Electrical

Special Tools 23-2

How to Use This Section

Troubleshooting Precautions 23-3
Five-step Troubleshooting 23-8
Schematic Symbols 23-9
Wire Color Codes 23-9
Relays and Control Unit Locations
- Engine Compartment 23-10
- Dashboard 23-12
- Dashboard, Door and Floor 23-18
- Roof and Rear Bulkhead 23-21

Index to Circuits and Systems

Air Conditioner ..... Section 21
Alternator 23-118
Antenna, Power 23-259
Anti-Lock Brake System ..... Section 19
Automatic Transmission
- Control System ..... Section 14

Battery 23-80
Blower Controls ..... Section 21
Charging System 23-118
Cigarette Lighter 23-274
Clock 23-272
* Cruise Control 23-376
Defogger, Rear Window 23-277
Fuel Pump ..... Section 11
* Fuse Box 23-42
Fuse/Relay Box 23-46
Fuel Injection System ..... Section 11
* Gauges
- Circuit Diagram 23-142
- Coolant Temperature Gauge 23-156
- Fuel Gauge 23-154
- Speedometer 23-146
- Tachometer 23-146

Grounds
- Distribution 23-66
- Locations 23-22

* Heater Controls ..... Section 21
* Horns 23-262
* Ignition Switch 23-86
Ignition System 23-108
Ignition Timing Control 23-112
Indicators
- * High Beam Indicator 23-142
- * Safety Indicator 23-171
- * Shift Lever Position Indicator 23-164
- * Turn Signal Indicator 23-251

Integrated Control Unit 23-184
Lights, Exterior
- Back-up Lights 23-247
- Front Side Marker Lights 23-225
- Hazard Lights 23-249
- Headlights-Adjustment 23-219
- Brake Lights 23-243
- License Plate Lights 23-226
- Parking Lights 23-225
- Rear Fog Light 23-228
- Rear Side Marker Lights 23-227
- Taillights 23-227
- Turn Signal Lights 23-250

Lights, Interior
- Coutesy Lights 23-233
- Dashlights Brightness Control 23-229
- Dome Lights 23-236
- Entry Light Timer System 23-233
- Front Spot Lights 23-236
- Glove Box Light 23-242
- Rear Spot Lights 23-237
- Trunk Light 23-241
- Vanity Mirror Lights 23-242

* Lighting System 23-202
Locks, Power 23-303
Mirrors, Power 23-282
Oil Level Warning System 23-160
Opener, Trunk 23-268
Power Relay Inspection 23-82
Power Distribution 23-48
Radiator and Condenser Fan
- Controls 23-130

Relay Locations 23-10
Seats, Power 23-316
Seats, Heater 23-354
Security Alarm System 23-389
Spark Plugs 23-116
Speed Alarm System 23-163
Starting System 23-90
* Stereo Sound System 23-225
Sunroof 23-286
* Supplemental Restraint system
- (SRS) 23-406

Side Marker/Turn Signal/Hazard
- Flasher System 23-249

Washer
- Headlights 23-360
- Windshield 23-360

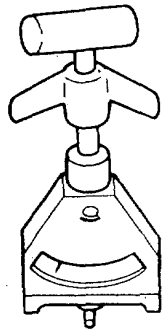
Windows, Power 23-292
Wipers, Windshield 23-360
* Wires, Harnesses and Connectors
- Wire Color Codes 23-9
- Wire Harness Routing 23-22
- Wiring Diagrams 23-438

*: Read SRS precautions on page 1-30, then install short connectors on the airbag before working in these areas.

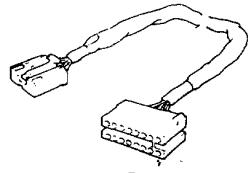
cardiagn.com

Special Tools

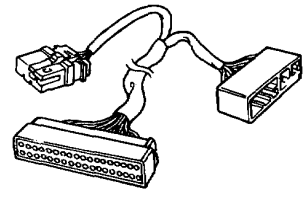
Ref. No.	Tool Number	Description	Qty	Page Reference
①	07JGG—0010100	Belt Tension Gauge	1	23-128
②	07MAZ—SL00500	Test Harness A	1	23-417
③	07MAZ—SP00500	Test Harness B	1	23-419
④	07MAZ—SP00600	Test Harness C	1	23-422
⑤	07LAZ—SL40400	Test Harness D	1	23-420
⑥	07HAZ—SG00500	Deployment Tool	1	23-428
⑦	07MAJ—SP00200	Keyless Entry Checker	1	23-314



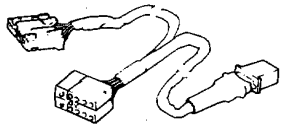
①



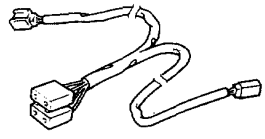
②



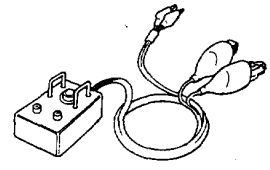
③



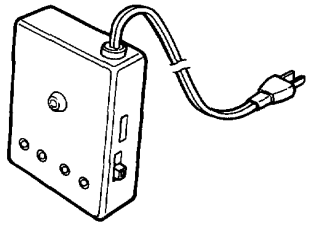
④



⑤



⑥



⑦

cardiagn.com

Troubleshooting Precautions

Before Troubleshooting

- Check the main fuse and the fuse box.
- Check the battery for damage, state of charge, and clean and tight connections.
- Check the alternator belt tension.

CAUTION:

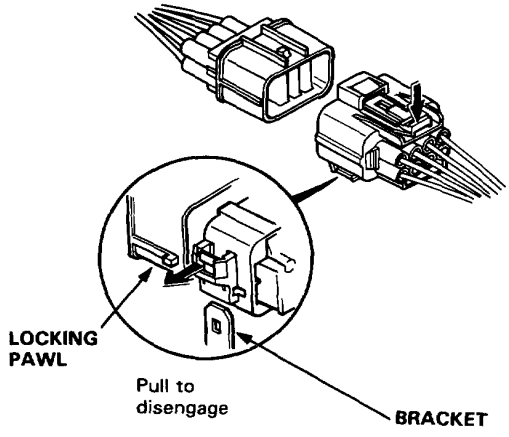
- **Do not quick-charge a battery unless the battery ground cable has been disconnected, or you will damage the alternator diodes.**
- **Do not attempt to crank the engine with the battery ground cable connected incompletely or you will severely damage the wiring.**

While You're Working

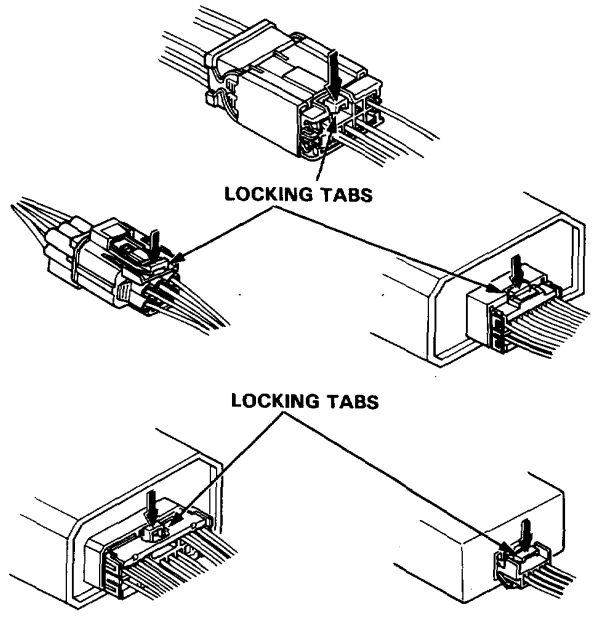
- Make sure connectors are clean, and have no loose pins or receptacles.
- Make sure multiple pin connectors are packed with grease (except watertight connectors).

Since new type connectors are used, connection and disconnection of them should be done paying attention to the following precautions.

- Because all the connectors except terminal of 1-P are equipped with push-down type locks, unlock them first before disconnecting the connectors.
- On the connectors installed on the bracket a pull type lock is equipped between the bracket and the connector.
  Some connectors of this type can not be disconnected unless they are removed from their brackets. When disconnecting, check their shapes.
- On the bracket mounted connector with dual locks, remove the connector from the bracket before disconnecting.



- Push the locking tab to disconnect.

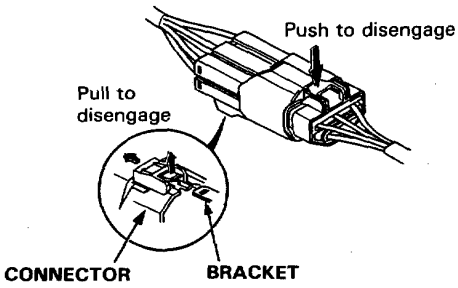


(cont'd)

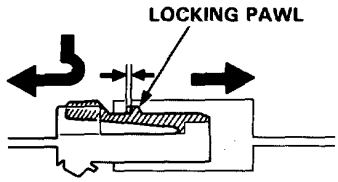
cardiagn.com

Troubleshooting Precautions (cont'd)

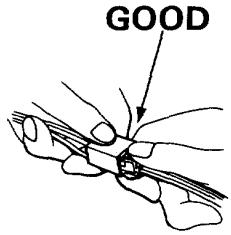
- Pull the locking tab to remove the connector from the bracket.

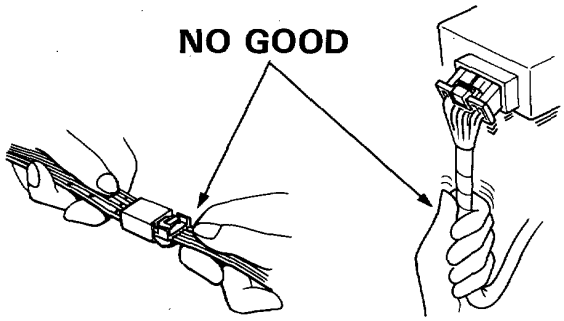


- When disconnecting locks, first press in the connector tightly (to provide clearance to the locking device), then operate the tab fully and remove the connector in the designated manner.

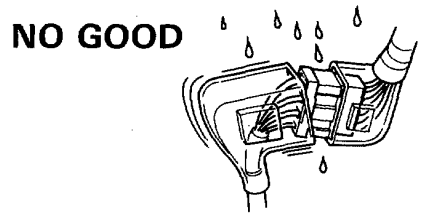


- When disconnecting a connector, pull it off from the mating connector by holding on both connectors.
- Never try to disconnect connectors by pulling on their wires.

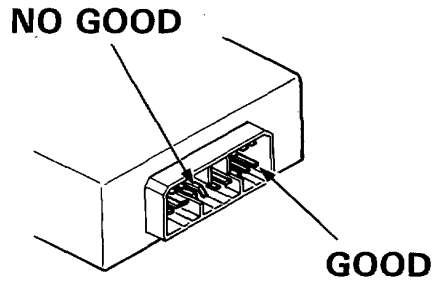




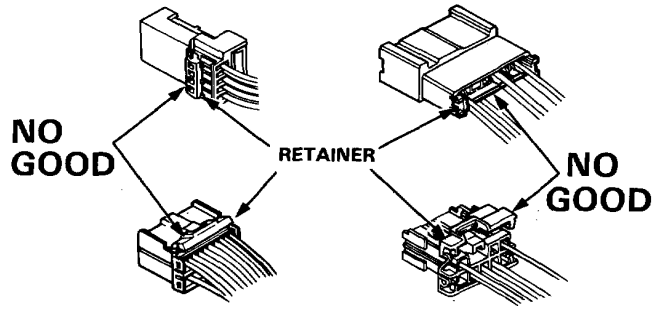
- Place the plastic cover over the mating connector after reconnecting. Also check that the cover is not distorted.



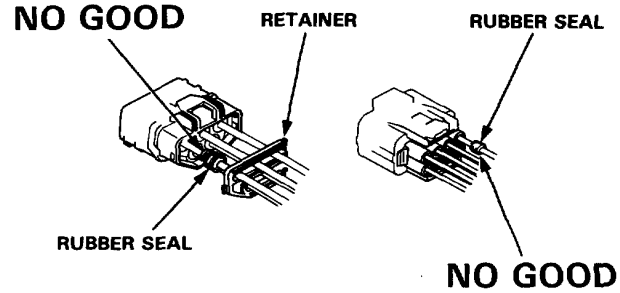
- Before connecting connectors, check to see that the terminals are in place and not bent or distorted.



- Check for loose retainer and rubber seals.
  The illustration shows examples of terminal and seal abnormality.

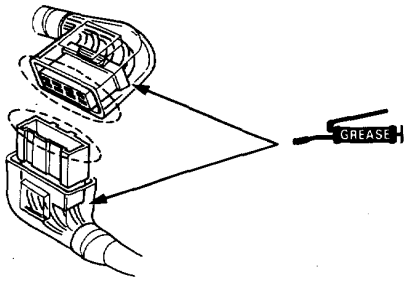


- Example of waterproof connector:



cardiagn.com

- For the connector which uses insulation grease, clean the connector then apply grease if the grease is insufficient or contaminated.



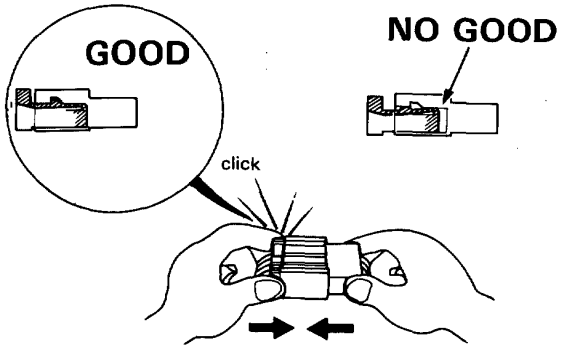
- Insert the connector tightly and make sure it is securely locked.
- Check all the wire harnesses are connected.
- There are two types of locking tab: one that you have to push and the other you should not touch when connecting the connector. Check the shape of the locking tab before connecting.
- The locking tab having a taper end should not be touched when connecting.



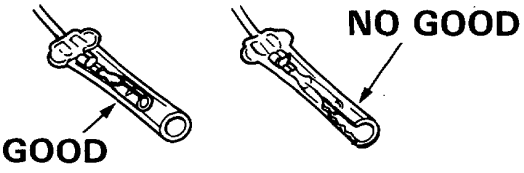
- The locking tab with an angle end should be pushed when connecting.



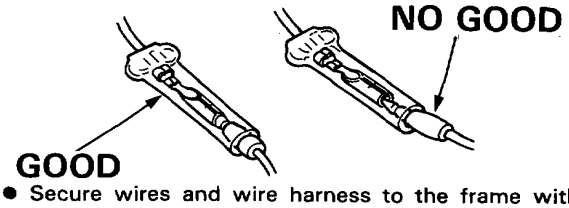
- Insert connectors fully until they will no longer go.
- The connectors must be aligned and engaged securely.
- Do not use wire harnesses with a loose wire or connector.



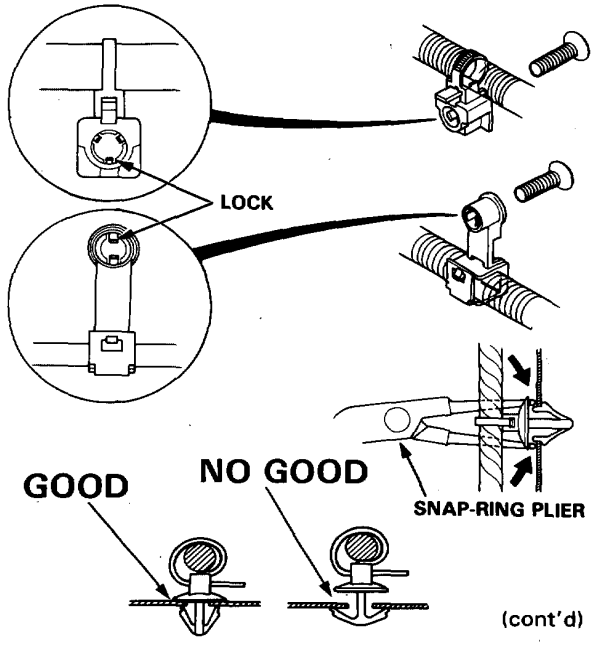
- Before connecting, check each connector cover for damage. Also make sure that the female connector is tight and not loosened from the previous use.



- Insert male connectors into the female connectors fully until they will no longer go.
- Be sure that plastic cover is placed over the connection.
- Position the wires so that the open end of the cover faces down.



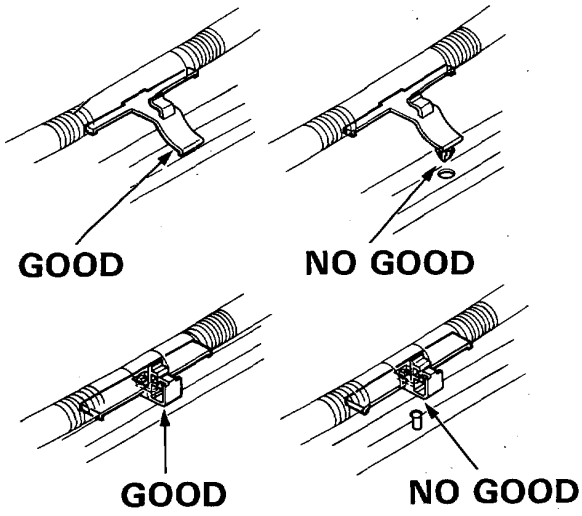
- Secure wires and wire harness to the frame with their respective wire bands at the designated locations.
  Position the wiring in the bands so that only the insulated surfaces contact the wires or harnesses.
- Remove with care not to damage the lock.



