembly 14P connector and rear controller and screen 24P connector.

(cont'd)

Protected by AR

Symptom Troubleshooting (cont'd)

5. Check for continuity between rear controller and screen connector A (24P) and body ground according to the table. Then check same terminals for continuity to the harness shield terminal A9.

Rear controller and screen connector	Wire color
A20	BLU
A21	GRN

Is there continuity?

YES—Short in the wire between the rear controller and screen unit and the auxiliary jack assembly. Replace the appropriate shielded harness. ■

NO—Go to step 6.

6. Check for continuity between the rear controller and screen connector A (24P) and auxiliary jack assembly 14P connector according to the table.

Audio unit connector	Auxiliary jack assembly connector	Wire color
A21	13	GRN
A20	14	BLU
A8	7	PNK

Is there continuity?

YES—Faulty auxiliary jack assembly. ■

NO—Open in the wire between the rear controller and screen and the auxiliary jack assembly. Replace the appropriate shielded harness. ■

Wireless headphones do not work or there is static in DVD mode

NOTE: Check the battery condition first.

1. Check the "CONNECT" and "UNIT CHECK" of the rear entertainment system self-diagnostic (see page 23-196).

   If the self-diagnostic status indicator OK (Green color)?

   YES—Go to the "Wireless headphone sound is weak, distorted, volume does not change, or there is no sound in all modes (see page 23-210)." ■

   NO—Go to step 2.

2. Remove the audio unit (see page 23-90).

3. Check that the audio unit connector F (2P) is properly connected to the audio unit.

   Is the digital audio unit connector F (2P) connected properly?

   YES—Go to step 4.

   NO—Reconnect the audio unit connector F (2P) and recheck the wireless headphone function. ■

4. Remove the rear controller and screen (see page 23-215).

5. Check that the rear controller and screen connector B (2P) is properly connected to the rear controller and screen.

   Is the audio unit connector F (2P) connected properly?

   YES—Go to step 6.

   NO—Reconnect the audio unit connector F (2P) and recheck the wireless headphone function. ■

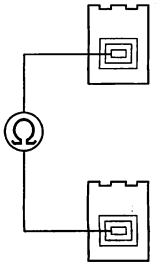
6. Disconnect the audio unit connector F (2P) from the audio unit and the rear controller and screen.

BACK

Protected by AR

7. Check for continuity between the audio unit connector F (2P) No. 1 terminal and the rear controller and screen connector B (2P) No. 1 terminal.

AUDIO UNIT CONNECTOR F (2P)
Terminal side of female terminals



REAR CONTROLLER AND SCREEN CONNECTOR B (2P)
Terminal side of female terminals

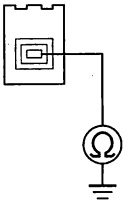
Is there continuity?

YES—Go to step 8.

NO—Replace the digital audio lead. ■

8. Check for continuity between the audio unit connector F (2P) No. 1 terminal and body ground.

AUDIO UNIT CONNECTOR F (2P)



Terminal side of female terminals

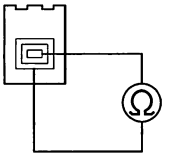
Is there continuity?

YES—Replace the digital audio lead. ■

NO—Go to step 9.

9. Check for continuity between the audio unit connector F (2P) No. 1 terminal No. 2 terminal.

AUDIO UNIT CONNECTOR F (2P)



Terminal side of female terminals

Is there continuity?

YES—Replace the digital audio lead. ■

NO—Go to step 10.

10. Substitute a known-good audio unit and recheck the wireless headphone function.

Do the wireless headphones work in DVD mode?

YES—Replace the original audio unit. ■

NO—Replace the rear controller and screen. ■

Protected by AR

Symptom Troubleshooting (cont'd)

Wireless headphone sound is weak, sound distorted, there is static, volume does not change, or there is no sound in all modes

NOTE: Check battery condition first.

1. Substitute a known-good wireless headphone and recheck.

   Does the symptom go away?

   YES—Replace the original wireless headphones. ■

   NO—Go to step 2.

2. Check the lens on the rear edge of the rear screen for dirt or damage.

   Does the rear screen appear to be in good condition?

   YES—Go to step 3.

   NO—Substitute a known-good rear controller and screen and recheck. ■

3. Substitute a known-good audio unit and recheck.

   Does the symptom go away?

   YES—Replace the original audio unit. ■

   NO—Go to step 4.

4. Disconnect the audio unit connector E (16P), and the rear controller and screen connector A (24P).

5. Check for continuity between audio unit connector E (16P) and body ground according to the table. Then check the same terminals for continuity to the harness shield terminal E13.

Audio unit connector	Wire color
E12	BLK
E14	RED
E15	WHT

   Is there continuity?

   YES—Short in the wire between the audio unit and the rear controller and screen. Replace the appropriate shielded harness. ■

   NO—Go to step 6.

6. Check for continuity between the audio unit connector E (16P) and rear controller and screen connector A (24P) according to the table.

Audio unit connector	Rear controller and screen	Wire color
E12	A19	BLK
E14	A18	RED
E15	A6	WHT

   Is there continuity?

   YES—Rear controller and screen faulty. ■

   NO—Repair open in the wire between the audio unit and rear controller and screen. ■

BACK

Protected by AR

Wireless remote control does not work (all buttons)

NOTE:
- Check the wireless remote control battery condition first.
- Make sure that the rear power and rear control are on (refer to the Owner's Manual for more information).

1. Check the wireless remote control operation.

   Does the wireless remote control operate normally?

   YES—Operation is normal at this time. ■

   NO—Go to step 2.

2. Substitute a known-good wireless remote control and recheck.

   Does the wireless remote control operate normally?

   YES—Replace the original wireless remote control. ■

   NO—Go to step 3.

3. Check the audio unit operation.

   Does the audio unit operate normally?

   YES—Go to step 4.

   NO—Go to the "Power switch will not turn ON (No information display and no sound)" troubleshooting (see page 23-41). ■

4. Check the rear controller display.

   Does the display operate normally?

   YES—Replace the rear indicator sub-printed circuit board (see page 23-215). ■

   NO—Go to the "No display appears on the rear indicator" troubleshooting (see page 23-205). ■

Wireless remote control does not work (source select buttons)

NOTE: Check the wireless remote control battery condition first.

1. Check the wireless remote control operation.

   Does the source select button operate?

   YES—Operation is normal at this time. ■

   NO—Go to step 2.

2. Check the "CONNECT" status of the rear entertainment system self-diagnostic (see page 23-197).

   Is the device connect condition OK?

   YES—Replace the wireless remote control. ■

   NO—Repair the connection for the device that has a connection error indicated. ■

Protected by AR

Symptom Troubleshooting (cont'd)

Wireless remote control does not work (rear power button)

NOTE:
- Check the wireless remote control battery condition first.
- The audio unit main and rear pwr must be ON before the wireless remote control power button will operate.

1. Check the wireless remote control operation.

   Does the audio unit indicate "REAR PWR"?

   YES—Replace the wireless remote control. ■

   NO—Go to step 2.

2. Press the "REAR PWR" button on the audio unit.

   Is the rear power button on?

   YES—Operation is normal at this time. ■

   NO—Replace the wireless remote control. ■

Screen backlight does not dim/remains dim

1. Turn the ignition switch ON (II).
2. Turn the combination light switch ON and OFF.

   Does the screen backlight dim with the combination light switch in the ON position?

   YES—Operation is normal at this time. ■

   NO—Go to step 3.

3. Check the backlight settings in the display set up (refer to the Owner's Manual for more information).

   Are the display settings set properly?

   YES—Go to step 4.

   NO—Adjust the display settings and recheck the function. ■

4. Turn the ignition switch OFF.
5. Check that the rear controller and screen and audio unit are properly connected.

   Are the connections OK?

   YES—Go to step 6.

   NO—Reconnect the connector, and recheck the function. ■

6. Disconnect the rear controller and screen connector A (24P).

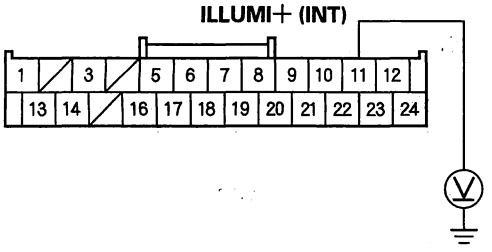
BACK

Protected by AR

7. Turn the ignition switch ON (II).

8. Measure the voltage between the rear controller and screen connector A (24P) No. 11 terminal and body ground. Turn the combination light switch on and off to see if the voltage changes.

REAR CONTROLLER AND SCREEN CONNECTOR A (24P)



Wire side of female terminals

Is there battery voltage with the combination light switch ON?

YES—Go to step 10.

NO—Go to step 9.

9. Check the illumination of several other unit/ switches not related to the rear entertainment system.

Are the buttons illuminated?

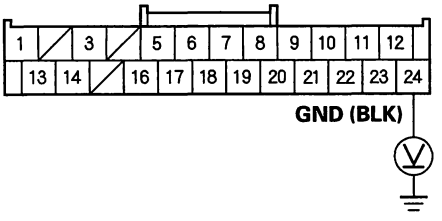
YES—Repair open in the wire(s) between the interior light relay in the auxiliary under-hood relay box and the rear controller and screen. ■

NO—Troubleshoot the interior lights. Start by checking the interior light relay in the auxiliary under-hood relay box. If the relay is OK, check the No. 22 (7.5 A) fuse in the under-hood fuse/relay box. If there is OK, check for open in the wire between the under-hood fuse/relay box and the interior light relay. ■

10. Reconnect the rear controller and screen connector A (24P).

11. Measure the voltage between the rear controller and screen connector A (24P) terminal No. 24 and body ground.

REAR CONTROLLER AND SCREEN CONNECTOR A (24P)



Wire side of female terminals

Is there less than 0.1 V?

YES—Replace the rear controller and screen. ■

NO—Repair open in the wire between rear controller and screen connector A (24P) terminal No. 24 and body ground (G506). ■

Protected by AR

Symptom Troubleshooting (cont'd)

DVD player unit DISC IN indicator or DISC DISTINCTION indicator does not come on/ does not go off

1. Check the DVD player unit operation.

   Does the DVD player unit operate normally?

   YES—Operation is normal at this time. ■

   NO—Go to step 2.

2. Substitute a known-good disc and recheck.

   Is it normal?

   YES—Original disc is faulty. ■

   NO—Substitute a known-good audio unit and recheck. If the symptom/indicated goes away, replace the original audio unit. ■

Wireless remote control illumination does not come on

1. Check the wireless remote control operation.

   Does the illumination for all the buttons come on (10 seconds)?

   YES—Operation is normal at this time. ■

   NO—Go to step 2.

2. Replace the batteries in the wireless remote control and recheck (see page 23-218).

   Does the wireless control illumination come on?

   YES—The original batteries were faulty. ■

   NO—Replace the wireless remote control. ■

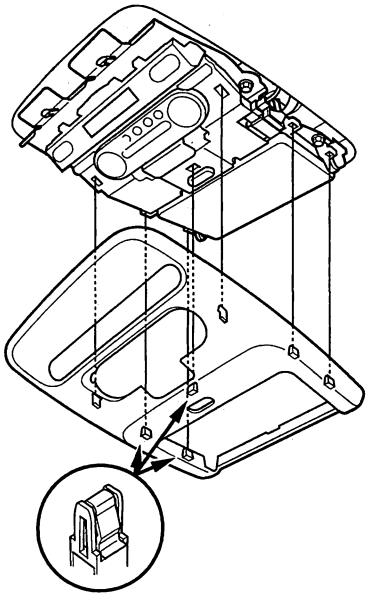
BACK

Protected by AR

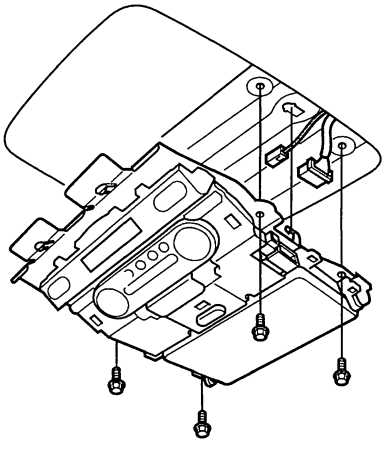
Rear Controller and Screen Removal/Installation

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the headliner and display cover.

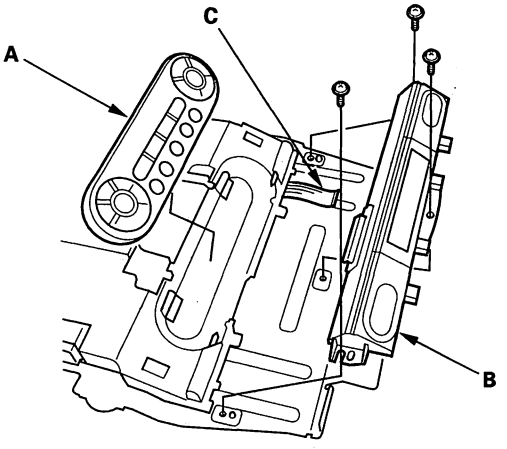
1. Remove the display cover.



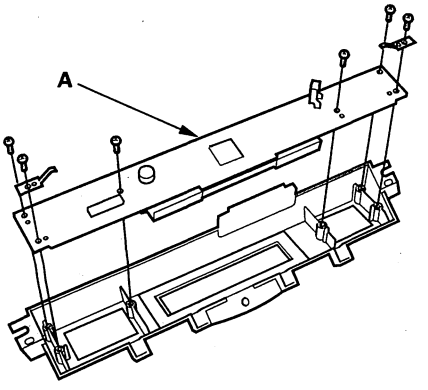
2. Remove the mounting bolts, disconnect the connector (A) from the rear controller and screen.



3. Remove the wireless remote control (A).



4. Remove the screws from the rear indicator (B).
5. Disconnect the cable (C) from the rear indicator.
6. Remove the screws, then remove the rear indicator sub printed circuit board (A).

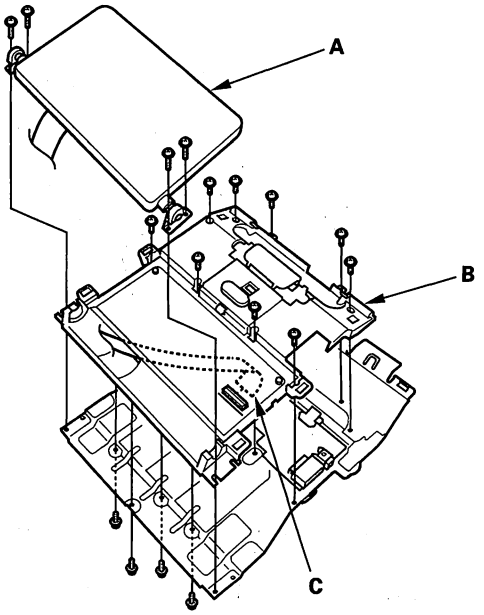


(cont'd)

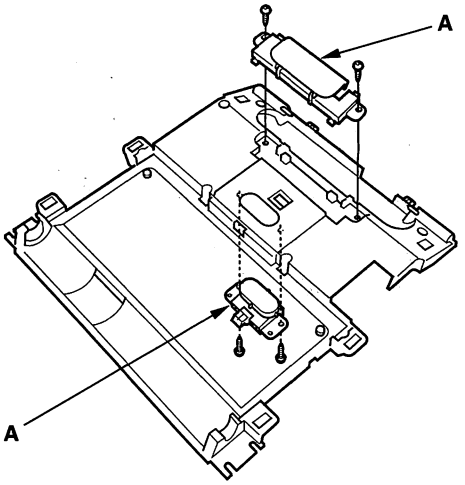
Protected by AR

Rear Controller and Screen Removal/Installation (cont'd)

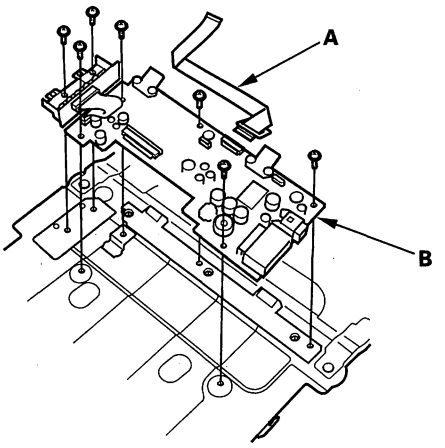
7. Remove the screws, then remove the screen (A) and base (B). Disconnect the cable (C).



8. Remove the screws and lock switches (A).



9. Disconnect the cable (A), then remove the screws and the rear control main printed circuit board (B).



10. Install the parts in the reverse order of removal, and make sure the rear controller and screen connector is plugged in properly.

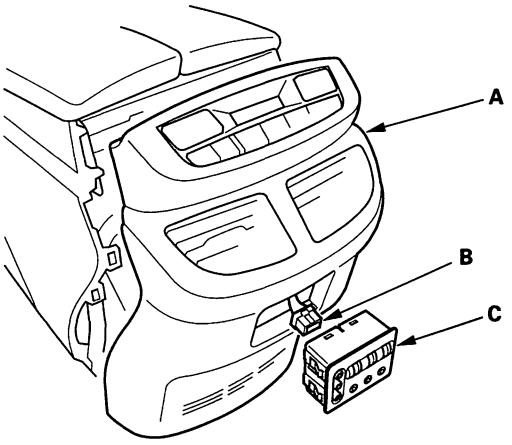
BACK

Protected by AR

Auxiliary Jack Assembly Replacement

With Rear Entertainment

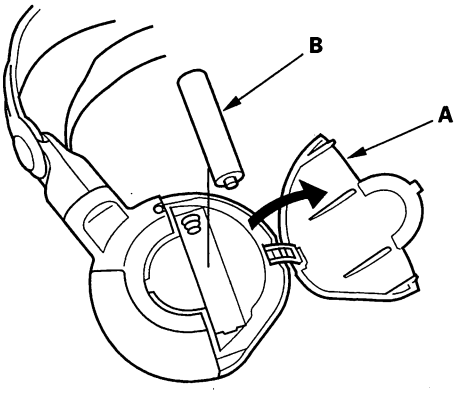
1. Gently pull out the console rear trim (A).



2. Disconnect the 14P connector (B), and remove the auxiliary jack assembly (C).
3. Carefully pry out the auxiliary jack assembly.

Wireless Headphone Battery Replacement

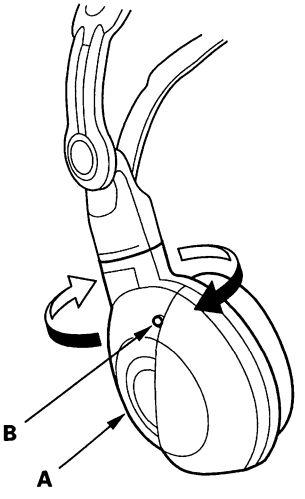
1. Remove the battery cover (A) from the wireless headphone and lift the cover.



2. Remove the battery (B) from the wireless headphone.

   Replacement Battery Size: AAA

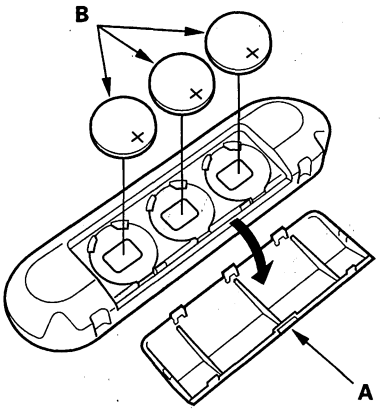
3. Turn the left earpiece (A), and confirm that the indicator (B) comes on after the battery is replaced.



Protected by AR

Wireless Remote Control Battery Replacement

1. Remove the cover (A) from the remote control.



2. Remove the batteries (B).

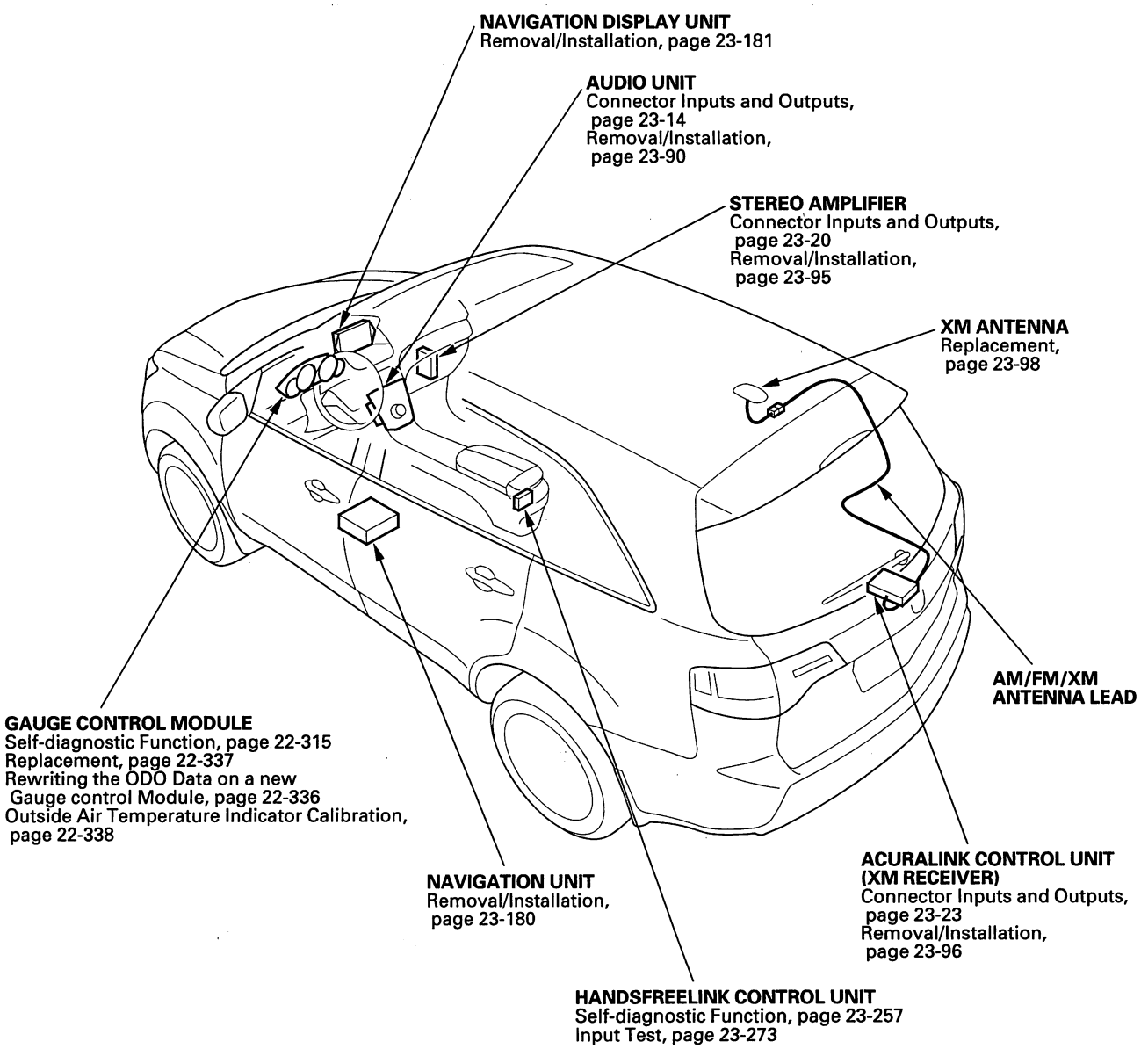
   Replacement Battery: BR3032

3. Confirm that each operation works normally after replacing the batteries.

BACK

Protected by AR

Component Location Index



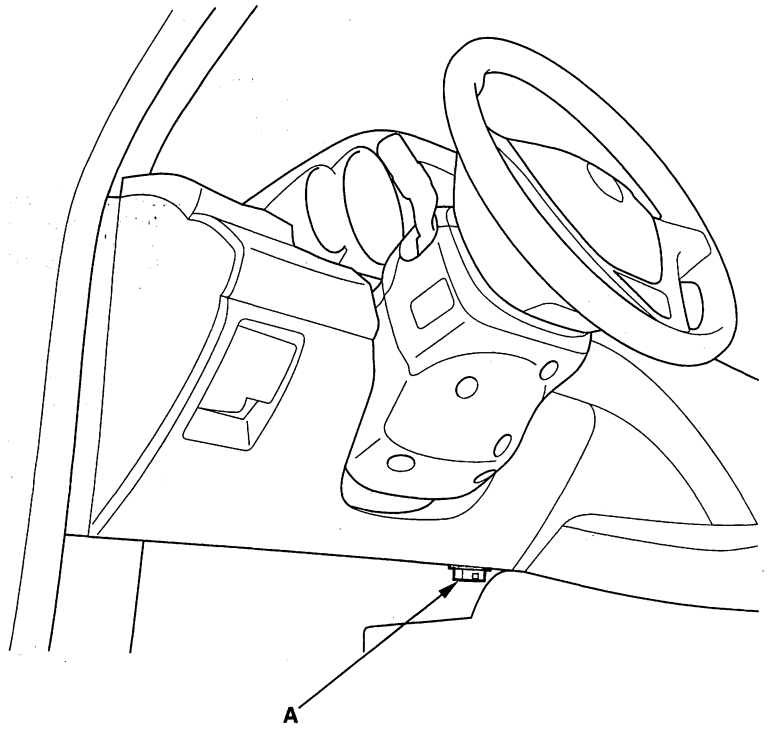
BACK

Protected by AR

General Troubleshooting Information

How to Check for DTCs with the HDS

1. Make sure the ignition switch is OFF.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Turn the ignition switch ON (II).
4. Make sure the HDS communicates with the vehicle and the AcuraLink control unit (XM receiver). If it doesn't, troubleshoot the DLC circuit (see page 11-223).
5. Select Telematics in the BODY ELECTRICAL menu.
6. Select DTCs in the Telematics menu.
7. Check for DTCs. If any DTCs are indicated, write down the DTCs, then go to the indicated DTC troubleshooting. If no DTCs are indicated, refer to symptom troubleshooting.

   NOTE: After troubleshooting, clear the DTCs with the HDS.

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Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
AcuraLink service application does not work	Symptom Troubleshooting (see page 23-252)	• Blown fuse No. 21 (7.5 A) and No. 32 (10 A) in the under-dash fuse/relay box • Poor ground at G606
AcuraLink services do not work after replacing the AcuraLink control unit (XM receiver)	Navigation system symptom troubleshooting (see page 23-134)	• Call Acura Client Services and request an activation. • Call XM client care and register the replacement AcuraLink control unit (XM receiver).

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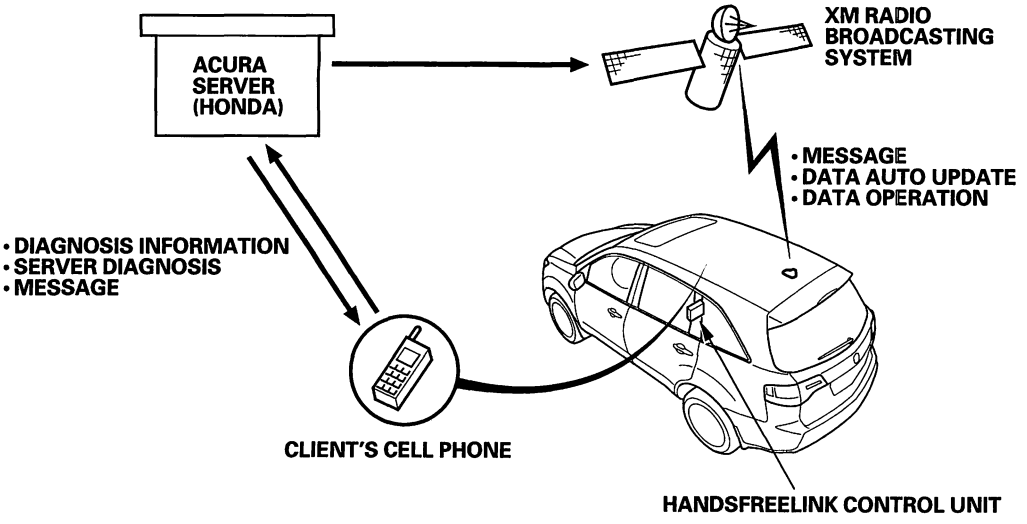
AcuraLink

System Description

The AcuraLink uses the client's cell phone or XM radio to transmit and receive information about the vehicle. In addition, the AcuraLink system has a Text-To-Speech engine, and will also have the capability to initiate voice or data calls with the HandsFreeLink control unit.

The AcuraLink control unit (HIP) is very similar in design to an XM receiver that has additional communication features. The main functions include:

- Receiving and playing XM stations. Displaying station, song title and other information on the audio unit using the GA-Net bus.
- Receiving XM traffic channel data.
- Gives "Feature Guide" tips.
- Receiving AcuraLink messages and displaying then in the navigation display.
- Processing DTC (diagnostic trouble code) error messages from the PCM, the SRS and other systems and displaying them on the navigation display.
- Sending DTC information to the AcuraLink servers using the client's cell phone (only if client has set up and enabled this option).



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Service Application
- Malfunction indicator lamp (MIL) explanation (from server message and vehicle message)
- Service information message
- Recall Information
- Quick tips
- Place to provide feedback/view cautions that were not available when vehicle was initially sold
- Correction of address and full name that is registered
- Real time traffic information
- Maintenance information message
- Feature guide (90 days)

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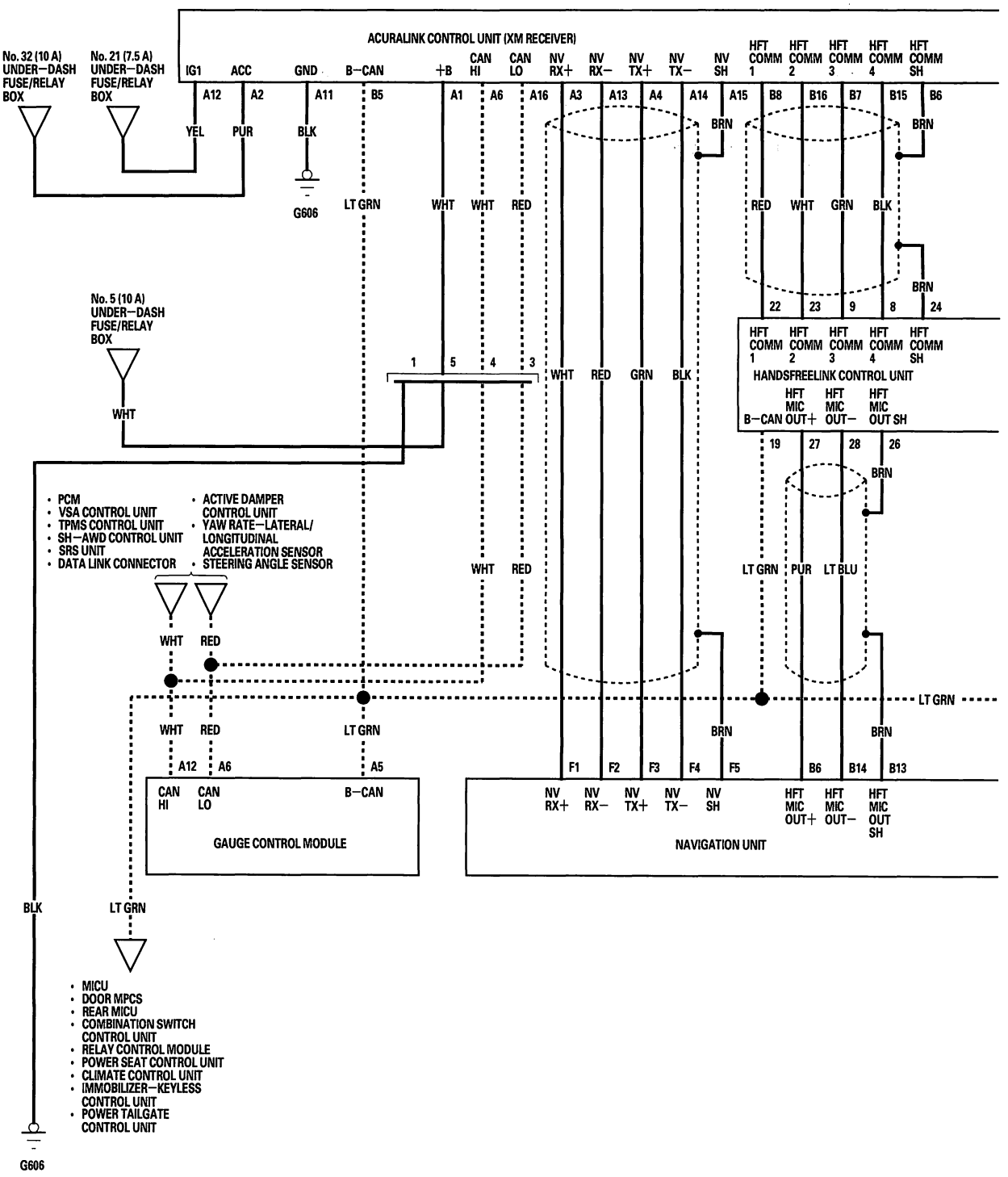
AcuraLink

Circuit Diagram



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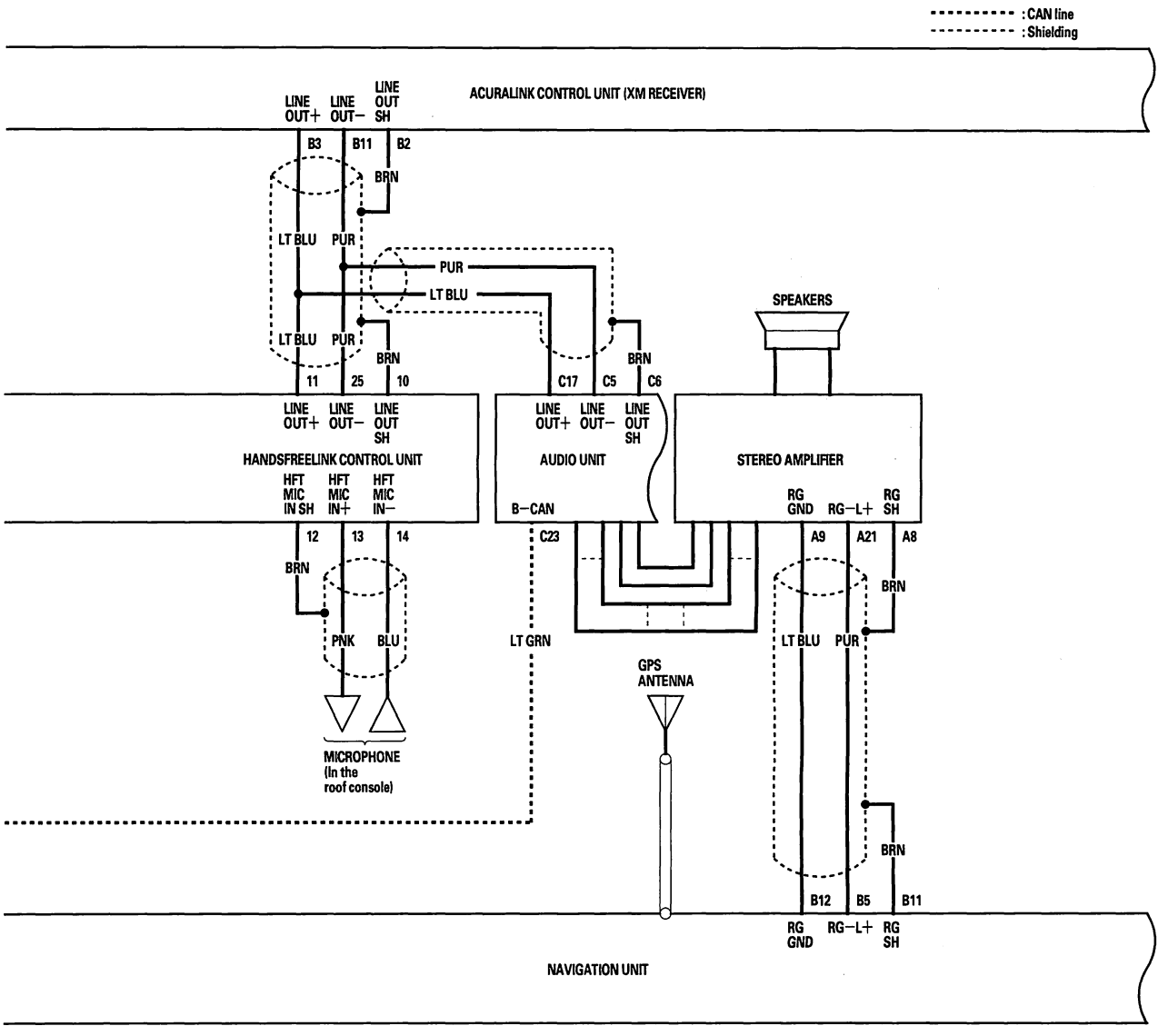

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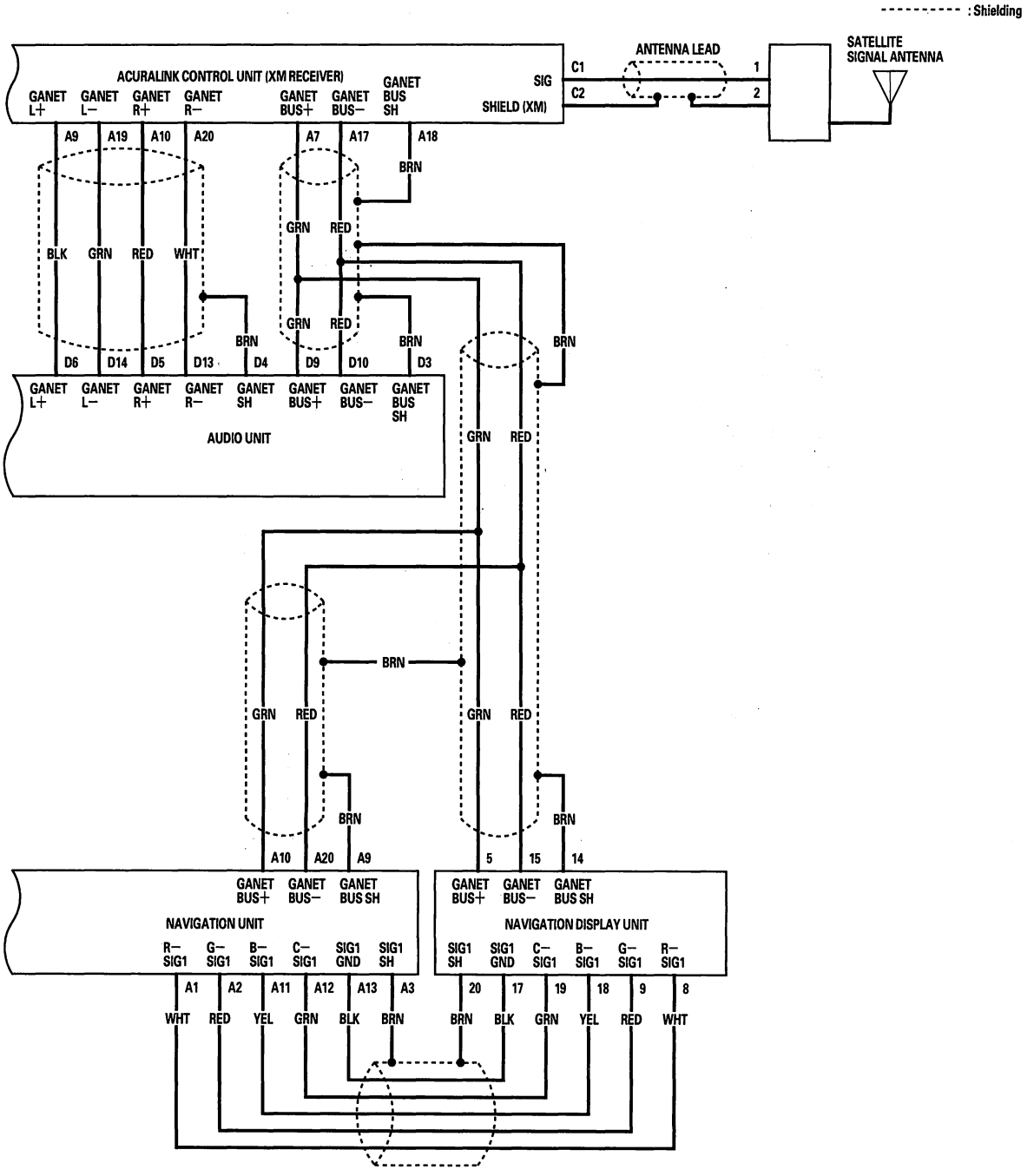
Circuit Diagram (cont'd)



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Self-diagnostic Function

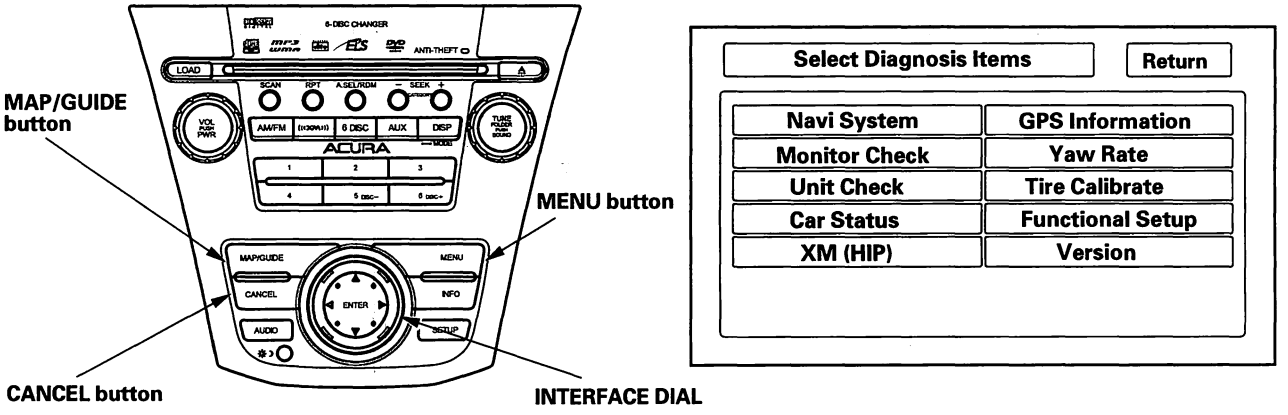
Note: Only select "DATA RESET" from the "XM (HIP) ECU" screen when instructed. Selecting "DATA RESET" will clear the AcuraLink registration, and the AcuraLink service will reset to the factory default. If the vehicle was already registered for the AcuraLink service, it will have to be reactivated by calling Acura Client Services before all features will be available.

The AcuraLink control unit (XM receiver) has a self-diagnostic function. To run the self-diagnostic function, do the following:

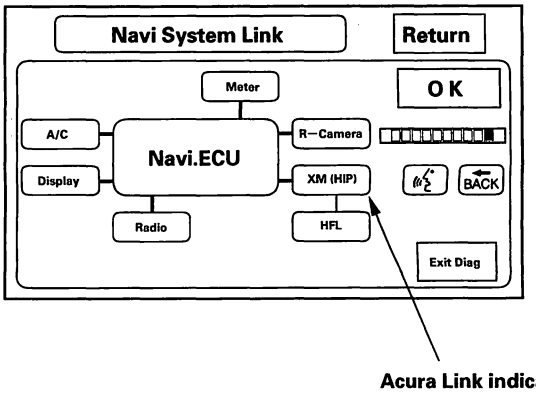
How to Enter the Self-diagnostic Function

NOTE: Always check for and repair any B-CAN or F-CAN DTCs before troubleshooting the AcuraLink system.

1. Turn the ignition switch ON (II).
2. Press the interface dial.
3. Press and hold the MAP/GUIDE, CANCEL, and MENU buttons at the same time for 3 seconds more, and the self-diagnosis will begin.



4. Using interface dial, select the "NAVI System" from the "Select Diagnosis Items". Press the interface dial. The display indicates "NAVI System Link", and will perform a Navi connection check for each device. If a connection is faulty, the place where it is faulty will be indicated with "NG" (red color). If "XM (HIP)" indicator is "NG" (red color), go to step 5.



5. Using the interface dial, select the "Return" from the "Navi System Link". Press the interface dial.

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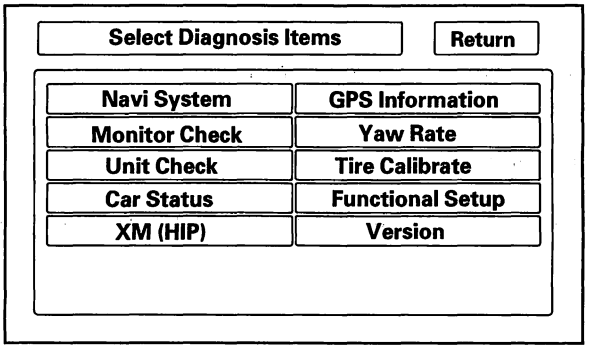
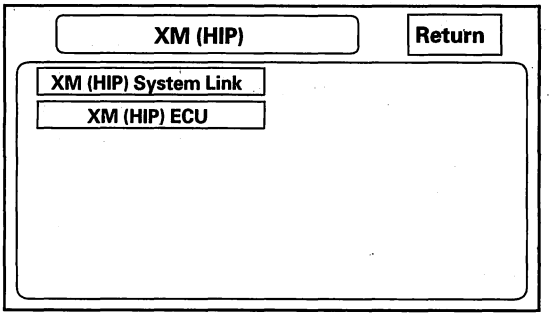
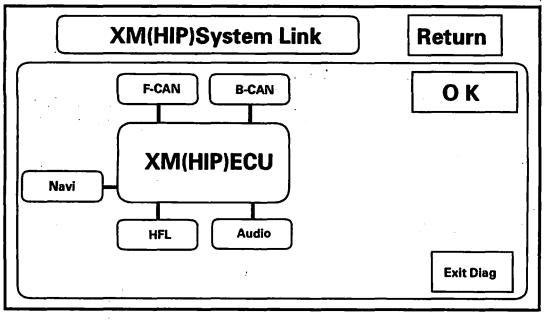
Self-diagnostic Function (cont'd)

6. Using the interface dial, select the "XM (HIP)" from the "Select Diagnosis Items". Press the interface dial.



7. Using the interface dial, select the "XM (HIP) System Link" from the "XM (HIP)". Press the interface dial. The display indicates "XM (HIP) System Link", and will perform an AcuraLink connection check for each device. If a connection is faulty, the place where it is faulty will be indicated with "NG" (red color).





Connection OK: Green color
Connection NG: Red color

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8. When a red color is indicated, check the continuity between the XM receiver unit and the device indicated in red.

Red color indicate device	Test condition	Test: Desired result	Possible cause if result is not obtained
F-CAN	XM receiver control unit connector A (20P) and Gauge control module connector A (12P) disconnected	Check for continuity between the No. 6 terminal of XM receiver unit connector A (20P) and the No. 12 terminal of the Gauge control module connector A (12P): There should be continuity.	An open in the wire
		Check for continuity between the No. 16 terminal of XM receiver unit connector A (20P) and the No. 6 terminal of the Gauge control module connector A (12P): There should be continuity.	An open in the wire
	XM receiver control unit connector A (20P) and PCM connector A (49P) disconnected	Check for continuity between the No. 6 terminal of XM receiver unit connector A (20P) and the No. 48 terminal of the PCM connector A (49P): There should be continuity.	An open in the wire
		Check for continuity between the No. 16 terminal of XM receiver unit connector A (20P) and the No. 49 terminal of the PCM connector A (49P): There should be continuity.	An open in the wire
	XM receiver control unit connector A (20P) and VSA control unit 46P connector disconnected	Check for continuity between the No. 6 terminal of XM receiver unit connector A (20P) and the No. 18 terminal of the VSA control unit 46P connector: There should be continuity.	An open in the wire
		Check for continuity between the No. 16 terminal of XM receiver unit connector A (20P) and the No. 17 terminal of the VSA control unit 46P connector: There should be continuity.	An open in the wire
	XM receiver control unit connector A (20P) and TPMS control unit 20P connector disconnected	Check for continuity between the No. 6 terminal of XM receiver unit connector A (20P) and the No. 1 terminal of the TPMS control unit 20P connector: There should be continuity.	An open in the wire
		Check for continuity between the No. 16 terminal of XM receiver unit connector A (20P) and the No. 11 terminal of the TPMS control unit 20P connector): There should be continuity.	An open in the wire
	XM receiver control unit connector A (20P) and SH-AWD control unit connector A (20P) disconnected	Check for continuity between the No. 6 terminal of XM receiver unit connector A (20P) and the No. 10 terminal of the SH-AWD control unit connector A (20P): There should be continuity.	An open in the wire
		Check for continuity between the No. 16 terminal of XM receiver unit connector A (20P) and the No. 20 terminal of the SH-AWD control unit connector A (20P): There should be continuity.	An open in the wire
	XM receiver control unit connector A (20P) and SRS unit connector A (27P) disconnected	Check for continuity between the No. 6 terminal of XM receiver unit connector A (20P) and the No. 11 terminal of the SRS unit connector A (27P): There should be continuity.	An open in the wire
		Check for continuity between the No. 16 terminal of XM receiver unit connector A (20P) and the No. 12 terminal of the SRS unit connector A (27P): There should be continuity.	An open in the wire

(cont'd)

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Protected by AR

Self-diagnostic Function (cont'd)

Red color indicate device	Test condition	Test: Desired result	Possible cause if result is not obtained
F-CAN	XM receiver control unit connector A (20P) and active damper control unit connector B (14P) disconnected	Check for continuity between the No. 6 terminal of XM receiver unit connector A (20P) and the No. 1 terminal of the active damper control unit connector B (14P): There should be continuity.	An open in the wire
		Check for continuity between the No. 16 terminal of XM receiver unit connector A (20P) and the No. 8 terminal of the active damper control unit connector B (14P): There should be continuity.	An open in the wire
	XM receiver control unit connector A (20P) and Yaw rate-lateral/ longitudinal acceleration sensor 4P connector disconnected	Check for continuity between the No. 6 terminal of XM receiver unit connector A (20P) and the No. 3 terminal of the Yaw rate-lateral/longitudinal acceleration sensor 4P connector: There should be continuity.	An open in the wire
		Check for continuity between the No. 16 terminal of XM receiver unit connector A (20P) and the No. 2 terminal of the Yaw rate-lateral/longitudinal acceleration sensor 4P connector: There should be continuity.	An open in the wire
	XM receiver control unit connector A (20P) and Steering angle sensor 5P connector disconnected	Check for continuity between the No. 6 terminal of XM receiver unit connector A (20P) and the No. 4 terminal of the Steering angle sensor 5P connector: There should be continuity.	An open in the wire
		Check for continuity between the No. 16 terminal of XM receiver unit connector A (20P) and the No. 2 terminal of the Steering angle sensor 5P connector: There should be continuity.	An open in the wire
	XM receiver control unit connector A (20P), Gauge control module connector A (12P), PCM connector A (49P), VSA control unit 46P connector, TPMS control unit 20P connector, SH-AWD control unit connector A (20P), SRS unit connector A (27P), active damper control unit connector B (14P), Yaw rate-lateral/longitudinal acceleration sensor 4P connector, Steering angle sensor 5P connector disconnected	Check for continuity between the No. 6, No. 16 terminals of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the wire
		Check for continuity between the No. 1 and No. 6 terminals of XM receiver unit connector A (20P): There should be no continuity.	A short in the wire
		Check for continuity between the No. 1 and No. 16 terminals of XM receiver unit connector A (20P): There should be no continuity.	A short in the wire
	Gauge control module connector A (12P), PCM connector A (49P), VSA control unit 46P connector, TPMS control unit 20P connector, SH-AWD control unit connector A (20P), SRS unit connector A (27P), active damper control unit connector B (14P), Yaw rate-lateral/longitudinal acceleration sensor 4P connector, Steering angle sensor 5P connector disconnected	Check for continuity between the No. 6, No. 16 terminals of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the XM receiver unit

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Protected by AR

Red color indicate device	Test condition	Test: Desired result	Possible cause if result is not obtained
F-CAN	XM receiver control unit connector A (20P), PCM connector A (49P), VSA control unit 46P connector, TPMS control unit 20P connector, SH-AWD control unit connector A (20P), SRS unit connector A (27P), active damper control unit connector B (14P), Yaw rate-lateral/longitudinal acceleration sensor 4P connector, Steering angle sensor 5P connector disconnected	Check for continuity between the No. 6, No. 16 terminals of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the Gauge control module
	XM receiver control unit connector A (20P), Gauge control module connector A (12P), VSA control unit 46P connector, TPMS control unit 20P connector, SH-AWD control unit connector A (20P), SRS unit connector A (27P), active damper control unit connector B (14P), Yaw rate-lateral/longitudinal acceleration sensor 4P connector, Steering angle sensor 5P connector disconnected	Check for continuity between the No. 6, No. 16 terminals of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the PCM
	XM receiver control unit connector A (20P), Gauge control module connector A (12P), PCM connector A (49P), TPMS control unit 20P connector, SH-AWD control unit connector A (20P), SRS unit connector A (27P), active damper control unit connector B (14P), Yaw rate-lateral/longitudinal acceleration sensor 4P connector, Steering angle sensor 5P connector disconnected	Check for continuity between the No. 6, No. 16 terminals of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the VSA control unit
	XM receiver control unit connector A (20P), Gauge control module connector A (12P), PCM connector A (49P), VSA control unit 46P connector, SH-AWD control unit connector A (20P), SRS unit connector A (27P), active damper control unit connector B (14P), Yaw rate-lateral/longitudinal acceleration sensor 4P connector, Steering angle sensor 5P connector disconnected	Check for continuity between the No. 6, No. 16 terminals of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the TPMS control unit
	XM receiver control unit connector A (20P), Gauge control module connector A (12P), PCM connector A (49P), VSA control unit 46P connector, TPMS control unit 20P connector, SRS unit connector A (27P), active damper control unit connector B (14P), Yaw rate-lateral/ longitudinal acceleration sensor 4P connector, Steering angle sensor 5P connector disconnected	Check for continuity between the No. 6, No. 16 terminals of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the SH-AWD control unit
	XM receiver control unit connector A (20P), Gauge control module connector A (12P), PCM connector A (49P), VSA control unit 46P connector, TPMS control unit 20P connector, SH-AWD control unit connector A (20P), active damper control unit connector B (14P), Yaw rate-lateral/longitudinal acceleration sensor 4P connector, Steering angle sensor 5P connector disconnected	Check for continuity between the No. 6, No. 16 terminals of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the SRS unit

(cont'd)

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Protected by AR

Self-diagnostic Function (cont'd)

Red color indicate device	Test condition	Test: Desired result	Possible cause if result is not obtained
F-CAN	XM receiver control unit connector A (20P), Gauge control module connector A (12P), PCM connector A (49P), VSA control unit 46P connector, TPMS control unit 20P connector, SH-AWD control unit connector A (20P), SRS unit connector A (27P), Yaw rate-lateral/ longitudinal acceleration sensor 4P connector, Steering angle sensor 5P connector disconnected	Check for continuity between the No. 6, No. 16 terminals of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the active damper control unit
	XM receiver control unit connector A (20P), Gauge control module connector A (12P), PCM connector A (49P), VSA control unit 46P connector, TPMS control unit 20P connector, SH-AWD control unit connector A (20P), SRS unit connector A (27P), active damper control unit connector B (14P), Steering angle sensor 5P connector disconnected	Check for continuity between the No. 6, No. 16 terminals of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the Yaw rate-lateral/longitudi nal acceleration sensor
	XM receiver control unit connector A (20P), Gauge control module connector A (12P), PCM connector A (49P), VSA control unit 46P connector, TPMS control unit 20P connector, SH-AWD control unit connector A (20P), SRS unit connector A (27P), active damper control unit connector B (14P), Yaw rate-lateral/longitudinal acceleration sensor 4P connector disconnected	Check for continuity between the No. 6, No. 16 terminals of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the Steering angle sensor
B-CAN	XM receiver control unit connector B (16P) and MICU connector G (6P) disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and the No. 1 terminal of the MICU connector G (6P): There should be continuity.	An open in the wire
	XM receiver control unit connector B (16P) and door MPCS connector A (40P) disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and the No. 28 terminal of the door MPCS connector A (40 P): There should be continuity.	An open in the wire
	XM receiver control unit connector B (16P) and rear MICU connector B (34P) disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and the No. 2 terminal of the rear MICU connector B (34P): There should be continuity.	An open in the wire
	XM receiver control unit connector B (16P) and combination switch 8P connector disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and the No. 4 terminal of the combination switch 8P connector: There should be continuity.	An open in the wire
	XM receiver control unit connector B (16P) and relay control module connector E (14P) disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and the No. 1 terminal of the relay control module connector E (14P): There should be continuity.	An open in the wire
	XM receiver control unit connector B (16P) and power seat control unit connector B (40P) disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and the No. 40 terminal of the power seat control unit connector B (40P): There should be continuity.	An open in the wire

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Protected by AR

Red color indicate device	Test condition	Test: Desired result	Possible cause if result is not obtained
B-CAN	XM receiver control unit connector B (16P) and immobilizer-keyless control unit 7P connector disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and the No. 4 terminal of the immobilizer-keyless control unit 7P connector: There should be continuity.	An open in the wire
	XM receiver control unit connector B (16P) and power tailgate control unit connector C (14P) disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and the No. 7 terminal of the power tailgate control unit connector C (14P): There should be continuity.	An open in the wire
	XM receiver control unit connector B (16P) and gauge control module connector A (12P) disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and the No. 5 terminal of the gauge control module connector A (12P): There should be continuity.	An open in the wire
	XM receiver control unit connector B (16P) and HandsFreeLink control unit 28P connector disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and the No. 19 terminal of the HandsFreeLink control unit 28P connector: There should be continuity.	An open in the wire
	XM receiver control unit connector B (16P) and audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and the No. 23 terminal of the audio unit connector C (24P): There should be continuity.	An open in the wire
	XM receiver control unit connector B (16P), MICU connector G (6P), door MPCS connector A (40P), rear MICU connector B (34P), combination switch 8P connector, relay control module connector (14P), power seat control unit connector B (40P), immobilizer-keyless control unit 7P connector, power tailgate control unit connector C (14P), gauge control module connector A (12P), HandsFreeLink control unit 28P connector, audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the wire
	XM receiver control unit connector B (16P), MICU connector G (6P), door MPCS connector A (40P), rear MICU connector B (34P), combination switch 8P connector, relay control module connector (14P), power seat control unit connector B (40P), immobilizer-keyless control unit 7P connector, power tailgate control unit connector C (14P), gauge control module connector A (12P), HandsFreeLink control unit 28P connector, audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and the No. 1 terminal of XM receiver unit connector A (20P) body ground: There should be no continuity.	A short in the wire

(cont'd)

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Protected by AR

Self-diagnostic Function (cont'd)

Red color indicate device	Test condition	Test: Desired result	Possible cause if result is not obtained
B-CAN	MICU connector G (6P), door MPCS connector A (40P), rear MICU connector B (34P), combination switch 8P connector, relay control module connector (14P), power seat control unit connector B (40P), immobilizer-keyless control unit 7P connector, power tailgate control unit connector C (14P), gauge control module connector A (12P), HandsFreeLink control unit 28P connector, audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the XM receiver control unit
	XM receiver control unit connector B (16P), door MPCS connector A (40P), rear MICU connector B (34P), combination switch 8P connector, relay control module connector (14P), power seat control unit connector B (40P), immobilizer-keyless control unit 7P connector, power tailgate control unit connector C (14P), gauge control module connector A (12P), HandsFreeLink control unit 28P connector, audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the MICU
	XM receiver control unit connector B (16P), MICU connector G (6P), rear MICU connector B (34P), combination switch 8P connector, relay control module connector (14P), power seat control unit connector B (40P), immobilizer-keyless control unit 7P connector, power tailgate control unit connector C (14P), gauge control module connector A (12P), HandsFreeLink control unit 28P connector, audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminals of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the door MPCS
	XM receiver control unit connector B (16P), MICU connector G (6P), door MPCS connector A (40P), combination switch 8P connector, relay control module connector (14P), power seat control unit connector B (40P), immobilizer-keyless control unit 7P connector, power tailgate control unit connector C (14P), gauge control module connector A (12P), HandsFreeLink control unit 28P connector, audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminals of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the rear MICU

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Protected by AR

Red color indicate device	Test condition	Test: Desired result	Possible cause if result is not obtained
B-CAN	XM receiver control unit connector B (16P), MICU connector G (6P), door MPCS connector A (40P), rear MICU connector B (34P), relay control module connector (14P), power seat control unit connector B (40P), immobilizer-keyless control unit 7P connector, power tailgate control unit connector C (14P), gauge control module connector A (12P), HandsFreeLink control unit 28P connector, audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminals of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the combination switch control unit
	XM receiver control unit connector B (16P), MICU connector G (6P), door MPCS connector A (40P), rear MICU connector B (34P), combination switch 8P connector, power seat control unit connector B (40P), immobilizer-keyless control unit 7P connector, power tailgate control unit connector C (14P), gauge control module connector A (12P), HandsFreeLink control unit 28P connector, audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminals of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the relay control module
	XM receiver control unit connector B (16P), MICU connector G (6P), door MPCS connector A (40P), rear MICU connector B (34P), combination switch 8P connector, relay control module connector (14P), immobilizer-keyless control unit 7P connector, power tailgate control unit connector C (14P), gauge control module connector A (12P), HandsFreeLink control unit 28P connector, audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminals of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the power seat control unit
	XM receiver control unit connector B (16P), MICU connector G (6P), door MPCS connector A (40P), rear MICU connector B (34P), combination switch 8P connector, relay control module connector (14P), power seat control unit connector B (40P), power tailgate control unit connector C (14P), gauge control module connector A (12P), HandsFreeLink control unit 28P connector, audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminals of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the immobilizer keyless control unit
	XM receiver control unit connector B (16P), MICU connector G (6P), door MPCS connector A (40P), rear MICU connector B (34P), combination switch 8P connector, relay control module connector (14P), power seat control unit connector B (40P), immobilizer-keyless control unit 7P connector, gauge control module connector A (12P), HandsFreeLink control unit 28P connector, audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminals of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the power tailgate control unit

(cont'd)

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Protected by AR

Self-diagnostic Function (cont'd)

Red color indicate device	Test condition	Test: Desired result	Possible cause if result is not obtained
B-CAN	XM receiver control unit connector B (16P), MICU connector G (6P), door MPCS connector A (40P), rear MICU connector B (34P), combination switch 8P connector, relay control module connector (14P), power seat control unit connector B (40P), immobilizer-keyless control unit 7P connector, power tailgate control unit connector C (14P), HandsFreeLink control unit 28P connector, audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminals of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the gauge control module
	XM receiver control unit connector B (16P), MICU connector G (6P), door MPCS connector A (40P), rear MICU connector B (34P), combination switch 8P connector, relay control module connector (14P), power seat control unit connector B (40P), immobilizer-keyless control unit 7P connector, power tailgate control unit connector C (14P), gauge control module connector A (12P), audio unit connector C (24P) disconnected	Check for continuity between the No. 5 terminals of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the HandsFreeLink control unit
	XM receiver control unit connector B (16P), MICU connector G (6P), door MPCS connector A (40P), rear MICU connector B (34P), combination switch 8P connector, relay control module connector (14P), power seat control unit connector B (40P), immobilizer-keyless control unit 7P connector, power tailgate control unit connector C (14P), gauge control module connector A (12P), HandsFreeLink control unit 28P connector disconnected	Check for continuity between the No. 5 terminals of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the audio unit
Navi	XM receiver control unit connector A (20P) and navigation unit connector F (5P) disconnected	Check for continuity between the No. 3 terminal of XM receiver unit connector A (20P) and the No. 1 terminal of the navigation unit connector F (5P): There should be continuity.	An open in the wire
		Check for continuity between the No. 13 terminal of XM receiver unit connector A (20P) and the No. 2 terminal of the navigation unit connector F (5P): There should be continuity.	An open in the wire
		Check for continuity between the No. 4 terminal of XM receiver unit connector A (20P) and the No. 3 terminal of the navigation unit connector F (5P): There should be continuity.	An open in the wire
		Check for continuity between the No. 14 terminal of XM receiver unit connector A (20P) and the No. 4 terminal of the navigation unit connector F (5P): There should be continuity.	An open in the wire
		Check for continuity between the No. 3 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the wire

BACK

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Red color indicate device	Test condition	Test: Desired result	Possible cause if result is not obtained
Navi	XM receiver control unit connector A (20P) and navigation unit connector F (5P) disconnected	Check for continuity between the No. 1 and No. 3 terminals of XM receiver unit connector A (20P): There should be no continuity.	A short in the wire
		Check for continuity between the No. 13 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the wire
		Check for continuity between the No. 1 and No. 13 terminals of XM receiver unit connector A (20P): There should be no continuity.	A short in the wire
		Check for continuity between the No. 4 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the wire
		Check for continuity between the No. 1 and No. 4 terminals of XM receiver unit connector A (20P): There should be no continuity.	A short in the wire
		Check for continuity between the No. 14 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the wire
		Check for continuity between the No. 1 and No. 14 terminals of XM receiver unit connector A (20P): There should be no continuity.	A short in the wire
	Navigation unit connector F (5P) disconnected	Check for continuity between the No. 3 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the XM receiver unit
		Check for continuity between the No. 13 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the XM receiver unit
		Check for continuity between the No. 4 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the XM receiver unit
		Check for continuity between the No. 14 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the XM receiver unit
	XM receiver control unit connector A (20P) disconnected	Check for continuity between the No. 3 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the navigation unit
		Check for continuity between the No. 13 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the navigation unit
		Check for continuity between the No. 4 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the navigation unit
		Check for continuity between the No. 14 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the navigation unit

(cont'd)

Protected by AR

Self-diagnostic Function (cont'd)

Red color indicate device	Test condition	Test: Desired result	Possible cause if result is not obtained
HFL	XM receiver control unit connector B (16P) and HandsFreeLink control unit 28P connector disconnected	Check for continuity between the No. 8 terminal of XM receiver unit connector B (16P) and the No. 22 terminal of the HandsFreeLink control unit 28P connector: There should be continuity.	An open in the wire
		Check for continuity between the No. 16 terminal of XM receiver unit connector B (16P) and the No. 23 terminal of the HandsFreeLink control unit 28P connector: There should be continuity.	An open in the wire
		Check for continuity between the No. 7 terminal of XM receiver unit connector B (16P) and the No. 9 terminal of the HandsFreeLink control unit 28P connector: There should be continuity.	An open in the wire
		Check for continuity between the No. 15 terminal of XM receiver unit connector B (16P) and the No. 8 terminal of the HandsFreeLink control unit 28P connector: There should be continuity.	An open in the wire
		Check for continuity between the No. 8 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the wire
		Check for continuity between the No. 1 terminal of XM receiver unit connector A (20P) and the No. 8 terminal of the XM receiver unit connector B (16P): There should be no continuity.	A short in the wire
		Check for continuity between the No. 16 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the wire
		Check for continuity between the No. 1 terminal of XM receiver unit connector A (20P) and the No. 16 terminal of the XM receiver unit connector B (16P): There should be no continuity.	A short in the wire
		Check for continuity between the No. 7 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the wire
		Check for continuity between the No. 1 terminal of XM receiver unit connector A (20P) and the No. 7 terminal of the XM receiver unit connector B (16P): There should be no continuity.	A short in the wire

BACK

Protected by AR

Red color indicate device	Test condition	Test: Desired result	Possible cause if result is not obtained
HFL	XM receiver control unit connector B (16P) and HandsFreeLink control unit 28P connector disconnected	Check for continuity between the No. 15 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the wire
		Check for continuity between the No. 1 terminal of XM receiver unit connector A (20P) and the No. 15 terminal of the XM receiver unit connector B (16P): There should be no continuity.	A short in the wire
	HandsFreeLink control unit 28P connector disconnected	Check for continuity between the No. 8 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the XM receiver unit
		Check for continuity between the No. 16 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the XM receiver unit
		Check for continuity between the No. 7 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the XM receiver unit
		Check for continuity between the No. 15 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the XM receiver unit
	XM receiver control unit connector A (20P) disconnected	Check for continuity between the No. 8 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the HandsFreeLink control unit
		Check for continuity between the No. 16 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the HandsFreeLink control unit
		Check for continuity between the No. 7 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the HandsFreeLink control unit
		Check for continuity between the No. 15 terminal of XM receiver unit connector B (16P) and body ground: There should be no continuity.	A short in the HandsFreeLink control unit
Audio	XM receiver control unit connector A (20P) and audio unit connector D (14P) disconnected	Check for continuity between the No. 7 terminal of XM receiver unit connector A (20P) and the No. 9 terminal of the audio unit connector D (14P): There should be continuity.	An open in the wire
		Check for continuity between the No. 17 terminal of XM receiver unit connector A (20P) and the No. 10 terminal of the audio unit connector D (14P): There should be continuity.	An open in the wire
		Check for continuity between the No. 7 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the wire

(cont'd)

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Self-diagnostic Function (cont'd)

Red color indicate device	Test condition	Test: Desired result	Possible cause if result is not obtained
Audio	XM receiver control unit connector A (20P) and audio unit connector D (14P) disconnected	Check for continuity between the No. 1 and No. 7 terminals of XM receiver unit connector A (20P): There should be no continuity.	A short in the wire
		Check for continuity between the No. 17 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the wire
		Check for continuity between the No. 1 and No. 17 terminals of XM receiver unit connector A (20P): There should be no continuity.	A short in the wire
	Audio unit connector D (14P) disconnected	Check for continuity between the No. 7 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the XM receiver unit
		Check for continuity between the No. 17 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the XM receiver unit
	XM receiver control unit connector A (20P) disconnected	Check for continuity between the No. 7 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the audio unit
		Check for continuity between the No. 17 terminal of XM receiver unit connector A (20P) and body ground: There should be no continuity.	A short in the audio unit

NOTE: If the XM antenna connection condition is faulty, "XM ANTENNA" will be indicated on the audio-HVAC subdisplay-clock.