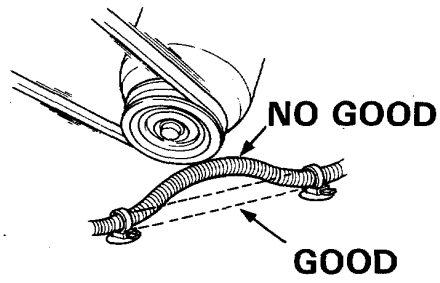
(cont'd)

cardiagn.com

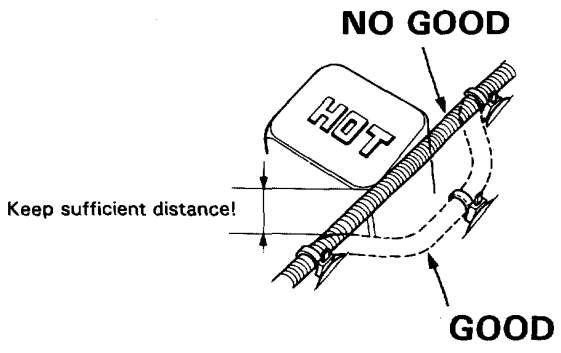
Troubleshooting Precautions (cont'd)



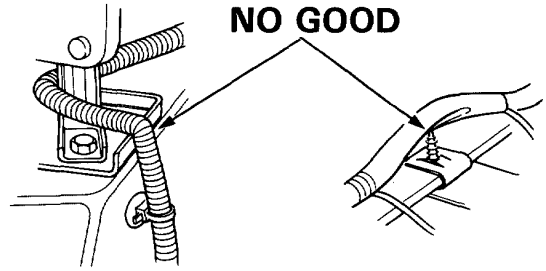
- After clamping, check each harness to be certain that it is not interfering with any moving or sliding parts of the vehicle.
- Keep wire harnesses away from the exhaust pipes and other hot parts.



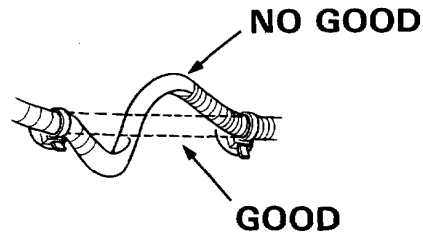
- Always keep a safe distance between wire harnesses and any heated parts.



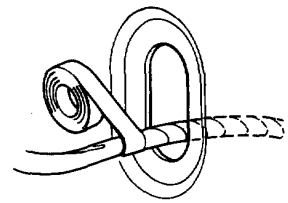
- Do not bring wire harnesses in direct contact with sharp edges or corners.
- Also avoid contact with the projected ends of bolts, screws and other fasteners.



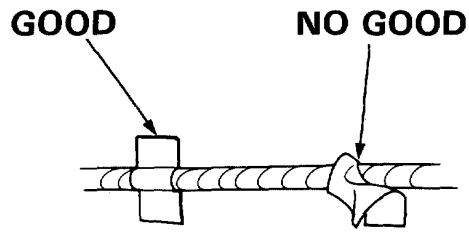
- Route harnesses so they are not pulled taut or slackened excessively.



- Protect wires and harnesses with a tape or a tube if they are in contact with a sharp edge or corner.

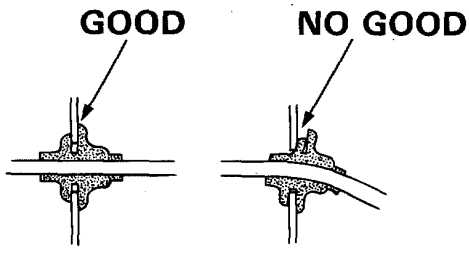


- Clean the attaching surface thoroughly if an adhesive is used. First, wipe with solvent or alcohol if necessary.



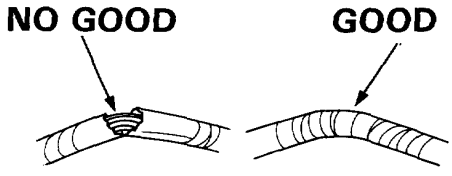
cardiagn.com

- Seat grommets in their grooves properly.



- Do not damage the insulation when connecting a wire.

- Do not use wires or harnesses with a broken insulation.
  Repair by wrapping with protective tape or replace with new ones if necessary.



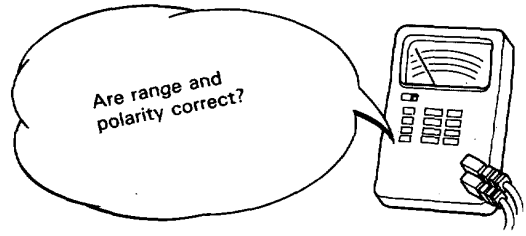
- After installing parts, make sure that wire harnesses are not pinched.



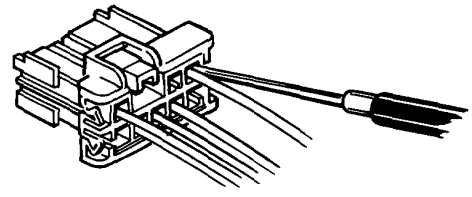
- After routing, check that the wire harnesses are not twisted or kinked.

- Wire harnesses should be routed so that they are not pulled taut, slackened excessively, pinched, or interfering with adjacent or surrounding parts in all steering positions.

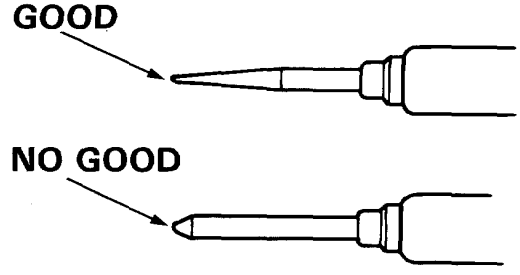
- When using the Service Tester, follow the manufacturer's instructions and those described in the Shop Manual.



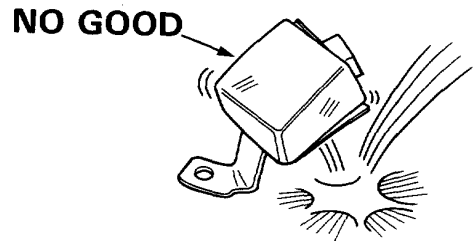
- Always insert the probe of the tester from the wire harness side (except waterproof connector).



- Make sure to use the probe with a tapered tip.



- Do not drop parts.



cardiagn.com

Five-Step Troubleshooting

1. **Verify The Complaint**
   Turn on all the components in the problem circuit to verify the customer 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 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.

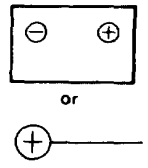
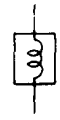
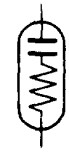
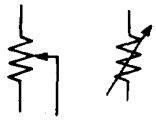
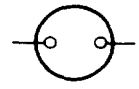
4. **Fix The Problem**
   Once the specific problem is identified, make the repair. Be sure to use proper tools and safe procedures.

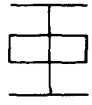
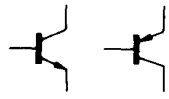
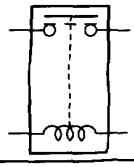
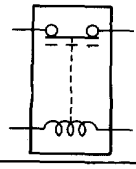
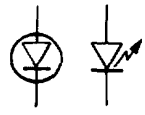
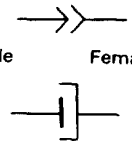
5. **Make Sure The Circuit Works**
   Turn on all components in the repaired circuit in all modes to make sure you've fixed the entire problem. If the problem was a blown fuse, be sure to test all of the circuits on that fuse. Make sure no new problems turn up and the original problem does not recur.

cardiagn.com

How to Use This Section

Schematic Symbols

BATTERY	GROUND		FUSE	COIL, SOLENOID	CIGARETTE LIGHTER
	Ground terminal 	Component ground 			
RESISTOR	**VARIABLE RESISTOR**	**THERMISTOR**	**IGNITION SWITCH**	**BULB**	**HEATER**
					
MOTOR	**PUMP**	**CIRCUIT BREAKER**	**HORN**	**DIODE**	**SPEAKER, BUZZER**
					

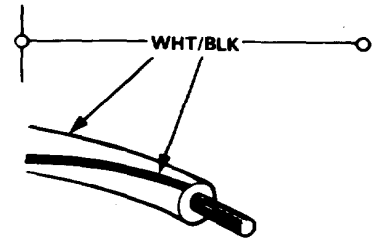
ANTENNA		TRANSISTOR (Tr)
Mast 	Window 	
RELAY (In normal condition)		**CONDENSER**
Normal open relay 	Normal closed relay 	
SWITCH (In normal condition)		**LUMINOUS DIODE (LED)**
Normal open switch 	Normal closed switch 	
CONNECTION	**CONNECTOR**	**REED SWITCH**
Input  Output 	Male Female 	

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

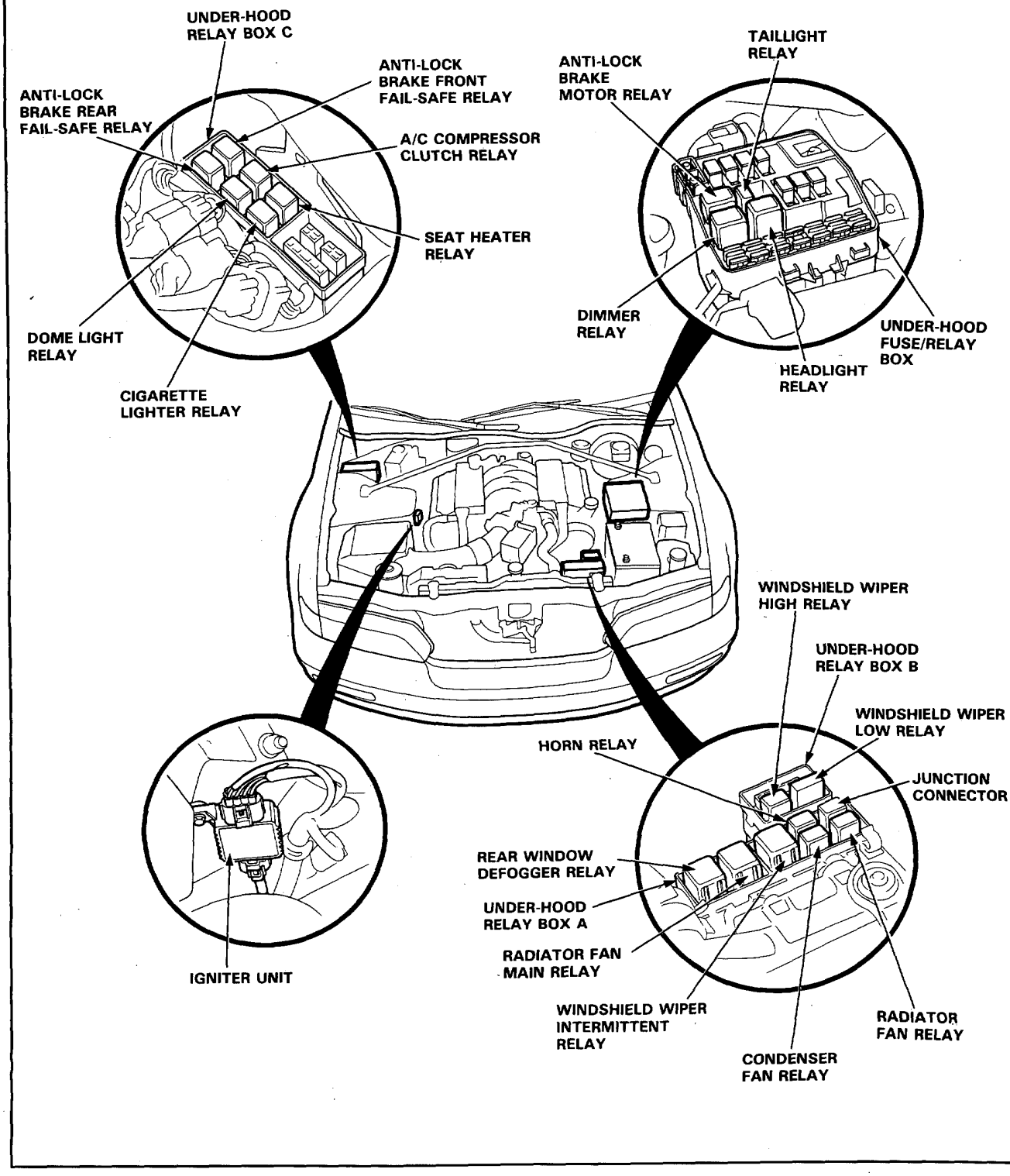
Wire insulator has one color or one color with another color stripe. The second color is the stripe.



cardiagn.com

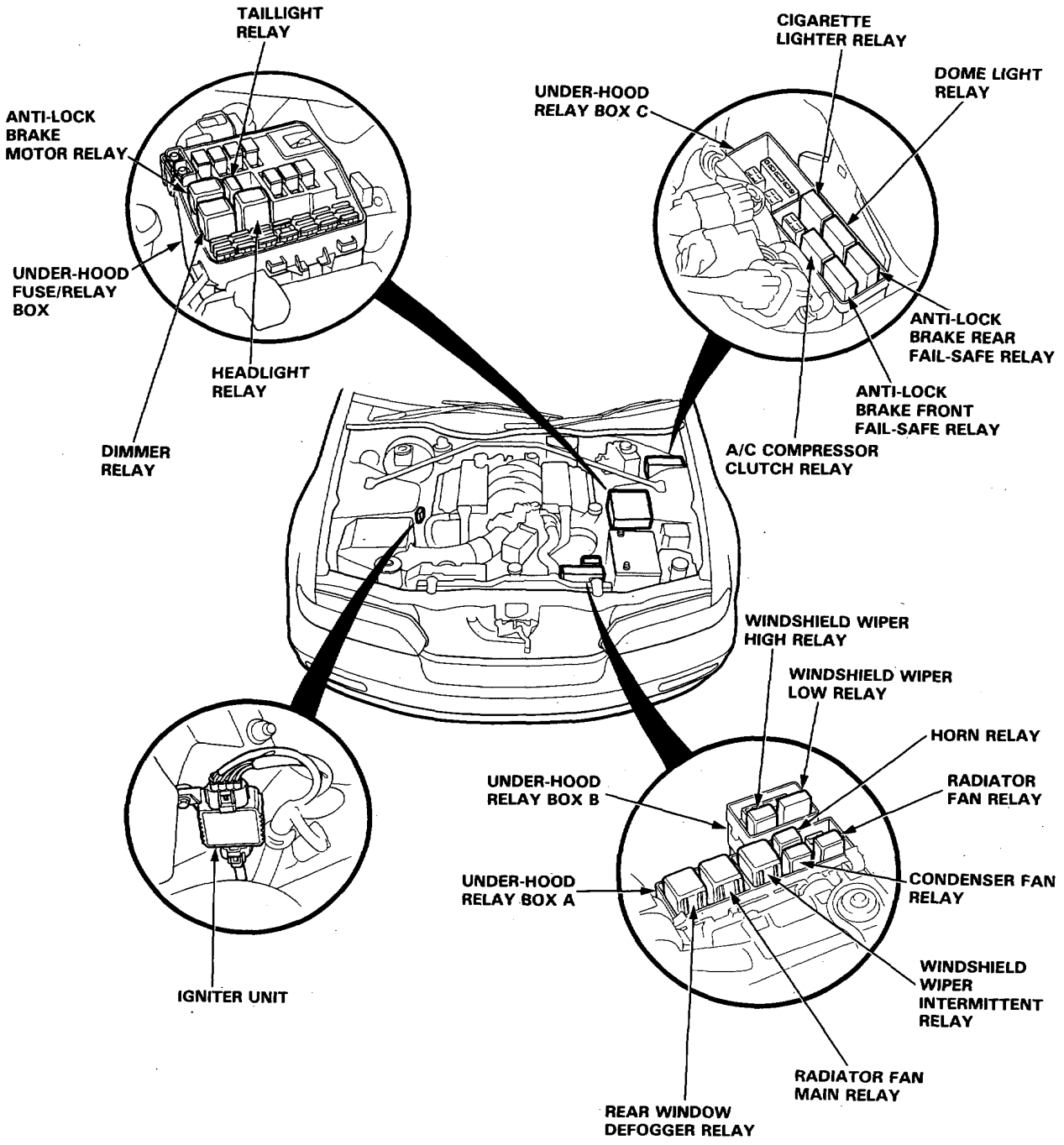
Relay and Control Unit Locations

Engine Compartment (LHD)