9. If the indication does not go away, confirm DTCs, and refer to the relevant system troubleshooting and input tests.

Canceling the Self-diagnostic Function

1. Use the interface dial, select the "Exit Diag". Press the interface dial to cancel the self-diagnostic function.

BACK

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DTC Troubleshooting

DTC B2202: AcuraLink Control Unit EEPROM Error

1. Connect the HDS to the DLC.
2. Turn the ignition switch ON (II).
3. Check for DTCs with the HDS and DTC log data in the navigation system diagnostic mode (see page 23-158).

   Is DTC B2202 indicated with HDS and on the navigation display?

   YES—Intermittent failure. The system is OK at this time. Check for poor connections or loose terminals at the AcuraLink control unit (XM receiver).■

   NO—Check for poor connections or loose terminals at the AcuraLink control unit (XM receiver). If all connections are OK, replace the AcuraLink control unit (XM receiver) (see page 23-96).■

DTC B2204: B-CAN Communication Line Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Connect the HDS to the DLC.
2. Turn the ignition switch ON (II).
3. Check for DTCs with the HDS and DTC log data in the navigation system diagnostic mode (see page 23-158).

   Is DTC B2204 indicated with HDS and on the navigation display?

   YES—Intermittent failure. B-CAN communication line is OK at this time. Check for poor connections or loose terminals at the AcuraLink control unit (XM receiver).■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Disconnect the AcuraLink control unit (XM receiver) connector B (16P) and gauge control module connector A (12P).

(cont'd)

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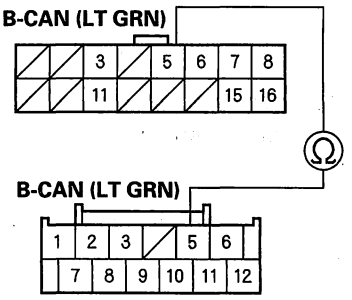
DTC Troubleshooting (cont'd)

6. Check for continuity between the AcuraLink control unit (XM receiver) connector B (16P) No. 5 terminal and gauge control module connector A (12P) No. 5 terminal.

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR B (16P)
Wire side of female terminals



GAUGE CONTROL MODULE CONNECTOR A (12P)
Wire side of female terminals

Is there continuity?

YES—Check for poor connections or loose terminals at the AcuraLink control unit (XM receiver). If all connections are OK, replace the AcuraLink control unit (XM receiver) (see page 23-96). ■

NO—Repair open in the wire between AcuraLink control unit (XM receiver) and the gauge control module. ■

DTC B2205: F-CAN Communication Line Error

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Connect the HDS to the DLC.
2. Turn the ignition switch ON (II).
3. Check for DTCs with the HDS and DTC log data in the navigation system diagnostic mode (see page 23-158).

   Is DTC B2205 indicated with HDS and on the navigation display?

   YES—Intermittent failure. F-CAN communication line is OK at this time. Check for poor connections or loose terminals at the AcuraLink control unit (XM receiver). ■

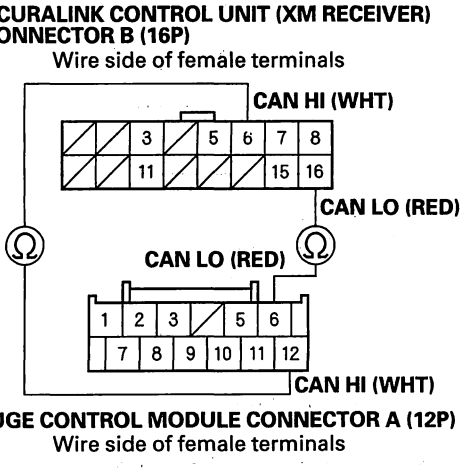
   NO—Go to step 4.

4. Turn the ignition switch OFF.
5. Disconnect the AcuraLink control unit (XM receiver) connector B (16P) and gauge control module connector A (12P).

BACK

Protected by AR

6. Check for continuity between the AcuraLink control unit (XM receiver) connector B (16P) No. 6, No. 16 terminals and gauge control module connector A (12P) No. 6, No. 12 terminals.



Is there continuity?

YES—Check for poor connections or loose terminals at the AcuraLink control unit (XM receiver). If all connections are OK, replace the AcuraLink control unit (XM receiver) (see page 23-96).■

NO—Repair open in the wire between AcuraLink control unit (XM receiver) and the gauge control module.■

DTC B2207: Navigation Unit Lost Communication With AcuraLink Control Unit

1. Connect the HDS to the DLC.
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) and wait 30 seconds or more.
4. Check for DTC with the HDS.

   Is DTC B2207, B2208 indicated?

   YES—Check the battery condition (see page 22-76). If the system OK, replace the AcuraLink control unit (XM receiver).■

   NO—
   - If the B2207 is not indicated, Intermittent failure, system OK at this time. Check for poor connections or loose terminals at the AcuraLink control unit (XM receiver).■
   - If the B2208 is not indicated, go to Step 5.
5. Turn the ignition switch OFF.
6. Disconnect the AcuraLink control unit (XM receiver) connector A (20P) and navigation unit connector F (5P).

(cont'd)

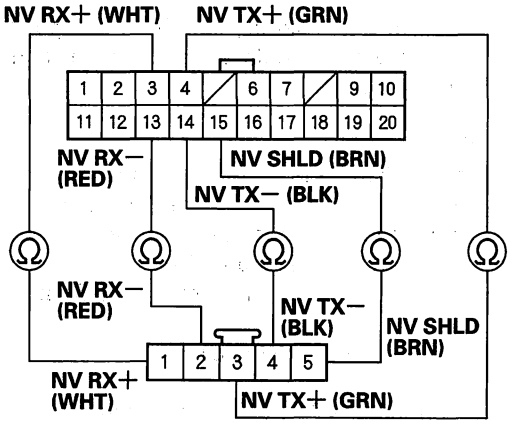
Protected by AR

DTC Troubleshooting (cont'd)

7. Check for continuity between the following terminals of the AcuraLink control unit (XM receiver) connector A (20P) and navigation unit F (5P).

20P	5P
No. 3	No. 1
No. 4	No. 3
No. 13	No. 2
No. 14	No. 4
No. 15	No. 5

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR A (20P)
Wire side of female terminals



NAVIGATION UNIT CONNECTOR F (5P)
Wire side of female terminals

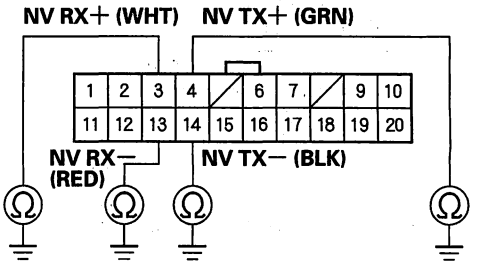
Is there continuity?

YES—Go to Step 8.

NO—Repair open in the wire(s) between AcuraLink control unit (XM receiver) and the navigation unit. ■

8. Check for continuity between body ground and AcuraLink control unit (XM receiver) connector A (20P) terminals No. 3, 4, 13 and 14 individually.

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR A (20P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the AcuraLink control unit (XM receiver) and the navigation unit. ■

NO—Go to Step 9.

9. Check for continuity between the terminals of AcuraLink control unit (XM receiver) connector A (20P) as follows.

From terminal	To terminals
A3	A4, A13, A14, A15
A4	A13, A14, A15
A13	A14, A15
A14	A15

Is there continuity between any of the terminals?

YES—Repair short in the wire(s) between the AcuraLink control unit (XM receiver) and the navigation unit (replace the appropriate shield harness). ■

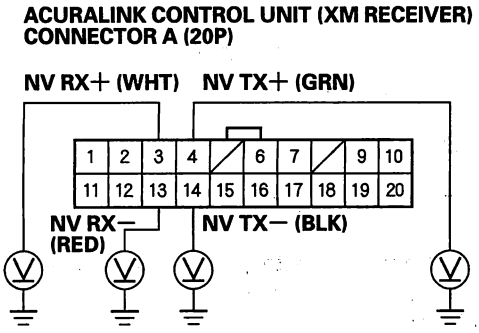
NO—Go to Step 10.

BACK

Protected by AR

10. Turn the ignition switch ON(II).

11. Measure the voltage between body ground and AcuraLink control unit (XM receiver) connector A (20P) terminals No. 3, 4, 13 and 14 individually.



Wire side of female terminals

Is there any voltage?

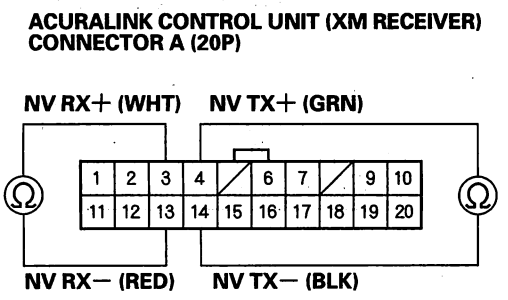
YES—Repair short to power in the wire(s) between the AcuraLink control unit (XM receiver) and the navigation unit.■

NO—Go to Step 12.

12. Turn the ignition switch OFF.

13. Reconnect the Acuralink control unit (XM receiver) connector A (20P).

14. Measure the resistance between AcuraLink control unit (XM receiver) connector A (20P) terminals No. 3, No. 4, and No. 13, No. 14.



Wire side of female terminals

Is there less than about 100kΩ ?

YES—AcuraLink control unit (XM receiver) is faulty, replace the AcuraLink control unit (XM receiver).■

NO—Go to Step 15.

15. Reconnect the navigation unit connector F (5P).

16. Turn the ignition switch ON(II).

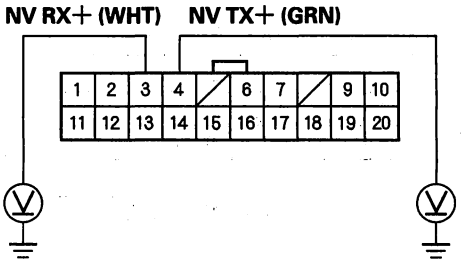
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

17. Measure the voltage between the body ground and the AcuraLink control unit (XM receiver) connector A (20P) terminals No. 3, No. 4 individually.

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR A (20P)



Wire side of female terminals

Is there less than about 3.5V?

YES—AcuraLink control unit (XM receiver) is faulty, replace the AcuraLink control unit (XM receiver). ■

NO—Navigation unit is faulty, replace the navigation unit. ■

DTC B2208: HandsFreeLink Control Unit Lost Communication With AcuraLink Control Unit

1. Connect the HDS to the DLC.
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) and wait 30 seconds or more.
4. Check for DTC with the HDS.

   Is DTC B2207, B2208 indicated?

   YES—Check the battery condition (see page 22-76). If the system OK, replace the AcuraLink control unit (XM receiver). ■

   NO—
   - If the B2208 is not indicated, Intermittent failure, system OK at this time. Check for poor connections or loose terminals at the AculaLink control unit (XM receiver). ■
   - If the B2207 is not indicated, go to Step 5.
5. Turn the ignition switch OFF.
6. Disconnect the AcuraLink control unit (XM receiver) connector B (16P) and HandsFreeLink control unit 28P connector.

BACK

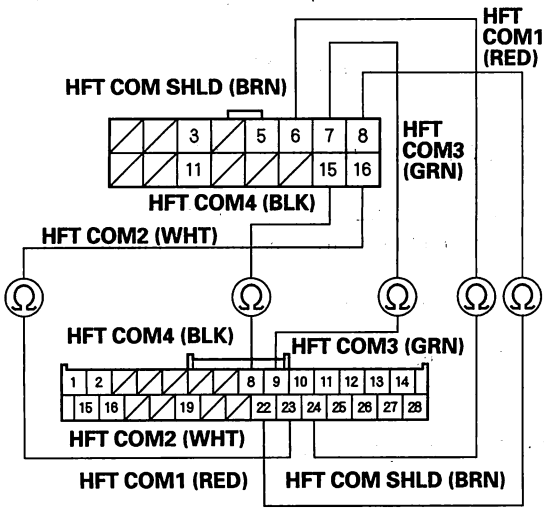
Protected by AR

7. Check for continuity between the following terminals of the AcuraLink control unit (XM receiver) connector B (16P) and HandsFreeLink control unit 28P connector.

16P	28P
No. 6	No. 24
No. 7	No. 9
No. 8	No. 22
No. 15	No. 8
No. 16	No. 23

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR B (16P)

Wire side of female terminals



HANDSFREELINK CONTROL UNIT 28P CONNECTOR

Wire side of female terminals

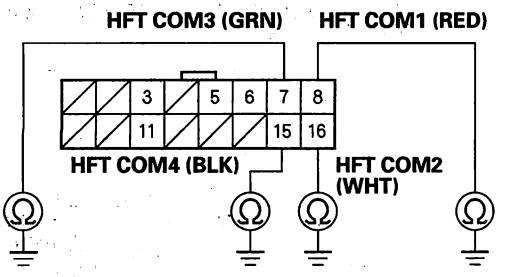
Is there continuity?

YES—Go to Step 8.

NO—Repair open in the wire(s) between AcuraLink control unit (XM receiver) and the HandsFreeLink control unit. ■

8. Check for continuity between body ground and AcuraLink control unit (XM receiver) connector B (16P) terminals No. 7, 8, 15 and 16 individually.

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR B (16P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the AcuraLink control unit (XM receiver) and the HandsFreeLink control unit. ■

NO—Go to Step 9.

9. Check for continuity between the terminals of AcuraLink control unit (XM receiver) connector B (16P) as follows.

From terminal	To terminals
B7	B8, B15, B16, B6
B8	B15, B16, B6
B15	B16, B6
B16	B6

Is there continuity between any of the terminals?

YES—Repair short in the wire(s) between the AcuraLink control unit (XM receiver) and the HandsFreeLink control unit (replace the appropriate shield harness). ■

NO—Go to Step 10.

(cont'd)

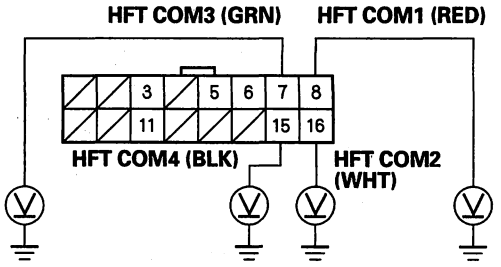
Protected by AR

DTC Troubleshooting (cont'd)

10. Turn the ignition switch ON(II).

11. Measure the voltage between body ground and AcuraLink control unit (XM receiver) connector B (16P) terminals No. 7, 8, 15 and 16 individually.

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR B (16P)



Wire side of female terminals

Is there any voltage?

YES—Repair short to power in the wire(s) between the AcuraLink control unit (XM receiver) and the HandsFreeLink control unit. ■

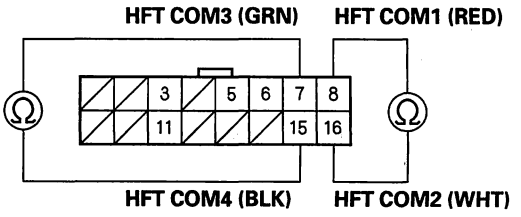
NO—Go to Step 12.

12. Turn the ignition switch OFF.

13. Reconnect the AcuraLink control unit (XM receiver) connector B (16P).

14. Measure the resistance between AcuraLink control unit (XM receiver) connector B (16P) terminals No. 7, No. 8, and No. 15, No. 16.

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR B (16P)



Wire side of female terminals

Is there less than about 100kΩ ?

YES—AcuraLink control unit (XM receiver) is faulty, replace the AcuraLink control unit (XM receiver). ■

NO—Go to Step 15.

15. Reconnect the HandsFreeLink control unit 22P connector.

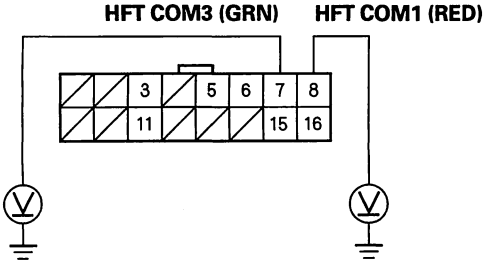
16. Turn the ignition switch ON(II).

BACK

Protected by AR

17. Measure the voltage between the body ground and the AcuraLink control unit (XM receiver) connector B (16P) terminals No. 7, No. 8 individually.

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR B (16P)



Wire side of female terminals

Is there less than about 3.5V?

YES—AcuraLink control unit (XM receiver) is faulty, replace the AcuraLink control unit (XM receiver).■

NO—HandsFreeLink control unit is faulty, replace the HandsFreeLink control unit.■

DTC B2209: AcuraLink Control Unit Internal Error

1. Connect the HDS to the DLC.
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) and wait 30 seconds or more.
4. Check for DTC with the HDS.

Is DTC B2209 indicated?

YES— AcuraLink control unit (XM receiver) is faulty, replace the AcuraLink control unit (XM receiver).■

NO—Intermittent failure, system OK at this time.■

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DTC Troubleshooting (cont'd)

DTC B2240: XM Antenna Error

1. Connect the HDS to the DLC.
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) and wait 30 seconds or more.
4. Check for DTC with the HDS.

   Is DTC B2240 indicated?

   YES—Go to Step 5.

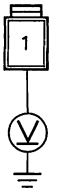
   NO—Intermittent failure, XM antenna is OK at this time. Check for poor connections or loose terminals at the AculaLink control unit (XM receiver) and XM antenna. ■
5. Check the XM antenna lead connection at the AcuraLink control unit (XM receiver) and at the XM antenna.

   Is it connected properly?

   YES—Go to Step 6.

   NO—Reconnect the connector, and recheck the DTC. ■
6. Disconnect the AcuraLink control unit (XM receiver) connector C (1P).
7. Turn the ignition switch ON(II).
8. Measure the voltage between the body ground and the AcuraLink control unit (XM receiver) terminal C (1P) No. 1 terminal.

ACURALINK CONTROL UNIT (XM RECEIVER) TERMINAL C (1P)



Terminal side of male terminals

Is there about 4.5 V?

YES—Go to Step 9.

NO—AcuraLink control unit (XM receiver) is faulty, replace the AcuraLink control unit (XM receiver). ■
9. Turn the ignition switch OFF.
10. Disconnect the XM antenna 1P connector.

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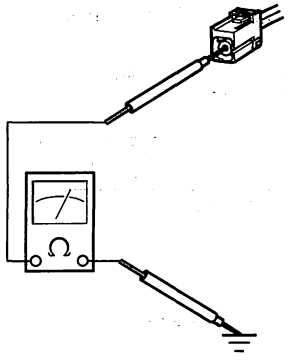
11. Check for continuity between body ground and XM antenna 1P connector No. 1 terminal.

XM ANTENNA 1P CONNECTOR



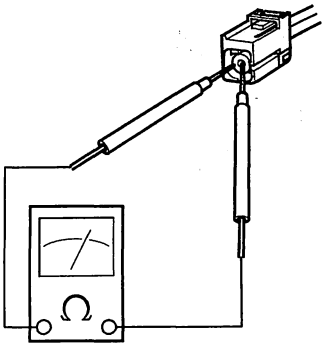
Is there continuity?

YES—Replace the antenna lead between the AcuraLink control unit (XM receiver) and XM antenna. ■

NO—Go to Step 12.

12. Check for continuity between the core and the outside of the feeder antenna at XM antenna 1P connector terminal No. 1.

XM ANTENNA 1P CONNECTOR



Is there continuity?

YES—Replace the antenna lead between the AcuraLink control unit (XM receiver) and XM antenna. ■

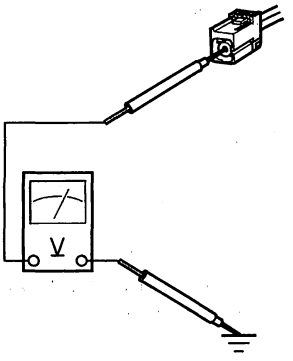
NO—Go to Step 13.

13. Reconnect the AcuraLink control unit C (1P) connector.

14. Turn the ignition switch ON(II).

15. Measure the voltage between the body ground and the XM antenna 1P connector No. 1 terminal.

XM ANTENNA 1P CONNECTOR



Is there about 4.5V?

YES—XM antenna is faulty, replace the XM antenna. ■

NO—Replace the antenna lead between the AcuraLink control unit (XM receiver) and the XM antenna. ■

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Symptom Troubleshooting

AcuraLink service application does not work

NOTE: In order for the AcuraLink service to work, the client must have an activated account with XM (receives all channels).

1. Check the No. 21 (7.5 A) fuse and No. 32 (10 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

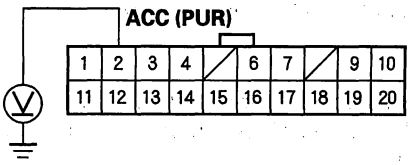
   YES—Go to step 2.

   NO—Replace the fuse(s), and recheck. ■

2. Turn the ignition switch to ACC (I).

3. Measure the voltage between the No. 2 terminal of the AcuraLink control unit (XM receiver) connector A (20P) and body ground.

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR A (20P)



Wire side of female terminals

Is there battery voltage?

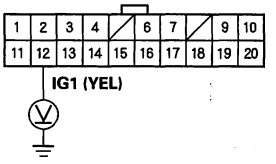
YES—Go to step 4.

NO—Repair open in the wire(s) between the AcuraLink control unit and the No. 32 (10 A) fuse in the under-dash fuse/relay box. ■

4. Turn the ignition switch ON (II).

5. Measure the voltage between the No. 12 terminal of the AcuraLink control unit (XM receiver) connector A (20P) and body ground.

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR A (20P)



Wire side of female terminals

Is there battery voltage?

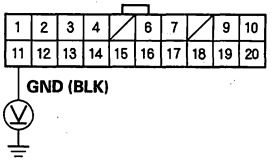
YES—Go to step 6.

NO—Repair open in the wire(s) between the AcuraLink control unit (XM receiver) and the No. 21 (7.5 A) fuse in the under-dash fuse/relay box. ■

6. Turn the ignition switch OFF.

7. Measure the voltage between the No. 11 terminal of the AcuraLink control unit (XM receiver) connector A (20P) and body ground.

ACURALINK CONTROL UNIT (XM RECEIVER) CONNECTOR A (20P)



Wire side of female terminals

Is there less than 0.5 V?

YES—Check for loose wires or poor connections at the AcuraLink control unit (XM receiver) connector A (20P). If the connections are good, substitute a known-good AcuraLink control unit (XM receiver), and recheck. If the symptom goes away, replace the original AcuraLink control unit (XM receiver). ■

NO—Check for an open in the wire between the AcuraLink control unit (XM receiver) and body ground. If the wire is OK, check for poor ground at G606 (see page 22-38). ■

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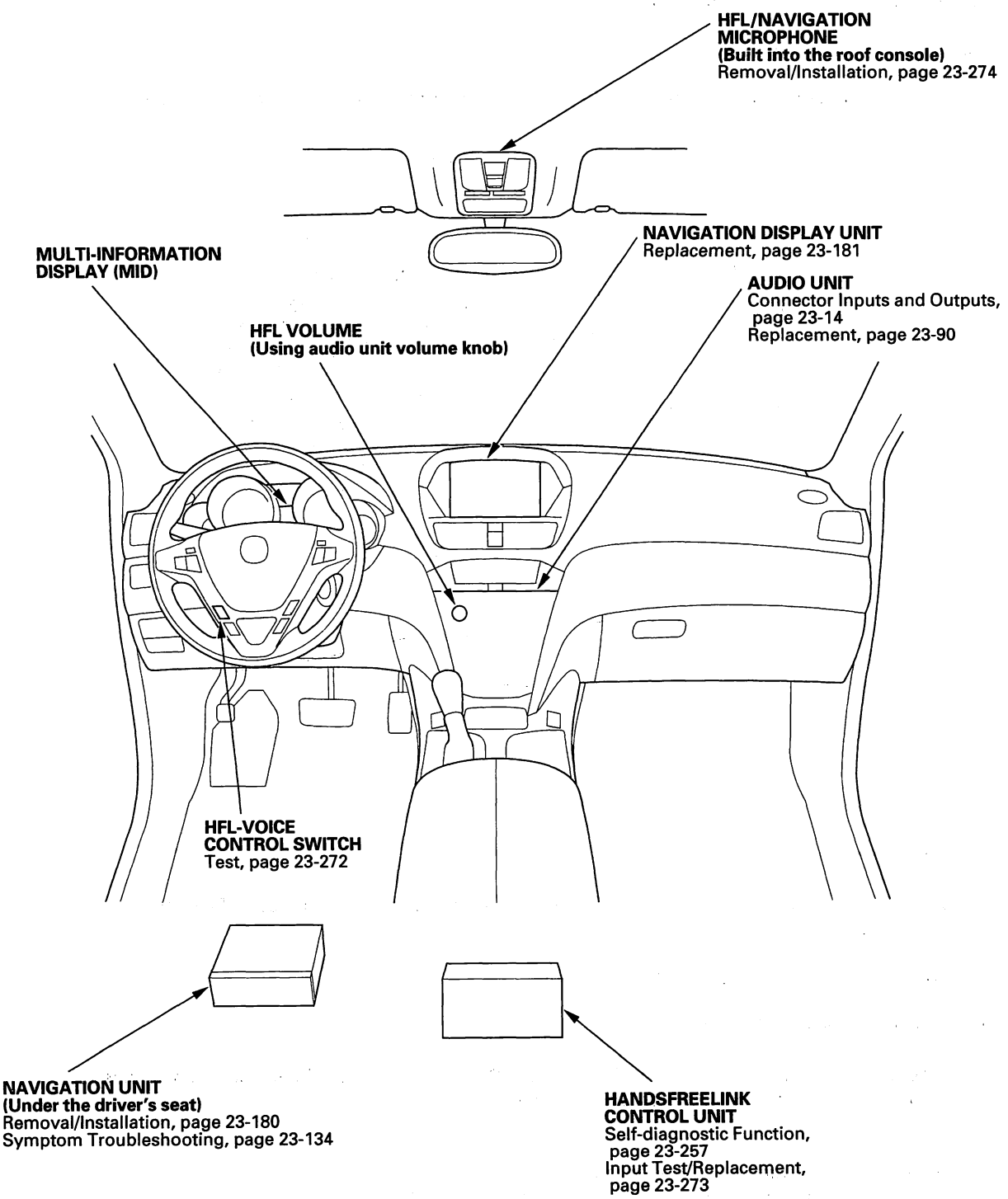
Component Location Index



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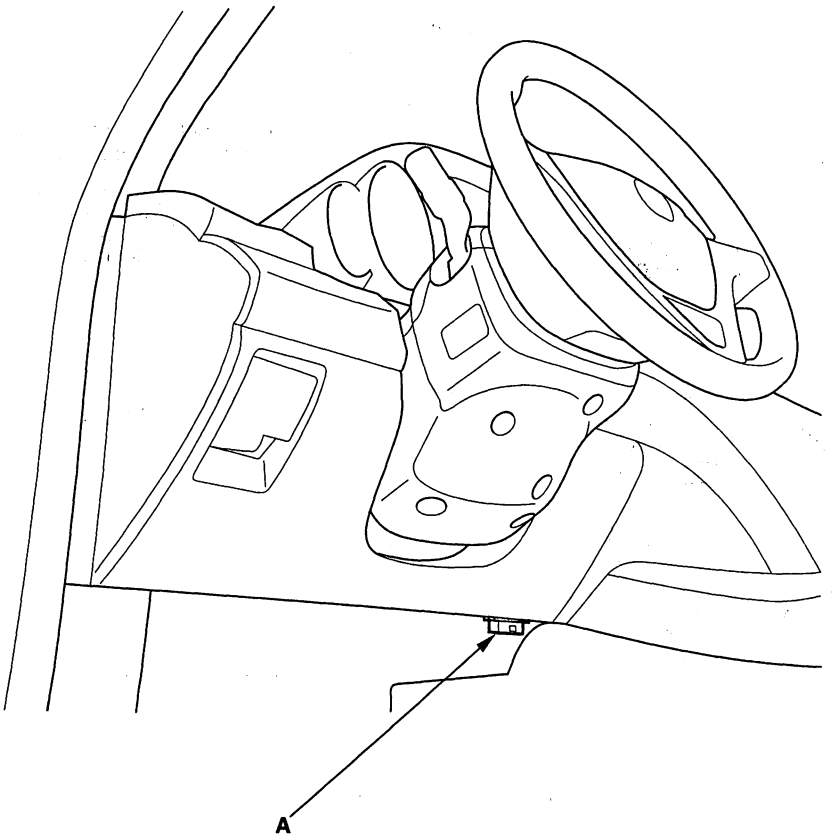
General Troubleshooting Information

How to Check for DTCs with the HDS

1. Make sure the ignition switch is OFF.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Turn the ignition switch ON (II).
4. Make sure the HDS communicates with the vehicle and the HandsFreeLink control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-223).
5. Select HandsFreeLink in the BODY ELECTRICAL menu.
6. Select DTCs in the HandsFreeLink menu.
7. Check for DTCs. If any DTCs are indicated, write down the DTCs, then go to the indicated DTC troubleshooting. If no DTCs are indicated, refer to symptom troubleshooting.

   NOTE:
   - After troubleshooting, clear the DTCs with the HDS.
   - For specific operations, refer to the user's manual that came with the HDS.

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General Operation

The HandsFreeLink (HFL) works only with an approved Bluetooth enabled cell phones with the Hands Free Profile. If you are not sure if your cell phone is compatible with the HFL — and not all phones are — Acura has a dedicated call center and web-site to answer your questions. On the web, go to www.handsfreelink.com, or dial 888-528-7876 for further assistance. The call center is open Monday thru Friday from 6:00 a.m. to 6:00 p.m. CST, Saturday from 7:00 a.m. to 6:00 p.m. CST, and Sunday from 8:00 a.m. to 6:00 p.m. CST.

The HFL gives the user the convenience of hands-free operation. It can't control the phone's performance (call quality and signal strength). To avoid performance problems, don't put the phone in a metal briefcase or in a purse under the seat.

This guide shows you just a few of the HFL's many features. You will see how to pair your phone to the HFL and then make and receive calls, all using simple voice commands. If you want a complete description of this system, please refer to the owner's manual and quick start guide.

Voice Control Tips

To give any voice command, press and release the TALK button. Always wait for the beep, then give your command in a clear, natural voice. The HFL microphone is on the ceiling, by the front spotlights.
If the HFL doesn't recognize your voice command, you'll hear "Pardon." If after repeating your command, it still doesn't recognize it, you'll hear "Please repeat." If after repeating your command again, it still doesn't recognize it, the HFL sends you to the Help menu.
To hear a list of available options at any time, say "Hands free help."
You can give many voice commands together. For example, you can say "Dial 123-456-7890."
To give a string of numbers in a call or dial voice command, you can say them all at once, or separate them into blocks of 3, 4, 7, 10, or 11.
To skip a voice prompt, press and release the TALK button while the HFL is speaking. The HFL begins listening for your next voice command.
To go back a step in a voice command sequence, press and release the Back button, or say "Go back."
If you don't say anything while the HFL is listening for your voice command, it will time out and stop its voice recognition. The next time you press and release the TALK button, the HFL begins listening from the point where it timed out.

To stop a voice command sequence at any time, press and hold the Back button, or press and release the TALK button, wait for the beep, and say "Cancel." The next time you press and release the TALK button, the HFL begins from its main menu. You'll see MAIN on the multi-information display (MID) in the instrument panel.
When you're done with a voice command sequence, the HFL goes back to its main menu. The next time you press and release the TALK button, you'll be at the main menu and you'll see MAIN on the MID.
Remember to press and hold the Back button until you exit the main menu, otherwise, the audio system stays muted.

The HFL may have problems with some voices. To improve voice recognition:
- Close the windows and moonroof.
- Set the fan speed to low (1 to 2).
- Adjust the air flow vents so that they do not blow against the microphone on the ceiling.
- Speak in a clear and natural voice. If the system cannot recognize your command, speak louder.
- If the microphone picks up voices other than yours, the system may not interpret your voice commands correctly.
- If you speak with something in your mouth, or your voice is too husky, the system may misunderstand your command.

(cont'd)

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General Troubleshooting Information (cont'd)

Pairing Your Cell Phone (A One Time Procedure)

You must pair an approved Bluetooth compatible phone to the HFL before you can make and receive calls. The following steps show you what you need to do. For a current list of approved phones and specific phone pairing instructions, go to www.acura.com. You can also refer to the phone's operating manual or call the phone retailer. Make sure the vehicle is stationary when you pair the phone;

NOTE:
- You cannot pair a phone if the vehicle is moving.
- Your phone must be in its Discovery mode.
- Up to six Bluetooth compatible phones can be paired by the HFL.
- Not all Bluetooth phones are compatible with the HFL. For a current list of approved Bluetooth phones, visit www.acura.com.

1. Turn on your phone, and follow the prompts to activate Bluetooth.

2. Give these voice commands to the HFL by pressing the TALK button.

You say	You'll hear
"Phone setup"	"Phone setup options are status, pair, edit, delete, and list."
"Pair"	"The pairing process requires operation of your mobile phone. For safety, only perform this function while the vehicle is stopped. State a four-digit code for pairing. Note this code, it will be requested by the phone."
"1. 2. 3. 4." (This can be any four-digit code you want.)	"1. 2. 3. 4. is this correct?"
"Yes"	"Searching for a Bluetooth phone. Make sure the phone you are trying to pair is in Discovery mode ! "

3. Follow the cell phone manufacturer's instructions to put the phone in its Discovery mode. The phone will search for the HFL. When you see HANDSFREELINK in the device list on the phone, select it.

4. When prompted, enter the four-digit PIN from step 2 into the phone. You will hear the HFL say "A new phone has been found. Would you like to name this phone?"

5. Press and release the TALK button, and say what the phone name will be. For example, say "John's phone". You'll hear "John's phone has been successfully paired, returning to the main menu".

6. To pair another phone, repeat steps 1 thru 5.

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Clearing the system

NOTE:
- This operation clears the HFL system of all passcode(s), any paired phone, and all names in the HFL phonebook.
- Clearing the HFL system is recommend before selling the vehicle.

1. Turn on your phone, and follow the prompts to activate Bluetooth.
2. Press and release the TALK button. After the beep, say "Clear" and the HFL will respond, "This process will clear all paired phones, clear all entries in the phonebook, and clear the passcode. Is this what you would like to do?"
3. Press and release the TALK button. After the beep, say "Yes" and the HFL respond. "Preparing to clear all paired phones, all phonebook entries, and the passcode. This may take up to 2 minutes to complete".
4. Press and release the TALK button. After the beep, say "OK" to proceed, or say "Go back" or "Cancel".
5. If you said "OK" after a short period of time, the HFL respond, "System has been cleared. Returning to the main menu", and the clearing HFL system is complete.

Self-diagnostic Function

NOTE: This procedure should be used only if HDS is unavailable.

To run the self-diagnostic function, do the following:

1. Turn the ignition switch ACC (I).
2. Press and hold the HFL BACK button for more than 5 seconds.
3. When the HandsFreeLink system enters the self-diagnostic function, the following will occur.
   - If the system has not completed testing for DTCs, the HandsFreeLink control unit audibly outputs "The hands free system test is in progress".
   - If there is no DTC, the HandsFreeLink control unit audibly outputs "The hands free system is OK".
   - If there is any DTC, the HandsFreeLink control unit audibly outputs "The hands free system needs to be serviced".

NOTE:
- The self-diagnostic function can only be initiated while the HFL is in its idle state.
- The self-diagnostic function is considered to start once the 5 seconds press and hold is detected, and ends when the unit returns to its idle state.

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Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
The MID displays an HFL message that does not go away after pressing the HFL button	Symptom Troubleshooting (see page 23-271)	Check and repair all CAN related DTCs
The phone icon in the navigation route to screen is grayed-out	There is no HFL-compatible phone paired to the vehicle. Pair an approved HFL-compatible phone to the vehicle	• The phone must be on the list of approved Bluetooth phones and configured correctly. For a current list of approved phones, go to www.acura.com, or call 888-528-7876 for further assistance. • Check the Diagnostic Menu and use the "Navi System Link"
The approved Bluetooth phone is having problems pairing to the vehicle	HFL Diagnostic mode A	The phone must be on the list of approved Bluetooth phones and configured correctly. For a current list of approved phones, go to www.acura.com, or call 888-528-7876 for further assistance.
The Bluetooth phone cannot use all its functions	HFL Diagnostic mode A	The phone must be on the list of approved Bluetooth phones and configured correctly. For a current list of approved phones, go to www.acura.com, or call 888-528-7876 for further assistance.
The Bluetooth phone does not place or receive calls using the HFL system	HFL Diagnostic mode A	The phone must be on the list of approved Bluetooth phones and configured correctly. For a current list of approved phones, go to www.acura.com, or call 888-528-7876 for further assistance.
The client wants the HFL system reset (all phones and address information cleared from the HFL system)	Clearing the system (see page 23-257)	See the Owner's Manual for additional information.
The HFL system is locked and the pass code has been lost or forgotten	Symptom Troubleshooting (see page 23-272)	
The HFL system does not recognize all voice prompts	Symptom Troubleshooting (see page 23-271)	Also see "Voice control tips" (see page 23-255).
The HFL system speaks in French	See the HFL section in the Owner's Manual for "Changing Language"	

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HFL System Troubleshooting

NOTE:
- You must be able to duplicate the client's concern to successfully diagnose the problem.
- Always use the client's phone.
- Make sure the phone is approved and configured correctly. Online, go to www.acura. com, or call the HFL support desk at 888-528-7876 for further assistance.

1. Connect the HDS to the DLC.
2. Turn the ignition switch ON (II).
3. Check for DTCs.

   Are any DTCs indicated?

   YES—Repair the indicated DTCs and recheck.■

   NO—Go to Step 4.
4. Try to duplicate the problem.

   Can you duplicate the problem?

   YES—Go to Step 5.

   NO—The system is OK at this time.■
5. Pair the phone to a known-good vehicle (same model, year, and trim), and try duplicate the problem.

   Does the phone have the same problem on the known-good vehicle?

   YES—Call the HFL support desk at 888-528-7876 to make sure the phone is configured correctly and has the correct software. If the phone is configured correctly, it is either a characteristic of the HFL system, or a characteristic of the particular approved phone being used. Explain to your client that this is a system characteristic. Another phone from the approved phone list may give more favorable results.■

   NO—Substitute a known-good HandsFreeLink control unit and recheck. If the problem goes away, replace the original HandsFreeLink control unit.■

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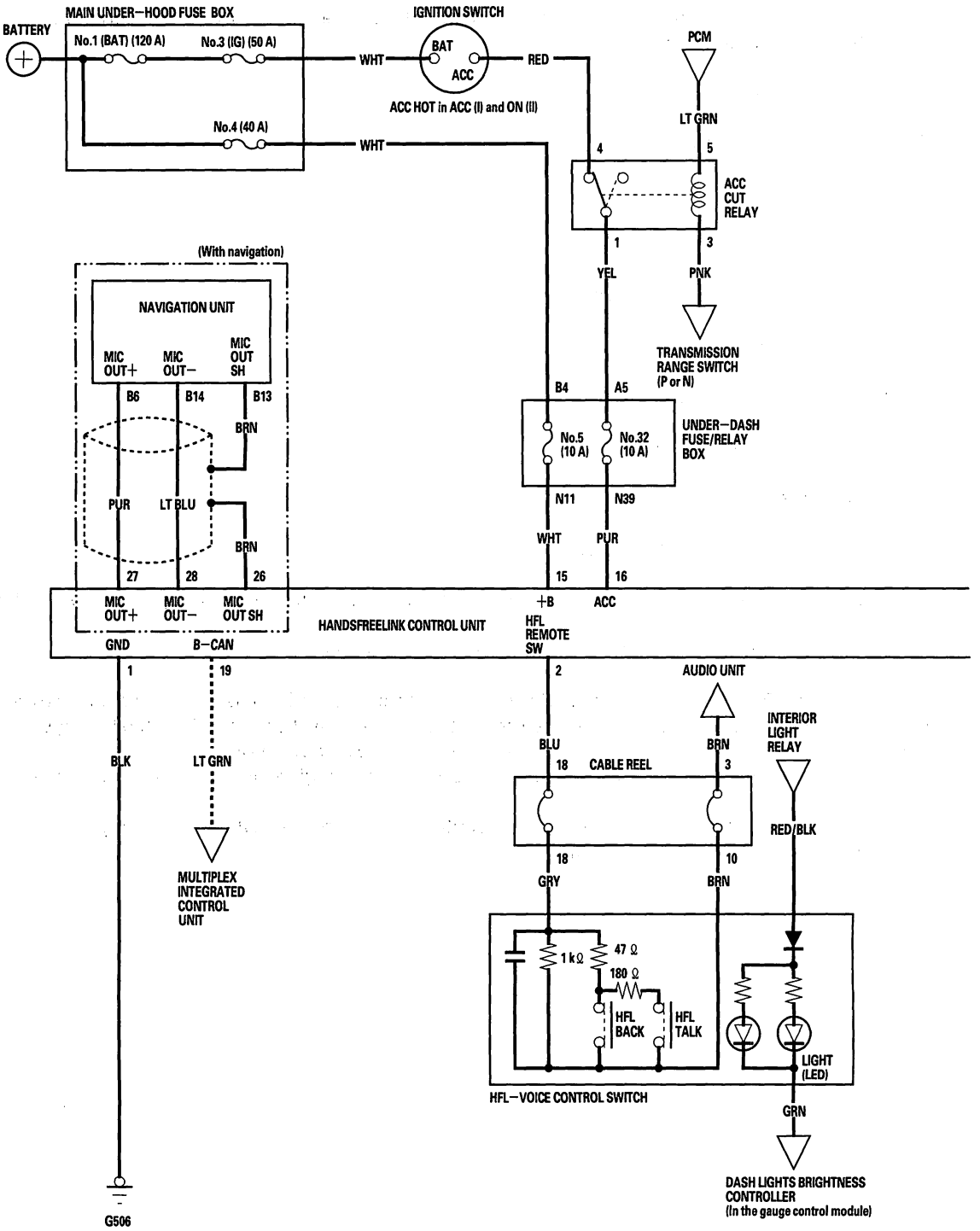
HandsFreeLink System

Circuit Diagram



BACK

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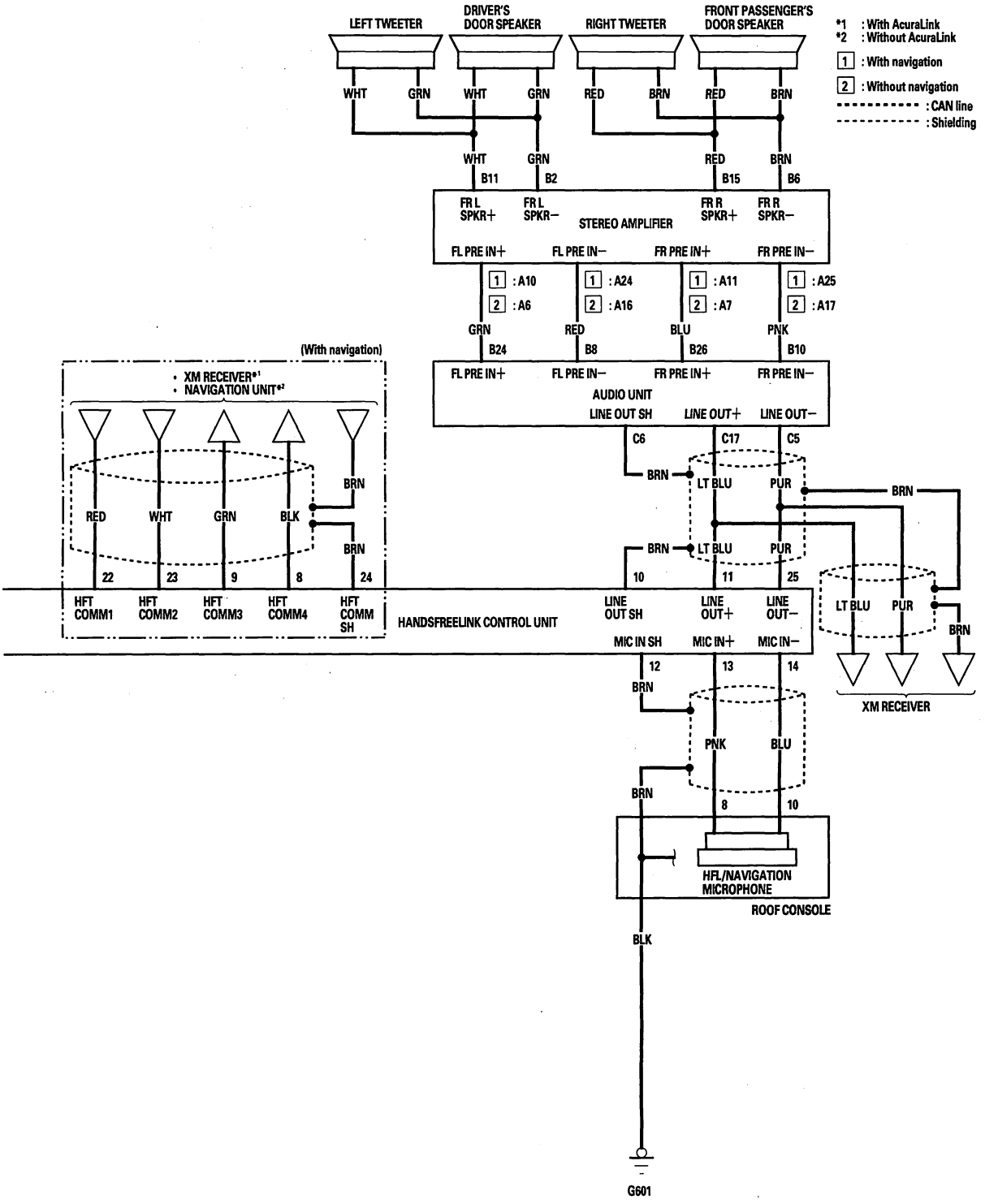

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DTC Troubleshooting

DTC B1775: Microphone Input/Output Short to Power/Open

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN system diagnosis test mode A (see page 22-112).

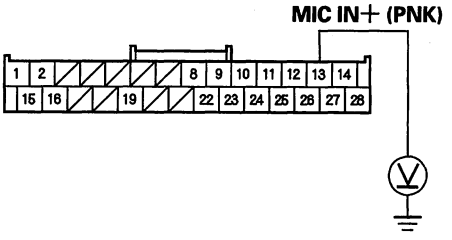
1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Check for DTCs with the HDS.

   Is DTC B1775 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time.■
4. Turn the ignition switch OFF.
5. Remove the roof console (see page 20-101) and the console rear trim (see page 20-110).
6. Disconnect the 20P connector from the roof console and the 28P connector from the HandsFreeLink control unit.
7. Turn the ignition switch ON (II).
8. Measure the voltage between HandsFreeLink control unit the 28P connector terminal No. 13 and body ground.

   HANDSFREELINK CONTROL UNIT 28P CONNECTOR



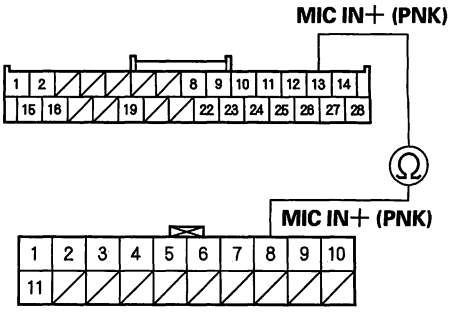
   Wire side of female terminals

   Is there battery voltage?

   YES—Replace the faulty harness between the HandsFreeLink control unit and the roof console.■

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Check for continuity between HandsFreeLink control unit 28P connector terminal No. 13 and roof console 20P connector terminal No. 8.

    HANDSFREELINK CONTROL UNIT 28P CONNECTOR
    Wire side of female terminals



    ROOF CONSOLE 20P CONNECTOR
    Wire side of female terminals

    Is there continuity?

    YES—Substitute a known-good HandsFreeLink control unit, then recheck. If the symptom goes away, replace the original HandsFreeLink control unit.■

    NO—Replace the faulty harness between the HandsFreeLink control unit and the roof console.■

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DTC B1776: Microphone Input/Output Short to Ground/Open

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN system diagnosis test mode A (see page 22-112).

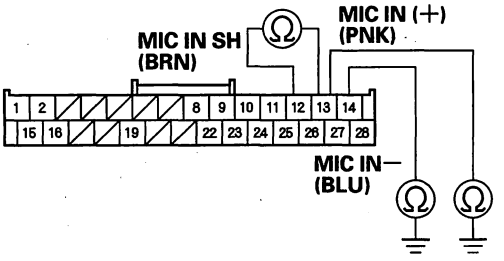
1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Check for DTCs with the HDS.

   Is DTC B1776 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time.■
4. Turn the ignition switch OFF.
5. Remove the roof console (see page 20-101) and the glove box (see page 20-125).
6. Disconnect the 20P connector from the roof console and the 28P connector from the HandsFreeLink control unit.
7. Check for continuity between body ground and the No. 13 and No. 14 terminals of the HandsFreeLink control unit 28P connector individually, then between terminals No. 12 and No. 13.

HANDSFREELINK CONTROL UNIT 28P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the faulty harness between the HandsFreeLinks control unit and the roof console.■

NO—Go to step 8.

(cont'd)

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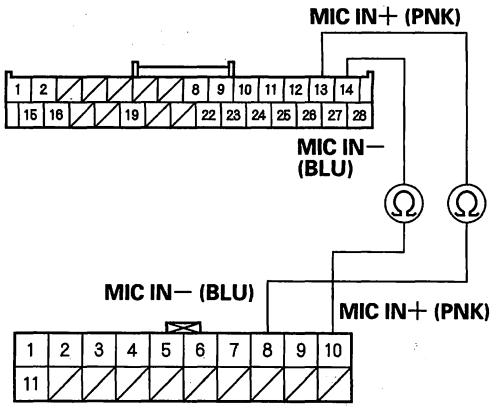
DTC Troubleshooting (cont'd)

8. Check for continuity between the following terminals of the HandsFreeLink control unit 28P connector and the roof console 20P connector.

28P:	20P:
No. 13	No. 8
No. 14	No. 10

HANDSFREELINK CONTROL UNIT 28P CONNECTOR
Wire side of female terminals



ROOF CONSOLE 20P CONNECTOR
Wire side of female terminals

Is there continuity?

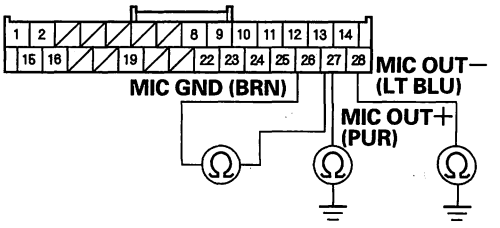
YES—Go to step 9.

NO—Replace the faulty harness between the HandsFreeLinks control unit and the roof console.■

9. Disconnect the 14P connector from the navigation unit.

10. Check for continuity between body ground and the No. 27 and No. 28 terminals of the HandsFreeLink control unit 28P connector individually, then between terminals No. 26 and No. 27.

HANDSFREELINK CONTROL UNIT CONNECTOR (28P)



Wire side of female terminals

Is there continuity?

YES—Replace the faulty harness between the HandsFreeLinks control unit and the navigation unit.■

NO—Go to step 11.

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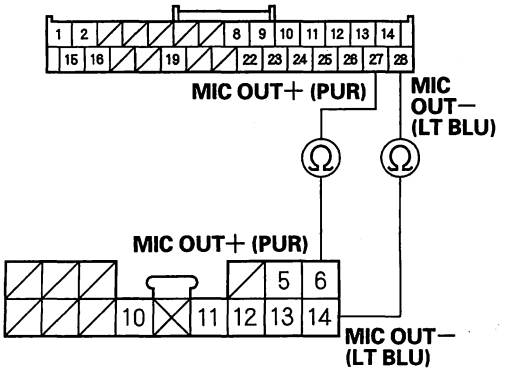
11. Check for continuity between the following terminals of the HandsFreeLink control unit 28P connector and the navigation unit connector B (14P).

28P:	14P:
No. 27	No. 6
No. 28	No. 14

HANDSFREELINK CONTROL UNIT 28P CONNECTOR
Wire side of female terminals



NAVIGATION UNIT CONNECTOR B (14P)
Wire side of female terminals

Is there continuity?

YES—Substitute a known-good HandsFreeLink control unit, then recheck. If the symptom goes away, replace the original HandsFreeLink control unit. If the symptom does not go away, replace the faulty navigation unit. ■

NO—Replace the faulty harness between the HandsFreeLink control unit and the navigation unit. ■

DTC B1779: HFL Switch or HFL-Voice Control Switch (HFL TALK/HFL BACK Buttons) Circuit Open/Short

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN system diagnosis test mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, then start the vehicle and turn the steering wheel back and forth several times.
3. Check for DTCs with the HDS.

   Is DTC B1779 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. ■
4. Turn the ignition switch OFF.
5. Do the HFL voice control switch test (see page 23-272).

   Is the switch OK?

   YES—Go to step 6.

   NO—Replace the cable reel subharness (see page 17-23). ■
6. Remove the glove box (see page 20-125).
7. Disconnect the 28P connector from the HandsFreeLink control unit.
8. Disconnect the 20P connector from the cable reel subharness.
9. Turn the ignition switch ON (II).
10. Check for voltage on the cable reel subharness 20P connector terminal No. 18.

    Is there voltage?

    YES—Repair a short to power on BLU wire.

    NO—Go to step 11.

(cont'd)

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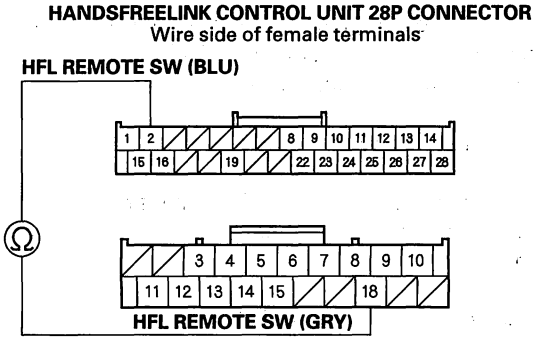
DTC Troubleshooting (cont'd)

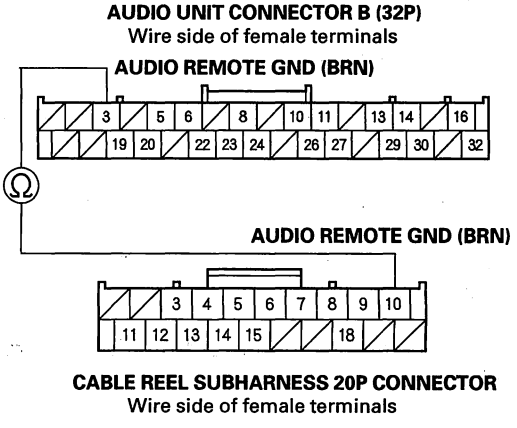
11. Check for continuity between the HandsFreeLink control unit 28P connector terminal No. 2 and cable reel subharness 20P connector terminal No. 18.



Is there continuity?

YES—Go to step 12.
NO—Repair open in the GRY wire between the switch, cable reel, and HandsFreeLink control unit.■

12. Check for continuity between the cable reel subharness 20P connector terminal No. 10 and the audio unit connector B (32P) terminal No. 3.



Is there continuity?

YES—Check for loose or poor connections at the audio unit, HandsFreeLink control unit, and HFL-voice control switch. If the connections are OK, substitute a known-good HandsFreeLink control unit. If the problem is gone, replace the original control unit.■

NO—Repair open in the wire between the switch, cable reel, and the audio unit.■

DTC B1780: HFL-Voice Control Switch (HFL TALK/HFL BACK Buttons) Circuit Short

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN system diagnosis test mode A (see page 22-112).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, then start the vehicle and turn the steering wheel back and forth several times.
3. Check for DTCs with the HDS.

   Is DTC B1780 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time.■
4. Turn the ignition switch OFF.
5. Do the HFL-voice control switch test (see page 23-272).

   Is the switch OK?

   YES—Go to step 6.

   NO—Replace the cable reel subharness (see page 17-23).■
6. Turn the ignition switch OFF.
7. Remove the glove box (see page 20-125).
8. Disconnect the 28P connector from the HandsFreeLink control unit.
9. Disconnect the 20P connector from the cable reel subharness.

BACK

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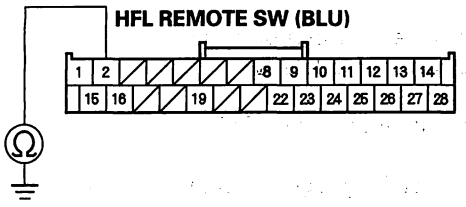
10. Check for continuity between the HandsFreeLink control unit 28P connector terminal and body ground.

HANDSFREELINK COMTROL UNIT 28P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire.■

NO—Replace the HandsFreeLink control unit.■

DTC B1785: Incorrect Configuration (VEHINFO Frame)

1. Connect the HDS to the DLC.
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) and wait 6 seconds or more.
4. Check for DTC with the HDS.

Is DTC B1785 indicated?

YES—Gauge control module is faulty, replace the gauge control module.■

NO—Intermittent failure. VEHINFO frame is OK at this time. Check for poor connections or loose terminals at the HandsFreeLink control unit.■

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DTC Troubleshooting (cont'd)

DTC B1786: HandsFreeLink Control Unit Lost Communication with Gauge Control Module (VEHINFO Frame)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-112).

1. Connect the HDS to the DLC.
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II) and wait 6 seconds or more.
4. Check for DTC with the HDS.

   Is DTC B1786 indicated?

   YES—Go to step 5.

   NO—Intermittent failure. VEHINFO frame is OK at this time. Check for poor connections or loose terminals at the HandsFreeLink control unit.■
5. Check for DTC with the HDS.

   Is DTC B1011, B1032, B1060, B1061, B1205, B1206, B1207, B1906, B1956, B2157, B2160 indicated?

   YES—Go to step 6.

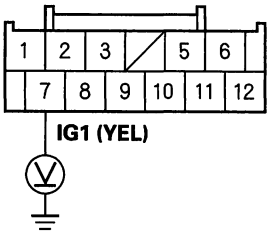
   NO—HandsFreeLink control unit is faulty, replace the HandsFreeLink control unit.■
6. Select the UNIT INFORMATION MENU from the HDS, and do the CONNECTED UNIT.
7. Check the AVAILABLE/NOT AVAILABLE information of the gauge control module in the CONNECTED UNIT.

   Is the information indicator NOT AVAILABLE?

   YES—Go to step 8.

   NO—Gauge control module is faulty, replace the gauge control module.■
8. Turn the ignition switch OFF.
9. Disconnect the gauge control module connector A (12P).
10. Turn the ignition switch ON (II).
11. Measure the voltage between body ground and gauge control module connector A (12P) terminals No. 7.

GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 12.

NO—Check the No. 21 (7.5 A) fuse in the under-dash fuse/relay box. If the fuse are good, repair open in the wire between the No. 21 fuse in the under-dash fuse/relay box and the gauge control module.■

BACK

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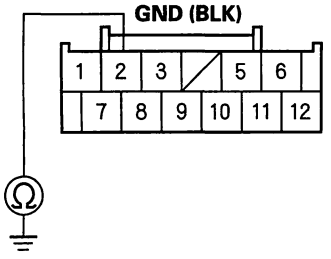
12. Turn the ignition switch OFF.

13. Disconnect the gauge control module connector B (24P).

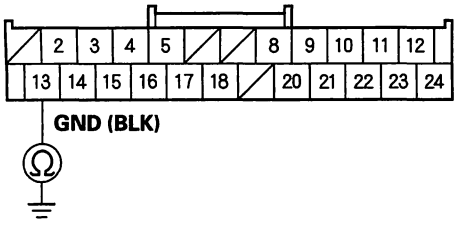
14. Check for continuity between body ground and gauge control module connector A (12P) terminal No. 2 and gauge control module connector B (24P) terminal No. 13 individually.

GAUGE CONTROL MODULE CONNECTOR A (12P)



Wire side of female terminals

GAUGE CONTROL MODULE CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

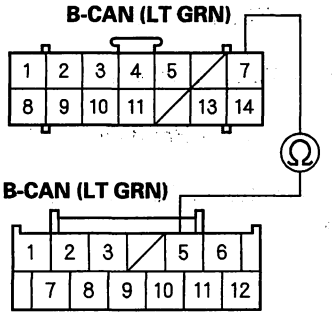
YES—Go to step 15.

NO—Repair open in the wire(s) between body ground and the gauge control module.■

15. Disconnect the power tailgate control unit connector C (14P).

16. Check for continuity between the power tailgate control unit connector C (14P) terminal No. 7 and gauge control module connector A (12P) terminal No. 5.

POWER TAILGATE CONTROL UNIT CONNECTOR C (14P)
Wire side of female terminals



GAUGE CONTROL MODULE CONNECTOR A (12P)
Wire side of female terminals

Is there continuity?

YES—Gauge control module is faulty, replace the gauge control module.■

NO—Repair open in the wire between power tailgate control unit and the gauge control module.■

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DTC Troubleshooting (cont'd)

DTC B1792: HandsFreeLink Control Unit Internal Error

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Check for DTCs with the HDS.

   Is DTC B1792 indicated?

   YES—Replace the HandsFreeLink control unit. ■

   NO—Intermittent failure, the system is OK at this time. ■

BACK

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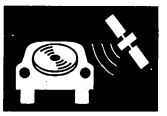

Symptom Troubleshooting

The MID displays an HFL message that does not go away after pressing the HFL button

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then ON (II).
3. Check for DTCs.

   Are there any DTCs indicate?

   YES—Repair the indicated DTCs. ■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Substitute a known-good HandsFreeLink control unit, then turn the ignition switch ON (II) and recheck the MID.

   Are the messages cleared?

   YES—Replace the original HandsFreeLink control unit. ■

   NO—Replace the gauge control module. ■

The HFL system does not recognize all voice prompts

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then ON (II).
3. Check for DTCs.

   Are there any DTCs indicate?

   YES—Repair the indicated DTCs. ■

   NO—Go to step 4.
4. Check if the problem is duplicated.

   Can the client's problem be duplicated?

   YES—Go to step 5.

   NO—The system is OK at this time. Ask the client to demonstrate the problem. ■
5. Check if the navigation system can recognize for voice prompts.

   Can the voice prompts be recognized?

   YES—Go to step 6.

   NO—Refer to the navigation system troubleshooting. ■
6. Pair the client's phone to a known-good vehicle and try to duplicate the problem.

   Can you duplicate the problem?

   YES—Call the HFL support desk at 888-528-7876, and inquire if there are any known issues for the problem. If there are no known issues, explain to the client this is a system characteristic and cannot be improved at this time. ■

   NO—Substitute a known-good HFL/navigation microphone. If the problems still present, substitute a known-good HandsFreeLink control unit. If the problem goes away, replace the original HFL/navigation microphone. ■

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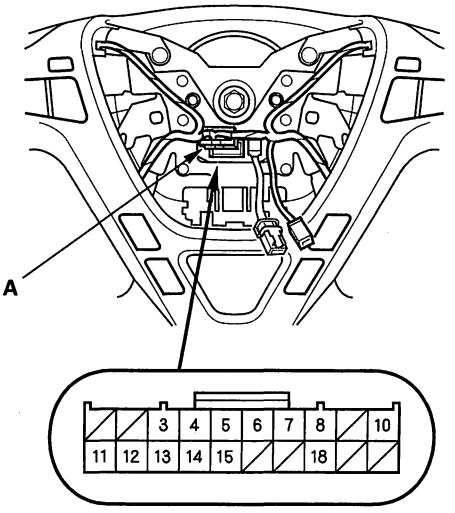
Symptom Troubleshooting (cont'd)

The HFL system is locked and the pass code has been lost or forgotten

1. Connect the HDS to the DLC.
2. Turn the ignition switch ON (II).
3. From the "Body Electrical menu", then select "HandsFreeLink".
4. Select "Miscellaneous Tests", then select "Pass code reset".
5. Follow the HDS system prompts to reset the pass code.

HFL-Voice Control Switch Test

1. Remove the driver's airbag (see page 24-137).
2. Disconnect the 20P connector (A).



3. Measure the resistance between the No. 18 and No. 10 terminals in each switch position according to the table.

HFL-Voice Control Switch

Position	Resistance
OFF	About 1 kΩ
HFL TALK button pressed	About 185 Ω
HFL BACK button pressed	About 45 Ω

4. If the resistance is not as specified, replace the switch (see page 17-23).

BACK

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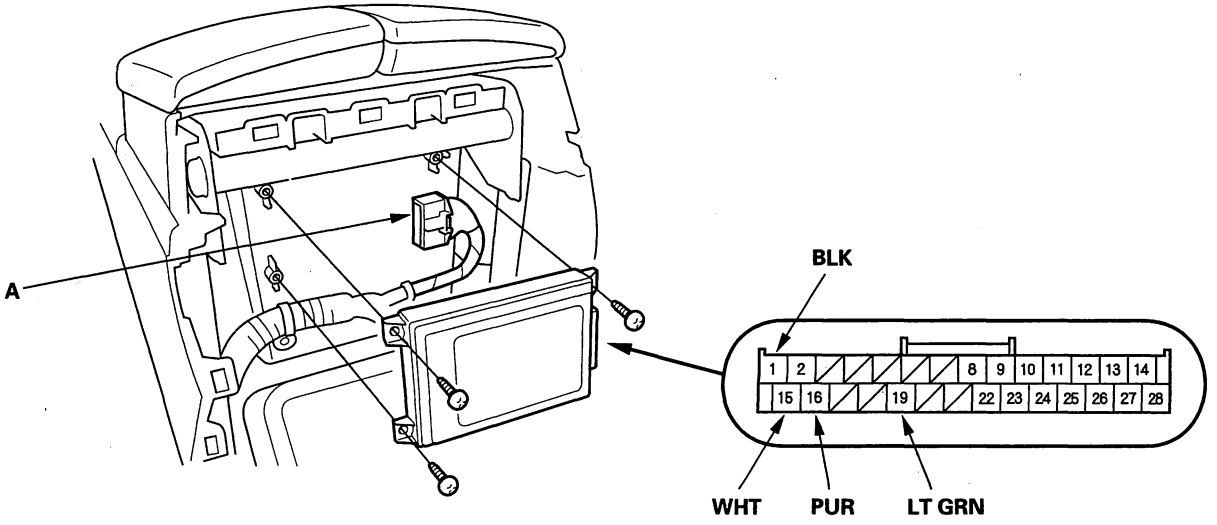
Control Unit Input Test/Replacement

1. Remove the console rear trim (see page 20-110).
2. Disconect the 28P connector (A) from the HandsFreeLink control unit (B).



Wire side of female terminals

3. Inspect the connector and socket terminals for a good pinfit to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.
4. Reconnect the connector, and make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
1	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G506) • An open in the wire
15	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 5 (10 A) fuse in the driver's under-dash fuse/relay box • An open in the wire
16	PUR	Ignition switch ACC (I) or ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 32 (10 A) fuse in the driver's under-dash fuse/relay box • An open in the wire

5. Disconnect the 28P connector again, and make this input test at the connector.
   - If the test indicates a problem, find and correct the cause, then recheck the system.
   - If the input test proves OK, the HandsFreeLink control unit must be faulty, replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
19	LT GRN	Under all conditions	Check for continuity between No. 19 terminal and the driver's under-dash fuse/relay box connector X (39P) terminal No. 27: There should be continuity.	An open in the wire
		Driver's under-dash fuse/relay box connector X (39P) disconnected	Check for continuity to ground: There should be no continuity.	Short to ground

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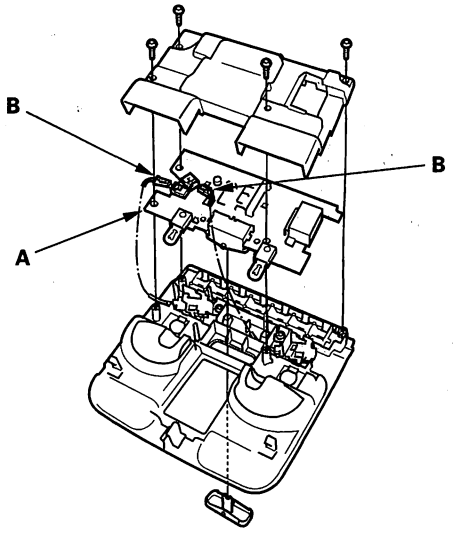
HFL/Navigation Microphone Removal/Installation

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the dashboard and related parts.
- Lay a workshop towel under the parts when working on them to protect the face panel from scratches or other damage.

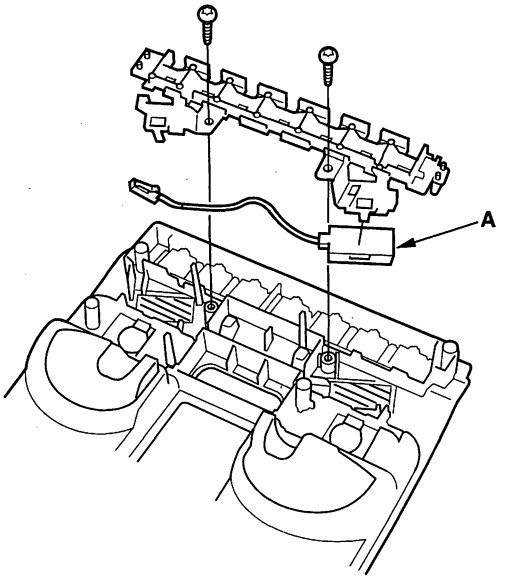
1. Remove the roof console (see page 20-101).

2. Remove the screws and the printed circuit board (A).



3. Disconnect the connectors (B) from the printed circuit board.

4. Remove the screws and the microphone (A).



5. Install the microphone in the reverse order of removal.

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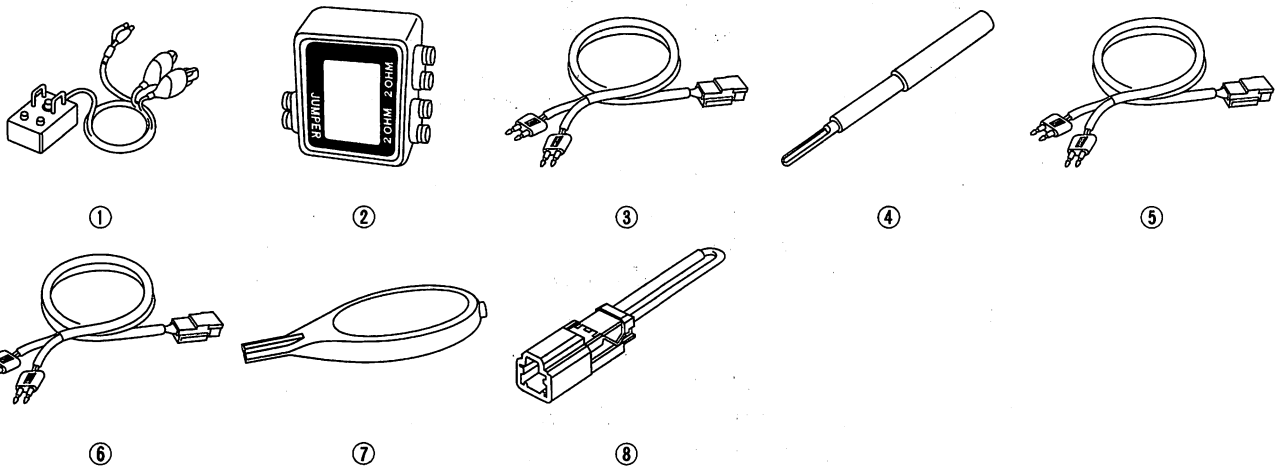
Restraints

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07HAZ-SG00500	Deployment Tool	1
②	07SAZ-TB4011A	SRS Inflator Simulator	1
③	070AZ-SNAA100	SRS Simulator Lead J	1
④*	07TAZ-001020A	Backprobe Adapter, 17 mm	2
⑤	070AZ-SNAA200	SRS Simulator Lead K	1
⑥	070AZ-SNAA300	SRS Simulator Lead L	1
⑦	070AZ-SAA0100	SRS Short Canceller	2
⑧	07PAZ-0010100	SCS Service Connector	1

* : Use with the stacking patch cords from T/N 07SAZ-001000A, Backprobe Set.



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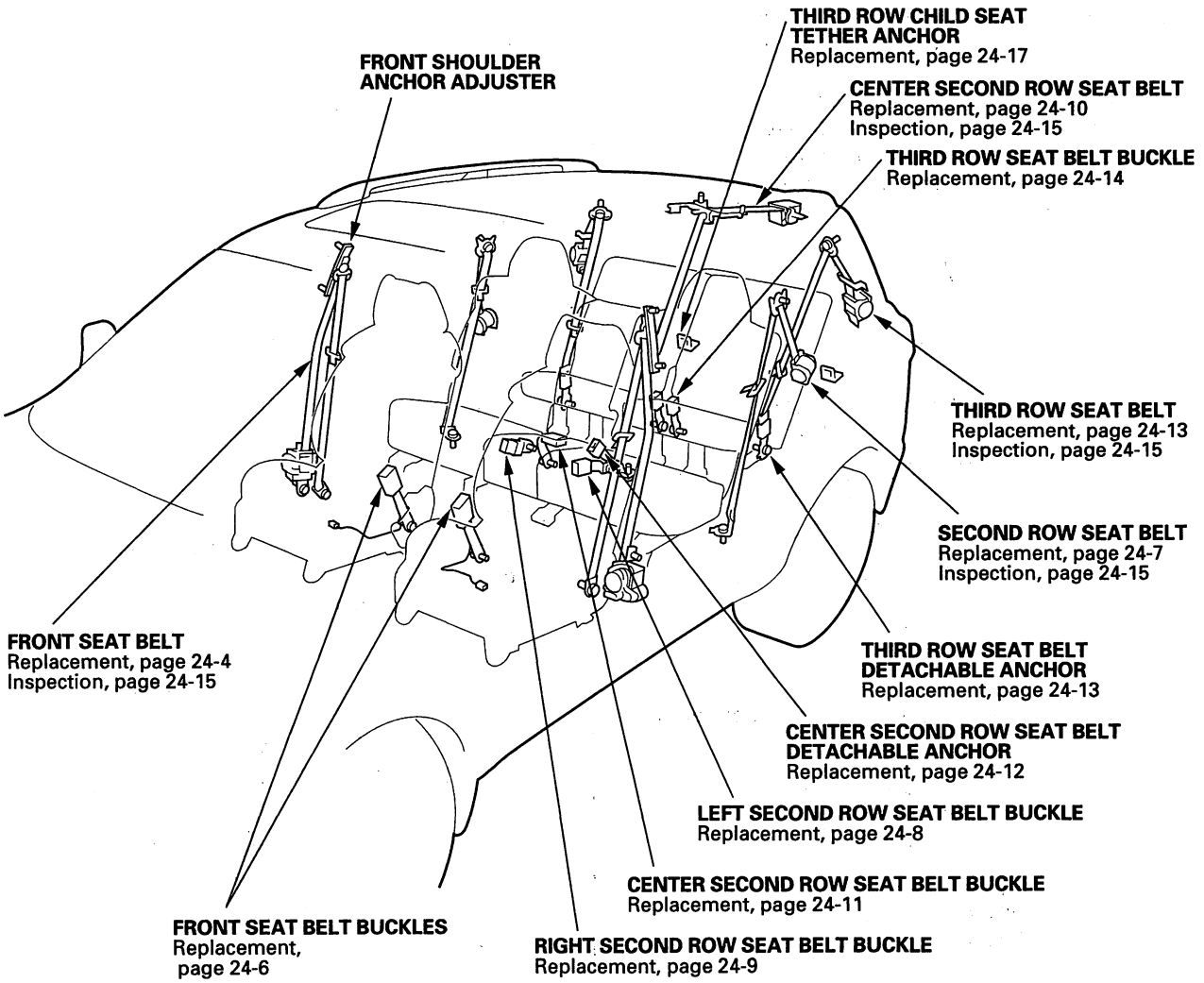
Component Location Index



BACK

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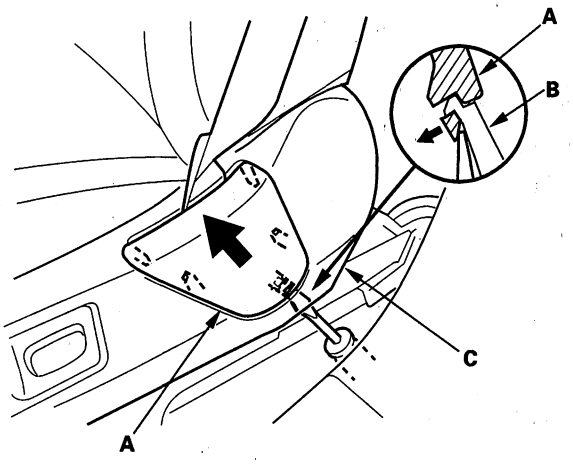
Front Seat Belt Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

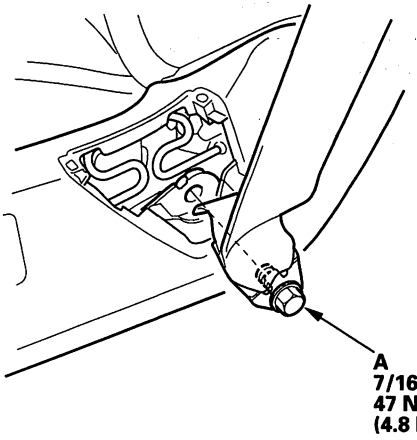
NOTE: Check the front seat belts for damage (see page 24-15), and replace them if necessary.

Front Seat Belt

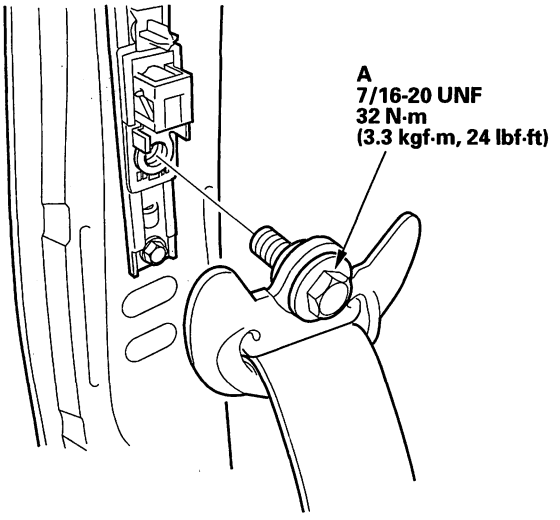
1. Make sure you have the anti-theft codes for the audio and the navigation system (if equipped).
2. Slide the front seat all the way forward, and adjust the seat to its maximum height. Carefully pry up on the bottom of the anchor cover (A) to release the tab (B) with a small flat-tip screwdriver from below inside the recline cover (C), then remove it.



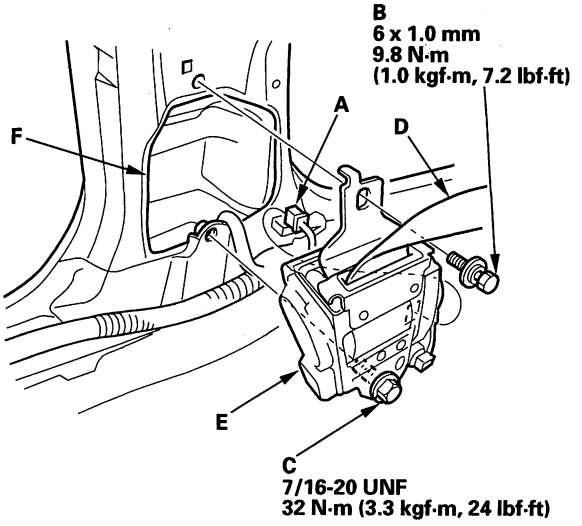
3. Adjust the seat to its minimum height, then remove the lower anchor bolt (A).



4. Disconnect the negative cable from the battery, and wait at least 3 minutes before removing the front seat belt.
5. Remove the B-pillar lower trim (see page 20-82).
6. Remove the B-pillar upper trim (see page 20-82).
7. Remove the upper anchor bolt (A).



8. Disconnect the seat belt tensioner connector (A). Remove the upper retractor mounting bolt (B) and the lower retractor bolt (C), then remove the front seat belt (D) and retractor (E).



9. If necessary, remove the front seat belt protector (F).

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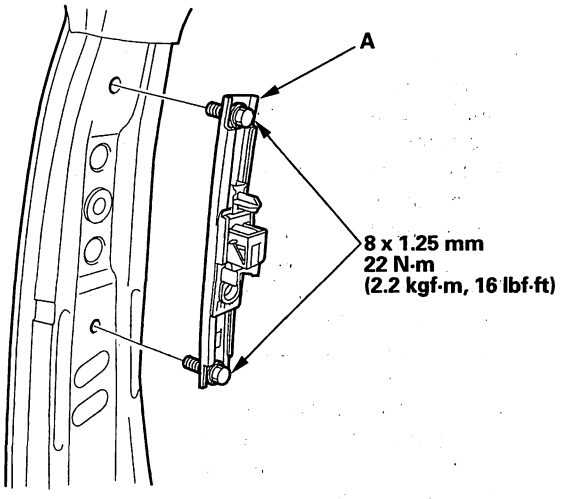
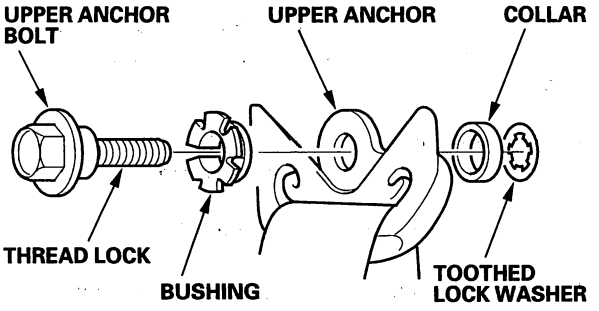
10. Remove the shoulder anchor adjuster (A).



11. Install the seat belt in the reverse order of removal, and note these items:

- Apply medium strength type liquid thread lock to the anchor bolts before reinstallation.
- Tighten the bolts by hand first, then tighten to the specified torque.
- Check that the retractor locking mechanism functions as described (see page 24-15).
- Assemble the washer, collar, and bushing on the upper anchor bolt as shown.
- If the seat belt tensioner has been deployed, replace the front seat belt protector with a new one.
- Before installing the anchor bolts, make sure there are no twists or kinks in the seat belt.
- Make sure the seat belt tensioner connector is properly plugged in.
- Reconnect the negative cable to the battery.
- Enter the anti-theft codes for the audio and the navigation system (if equipped).
- Set the clock.
- Check for any DTCs that may have been set during repairs, and clear them.
- Do the steering column position memorization (see page 17-28).

Upper anchor bolt installation



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Front Seat Belt Replacement (cont'd)

Seat Belt Buckle

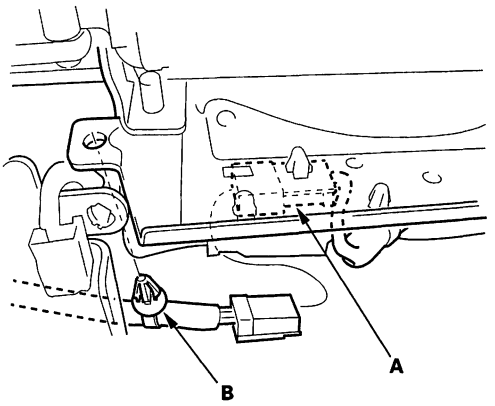
1. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).

2. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.

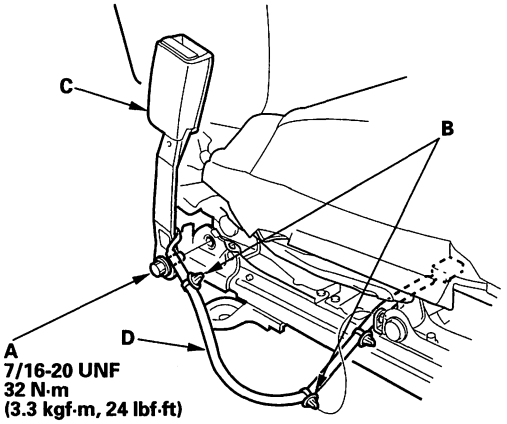
3. Remove the front seat (see page 20-141).

4. Remove the center cover (see step 4 on page 20-144).

5. Lift up the front seat, then disconnect the seat belt buckle switch connector (A) and detach the harness clip (B). The driver's seat is shown; the passenger's seat is similar.



6. Remove the center anchor bolt (A) and detach the harness clips (B), then remove the seat belt buckle (C).

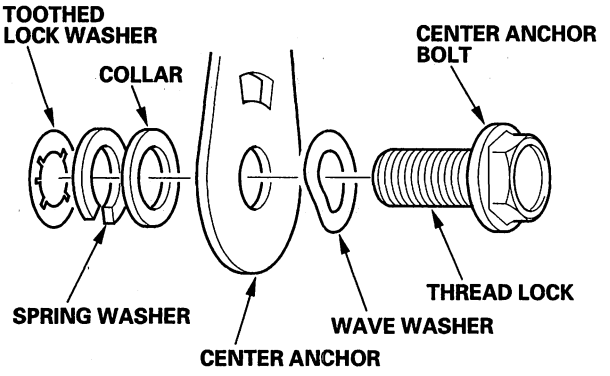


7. Pull the seat belt buckle switch harness (D) out through the space between the seat cushion and the seat linkage.

8. Install the buckle in the reverse order of removal, and note these items:

- Assemble the washers on the center anchor bolt as shown.
- Apply medium strength type liquid thread lock to the center anchor bolt before reinstallation.
- Tighten the bolts by hand first, then tighten to specification with a torque wrench.
- Make sure the seat belt buckle switch connector is plugged in properly.
- Reconnect the negative cable to the battery.
- Enter the anti-theft codes for the audio system and the navigation system (if equipped).
- Set the clock.
- Check for any DTCs that may have been set during repairs, and clear them.
- Do the steering column position memorization (see page 17-28).

Center anchor bolt installation



BACK

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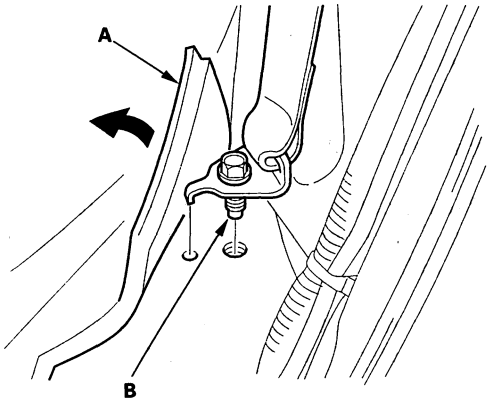
Second Row Seat Belt Replacement

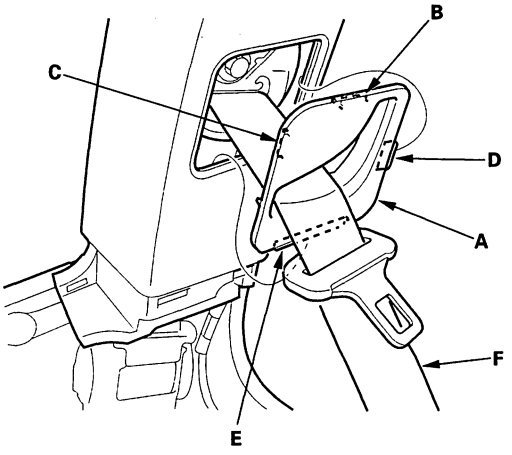
NOTE: Check the second row seat belts for damage (see page 24-15), and replace them if necessary.

Second Row Seat Belt

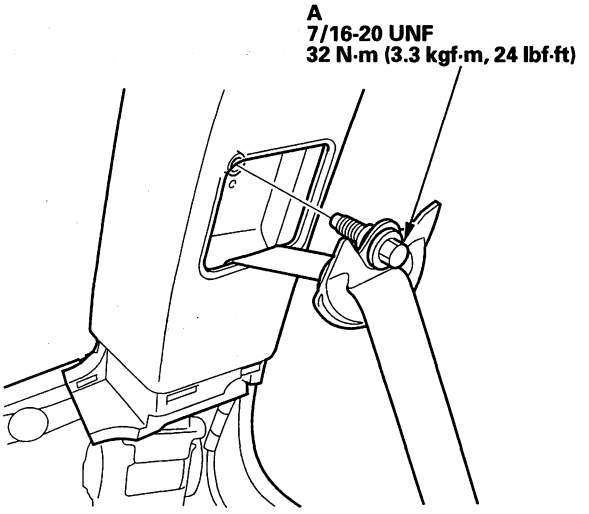
1. Slide the second row seat forward fully.
2. Remove the rear side trim panel (see page 20-92).
3. Pull the carpet (A) back, and remove the lower anchor bolt (B).



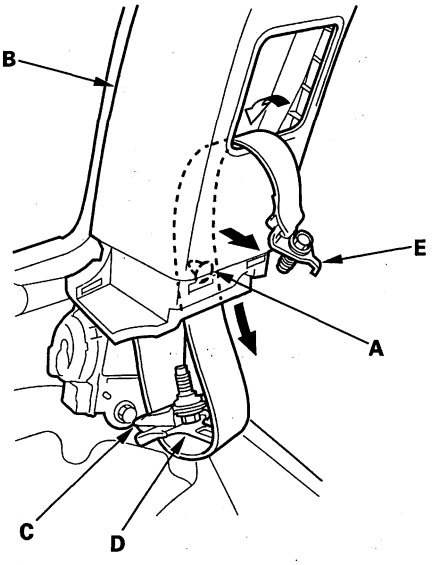
4. Remove the seat belt exit C-pillar cap (A).
   1. Pull out the rear upper corner of the cap to release the upper hook (B) and the rear hook (C).
   2. Release the front hook (D) and lower hook (E) together by pulling the cap upward and rearward.
   3. Take the cap off the second row seat belt (F).



5. Remove the upper anchor bolt (B).



6. Detach the clip (A) by pulling the bottom of the quarter pillar trim (B) back. While holding the trim away from the C-pillar, pull the second row seat belt, upper anchor (C), tongue plate (D), and the lower anchor (E) into the trim, and pull the entire second row seat belt down.



(cont'd)

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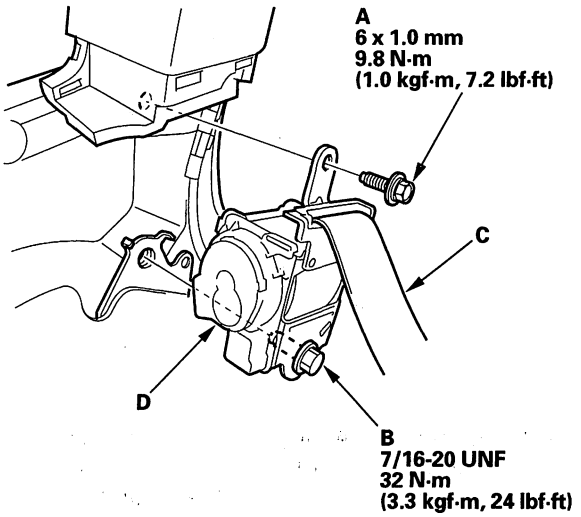
Second Row Seat Belt Replacement (cont'd)

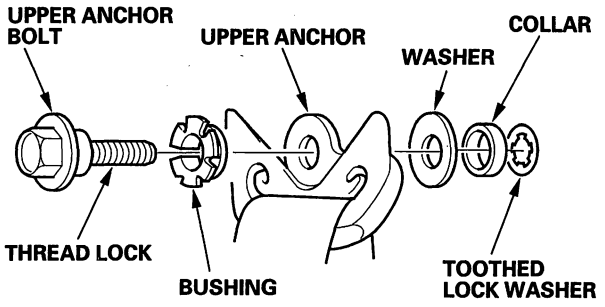
7. Remove the upper retractor mounting bolt (A) and the lower retractor bolt (B), then remove the front seat belt (C) and retractor (D). The left second row seat belt is shown; the right second row seat belt is similar.



8. Install the seat belt in the reverse order of removal, and note these items:

   - Apply medium strength type liquid thread lock to the anchor bolts before reinstallation.
   - Tighten the bolts by hand first, then tighten to the specified torque.
   - Check that the retractor locking mechanism functions (see page 24-15).
   - Assemble the washers, collar, and bushing on the upper anchor bolt as shown.
   - Before installing the anchor bolts, make sure there are no twists or kinks in the front seat belt.

Upper anchor bolt installation



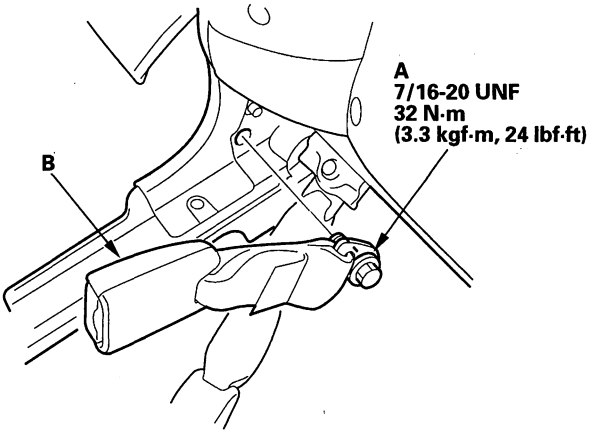
Left Seat Belt Buckle

NOTE: Take care not to tear the seams or damage the seat covers.

1. Remove the left second row seat (see page 20-156).
2. From under the seat cushion, release the hooks of the back cover carpet from the seat cusion frame, then pull the carpet back (see step 2 on page 20-158).
3. With seat heater: Disconnect the seat cushion heater connector, and remove the wire ties (see step 3 on page 20-158).
4. Remove these items:

   - Recline outer cover (see step 4 on page 20-162).
   - ISO fix bracket outer cover (see step 6 on page 20-159).

5. Remove the seat cushion from the left second row seat (see step 10 on page 20-160).
6. Remove the center anchor bolt (A), and remove the seat belt buckle (B).



BACK

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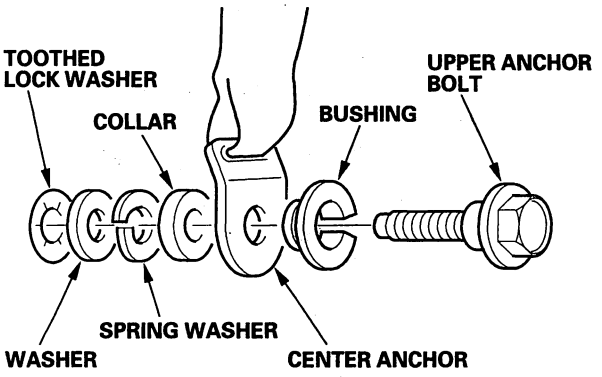
7. Install the buckle in the reverse order of removal, and note these items:

   - Apply medium strength type liquid thread lock to the anchor bolt before reinstallation.
   - Assemble the washers, collar and bushing on the center anchor bolt as shown.

Center anchor bolt installation



Right Seat Belt Buckle

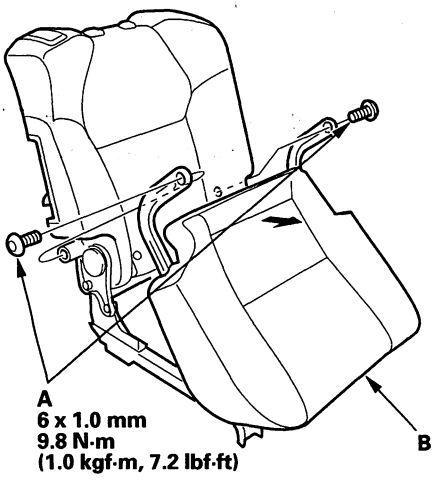
NOTE: Take care not to tear the seams or damage the seat covers.

1. Remove the right second row seat (see page 20-156).

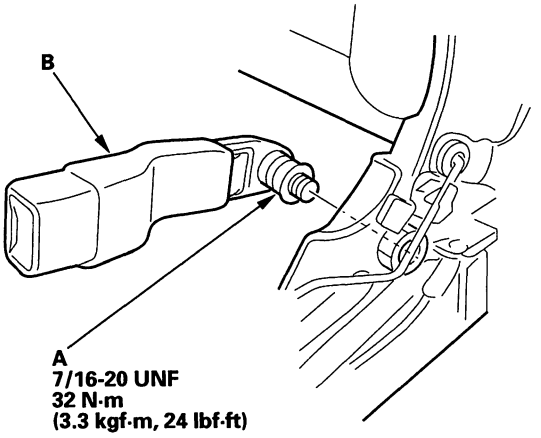
2. Remove these items:

   - Recline outer cover (see step 5 on page 20-162).
   - Center outer cover (see step 7 on page 20-163).

3. Using a TORX T30 bit, remove the pivot bolt (A), then carefully lift the seat cushion (B) up as needed.



4. Remove the center anchor bolt (A), and remove the seat belt buckle (B).



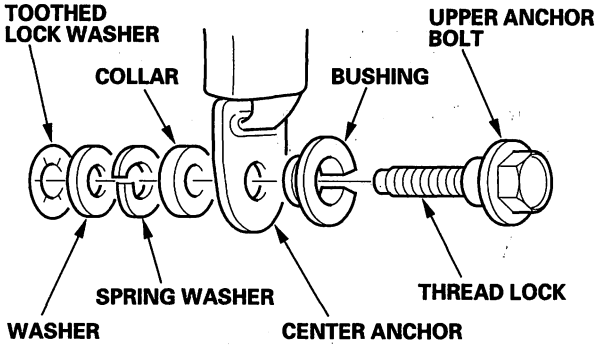
(cont'd)

Protected by AR

Second Row Seat Belt Replacement (cont'd)

5. Install the buckle in the reverse order of removal, and note these items:
   - Apply medium strength type liquid thread lock to the anchor bolt before reinstallation.
   - Assemble the washers, collar, and bushing on the center anchor bolt as shown.

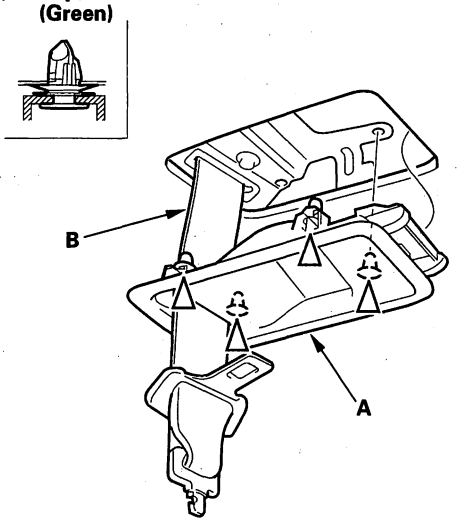
Center anchor bolt installation



Center Second Row Seat Belt

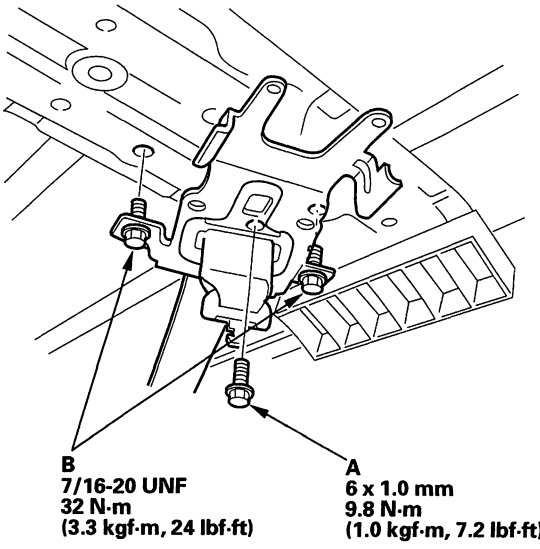
1. Detach the clips and remove the seat belt cover (A).

Fastener Locations
▷: Clip, 4 (Green)



2. Remove the headliner (see page 20-101).

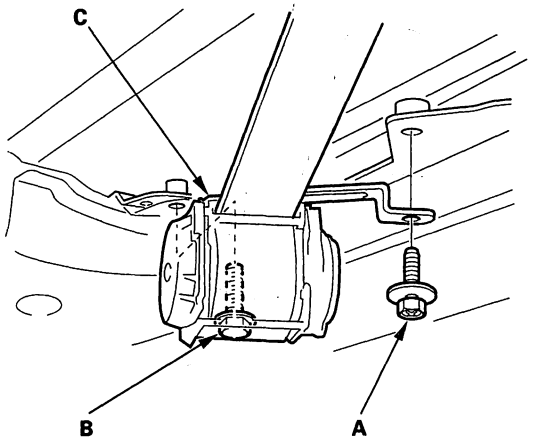
3. Remove the upper anchor mounting bolt (A) and upper anchor bolts (B), then remove the upper anchor (C).



BACK

Protected by AR

4. Remove the retractor mounting bolt (A) and retractor bolt (B), then remove the retractor (C).



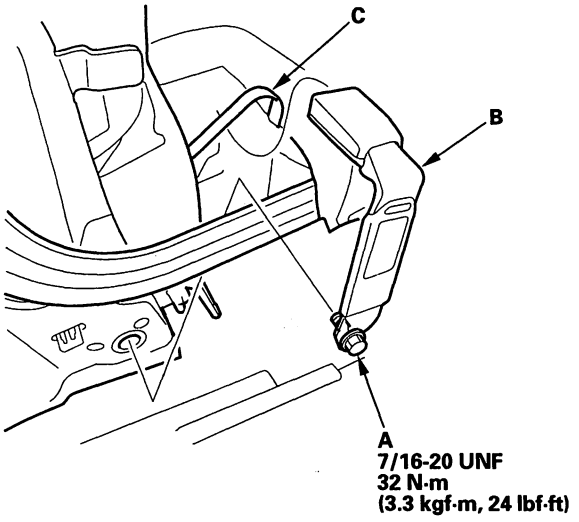
5. Install the center second row seat belt and retractor in the reverse order of removal, and note these items:

   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Apply medium strength type liquid thread lock to the anchor bolts before reinstallation.
   - Check that the retractor locking mechanism functions (see page 24-15).
   - Before installing the upper anchor bolt, make sure there are no twists or kinks in the seat belt.

Center Second Row Seat Belt Buckle

NOTE: Take care not to tear the seams or damage the seat covers.

1. Slide the right second row seat fully forward.
2. Remove the ISO fix bracket outer cover (see step 6 on page 20-159).
3. Remove the center anchor bolt (A), and remove the seat belt buckle (B) from the elastic strap (C), then remove it through the space between the link bracket and seat cushion.



4. Install the buckle in the reverse order of removal, and apply medium strength type liquid thread lock to the anchor bolt before reinstallation.

(cont'd)

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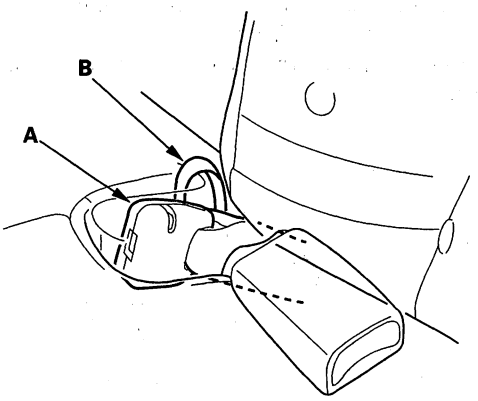
Second Row Seat Belt Replacement (cont'd)

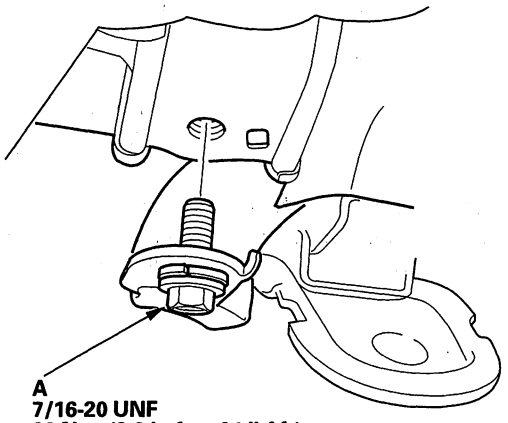
Center Second Row Seat Belt Detachable Anchor

NOTE: Take care not to tear the seams or damage the seat covers.

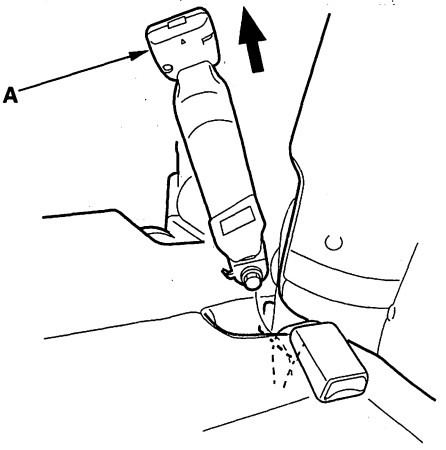
1. Remove the left second row seat (see page 20-156).
2. Remove the seat belt detachable anchor (A) from the elastic strap (B).



3. Remove the lower anchor bolt (A).



4. Remove the seat belt detachable anchor (A).



5. Install the detachable anchor in the reverse order of removal, and apply medium strength type liquid thread lock to the anchor bolt before reinstallation.

BACK

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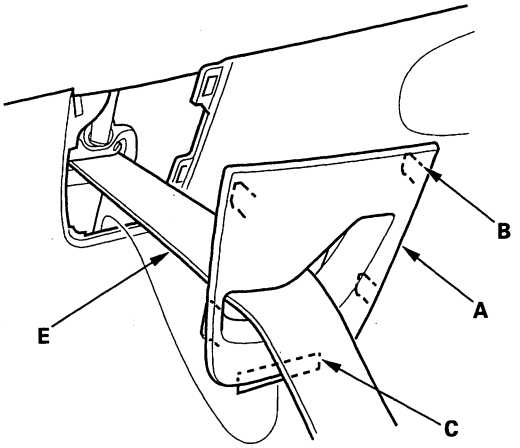
Third Row Seat Belt Replacement

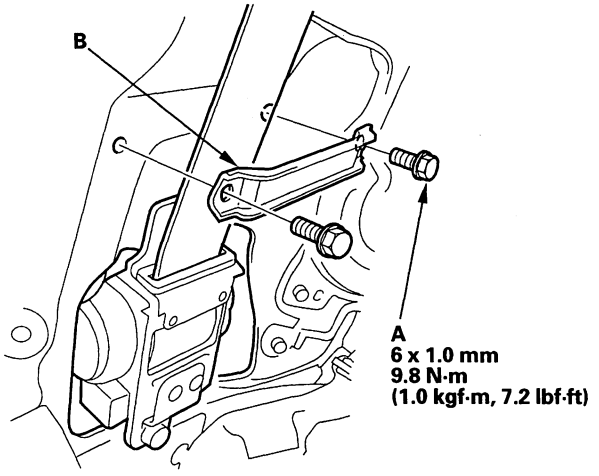
Third Row Seat Belt

NOTE: Check the third row seat belts for damage (see page 24-15), and replace them if necessary.

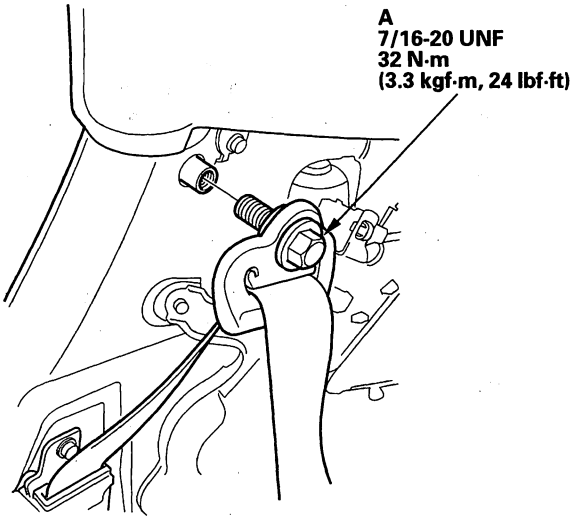
1. Detach the third row seat belt lower anchor.
2. Remove the rear side trim panel (see page 20-92).
3. Remove the seat belt exit D-pillar cap (A).
   1 Pull out the top of the cap to release the hooks (B).
   2 Release the lower hook (C) by pu lling the cap upward.
   3 Take the cap off the second row seat belt (E).



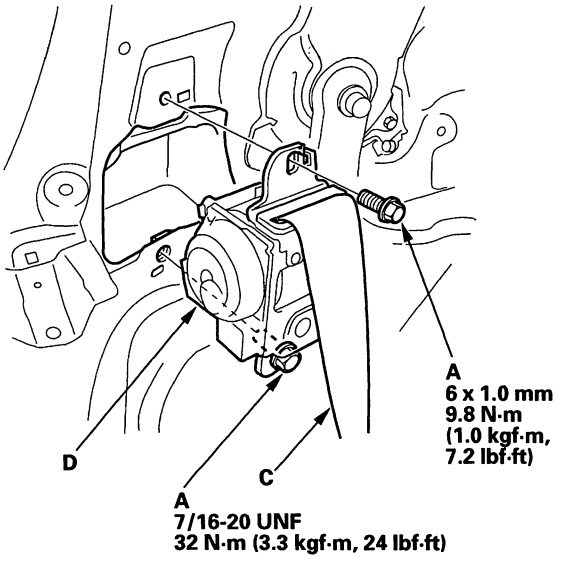
4. Remove the quarter pillar trim (see page 20-85).
5. Remove the bolts (A) and the seat belt guide (B).



6. Remove the upper anchor bolt (A).



7. Remove the retractor mounting bolt (A) and the retractor bolt (B), then remove the third row seat belt (C) and retractor (D).



(cont'd)

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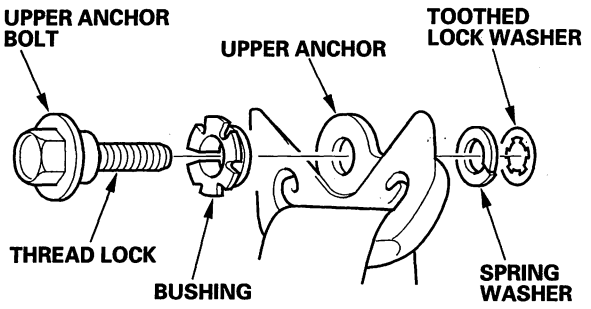
Third Row Seat Belt Replacement (cont'd)

8. Install the seat belt in the reverse order of removal, and note these items:

   - Apply medium strength type liquid thread lock to the anchor bolts before reinstallation.
   - Tighten the bolts by hand first, then tighten to the specified torque.
   - Check that the retractor locking mechanism functions as described (see page 24-15).
   - Assemble the washers and bushing on the upper anchor bolt as shown.
   - Before installing the anchor bolt, make sure there are no twists or kinks in the seat belt.

Upper anchor bolt installation

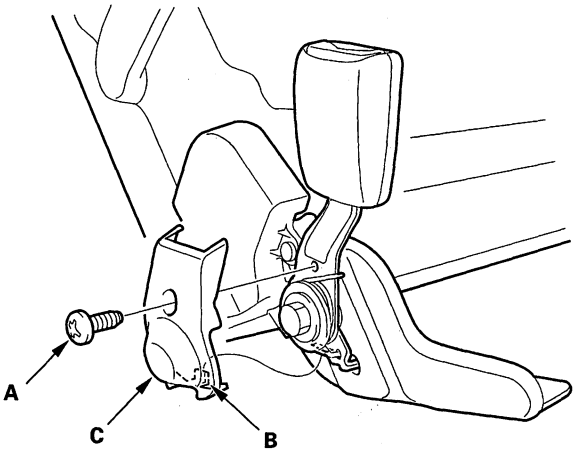


Seat Belt Buckle/Seat Belt Detachable Anchor

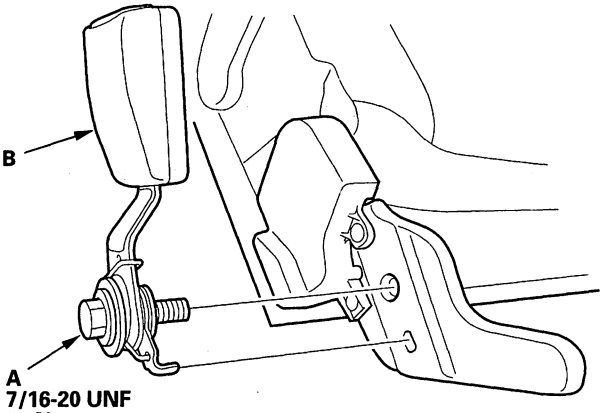
NOTE: The seat belt buckle is shown, and the seat belt detachable anchor is similar.

1. Remove the third row seat (see page 20-179).

2. Remove the screw (A), and release the hook (B), then remove the bracket cover (C).



3. Remove the center anchor bolt (A), then remove the seat belt buckle (B).



BACK

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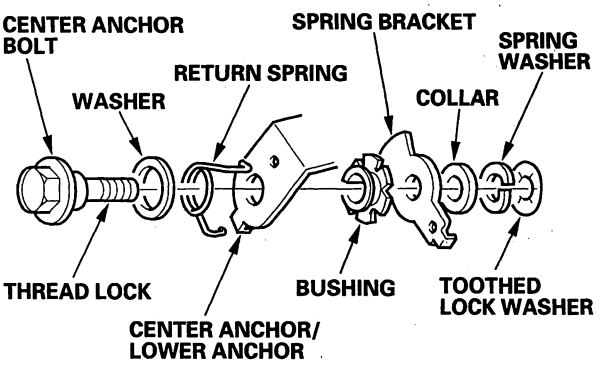
4. Install the buckle in the reverse order of removal, and note these items:

   - Assemble the washers, spring, bushing, bracket, and collar on the center anchor bolt as shown.
   - Apply medium strength type liquid thread lock to the center anchor bolt before reinstallation.

Center anchor bolt construction



Inspection

Out of Vehicle

For front seat belt retractor with seat belt tensioner, review the SRS component locations (see page 24-18) and the precautions and procedures (see page 24-20) before doing repairs or service.

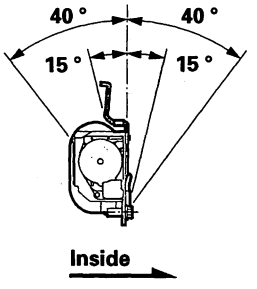
Retractor

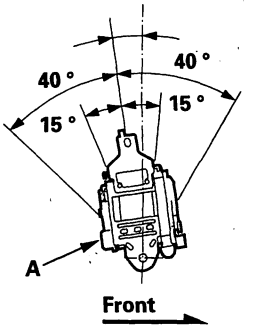
1. Before installing the retractor, check that the seat belt can be pulled out freely.

2. Make sure that the seat belt does not lock when the retractor (A) is leaned slowly up to 15 ° from the mounted position. The seat belt should lock when the retractor is leaned over 40 °. Do not attempt to disassemble the retractor.