cardiagn.com

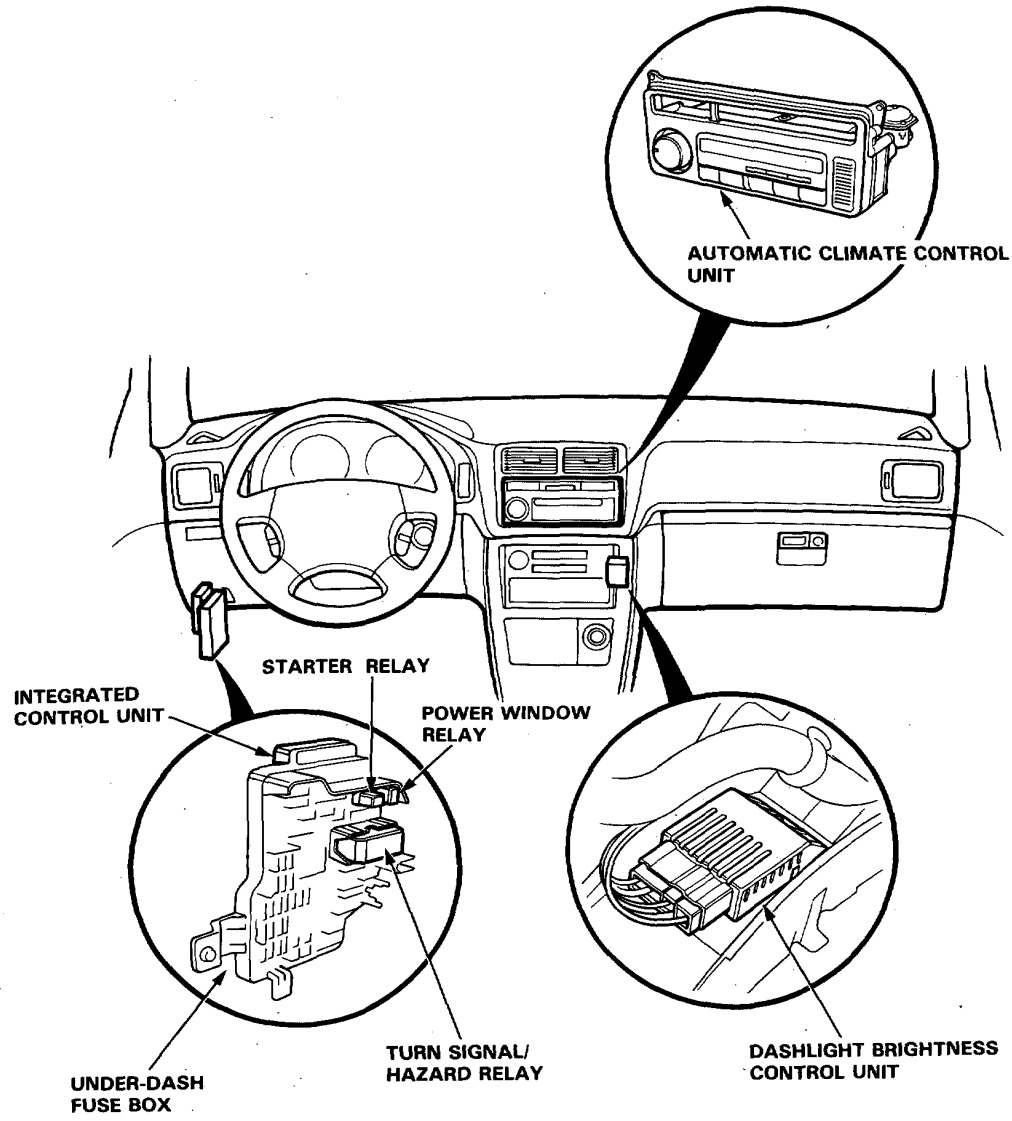
Engine Compartment (RHD)



cardiagn.com

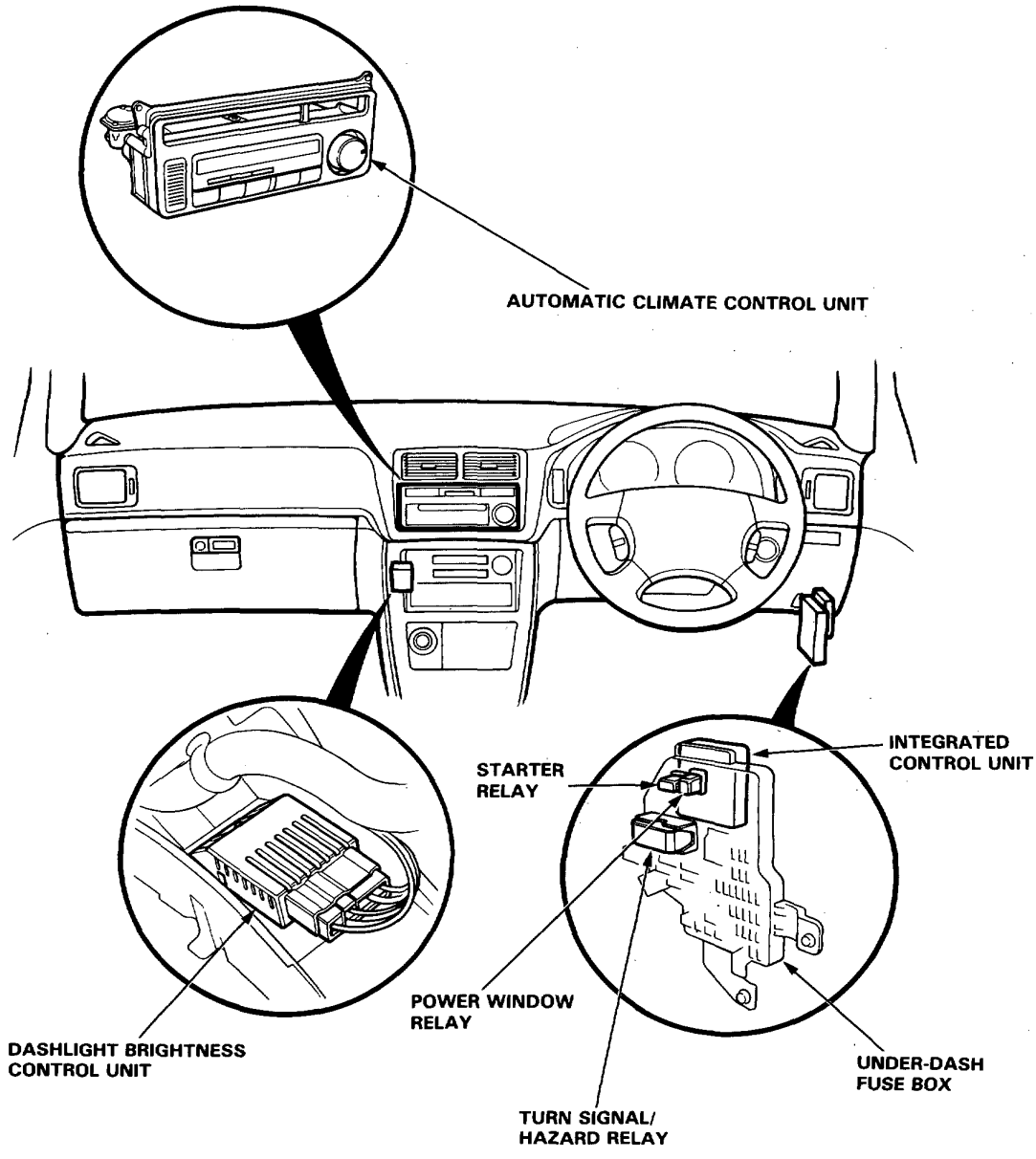
Relay and Control Unit Locations

Dashboard (LHD)



cardiagn.com

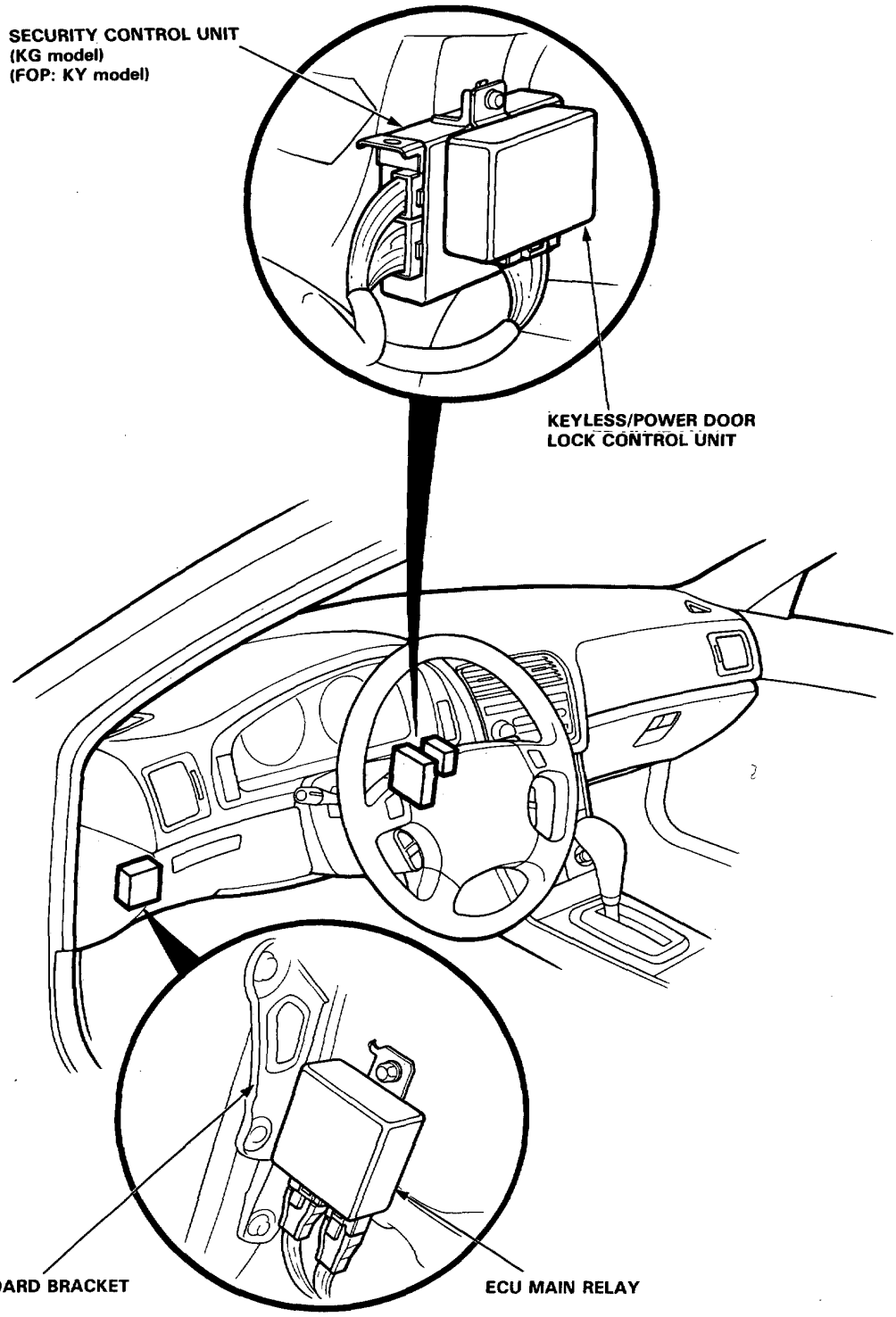
Dashboard (RHD)



cardiagn.com

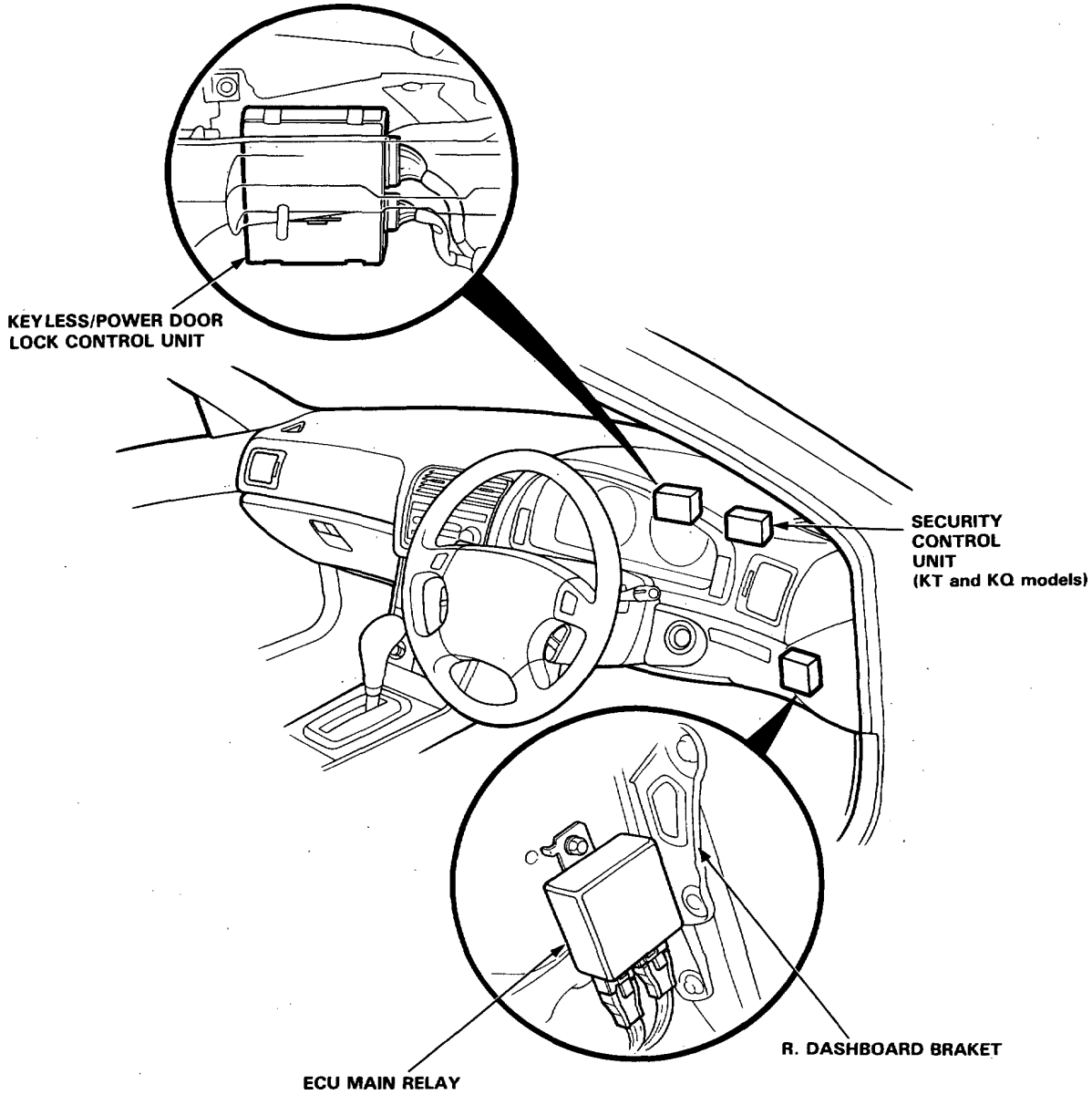
Relay and Control Unit Location

Dashboard (LHD)



cardiagn.com

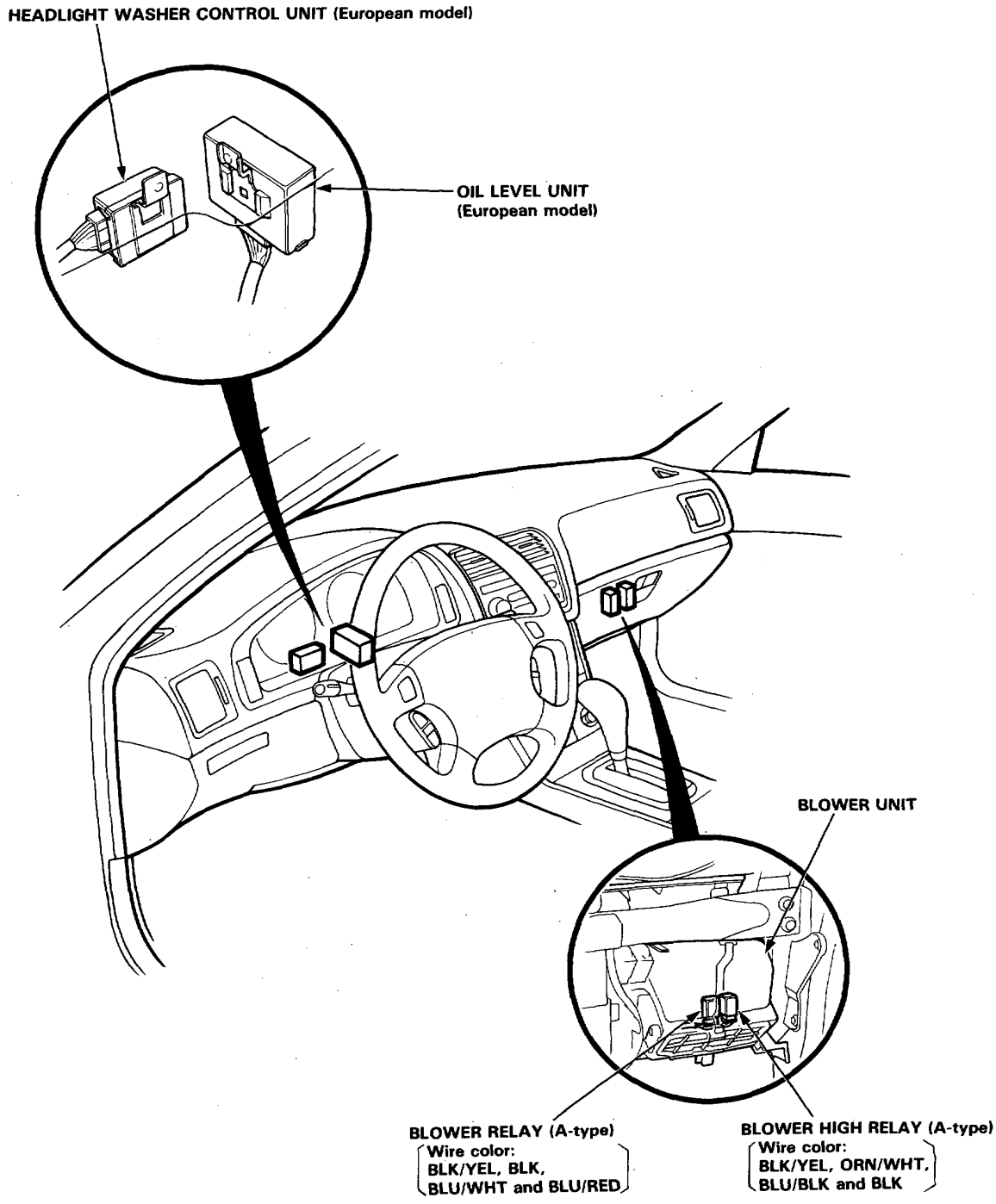
Dashboard (RHD)