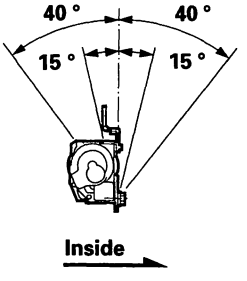
Front

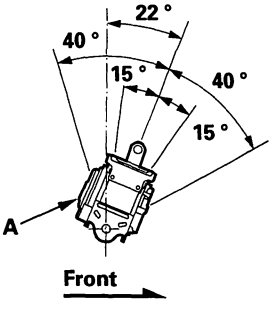
Driver's side: 8 °
Passenger's side: 10.5 °





Second row





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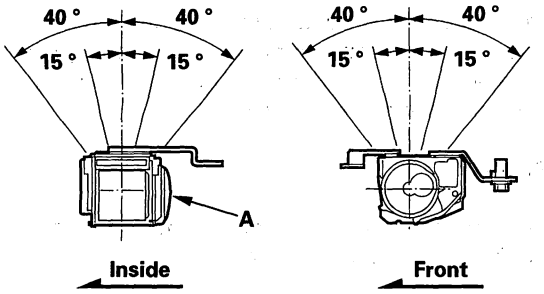
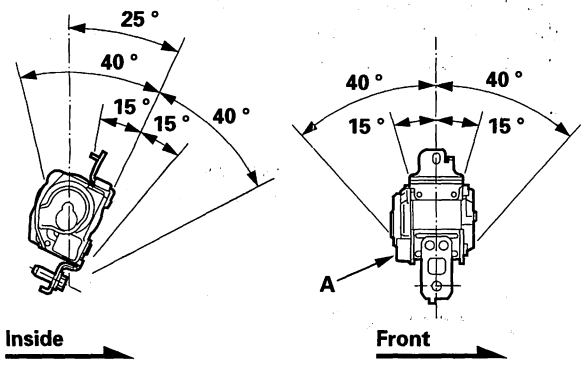
Inspection (cont'd)

Center Second row



Third row



3. Replace the seat belt with a new assembly if there is any abnormality. Do not disassemble any part of the seat belt for any reason.

In-vehicle

1. Check that the seat belt is not twisted or caught on anything.
2. After installing the anchors, check for free movement on the anchor bolts. If necessary, remove the anchor bolts and check that the washers and other parts are not damaged or improperly installed.
3. Check the seat belts for damage or discoloration. Clean with a shop towel if necessary. Use only soap and water to clean.

   NOTE: Dirt build up in the loops of the upper anchors can cause the seat belts to retract slowly. Wipe the inside of the loops with a clean cloth dampened in isopropyl alcohol.
4. Check that the seat belt does not lock when pulled out slowly. The seat belt is designed to lock only during a sudden stop or impact.
5. Make sure that the seat belt will retract automatically when released.
6. For each passenger's seat belt, check the seat belt retractor locking mechanism ALR (automatic locking retractor). This function is for securing child seats.

   -1 Pull the seat belt all the way out to engage the ALR. The seat belt should retract, but not extend. This is normal.
   -2 To disengage the ALR, release the seat belt and allow it to fully retract, then pull the seat belt out part-way. The seat belt should retract and extend normally.
7. Replace the seat belt with a new assembly if there is any abnormality. Do not disassemble any part of the seat belt for any reason.

BACK

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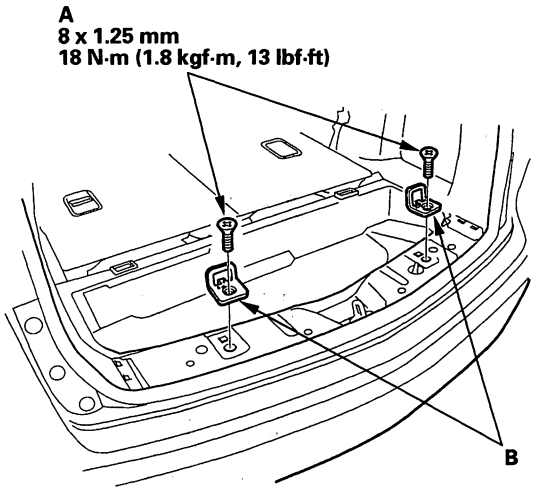
Third Row Child Seat Tether Anchor Replacement

1. Remove the rear trim panel (see step 2 on page 20-90).

2. Remove the screws (A), and remove the third row child seat tether anchors (B).



3. Install the anchor in the reverse order of removal, and apply medium strength type liquid thread lock to the threads of the child seat tether anchor screws.

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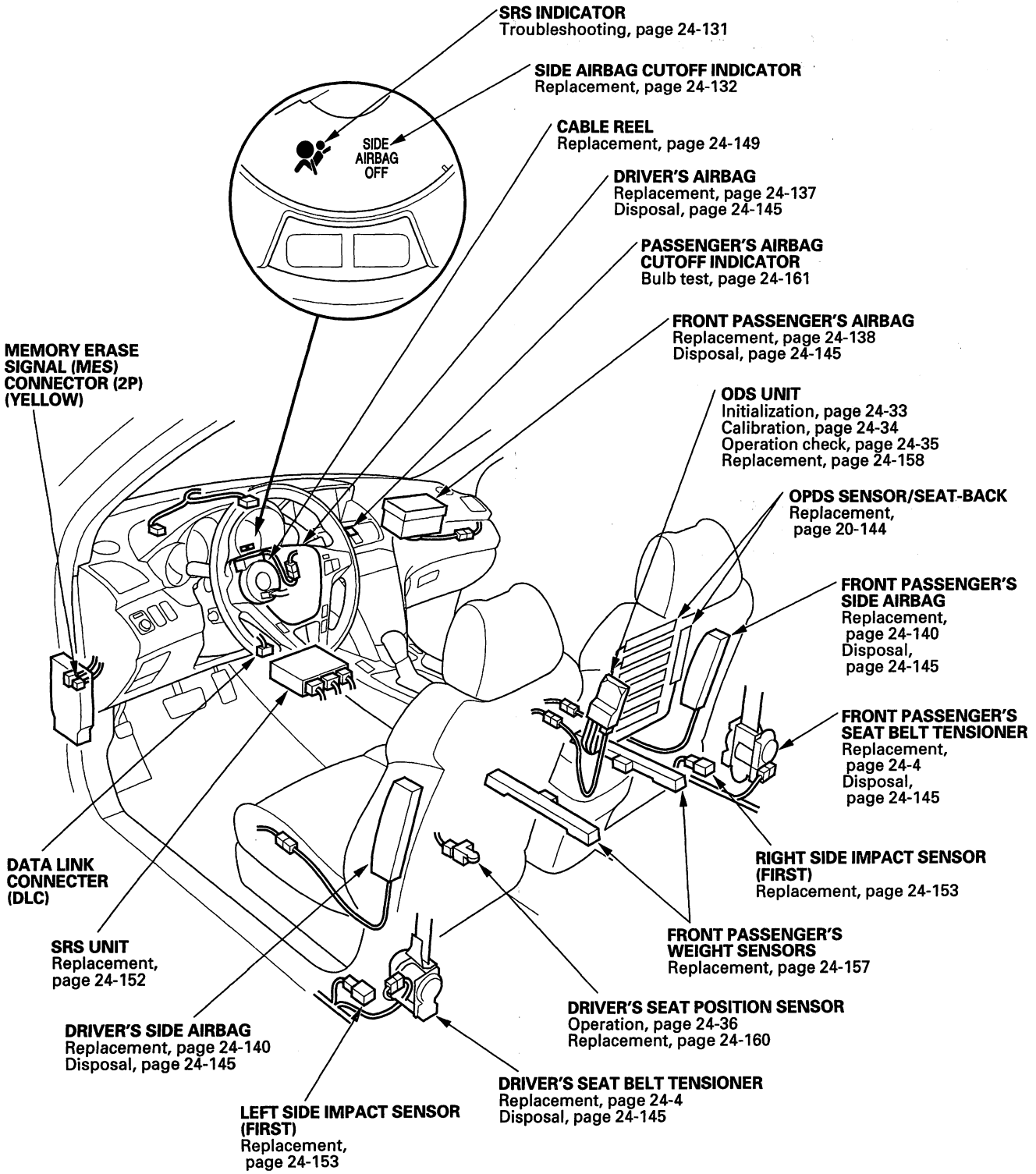
Component Location Index



BACK

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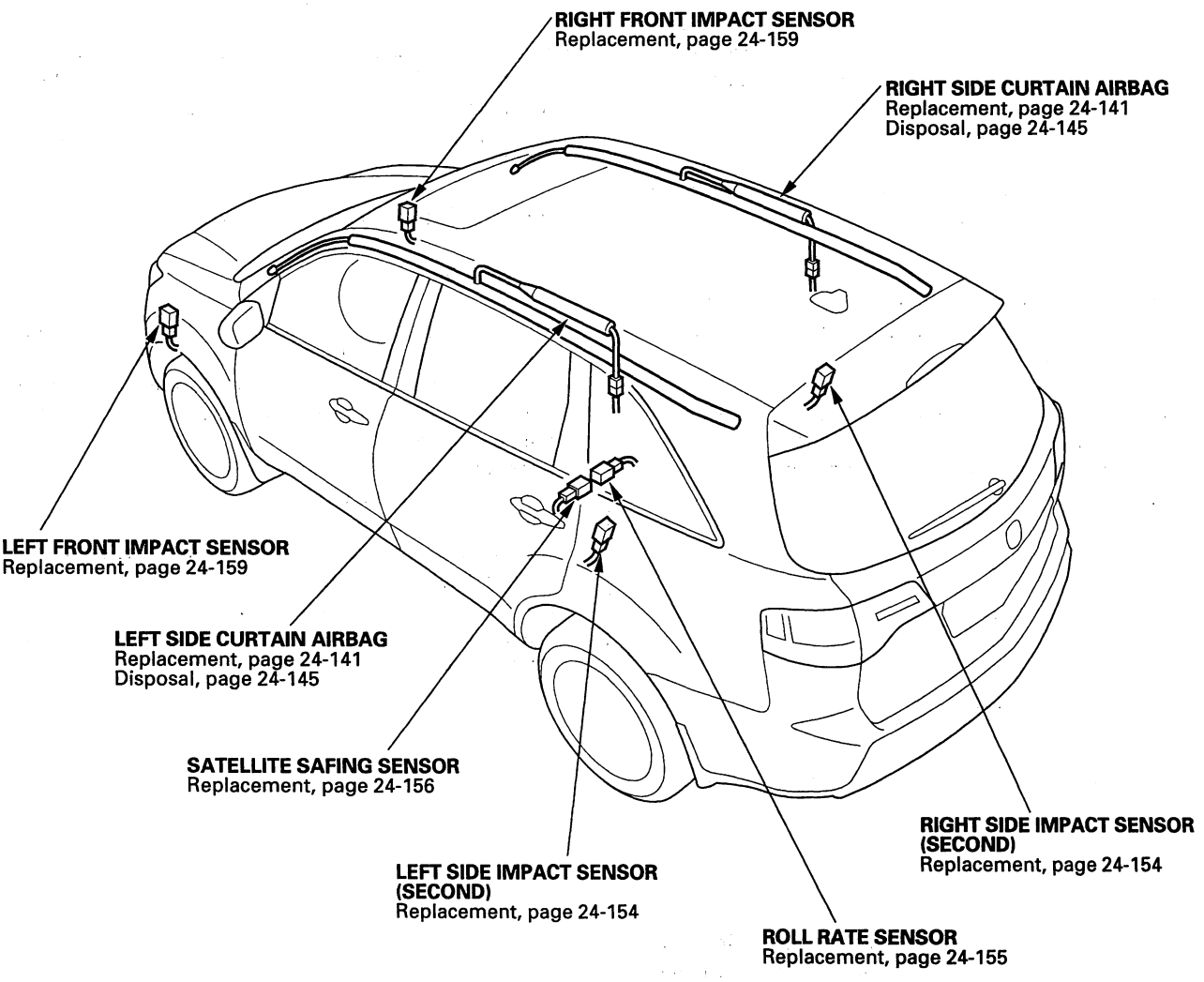

BACK

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Precautions and Procedures

General Precautions

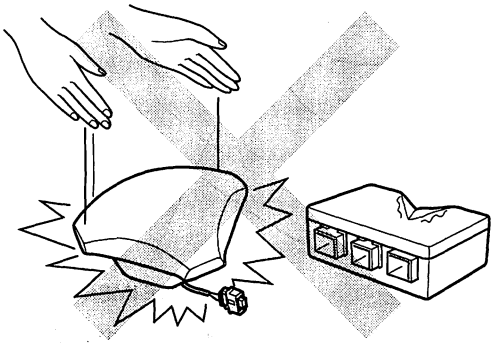
Please read the following precautions carefully before servicing the airbag system. Observe the instructions described in this manual, or the airbags could accidentally deploy and cause damage or injuries.

- Except when doing electrical inspections, always turn the ignition switch OFF, ground the SCS line with the HDS to take the PCM out of active status, disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.

  NOTE: The SRS memory is not erased even if the ignition switch is turned OFF or the battery cables are disconnected from the battery.

- Use replacement parts which are manufactured to the same standards and quality as the original parts. Do not install used SRS parts. Use only new parts when making SRS repairs.

- Carefully inspect any SRS part before you install it. Do not install any part that shows signs of being dropped or improperly handled, such as dents, cracks or deformation.



- Before removing any of the SRS parts (including the disconnection of the connectors), always disconnect the SRS connector.

- Use only a digital multimeter to check the system. If it is not a Honda multimeter, make sure its output is 10 mA (0.01 A) or less when switched to the lowest value in the ohmmeter range. A tester with a higher output could cause accidental deployment and possible injury.

- Do not put objects on the front passenger's airbag.

- The original audio system has a coded theft protection circuit. Make sure you have the anti-theft codes for the audio system and the navigation system (if equipped)

- Before returning the vehicle to the client, enter the anti-theft codes for the audio system and the navigation system (if equipped)

- If you disconnects the battery cable, the power tilt and telescopic steering wheel system needs to be reset when you reconnect the battery cable. Do the Steering Column Position Memorization (see page 17-28).

Steering-Related Precautions

Cable Reel Alignment

- Misalignment of the cable reel could cause an open in the wiring, making the SRS system, remote steering wheel controls, and the horn inoperative. Center the cable reel whenever the following is performed (see step 6 on page 24-151).
  - Installation of the steering wheel
  - Installation of the cable reel
  - Installation of the steering column
  - Other steering-related adjustment or installation
- Do not disassemble the cable reel.
- Do not apply grease to the cable reel.
- If the cable reel shows any signs of damage, replace it with a new one. For example, if it does not rotate smoothly, replace the cable reel.

BACK

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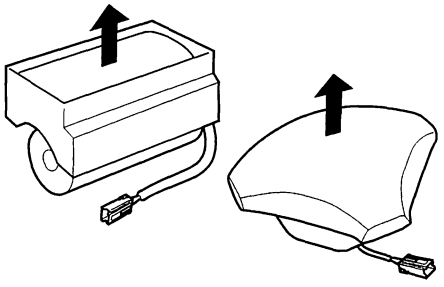
Airbag Handling and Storage

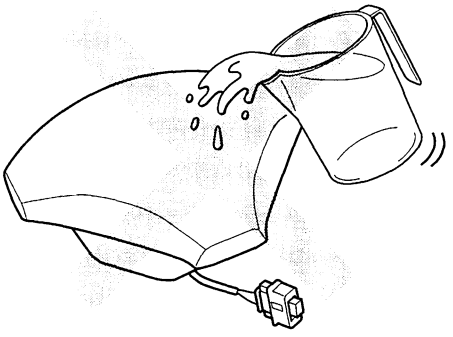
Do not disassemble an airbag. It has no serviceable parts. Once an airbag has been deployed, it cannot be repaired or reused.

For temporary storage of an airbag during service, observe the following precautions.

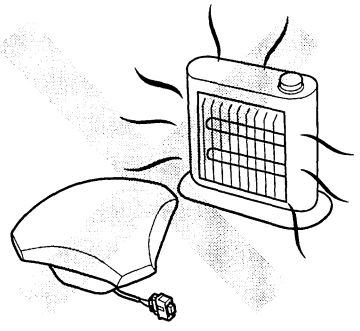
- Store the removed airbag with the pad surface up. Never put anything on the airbag.



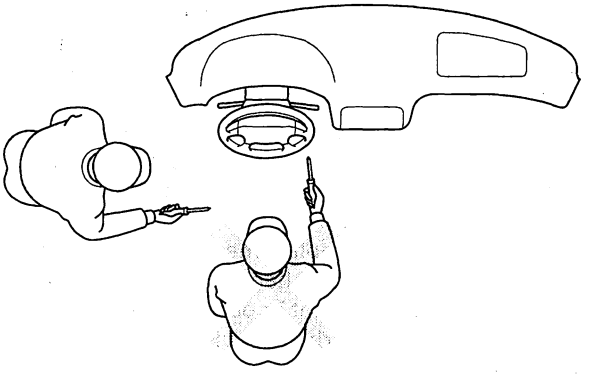
- To prevent damage to the airbag, keep it away from any oil, grease, detergent, or water.



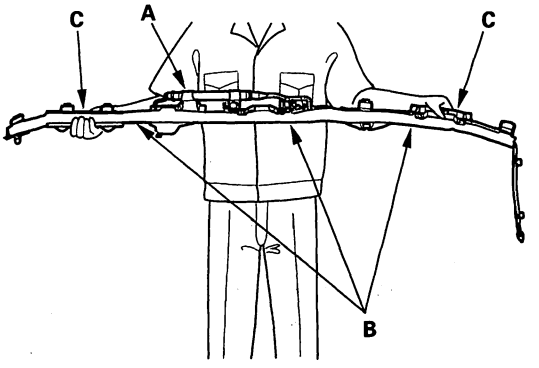
- Store the removed airbag on a secure, flat surface away from any high heat source (exceeding 200 °F/ 93 °C).



- Never do electrical tests on the airbags, such as measuring resistance.
- Do not position yourself in front of the airbag during removal, inspection, or replacement.



- For proper disposal of a damaged airbag, refer to airbag disposal (see page 24-145).
- The side curtain airbag inflator assembly is a long, jointed part containing an inflator (A), a flexible bag (B), and brackets (C).



- When removing or installing the side curtain airbag inflator assembly, never handle the flexible bag (B).

(cont'd)

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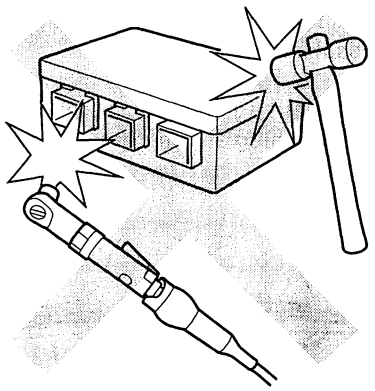
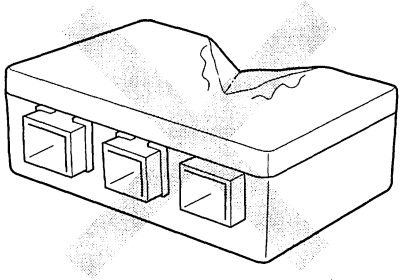
Precautions and Procedures (cont'd)

SRS Unit, Front and Side Impact Sensors, Driver's Seat Position Sensor, Front Passenger's Weight Sensor Unit and Front Passenger's Weight Sensors

- Turn the ignition switch OFF, disconnect the negative cable from the battery, and wait at least 3 minutes before beginning installation or replacement of the SRS unit or disconnecting the connectors from the SRS unit.
- Be careful not to bump or impact the SRS unit, front impact sensors, or side impact sensors when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF.
- During installation or replacement, be careful not to bump (by impact wrench, hammer, etc.) the area around the SRS unit, front impact sensors, or side impact sensors. The airbags could accidentally deploy and cause damage or injury.



- After a collision in which a front airbag, side curtain airbags, or a seat belt tensioner deployed, go to Component Replacement/Inspection after Deployment (see page 24-134). After a collision in which the airbags or the side airbags did not deploy, inspect for any damage or any deformation on the SRS unit, front impact sensors, rear safing sensor, and side impact sensors. Replace all damaged parts.



- Do not disassemble the SRS unit, front impact sensors, side impact sensors, driver's seat position sensor, front passenger's weight sensor unit, and front passenger's weight sensors.
- Be sure the SRS unit, front impact sensors, and side impact sensors are installed securely with the mounting bolts torqued to 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft).
- Do not spill water or oil on the SRS unit or the side impact sensors, and keep them away from dust.
- Store the SRS unit, front impact sensors and side impact sensors in a cool (less than 104 °F/40 °C) and dry (less than 80 % relative humidity, no moisture) area.

BACK

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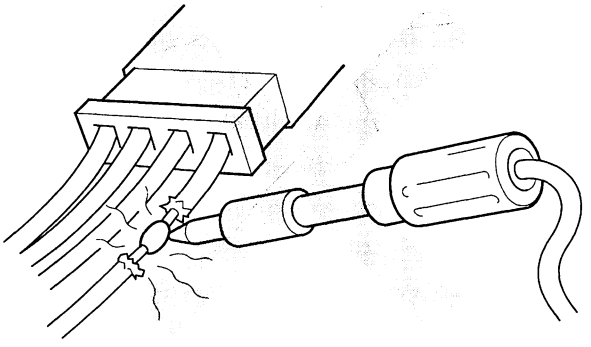
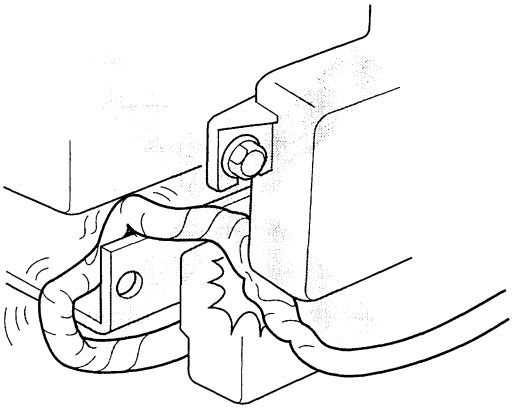
Wiring Precautions

Some of the SRS wiring can be identified by special yellow outer covering, and the SRS connectors can be identified by their yellow color. Observe the instructions.

- Never attempt to modify, splice, or repair SRS wiring. If there is an open or damage in SRS wiring, replace the harness.



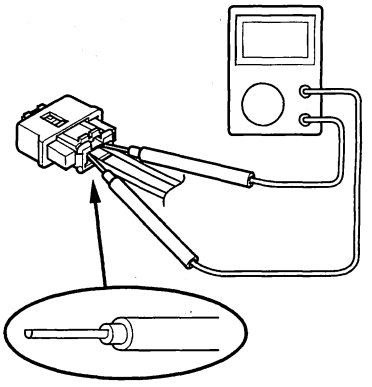
- Be sure to install the harness wires so they do not get pinched or interfere with other parts.



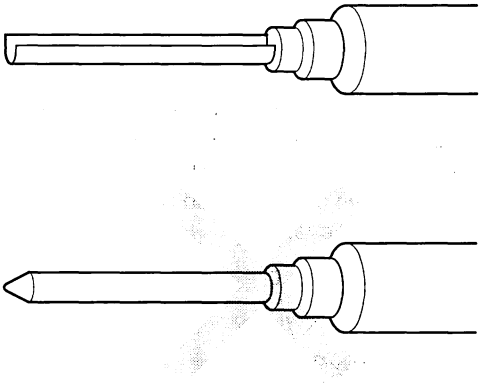
- Make sure all SRS ground locations are clean, and grounds are securely fastened for optimum metal-to-metal contact. Poor grounding can cause intermittent problems that are difficult to diagnose.
- Do not use any silicone based cleaners or lubricants on any SRS connectors or terminals.

Precautions for Electrical Inspections

- When using electrical test equipment, insert the probe of the tester into the wire side of the connector. Do not insert the probe of the tester into the terminal side of the connector, and do not tamper with the connector.



- Use a U-shaped probe. Do not insert the probe forcibly.



- Use specified service connectors in troubleshooting. Using improper tools could cause an error in inspection due to poor metal-to-metal contact.

(cont'd)

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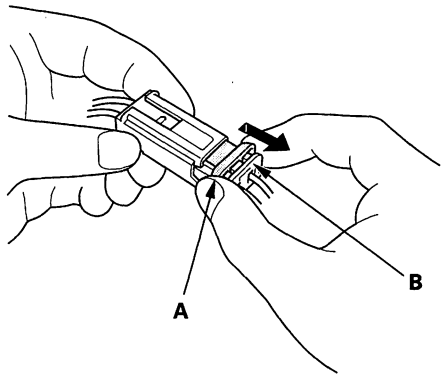
Precautions and Procedures (cont'd)

Spring-Loaded Lock Connector

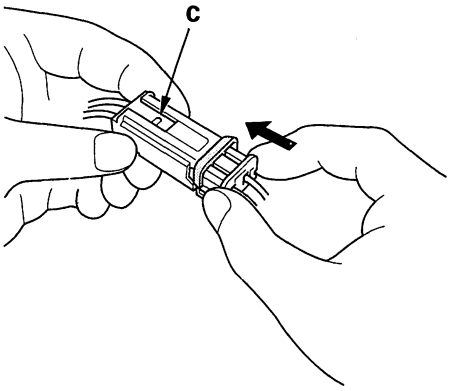
Some SRS system connectors have a spring-loaded lock.

Front Airbag Connectors

Disconnecting
To release the lock, pull the spring-loaded sleeve (A) toward the stop (B) while holding the opposite half of the connector. Then pull the connector halves apart. Be sure to pull on the sleeve and not on the connector.

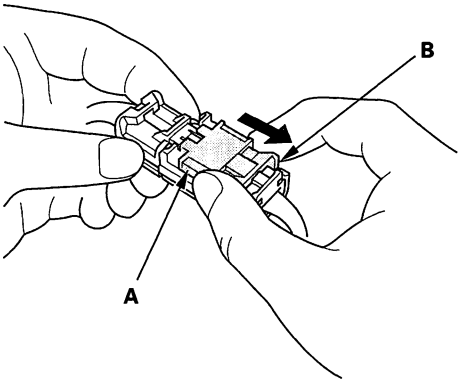


Connecting
To reconnect, hold the pawl-side connector, and press on the back of the sleeve-side connector in the direction shown. As the two connector halves are pressed together, the sleeve (A) is pushed back by the pawl (C). Do not touch the sleeve.

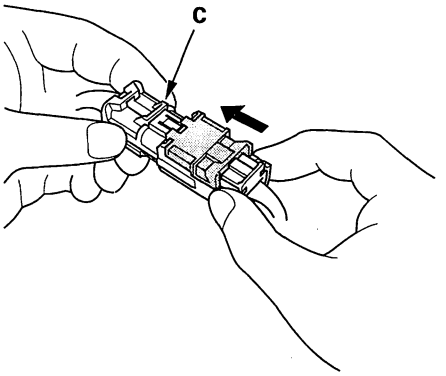


Side Airbag Connector

Disconnecting
To release the lock, pull the spring-loaded sleeve (A) toward the stop (B) while holding the opposite half of the connector. Then pull the connector halves apart. Be sure to pull on the sleeve and not on the connector half.



Connecting
Hold both connector halves, and press them firmly together until the projection (C) of the sleeve-side connector clicks.



BACK

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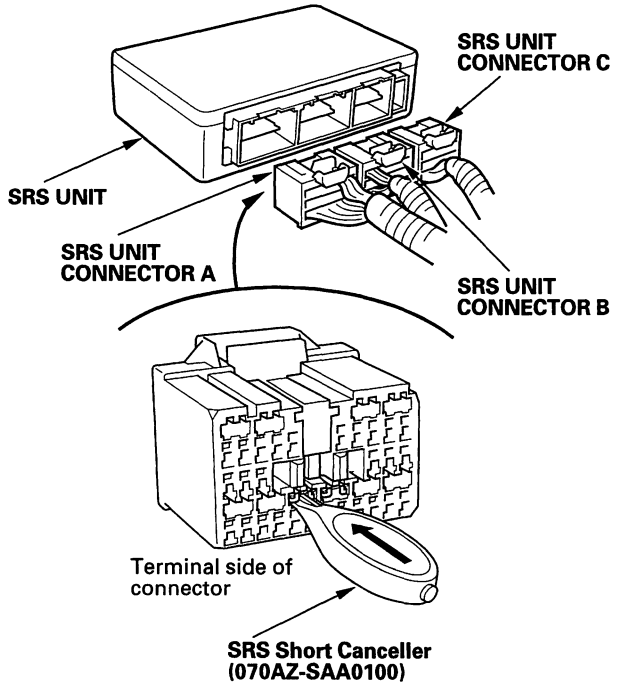
Opening the SRS Unit Shorting Connectors for Diagnosis

Special Tools Required
SRS short canceller 070AZ-SAA0100

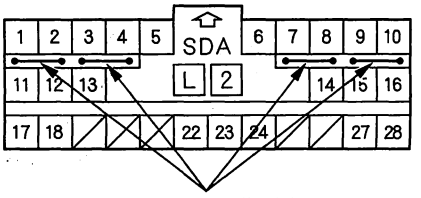
NOTE:
- To prevent damaging the connector cavity, insert the short canceller straight into the cavity from the terminal side.
- Before installing the short canceller, wash it with neutral detergent, then dry it with compressed air.
- Do not use the short canceller if it is damaged.
- Make sure to remove the short canceller before reconnection.

When SRS unit connectors A or B are disconnected, a short circuit is created in the connector by its own function to prevent an airbag deployment. The circuit may need to be open sometimes when diagnosis is done on the system. Insert the short canceller (No. 070AZ-SAA0100) in the specified cavities when it is necessary to keep the circuit open for diagnosis.



Terminal numbers are shown from the wire side of the female terminals. Insert the short canceller(s) into the cavities on the terminal side of the connector.

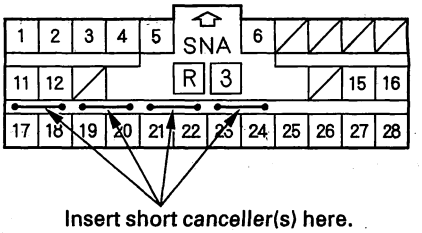
SRS UNIT CONNECTOR A (28P)



Insert short canceller(s) here.

Wire side of female terminals

SRS UNIT CONNECTOR B (28P)



Insert short canceller(s) here.

Wire side of female terminals

(cont'd)

BACK

Protected by AR

Precautions and Procedures (cont'd)

Seats with Side Airbags

Seats with side airbags have a "SIDE AIRBAG" label on the seat-back.

- When cleaning, use a damp cloth to clean the seat. Do not soak the seat with liquid. Do not spray steam on the seat.
- Do not repair a torn or frayed seat-back cover. Replace the seat-back cover.
- After a collision where the side airbag was deployed, replace the side airbag and seat frame with new parts. If the seat-back cushion is split, it must be replaced.
- Never put aftermarket accessories on the seat (covers, pads, seat heaters, lights, etc.).

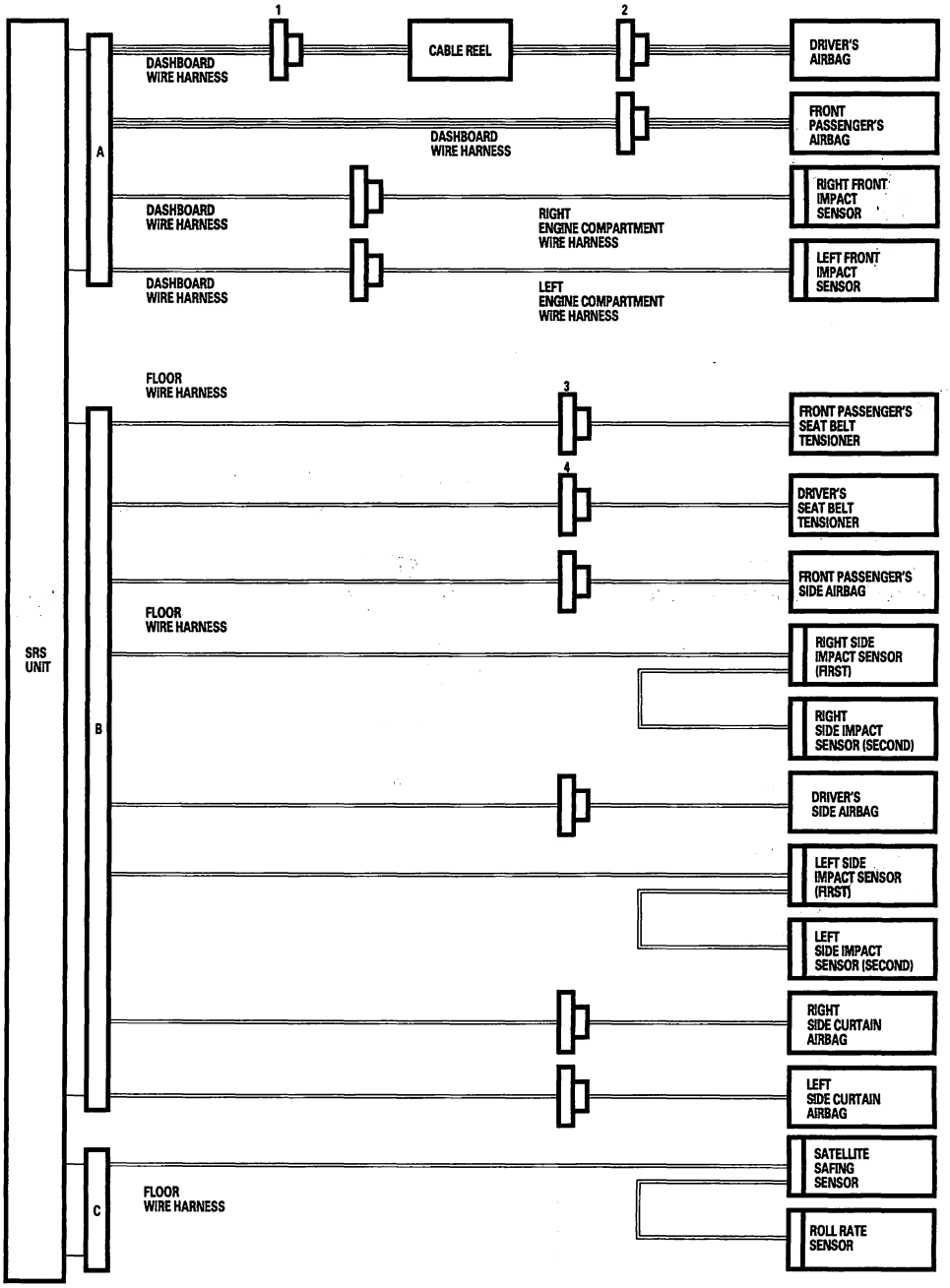
BACK

Protected by AR

Disconnecting System Connectors

Turn the ignition switch OFF disconnect the negative cable from the battery, and wait at least 3 minutes before beginning the following procedures.

- Before disconnecting the cable reel 4P connector (1), disconnect the driver's airbag 4P connector (2).
- Before disconnecting SRS unit connector B from the SRS unit, disconnect both seat belt tensioner 4P connectors (3, 4).



(cont'd)

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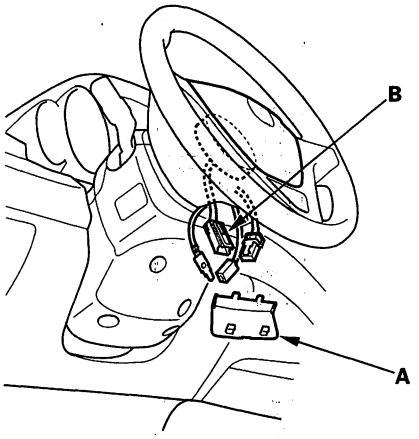
Protected by AR

Precautions and Procedures (cont'd)

1. Disconnect the negative cable from the battery, and wait at least 3 minutes.

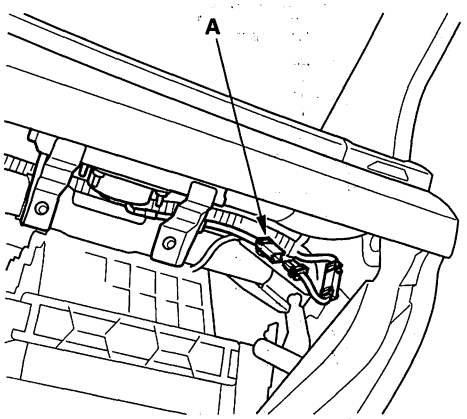
Driver's Airbag

2. Remove the access panel (A) from the steering wheel, then disconnect the driver's airbag 4P connector (B) from the cable reel.



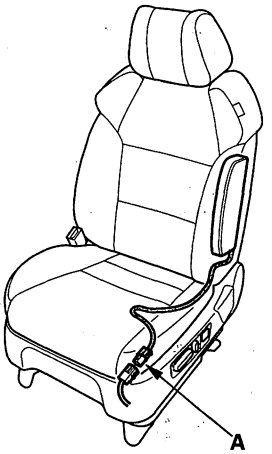
Front Passenger's Airbag

3. Remove the glove box (see page 20-125), then disconnect the front passenger's airbag 4P connector (A) from the dashboard wire harness.



Side Airbag

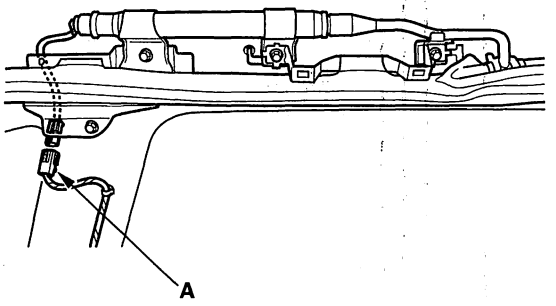
4. Disconnect both side airbag 2P connectors (A) from the floor wire harness.



Side Curtain Airbag

5. Remove the quarter pillar trim (see page 20-85).

6. Disconnect both floor wire harness 2P connectors (A) from the side curtain airbags.



BACK

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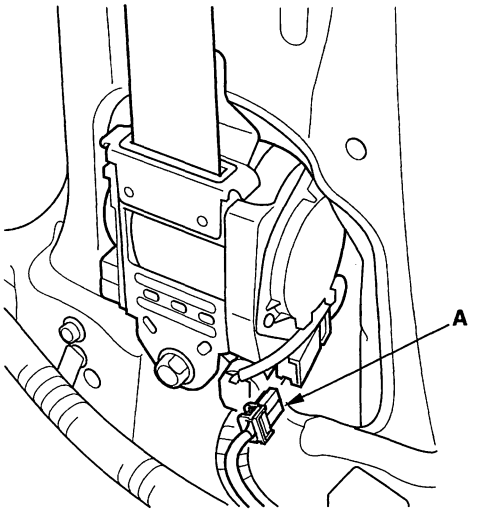
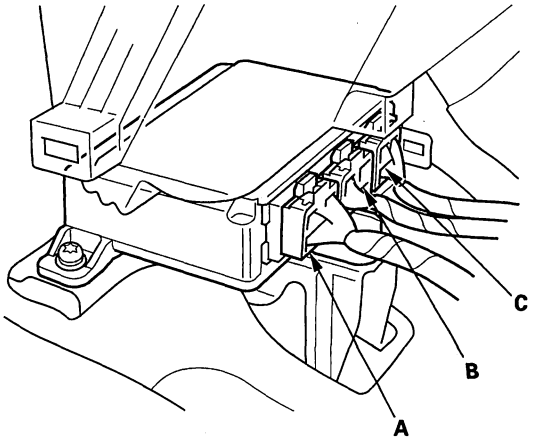
Seat Belt Tensioner

7. Remove the B-pillar lower trim (see page 20-82), then disconnect both floor wire harness 4P connectors (A) from the seat belt tensioners.



SRS Unit

8. Remove the driver's center console trim (see step 5 on page 20-107), SRS unit connector A, SRS unit connector B, and SRS unit connector C from the SRS unit.



Protected by AR

General Troubleshooting Information

DTC (Diagnostic Trouble Codes)

The self-diagnostic function of the SRS system allows it to locate the causes of system problems and then store this information in memory. For easier troubleshooting, this data can be retrieved via a data link circuit.

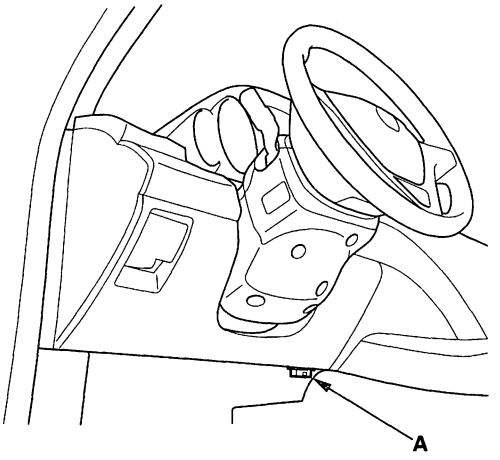
- When you turn the ignition switch ON (II), the SRS indicator comes on. If it goes off after 6 seconds, the system is normal, and is not currently detecting any abnormality.
- If there is an abnormality, the system locates and defines the problem, stores this information in memory, and turns the SRS indicator on. The data remains in the memory even when the ignition switch is turned off or if the battery is disconnected.
- The data is stored in memory as a diagnostic trouble code (DTC).
- DTCs are either latching or resetting depending on the malfunction. With resetting DTCs, the SRS indicator goes off the next time the ignition switch is turned ON and the system is normal, but the DTC is still stored. With latching DTCs, the SRS indicator does not turn OFF until the malfunction is repaired and the DTC is cleared.
- When you connect the HDS to the 16P data link connector (DLC), you can retrieve a more detailed DTC in the Honda Systems "SRS" menu.
- After reading and recording the DTC, proceed with the troubleshooting procedure for that code.

Precautions

- Use only a digital multimeter to check the system. If it's not a Honda multimeter, make sure its output is 10 mA (0.01 A) or less when switched to the smallest value in the ohmmeter range. A tester with a higher output could damage the airbag circuit or cause accidental airbag deployment and possible injury.
- Whenever the ignition switch is ON (II), or has been turned OFF for less than 3 minutes, be careful not to bump the SRS unit; the airbags could accidentally deploy and cause damage or injuries.
- Before you remove the SRS harness, disconnect the driver's airbag connector, the front passenger's airbag connector, both side airbag connectors, both side curtain airbag connectors, and both seat belt tensioner connectors.
- Make sure the battery is sufficiently charged. If the battery is dead or low, measuring values may not be correct.
- Do not touch a tester probe to the terminals in the SRS unit or harness connectors, and do not connect the terminals with a jumper wire. Use only the backprobe set and the multimeter. Backprobe spring-loaded lock type connectors correctly.

Reading the DTC

1. Make sure the ignition switch is OFF.
2. Connect the HDS to the DLC (A).



3. Turn the ignition switch ON (II).
4. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not, troubleshoot the DLC circuit (see page 11-223).
5. Use the HDS to check for DTCs.
6. Read and record the DTC.
7. Turn the ignition switch OFF, and wait for 10 seconds.
8. Disconnect the HDS from the DLC.
9. Do the troubleshooting procedure for the DTC.

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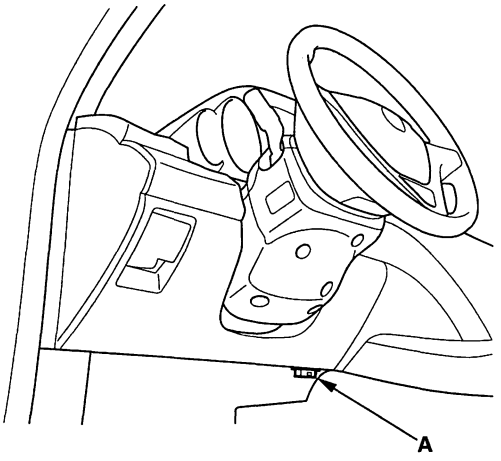
Erasing the DTC Memory With the HDS

NOTE: Make sure the battery is fully charged before you begin.

1. Make sure the ignition switch is OFF.
2. Connect the HDS to the DLC (A).



3. Turn the ignition switch ON (II).
4. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not, troubleshoot the DLC circuit (see page 11-223).
5. In the SRS MENU of the HDS, select SRS, then DTC to erase DTC(s).
6. Turn the ignition switch OFF, and wait for 10 seconds.
7. Disconnect the HDS from the DLC.

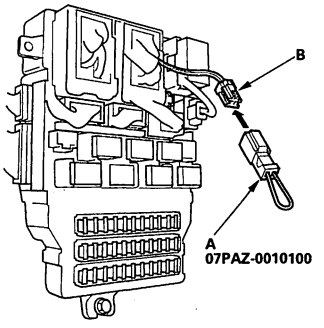
Erasing the DTC Memory Using MES Connector Without the HDS

Special Tools Required
SCS Service Connector 07PAZ-001010A

NOTE: Make sure the battery is fully charged before you begin.

To erase the DTC(s) from the SRS unit, use the HDS or the following procedure.

1. Make sure the ignition switch is OFF.
2. Connect the SCS service connector (A) to the yellow MES 2P connector (B). Do not use a jumper wire.



3. Turn the ignition switch ON (II).
4. The SRS indicator will come on for about 6 seconds, and then go off. Remove the SCS service connector from the MES connector (2P) within 4 seconds after the indicator goes off.
5. The SRS indicator will come on again. Reconnect the SCS service connector to the MES connector (2P) within 4 seconds after the indicator comes on.
6. When the SRS indicator goes off, remove the SCS service connector from the MES connector (2P) within 4 seconds.
7. The SRS indicator blinks two times, indicating that the memory has been erased.
8. Turn the ignition switch OFF, and wait for 10 seconds.
9. Turn the ignition switch ON (II) again. If the SRS indicator comes on for 6 seconds, and then goes off, the system is OK.

(cont'd)

Protected by AR

General Troubleshooting Information (cont'd)

Troubleshooting Intermittent Failures

If there was a malfunction that sets a DTC, but it does not recur, it will be stored in the memory as an intermittent failure, and the SRS indicator may come on depending on the malfunction detected.

NOTE: Check the condition of the battery (see page 22-76), and the charging system (see page 4-30). Low battery voltage may cause some intermittent failures.

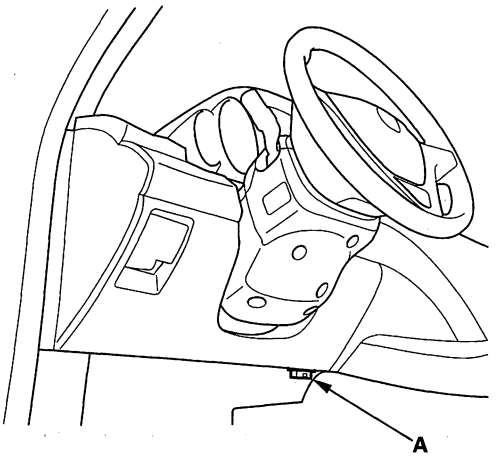
After checking the DTC, troubleshoot as follows:

1. Read the DTC (see "Reading the DTC").
2. Erase the DTC memory (see "Erasing the DTC Memory").
3. Set the parking brake, then start the engine, and let it idle.
4. The SRS indicator comes on for about 6 seconds and then goes off.
5. Shake the related wire harnesses and the connectors, and look for loose connections, poor pinfits, and poor grounds.
6. Take a test-drive (quick acceleration, quick braking, and cornering), turn the steering wheel fully left and right, and hold it there for 5 to 10 seconds. If the problem recurs, the SRS indicator will come on.

   NOTE: A faulty cable reel can cause intermittent connections related to the driver's airbag inflator DTCs.
7. If you cannot duplicate the concern, ask the customer about the conditions when it occured, or ask the client to demonstrate the concern.
8. If you cannot duplicate the intermittent failure, the system is OK at this time.

Checking Seat Weight Sensors After a Vehicle Collision

1. Position the front passenger's seat to the rear most position, adjust the recliner to the most forward position. Do not move it from this position.
2. Drive the vehicle, accelerate to 20 mph (36 km/h), then stop on level ground.
3. Connect the HDS to the data link connector (DLC) (A).



4. From the SRS inspection menu, select Seat Weight Sensor, then Misc test, then "SEAT OUTPUT CHK" and follow the prompts until the ODS operation check has been completed.

BACK

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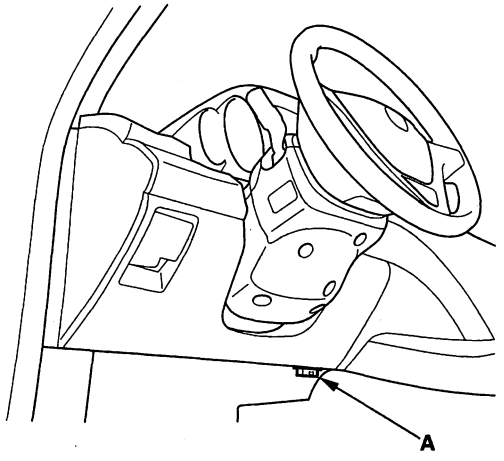
ODS Unit Initialization

When a seat-back cover, seat-back cushion, and/or ODS unit is replaced, initialize the ODS by following the procedure.

NOTE: A new (uninitialized) ODS unit installed with a faulty OPDS sensor can cause DTC 85-71.

1. Erase the DTC memory (see page 24-31).
2. Make sure the front passenger's seat is dry. Set the seat-back in a normal position, and make sure there is nothing on the seat.
3. Make sure the ignition switch is OFF and the MES connector is not shorted.
4. Connect the HDS to the DLC (A).



5. Turn the ignition switch ON (II).
6. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not, troubleshoot the DLC circuit (see page 11-223).
7. From the HDS Main Menu, select SRS, then SRS, then Calibration. In the Calibration Menu, select ODS INITIALIZATION. Follow the screen prompts to initialize the ODS.
8. Turn the ignition switch OFF.
9. Disconnect the HDS from the DLC.

   NOTE: If the ODS system fails to initialize after several attempts, replace the OPDS sensor/seat-back and retry. If the ODS system continues to fail to initialize, replace the ODS unit (see page 24-158).

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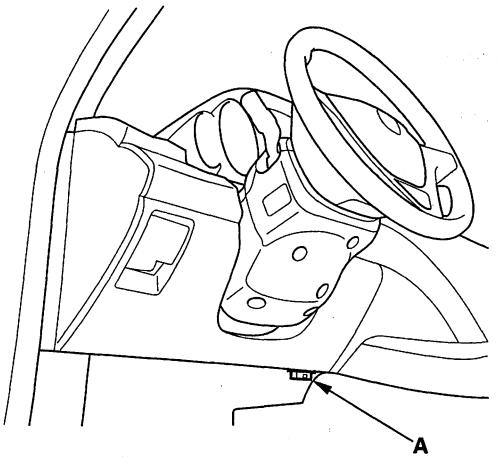
ODS Unit Calibration

When you replace the SRS unit, front passenger's weight sensors, or the ODS unit, calibrate the ODS unit.

While calibrating the ODS unit, observe these precautions:

- Make sure all components of the front passenger's seat are correctly installed.
- Make sure nothing is on or under the front passenger's seat.
- Make sure there is nothing in the front passenger's seat-back pocket.
- Do the windows closed.
- Do all calibration procedures, except test-driving, in the service bay.
- Make sure the vehicle is on level ground.
- Keep the A/C and the heater off.
- Do not touch the front passenger's seat while you drive the vehicle.
- Do not expose the front passenger's seat to sudden temperature changes.

1. Position the front passenger's seat to the rearmost position, and adjust the recliner to the most forward position. Do not move the seat from these positions.
2. Connect the HDS to the data link connector (DLC) (A).



3. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not, troubleshoot the DLC circuit (see page 11-223).
4. Drive the vehicle, and accelerate to 20 mph (36 km/h), then stop on level ground.
5. From the Main Menu, select SRS, then Calibration, then Misc Test, then select "SWS INITIALIZATION," and follow the prompts until the initialization operation has been completed.

BACK

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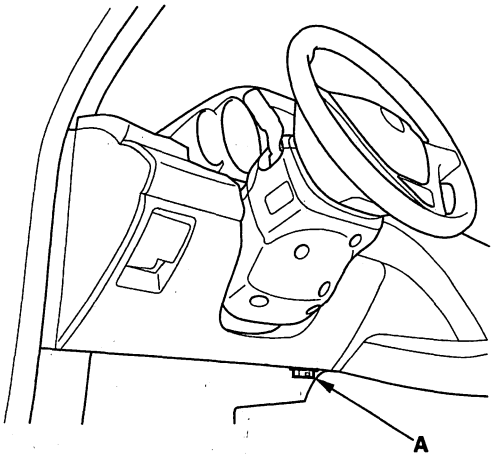
ODS Unit Operation Check

Check the ODS operation after any of these actions.
- Replacement of front passenger's seat component(s) (except ODS unit and/or weight sensors)
- After a vehicle collision
- SRS unit replacement

Pre-Operation Check Set-up
- Make sure all the components of the front passenger's seat are correctly installed.
- Position the front passenger's seat to the rearmost position. Adjust the seat recline to the forward most position. Do not move the seat from this position.
- Make sure nothing is on or under the front passenger's seat.
- Make sure there is nothing in the front passenger's seat-back pocket.
- Keep the windows closed.
- Do all calibration procedures, except test-driving, in the service bay.
- Make sure the vehicle is on level ground.
- Turn the heater and the A/C off.
- Do not touch the passenger's seat during the calibration.
- Do not expose the front passenger's seat to sudden temperature changes.
- Make sure all aftermarket devices such as amplifiers, fluorescent light, air purifiers, CB or HAM radios, etc. are turned off.

After Replacing Front Passenger's Seat Component(s)

1. Connect the HDS to the data link connector (DLC) (A).



2. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not, troubleshoot the DLC circuit (see page 11-223).

3. Drive the vehicle, accelerate to 20 mph (36 km/h), then stop on level ground.

4. From the HDS Main Menu, select SRS, then Inspection. In the HDS Inspection Menu, select "SEAT OUTPUT CHK" and follow the prompts until the ODS operation check has been completed.

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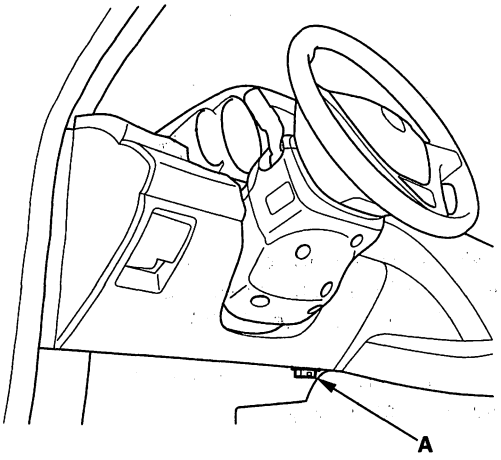
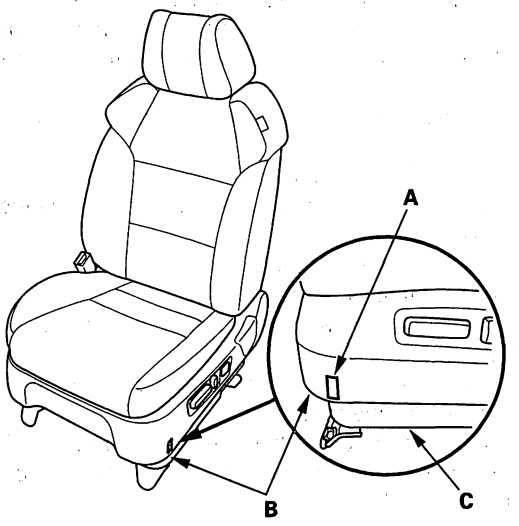
Driver's Seat Position Sensor Operation Check

Check the driver's seat position after any of these actions.
- Driver's seat position sensor replacement
- Cover plate (front side of driver's seat slide rail) replacement

1. Make sure the driver's seat is at its full forward position.
2. Make sure the ignition switch is OFF (0).
3. Connect the HDS to the DLC (A).



4. Turn the ignition switch ON (II).
5. From the HDS Main Menu, select SRS, then Parameter Information, then Buckle Switch, Seat Position Sensor.
6. Using a piece of tape (A), mark the location on the seat's outer cover (B) where the front riser cover meets the seat riser (C). The driver's seat position sensor should read "NEAR."



7. Move the seat back in small increments (about 0.2 in., 5 mm) until the driver's seat position sensor reads "NOT NEAR." The seat should be approximately 1 in. (25 mm) from the front.

   NOTE: It takes a few seconds for the HDS to display changes, so wait about 5 seconds between each move.

   If the driver's seat position sensor data does not work as described above, check the driver's seat position sensor or the cover plate for damage, and replace parts as needed.

8. Turn the ignition switch OFF, and disconnect the HDS from the DLC.

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DTC Troubleshooting Index

DTC	Latch *1	Reset *2	Detection Item	Notes
11-1x		X	Open in driver's airbag first inflator	(see page 24-55)
11-2x			Increased resistance in driver's airbag first inflator	
11-3x			Short to another wire or decreased resistance in driver's airbag first inflator	(see page 24-56)
11-4x			Open in driver's airbag second inflator	(see page 24-55)
11-5x			Increased resistance in driver's airbag second inflator	
11-6x			Short to another wire or decreased resistance in driver's airbag second inflator	(see page 24-56)
11-8x	X		Short to power in driver's airbag first inflator	(see page 24-58)
11-9x			Short to ground in driver's airbag first inflator	(see page 24-59)
11-Ax			Short to power in driver's airbag second inflator	(see page 24-58)
11-Bx			Short to ground in driver's airbag second inflator	(see page 24-59)
12-1x		X	Open in front passenger's airbag first inflator	(see page 24-61)
12-2x			Increased resistance in front passenger's airbag first inflator	
12-3x			Short to another wire or decreased resistance in front passenger's airbag first inflator	(see page 24-62)
12-4x			Open in front passenger's airbag second inflator	(see page 24-61)
12-5x			Increased resistance in front passenger's airbag second inflator	
12-6x			Short to another wire or decreased resistance in front passenger's airbag second inflator	(see page 24-62)
12-8x	X		Short to power in front passenger's airbag first inflator	(see page 24-63)
12-9x			Short to ground in front passenger's airbag first inflator	(see page 24-64)
12-Ax			Short to power in front passenger's airbag second inflator	(see page 24-63)
12-Bx			Short to ground in front passenger's airbag second inflator	(see page 24-64)
21-1x		X	Open in driver's seat belt tensioner	(see page 24-65)
21-2x			Increased resistance in driver's seat belt tensioner	
21-3x			Short to another wire or decreased resistance in driver's seat belt tensioner	(see page 24-66)
21-8x	X		Short to power in driver's seat belt tensioner	(see page 24-67)
21-9x			Short to ground in driver's seat belt tensioner	(see page 24-68)
22-1x		X	Open in front passenger's seat belt tensioner	(see page 24-69)
22-2x			Increased resistance in front passenger's seat belt tensioner	
22-3x			Short to another wire or decreased resistance in front passenger's seat belt tensioner	(see page 24-70)
22-8x	X		Short to power in front passenger's seat belt tensioner	(see page 24-71)
22-9x			Short to ground in front passenger's seat belt tensioner	(see page 24-72)

NOTE: The "x" at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that you will see on the HDS display. The character is unrelated to your troubleshooting; it designates the SRS unit manufacturer and other detail used for product analysis.

* 1: The SRS indicator turns on and stays on whenever the ignition switch is in the ON (II) position, or until the code is cleared.

* 2: The SRS indicator turns on when the DTC is set. The SRS indicator will not turn on after the ignition switch is cycled from ON (II) to OFF (0), but the DTC will be stored in the SRS unit.

(cont'd)

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DTC Troubleshooting Index (cont'd)

DTC	Latch *1	Reset *2	Detection Item	Notes
31-1x		×	Open in driver's side airbag inflator	(see page 24-73)
31-2x			Increased resistance in driver's side airbag inflator	
31-3x			Short to another wire or decreased resistance in driver's side airbag inflator	(see page 24-74)
31-8x	×		Short to power in driver's side airbag inflator	(see page 24-75)
31-9x			Short to ground in driver's side airbag inflator	(see page 24-76)
32-1x		×	Open in front passenger's side airbag inflator	(see page 24-77)
32-2x			Increased resistance in front passenger's side airbag inflator	
32-3x			Short to another wire or decreased resistance in front passenger's side airbag inflator	(see page 24-78)
32-8x	×		Short to power in front passenger's side airbag inflator	(see page 24-79)
32-9x			Short to ground in front passenger's side airbag inflator	(see page 24-80)
33-1x		×	Open in left side curtain airbag inflator	(see page 24-81)
33-2x			Increased resistance in left side cutain airbag inflator	
33-3x			Short to another wire or decreased resistance in left side curtain airbag inflator	(see page 24-82)
33-8x	×		Short to power in left side curtain airbag inflator	(see page 24-83)
33-9x			Short to ground in left side curtain airbag inflator	(see page 24-84)
34-1x		×	Open or in right side curtain airbag inflator	(see page 24-85)
34-2x			Increased resistance in right side curtain airbag inflator	
34-3x			Short to another wire or decreased resistance in right side curtain airbag inflator	(see page 24-86)
34-8x	×		Short to power in right side curtain airbag inflator	(see page 24-87)
34-9x			Short to ground in right side curtain airbag inflator	(see page 24-88)
41-1x		×	No signal from the left front impact sensor	(see page 24-89)
41-2x			Internal failure of the left front impact sensor	(see page 24-94)
41-8x	×			
41-9x				
41-Ax				
41-Bx				
42-1x		×	No signal from the right front impact sensor	(see page 24-91)
42-2x			Internal failure of the right front impact sensor	(see page 24-94)
42-8x	×			
42-9x				
42-Ax				
42-Bx				

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DTC	Latch*1	Reset*2	Detection Item	Notes
43-1x		X	No signal from the left side impact sensor (first)	(see page 24-94)
43-2x			Internal failure of the left side impact sensor (first)	(see page 24-103)
43-8x	X			
43-9x				
43-Ax				
43-Bx				
44-1x		X	No signal from the right side impact sensor (first)	(see page 24-99)
44-2x			Internal failure of the right side impact sensor (first)	(see page 24-103)
44-8x	X			
44-9x				
44-Ax				
44-Bx				
45-1x		X	No signal from left side impact sensor (second)	(see page 24-94)
45-2x			Internal failure of left side impact sensor (second)	(see page 24-104)
45-8x	X			
45-9x				
45-Ax				
45-Bx				
46-1x		X	No signal from right side impact sensor (second)	(see page 24-99)
46-2x			Internal failure of right side impact sensor (second)	(see page 24-104)
46-8x	X			
46-9x				
46-Ax				
46-Bx				
B1-1x		X	No signal from roll rate sensor	(see page 24-104)
B1-2x			Internal failure of roll rate sensor	(see page 24-109)
B1-8x	X			
B1-9x				
B1-Ax				
B1-Bx				
B2-1x		X	No signal from satellite safing sensor	(see page 24-104)
B2-2x			Internal failure of satellite safing sensor	(see page 24-109)
B2-8x	X			
B2-9x				
B2-Ax				
B2-Bx				

NOTE: The "x" at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that you will see on the HDS display. The character is unrelated to your troubleshooting; it designates the SRS unit manufacturer and other detail used for product analysis.

* 1: The SRS indicator turns on and stays on whenever the ignition switch is in the ON (II) position, or until the code is cleared.

* 2: The SRS indicator turns on when the DTC is set. The SRS indicator will not turn on after the ignition switch is cycled from ON (II) to OFF (0), but the DTC will be stored in the SRS unit.

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DTC Troubleshooting Index (cont'd)

DTC	Latch *1	Reset *2	Detection Item	Notes
51-xx		X	Internal failure of the SRS unit	(see page 24-110)
52-xx	X			
53-xx		X		
54-xx				
55-xx				
57-xx	X			
61-1x		X	Open in driver's seat belt buckle switch	(see page 24-111)
61-2x			Short in driver's seat belt buckle switch	(see page 24-112)
62-1x			Open in front passenger's seat belt buckle switch	(see page 24-113)
62-2x			Short in front passenger's seat belt buckle switch	(see page 24-114)
71-1x			Open in driver's seat position sensor	(see page 24-115)
71-2x			Short in driver's seat position sensor	(see page 24-116)

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DTC	Latch *1	Reset *2	Detection Item	Notes
81-4x		X	Faulty ODS unit	(see page 24-121)
81-61			No signal from ODS unit	(see page 24-118)
81-62			Non-stipulated response data	
81-63			Model ID code or variation inconsistent	(see page 24-121)
81-64			ECU serial ID code inconsistent	
81-71			ODS unit does not calibrate	(see page 24-120)
81-78				
81-79			Front passenger's weight sensors drift check failure	(see page 24-122)
82-1x			No signal from the inner side front passenger's weight sensor	
83-2x			No signal from the outer side front passenger's weight sensor	(see page 24-123)
85-4x			Faulty ODS unit	
85-61			No signal from the ODS unit	(see page 24-118)
85-62			Non-stipulated response data	
85-63			Model ID code or variation code inconsistent	(see page 24-123)
85-64			ECU serial ID code inconsistent	
85-71			ODS unit not initialized	(see page 24-121)
85-78				
85-79			ODS drift check failure	(see page 24-124)
86-1x			Faulty seat-back OPDS sensor	
86-2x			Faulty seat support OPDS sensor	
92-1x			Short to power in the front passenger's airbag cutoff indicator	(see page 24-125)
92-2x			Open or short to ground in the front passenger's airbag cutoff indicator	(see page 24-126)
A1-1x			Faulty power supply (VA line)	(see page 24-128)
A2-1x			Faulty power supply (VB line)	(see page 24-129)
E2-11			Front passenger's airbag does not deploy by SWS operation	(see page 24-110)
E4-11			Front passenger's side airbag does not deploy by OPDS operation	
F1-11			Driver's airbag and/or driver's seat belt tensioner deployed	
F2-11			Front passenger's airbag and/or front passenger's seat belt tensioner deployed	
F3-11			Driver's side airbag, left side curtain airbag, and/or driver's seat belt tensioner deployed	
F4-11			Front passenger's side airbag, right side curtain airbag, and/or front seat belt tensioner deployed	

NOTE: The "x" at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that you will see on the HDS display. The character is unrelated to your troubleshooting; it designates the SRS unit manufacturer and other detail used for product analysis.

* 1: The SRS indicator turns on and stays on whenever the ignition switch is in the ON (II) position, or until the code is cleared.

* 2: The SRS indicator turns on when the DTC is set. The SRS indicator will not turn on after the ignition switch is cycled from ON (II) to OFF (0), but the DTC will be stored in the SRS unit.

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DTC Troubleshooting Index (cont'd)

ODS Unit DTC Index

SRS Unit DTC	ODS Unit DTC	Detection Item	Notes
81-42	42-11	Internal failure of the ODS unit	(see page 24-121)
	42-12		
	42-13		
	42-14		
	42-15		
	42-16		
	42-18		
	42-21		
	42-23		
	42-25		
81-43	43-31	Internal failure of the ODS unit	
	43-32		
	43-33		
	43-34		
	43-36		
	43-41		
81-71	71-41	ODS unit does not calibrate	Calibrate the front passenger's weight sensor (see page 24-120)
	71-42	Inner side front passenger's weight sensor serial ID code inconsistent	
	71-43	Outer side front passenger's weight sensor serial ID code inconsistent	
	71-51	Faulty power supply of the ODS unit	Failure of battery voltage (see page 22-76)
	71-53	Communication error between ODS unit and front passenger's weight sensor	Calibrate the front passenger's weight sensor (see page 24-120)
	71-55	Unsuccessful ODS unit calibration	
	71-56		
	71-57		
	71-58		

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ODS Unit DTC Index

SRS Unit DTC	ODS Unit DTC	Detection Item	Notes
82-11	11-11	Short to power in the inner side front passenger's weight sensor power line	(see page 24-122)
	11-12	Short to ground in the inner side front passenger's weight sensor power line	
82-12	12-21	Open in the inner side front passenger's weight sensor signal line	
82-13	13-31	No signal from the inner side front passenger's weight sensor	
	13-32		
	13-33		
	13-34		
	13-35		
83-21	21-11	Short to power in the outer side front passenger's weight sensor power line	(see page 24-123)
	21-12	Short to ground in the outer side front passenger's weight sensor power line	
83-22	22-21	Open in the outer side front passenger's weight sensor signal line	
83-23	23-31	No signal from the outer side front passenger's weight sensor	
	23-32		
	23-33		
	23-34		
	23-35		
85-42	42-01	Internal failure of the ODS unit	
	42-02		
	42-03		
	42-04		
	42-05		
	42-06		
	42-07		
85-43	43-01	Internal failure of the ODS unit	
	43-02		
	43-03		
	43-04		
	43-05		
	43-06		
85-71	71-00	ODS unit does not initialize	(see page 24-121)
	71-02	Internal failure of the ODS unit	

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Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
SRS indicator does not come on	Symptom Troubleshooting (see page 24-131)	Communication with HDS
SRS indicator stays on, but no DTCs are stored	Symptom Troubleshooting (see page 24-131)	Charging system for under or overcharging
Side airbag cutoff indicator is flashing	Check the DTC. If DTC indicated, go to the DTC troubleshooting	• ODS Initialization • Communication with HDS
Side airbag cutoff indicator stays on	Symptom Troubleshooting (see page 24-132)	Communication with HDS
Side airbag cutoff indicator does not come on	Symptom Troubleshooting (see page 24-132)	• ODS Initialization • Communication with HDS
Passenger's airbag cutoff indicator is flashing	Check the DTC. If DTC indicated, go to the DTC troubleshooting	Communication with HDS
Passenger's airbag cutoff indicator stays on or comes on suddenly	Symptom Troubleshooting (see page 24-133)	Communication with HDS
Passenger's airbag cutoff indicator does not come on	Check the DTC. If DTC indicated, go to the DTC troubleshooting	Communication with HDS
HDS does not communicate with the SRS unit or the vehicle	Troubleshoot the DLC circuit (see page 11-223)	Communication with HDS

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System Description

SRS Components

Airbags

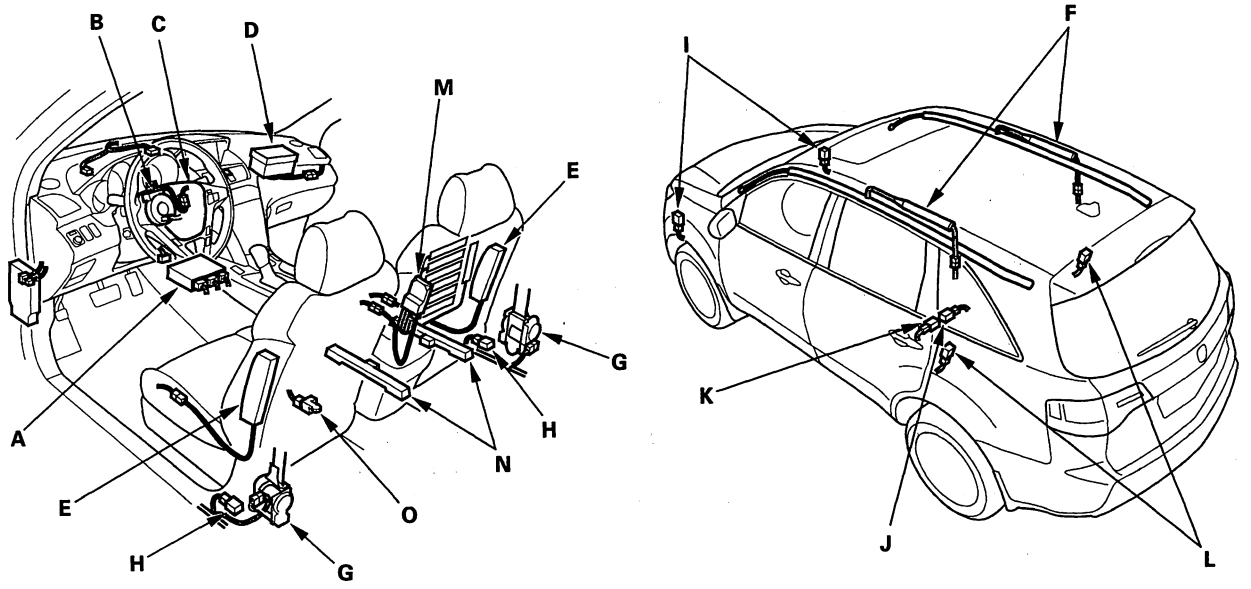
The SRS is a safety device which, when used with the seat belt, is designed to help protect the driver and front passenger in a frontal impact exceeding a certain set limit. The system consists of the SRS unit, including safing sensor and impact sensor (A), the cable reel (B), the driver's airbag (C), the front passenger's airbag (D), side airbags (E), side curtain airbags (F), seat belt tensioners (G), side impact sensors (first) (H), front impact sensors (I), roll rate sensor (J), satellite safing sensor (K) and side impact sensors (second) (L).
Since the driver's and front passenger's airbags use the same sensors, both normally inflate at the same time. However, it is possible for only one airbag to inflate. This can occur when the severity of a collision is at the margin, or threshold, that the SRS unit determines whether or not the airbags will deploy. In such cases, the seat belt will provide sufficient protection, and the supplemental protection offered by the airbag would be minimal.

Front Passenger's Weight Sensors

The ODS unit (M) is in the front passenger's seat-back along with the weight sensors (N). The weight sensors detect the weight on the seat, and send the information to the ODS unit. If the total weight is about 65 lbs (30 kg) or less, the ODS unit sends a signal to the SRS unit to prevent the passenger's airbag from deploying. When the passenger's airbag is disabled, the passenger airbag cutoff indicator on the center panel comes on to alert the driver that the front passenger's airbag will not deploy in a front-end collision.

Driver's Seat Position Sensor

The driver's seat position sensor (O) is under the driver's seat on the left side. When the driver's seat is moved to its full forward position, the deployment of the driver's airbag is moderated to decrease its force of impact during a front-end collision.



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System Description (cont'd)

Roll Rate Sensor
The roll rate sensor is located under the second row seat. It detects the amount of roll of the vehicle and sends the information to the SRS unit. The SRS unit uses this information to determine if a vehicle rollover is imminent. If so, it deploys both side curtain airbags and the front seat belt tensioners.

Satellite Safing Sensor
The satellite safing sensor is located under the second row seat. The satellite safing sensor performs the same basic function as the safing sensor in the SRS unit. It measures sideways G force, such as the force the vehicle would receive in a side collision in the rear, and sends that information to the SRS unit. The SRS unit uses that information, and the information from the second side impact sensors to determine the side that is impacted and the force. If the threshold is met, the SRS unit deploys the side airbag, the side curtain airbag and the seat belt tensioner on that side.

Side Airbag Cutoff Indicator/ODS Operation
The indicator comes on if the front passenger's seat is occupied by a small adult or child who is leaning into the deployment path, or an object (grocery bag, briefcase, purse, etc.) is in the seat. This indicates the passenger's side airbag is off and will not deploy; there is no problem with the side airbag. If the passenger sits upright or moves to another seat, or you remove the object from the seat, the light should go off. There will be some delay between the occupant's repositioning, and when the indicator will turn on or off.

Passenger Airbag Cutoff Indicator
The indicator comes on if the weight of the front passenger is about 65 lbs (30 kg) or less. This indicates the passenger's front airbag is off and will not deploy. The front airbag is shut off to reduce the chance of airbag-caused injuries.

SRS Operation
The main circuit in the SRS unit senses and judges the force of impact and, if necessary, ignites the inflator charges. If battery voltage is too low or power is disconnected due to the impact, the voltage regulator and the back-up power circuit will keep voltage at a constant level.

For the SRS to operate

Seat Belt Tensioners
(1) A front impact sensor, side impact sensor, or the satellite safing sensor must activate and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the tensioners.
(3) The charges must ignite and deploy the tensioners.

Driver's and Front Passenger's Airbag(s)
(1) A front impact sensor must activate, and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals, and send them to the airbag inflator(s).
(3) The inflators that received signals must ignite and deploy the airbags.

Side Airbag(s)
(1) A side impact sensor must activate, and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the side airbag inflator(s). However, the microprocessor cuts off the signals to the front passenger's side airbag if the SRS unit determines that the front passenger's head is in the deployment path of the side airbag.
(3) The inflator that receives the signal must ignite and deploy the side airbag.

Side Curtain Airbag(s)
(1) Side impact sensor, roll rate sensor, or the rear safing sensor must activate, and send electrical signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the side curtain airbag and side airbag inflator(s).
(3) The inflator that receives the signals must ignite and deploy the side curtain airbag and side airbag at the same time.

BACK

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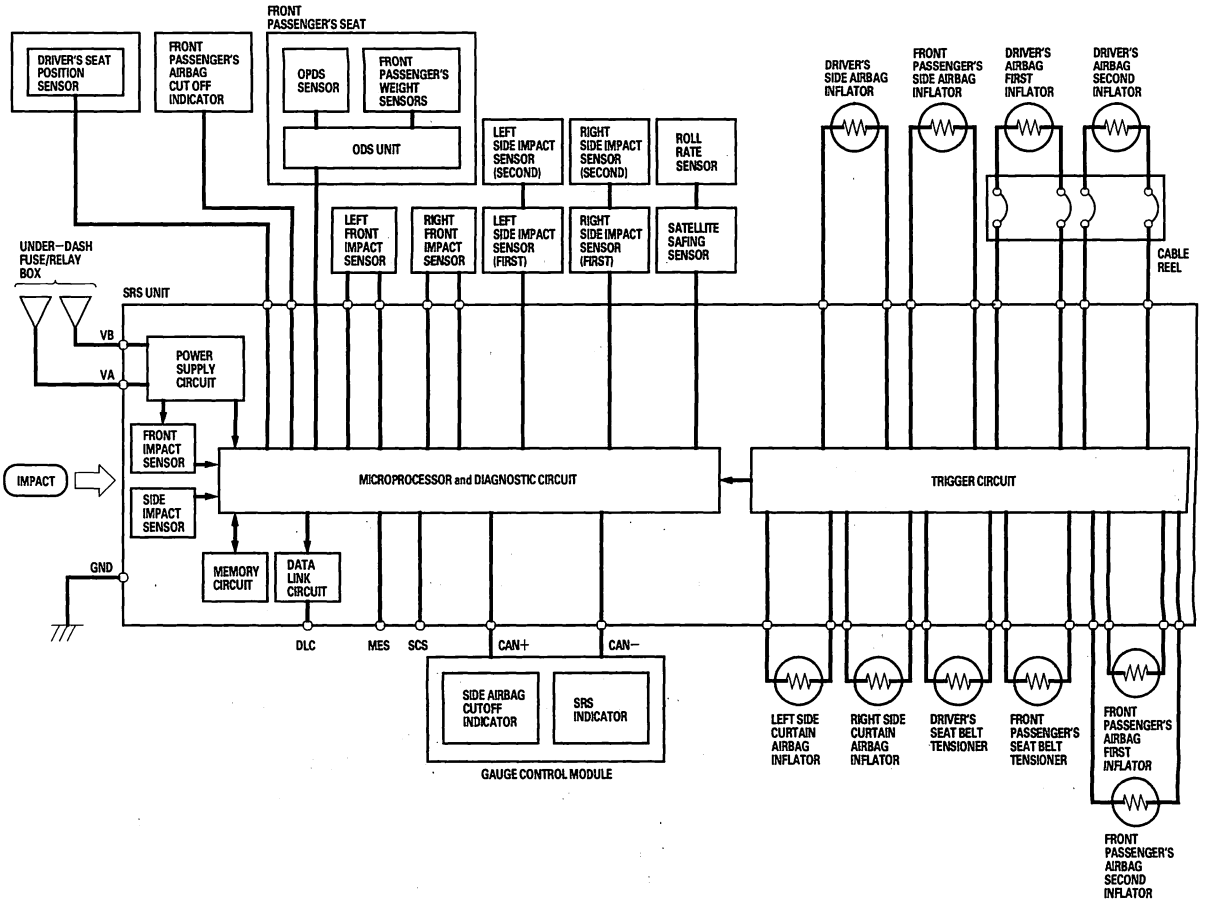

Self-diagnostic System

A self-diagnostic circuit is built into the SRS unit; when the ignition switch is turned ON (II), the SRS indicator comes on and goes off after about 6 seconds if the system is operating normally.

If the indicator does not come on, or does not go off after 6 seconds, or if it comes on while driving, it indicates an abnormality in the system. The system must be inspected and repaired as soon as possible.

For better serviceability, the SRS unit memory stores a DTC that relates to the cause of the malfunction, and the unit is connected to the data link connector (DLC). This information can be read with the HDS when it is connected to the DLC (16P) (see page 24-30).

NOTE: Before you disconnect the negative cable from the battery for troubleshooting, make sure you have the anti-theft codes for the audio system and the navigation system (if equipped).

(cont'd)

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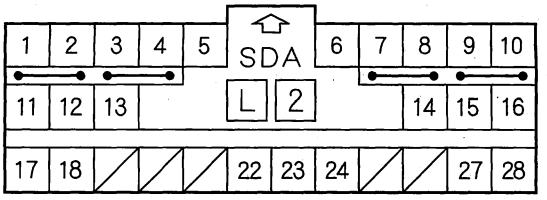
System Description (cont'd)

SRS Unit Inputs and Outputs at Connector A (28P)



Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description
1	GRN	LA2+	Power source for driver's airbag second inflator
2	PUR	LA2−	Ground for driver's airbag second inflator
3	LT GRN	RA2+	Power source for passenger's airbag second inflator
4	LT BLU	RA2−	Ground for passenger's airbag second inflator
5	LT GRN	MES	Memory delete signal input
6	BRN	SCS	Service check signal input
7	LT BLU	LA1+	Power source for driver's airbag first inflator
8	BRN	LA1−	Ground for driver's airbag first inflator
9	YEL	RA1+	Power source for passenger's airbag first inflator
10	BLU	RA1−	Ground for passenger's airbag first inflator
11	WHT	CAN HI	Sends and receives communication signal with the gauge control module
12	RED	CAN LO	Sends and receives communication signal with the gauge control module
13	BLU	PTT	Passenger's airbag cutoff indicator output line
14	GRN	ODS	Sends and receives communication signal with the ODS unit
15	BRN	LFS−	Ground for left front impact sensor (G505)
16	LT BLU	RFS−	Ground for right front impact sensor (G505)
17	GRN	VA	SRS system sub power (common with ODS)
18	RED	VB	SRS dedicated power (dedicated booster circuit)
22	BLK	SRS GND (1)	Ground circuit for the SRS
23	BLK	SRS GND (2)	Ground circuit for the SRS
24	LT BLU	K-LINE	Sends and receives scan tool signal (serial data)
27	RED	LFS+	Power source for left front impact sensor
28	GRN	RFS+	Power source for right front impact sensor

NOTE: BLU or BRN wires may be substituted for the wire colors in this table.

BACK

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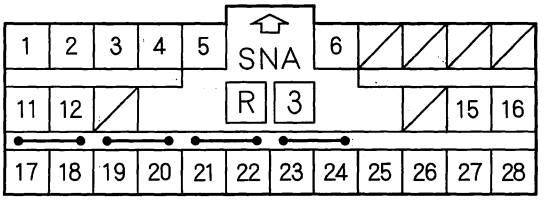
SRS Unit Inputs and Outputs at Connector B (28P)



Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description
1	RED	LRP+	Power source for driver's seat belt tensioner
2	BRN	LRP−	Ground for driver's seat belt tensioner
3	GRN	RRP+	Power source for front passenger's seat belt tensioner
4	LT BLU	RRP−	Ground for front passenger's seat belt tensioner
5	GRN	SS−	Ground for driver's seat position sensor
6	BLU	SS+	Power source for driver's seat position sensor
11	YEL	LBSC	Driver's seat belt buckle switch unbuckled signal
12	LT GRN	LBSO	Driver's seat belt buckle switch buckled signal
15	BLU	RBSC	Front passenger's seat belt buckle switch unbuckled signal
16	ORN	RBSO	Front passenger's seat belt buckle switch buckled signal
17	GRN	LSA+	Power source for driver's side airbag inflator
18	RED	LSA−	Ground for driver's side airbag inflator
19	WHT	RSA+	Power source for front passenger's side airbag inflator
20	BLU	RSA−	Ground for front passenger's side airbag inflator
21	BRN	LCA1+	Power source for left side curtain airbag inflator
22	BLU	LCA1−	Ground for left side curtain airbag inflator
23	GRY	RCA1+	Power source for right side curtain airbag inflator
24	RED	RCA1−	Ground for right side curtain airbag inflator
25	PNK	LBS1+	Power source for left side impact sensor (first), left side impact sensor (second)
26	GRY	LBS1−	Ground for left side impact sensor (first), left side impact sensor (second)
27	BRN	RBS1+	Power source for right side impact sensor (first), right side impact sensor (second)
28	LT GRN	RBS1−	Ground for right side impact sensor (first), right side impact sensor (second)

NOTE: BLU or BRN wires may be substituted for the wire colors in this table.

(cont'd)

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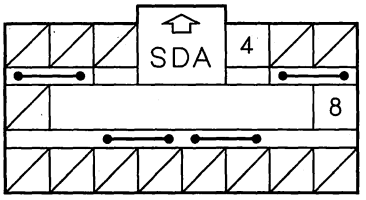
System Description (cont'd)

SRS Unit Inputs and Outputs at Connector C (16P)



Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description
4	BLU	SSS−	Ground for satellite safing sensor
8	RED	SSS−+	Power source for satellite safing sensor

BACK

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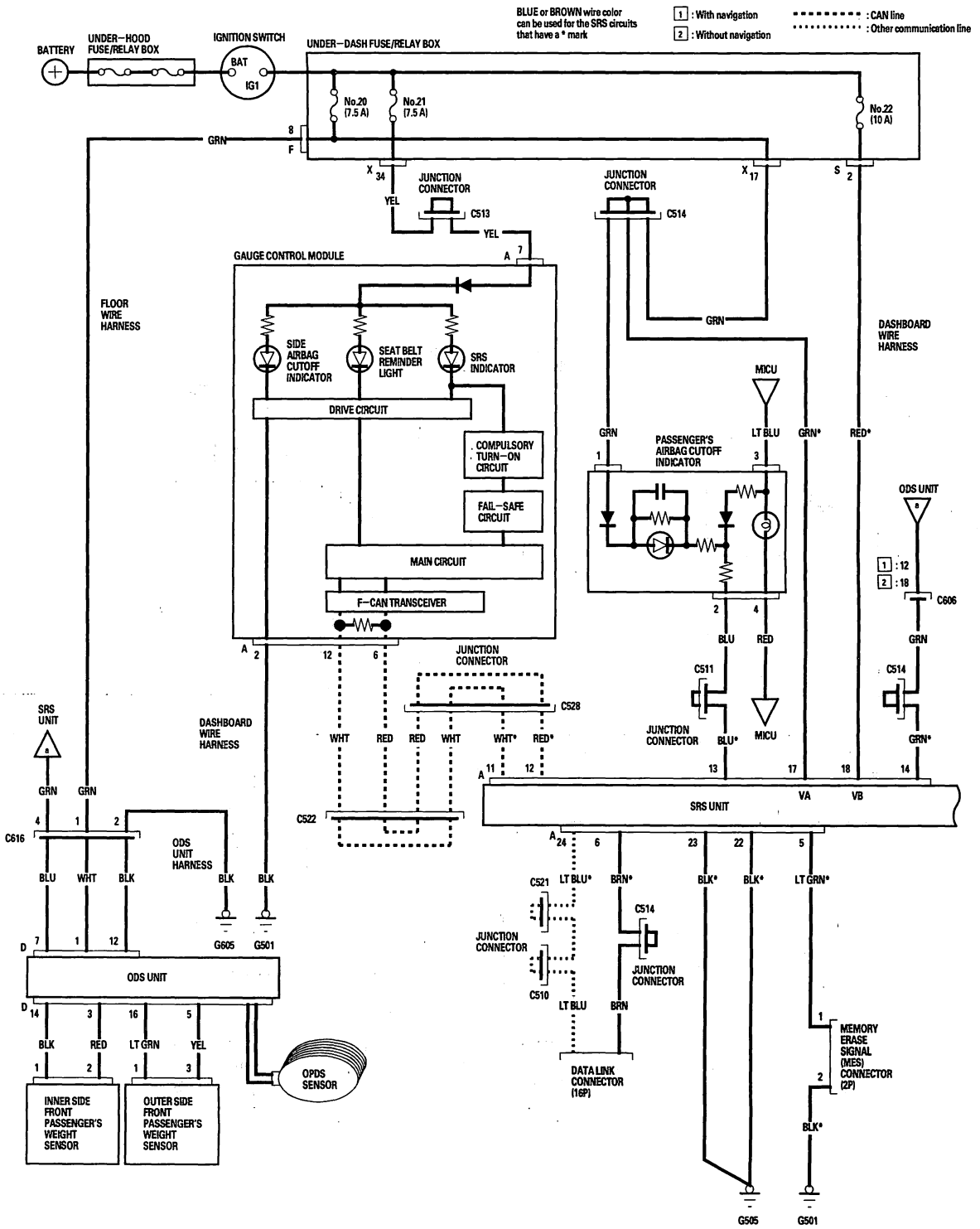
Circuit Diagram



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BACK

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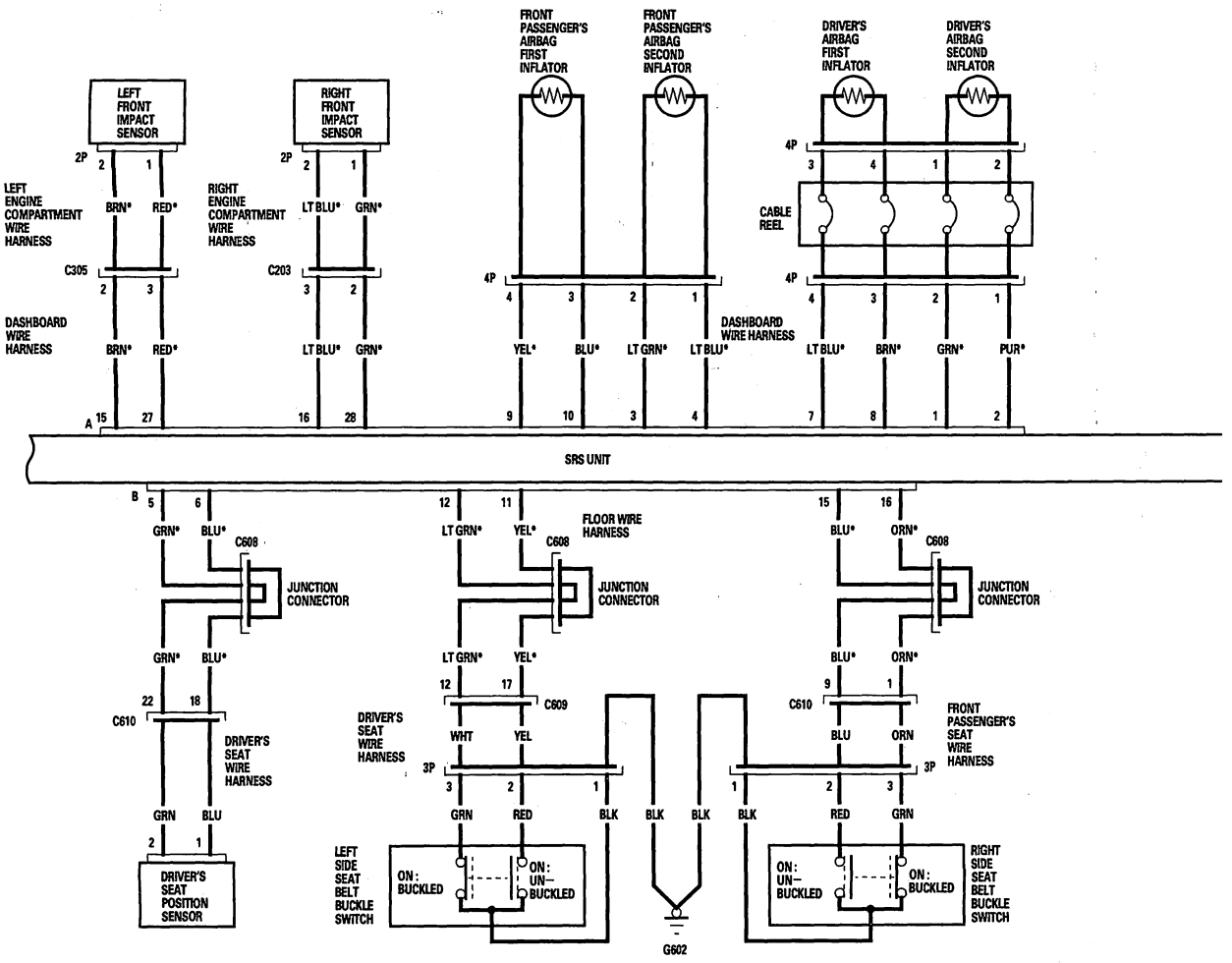
Circuit Diagram (cont'd)



BACK

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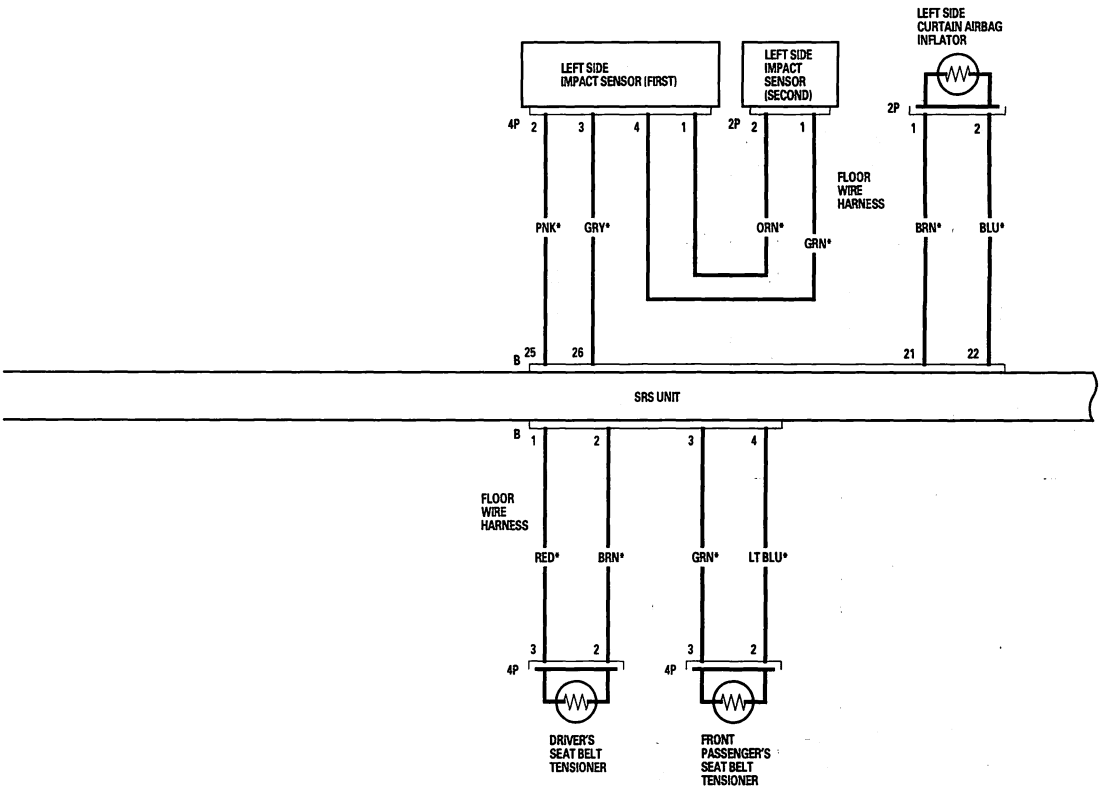
BLUE or BROWN wire color can be used for the SRS circuits that have a * mark



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BACK

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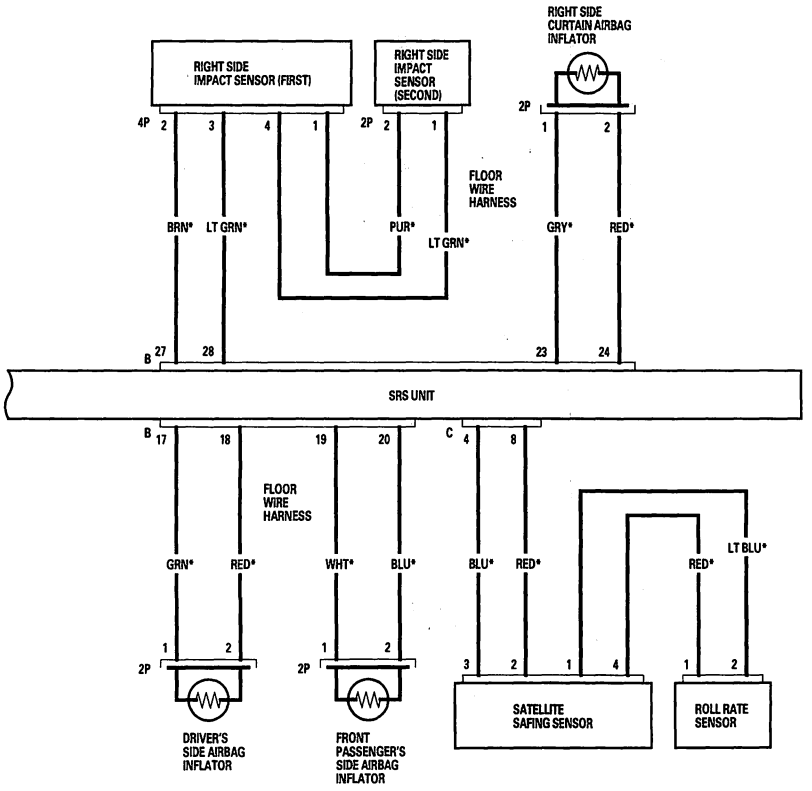
Circuit Diagram (cont'd)

BLUE or BROWN wire color can be used for the SRS circuits that have a * mark



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DTC Troubleshooting

DTC 11-1x ("x" can be 0 thru 9 or A thru F): Open in Driver's Airbag First Inflator
DTC 11-2x ("x" can be 0 thru 9 or A thru F): Increased Resistance in Driver's Airbag First Inflator
DTC 11-4x ("x" can be 0 thru 9 or A thru F): Open in Driver's Airbag Second Inflator
DTC 11-5x ("x" can be 0 thru 9 or A thru F): Increased Resistance in Driver's Airbag Second Inflator

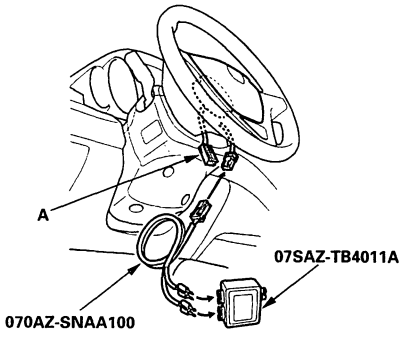
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead J 070AZ-SNAA100

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 11-1x, 11-2x, 11-4x, or 11-5x indicated?

   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector (A) from the cable reel.

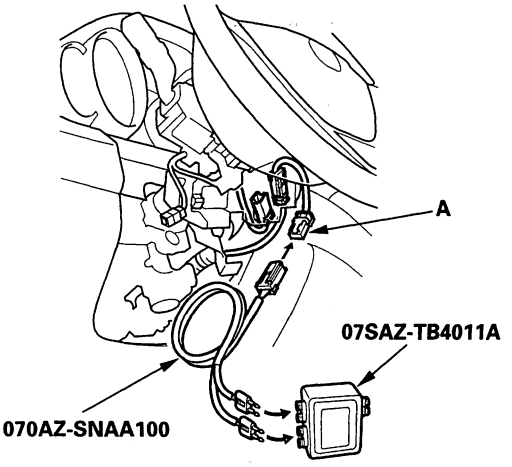


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead J to the cable reel.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 11-1x, 11-2x, 11-4x, or 11-5x indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the driver's airbag first or second inflator; replace the driver's airbag (see page 24-137).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect the dashboard wire harness 4P connector (A) from the cable reel.



11. Connect the SRS inflator simulator (2 Ω connectors) and the simulator lead J to the dashboard wire harness.
12. Reconnect the negative cable to the battery.
13. Erase the DTC memory.

(cont'd)

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DTC Troubleshooting (cont'd)

14. Read the DTC.

    Is DTC 11-1x, 11-2x, 11-4x, or 11-5x indicated?

    YES—Go to step 15.

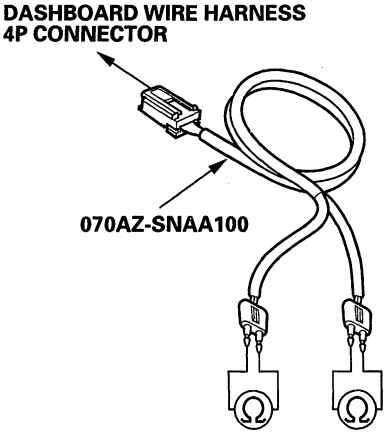
    NO—Open or increased resistance in the cable reel; replace the cable reel (see page 24-149).■

15. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

16. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).

17. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the dashboard wire harness 4P connector.

18. Measure the resistance between the terminals of both SRS simulator leads. There should be 1 Ω or less.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-152).■

NO—Open or increased resistance in the dashboard wire harness; replace the dashboard wire harness.■

DTC 11-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Driver's Airbag First Inflator
DTC 11-6x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Driver's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead J 070AZ-SNAA100
- SRS short canceller 070AZ-SAA0100

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

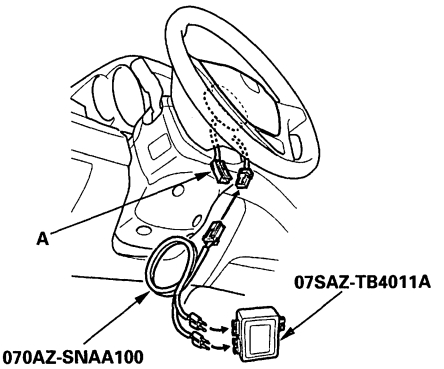
   Does the SRS indicator stay on, and is DTC 11-3x or 11-6x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

4. Disconnect the driver's airbag 4P connector (A) from the cable reel.



5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead J to the cable reel.

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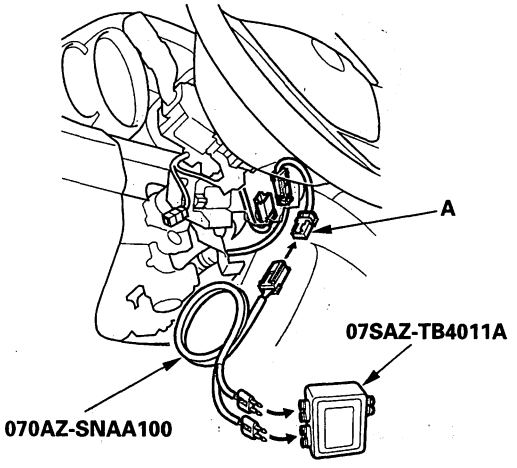
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 11-3x or 11-6x indicated?

   YES—Go to step 9.

   NO—Short in the driver's airbag first or second inflator; replace the driver's airbag (see page 24-137).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect the dashboard wire harness 4P connector (A) from the cable reel.

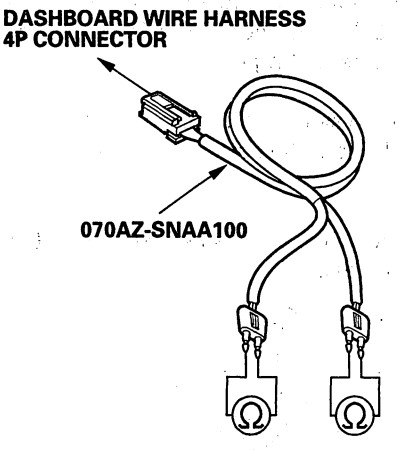


11. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead J to the dashboard wire harness.
12. Reconnect the negative cable to the battery.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 11-3x or 11-6x indicated?

    YES—Go to step 15.

    NO—Short in the cable reel; replace the cable reel (see page 24-149).■
15. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
16. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).
17. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the dashboard wire harness 4P connector.
18. Connect a SRS short canceller (070AZ-SAA0100) to No. 7 and No. 8 terminals and No. 1 and No. 2 terminals of the SRS unit connector A (28P) (see page 24-25).
19. Measure the resistance between the terminals of both SRS simulator leads. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short in the dashboard wire harness; replace the dashboard wire harness.■

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DTC Troubleshooting (cont'd)

DTC 11-8x ("x" can be 0 thru 9 or A thru F): Short to Power in Driver's Airbag First Inflator

DTC 11-Ax (11-A0 to 11-A9, 11-AA to 11-AF): Short to Power in Driver's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead J 070AZ-SNAA100

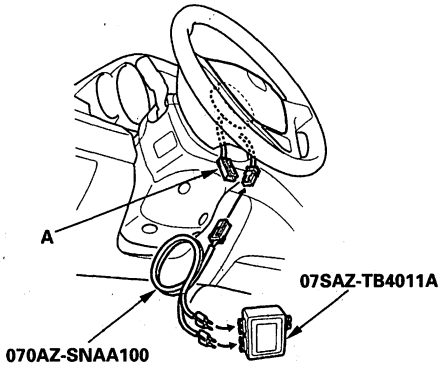
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 11-8x or 11-Ax indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector (A) from the cable reel.

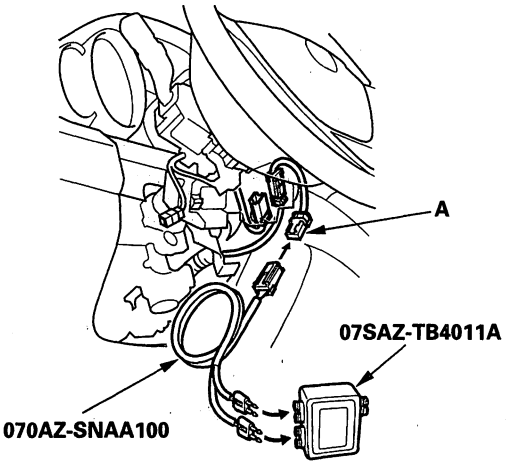


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead J to the cable reel.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 11-8x or 11-Ax indicated?

   YES—Go to step 9.

   NO—Short to power in the driver's airbag first or second inflator; replace the driver's airbag (see page 24-137). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect the dashboard wire harness 4P connector (A) from the cable reel.



11. Connect the SRS inflator simulator (2 Ω connectors) and the simulator lead J to the dashboard wire harness.
12. Reconnect the negative cable to the battery.
13. Erase the DTC memory.

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14. Read the DTC.

    Is DTC 11-8x or 11-Ax indicated?

    YES—Go to step 15.

    NO—Short to power in the cable reel; replace the cable reel (see page 24-149). ■

15. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

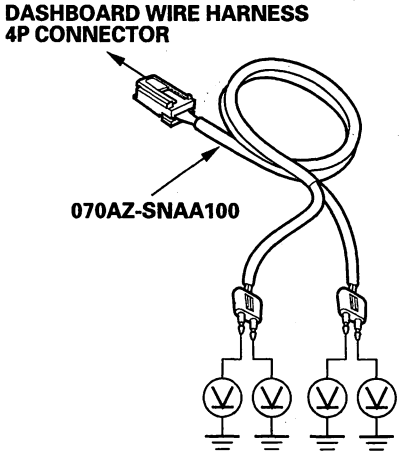
16. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).

17. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the dashboard wire harness 4P connector.

18. Reconnect the negative cable to the battery.

19. Turn the ignition switch ON (II).

20. Measure the for voltage between each terminal of the SRS simulator lead and body ground. There should be 0.5 V or less.



Is the voltage as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-152). ■

NO—Short to power in the dashboard wire harness; replace the dashboard wire harness. ■

DTC 11-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in Driver's Airbag First Inflator

DTC 11-Bx ("x" can be 0 thru 9 or A thru F): Short to Ground in Driver's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead J 070AZ-SNAA100

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

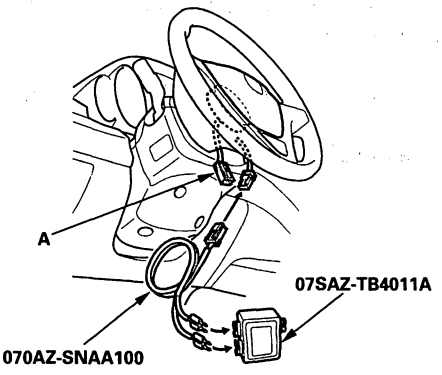
   Does the SRS indicator stay on, and is DTC 11-9x or 11-Bx indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

4. Disconnect the driver's airbag 4P connector (A) from the cable reel.



5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead J to the cable reel.

(cont'd)

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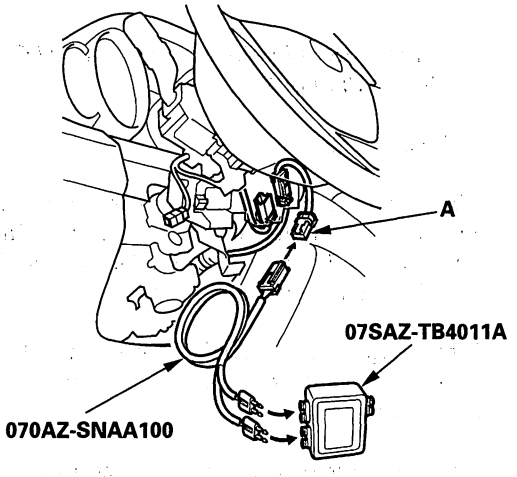
DTC Troubleshooting (cont'd)

6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 11-9x or 11-Bx indicated?

   YES—Go to step 9.

   NO—Short to ground in the driver's airbag first or second inflator; replace the driver's airbag (see page 24-137).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect the dashboard wire harness 4P connector (A) from the cable reel.

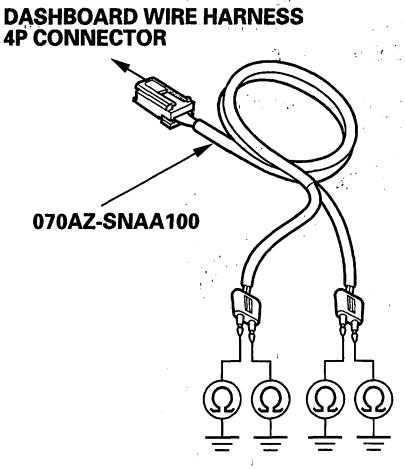


11. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead J to the dashboard wire harness.
12. Reconnect the negative cable to the battery.
13. Erase the DTC memory.
14. Read the DTC.

    Is DTC 11-9x or 11-Bx indicated?

    YES—Go to step 15.

    NO—Short to ground in the cable reel; replace the cable reel (see page 24-149).■
15. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
16. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).
17. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the dashboard wire harness 4P connector.
18. Measure the resistance between each terminal of the SRS simulator lead and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short to ground in the dashboard wire harness; replace the dashboard wire harness.■

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DTC 12-1x ("x" can be 0 thru 9 or A thru F): Open or Increased Resistance in Front Passenger's Airbag First Inflator
DTC 12-2x ("x" can be 0 thru 9 or A thru F): Increased Resistance in Front Passenger's Airbag First Inflator
DTC 12-4x ("x" can be 0 thru 9 or A thru F): Open or Increased Resistance in Front Passenger's Airbag Second Inflator
DTC 12-5x ("x" can be 0 thru 9 or A thru F): Increased Resistance in Front Passenger's Airbag Second Inflator

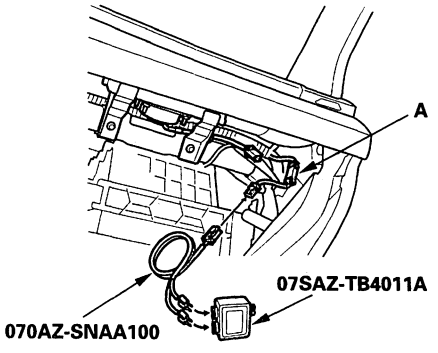
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead J 070AZ-SNAA100

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 12-1x, 12-2x, 12-4x, or 12-5x indicated?

   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the front passenger's airbag 4P connector (A) from the dashboard wire harness.

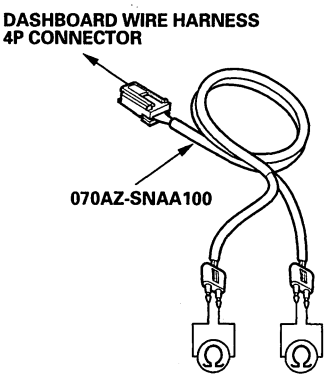


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead J to the dashboard wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 12-1x, 12-2x, 12-4x, or 12-5x indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the front passenger's airbag first or second inflator; replace the front passenger's airbag (see page 24-138). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).
11. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the dashboard wire harness 4P connector.
12. Measure the resistance between the terminals of both SRS simulator leads. There should be 1 Ω or less.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P). Check the connection; if the connection is OK, replace the SRS unit (see page 24-152). ■
NO—Open or increased resistance in the dashboard wire harness; replace the dashboard wire harness. ■

BACK

Protected by AR

DTC Troubleshooting (cont'd)

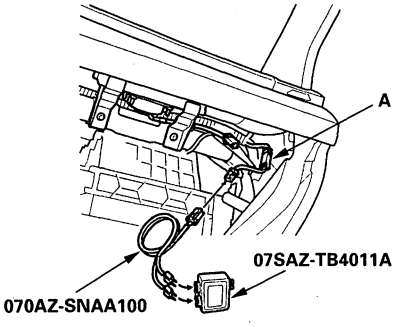
DTC 12-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Front Passenger's Airbag First Inflator
DTC 12-6x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Front Passenger's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead J 070AZ-SNAA100
- SRS short canceller 070AZ-SAA0100

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

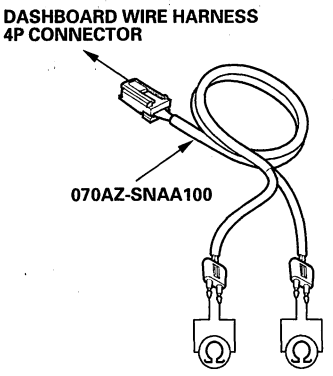
1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 12-3x or 12-6x indicated?
   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the front passenger's airbag 4P connector (A) from the dashboard wire harness.



5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead J to the dashboard wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 12-3x or 12-6x indicated?
   YES—Go to step 9.
   NO—Short in the front passenger's airbag first or second inflator; replace the front passenger's airbag (see page 24-138). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).
11. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the dashboard wire harness 4P connector.
12. Connect a SRS short canceller (070AZ-SAA0100) to No. 9 and No. 10 terminals, and the No. 3 and No. 4 terminals of the SRS unit connector A (28P) (see page 24-25).
13. Measure the resistance between the terminals of both SRS simulator leads. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.



Is the resistance as specified?
YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-152). ■
NO—Short in the dashboard wire harness; replace the dashboard wire harness. ■

BACK

Protected by AR

DTC 12-8x ("x" can be 0 thru 9 or A thru F): Short to Power in Front Passenger's Airbag First Inflator
DTC 12-Ax ("x" can be 0 thru 9 or A thru F): Short to Power in Front Passenger's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead J 070AZ-SNAA100

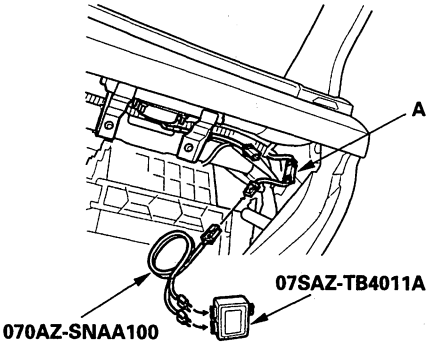
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 12-8x or 12-Ax indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the front passenger's airbag 4P connector (A) from the dashboard wire harness.

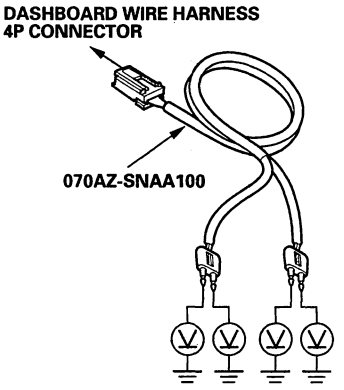


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead J to the dashboard wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 12-8x or 12-Ax indicated?

   YES—Go to step 9.

   NO—Short to power in the front passenger's airbag first or second inflator; replace the front passenger's airbag (see page 24-138).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).
11. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the dashboard wire harness 4P connector.
12. Reconnect the negative cable to the battery.
13. Turn the ignition switch ON (II).
14. Measure the voltage between each terminal of the SRS simulator lead and body ground. There should be 0.5 V or less.



Is the voltage as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short to power in the dashboard wire harness; replace the dashboard wire harness.■

BACK

Protected by AR

DTC Troubleshooting (cont'd)

DTC 12-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in Front Passenger's Airbag First Inflator
DTC 12-Bx ("x" can be 0 thru 9 or A thru F): Short to Ground in Front Passenger's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead J 070AZ-SNAA100

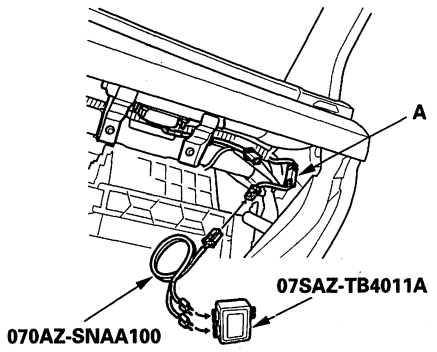
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 12-9x or 12-Bx indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the front passenger's airbag 4P connector (A) from the dashboard wire harness.

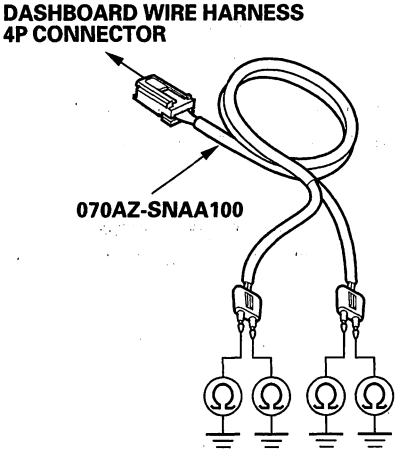


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead J to the dashboard wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 12-9x or 12-Bx indicated?

   YES—Go to step 9.

   NO—Short to ground in the front passenger's airbag first or second inflator; replace the front passenger's airbag (see page 24-138).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).
11. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the dashboard wire harness 4P connector.
12. Measure the resistance between each terminal of the SRS simulator lead and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short to ground in the dashboard wire harness; replace the dashboard wire harness.■

BACK

Protected by AR

DTC 21-1x ("x" can be 0 thru 9 or A thru F): Open in Driver's Seat Belt Tensioner

DTC 21-2x ("x" can be 0 thru 9 or A thru F): Increased Resistance in Driver's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead K 070AZ-SNAA200

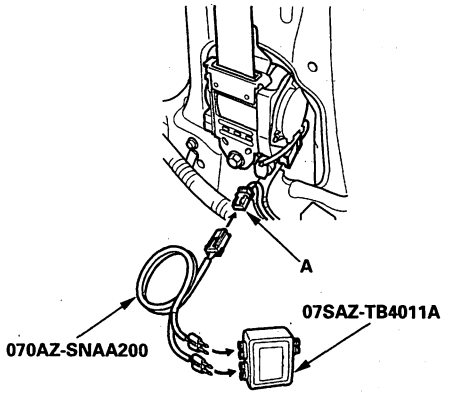
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 21-1x or 21-2x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 4P connector (A) from the driver's seat belt tensioner.



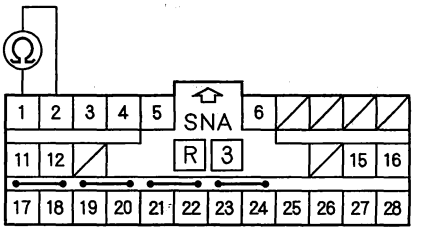
5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead K to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 21-1x or 21-2x indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the driver's seat belt tensioner; replace the driver's seat belt (see page 24-4). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect the front passenger's seat belt tensioner 4P connector (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Measure the resistance between the No. 1 and the No. 2 terminals of SRS unit connector B (28P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152). ■

NO—Open or increased resistance in the floor wire harness; replace the floor wire harness. ■

BACK

Protected by AR

DTC Troubleshooting (cont'd)

DTC 21-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Driver's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead K 070AZ-SNAA200

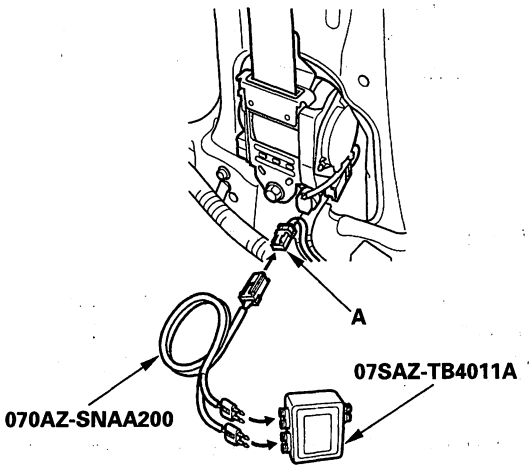
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 21-3x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 4P connector (A) from the driver's seat belt tensioner.



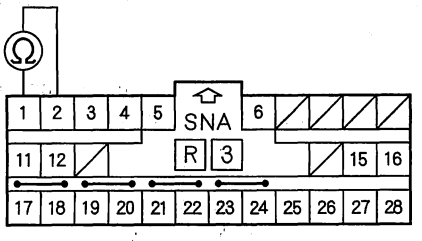
5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead K to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 21-3x indicated?

   YES—Go to step 9.

   NO—Short in the driver's seat belt tensioner; replace the driver's seat belt (see page 24-4). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect the front passenger's seat belt tensioner 4P connector (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the simulator lead from the floor wire harness.
13. Measure the resistance between the No. 1 and the No. 2 terminals of SRS unit connector B (28P). There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152). ■

NO—Short in the floor wire harness; replace the floor wire harness. ■

BACK

Protected by AR

DTC 21-8x ("x" can be 0 thru 9 or A thru F): Short to Power in Driver's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead K 070AZ-SNAA200

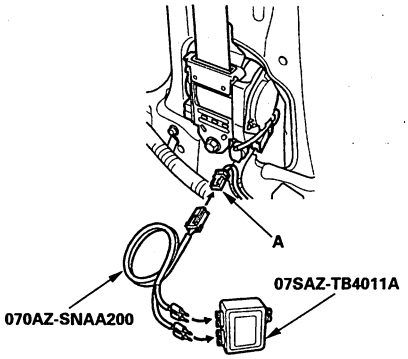
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 21-8x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 4P connector (A) from the driver's seat belt tensioner.



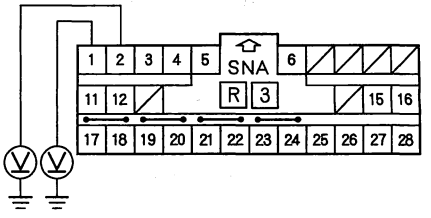
5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead K to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 21-8x indicated?

   YES—Go to step 9.

   NO—Short to power in the driver's seat belt tensioner; replace the driver's seat belt (see page 24-4).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect the front passenger's seat belt tensioner 4P connector (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the simulator lead from the floor wire harness.
13. Reconnect the negative cable to the battery.
14. Turn the ignition switch ON (II).
15. Measure the voltage between the No. 1 terminal of SRS unit connector B (28P) and body ground, and between the No. 2 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short to power in the floor wire harness; replace the floor wire harness.■

BACK

Protected by AR

DTC Troubleshooting (cont'd)

DTC 21-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in Driver's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead K 070AZ-SNAA200

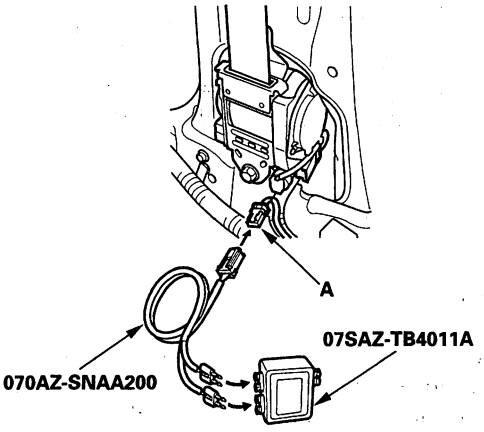
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 21-9x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 4P connector (A) from the driver's seat belt tensioner.