cardiagn.com

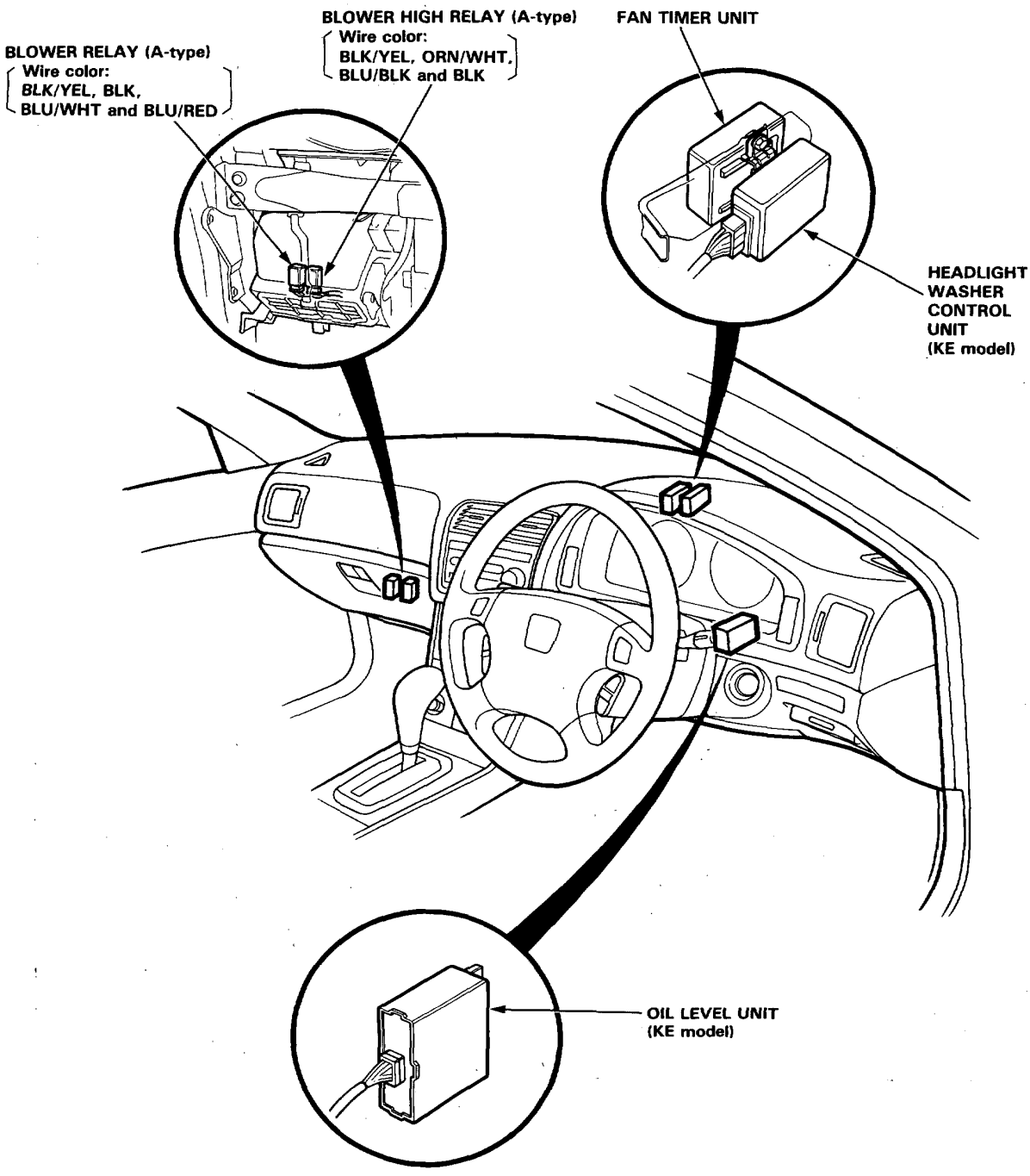
Relay and Control Unit Locations

Dashboard (LHD)



cardiagn.com

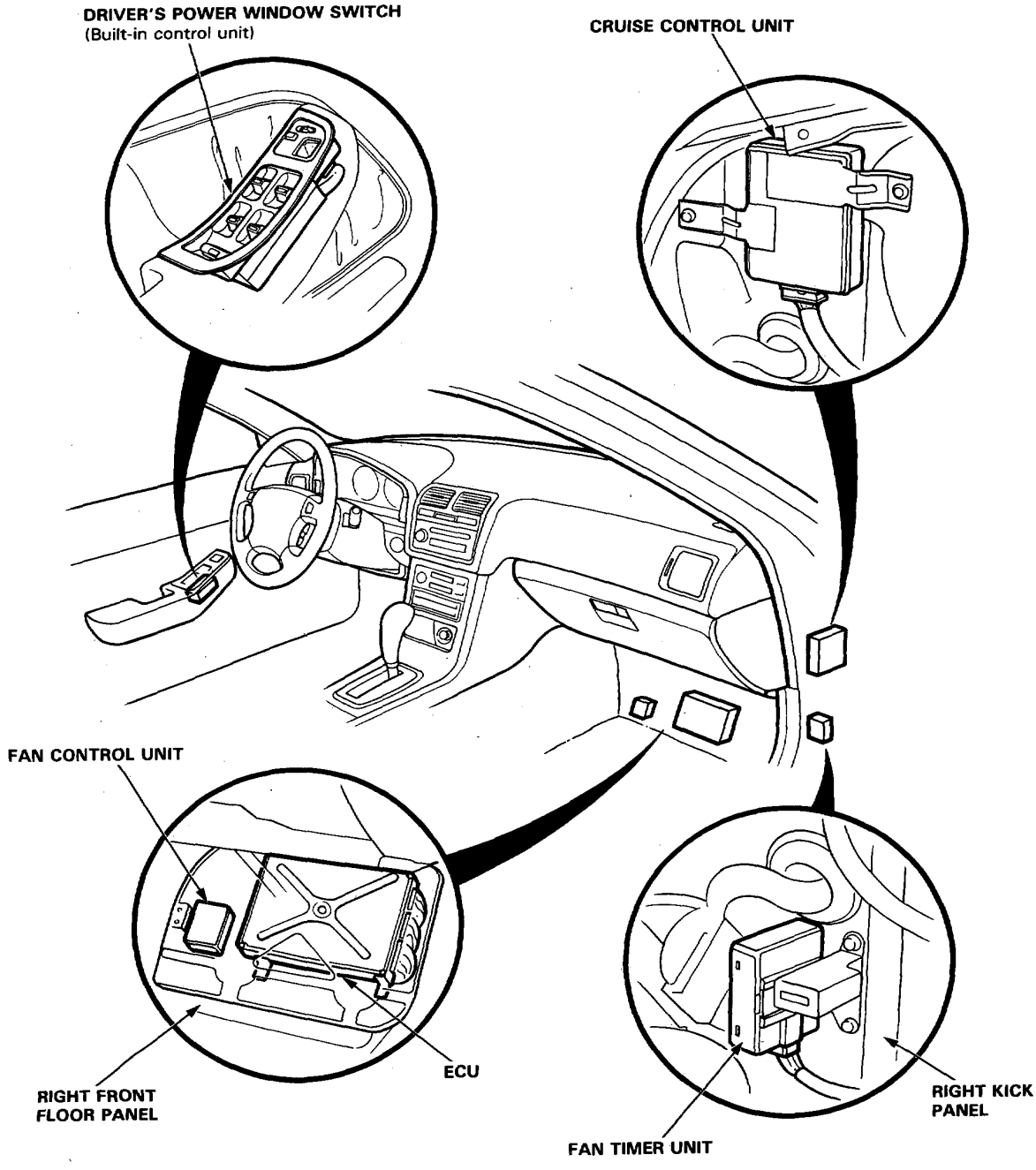
Dashboard (RHD)



cardiagn.com

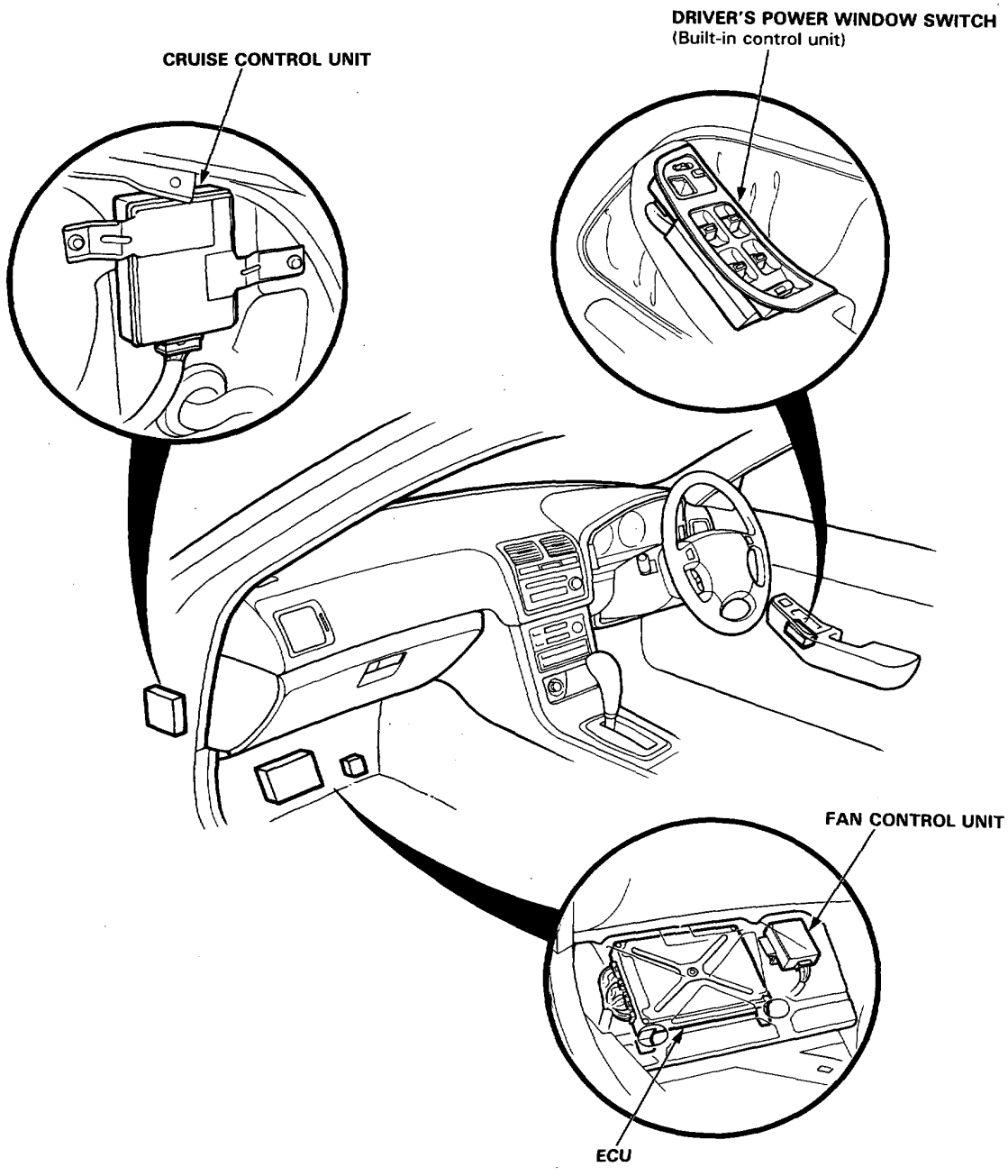
Relay and Control Unit Locations

Dashboard, Door and Floor (LHD)



cardiagn.com

Dashboard, Door and Floor (RHD)

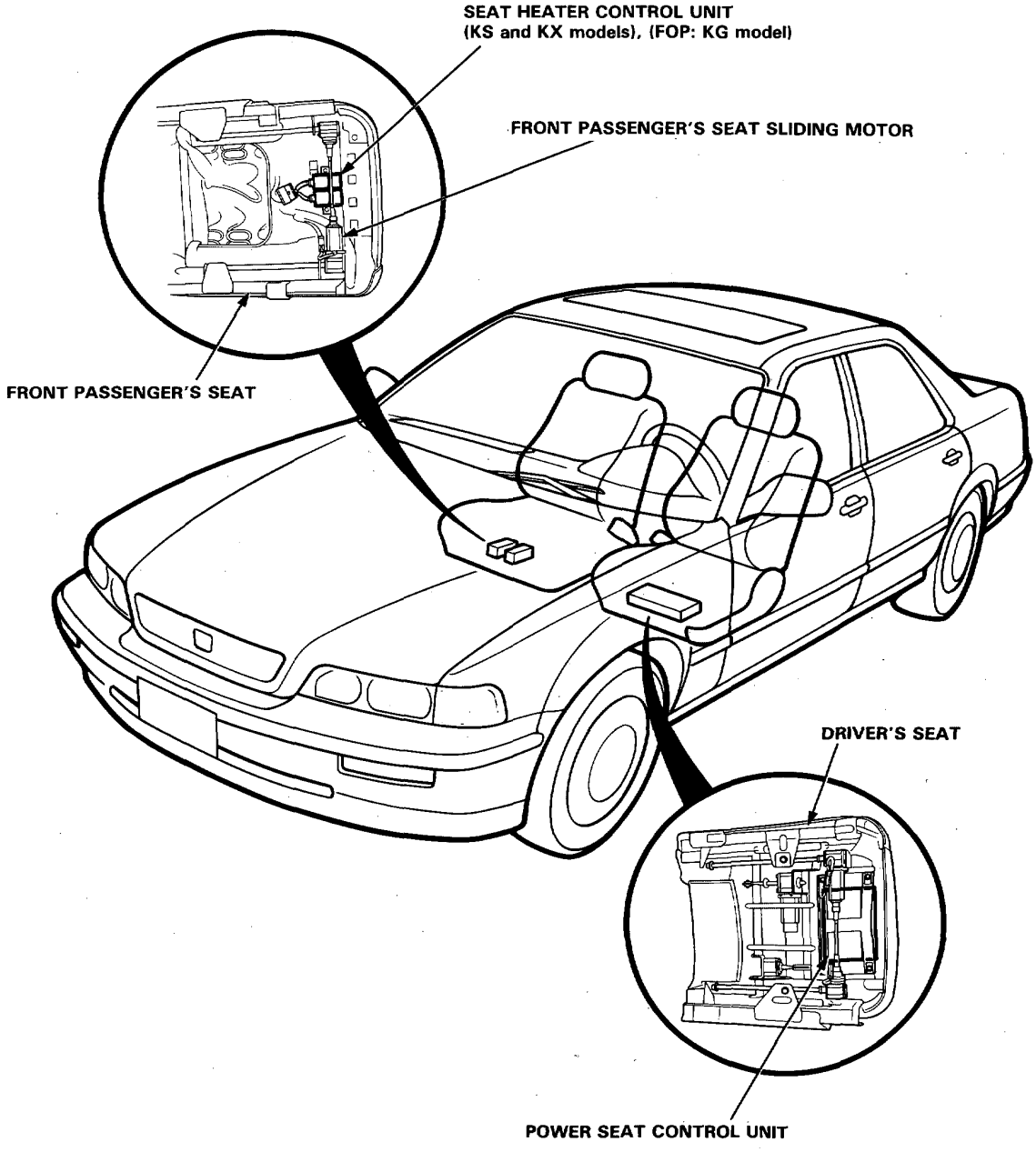


cardiagn.com

Relay and Control Unit Locations

Floor

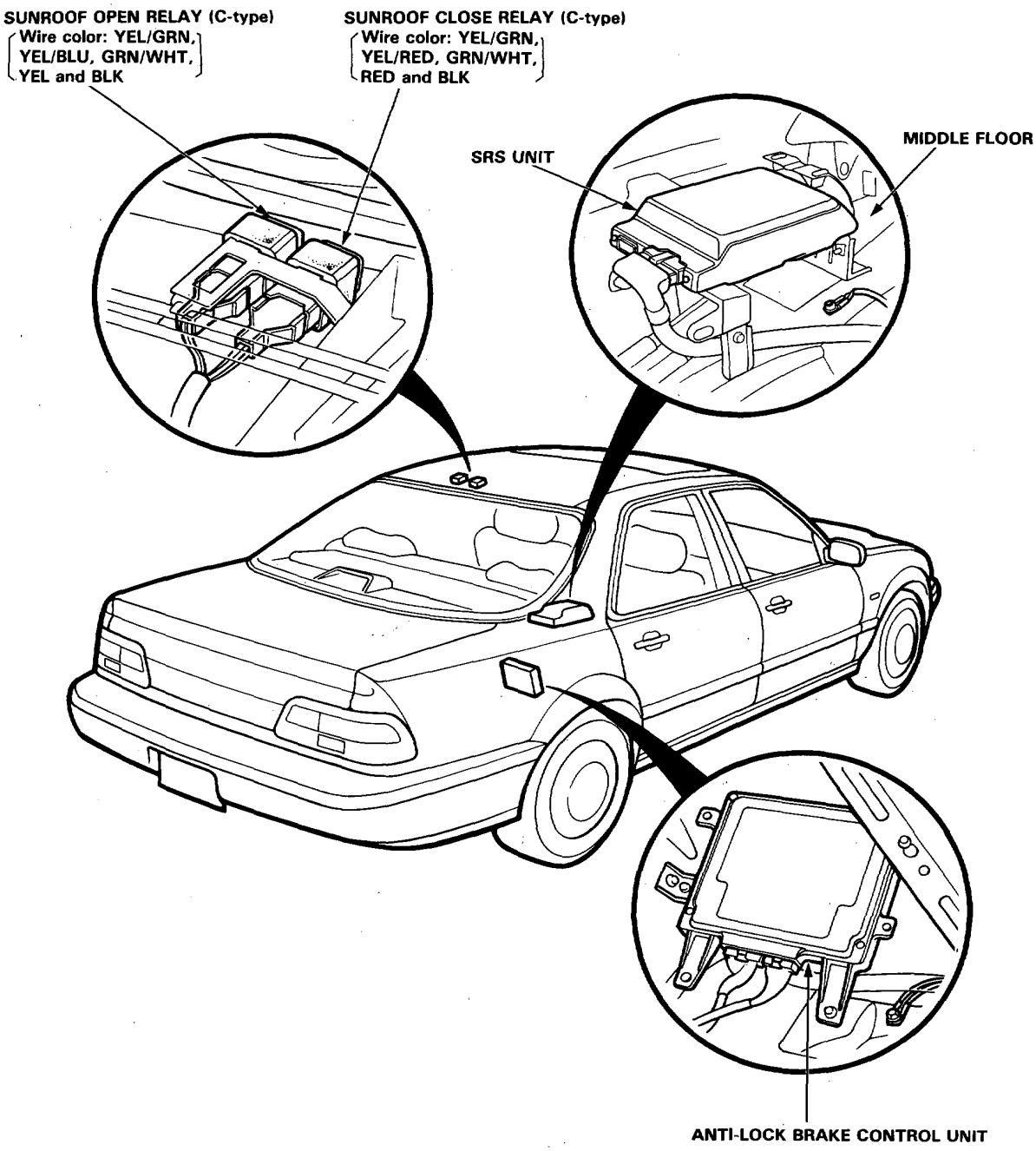
NOTE: RHD type is symmetrical to LHD type.