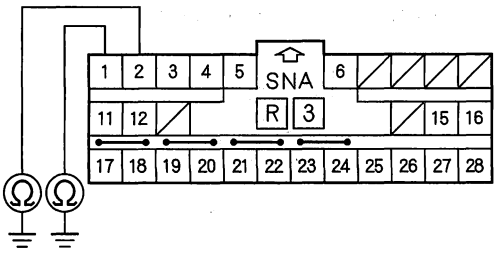
5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead K to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 21-9x indicated?

   YES—Go to step 9.

   NO—Short to ground in the driver's seat belt tensioner; replace the driver's seat belt (see page 24-4). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect the front passenger's seat belt tensioner 4P connector (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the simulator lead from the floor wire harness.
13. Measure the resistance between the No. 1 terminal of SRS unit connector B (28P) and body ground, and between the No. 2 terminal and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152). ■

NO—Short to ground in the floor wire harness; replace the floor wire harness. ■

BACK

Protected by AR

DTC 22-1x ("x" can be 0 thru 9 or A thru F): Open in Front Passenger's Seat Belt Tensioner

DTC 22-2x ("x" can be 0 thru 9 or A thru F): Increased Resistance in Front Passenger's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead K 070AZ-SNAA200

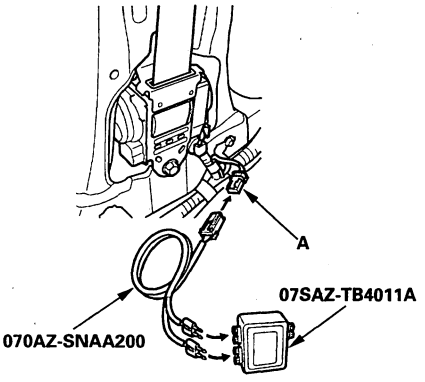
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 22-1x or 22-2x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 4P connector (A) from the front passenger's seat belt tensioner.



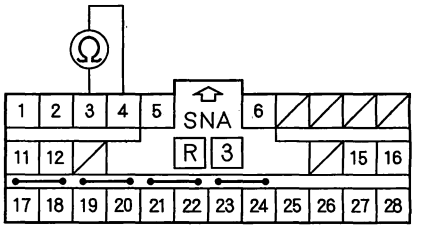
5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead K to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 22-1x or 22-2x indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 24-4).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect the driver's seat belt tensioner 4P connector (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Measure the resistance between the No. 3 and the No. 4 terminals of SRS unit connector B (28P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

NO—Open or increased resistance in the floor wire harness; replace the floor wire harness.■

BACK

Protected by AR

DTC Troubleshooting (cont'd)

DTC 22-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Front Passenger's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead K 070AZ-SNAA200

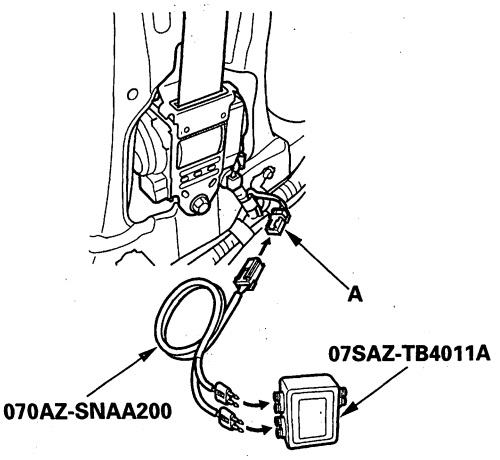
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 22-3x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 4P connector (A) from the front passenger's seat belt tensioner.



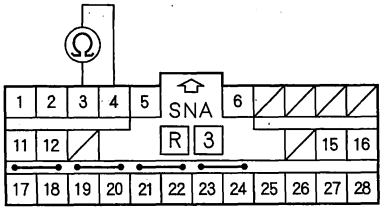
5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead K to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 22-3x indicated?

   YES—Go to step 9.

   NO—Short in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 24-4).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect the driver's seat belt tensioner 4P connector (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the simulator lead from the floor wire harness.
13. Measure the resistance between the No. 3 and the No. 4 terminals of SRS unit connector B (28P). There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short in the floor wire harness; replace the floor wire harness.■

BACK

Protected by AR

DTC 22-8x ("x" can be 0 thru 9 or A thru F): Short to Power in Front Passenger's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead K 070AZ-SNAA200

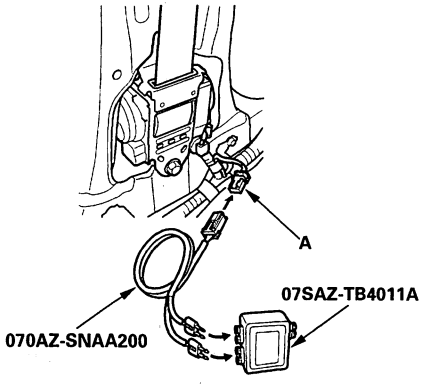
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 22-8x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 4P connector (A) from the front passenger's seat belt tensioner.



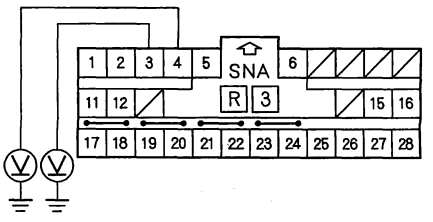
5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead K to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 22-8x indicated?

   YES—Go to step 9.

   NO—Short to power in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 24-4). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect the driver's seat belt tensioner 4P connector (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the simulator lead from the floor wire harness.
13. Reconnect the negative cable to the battery.
14. Turn the ignition switch ON (II).
15. Measure the voltage between the No. 3 terminal of SRS unit connector B (28P) and body ground, and between the No. 4 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152). ■

NO—Short to power in the floor wire harness; replace the floor wire harness. ■

BACK

Protected by AR

DTC Troubleshooting (cont'd)

DTC 22-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in Front Passenger's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead K 070AZ-SNAA200

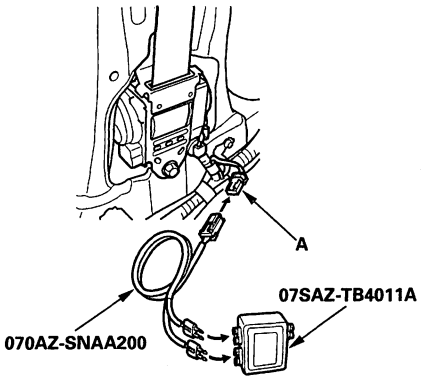
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 22-9x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 4P connector (A) from the front passenger's seat belt tensioner.



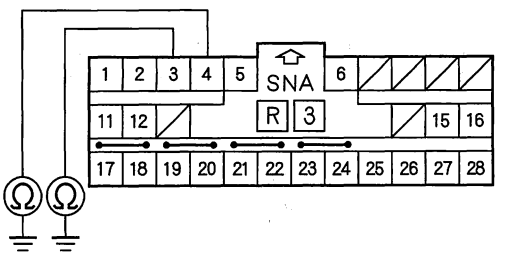
5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead K to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 22-9x indicated?

   YES—Go to step 9.

   NO—Short to ground in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 24-4).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect the driver's seat belt tensioner 4P connector (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the simulator lead from the floor wire harness.
13. Measure the resistance between the No. 3 terminal of SRS unit connector B (28P) and body ground, and between the No. 4 terminal and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short to ground in the floor wire harness; replace the floor wire harness.■

BACK

Protected by AR

DTC 31-1x ("x" can be 0 thru 9 or A thru F): Open in Driver's Side Airbag Inflator
DTC 31-2x ("x" can be 0 thru 9 or A thru F): Increased Resistance in Driver's Side Airbag Inflator

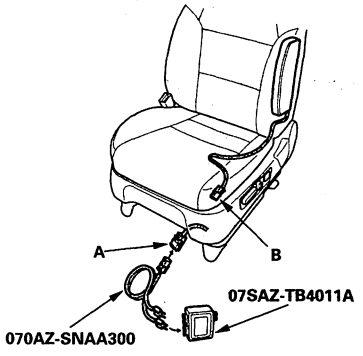
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 31-1x or 31-2x indicated?

   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 2P connector (A) from the driver's side airbag (B).

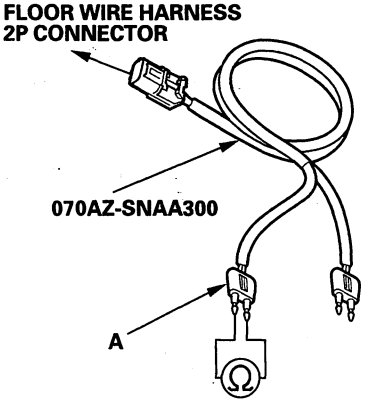


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 31-1x or 31-2x indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the driver's side airbag inflator; replace the driver's side airbag (see page 24-140). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the SRS inflator simulator from SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.
13. Measure the resistance between the terminals of the black SRS simulator lead (A). There should be 1.0 Ω or less.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152). ■

NO—Open or increased resistance in the floor wire harness; replace the floor wire harness. ■

BACK

Protected by AR

DTC Troubleshooting (cont'd)

DTC 31-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Driver's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300
- SRS short canceller 070AZ-SAA0100

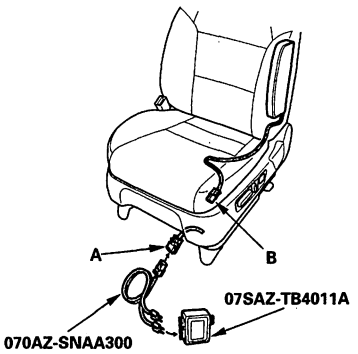
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 31-3x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 2P connector (A) from the driver's side airbag (B).

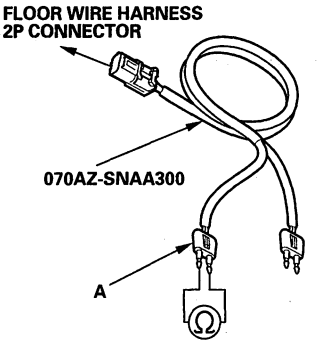


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 31-3x indicated?

   YES—Go to step 9.

   NO—Short to another wire in the driver's side airbag inflator; replace the driver's side airbag (see page 24-140).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.
13. Connect the SRS short canceller (070AZ-SAA0100) to the No. 17 and No. 18 terminals of SRS unit connector B (28P) (see page 24-25).
14. Measure the resistance between the terminals of the black SRS simulator lead (A). There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short in the floor wire harness; replace the floor wire harness.■

BACK

Protected by AR

DTC 31-8x ("x" can be 0 thru 9 or A thru F): Short to Power in Driver's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

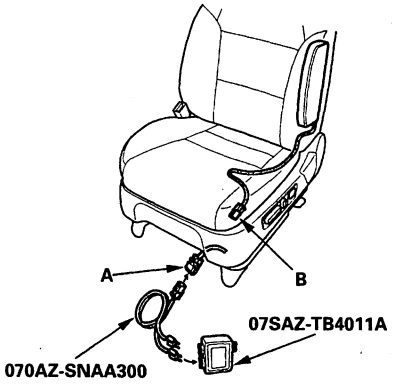
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 31-8x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 2P connector (A) from the driver's side airbag (B).

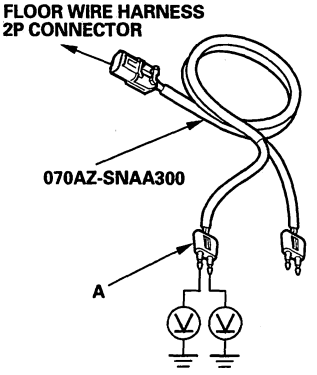


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 31-8x indicated?

   YES—Go to step 9.

   NO—Short to power in the driver's side airbag inflator; replace the driver's side airbag (see page 24-140). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.
13. Reconnect the negative cable to the battery.
14. Turn the ignition switch ON (II).
15. Measure the voltage between each terminal of the black SRS simulator lead (A) and body ground. There should be 0.5 V or less.



Is the voltage as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152). ■

NO—Short to power in the floor wire harness; replace the floor wire harness. ■

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DTC Troubleshooting (cont'd)

DTC 31-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in Driver's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

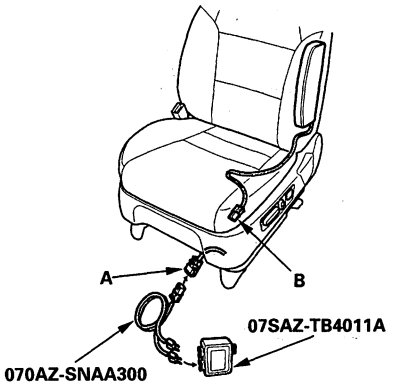
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 31-9x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 2P connector (A) from the driver's side airbag (B).

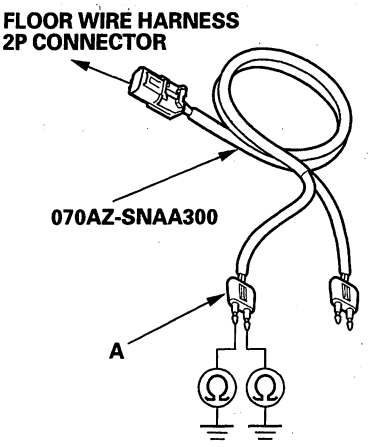


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 31-9x indicated?

   YES—Go to step 9.

   NO—Short to ground in the driver's side airbag inflator; replace the driver's side airbag (see page 24-140).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.
13. Measure the resistance between each terminal of the black SRS simulator lead (A) and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short to ground in the floor wire harness; replace the floor wire harness.■

BACK

Protected by AR

DTC 32-1x ("x" can be 0 thru 9 or A thru F): Open in Front Passenger's Side Airbag Inflator
DTC 32-2x ("x" can be 0 thru 9 or A thru F): Increased Resistance in Front Passenger's Side Airbag Inflator

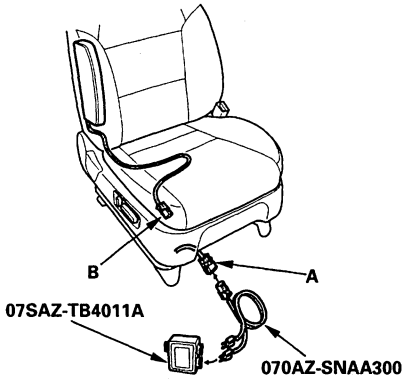
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 32-1x or 32-2x indicated?

   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 2P connector (A) from the front passenger's side airbag (B).

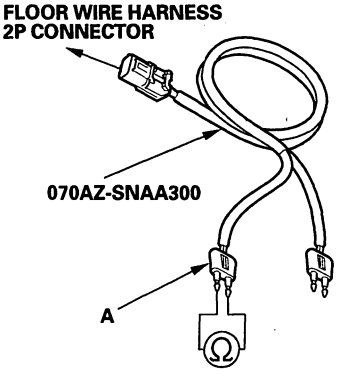


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 32-1x or 32-2x indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 24-140). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.
13. Measure the resistance between the terminals of the black SRS simulator lead (A). There should be 1.0 Ω or less.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152). ■

NO—Open or increased resistance in the floor wire harness; replace the floor wire harness. ■

Protected by AR

DTC Troubleshooting (cont'd)

DTC 32-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Front Passenger's Side Airbag Inflator

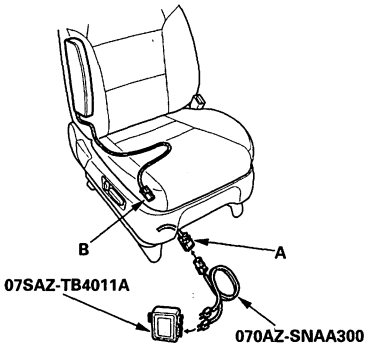
Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300
- SRS short canceller 070AZ-SAA0100

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 32-3x indicated?

   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 2P connector (A) from the front passenger's side airbag (B).

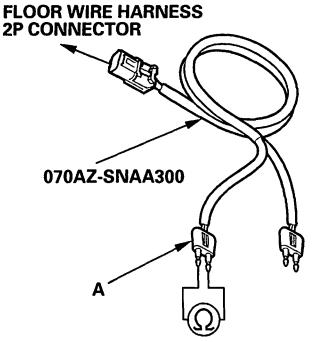


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 32-3x indicated?

   YES—Go to step 9.

   NO—Short to another wire in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 24-140). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.
13. Connect the SRS short canceller (070AZ-SAA0100) to the No. 19 and No. 20 terminals of SRS unit connector B (28P) (see page 24-25).
14. Measure the resistance between the terminals of the black SRS simulator lead (A). There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152). ■

NO—Short in the floor wire harness; replace the floor wire harness. ■

BACK

Protected by AR

DTC 32-8x ("x" can be 0 thru 9 or A thru F): Short to Power in Front Passenger's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

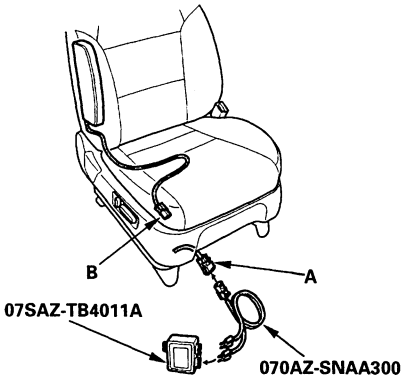
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 32-8x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 2P connector (A) from the front passenger's side airbag (B).

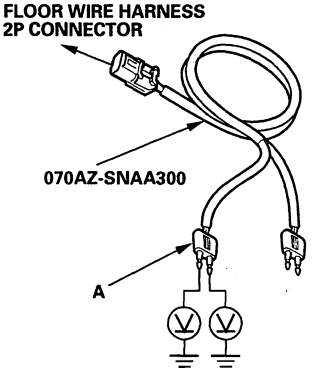


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 32-8x indicated?

   YES—Go to step 9.

   NO—Short to power in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 24-140).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.
13. Reconnect the negative cable to the battery.
14. Turn the ignition switch ON (II).
15. Measure the voltage between each terminal of the black SRS simulator lead (A) and body ground. There should be 0.5 V or less.



Is the voltage as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short to power in the floor wire harness; replace the floor wire harness.■

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DTC Troubleshooting (cont'd)

DTC 32-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in Front Passenger's Side Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

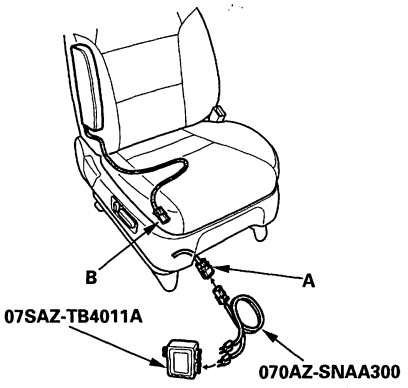
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 32-9x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Disconnect the floor wire harness 2P connector (A) from the front passenger's side airbag (B).

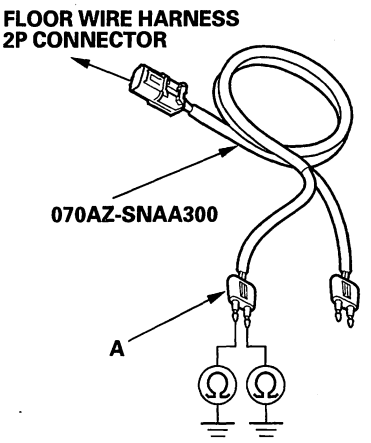


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 32-9x indicated?

   YES—Go to step 9.

   NO—Short to ground in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 24-140).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.
13. Measure the resistance between each terminal of the black SRS simulator lead (A) and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short to ground in the floor wire harness; replace the floor wire harness.■

BACK

Protected by AR

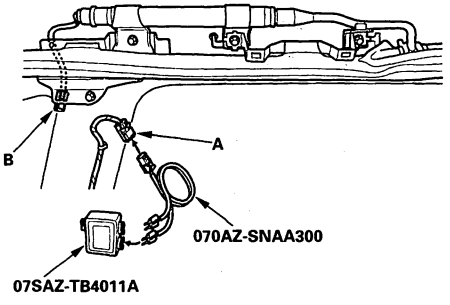
DTC 33-1x ("x" can be 0 thru 9 or A thru F): Open in Left Side Curtain Airbag Inflator
DTC 33-2x ("x" can be 0 thru 9 or A thru F): Increased Resistance in Left Side Curtain Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 33-1x or 33-2x indicated?
   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Remove the left side quarter pillar trim (see page 20-85), then disconnect the floor wire harness 2P connector (A) from the left side curtain airbag connector (B).

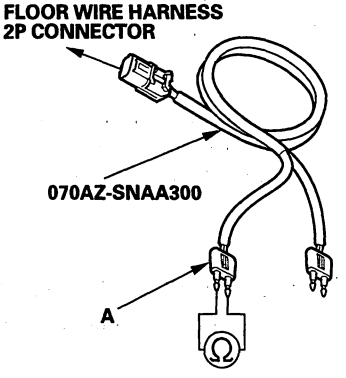


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 33-1x or 33-2x indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the left side curtain airbag; replace the left side curtain airbag (see page 24-141).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.
13. Measure the resistance between the terminals of the black SRS simulator lead (A). There should be 1.0 Ω or less.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at the SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

NO—Open or increased resistance in the floor wire harness; replace the floor wire harness.■

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DTC Troubleshooting (cont'd)

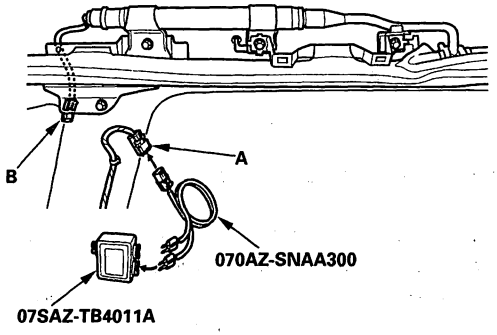
DTC 33-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Left Side Curtain Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300
- SRS short canceller 070AZ-SAA0100

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 33-3x indicated?
   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Remove the left side quarter pillar trim (see page 20-85), then disconnect the floor wire harness 2P connector (A) from the left side curtain airbag connector (B).

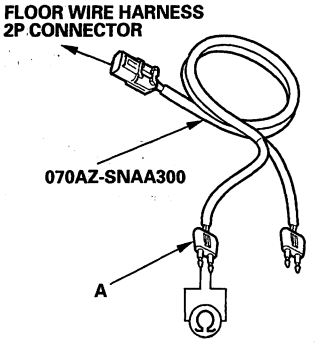


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 33-3x indicated?

   YES—Go to step 9.

   NO—Short to another wire in the left side curtain airbag inflator; replace the left side curtain airbag (see page 24-141).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.
13. Connect the SRS short canceller (070AZ-SAA0100) to the No. 21 and No. 22 terminals of SRS unit connector B (28P) (see page 24-25).
14. Measure the resistance between the terminals of the black SRS simulator lead (A). There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short to another wire in the floor wire harness; replace the floor wire harness.■

BACK

Protected by AR

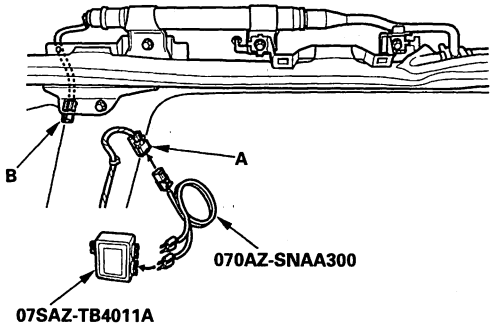
DTC 33-8x ("x" can be 0 thru 9 or A thru F): Short to Power in Left Side Curtain Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 33-8x indicated?
   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
4. Remove the left side quarter pillar trim (see page 20-85), then disconnect the floor wire harness 2P connector (A) from the left side curtain airbag connector (B).

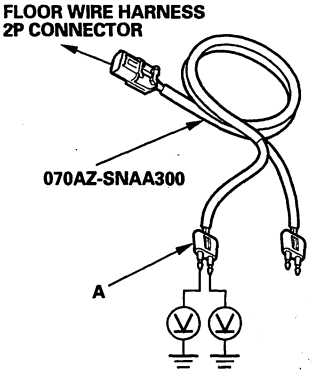


5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.
6. Reconnect the negative cable to the battery.
7. Erase the DTC memory.
8. Read the DTC (see page 24-30).

   Is DTC 33-8x indicated?

   YES—Go to step 9.

   NO—Short to power in the left side curtain airbag inflator; replace the left side curtain airbag (see page 24-141).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).
11. Disconnect the SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.
13. Reconnect the negative cable to the battery.
14. Turn the ignition switch ON (II).
15. Measure the for voltage between each terminal of the black SRS simulator lead (A) and body ground. There should be 0.5 V or less.



Is the voltage as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short to power in the floor wire harness; replace the floor wire harness.■

BACK

Protected by AR

DTC Troubleshooting (cont'd)

DTC 33-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in Left Side Curtain Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

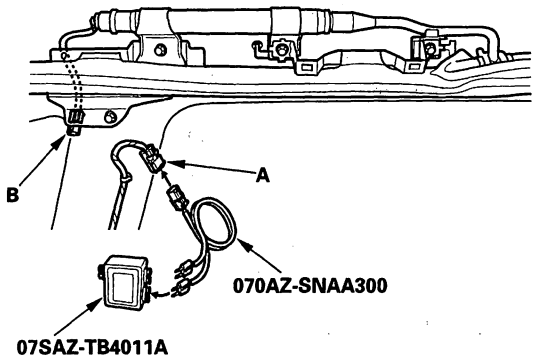
1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 33-9x indicated?
   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

4. Remove the left side quarter pillar trim (see page 20-85), then disconnect the floor wire harness 2P connector (A) from the left side curtain airbag connector (B).



5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.

6. Reconnect the negative cable to the battery.

7. Erase the DTC memory.

8. Read the DTC (see page 24-30).

   Is DTC 33-9x indicated?

   YES—Go to step 9.

   NO—Short to ground in the left side curtain airbag inflator; replace the left side curtain airbag (see page 24-141).■

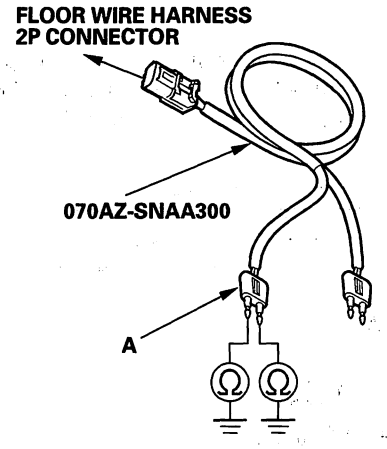
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).

11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).

12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.

13. Measure the resistance between each terminal of the black SRS simulator lead (A) and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short to ground in the floor wire harness; replace the floor wire harness.■

BACK

Protected by AR

DTC 34-1x ("x" can be 0 thru 9 or A thru F): Open in Right Side Curtain Airbag Inflator
DTC 34-2x ("x" can be 0 thru 9 or A thru F): Increased Resistance in Right Side Curtain Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

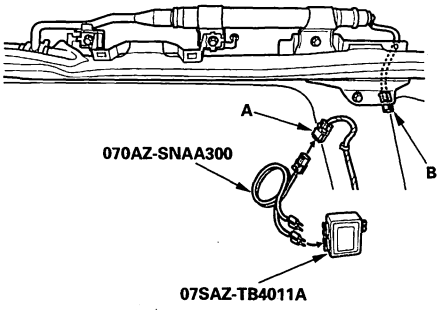
1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 34-1x or 34-2x indicated?
   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

4. Remove the right side quarter pillar trim (see page 20-85), then disconnect the floor wire harness 2P connector (A) from the right side curtain airbag connector (B).



5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.

6. Reconnect the negative cable to the battery.

7. Erase the DTC memory.

8. Read the DTC (see page 24-30).

   Is DTC 34-1x or 34-2x indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the right side curtain airbag inflator, replace the right side curtain airbag (see page 24-141).■

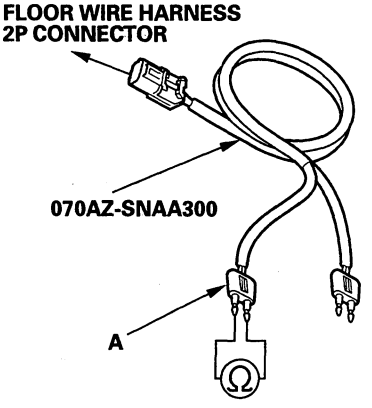
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).

11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).

12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.

13. Measure the resistance between the terminals of the black SRS simulator lead (A). There should be 1.0 Ω or less.



   Is the resistance as specified?

   YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

   NO—Open or increased resistance in the floor wire harness; replace the floor wire harness.■

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DTC Troubleshooting (cont'd)

DTC 34-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Right Side Curtain Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300
- SRS short canceller 070AZ-SAA0100

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

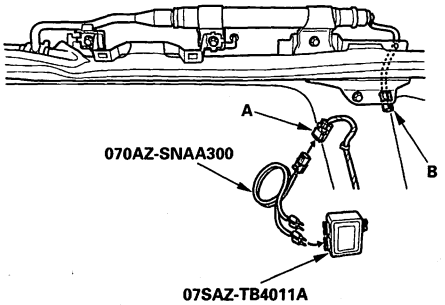
1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 34-3x indicated?
   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

4. Remove the right side quarter pillar trim (see page 20-85), then disconnect the floor wire harness 2P connector (A) from the right side curtain airbag connector (B).



5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.

6. Reconnect the negative cable to the battery.

7. Erase the DTC memory.

8. Read the DTC (see page 24-30).

   Is DTC 34-3x indicated?

   YES—Go to step 9.

   NO—Short to another wire in the right side curtain airbag inflator; replace the right side curtain airbag (see page 24-141). ■

9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

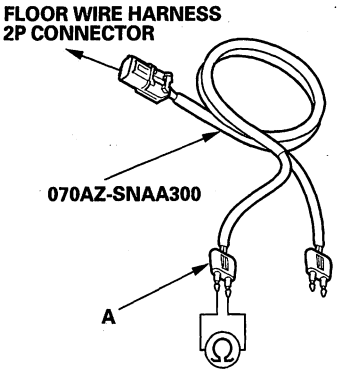
10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).

11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).

12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.

13. Connect the SRS short canceller (070AZ-SAA0100) to the No. 23 and No. 24 terminals of SRS unit connector B (28P) (see page 24-25).

14. Measure the resistance between the terminals of the black SRS simulator lead (A). There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152). ■

NO—Short in the floor wire harness; replace the floor wire harness. ■

BACK

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DTC 34-8x ("x" can be 0 thru 9 or A thru F): Short to Power in Right Side Curtain Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

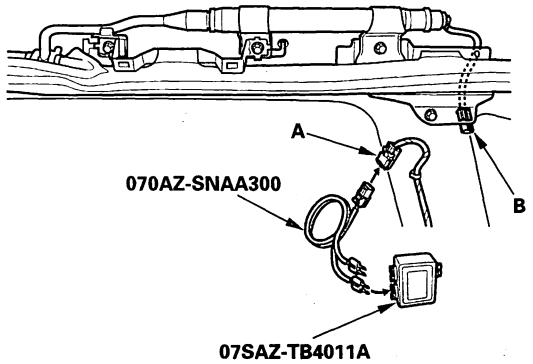
1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 34-8x indicated?
   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

4. Remove the right side quarter pillar trim (see page 20-85), then disconnect the floor wire harness 2P connector (A) from the right side curtain airbag connector (B).



5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.

6. Reconnect the negative cable to the battery.

7. Erase the DTC memory.

8. Read the DTC (see page 24-30).

   Is DTC 34-8x indicated?

   YES—Go to step 9.

   NO—Short to power in the right side curtain airbag inflator; replace the right side curtain airbag (see page 24-141). ■

9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).

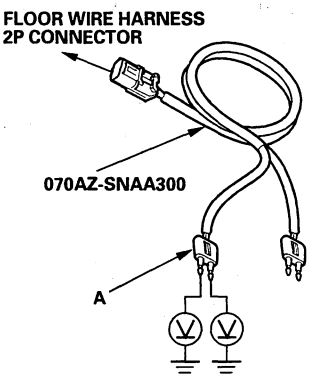
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).

12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.

13. Reconnect the negative cable to the battery.

14. Turn the ignition switch ON (II).

15. Measure the voltage between each terminal of the black SRS simulator lead (A) and body ground. There should be 0.5 V or less.



Is the voltage as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152). ■

NO—Short to power in the floor wire harness; replace the floor wire harness. ■

BACK

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DTC Troubleshooting (cont'd)

DTC 34-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in Right Side Curtain Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

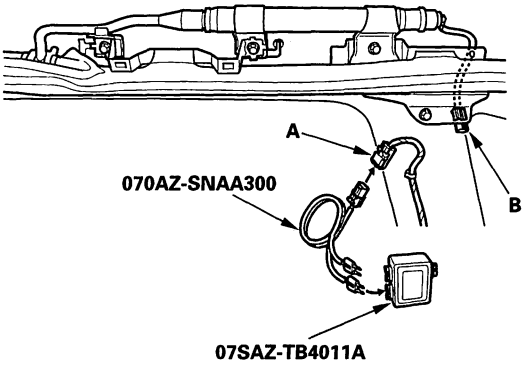
1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 34-9x indicated?
   YES—Go to step 3.
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

4. Remove the right side quarter pillar trim (see page 20-85), then disconnect the floor wire harness 2P connector (A) from the right side curtain airbag connector (B).



5. Connect the SRS inflator simulator (2 Ω connectors) and simulator lead L to the floor wire harness.

6. Reconnect the negative cable to the battery.

7. Erase the DTC memory.

8. Read the DTC (see page 24-30).

   Is DTC 34-9x indicated?

   YES—Go to step 9.

   NO—Short to ground in the right side curtain airbag inflator; replace the right side curtain airbag (see page 24-141).■

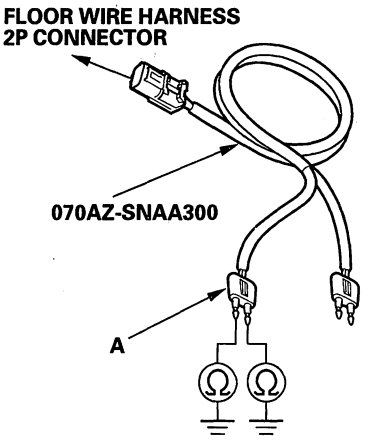
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).

11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).

12. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the floor wire harness 2P connector.

13. Measure the resistance between each terminal of the black SRS simulator lead (A) and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-152).■

NO—Short to ground in the floor wire harness; replace the floor wire harness.■

BACK

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DTC 41-1x ("x" can be 0 thru 9 or A thru F): No Signal From the Left Front Impact Sensor

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 41-1x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

3. Turn the ignition switch OFF.

4. Disconnect the negative cable from the battery, and wait for 3 minutes.

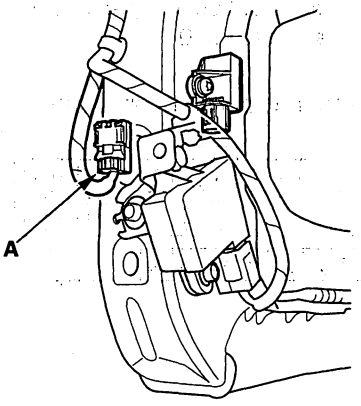
5. Check the connections between SRS unit connector A (28P) and the SRS unit, between the left engine compartment wire harness 2P connector and the left front impact sensor (see page 24-18), and at connector C305 (see page 22-24).

   Are the connections OK?

   YES—Go to step 6.

   NO—Repair the poor connections and retest. If DTC 41-1x is still present, go to step 6.

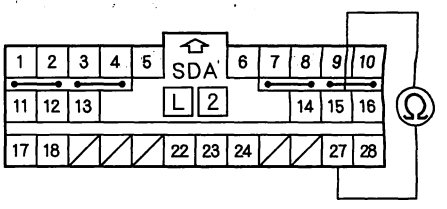
6. Disconnect the left engine compartment wire harness 2P connector (A) from the left front impact sensor.



7. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).

8. Measure the resistance between the No. 15 and No. 27 terminals of SRS unit connector A (28P). There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Go to step 9.

NO—Short in the left engine compartment wire harness or dashboard wire harness; replace the faulty harness.■

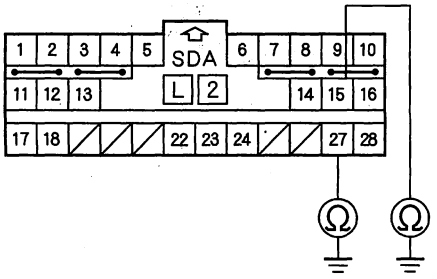
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

9. Measure the resistance between the No. 15 terminal of SRS unit connector A (28P) and body ground, and between the No. 27 terminal and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Go to step 10.

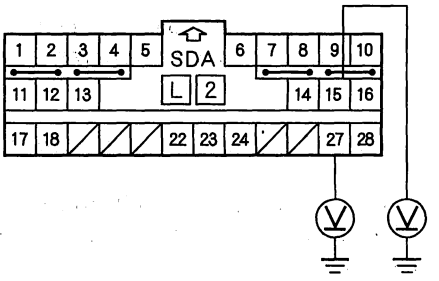
NO—Short to ground in the dashboard wire harness or the left engine compartment wire harness; replace the faulty harness.■

10. Reconnect the negative cable to the battery.

11. Turn the ignition switch ON (II).

12. Measure the voltage between the No. 15 terminal of SRS unit connector A (28P) and body ground, and between the No. 27 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

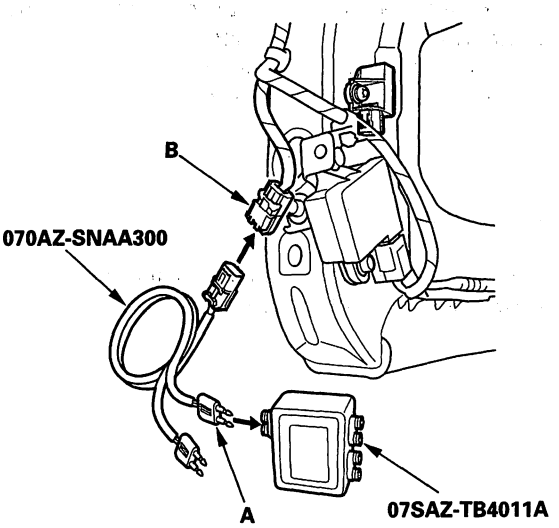
Is the voltage as specified?

YES—Go to step 13.

NO—Short to power in the left engine compartment wire harness or the dashboard wire harness; replace the faulty harness.■

13. Turn the ignition switch OFF.

14. Connect the SRS inflator simulator (jumper connector) and the black lead (A) of simulator lead L to the left engine compartment wire harness 2P connector (B).



BACK

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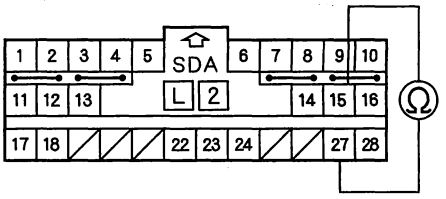
15. Measure the resistance between the No. 15 and No. 27 terminals of SRS unit connector A (28P). There should be 0—1.0 Ω.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty left front impact sensor or SRS unit; replace the left front impact sensor (see page 24-159). If the problem is still present, replace the SRS unit (see page 24-152). ■

NO—Poor connection at C305, open in left engine compartment wire harness, or open in dashboard wire harness. Inspect C305 (see page 22-24). If it is OK, replace the faulty harness. ■

DTC 42-1x ("x" can be 0 thru 9 or A thru F): No Signal From the Right Front Impact Sensor

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 42-1x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

3. Turn the ignition switch OFF.

4. Disconnect the negative cable from the battery, and wait for 3 minutes.

5. Check the connections between SRS unit connector A (28P) and the SRS unit, between the right engine compartment wire harness 2P connector and the right front impact sensor (see page 24-18), and at connector C203 (see page 22-22).

   Are the connections OK?

   YES—Go to step 6.

   NO—Repair the poor connections and retest. If DTC 42-1x is still present, go to step 6.

(cont'd)

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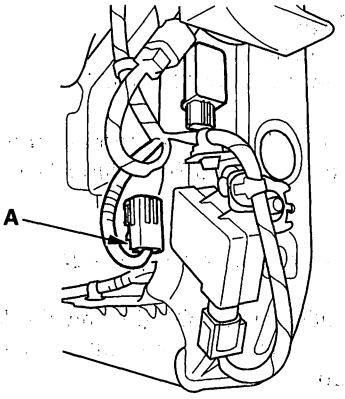
DTC Troubleshooting (cont'd)

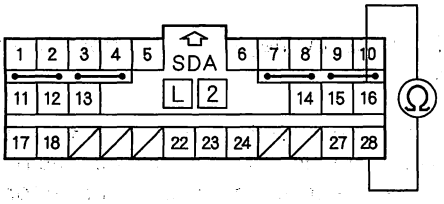
6. Disconnect the right engine compartment wire harness 2P connector (A) from the right front impact sensor.



7. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).

8. Measure the resistance between the No. 16 and No. 28 terminals of SRS unit connector A (28P). There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

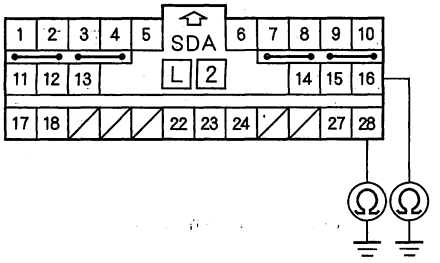
Is the resistance as specified?

YES—Go to step 9.

NO—Short in the right engine compartment wire harness or dashboard wire harness; replace the faulty harness.■

9. Measure the resistance between the No. 16 terminal of SRS unit connector A (28P) and body ground, and between the No. 28 terminal and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Go to step 10.

NO—Short to ground in the dashboard wire harness or the right engine compartment wire harness; replace the faulty harness.■

10. Reconnect the negative cable to the battery.

11. Turn the ignition switch ON (II).

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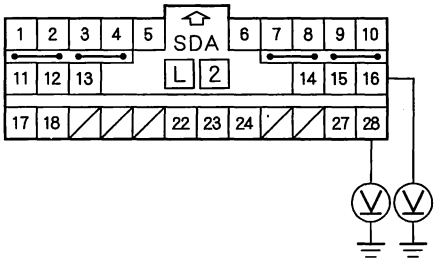
12. Measure the voltage between the No. 16 terminal of SRS unit connector A (28P) and body ground, and between the No. 28 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

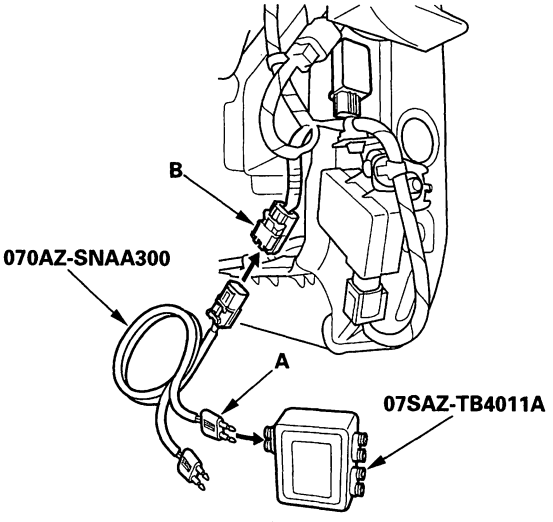
Is the voltage as specified?

YES—Go to step 13.

NO—Short to power in the right engine compartment wire harness or dashboard wire harness; replace the faulty harness.■

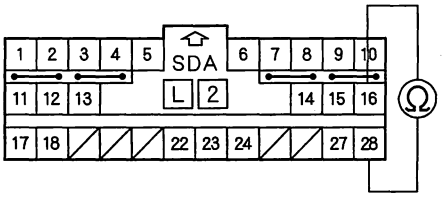
13. Turn the ignition switch OFF.

14. Connect the SRS inflator simulator (jumper connector) and the black lead (A) of simulator lead L to the right engine compartment wire harness 2P connector (B).



15. Measure the resistance between the No. 16 and No. 28 terminals of SRS unit connector A (28P). There should be 0—1.0 Ω.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty right front impact sensor or SRS unit; replace the right front impact sensor (see page 24-159). If the problem is still present, replace the SRS unit (see page 24-152).■

NO—Poor connection at C203, open in right engine compartment wire harness, or open in dashboard wire harness. Inspect C203 (see page 22-22). If it is OK, replace the faulty harness.■

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DTC Troubleshooting (cont'd)

DTC 41-2x, 41-8x, 41-9x, 41-Ax, 41-Bx ("x" can be 0 thru 9 or A thru F):
Internal Failure of the Left Front Impact Sensor

DTC 42-2x, 42-8x, 42-9x, 42-Ax, 42-Bx ("x" can be 0 thru 9 or A thru F):
Internal Failure of the Right Front Impact Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 41-2x, 41-8x, 41-9x, 41-Ax, 41-Bx, 42-2x, 42-8x, 42-9x, 42-Ax, or 42-Bx indicated?

   YES—Replace the left or right front impact sensor (see page 24-159). If the DTC returns, replace the SRS unit (see page 24-152).■

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

DTC 43-1x ("x" can be 0 thru 9 or A thru F):
No Signal From the Left Side Impact Sensor (first))

DTC 45-1x ("x" can be 0 thru 9 or A thru F):
No Signal From the Left Side Impact Sensor (second)

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and wait for 10 seconds.
3. Read the DTC (see page 24-30).

   Is DTC 45-1x (except 45-11) indicated?

   YES—Faulty left side impact sensor (second); replace the left side impact sensor (second) (see page 24-154).■

   NO—Go to step 4.
4. Read the DTC.

   Is DTC 43-1x (except 43-11) indicated?

   YES—Faulty left side impact sensor (first); replace the left side impact sensor (first) (see page 24-153).■

   NO—Go to step 5.

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Protected by AR

5. Read the DTC.

   Is DTC 43-11 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time.

6. Turn the ignition switch OFF.

7. Check for a damaged to the floor wire harness between SRS unit and left side impact sensor (first), left side impact sensor (first), and left side impact sensor (second).

   Is the floor wire harness OK?

   YES—Go to step 8.

   NO—Replace the floor wire harness.■

8. Disconnect the negative cable from the battery, and wait for 3 minutes.

9. Replace the left side impact sensor (first) with a known-good part (see page 24-153).

10. Erase the DTC memory (see page 24-31).

11. Turn the ignition switch ON (II), and wait for 10 seconds.

12. Read the DTC (see page 24-30).

    Is DTC 43-11 indicated?

    YES—Go to step 13.

    NO—Faulty left side impact sensor (first); replace the original left side impact sensor (first) (see page 24-153).■

13. Turn the ignition switch OFF.

14. Disconnect the negative cable from the battery, and wait for 3 minutes.

15. Replace the left side impact sensor (second) with a known-good part (see page 24-154).

16. Erase the DTC (see page 24-31).

17. Turn the ignition switch ON (II), and wait for 10 seconds.

18. Read the DTC (see page 24-30).

    Is DTC 43-11 indicated?

    YES—Go to step 19.

    NO—Faulty left side impact sensor (second); replace the original left side impact sensor (second) (see page 24-154).■

19. Turn the ignition switch OFF.

20. Disconnect the negative cable from the battery, and wait for 3 minutes.

21. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).

22. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).

(cont'd)

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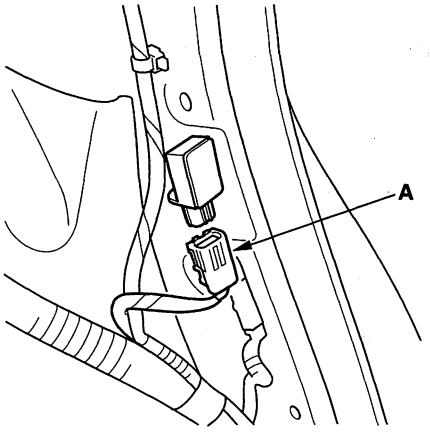
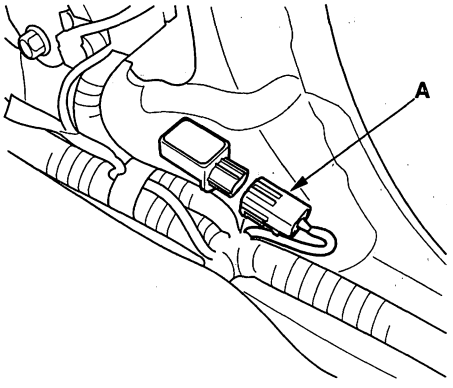
DTC Troubleshooting (cont'd)

23. Disconnect the floor wire harness 2P connector (A) from the left side impact sensor (second) (see step 4 on page 24-154).

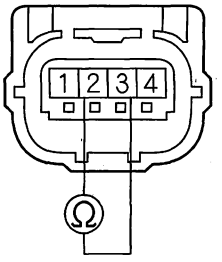


24. Disconnect the floor wire harness 4P connector (A) from the left side impact sensor (first) (see step 5 on page 24-153).



25. Measure the resistance between the No. 2 and No. 3 terminal of the floor wire harness 4P connector. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

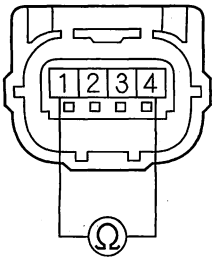
Is the resistance as specified?

YES—Go to step 26.

NO—Short in the floor wire harness; replace the floor wire harness.■

26. Measure the resistance between the No.1 and No. 4 terminal of the floor wire harness 4P connector. There should be an open circuit (ohmmeter reads OL) or at least 1MΩ.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

Is the resistance as specified?

YES—Go to step 27.

NO—Short in the floor wire harness; replace the floor wire harness.■

BACK

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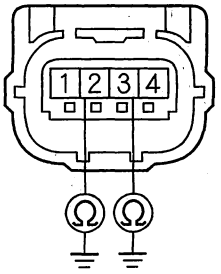
27. Measure the resistance between the No. 2 terminal of floor wire harness 4P connector and body ground, and between the No. 3 terminal and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

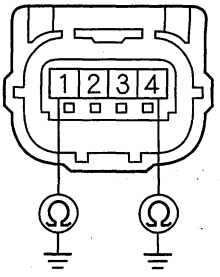
Is the resistance as specified?

YES—Go to step 28.

NO—Short to ground in the floor wire harness; replace the floor wire harness.■

28. Measure the resistance between the No. 1 terminal of floor wire harness 4P connector and body ground, and between the No. 4 terminal and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

Is the resistance as specified?

YES—Go to step 29.

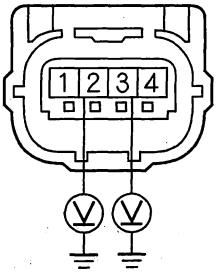
NO—Short to ground in the floor wire harness; replace the floor wire harness.■

29. Reconnect the negative cable to the battery.

30. Turn the ignition switch ON (II).

31. Measure the voltage between the No. 2 terminal of floor wire harness 4P connector and body ground, and between the No.3 terminal and body ground. There should be less than 1 V.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

Is the voltage as specified?

YES—Go to step 32.

NO—Short to power in the floor wire harness; replace the floor wire harness.■

32. Turn the ignition switch OFF.

(cont'd)

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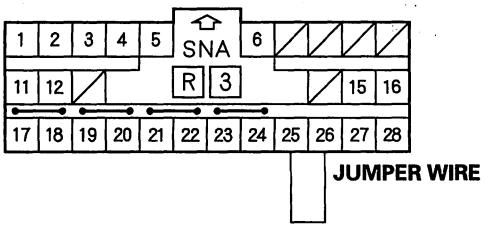
DTC Troubleshooting (cont'd)

33. Install a jumper wire between the No. 25 terminal and No. 26 terminal of the SRS unit connector B (28P).

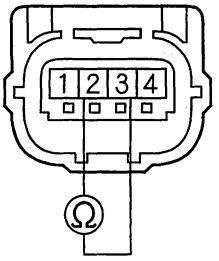
SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

34. Measure the resistance between the No. 2 and No. 3 terminal of the floor wire harness 4P connector. There should be 0—10 Ω.

FLOOR WIRE HARNESS 4P CONNECTOR



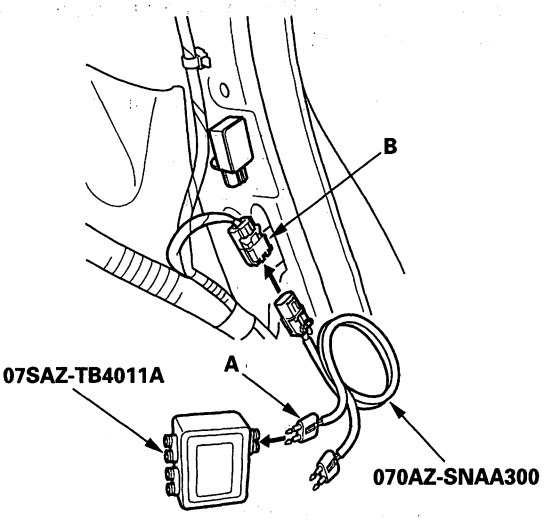
Terminal side of female terminals

Is the resistance as specified?

YES—Go to step 35.

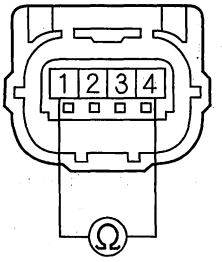
NO—Open in the floor wire harness; replace the floor wire harness.■

35. Connect the SRS inflator simulator (jumper connector) and the black lead (A) of simulator lead L to the floor wire harness 2P connector (B).



36. Measure the resistance between the No. 1 and No. 4 terminal of the floor wire harness 4P connector. There should be 0—1.0 Ω.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

Is the resistance as specified?

YES—Reconnect the floor wire harness 4P connector to the left side impact sensor (first) and left side impact sensor (second). If the DTCs are still indicated, replace the SRS unit (see page 24-152).■

NO—Open in the floor wire harness; replace the floor wire harness.■

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DTC 44-1x ("x" can be 0 thru 9 or A thru F): No Signal From the Right Side Impact Sensor (first)

DTC 46-1x ("x" can be 0 thru 9 or A thru F): No Signal From the Right Side Impact Sensor (second)

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and wait for 10 seconds.
3. Read the DTC (see page 24-30).

   Is DTC 46-1x (except 46-11) indicated?

   YES—Faulty right side impact sensor (second); replace the right side impact sensor (second) (see page 24-154). ■

   NO—Go to step 4.
4. Read the DTC.

   Is DTC 44-1x (except 44-11) indicated?

   YES—Faulty right side impact sensor (first); replace the right side impact sensor (first) (see page 24-153). ■

   NO—Go to step 5.
5. Read the DTC.

   Is DTC 44-11 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time.
6. Turn the ignition switch OFF.
7. Check for damage to the floor wire harness between the SRS unit and right side impact sensor (first), right side impact sensor (first), and right side impact sensor (second).

   Is the floor wire harness OK?

   YES—Go to step 8.

   NO—Replace the floor wire harness. ■
8. Disconnect the negative cable from the battery, and wait for 3 minutes.
9. Replace the right side impact sensor (first) with a known-good part (see page 24-153).
10. Erase the DTC memory (see page 24-31).
11. Turn the ignition switch ON (II), and wait for 10 seconds.
12. Read the DTC (see page 24-30).

    Is DTC 44-11 indicated?

    YES—Go to step 13.

    NO—Faulty right side impact sensor (first); replace the original right side impact sensor (first) (see page 24-153). ■

(cont'd)

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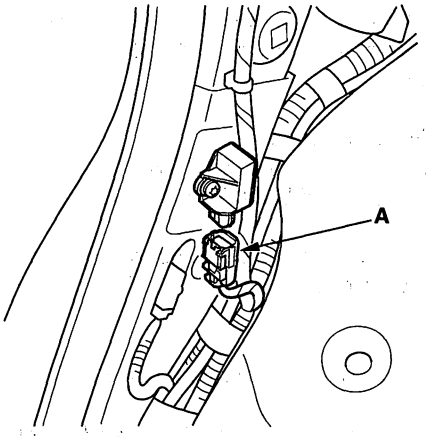
DTC Troubleshooting (cont'd)

13. Turn the ignition switch OFF.
14. Disconnect the negative cable from the battery, and wait for 3 minutes.
15. Replace the right side impact sensor (second) with a known-good part (see page 24-154).
16. Erase the DTC memory (see page 24-31).
17. Turn the ignition switch ON (II), and wait for 10 seconds.
18. Read the DTC (see page 24-30).

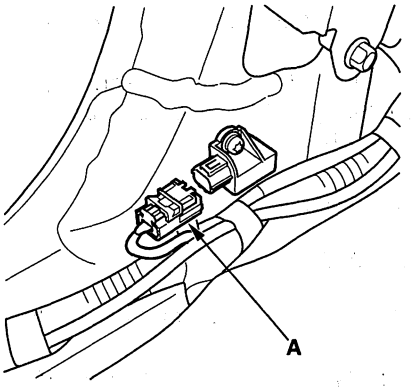
    Is DTC 44-11 indicated?

    YES—Go to step 19.

    NO—Faulty right side impact sensor (second); replace the original right side impact sensor (second) (see page 24-154). ■
19. Turn the ignition switch OFF.
20. Disconnect the negative cable from the battery, and wait for 3 minutes.
21. Disconnect both seat belt tensioner 4P connectors (see step 7 on page 24-29).
22. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
23. Disconnect the floor wire harness 2P connector (A) from the right side impact sensor (second) (see step 4 on page 24-154).



24. Disconnect the floor wire harness 4P connector (A) from the right side impact sensor (first) (see step 5 on page 24-153).



BACK

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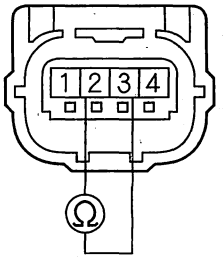
25. Measure the resistance between the No. 2 and No. 3 terminal of the floor wire harness 4P connector. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

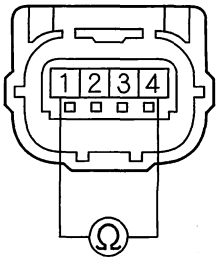
Is the resistance as specified?

YES—Go to step 26.

NO—Short in the floor wire harness; replace the floor wire harness.■

26. Measure the resistance between the No.1 and No. 4 terminal of the right side wire harness 4P connector. There should be an open circuit (ohmmeter reads OL) or at least 1MΩ.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

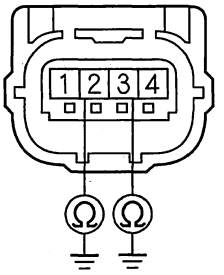
Is the resistance as specified?

YES—Go to step 27.

NO—Short in the floor wire harness; replace the floor wire harness.■

27. Measure the resistance between the No. 2 terminal of floor wire harness 4P connector and body ground, and between the No. 3 terminal and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

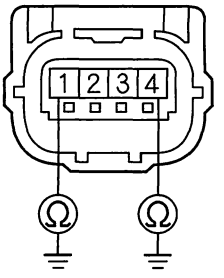
Is the resistance as specified?

YES—Go to step 28.

NO—Short to ground in the floor wire harness; replace the floor wire harness.■

28. Measure the resistance between the No. 1 terminal of floor wire harness 4P connector and body ground, and between the No. 4 terminal and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

Is the resistance as specified?

YES—Go to step 29.

NO—Short to ground in the floor wire harness; replace the floor wire harness.■

(cont'd)

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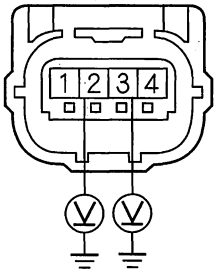
DTC Troubleshooting (cont'd)

29. Reconnect the negative cable to the battery.

30. Turn the ignition switch ON (II).

31. Measure the voltage between the No. 2 terminal of floor wire harness 4P connector and body ground, and between the No. 3 terminal and body ground. There should be less than 0.5 V.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

Is the voltage as specified?

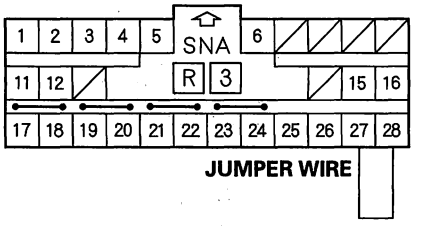
YES—Go to step 32.

NO—Short to power in the floor wire harness; replace the floor wire harness.■

32. Turn the ignition switch OFF.

33. Install a jumper wire between the No. 27 terminal and No. 28 terminal of the SRS unit connector B (28P).

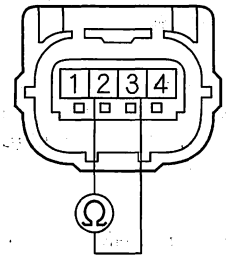
SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

34. Measure the resistance between the No. 2 and No. 3 terminal of the floor wire harness 4P connector. There should be 0—1.0 Ω.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

Is the resistance as specified?

YES—Go to step 35.

NO—Open in the floor wire harness; replace the floor wire harness.■

BACK

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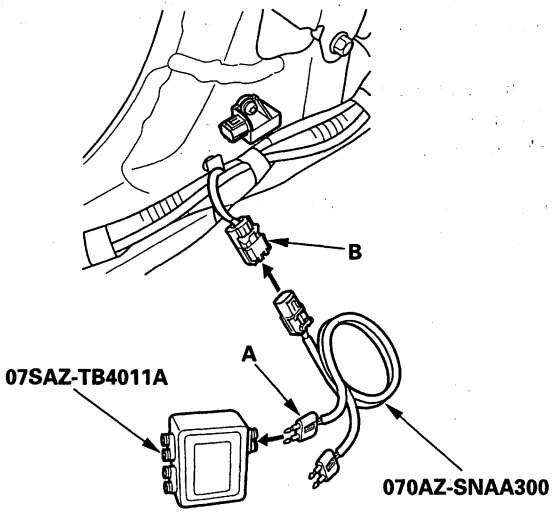
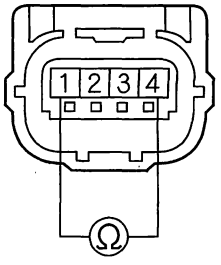
35. Connect the SRS inflator simulator (jumper connector) and the black lead (A) of simulator lead L to the floor wire harness 2P connector (B).



36. Measure the resistance between the No. 1 and No. 4 terminal of the floor wire harness 4P connector. There should be 0—1.0 Ω.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

Is the resistance as specified?

YES—Reconnect the floor wire harness 4P connector to the right side impact sensor (first) and right side impact sensor (second). If the DTCs are still indicated, replace the SRS unit (see page 24-152).■

NO—Open in the floor wire harness; replace the floor wire harness.■

DTC 43-2x, 43-8x, 43-9x, 43-Ax, 43-Bx ("x" can be 0 thru 9 or A thru F): Internal Failure of the Left Side Impact Sensor (first)

DTC 44-2x, 44-8x, 44-9x, 44-Ax, 44-Bx ("x" can be 0 thru 9 or A thru F): Internal Failure of the Right Side Impact Sensor (first)

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 43-2x, 43-8x, 43-9x, 43-Ax, 43-Bx, 44-2x, 44-8x, 44-9x, 44-Ax, 44-Bx indicated?

   YES—Replace the left or right side impact sensor (first) (see page 24-153). If the DTC returns, replace the SRS unit (see page 24-152).■

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

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DTC Troubleshooting (cont'd)

DTC 45-2x, 45-8x, 45-9x, 45-Ax, 45-Bx ("x" can be 0 thru 9 or A thru F): Internal Failure of the Left Side Impact Sensor (second)

DTC 46-2x, 46-8x, 46-9x, 46-Ax, 46-Bx ("x" can be 0 thru 9 or A thru F): Internal Failure of the Right Side Impact Sensor (second)

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 45-2x, 45-8x, 45-9x, 45-Ax, 45-Bx, 46-2x, 46-8x, 46-9x, 46-Ax, 46-Bx indicated?

   YES—Replace the left or right side impact sensor (second) (see page 24-154). If the DTC returns, replace the SRS unit (see page 24-152). ■

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

DTC B1-1x ("x" can be 0 thru 9 or A thru F): No Signal From the Roll Rate Sensor

DTC B2-1x ("x" can be 0 thru 9 or A thru F): No Signal From the Satellite Safing Sensor

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and wait for 10 seconds.
3. Read the DTC (see page 24-30).

   Is DTC B1-1x (except B1-11) indicated?

   YES—Faulty roll rate sensor; replace the roll rate sensor (see page 24-155). ■

   NO—Go to step 4.
4. Read the DTC.

   Is DTC B2-1x (except B2-11) indicated?

   YES—Faulty satellite safing sensor; replace the satellite safing sensor (see page 24-156). ■

   NO—Go to step 5.

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5. Read the DTC.

   Is DTC B2-11 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time.

6. Turn the ignition switch OFF.

7. Check for damage to the floor wire harness between the SRS unit and satellite safing sensor, satellite safing sensor, and roll rate sensor.

   Is the floor harness OK?

   YES—Go to step 8.

   NO—Replace the floor wire harness.■

8. Disconnect the negative cable from the battery, and wait for 3 minutes.

9. Replace the satellite safing sensor with a known-good part (see page 24-156).

10. Erase the DTC memory (see page 24-31).

11. Turn the ignition switch ON (II), and wait for 10 seconds.

12. Read the DTC (see page 24-30).

    Is DTC B2-11 indicated?

    YES—Go to step 13.

    NO—Faulty satellite safing sensor; replace the original satellite safing sensor (see page 24-156).■

13. Turn the ignition switch OFF.

14. Disconnect the negative cable from the battery, and wait for 3 minutes.

15. Replace the roll rate sensor with a known-good part (see page 24-155).

16. Erase the DTC memory (see page 24-31).

17. Turn the ignition switch ON (II), and wait for 10 seconds.

18. Read the DTC (see page 24-30).

    Is DTC B2-11 indicated?

    YES—Go to step 19.

    NO—Faulty roll rate sensor; replace the original roll rate sensor (see page 24-155).■

19. Turn the ignition switch OFF.

20. Disconnect the negative cable from the battery, and wait for 3 minutes.

21. Disconnect SRS unit connector C (16P) from the SRS unit (see step 8 on page 24-30).

(cont'd)

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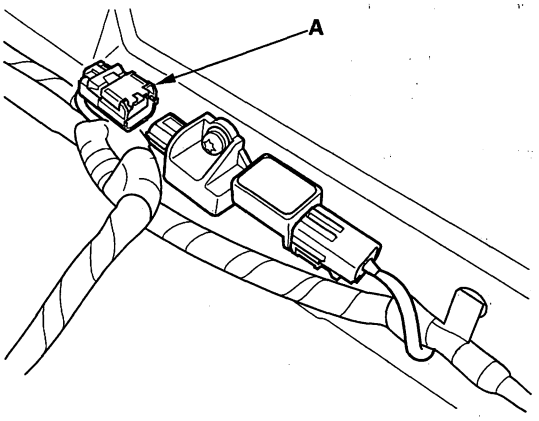
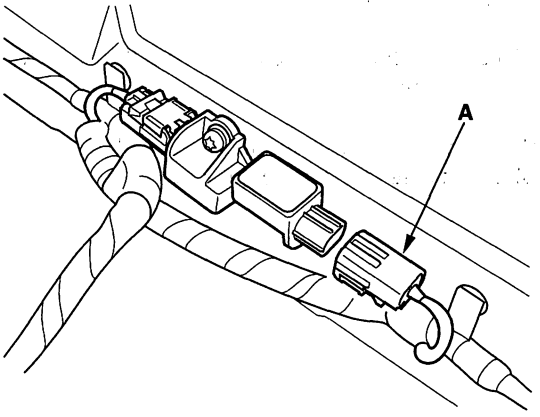
DTC Troubleshooting (cont'd)

22. Disconnect the floor wire harness 2P connector (A) from the roll rate sensor (see step 4 on page 24-155).

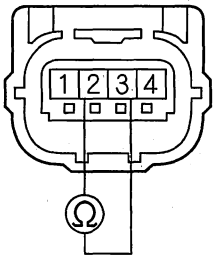


23. Disconnect the floor wire harness 4P connector (A) from the satellite safing sensor (see step 4 on page 24-156).



24. Measure the resistance between the No. 2 and No. 3 terminal of the floor wire harness 4P connector. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

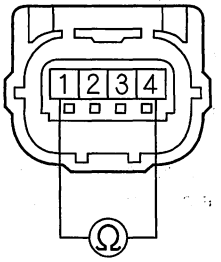
Is the resistance as specified?

YES—Go to step 26.

NO—Short in the floor wire harness; replace the floor wire harness.■

25. Measure the resistance between the No.1 and No. 4 terminal of the right side wire harness 4P connector. There should be an open circuit (ohmmeter reads OL) or at least 1MΩ.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

Is the resistance as specified?

YES—Go to step 27.

NO—Short in the floor wire harness; replace the floor wire harness.■

BACK

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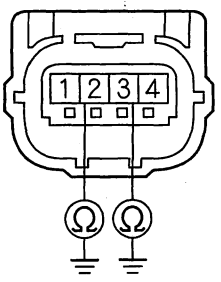
26. Measure the resistance between the No. 2 terminal of floor wire harness 4P connector and body ground, and between the No. 3 terminal and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

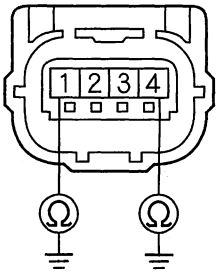
Is the resistance as specified?

YES—Go to step 28.

NO—Short to ground in the floor wire harness; replace the floor wire harness.■

27. Measure the resistance between the No. 1 terminal of floor wire harness 4P connector and body ground, and between the No. 4 terminal and body ground. There should be an open circuit (ohmmeter reads OL) or at least 1 MΩ.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

Is the resistance as specified?

YES—Go to step 29.

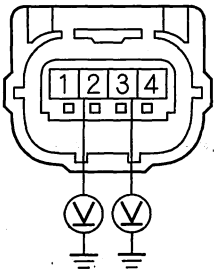
NO—Short to ground in the floor wire harness; replace the floor wire harness.■

28. Reconnect the negative cable to the battery.

29. Turn the ignition switch ON (II).

30. Measure the voltage between the No. 2 terminal of floor wire harness 4P connector and body ground, and between the No.3 terminal and body ground. There should be less than 1 V.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

Is the voltage as specified?

YES—Go to step 32.

NO—Short to power in the floor wire harness; replace the floor wire harness.■

31. Turn the ignition switch OFF.

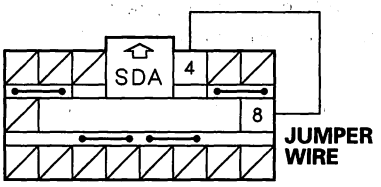
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

32. Install a jumper wire between the No. 27 terminal and No. 28 terminal of the SRS unit connector C (16P).

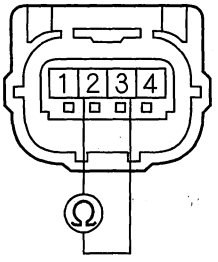
SRS UNIT CONNECTOR C (16P)



Wire side of female terminals

33. Measure the resistance between the No. 2 and No. 3 terminal of the floor wire harness 4P connector. There should be 0—1.0 Ω.

FLOOR WIRE HARNESS 4P CONNECTOR



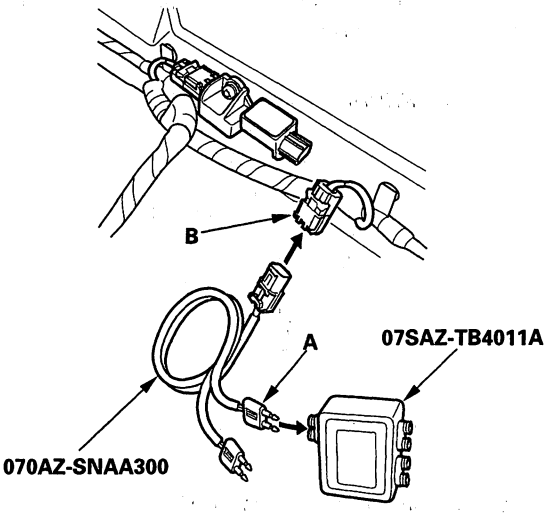
Terminal side of female terminals

Is the resistance as specified?

YES—Go to step 35.

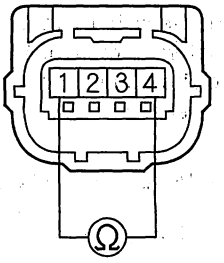
NO—Open in the floor wire harness; replace the floor wire harness.■

34. Connect the SRS inflator simulator (jumper connector) and the brack lead (A) of simulator lead L to the floor wire harness 2P connector (B).



35. Measure the resistance between the No. 1 and No. 4 terminal of the floor wire harness 4P connector. There should be 0—1.0 Ω.

FLOOR WIRE HARNESS 4P CONNECTOR



Terminal side of female terminals

Is the resistance as specified?

YES—Reconnect the floor wire harness 4P connector to the satellite safing sensor and roll rate sensor. If the DTCs are still indicated, replace the SRS unit (see page 24-152).■

NO—Open in the floor wire harness; replace the floor wire harness.■

BACK

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DTC B1-2x, B1-8x, B1-9x, B1-Ax, B1-Bx ("x" can be 0 thru 9 or A thru F): Internal Failure of the Roll Rate Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC B1-2x, B1-8x, B1-9x, B1-Ax, or B1-Bx indicated?

   YES—Replace the roll rate sensor (see page 24-155). If the DTC returns, replace the SRS unit (see page 24-152). ■

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

DTC B2-2x, B2-8x, B2-9x, B2-Ax, B2-Bx ("x" can be 0 thru 9 or A thru F): Internal Failure of the Satellite Safing Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC B2-2x, B2-8x, B2-9x, B2-Ax, or B2-Bx indicated?

   YES—Replace the satellite safing sensor (see page 24-156). If the DTC returns, replace the SRS unit (see page 24-152). ■

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

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DTC Troubleshooting (cont'd)

DTC 51-xx, 52-xx, 53-xx, 54-xx, 55-xx, 57-xx ("x" can be 0 thru 9 or A thru F): Internal Failure of the SRS Unit

NOTE:
- Before troubleshooting any of these DTCs, check the battery/system voltage and battery cable corrections. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the client if the battery ever went dead or if the engine was started and run with the battery in a low state of charge. A dead battery may trigger one or more of these DTCs.
- NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 51-xx, 52-xx, 53-xx, 54-xx, 55-xx, or 57-xx indicated?

   YES—Replace the SRS unit (see page 24-152).■

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

DTC E2-11, E4-11, F1-11, F2-11, F3-11, F4-11: Airbags, Side Airbags, Side Curtain Airbags and/or Seat Belt Tensioners

The SRS unit must be replaced after any airbags and/or tensioners have deployed (see page 24-134).■

NOTE:
- DTC E2-11 is set if the system triggered airbag deployment but the front passenger's airbag was prevented from deploying because of the seat weight sensor.
- DTC E4-11 is set if the system triggered a passenger's side airbag deployment but the airbag was prevented from deploying by the ODS. Replace the right side impact sensor (first) (see page 24-153).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

BACK

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DTC 61-1x ("x" can be 0 thru 9 or A thru F): Open in Driver's Seat Belt Buckle Switch

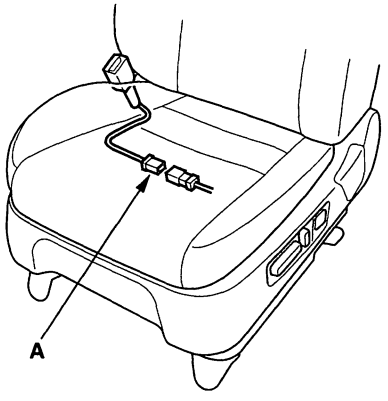
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), then buckle and unbuckle the driver's seat belt several times.
3. Read the DTC (see page 24-30).

   Is DTC 61-1x indicated?

   YES—Go to step 4.

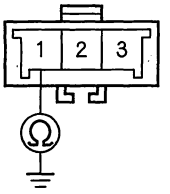
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
4. Disconnect the driver's seat harness 3P connector from the driver's seat belt buckle switch 3P connector (A).



5. From the system selection menu on the HDS, select SRS, then select SRS again, then select PARAMETER INFORMATION, then Buckle Switch. Seat Position Sensor, and check the status on the HDS screen for FRONT LEFT SEAT BELT BUCKLE SWITCH when the seat belt is buckled, and unbuckled.

   - If UNBUCKLE, BUCKLE, or SHORT is indicated replace the driver's seat wire harness, or floor wire harness; replace the faulty harness.
   - If OPEN is indicated, go to step 6.
6. Measure the resistance between the No. 1 terminal of the driver's seat wire harness 3P connector and body ground. There should be 0—1 Ω.

DRIVER'S SEAT WIRE HARNESS 3P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Go to step 7.

NO—Open in the driver's seat wire harness or floor wire harness or poor ground connection at G602 (see page 22-34). If G602 is OK, replace the faulty harness. ■

7. Alternatery connect the No. 2 and No. 3 terminals of the driver's seat wire harness 3P connector to body ground with a jumper wire, and check the status on the HDS screen.

   Does the status alternate from UNBUCKLE to BUCKLE?

   YES—Replace the driver's seat belt buckle assembly (see page 24-6), then clear the DTC. ■

   NO—Open in the driver's seat wire harness or floor wire harness; replace the faulty harness. ■

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DTC Troubleshooting (cont'd)

DTC 61-2x ("x" can be 0 thru 9 or A thru F): Short in Driver's Seat Belt Buckle Switch

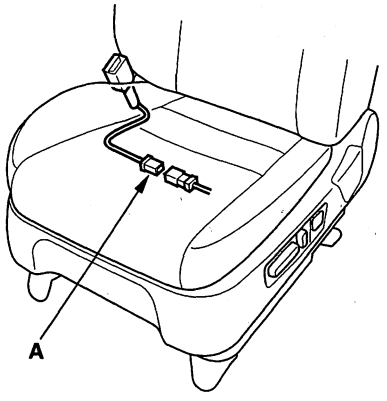
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), then buckle and unbuckle the driver's seat belt several times.
3. Read the DTC (see page 24-30).

   Is DTC 61-2x indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
4. Turn the ignition switch OFF.
5. Disconnect the driver's seat wire harness 3P connector from the driver's seat belt buckle switch 3P connector (A).



6. Turn the ignition switch ON (II).
7. From the system selection menu on the HDS, select SRS, then select SRS again, then select PARAMETER INFORMATION, then Buckle Switch, Seat Position Sensor, and Check the status on the HDS screen for FRONT LEFT SEAT BELT BUCKLE SWITCH.

   Is OPEN indicated on the HDS?

   YES—Replace the driver's seat belt buckle assembly (see page 24-6), then clear the DTC. ■

   NO—Short to ground in the driver's seat wire harness or floor wire harness; replace the faulty wire harness. ■

BACK

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DTC 62-1x ("x" can be 0 thru 9 or A thru F): Open in Front Passenger's Seat Belt Buckle Switch

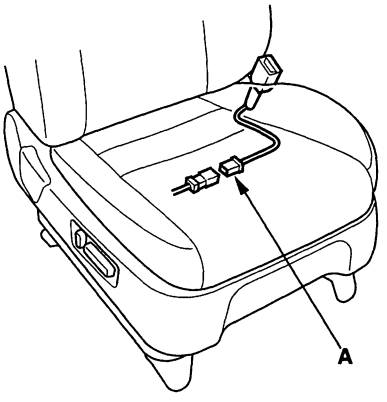
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), then buckle and unbuckle the driver's seat belt several times.
3. Read the DTC (see page 24-30).

   Is DTC 62-1x indicated?

   YES—Go to step 4.

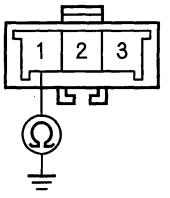
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
4. Disconnect the front passenger's seat wire harness 3P connector from the front passenger's seat belt buckle switch 3P connector (A).



5. From the system selection menu on the HDS, select SRS, then select SRS again, then select PARAMETER INFROMATION, then Buckle Switch. Seat Position Sensor, and check the status on the HDS screen for FRONT RIGHT SEAT BELT BUCKLE SWITCH when the seat belt is buckled, and unbuckled.

   - If UNBUCKLE, BUCKLE, or SHORT is indicated open in the front passenger's seat wire harness, or floor wire harness; replace the faulty harness.
   - If OPEN is indicated, go to step 6.
6. Measure the resistance between the No. 1 terminal of the front passenger's seat wire harness 3P connector and body ground. There should be 0—1 Ω.

FRONT PASSENGER'S SEAT WIRE HARNESS 3P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Go to step 7.

NO—Open in the front passenger's seat wire harness or floor wire harness or poor ground connection at G602 (see page 22-34). If G602 is OK, replace the faulty harness.■

7. Alternatery connect the No. 2 and No. 3 terminals of the front passenger's seat wire harness 3P connector to body ground with a jumper wire, and check the status on the HDS screen.

   Does the status alternate from UNBUCKLE to BUCKLE?

   YES—Replace the front passenger's seat belt buckle assembly (see page 24-6), then clear the DTC.■

   NO—Open in the front passenger's seat wire harness or floor wire harness; replace the faulty harness.■

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DTC Troubleshooting (cont'd)

DTC 62-2x ("x" can be 0 thru 9 or A thru F): Short in Front Passenger's Seat Belt Buckle Switch

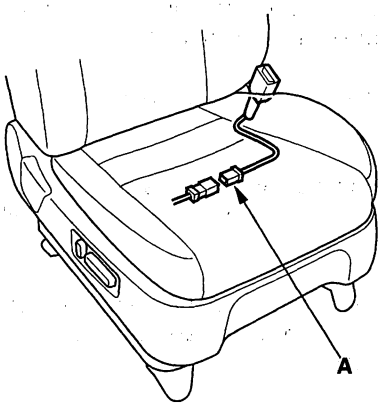
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), then buckle and unbuckle the front passenger's seat belt several times.
3. Read the DTC (see page 24-30).

   Is DTC 62-2x indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
4. Turn the ignition switch OFF.
5. Disconnect the front passenger's seat wire harness 3P connector from the front passenger's seat belt buckle switch 3P connector (A).



6. Turn the ignition switch ON (II).
7. From the system selection menu on the HDS, select SRS, then select SRS again, then select PARAMETER INFORMATION, then Buckle Switch, Seat Position Sensor, and check the status on the HDS screen for FRONT RIGHT SEAT BELT BUCKLE SWITCH.

   Is OPEN indicated on the HDS?

   YES—Replace the front passenger's seat belt buckle assembly (see page 24-6), then clear the DTC. ■

   NO—Short to ground in the front passenger's seat wire harness or floor wire harness; replace the faulty harness. ■

BACK

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DTC 71-1x ("x" can be 0 thru 9 or A thru F): Open in Driver's Seat Position Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 71-1x indicated?

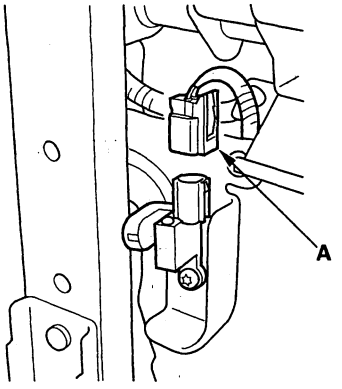
   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Check the connection between the driver's seat wire harness 2P connector and the driver's seat position sensor (see page 24-18).
4. Erase the DTC memory.
5. Read the DTC (see page 24-30).

   Is DTC 71-1x indicated?

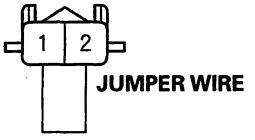
   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
6. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
7. Disconnect the driver's seat wire harness 2P connector from the driver's seat position sensor (A).



8. Connect the No. 1 and No. 2 terminals of the driver's seat wire harness 2P connector with a jumper wire.

DRIVER'S SEAT WIRE HARNESS 2P CONNECTOR



Wire side of female terminals

9. Disconnect both seat belt tensioner connectors (see step 7 on page 24-29).

(cont'd)

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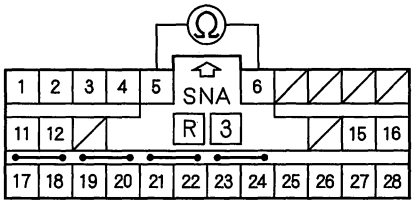
DTC Troubleshooting (cont'd)

10. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).

11. Measure the resistance between the No. 5 and No. 6 terminals of SRS unit connector B (28P). There should be 0—1.0 Ω.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty driver's seat position sensor or SRS unit; replace the driver's seat position sensor (see page 24-160). If the problem is still present, replace the SRS unit (see page 24-152). ■

NO—Open in the floor wire harness or the driver's seat wire harness; replace the faulty harness. ■

DTC 71-2x ("x" can be 0 thru 9 or A thru F): Short in Driver's Seat Position Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 71-2x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

BACK

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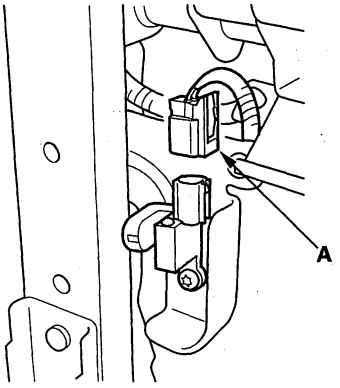
4. Disconnect the driver's seat wire harness 2P connector from the driver's seat position sensor (A) (see page 24-18).



5. Reconnect the negative cable to the battery.
6. Erase the DTC memory.
7. Read the DTC (see page 24-30).

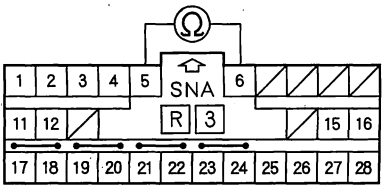
   Is DTC 71-2x indicated?

   YES—Go to step 8.

   NO—Faulty driver's seat position sensor; replace the driver's seat position sensor (see page 24-160). ■

8. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
9. Disconnect both seat belt tensioner connectors (see step 7 on page 24-29).
10. Disconnect SRS unit connector B (28P) from the SRS unit (see step 8 on page 24-29).
11. Measure the resistance between the No. 5 and No. 6 terminals of SRS unit connector B (28P). There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

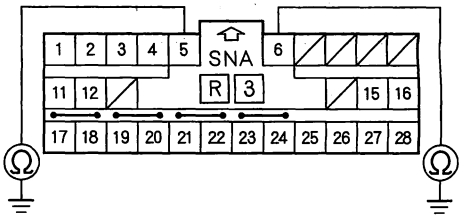
Is the resistance as specified?

YES—Go to step 12.

NO—Short in the floor wire harness or the driver's seat wire harness; replace the faulty harness. ■

12. Measure the resistance between the No. 5 terminal of SRS unit connector B (28P) and body ground, and between the No. 6 terminal and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty driver's seat position sensor or the SRS unit; replace the driver's seat position sensor (see page 24-160). If the problem is still present, replace the SRS unit (see page 24-152). ■

NO—Short in the floor wire harness or the driver's seat wire harness; replace the faulty harness. ■

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DTC Troubleshooting (cont'd)

DTC 81-61, 85-61: No Signal From ODS Unit

DTC 81-62, 85-62: Non-Stipulated Response Data

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Make sure nothing is on the front passenger's seat.
2. Erase the DTC memory (see page 24-31).
3. Read the DTC (see page 24-30).

   Is DTC 81-61, 85-61, 81-62, or 85-62 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

4. Check the connection between the ODS unit harness 18P connector and the ODS unit.

   Is the connection OK?

   YES—Go to step 6.

   NO—Repair the poor connection and retest. If DTC 85-61 or 85-62 is still present, go to step 5.

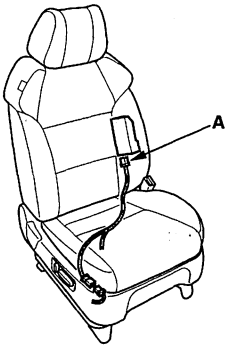
5. Turn the ignition switch OFF.
6. Check the No. 20 (7.5 A) fuse in the under-dash fuse /relay box.

   Is the fuse OK?

   YES—Go to step 7.

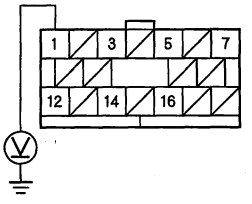
   NO—Replace the fuse, then turn the ignition switch ON (II). If the fuse blows again, check for a short in the No. 20 (7.5 A) fuse circuit (floor wire harness, or ODS unit harness). ■

7. Disconnect the ODS unit harness 18P connector (A) from the ODS unit.



8. Turn the ignition switch ON (II).
9. Measure the voltage between the No. 1 terminal of the ODS unit harness 18P connector and body ground. There should be battery voltage.

ODS UNIT HARNESS 18P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 10.

NO—Open in the floor wire harness, or ODS unit harness; replace the faulty harness. ■

BACK

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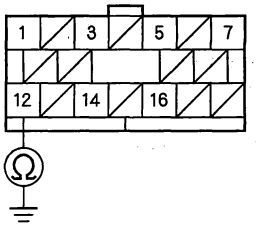
10. Turn the ignition switch OFF.

11. Measure the resistance between the No. 12 terminal of the ODS unit harness 18P connector and body ground. There should be 0—1.0 Ω.

ODS UNIT HARNESS 18P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Go to step 12.

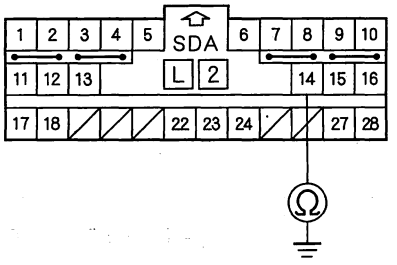
NO—Open in the ODS unit harness, floor wire harness, or poor ground connection at G605 (see page 22-38). If G605 is OK, replace the faulty harness.■

12. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

13. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).

14. Measure the resistance between the No. 14 terminal of SRS unit connector A (28P) and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

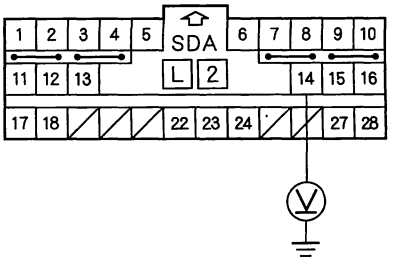
Is the resistance as specified?

YES—Go to step 15.

NO—Short to ground in the dashboard wire harness or floor wire harness; replace the faulty harness.■

15. Turn the ignition switch ON (II), and measure the voltage between the No. 14 terminal of SRS unit connector A (28P) and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the voltage as specified?

YES—Go to step 16.

NO—Short to power in the dashboard wire harness or floor wire harness; replace the faulty harness.■

(cont'd)

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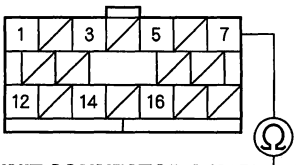
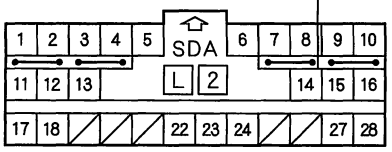
DTC Troubleshooting (cont'd)

16. Measure the resistance between the No. 14 terminal of SRS unit connector A (28P) and the No. 7 terminal of the ODS unit harness 18P connector. There should be 0—1.0 Ω.

ODS UNIT HARNESS 18P CONNECTOR



SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty ODS unit or SRS unit; replace the ODS unit (see page 24-158). If the problem is still present, replace the SRS unit (see page 24-152). ■

NO—Open in the dashboard wire harness or floor wire harness; replace the faulty harness. ■

DTC 81-71, 81-78: ODS Unit does not Calibrate

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is 81-71 or 81-78 indicated?

   YES—Calibrate the ODS unit (see page 24-34). ■

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

BACK

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DTC 85-71, 85-78: ODS Unit does not Initialized

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is 85-71 or 85-78 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Initialize the ODS unit (see page 24-33).
4. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?

   YES—The system is OK. ■

   NO—Replace the ODS unit (see page 24-158). ■

DTC 81-4x ("x" can be 0 thru 9 or A thru F), 81-63, 81-64: Internal Failure of the ODS Unit

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 81-4x, 81-63, or 81-64 indicated?

   YES—Replace the ODS unit (see page 24-158). If the DTC returns, replace the SRS unit (see page 24-152). ■

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

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DTC Troubleshooting (cont'd)

DTC 81-79: Front Passenger's Weight Sensors Drift Check Failure

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 81-79 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Turn the ignition switch OFF.
4. Make sure nothing is on the front passenger's seat.
5. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?

   YES—The system is OK.■

   NO—Remove the front passenger's seat assembly (see page 20-141) and the front passenger's weight sensors (see page 24-157), then reinstall them. Calibrate the ODS unit (see page 24-34). Retry the troubleshooting. If DTC 81-79 is still present, replace the front passenger's weight sensors.■

DTC 82-1x ("x" can be 0 thru 9 or A thru F): No Signal From the Inner Side Front Passenger's Weight Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 82-1x indicated?

   YES—Replace the inner side front passenger's weight sensor (see page 24-157).■

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

BACK

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DTC 83-2x ("x" can be 0 thru 9 or A thru F): No Signal From the Outer Side Front Passenger's Weight Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 83-2x indicated?

   YES—Replace the outer side front passenger's weight sensor (see page 24-157). ■

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

DTC 85-4x ("x" can be 0 thru 9 or A thru F), 85-63, 85-64: Internal Failure of the ODS Unit

NOTE:
- An incorrect ODS unit can cause DTC 85-63.
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC85-4x, 85-5x, 85-63, or 85-64 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Initialize the ODS unit (see page 24-33).
4. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?

   YES—The system is OK. ■

   NO—Replace the ODS unit (see page 24-158) and retest. ■

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DTC Troubleshooting (cont'd)

DTC 85-79: OPDS Sensor Drift Check Failure

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 85-79 indicated?

   YES—Turn the ignition switch OFF, and go to step 3.

   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Make sure nothing is on the front passenger's seat.
4. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?

   YES—The system is OK.■

   NO—Go to step 5.
5. Initialize the ODS unit (see page 24-33).
6. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?

   YES—The system is OK.■

   NO—Replace the ODS unit (see page 24-158) and retest. If the problem is still present, replace the OPDS sensor/seat-back (see page 20-150).■

DTC 86-1x ("x" can be 0 thru 9 or A thru F) Faulty OPDS Seat-Back Sensor

DTC 86-2x ("x" can be 0 thru 9 or A thru F): Faulty OPDS Seat Support Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 86-1x or 86-2x indicated?

   YES—Go to step 3.

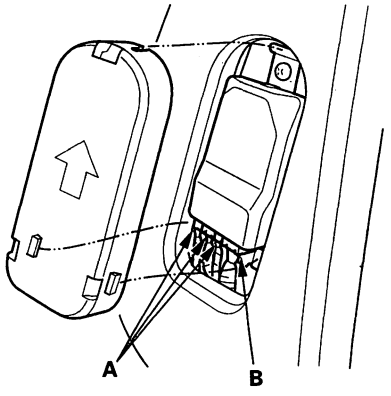
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

   NOTE: Aftermarket devices (fluorescent lights, laptop computers, etc.) used near the front passenger's seat-back can interfere with the seat-back sensors and cause a false DTC 86-1x or 86-2x. If one of these devices was used, erase the DTC, operate the device near the seat-back, and recheck for DTCs. If DTC 86-1x or 86-2x is set, erase it, and do not use the device near the seat-back.

BACK

Protected by AR

3. Check the connection at the OPDS sensor harness connector (A) and the ODS unit connector (B).



Is the connection OK?

YES—Go to step 4.

NO—Repair the poor connection, and clear the DTC.■

4. Replace the OPDS sensor/seat-back foam (see page 20-150), and initialize the ODS (see page 24-33).

5. Erase the DTC memory, then check for DTC 86-1x or 86-2x.

Is DTC 86-1x or 86-2x indicated?

YES—Replace the ODS unit (see page 24-158).■

NO—The system is OK.■

DTC 92-1x ("x" can be 0 thru 9 or A thru F): Short to Power in the Passenger's Airbag Cutoff Indicator

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

Does the SRS indicator stay on, and is DTC 92-1x indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.

3. Disconnect the passenger's airbag cutoff indicator 6P connector (see page 24-161).

4. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

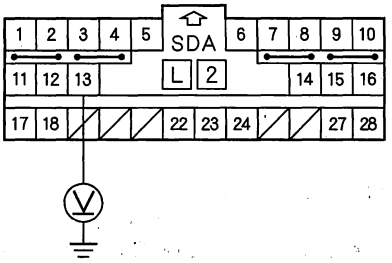
(cont'd)

Protected by AR

DTC Troubleshooting (cont'd)

5. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).
6. Reconnect the negative cable to the battery.
7. Turn the ignition switch ON (II).
8. Measure the voltage between the No. 13 terminal of SRS unit connector A (28P) and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit or passenger's airbag cutoff indicator; replace the passenger's airbag cutoff indicator. If the problem is still present, replace the SRS unit (see page 24-152). ■

NO—Short to power in the dashboard wire harness; replace the dashboard wire harness. ■

DTC 92-2x ("x" can be 0 thru 9 or A thru F): Open or Short to Ground in the Passenger's Airbag Cutoff Indicator

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and DTC 92-2x indicated?

   YES—Go to step 3.

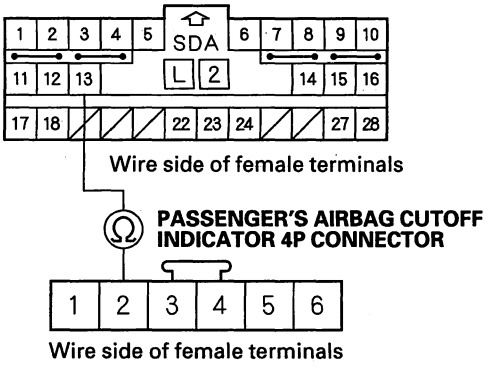
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
3. Disconnect the passenger's airbag cutoff indicator 6P connector (see page 24-161).
4. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.
5. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).

BACK

Protected by AR

6. Measure the resistance between the No. 2 terminal of the passenger's airbag cutoff indicator 6P connector and the No. 13 terminal of SRS unit connector A (28P). There should be 0—1.0 Ω.

SRS UNIT CONNECTOR A (28P)



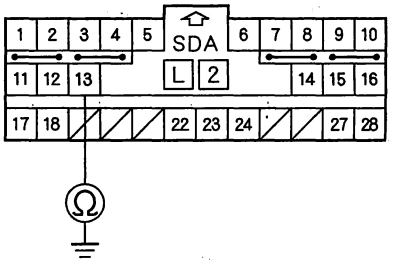
Is the resistance as specified?

YES—Go to step 7.

NO—Open in the dashboard wire harness; replace the dashboard wire harness.■

7. Measure the resistance between the No. 13 terminal of the SRS unit connector A (28P) and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Is the resistance as specified?

YES—Replace the passenger's airbag cutoff indicator. If the problem is still present, replace the SRS unit (see page 24-152).■

NO—Short to ground in the dashboard wire harness; replace the dashboard wire harness.■

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DTC Troubleshooting (cont'd)

DTC A1-1x ("x" can be 0 thru 9 or A thru F): Faulty Power supply (VA Line)

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Erase the DTC memory (see page 24-31).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.
3. Read the DTC (see page 24-30).

   Is DTC A1-1x indicated?

   YES—Go to step 4.

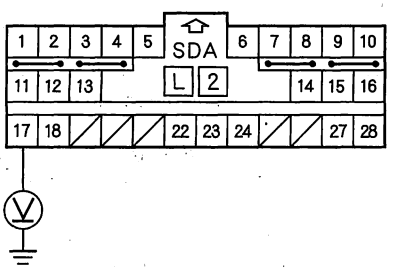
   NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-32). If another DTC is indicated, go to the DTC Troubleshooting Index.
4. Turn the ignition switch OFF.
5. Check the No. 20 (7.5 A) fuse in the under-dash fuse /relay box.

   Is the fuse OK?

   YES—Go to step 6.

   NO—Replace the fuse, then turn the ignition switch ON (II). If the fuse blows again, check for a short in the No. 20 (7.5 A) fuse circuit (dashboard wire harness, floor wire harness, or ODS unit harness).■
6. Disconnect the negative cable from the battery, and wait for 3 minutes.
7. Disconnect the SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).
8. Turn the ignition switch ON (II).
9. Connect a voltmeter between the No. 17 terminal of SRS unit connector A (28P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be battery voltage when the ignition is on.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is there battery voltage?

YES—Faulty SRS unit or poor connection at SRS unit connector (A) 28P and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-152).■

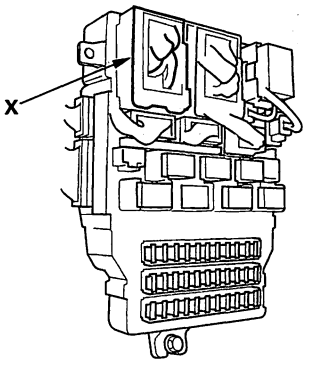
NO—Go to step 10.

BACK

Protected by AR

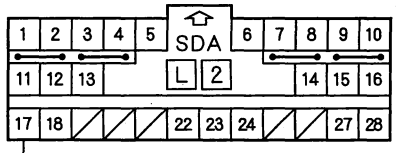
10. Turn the ignition switch OFF.

11. Disconnect under-dash fuse/relay box connector X (39P).



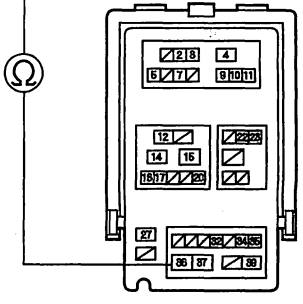
12. Measure the resistance between the No. 36 terminal of under-dash fuse/relay box connector X (39P) and the No. 17 terminal of SRS unit connector A (28P). There should be 0—1.0 Ω.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

UNDER-DASH FUSE/RELAY BOX CONNECTOR X (39P)



Wire side of female terminals

Is the resistance as specified?

YES—Open in the under-dash fuse/relay box or poor contact between connector X (39P) and the under-dash fuse/relay box; check the connection. If the connection is OK, replace the under-dash fuse/relay box (see page 22-72).■

NO—Open in the dashboard wire harness; replace the dashboard wire harness.■

DTC A2-1x ("x" can be 0 thru 9 or A thru F): Faulty Power Supply (VB Line)

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-20).

1. Check the No. 22 (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 11.

   NO—Go to step 2.

2. Replace the No. 22 (10 A) fuse.

3. Turn the ignition switch ON (II) and wait for 30 seconds. Then turn the ignition switch OFF.

4. Check the No. 22 (10 A) fuse.

   Is the fuse OK?

   YES—The system is OK at this time.■

   NO—Go to step 5.

5. Replace the No. 22 (10 A) fuse.

6. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

7. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).

8. Reconnect the negative cable to the battery.

9. Turn the ignition switch ON (II), and wait for 30 seconds. Then turn the ignition switch OFF.

(cont'd)

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DTC Troubleshooting (cont'd)

10. Check the No. 22 (10 A) fuse.

    Is the fuse OK?

    YES—Short to ground in the SRS unit; replace the SRS unit (see page 24-152).■

    NO—Short to ground in the dashboard wire harness or in the under-dash fuse/relay box No. 22 (10 A) fuse line; replace the dashboard wire harness. If the problem is still there, replace the under-dash fuse/relay box (see page 22-72).■

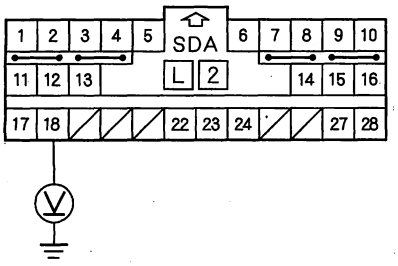
11. Turn the ignition switch OFF. Disconnect the negative cable from the battery, and wait for 3 minutes.

12. Disconnect SRS unit connector A (28P) from the SRS unit (see step 8 on page 24-29).

13. Reconnect the negative cable to the battery.

14. Connect a voltmeter between the No. 18 terminal of SRS unit connector A (28P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be battery voltage with the ignition on.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

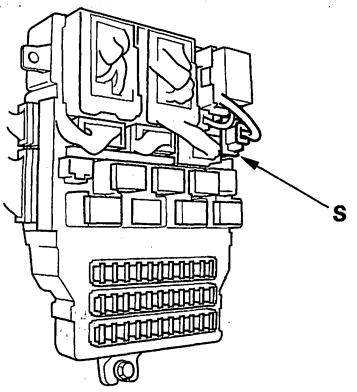
Is there battery voltage?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit; check the connection. If the connection is OK, replace the SRS unit (see page 24-152).■

NO—Go to step 15.

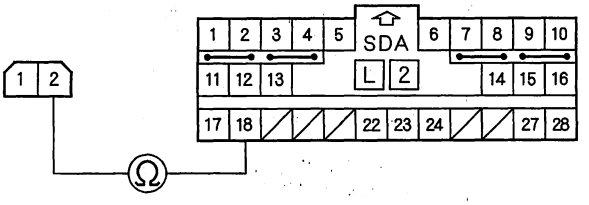
15. Turn the ignition switch OFF.

16. Disconnect under-dash fuse/relay box connector S (2P).



17. Measure the resistance between the No. 1 terminal of the under-dash fuse/relay box connector S (2P) and the No. 18 terminal of SRS unit connector A (28P). There should be 0—1.0 Ω.

UNDER-DASH FUSE/RELAY BOX CONNECTOR S (2P) **SRS UNIT CONNECTOR A (28P)**



Wire side of female terminals

Is the resistance as specified?

YES—Open in the under-dash fuse/relay box or poor connection between connector S (2P) and the under-dash fuse/relay box; check the connection. If the connection is OK, replace the under-dash fuse/relay box (see page 22-72).■

NO—Open in the dashboard wire harness; replace the dashboard wire harness.■

BACK

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Symptom Troubleshooting

SRS indicator does not come on

1. Connect the HDS to the DLC (see page 24-30).
2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit (see page 11-223).
4. Check for PGM-FI, Body Electrical, and SRS DTCs with the HDS.

   Are there any PGM-FI, Body Electrical, or SRS DTCs?

   YES—Go to the indicated DTCs troubleshooting.

   NO—Go to step 5.
5. Do the gauge control module self-diagnostic function (see page 22-315).

   Does the SRS indicator come on?

   YES—Faulty SRS unit; replace the SRS unit (see page 24-152).■

   NO—Faulty gauge control module; replace the gauge control module (see page 22-337).■

SRS indicator stays on, but no DTCs are stored

1. Connect the HDS to the DLC (see page 24-30).
2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit (see page 11-223).
4. Select Body Electrical ststus with the HDS.
5. Check for DTCs in the Gauge Menu with the HDS.

   Is DTC B1187 indicated?

   YES—Go to the DTC B1187 troubleshooting.

   NO—Go to step 6.
6. Check that the HDS communicate with the SRS unit.

   Does the HDS communicate with the SRS unit?

   YES—Go to step 7.

   NO—If the HDS does not communicate with the SRS unit, check for power and ground at SRS unit connector A (28P). If power and ground are still present, replace the SRS unit (see page 24-152).■
7. From the HDS System Menu, select SRS, then SRS in Mode Menu, PARAMETER INFORMATION, then SCS, MES, Indicator. Read the current status of the SRS indicator.

   Is the status ON?

   YES—Faulty SRS unit; replace the SRS unit (see page 24-152).■

   NO—Faulty gauge control module; replace the gauge control module (see page 22-337).■

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Symptom Troubleshooting (cont'd)

Side airbag cutoff indicator stays on

1. Make sure nothing is on the front passenger's seat.
2. Make sure the seat-back is dry.
3. Turn the ignition switch ON (II), and see if the SRS indicator comes on.

   Does the SRS indicator come on?

   YES—Go to the Symptom Troubleshooting "SRS indicator stay on".

   NO—Go to step 4.
4. Connect the HDS to the DLC (see page 24-30).
5. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit (see page 11-223).
6. From the Main Menu on the HDS, select SRS, then PARAMETER INFORMATION. In the PARAMETER INFORMATION Menu, select "SCS, MES, Indicator," and read what is screen on the HDS.

   Is OFF indicated on the HDS?

   YES—Faulty gauge contorol module; replace the gauge control module (see page 22-337).■

   NO—Faulty SRS unit; replace the SRS unit (see page 24-152).■

Side airbag cutoff indicator does not come on

NOTE: If the SRS indicator also stays on, go to SRS indicator stays on, but no DTCs are stored (see page 24-131).

1. Turn the ignition switch ON (II), and check that the side airbag cutoff indicator comes on for about 6 seconds.

   Does the side airbag cutoff indicator come on?

   YES—Go to the Symptom Troubleshooting "SRS indicator stay on."

   NO—Go to step 2.
2. Connect the HDS to the DLC (see page 24-30).
3. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not troubleshoot the DLC circuit (see page 11-223).
4. Do the self diagnostic function with the HDS.

   Does the side airbag cutoff indicator come on?

   YES—Faulty SRS unit; replace the SRS unit (see page 24-152).■

   NO—Faulty gauge control module; replace the gauge control module (see page 22-337).■

BACK

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Passenger's airbag cutoff indicator stays on or comes on suddenly

NOTE: Under the following conditions, the passenger's airbag cutoff indicator stays on or comes on suddenly.
- No one is sitting the front passenger's seat, but there is an object on the seat more than 5 kg (11 lbs).
- The seat belt is buckled, but no one is sitting on the front passenger's seat.
- Someone who is less than 30 kg (66 lbs) is sitting on the front passenger's seat.

1. Check for these items, then recheck the passenger's airbag cutoff indicator.

   - The front passenger's seat is installed correctly.
   - Nothing is/was on the front passenger's seat.
   - Nothing is/was under the front paseenger's seat.
   - Nothing is/was in the front paseenger's seat-back pocket.
   - Whoever was sitting on the front passenger's seat was sitting in the proper sitting position.
   - Someone who is more than 30 kg (66 lbs) but is supporting some of their body weight on their legs, feet, arms, or hands.

   Does the passenger's airbag cutoff indicator stay on?

   YES—Go to step 2.

   NO—Troubleshooting is complete.■

2. Connect the HDS to the DLC (see page 24-30).

3. Turn the ignition switch ON (II).

4. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit (see page 11-223).

5. Select the INSPECTION menu on the HDS, then select AFTER REPLACING FRONT PASSENGER'S SEAT COMPONENT(S), and follows the problems.

   Does the passenger's airbag cutoff indicator stay on?

   YES—Go to step 6.

   NO—Troubleshooting is complete.■

6. Select the INSPECTION menu on the HDS, then select AFTER A VEHICLE COLLISION, and follows the prompts.

   Does the passenger's airbag cutoff indicator stay on?

   YES—Faulty SRS unit; replace the SRS unit (see page 24-152).■

   NO—Troubleshooting is complete.■

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Component Replacement/Inspection After Deployment

NOTE:
- Before doing any SRS repairs, use the HDS SRS menu method to check for DTCs; refer to the DTC Troubleshooting Index for the less obvious deployed parts (seat belt tensioners, front impact sensors, side airbag sensors, etc.)
- Do not replace the ODS unit unless it is physically damaged or a specific fault was found during DTC troubleshooting.

After a collision where the seat belt tensioners deployed, replace these items:
- SRS unit
- Seat belt tensioners
- Front impact sensors

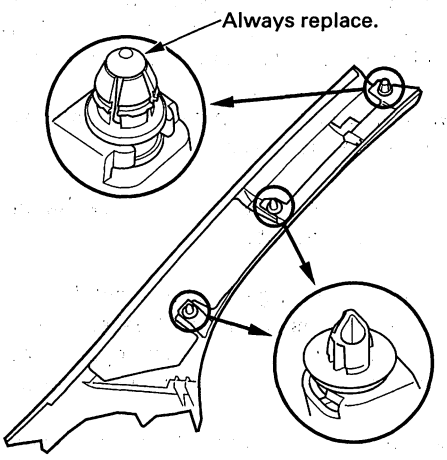
After a collision where the front airbag(s) deployed, replace these items:
- SRS unit
- Deployed airbag(s)
- Seat belt tensioners
- Front impact sensors

After a collision where the side airbag(s) deployed, replace these items:
- SRS unit
- Deployed side airbag(s)
- Reinforcing cloth rear hooks
- Side impact sensor(s) (first) for the side(s) that deployed
- Side impact sensor(s) (second) for the side(s) that deployed
- B-pillar lower trim
- Complete seat frame

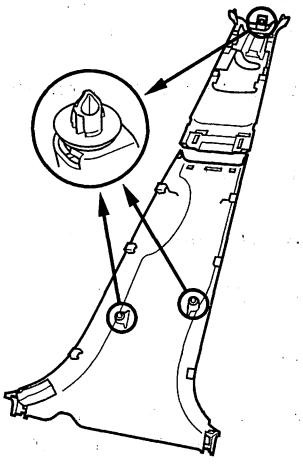
After a collision where the side curtain airbag(s) deployed, replace these items:
- SRS unit
- Deployed side curtain airbag(s)
- Seat belt tensioner(s) for the side(s) that deployed
- Side impact sensor(s) (first) for the side(s) that deployed
- Side impact sensor(s) (second) for the side(s) that deployed
- Satellite safing sensor
- Roll rate sensor
- Roof trim
- A-pillar trim
- B-pillar upper trim
- Quarter pillar trim
- Front grab handle
- Rear grab handle
- All related trim clips
- Sunvisor

After a moderate to severe side or rear collision, inspect for any damage on the side curtain airbag or other related components. Replace components as needed.

A-pillar trim



B-pillar trim



BACK

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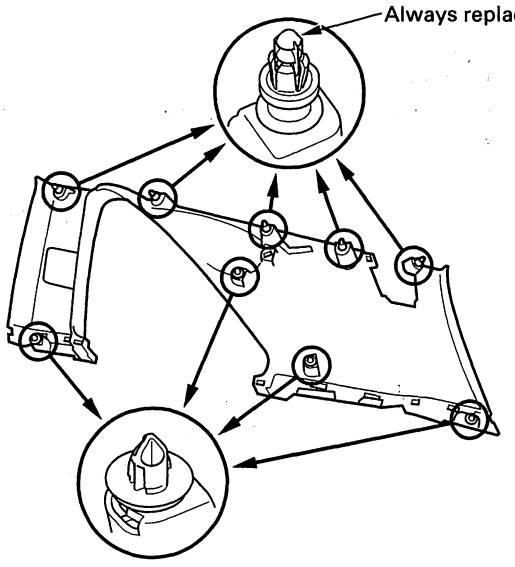
C-Pillar trim



During the repair process, inspect these areas:
- Inspect all the SRS wire harnesses. Replace, do not repair, any damaged harnesses.
- Inspect the cable reel for heat damage. If there is any damage, replace the cable reel.

After the vehicle is completely repaired, turn the ignition switch ON (II). If the SRS indicator comes on for about 6 seconds and then goes off, the SRS is OK. If the indicator does not function properly, use the HDS SRS Menu Method to read the DTC (see page 24-30). If you cannot retrieve a code, go to SRS Symptom Troubleshooting.

(cont'd)

BACK

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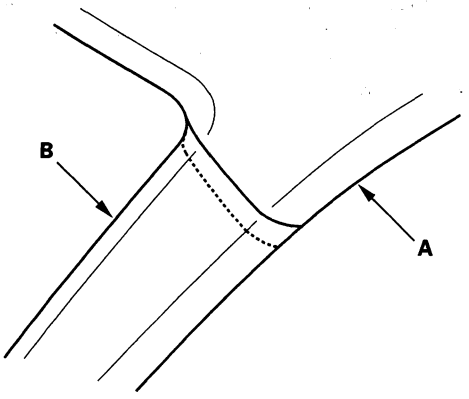
Component Replacement/Inspection After Deployment (cont'd)

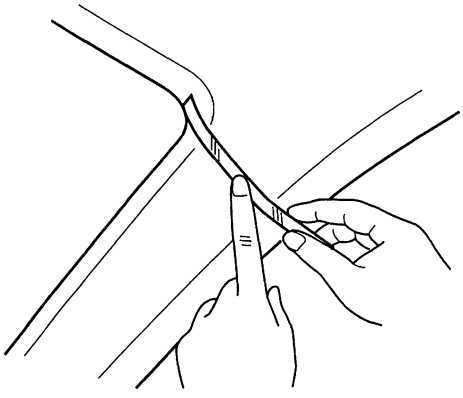
Checking and Adjusting the Headliner/Pillar Trim Overlap

To prevent the side curtain airbag from deploying and damaging the pillar trim, the overlap between the headliner and pillar trim must be less then 0.3 in. (8 mm). To check the overlap, do this:

1. Install the headliner (A) and the pillar trim (B).

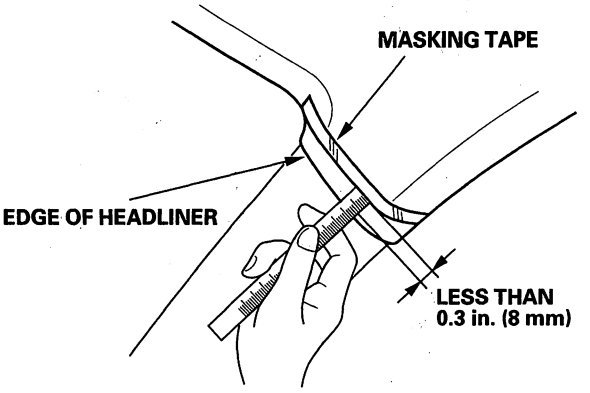


2. Using masking tape on the headliner, mark the upper edge of each pillar trim.

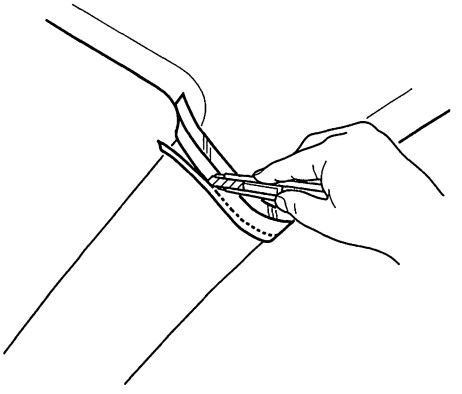


3. Remove the pillar trim, and measure the headliner overlap.

   - If the overlap is less than 0.3 in. (8 mm), remove the tape, and install the pillar trim.
   - If the overlap is more than 0.3 in. (8 mm), go to step 4.



4. Carefully trim the headliner with a utility knife, reducing the overlap to less than 0.3 in. (8 mm).



5. Remove the tape, and install the pillar trim.

BACK

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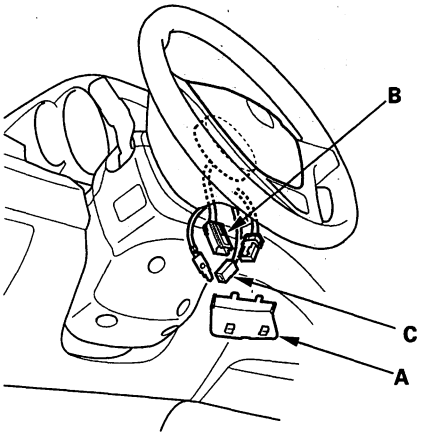
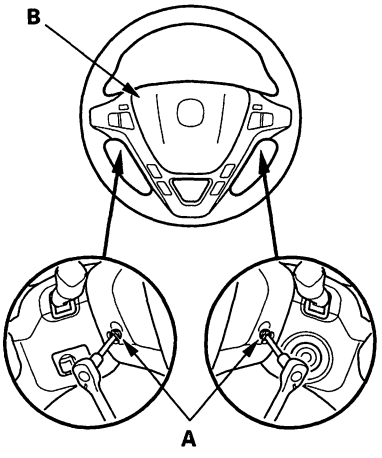
Driver's Airbag Replacement

Removal

1. Disconnect the negative cable from the battery and wait at least 3 minutes before beginning work.
2. Remove the access panel (A) from the steering wheel, then disconnect the driver's airbag 4P connector (B) and horn switch 1P connector (C) from the cable reel.



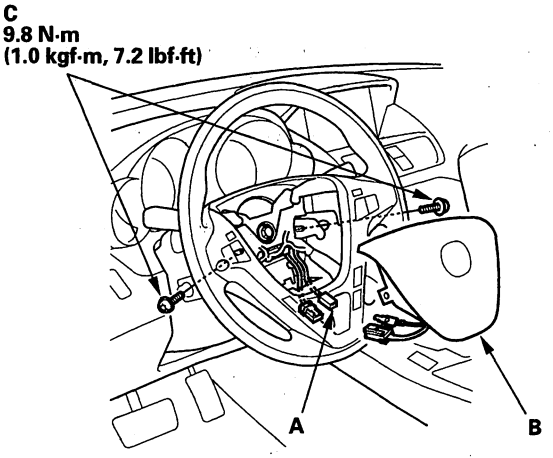
3. Using a TORX T30 bit, remove the two TORX bolts (A).



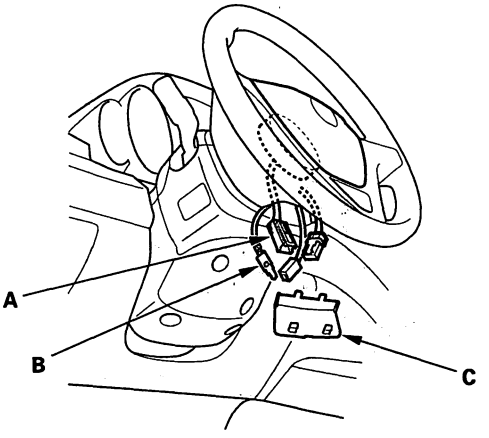
4. Remove the driver's airbag (B).

Installation

1. Connect the horn switch connector (1P) (A) to the driver's airbag (B).



2. Place the driver's airbag in the steering wheel, and secure it with new TORX bolts (C).
3. Connect the cable reel 4P connector (A) to the driver's airbag 4P connector and horn switch 1P connector (B), then install the access panel (C) on the steering wheel.



4. Connect the negative cable from the battery.
5. After installing the airbag, confirm proper system operation:
   - Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
   - Make sure the horn works.

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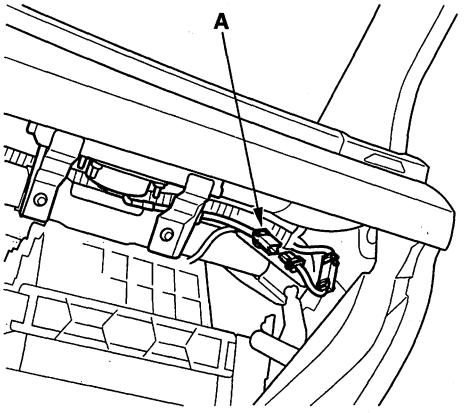
Front Passenger's Airbag Replacement

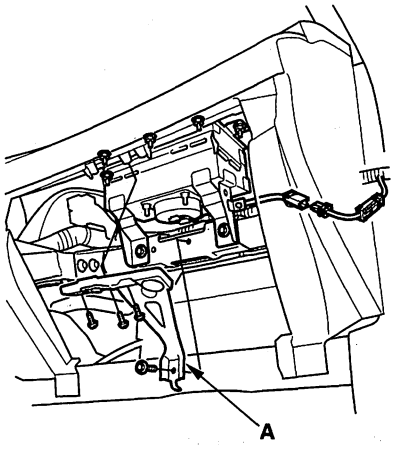
Removal

NOTE: If the front passenger's airbag has been deployed, refer to the install for after a collision where the front passenger's airbag deployed.