cardiagn.com

Floor, Roof and Rear Bulkhead

NOTE: *RHD type is symmetrical to LHD type.*

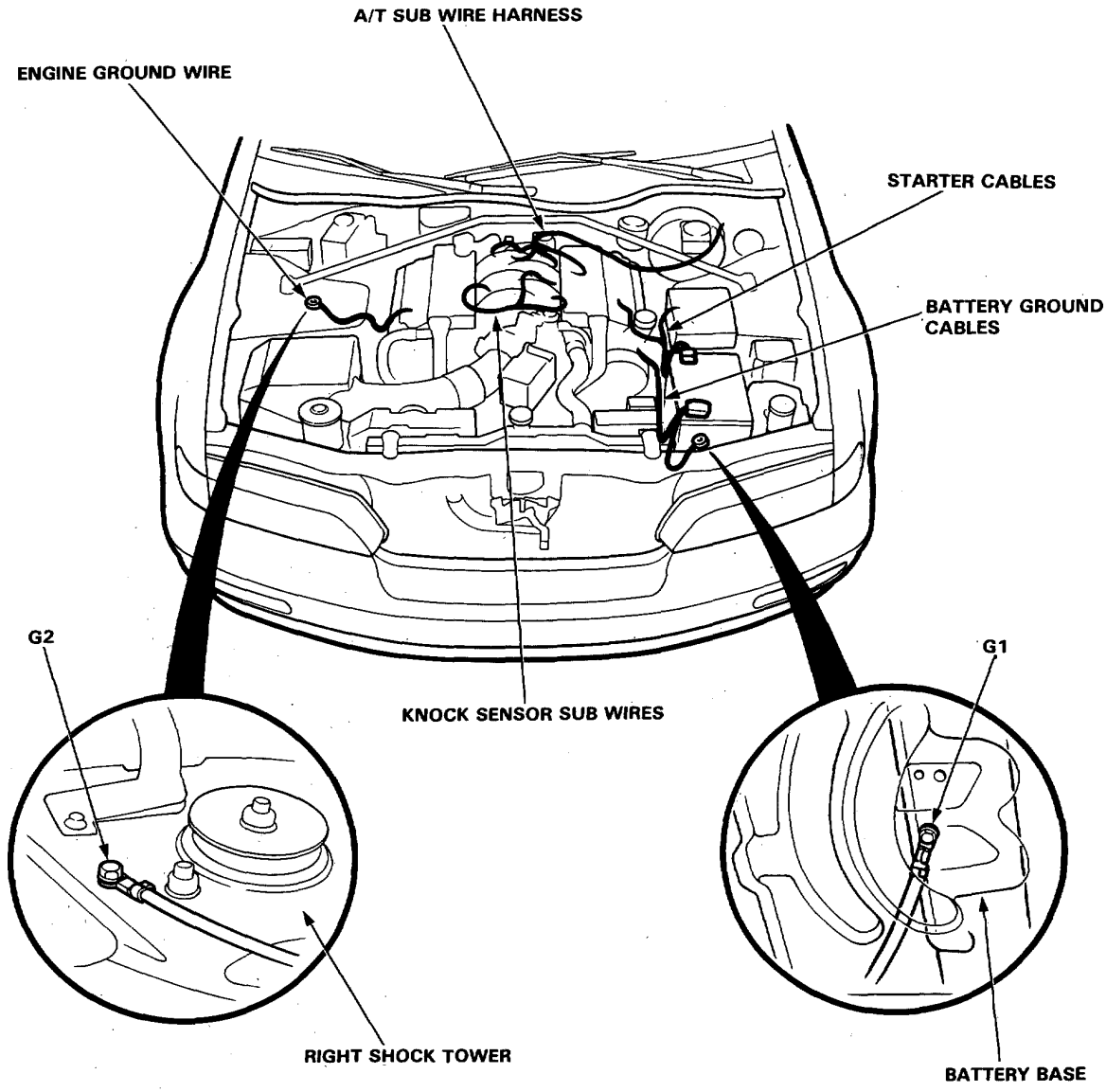


cardiagn.com

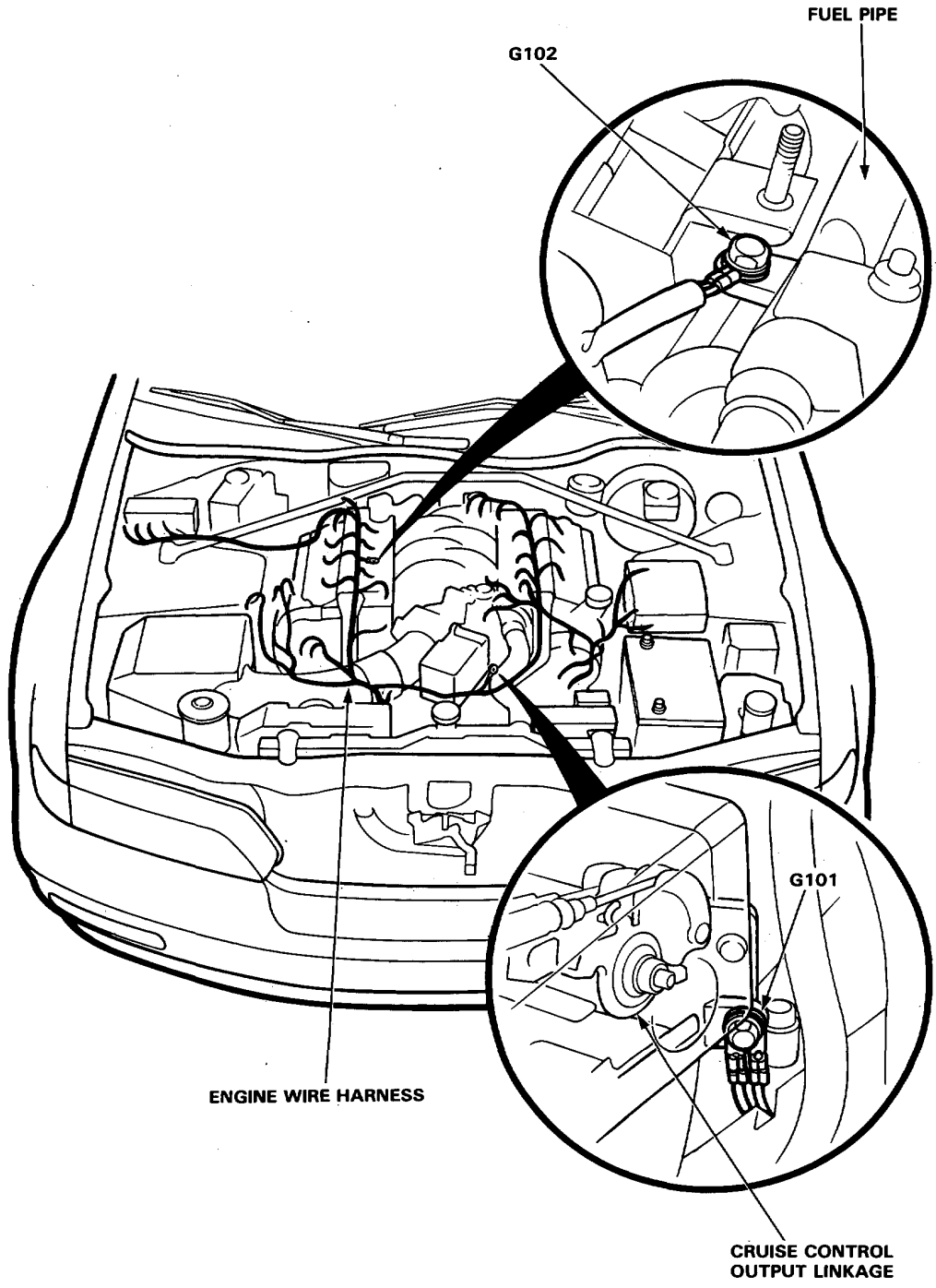
Wire Harness and Ground Locations

Engine Compartment

NOTE: LHD type is shown. RHD type is similar.



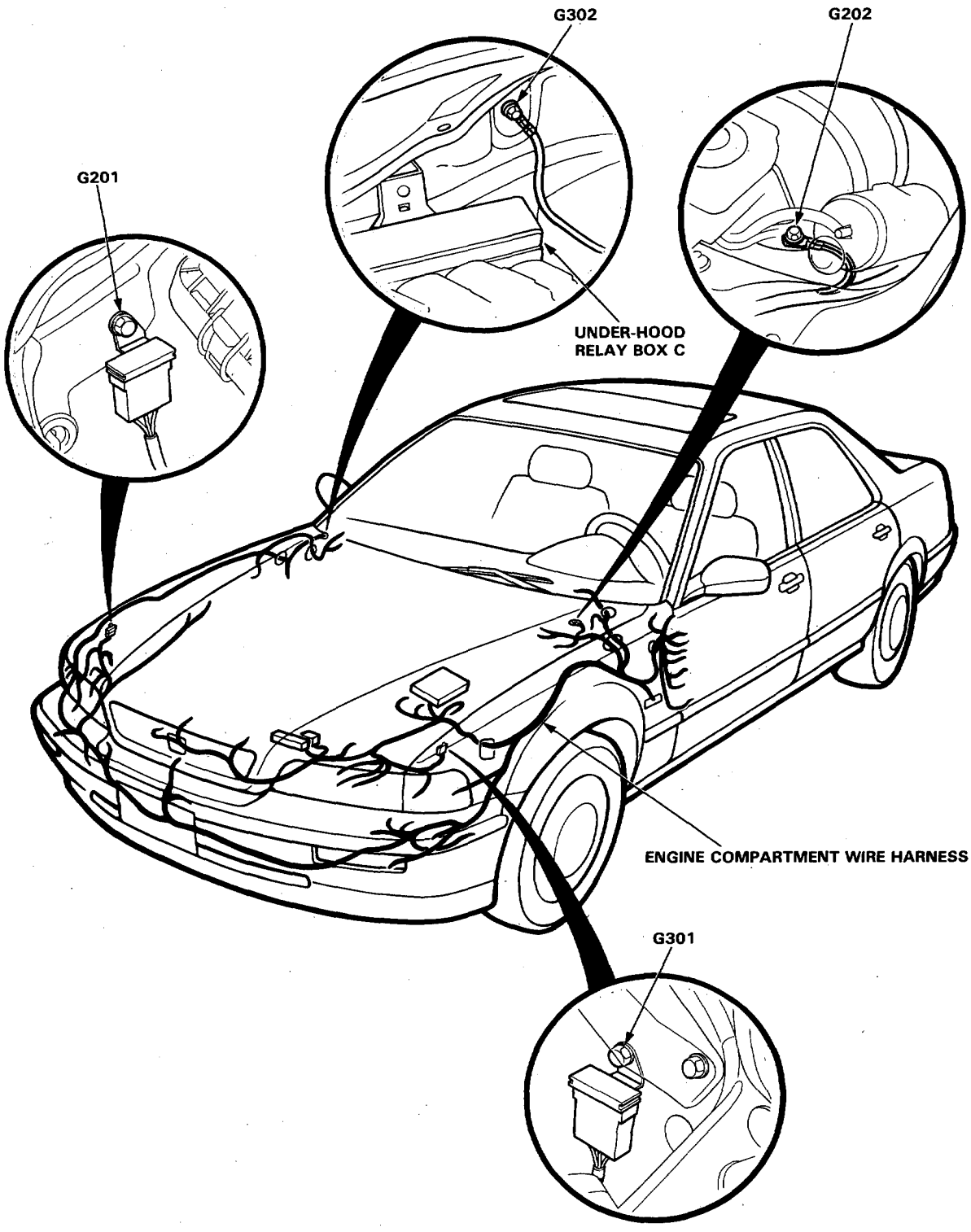
cardiagn.com



cardiagn.com

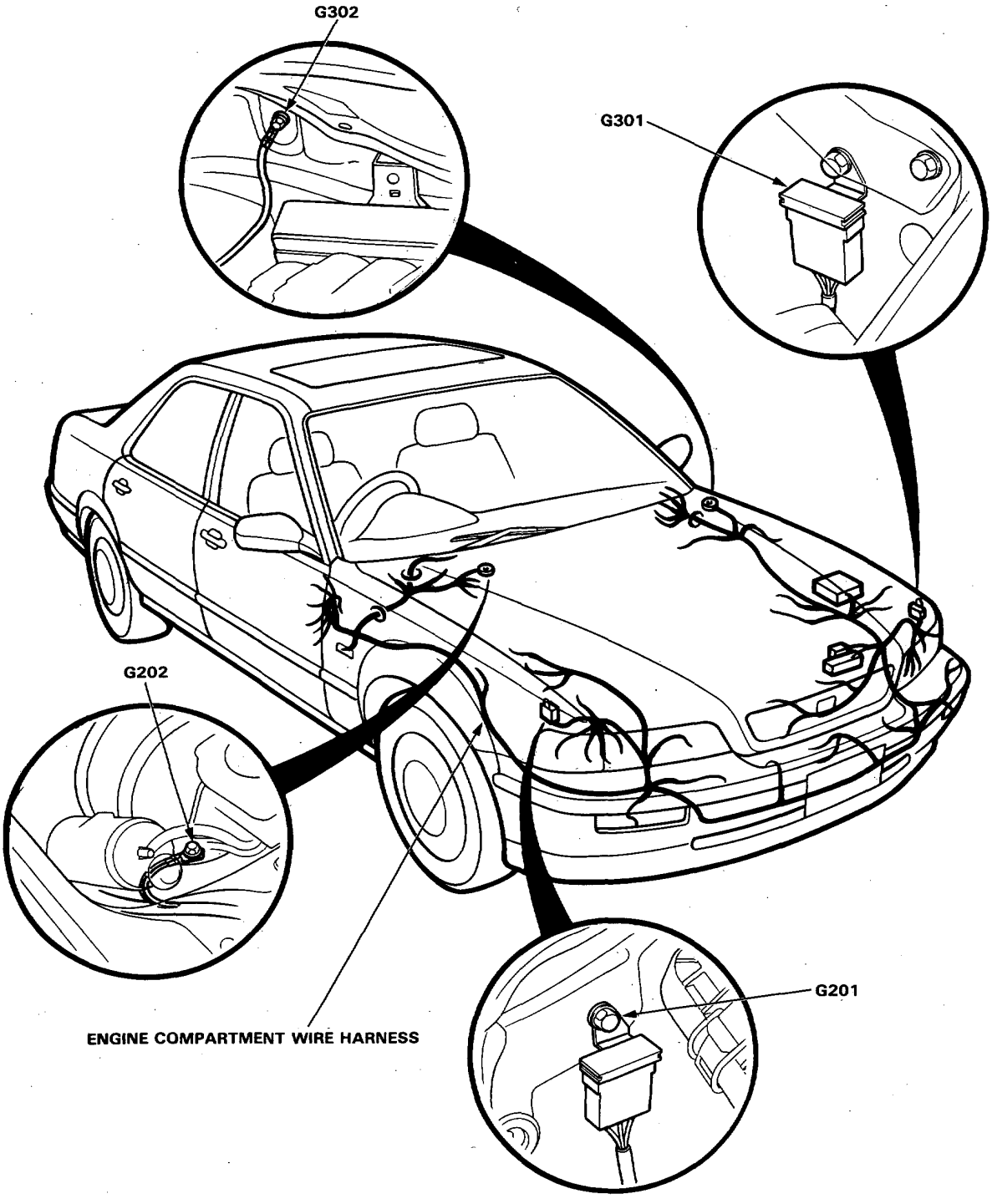
Wire Harness and Ground Locations

Engine Compartment (LHD)



cardiagn.com

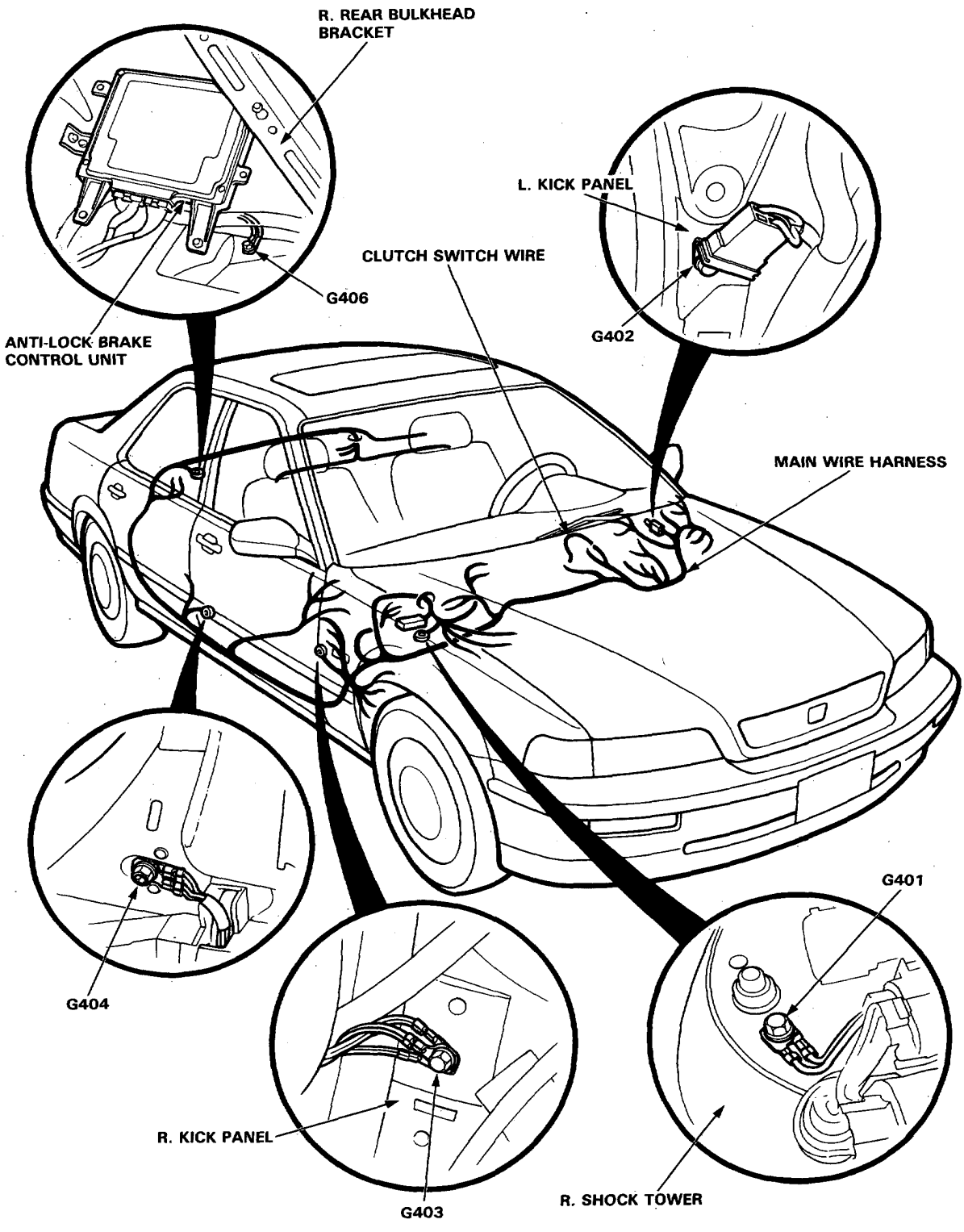
Engine Compartment (RHD)



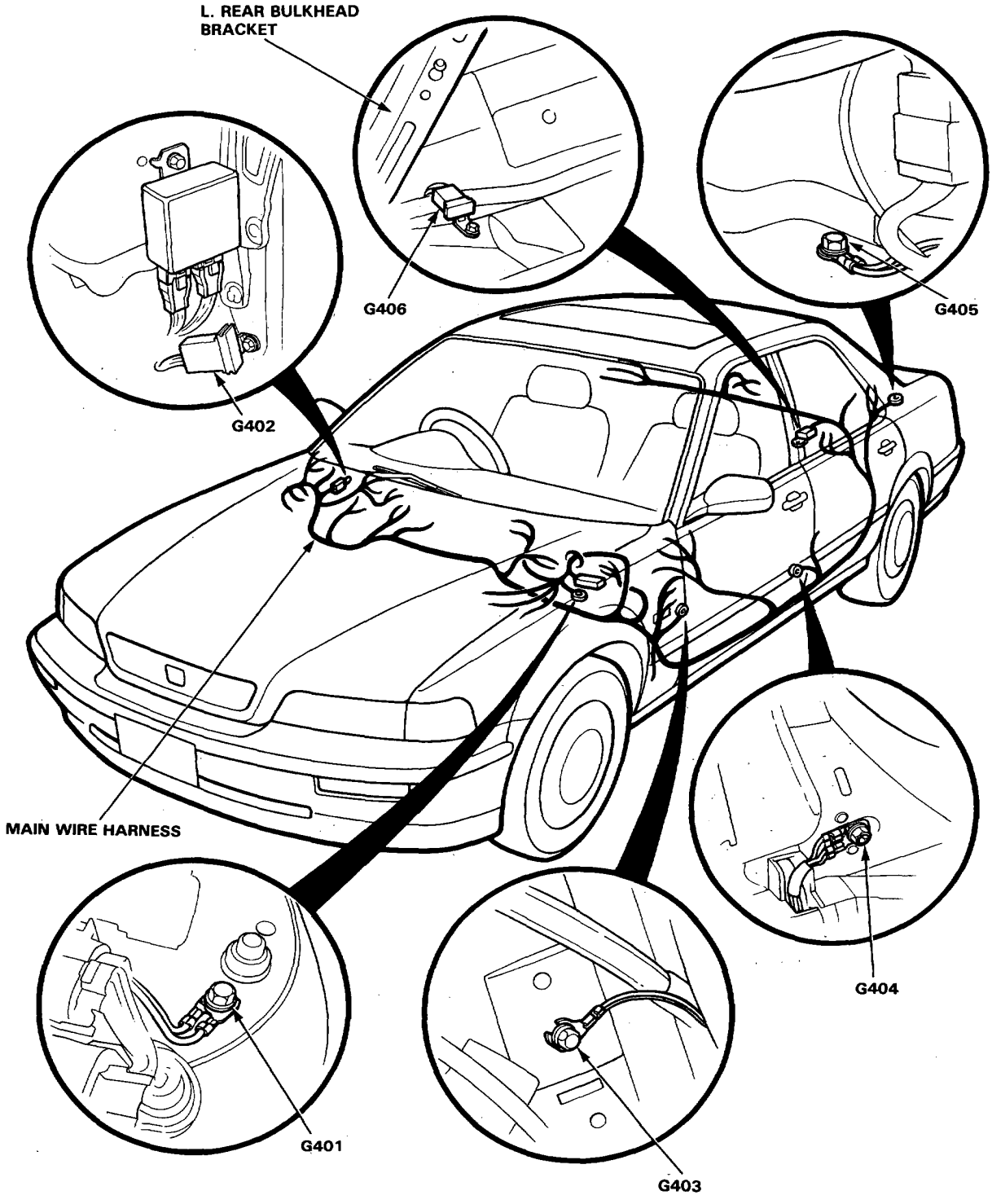
cardiagn.com

Wire Harness and Ground Locations

Dashboard and Floor (LHD)



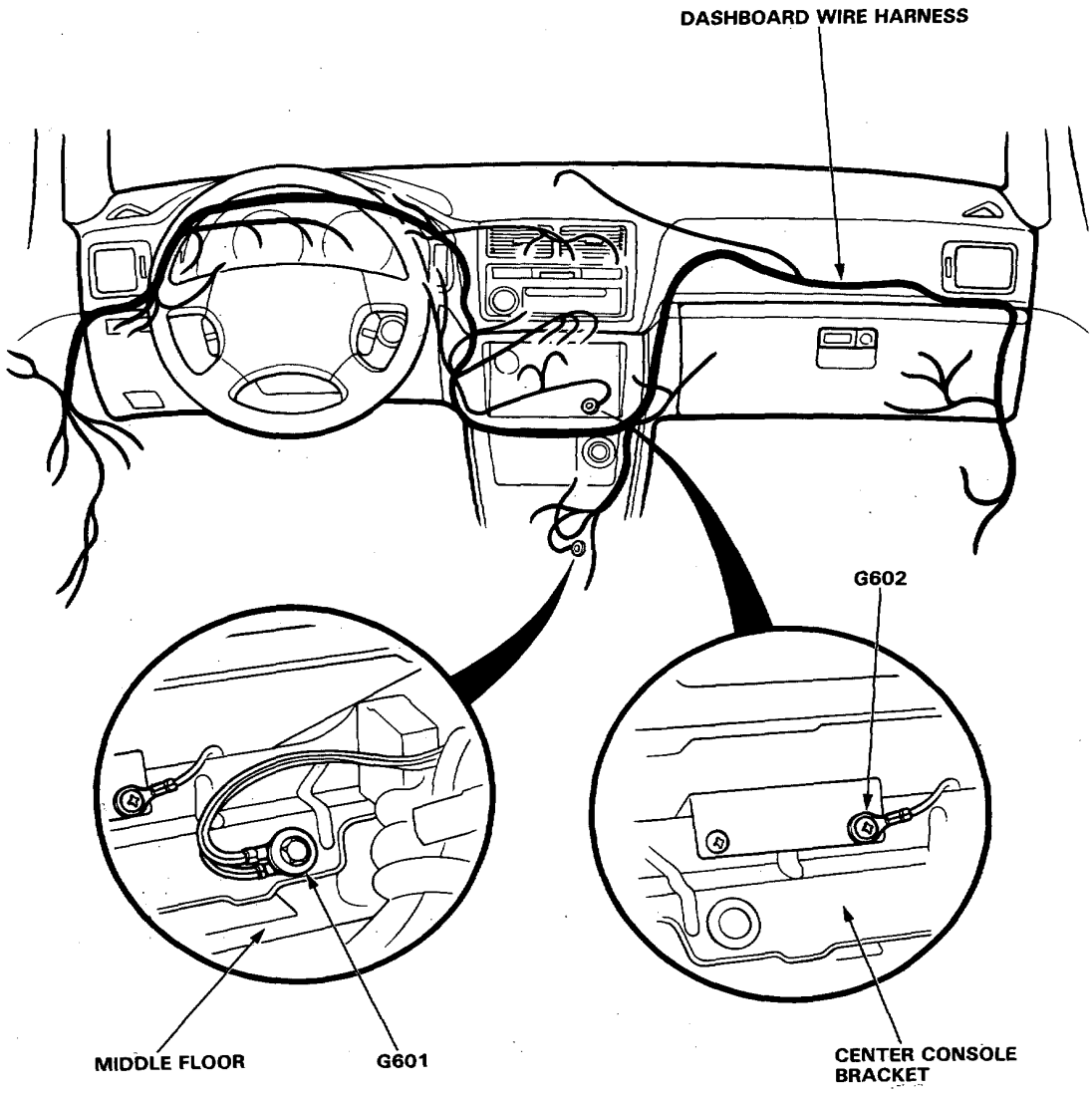
cardiagn.com



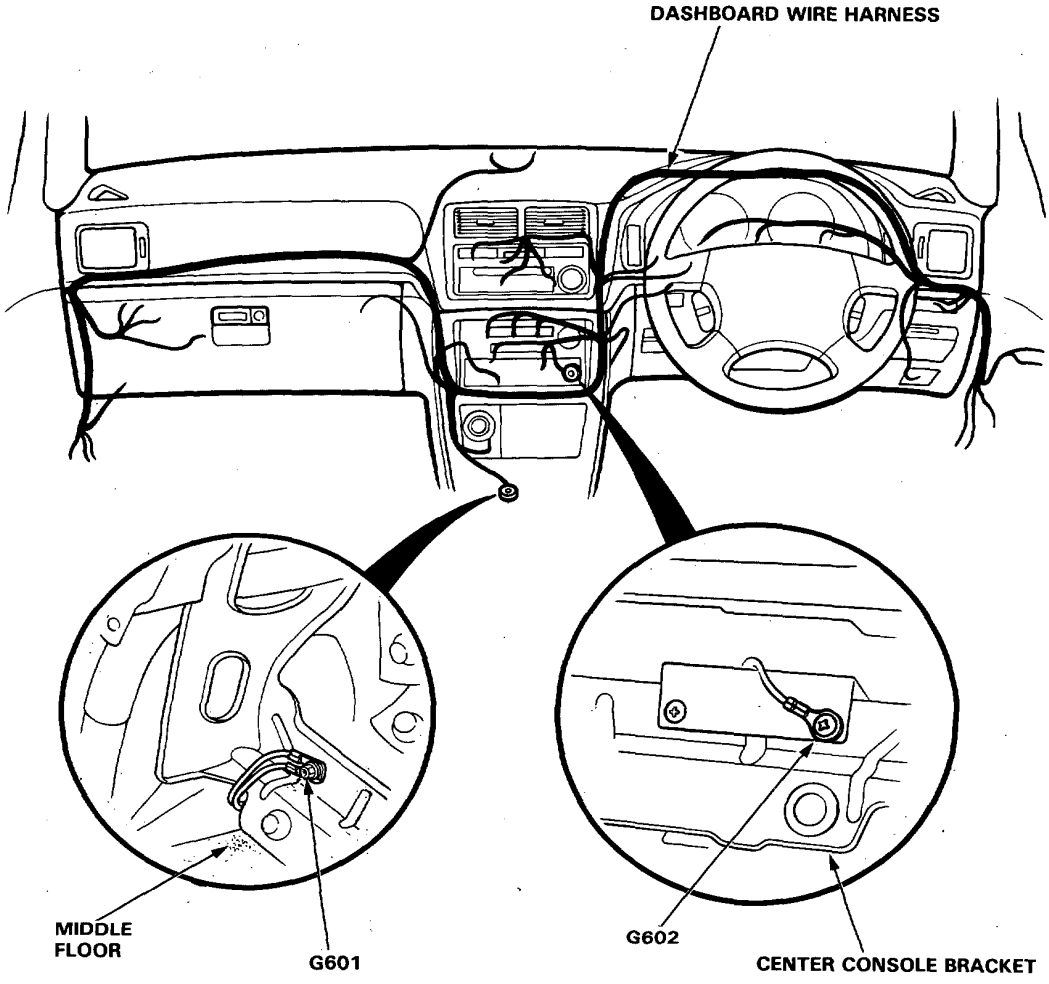
cardiagn.com

Wire Harness and Ground Locations

Dashboard (LHD)