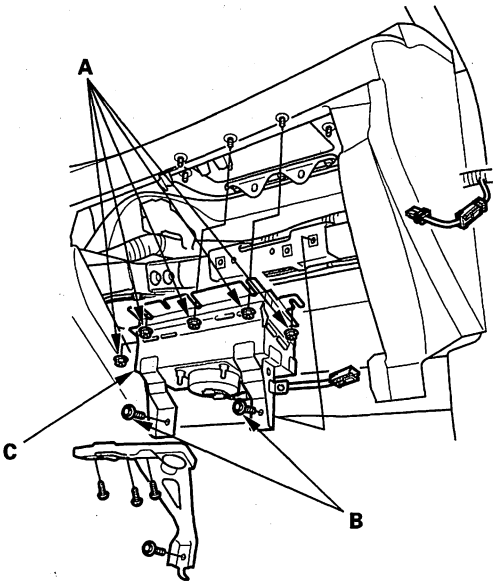
1. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.
2. Remove the glove box (see page 20-125).
3. Disconnect the front passenger's airbag 4P connector (A) from dashboard wire harness.



4. Remove the bracket (A).



5. Remove the mounting nuts (A) and mounting bolts (B) from the bracket. Remove the front passenger's airbag (C).

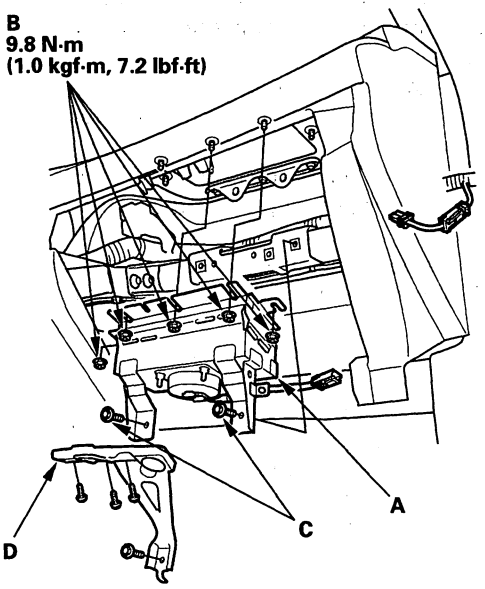


BACK

Protected by AR

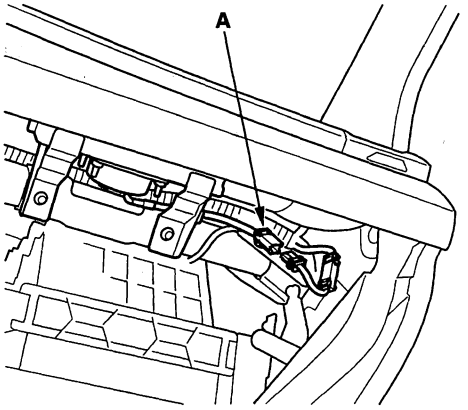
Installation

1. Place the new front passenger's airbag (A) into the bracket. Tighten the front passenger's airbag mounting nuts (B) and mounting bolts (C).



2. Reinstall the bracket (D).

3. Connect the front passenger's airbag 4P connector (A) to dashboard wire harness, then reinstall the glove box (see page 20-125).



4. Reconnect the negative cable to the battery.

5. Connect the HDS and clear the DTCs.

6. After installing the airbag, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Protected by AR

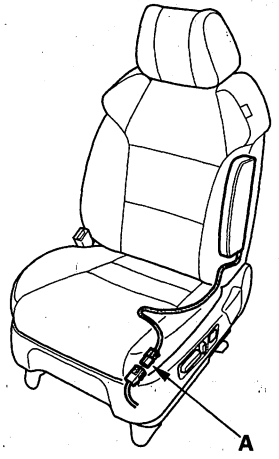
Side Airbag Replacement

NOTE: Review the seat replacement procedure before performing repairs or service (see page 20-141).

Removal

1. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.

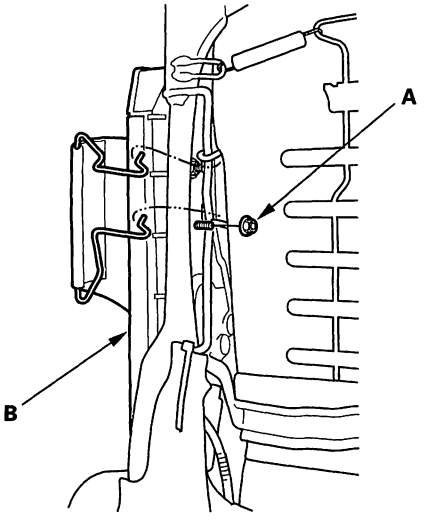
2. Disconnect the side airbag harness 2P connector (A).



3. Remove the seat assembly (see page 20-141) and seat-back cover (see page 20-150).

   NOTE: If you are replacing a deployed airbag, replace the reinforcing cloth rear hooks.

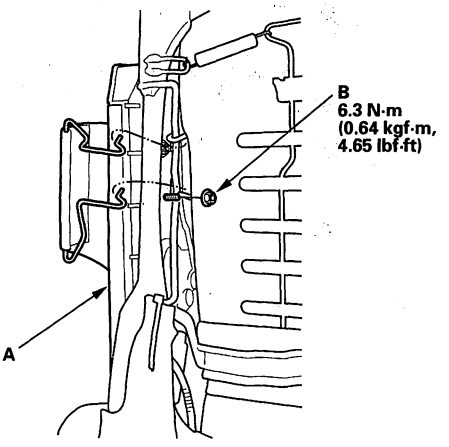
4. Remove the mounting nut (A) and the side airbag (B).



Installation

NOTE:
- If the side airbag lid is secured with tape, remove the tape.
- Do not open the lid on the side airbag cover.
- Use new mounting nuts tightened to the specified torque.
- Make sure that the seat-back cover is installed properly. Improper installation may prevent proper deployment.
- Be sure to install the harness wires so that they are not pinched or interfering with other parts.

1. Place the new side airbag on the seat-back frame (A). Tighten the new side airbag mounting nut (B).



2. Install the seat-back cover in the reverse order of removal (see page 20-150).

   NOTE: If you are replacing a deployed airbag, replace the reinforcing cloth rear hooks.

3. Install the seat assembly (see page 20-141), then connect the side airbag harness 2P connector.

4. Move the front seat and the seat-back through their full ranges of movement, making sure the harness wires are not pinched or interfering with other parts.

5. Reconnect the negative cable to the battery.

6. Connect the HDS, and clear the DTCs (see page 24-31).

7. After installing the side airbag, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

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Side Curtain Airbag Replacement

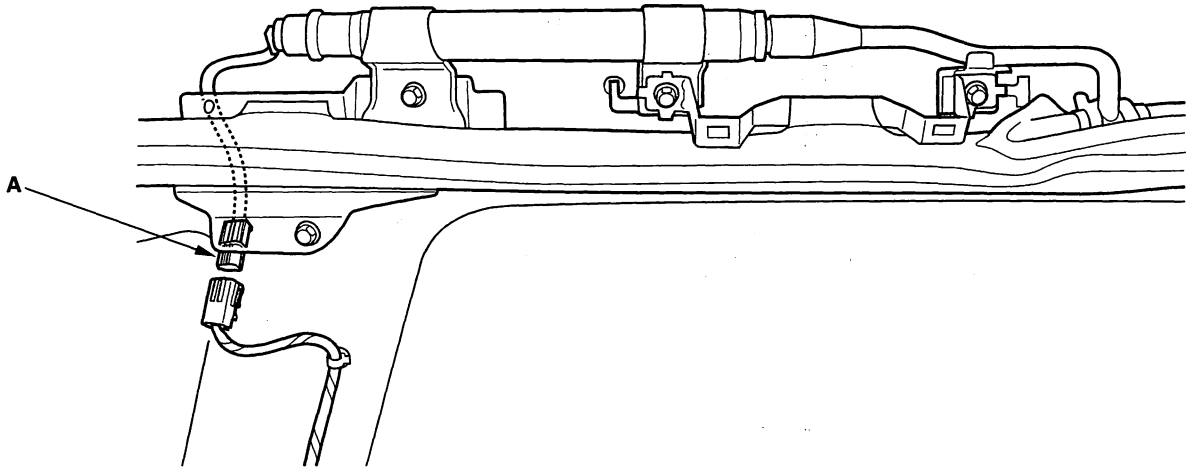
Removal

NOTE:
- Review the interior trim replacement procedure before performing repair or service (see page 20-85).
- Removal of the side curtain airbag must be performed according to the precautions/procedures described at the beginning of the SRS section (see page 24-20).
- The side curtain airbag system consists of the side curtain airbag module, including the roof trim, front grab handle, rear grab handle, all grab handle brackets and shielding protector. After the side curtain airbag has been deployed, replace these parts (see page 20-134).

1. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.

2. Remove the headliner (see page 20-101).

3. Disconnect the side curtain airbag 2P connector (A) from the floor wire harness.



Left side shown; right side is similar.

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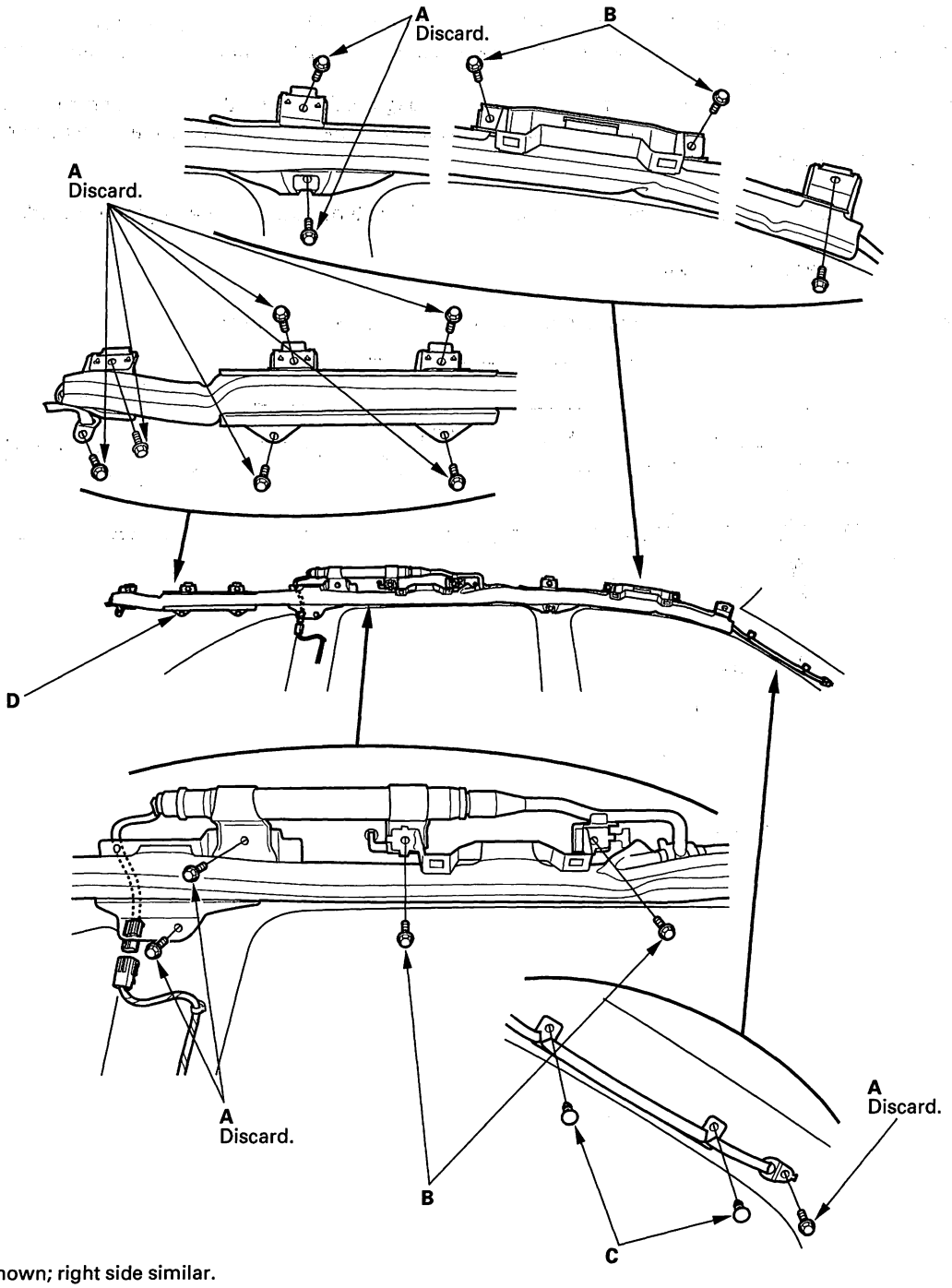
Side Curtain Airbag Replacement (cont'd)

4. Remove the mounting bolts (A) and mounting bols (B) from the bracket. Detach the clips (C), then remove the side curtain airbag (D).



Left side shown; right side similar.

BACK

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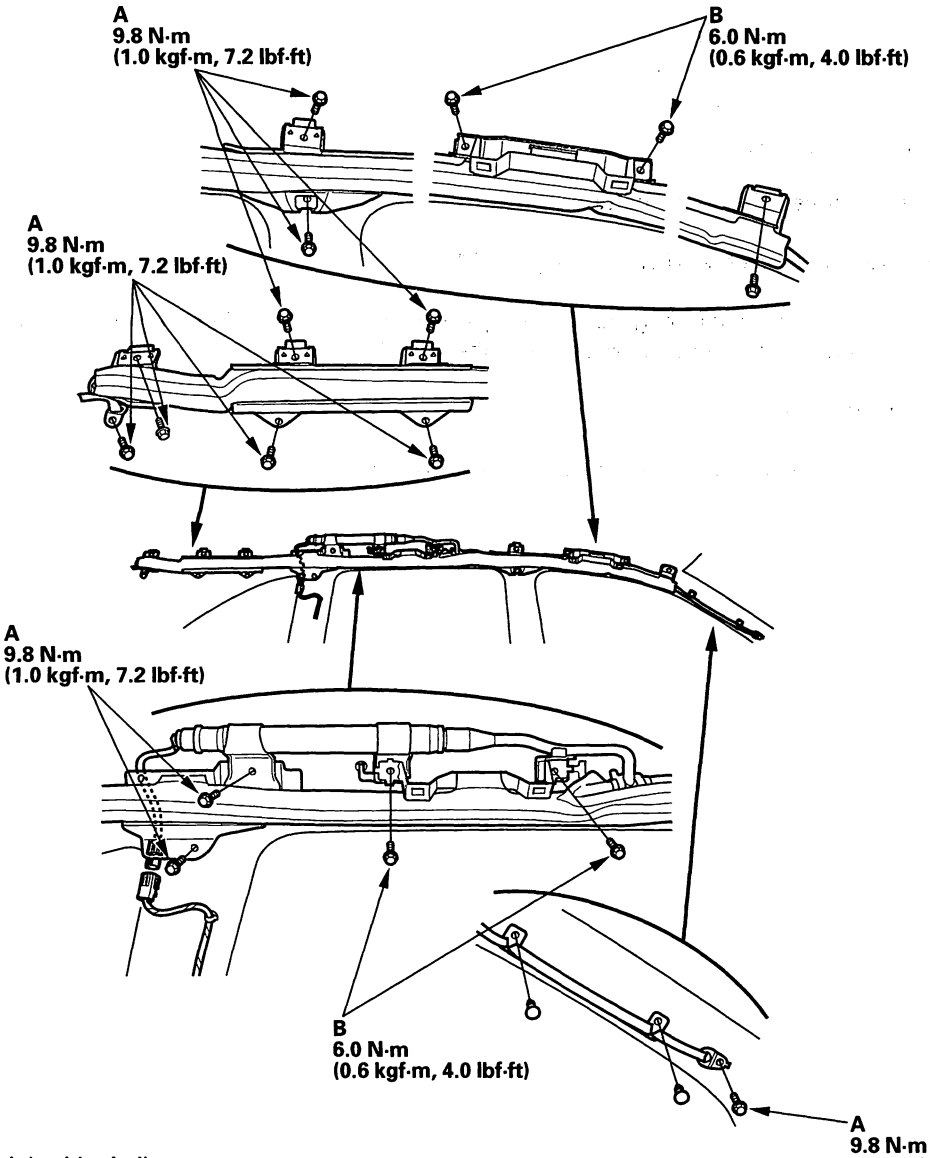
Installation

NOTE:
- Installation of the side curtain airbag must be performed according to the precautions/procedures described at the beginning of the SRS section (see page 24-20).
- If the airbag is frayed, or has any other visible damage, replace it. Do not attempt to repair an airbag.
- When you install the airbag, make sure it is not twisted, and that it is not caught between the inflator bracket by the bracket bolts.
- Make sure that the side curtain airbag inflator retainer is installed properly. Otherwise the airbag could accidentally deploy and cause damage or injuries.

1. Place the new side curtain airbag assembly on the side of the roof. Tighten the side curtain airbag mounting bolts (A) and mounting bolts (B).



Left side shown; right side similar.

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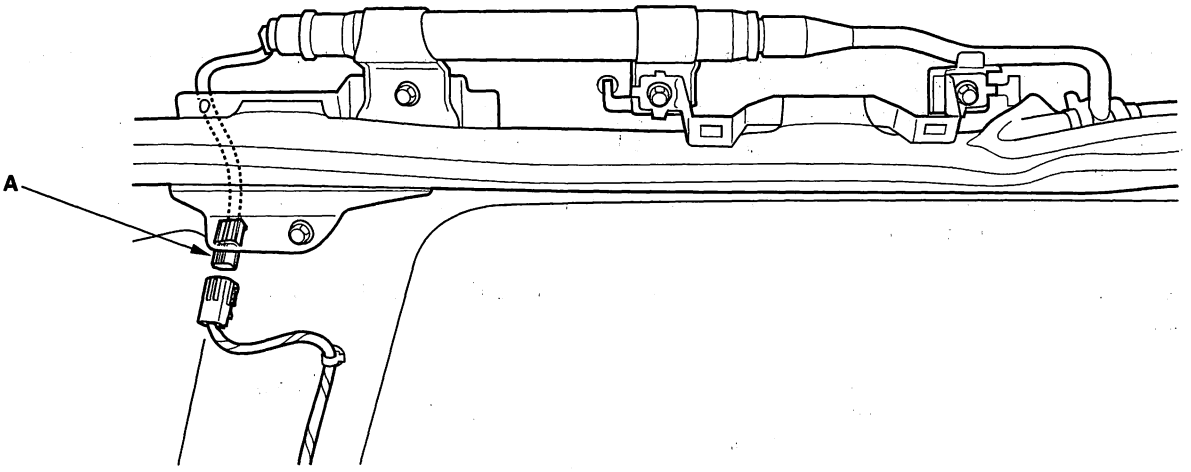
Side Curtain Airbag Replacement (cont'd)

2. Connect the side curtain airbag 2P connector (A) to the floor wire harness.



Left side shown; right side is similar.

3. Reconnect the negative cable to the battery.
4. Connect the HDS, and erase the DTCs (see page 24-31).
5. After installing the side curtain airbag, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
6. Install all removed parts.
7. Confirm proper headliner/pillar trim overlap (see page 24-136).

BACK

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Airbag and Tensioner Disposal

Special Tools Required
Deployment tool 07HAZ-SG00500

Before scrapping any airbags, side airbags, side curtain airbags, seat belt tensioners, or lap belt tensioner (including those in a whole vehicle to be scrapped), the part(s) must be deployed. If the vehicle is still within the warranty period, the Acura District Parts and Service Manager must give approval and/or special instruction before deploying the part(s). Only after the part(s) have been deployed (as the result of vehicle collision, for example), can they be scrapped.
If the parts appear intact (not deployed), treat them with extreme caution. Follow this procedure.

Deploying Airbags in the Vehicle

If an SRS equipped vehicle is to be entirely scrapped, its airbags, side airbags, side curtain airbags, seat belt tensioners, and lap belt tensioner should be deployed while still in the vehicle. These parts should not be considered as salvageable parts and should never be installed in another vehicle.

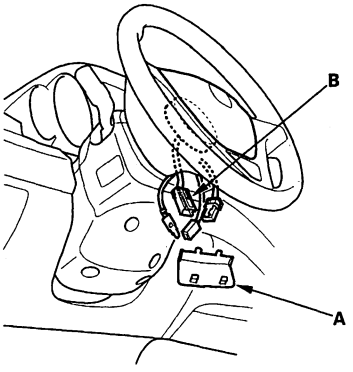
1. Turn the ignition switch OFF, then disconnect the negative cable from the battery, and wait at least 3 minutes.

2. Confirm that each airbag, side airbag, side curtain airbag, seat belt tensioner, or lap belt tensioner is securely mounted.

3. Confirm that the deployment tool is functioning properly by following the check procedure on the tool label.

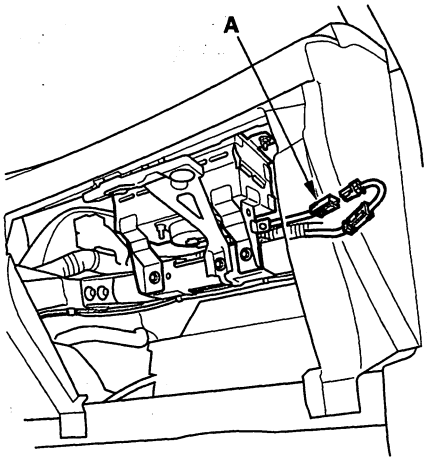
Driver's Airbag

4. Remove the access panel (A) from the steering wheel then disconnect the driver's airbag 4P connector (B) from the cable reel.



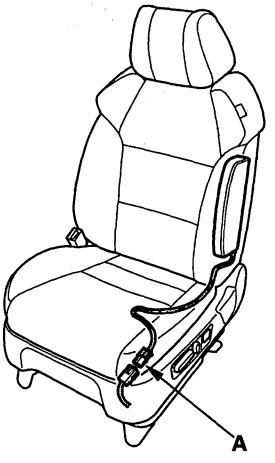
Front Passenger's Airbag

5. Remove the glove box, then disconnect the front passenger's airbag 4P connector (A) from the dashboard wire harness.



Side Airbag

6. Disconnect the side airbag 2P connector (A) from the floor wire harness.



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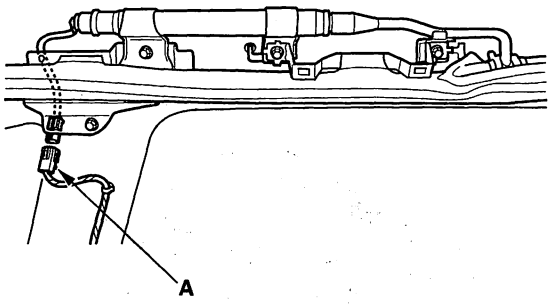
Airbag and Tensioner Disposal (cont'd)

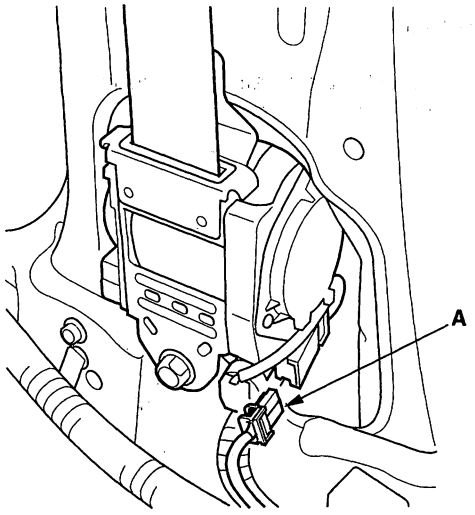
Side Curtain Airbag

7. Disconnect the floor wire harness 2P connector (A) from the side curtain airbag.



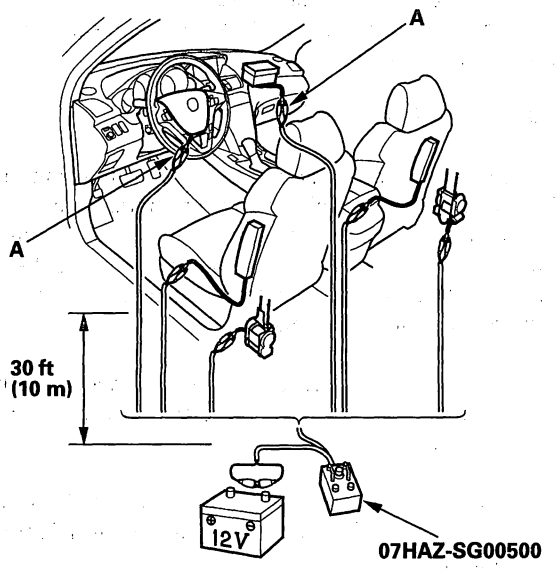
Seat Belt Tensioner

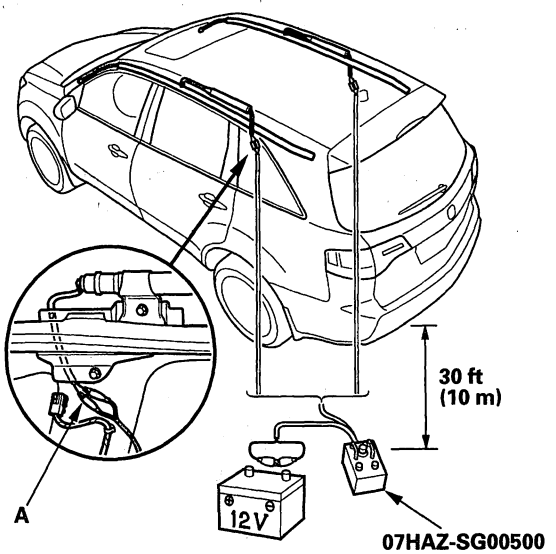
8. Disconnect the floor wire harness 4P connector (A) from the seat belt tensioner. Pull the seat belt out all the way and cut it.



9. Cut off each connector, and strip the ends of the wires. Twist each pair of unlike colored wires together, and clip an alligator clip (A) from the deployment tool to each pair. Place the deployment tool at least 30 feet (10 meters) away from the vehicle.

   NOTE: The driver's and front passenger's airbags have dual inflators. Twist each pair of unlike colored wires together, and clip an alligator clip to each pair.





BACK

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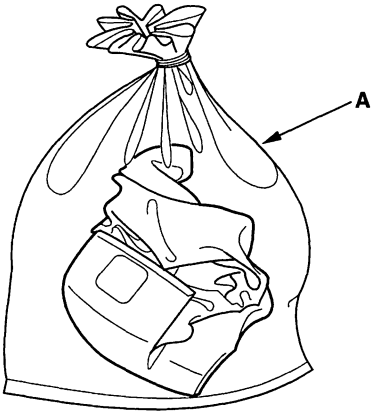
10. Connect a 12 volt battery to the tool.

    - If the green light on the tool comes on, the igniter circuit is defective and cannot deploy the component. Go to Disposal of Damaged Components.
    - If the red light on the tool comes on, the component is ready to be deployed.

11. Push the tool's deployment switch. The airbags and tensioners should deploy (deployment is both highly audible and visible: A loud noise and rapid inflation of the bag, followed by slow deflation).

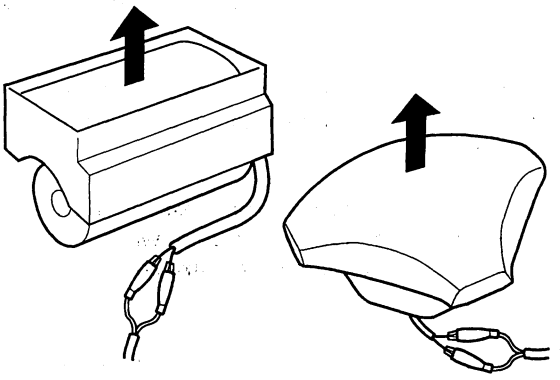
    - If the components deploy and the green light on the tool comes on, continue with this procedure.
    - If a component does not deploy, and the green light comes ON, its igniter is defective. Go to Disposal of Damaged Components.
    - During deployment, the airbags can become hot enough to burn you. Wait 30 minutes after deployment before touching the airbags.

12. Dispose of the complete airbag. No part of it can be reused. Place it in a sturdy plastic bag (A), and seal it securely. Dispose of the deployed airbag according to your local regulations.



Deploying Components Out of the Vehicle

If an intact airbag or tensioner has been removed from a scrapped vehicle, or has been found defective or damaged during transit, storage, or service, it should be deployed as follows:



1. Confirm that the deployment tool is functioning properly by following the check procedure Deploying Airbags in the Vehicle on the tool label.

2. Position the airbag face up, outdoors, on flat ground, at least 30 feet (10 meters) from any obstacles or people.

3. Follow steps 9 through 12 of the in-vehicle deployment procedure.

   NOTE: The driver's and front passenger's airbags have dual inflators. Twist each pair of unlike colored wires together, and clip an alligator clip to each pair.

(cont'd)

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Airbag and Tensioner Disposal (cont'd)

Disposal of Damaged Components

1. If installed in a vehicle, follow the removal procedure for the driver's airbag (see page 24-137), front passenger's airbag (see page 24-138), side airbag (see page 24-140), side curtain airbag (see page 24-141), and seat belt tensioner (see page 24-4).

2. In all cases, make a short circuit by cutting, stripping, and twisting together the two inflator wires.

   NOTE: The driver's and front passenger's airbags have dual inflators. The like color wires go to the individual inflators. Twist the like colored wires together.

3. Package the component in exactly the same packaging that the new replacement part came in.

4. Mark the outside of the box "DAMAGED AIRBAG NOT DEPLOYED," "DAMAGED SIDE AIRBAG NOT DEPLOYED," "DAMAGED SIDE CURTAIN AIRBAG NOT DEPLOYED," "DAMAGED SEAT BELT TENSIONER NOT DEPLOYED" so it does not get confused with your parts stock.

5. Contact your Acura District Parts and Service Manager for instructions on how and where to return it for disposal.

Deployment Tool Check

1. Connect the yellow clips to both switch protector on to a vehicle battery.

2. Then connect the red lead to the positive battery post and the black lead to the negative battery post.

3. Push the operation switch: The green light should come on, indicating that the tool is operating properly and is ready for use. If the red light stays on, the tool is faulty, and another one must be used for the procedure.

4. Disconnect the tool and connectors from the protector handles and the battery.

BACK

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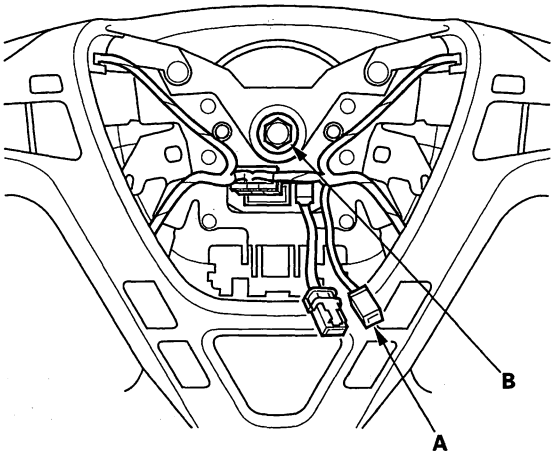
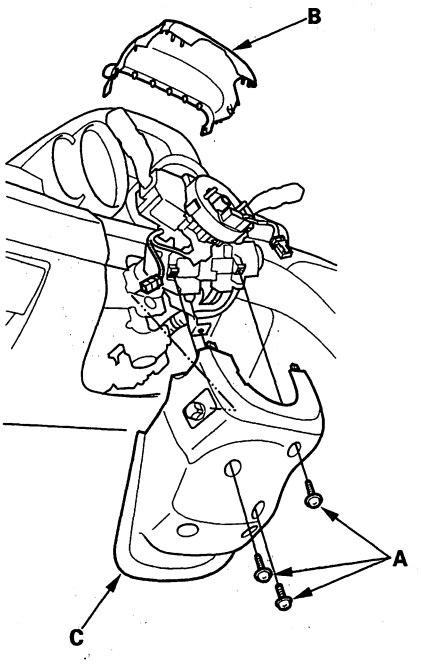
Cable Reel Replacement

Removal

1. Make sure the front wheels are aligned straight ahead.
2. Disconnect the negative cable from the battery, and wait at least 3 minutes.
3. Remove the driver's airbag (see page 24-137).
4. Disconnect the connector (A) from the cable reel, then remove the steering wheel bolt (B).



5. Confirm that the front wheels point straight ahead, then remove the steering wheel with a steering wheel puller (see step 6 on page 17-22).
   Do not tap on the steering wheel or steering column shaft when removing the steering wheel.
6. Remove the column cover screws (A), then remove the column covers (B, C).

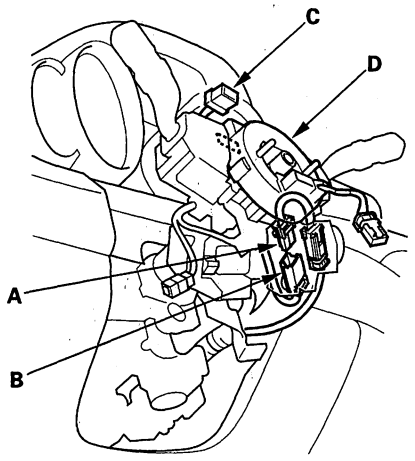


(cont'd)

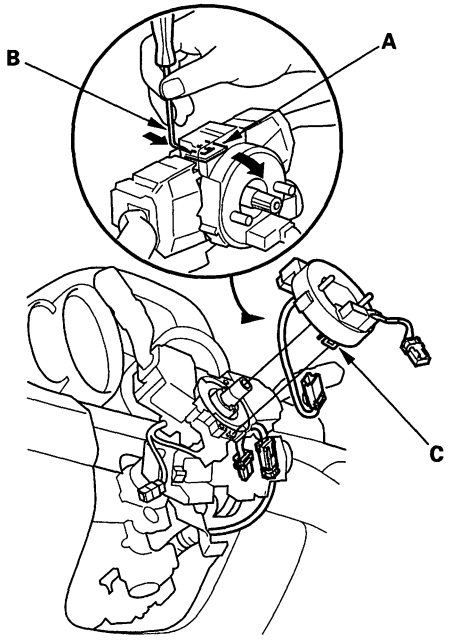
Protected by AR

Cable Reel Replacement (cont'd)

7. Disconnect the dashboard wire harness 4P connector (A) from the cable reel 4P connector (B), then disconnect the dashboard wire harness 20P connector (C) from the cable reel (D).

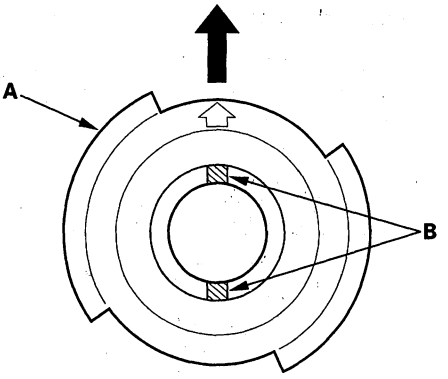


8. Release the lock tab (A) under the cable reel connector with a 90 ° hook shaped tool (B). Slide the tool below the cable reel connector just above the lock tab. Release the lower lock tab (C), and slide the cable reel off the column.

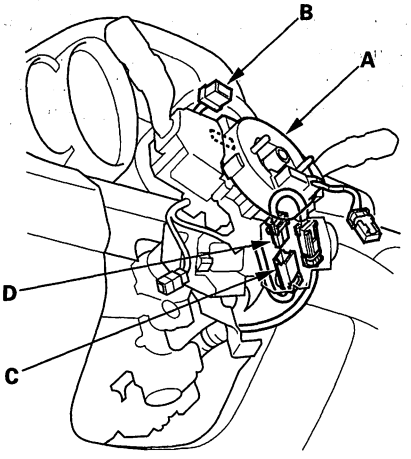


Installation

1. Before installing the steering wheel, align the front wheels straight ahead.
2. If not already done, disconnect the negative cable from the battery, and wait at least 3 minutes.
3. Set the turn signal canceling sleeve (A) so that the projections (B) are aligned vertically.



4. Carefully install the cable reel (A) on the steering column shaft. Then connect 13P or 5P connector (B) to the cable reel, and connect the 4P connector (C) to the dashboard wire harness 4P connector (D).

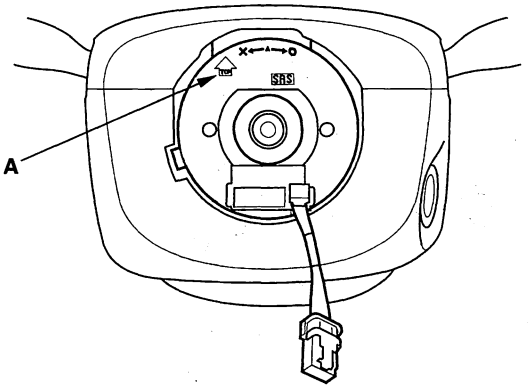


BACK

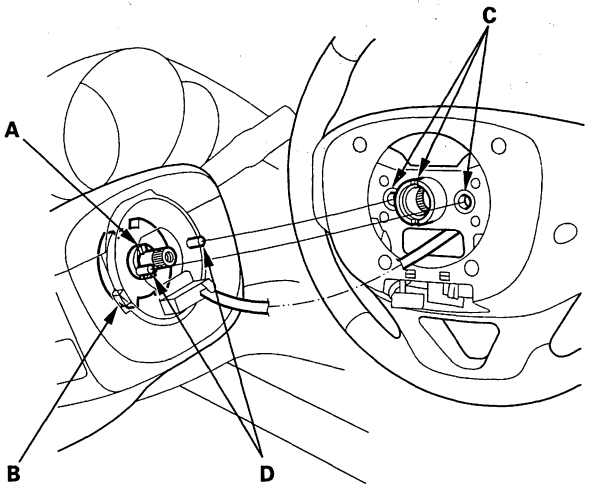
Protected by AR

5. Install the steering column covers.

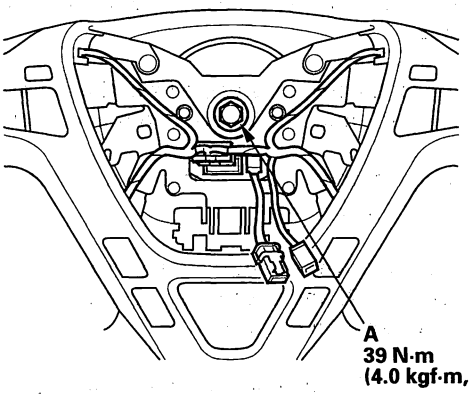
6. If necessary, center the cable reel (New replacement cable reels come centered.). Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise (about three turns) until the arrow mark (A) on the cable reel label points straight up.



7. Position the two tabs (A) of the turn signal canceling sleeve (B) as shown, and install the steering wheel on to the steering column shaft, making sure the steering wheel hub (C) engages the pins (D) of the cable reel and tabs of the turn signal canceling sleeve. Do not tap on the steering wheel or steering column shaft when installing the steering wheel.



8. Install a new steering wheel bolt (A), then reconnect the connectors.



9. Install the driver's airbag (see page 24-137).

10. Reconnect the negative cable to the battery.

11. After installing the cable reel, confirm proper system operation:

- Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
- After the SRS indicator has turned off, turn the steering wheel fully left and right to confirm the SRS indicator does not come on.
- Make sure the horn works.
- Make sure the cruise control buttons work.
- Make sure the steering wheel audio controls works.
- Make sure the INFO/SEL buttons works.

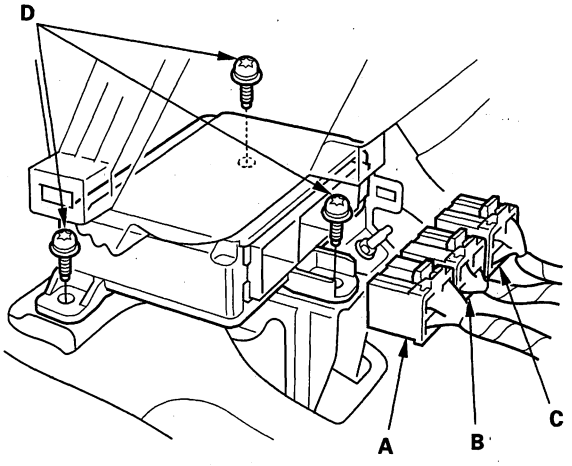
Protected by AR

SRS Unit Replacement

Removal

NOTE: If you are only disconnecting SRS unit connector A, skip step 2.

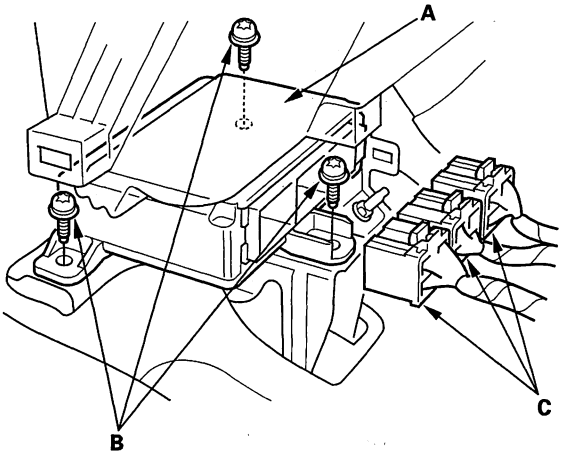
1. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.
2. Disconnect both seat belt tensioner connectors (see step 7 on page 24-29).
3. Remove the driver's center console trim (see step 5 on page 20-107) and passenger's center console trim (see step 6 on page 20-107).
4. Disconnect SRS unit connector A, connector B, connector C, and remove the TORX bolts (D), then pull out the SRS unit.



Installation

1. Install the new SRS unit (A) with new TORX bolts (B), then connect the connectors (C) to the SRS unit; push them into position until they click.

   NOTE: Be sure the SRS unit is sitting squarely against it's bracket before torquing the TORX bolt.



2. Reconnect both seat belt tensioner connectors (see step 8 on page 24-29).
3. Reconnect the negative cable to the battery.
4. After installing the SRS unit, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
5. Reinstall all removed parts.

BACK

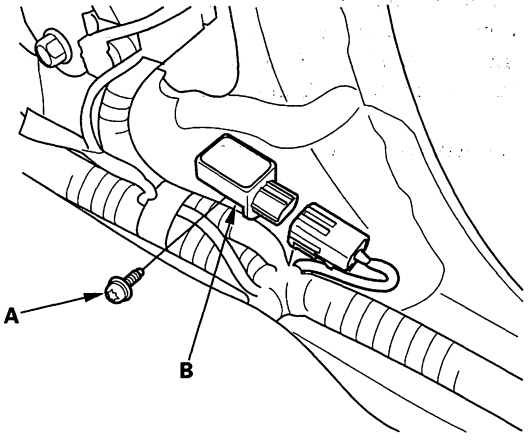
Protected by AR

Side Impact Sensor (First) Replacement

NOTE: Review the seat replacement procedure (see page 20-141) before doing repairs or service.

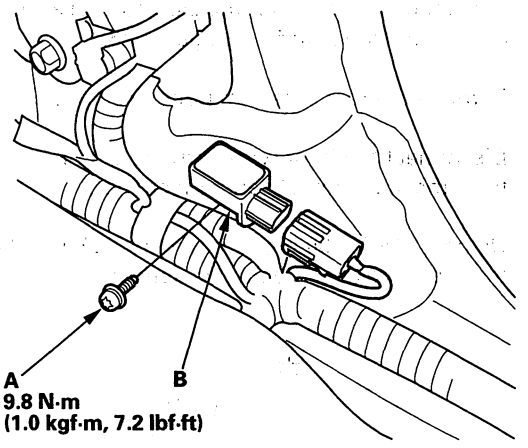
Removal

1. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.
2. Disconnect the appropriate side airbag 2P connector (see step 4 on page 24-28).
3. Remove the front seat assembly (see page 20-141).
4. Remove the lower B-pillar lower trim panel (see page 20-82).
5. Disconnect the floor wire harness 2P connector from the side impact sensor (first).
6. Using a TORX T30 bit, remove the TORX bolt (A), then remove the side impact sensor (first) (B).



Installation

1. Install the new side impact sensor (first) with the TORX bolt (A), then connect the floor wire harness 2P connector (B) to the side impact sensor (first).



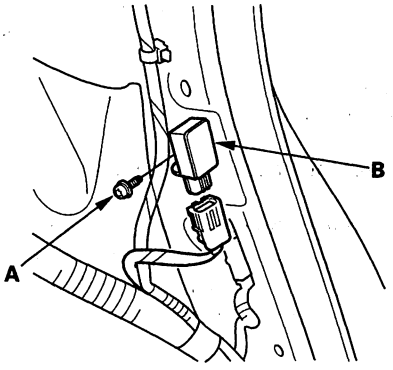
2. Reconnect the negative cable to the battery.
3. After installing the side impact sensor (first) confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
4. Reinstall all removed parts.

Protected by AR

Side Impact Sensor (Second) Replacement

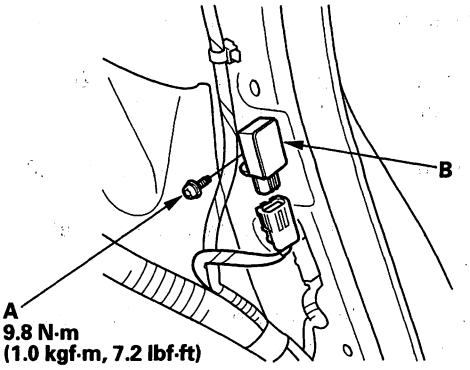
Removal

1. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.
2. Disconnect the appropriate side curtain airbag 2P connector (see step 5 on page 24-28).
3. Remove the rear side trim panel (see page 20-92).
4. Disconnect the floor wire harness 2P connector from the side impact sensor (second).
5. Using a TORX T30 bit, remove the TORX bolt (A) then remove the side impact sensor (second) (B).



Installation

1. Install the new side impact sensor (second) with the TORX bolt (A) then connect floor wire harness 2P connector (B) to the side impact sensor (second).



2. Reconnect the negative cable to the battery.
3. After installing the side impact sensor (second), confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
4. Reinstall all removed parts.

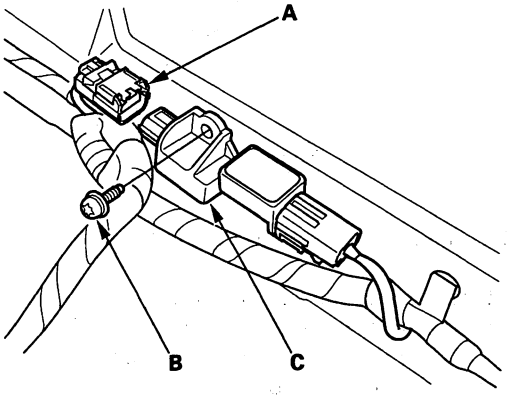
BACK

Protected by AR

Roll Rate Sensor Replacement

Removal

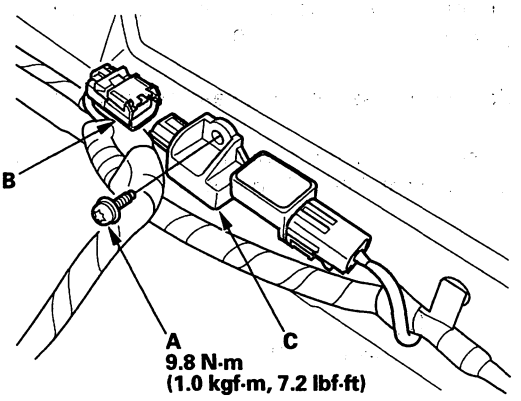
1. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.
2. Disconnect both side curtain airbag 2P connectors (see step 5 on page 24-28).
3. Remove the second row seat (see page 20-156).
4. Disconnect the floor wire harness 2P connector (A) from the roll rate sensor.



5. Using a TORX T30 bit, remove the TORX bolt (B) then remove the roll rate sensor (C).

Installation

1. Install the new roll rate sensor with the TORX bolts (A) then connect the floor wire harness 2P connector (B) to the roll rate sensor (C).



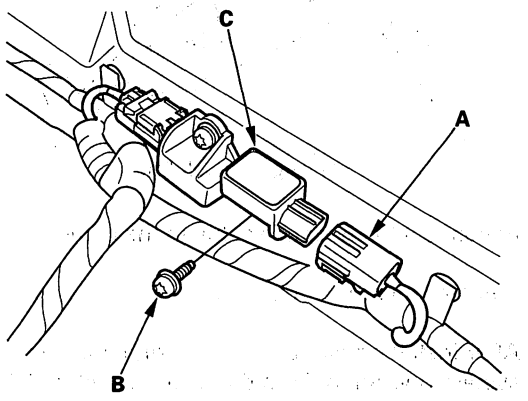
2. Reconnect the negative cable to the battery.
3. Reinstall all removed parts.
4. After installing the roll rate sensor, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Protected by AR

Satellite Safing Sensor Replacement

Removal

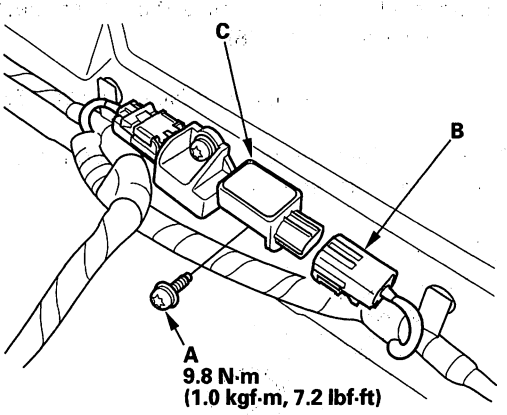
1. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.
2. Disconnect both side curtain airbag 2P connectors (see step 5 on page 24-28).
3. Remove the second row seat (see page 20-156).
4. Disconnect the floor wire harness 4P connector (A) from the satellite safing sensor.



5. Remove the TORX bolt (B) using a TOTX T30 bit, then remove the satellite safing sensor (C).

Installation

1. Install the new satellite safing sensor with the TORX bolt (A) then connect the floor wire harness 4P connector (B) to the satellite safing sensor (C).



2. Reconnect the negative cable to the battery.
3. After installing the satellite safing sensor, confirm proper system operation: Turn the ignition switch ON (II): the SRS indicator should come on for about 6 seconds and then go off.
4. Install all removed parts.

BACK

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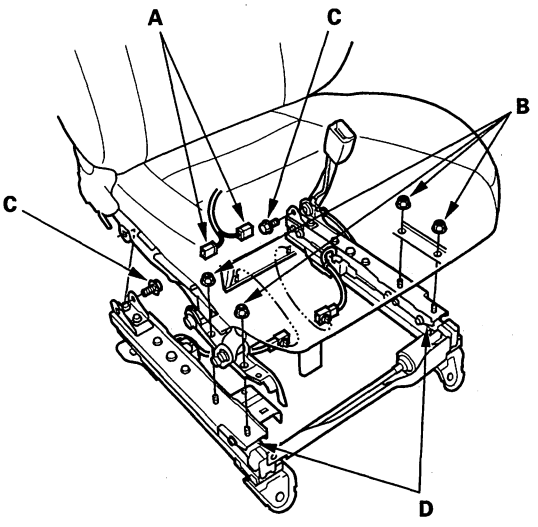
Front Passenger's Weight Sensor Replacement

Removal

NOTE: Removal of the front passenger's weight sensors must be performed according to the precautions/ procedures described at the beginning of the SRS section (see page 24-20).

1. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.
2. Remove the front passenger's seat assembly (see page 20-141).
3. Remove the front cover, recline cover, and center cover (see page 20-144).
4. Disconnect the sensor connector's (A) from the ODS unit harness, then remove the mounting nuts (B) and mounting bolts (C) from weight sensors (D).

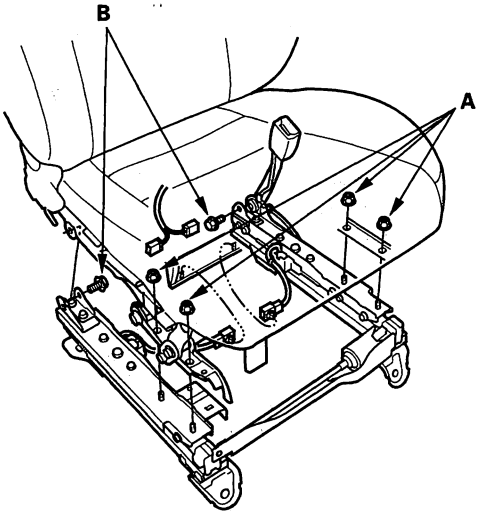


5. Disconnect the sensor connectors (D) from the ODS unit harness, then remove the front passenger's weight sensors.

Installation

NOTE: Be sure to install the harness wires so they are not pinched or interfere with other parts.

1. Install the new front passenger's weight sensors with mounting nuts (A) and new mounting bolts (B) under the seat cushion.



2. Reinstall the front passenger's seat (see page 20-141).
3. Reconnect the negative cable to the battery.
4. Calibrate the ODS unit (see page 24-34).
5. After installing the front passenger's weight sensors, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come ON for about 6 seconds and then go off.

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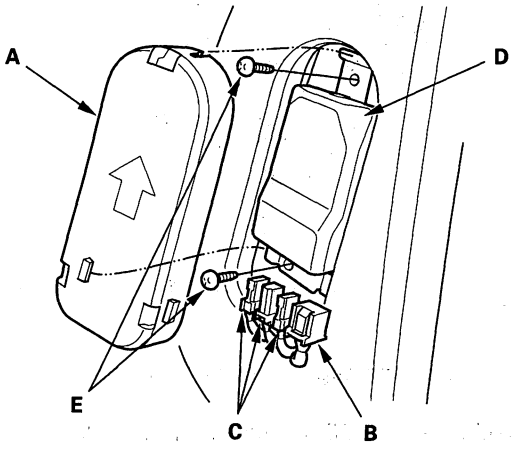
ODS Unit Replacement

NOTE: Review the seat replacement procedure (see page 20-141) before doing repairs or service.

Removal

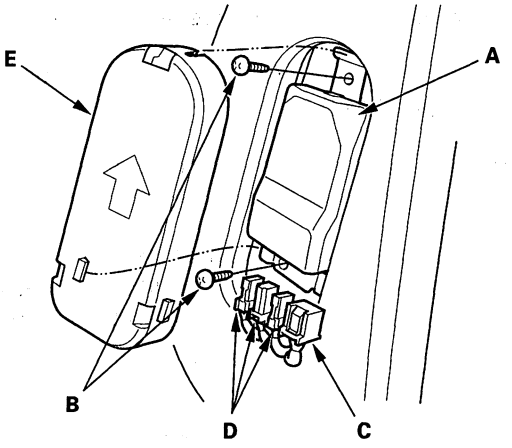
1. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.
2. Disconnect the passenger's side airbag harness 2P connector (see step 4 on page 24-28).
3. Remove the passenger's seat assembly (see page 20-141) and seat-back cover (see page 20-150).
4. Remove the cover (A), then disconnect the ODS unit 18P connector (B) and sensor connectors (C) from the ODS unit (D).



5. Remove the two screws (E) and the ODS unit.

Installation

1. Place the new ODS unit (A) on the seat-back frame. Tighten the two screws (B), and connect the ODS unit harness 18P connector (C) and sensor connectors (D) to the ODS unit. Reinstall the cover (E).



2. Install the seat-back cover in the reverse order of removal (see page 20-150).
3. Install the seat assembly (see page 20-141), then connect the side airbag harness 2P connector.
4. Reconnect the negative cable to the battery.
5. Set the seat-back in the normal position, and make sure there is nothing on the front passenger's seat.
6. Initialize the ODS unit (see page 24-33).
7. After installing the ODS unit, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

BACK

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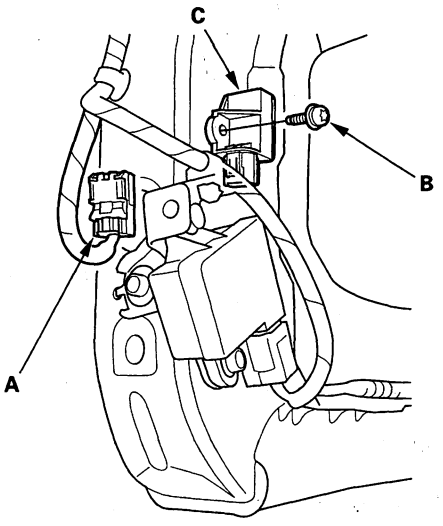
Front Impact Sensor Replacement

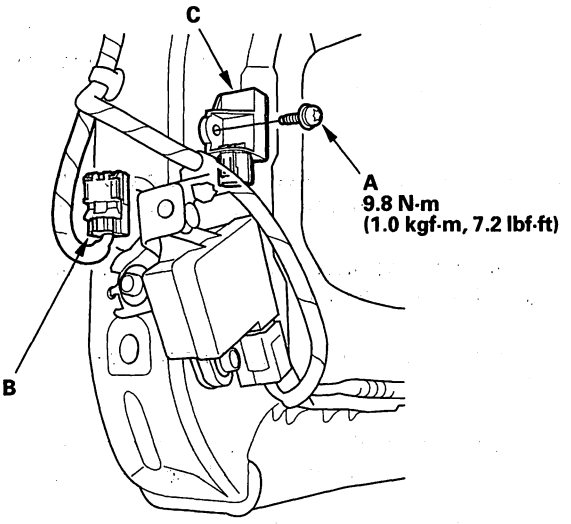
Removal

1. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.
2. Disconnect the driver's airbag 4P connector (see step 2 on page 24-28), the front passenger's airbag 4P connector (see step 3 on page 24-28), and both seat belt tensioner 4P connectors (see step 7 on page 24-29).
3. Remove the front bumper (see page 20-188).
4. Disconnect the left or right engine compartment wire harness 2P connector (A). Using a TORX T30 bit, remove the TORX bolts (B), then remove the front impact sensor (C).



Installation

1. Install the new front impact sensor with a new TORX bolts (A), then connect the left or right engine compartment wire harness 2P connector (B) to the front impact sensor (C).



2. Reconnect the negative cable to the battery.
3. After installing the front impact sensor, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
4. Reinstall all removed parts.

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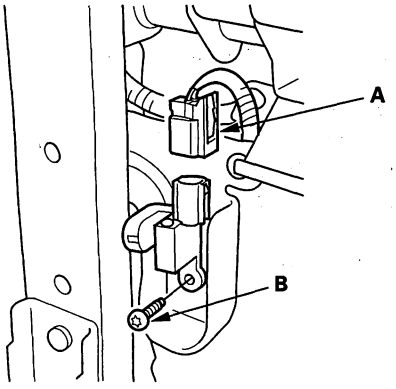
Driver's Seat Position Sensor Replacement

Removal

NOTE:
- Removal of the driver's seat position sensor must be performed according to the precautions/procedures described at the beginning of SRS section (see page 24-20).
- Do not turn the ignition switch ON (II), and do not connect the battery cable while removing the driver's seat position sensor.

1. Disconnect the negative cable from the battery, and wait at least 3 minutes before beginning work.
2. Disconnect the driver's airbag 4P connector (see step 2 on page 24-28).
3. Remove the driver's seat assembly (see page 20-141).
4. Disconnect the driver's seat wire harness 2P connector (A) from the driver's seat position sensor.

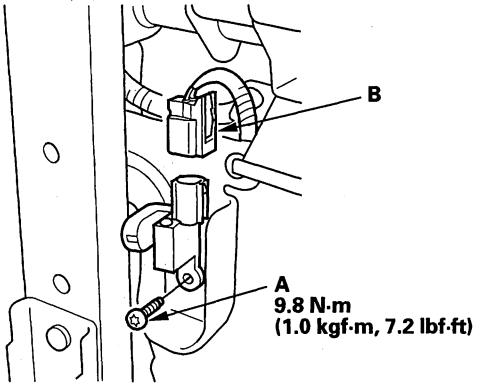


5. Using a TORX T30 bit, remove the TORX bolt (B), then remove the driver's seat position sensor.

Installation

NOTE:
- Be sure to install the harness so it does not pinched or interfere with other parts.
- Do not turn the ignition switch ON (II), and do not connect the battery cable while installing the driver's seat position sensor.
- After installing the driver's seat position sensor, make sure it is clean. Keep it away from dust.

1. Install the new driver's seat position sensor with a TORX bolt (A), then connect the driver's seat wire harness 2P connector to the driver's seat position sensor (B).



2. Install the driver's seat assembly (see page 20-141).
3. Reconnect the negative cable to the battery.
4. Check the operation of the driver's seat position sensor with the HDS (see page 24-36).

BACK

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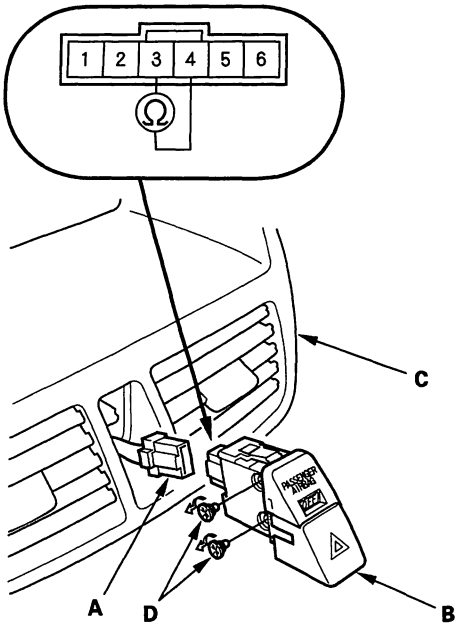
Passenger's Airbag Cutoff Indicator Illumination Bulb Test

1. Remove the dashboard center panel (see page 20-121).

2. Disconnect the 6P connector (A) from the passenger's airbag cutoff indicator (B).



3. Push out the passenger's airbag cutoff indicator from behind the center panel (C).

4. Check for continuity between the No. 3 and No. 4 terminals of the indicator. If there is no continuity, replace the bulbs (D).

   NOTE: Both illumination bulbs are connected in parallel. If there is continuity, remove the lower, hazard switch illumination bulb, and recheck for continuity. If there is no continuity, replace the upper, passenger's airbag cutoff indicator illumination bulb.

5. Reinstall the parts in the reverse order of removal.