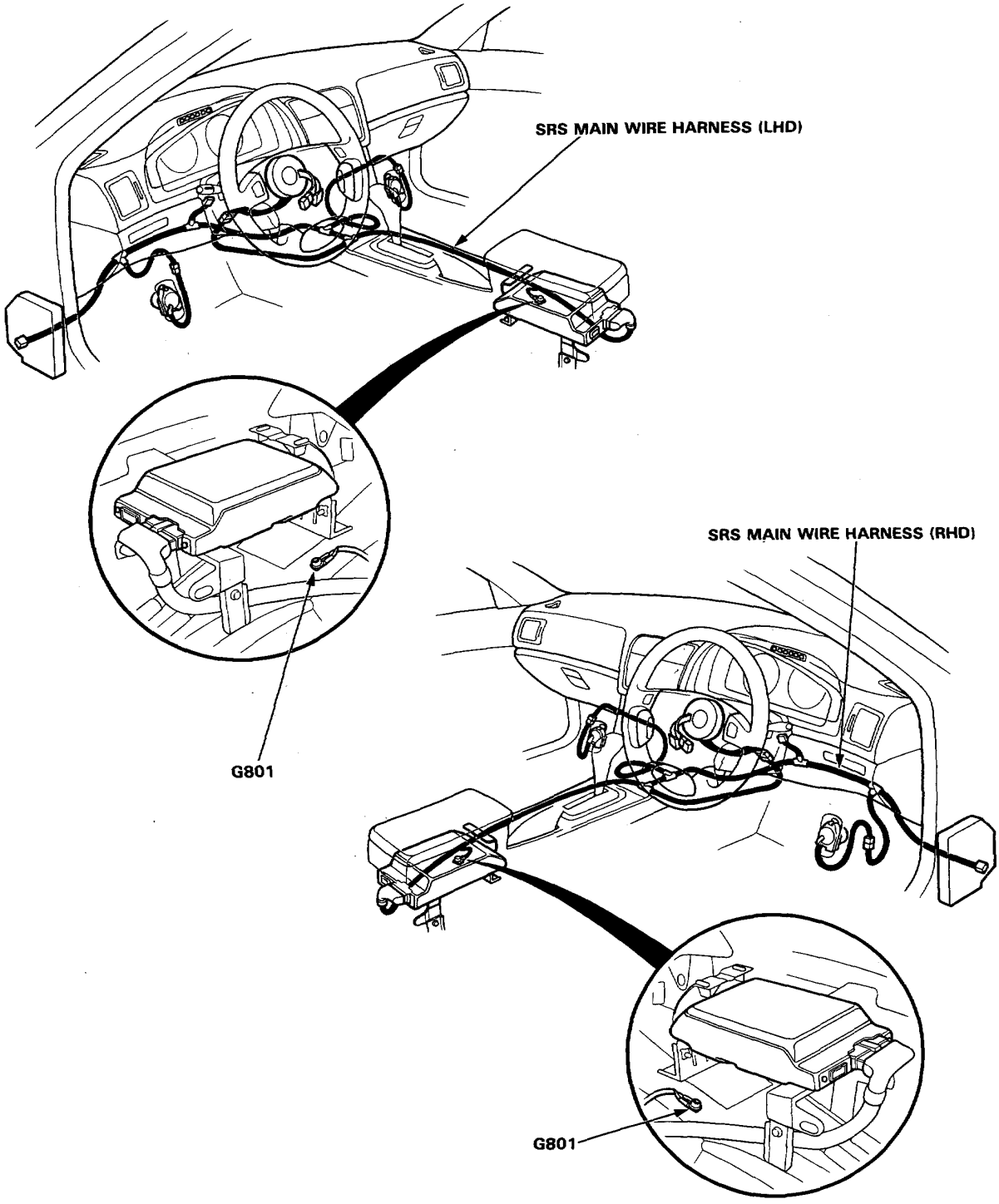
cardiagn.com



cardiagn.com

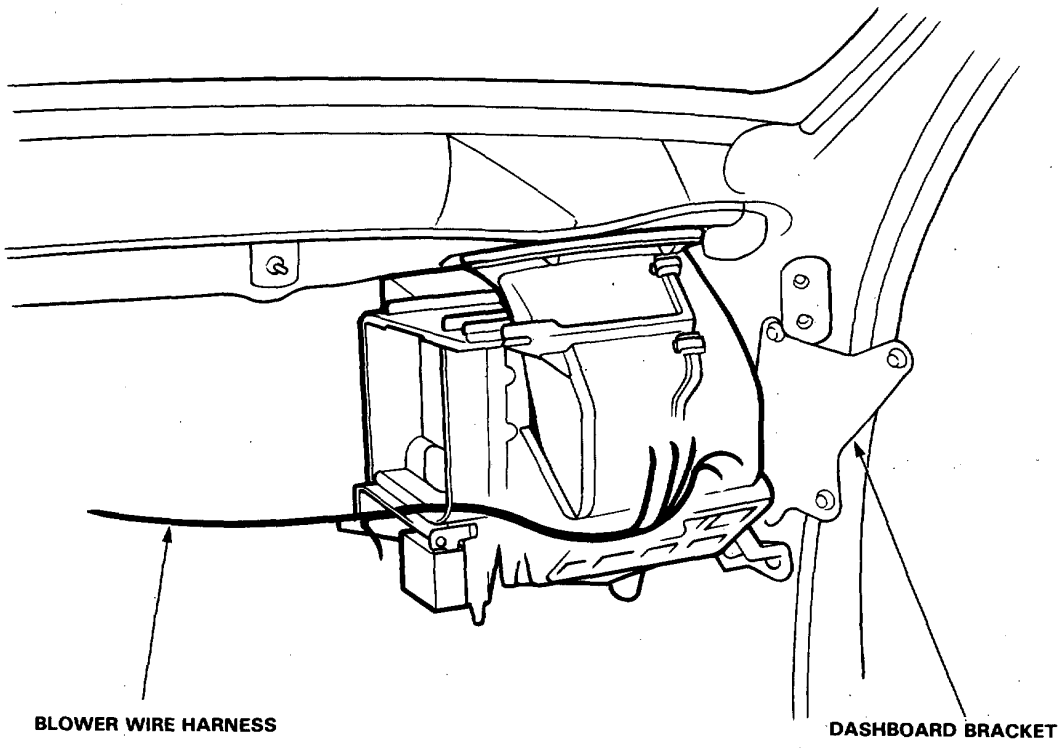
Wire Harness and Ground Locations

Dashboard



cardiagn.com

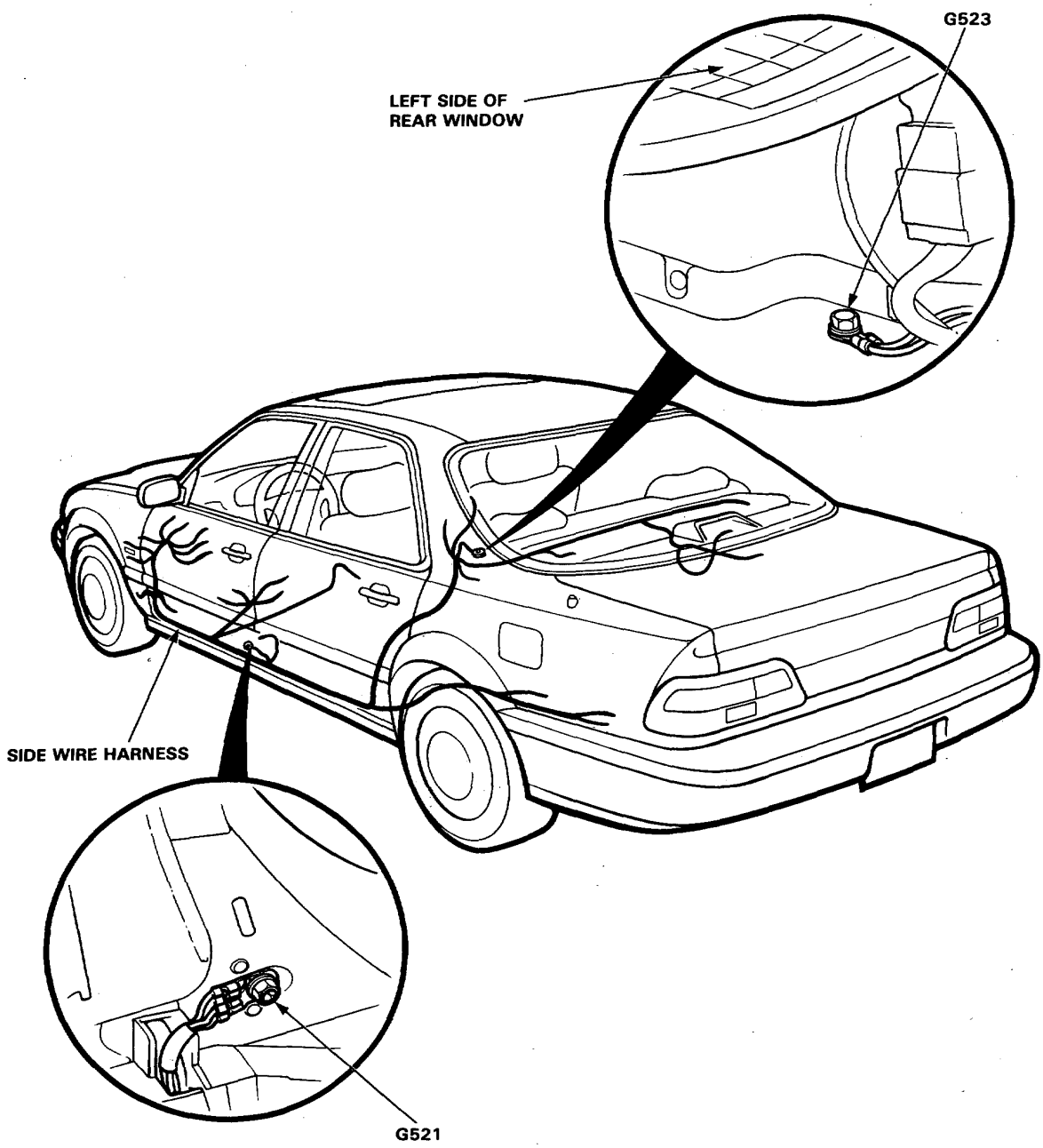
NOTE: LHD type is shown. RHD type is symmetrical to LHD type.



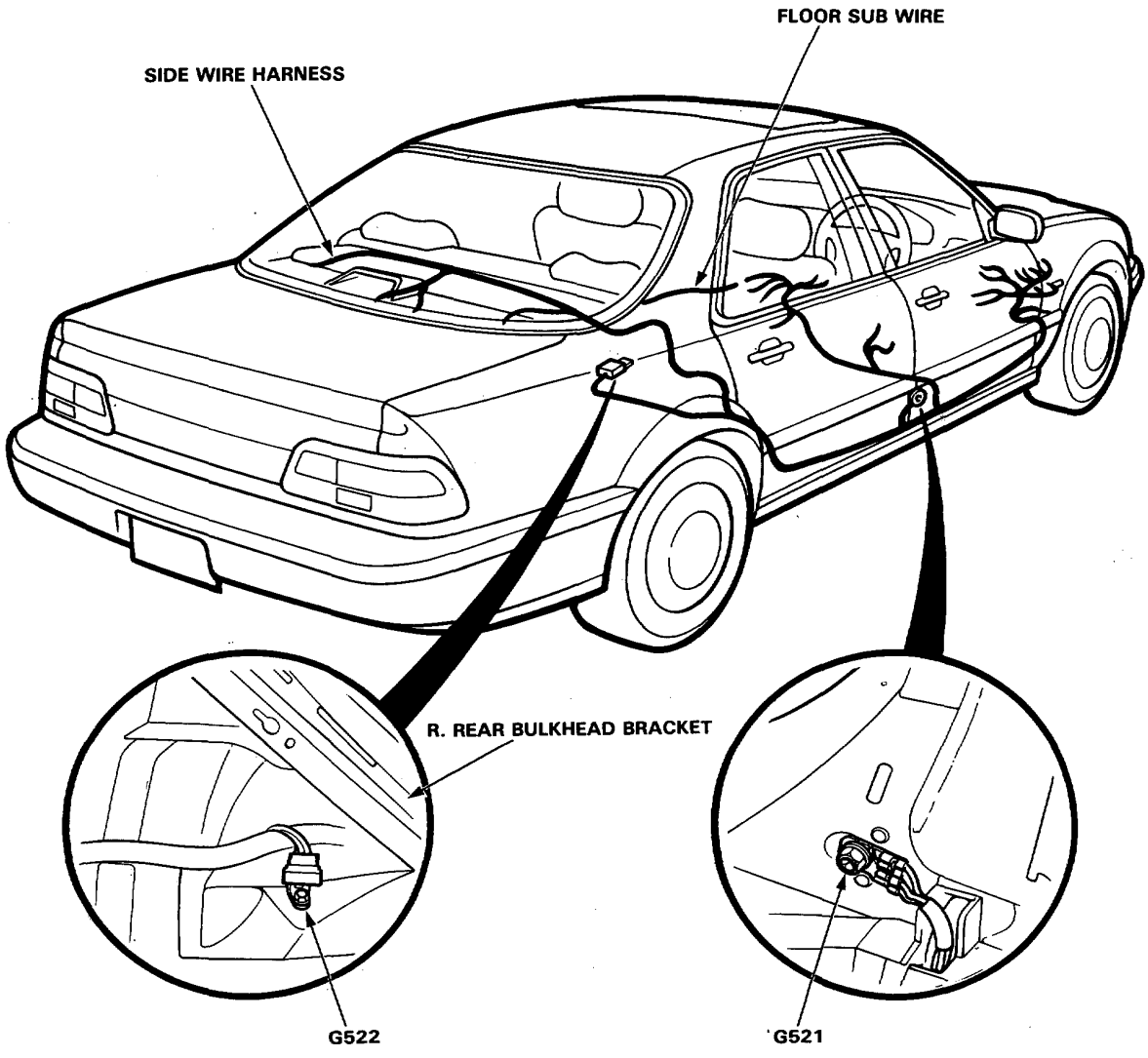
cardiagn.com

Wire Harness and Ground Locations

Floor (LHD)



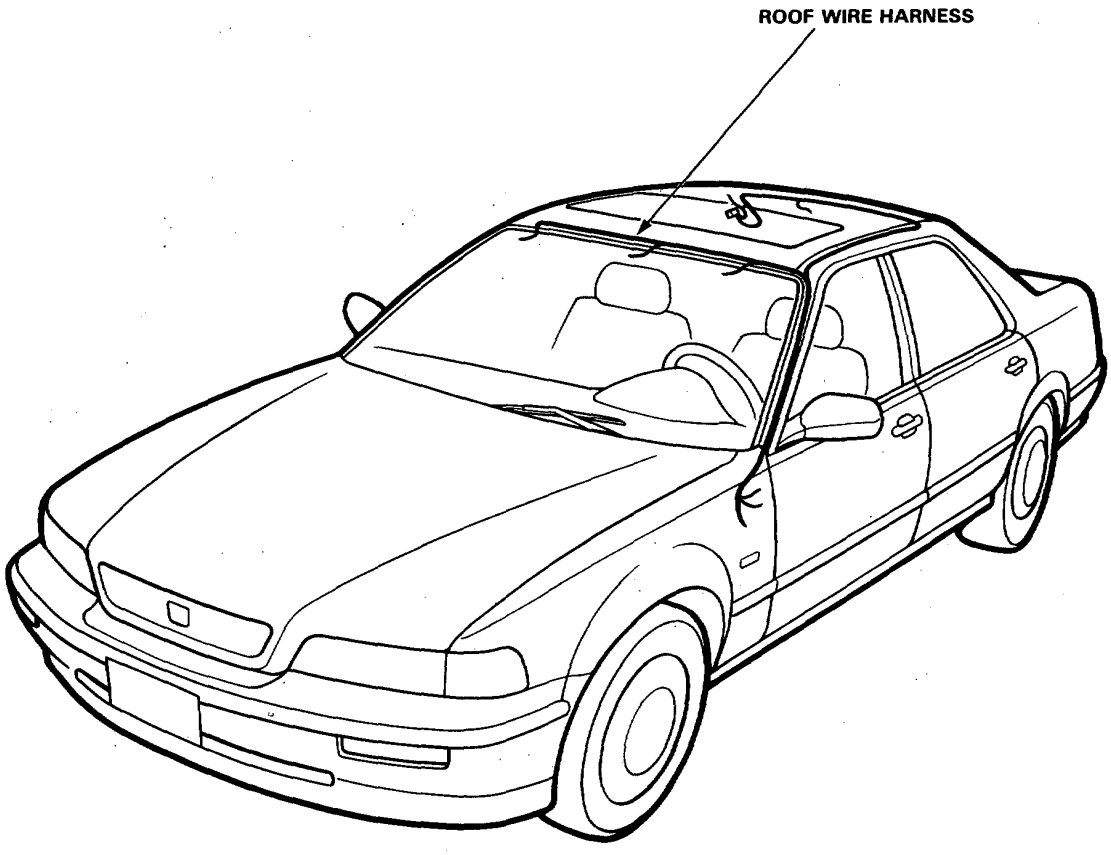
cardiagn.com



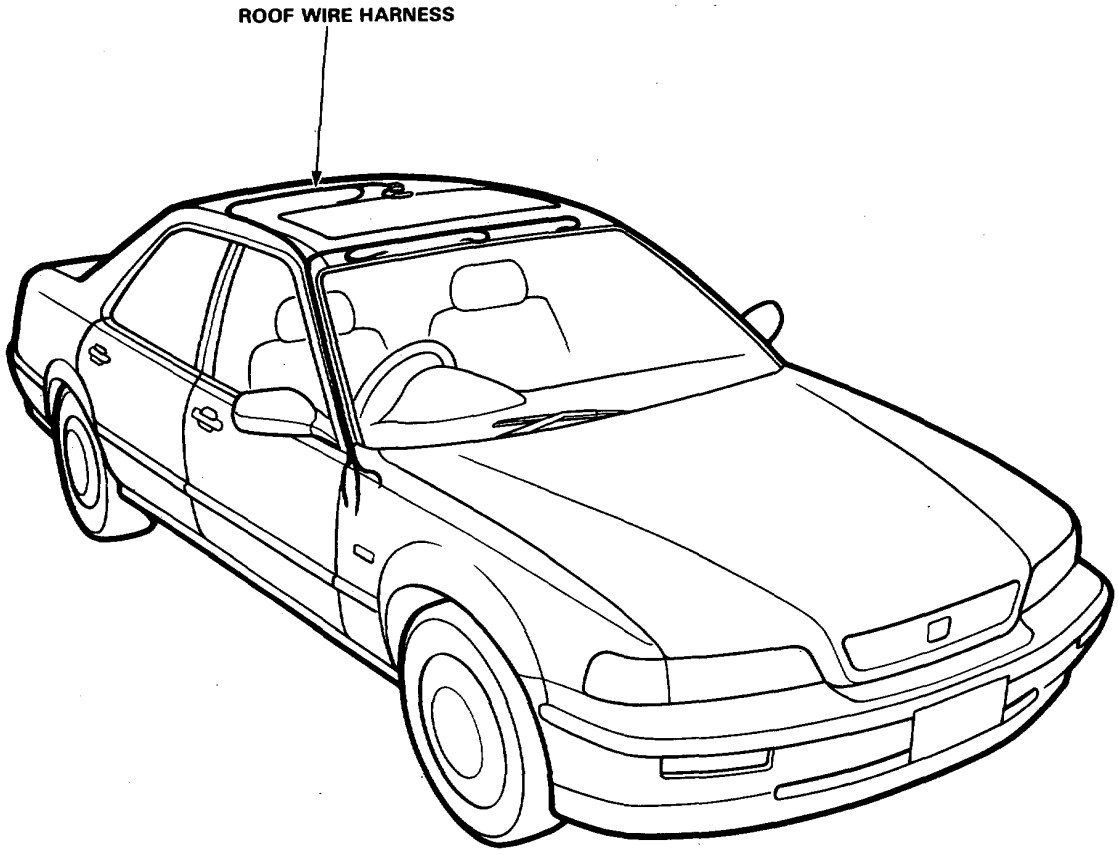
cardiagn.com

Wire Harness and Ground Locations

Roof (LHD)



cardiagn.com

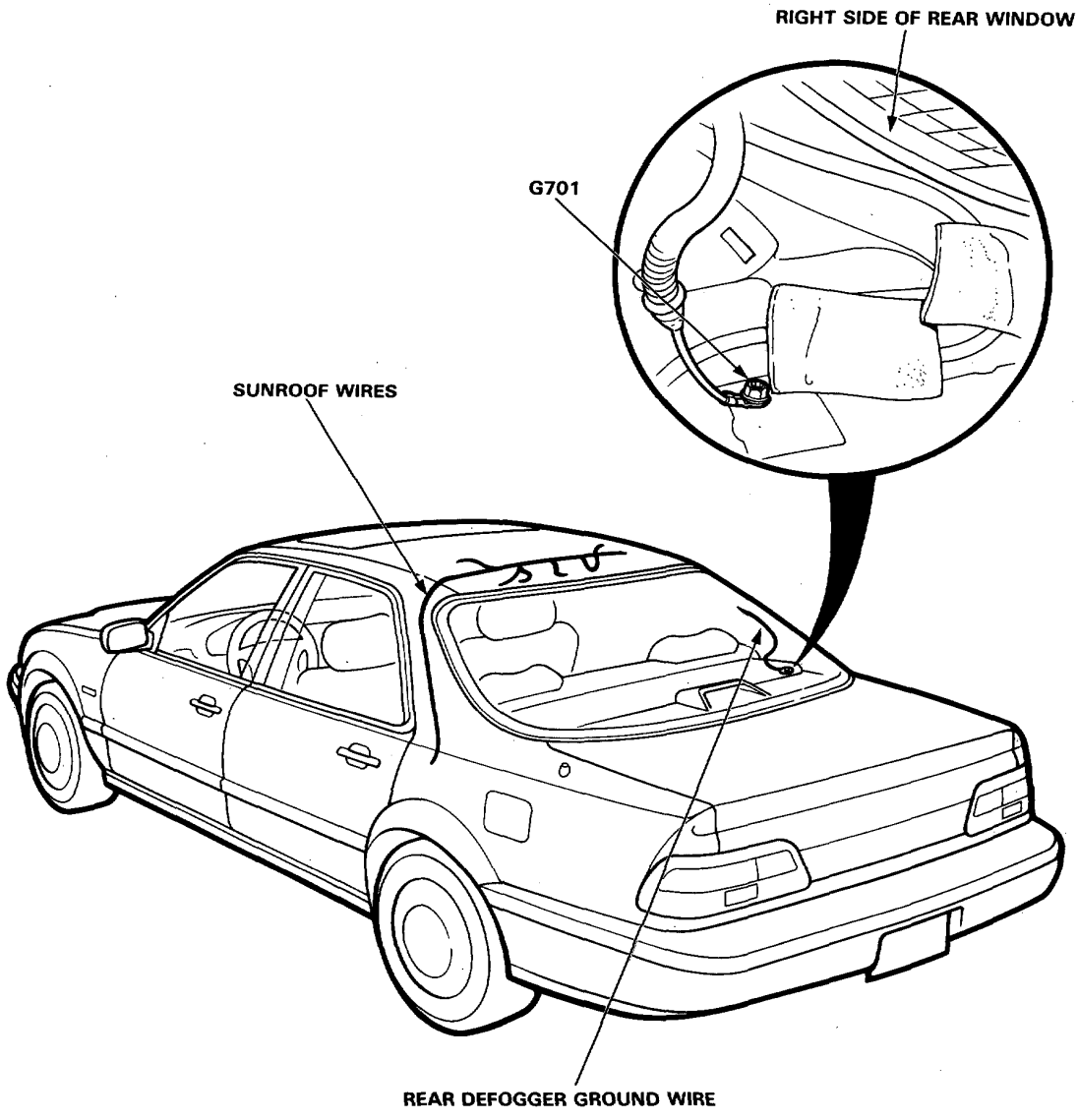


cardiagn.com

Wire Harness and Ground Locations

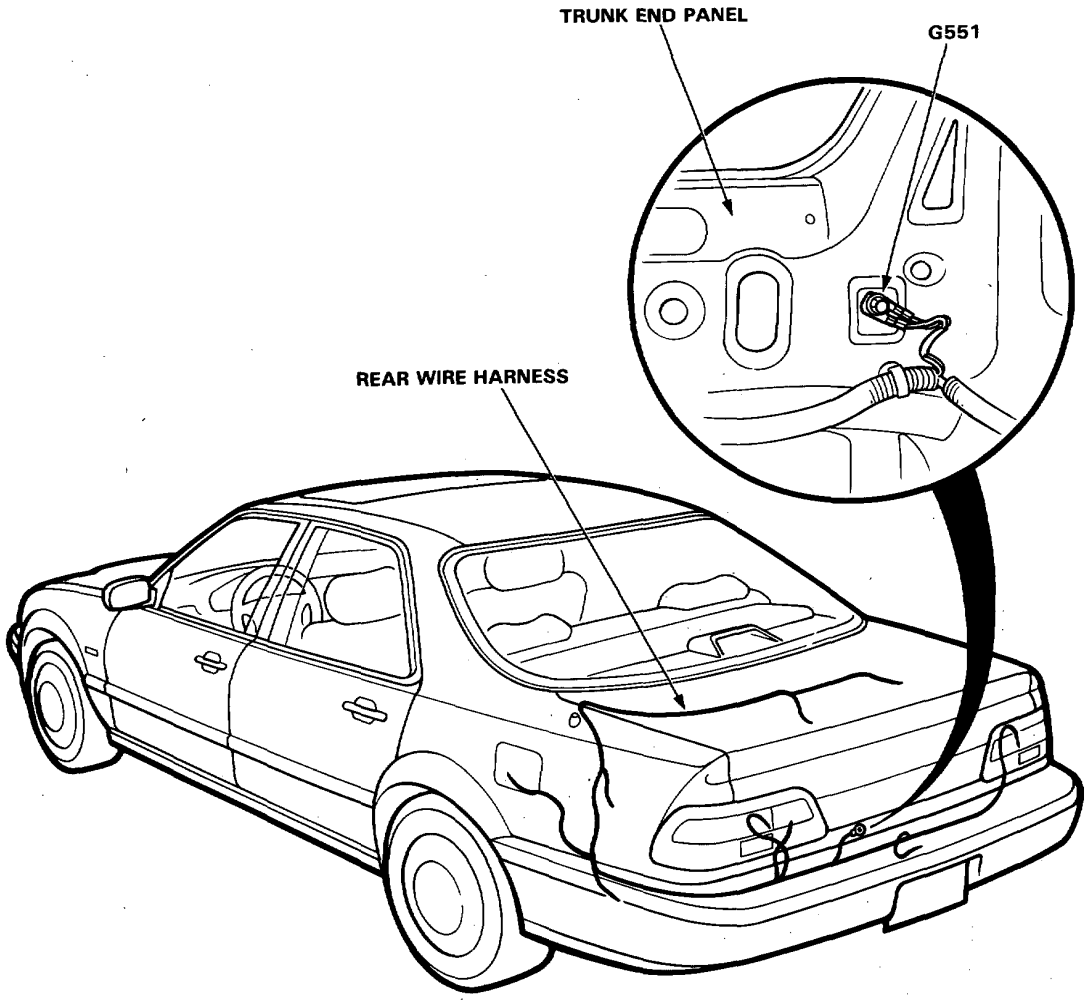
Roof

NOTE: LHD type is shown. RHD type is similar.



cardiagn.com

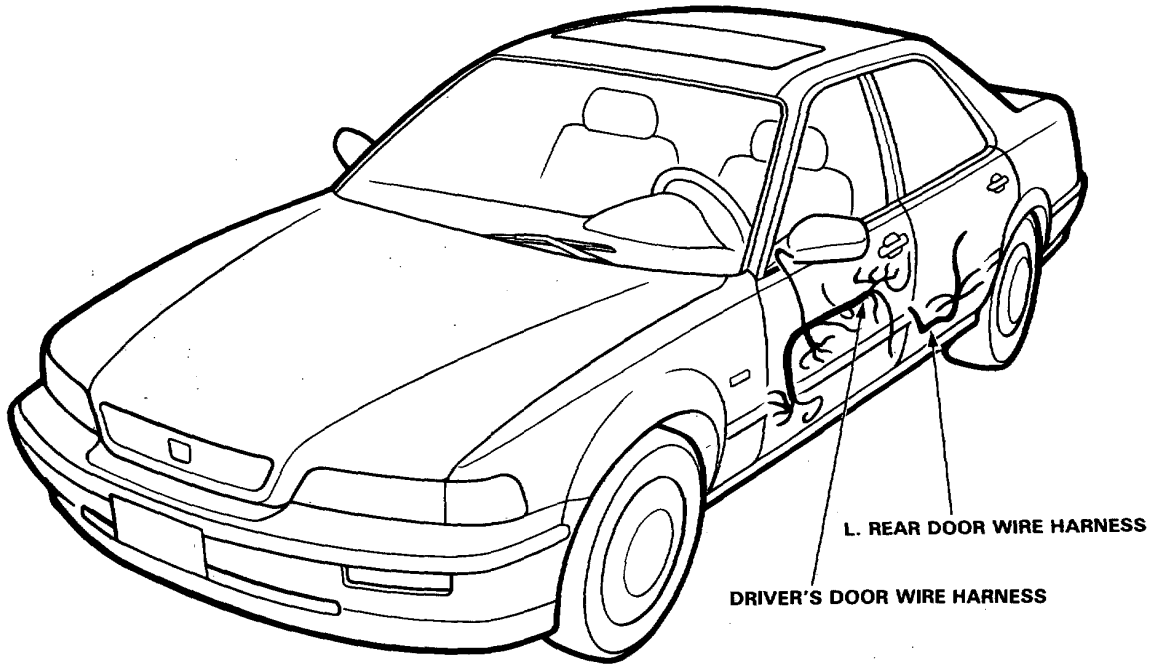
NOTE: LHD type is shown. RHD type is similar.

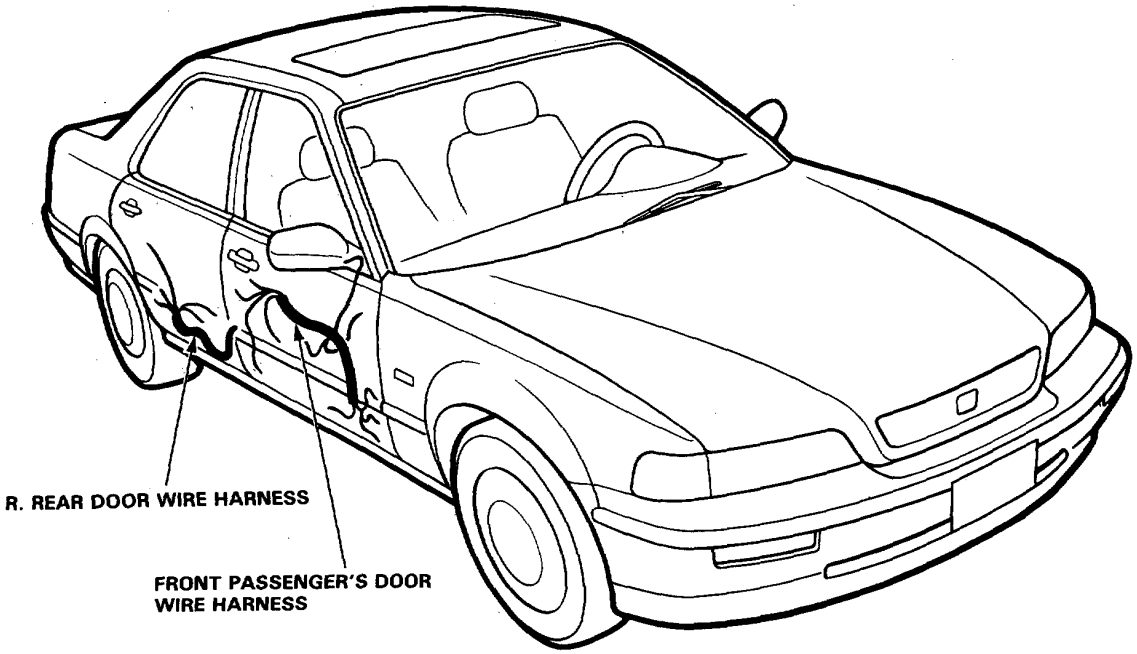


cardiagn.com

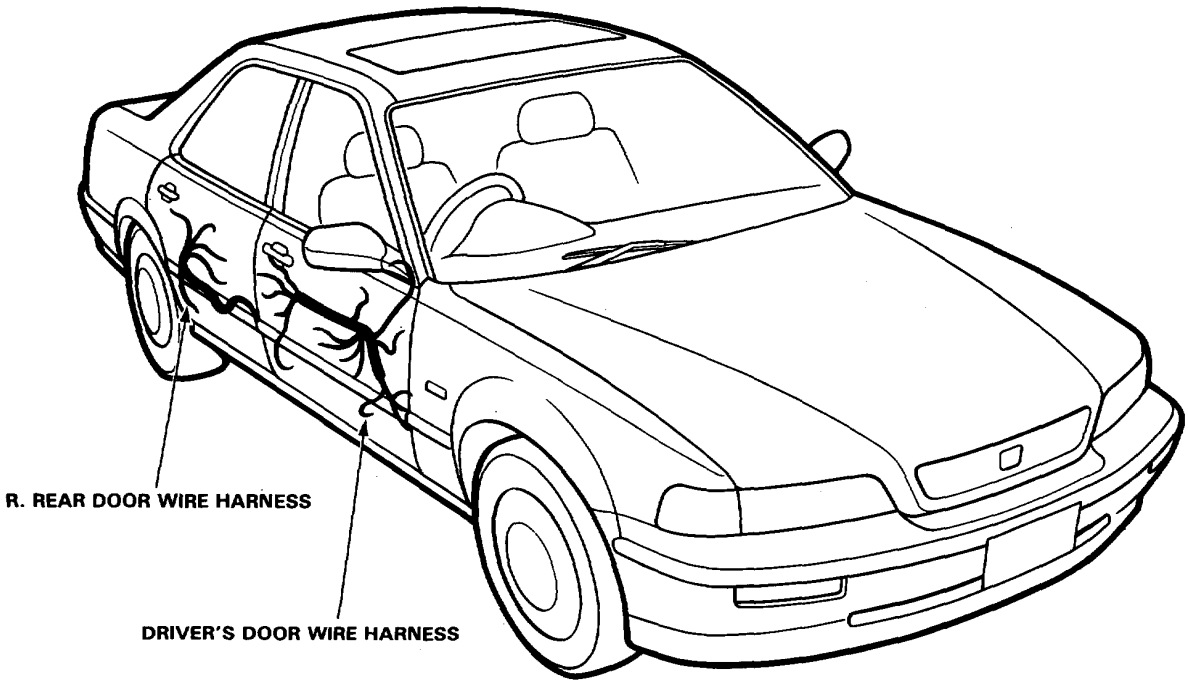
Wire Harness and Ground Locations

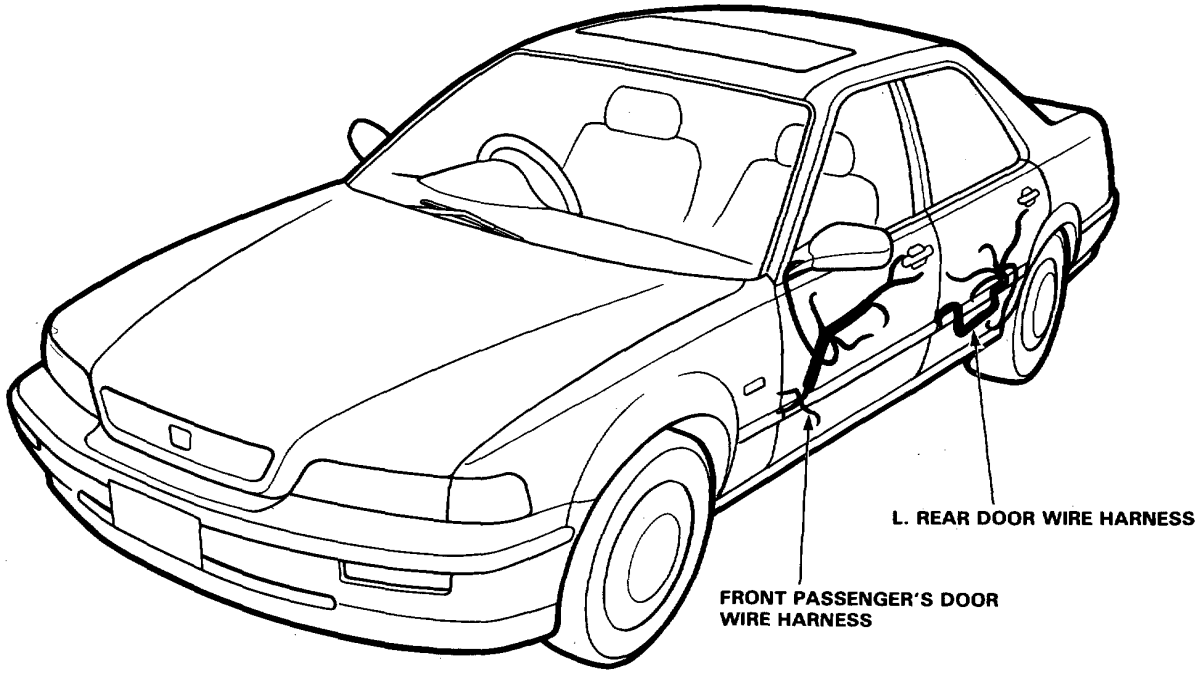
Door (LHD)





cardiagn.com

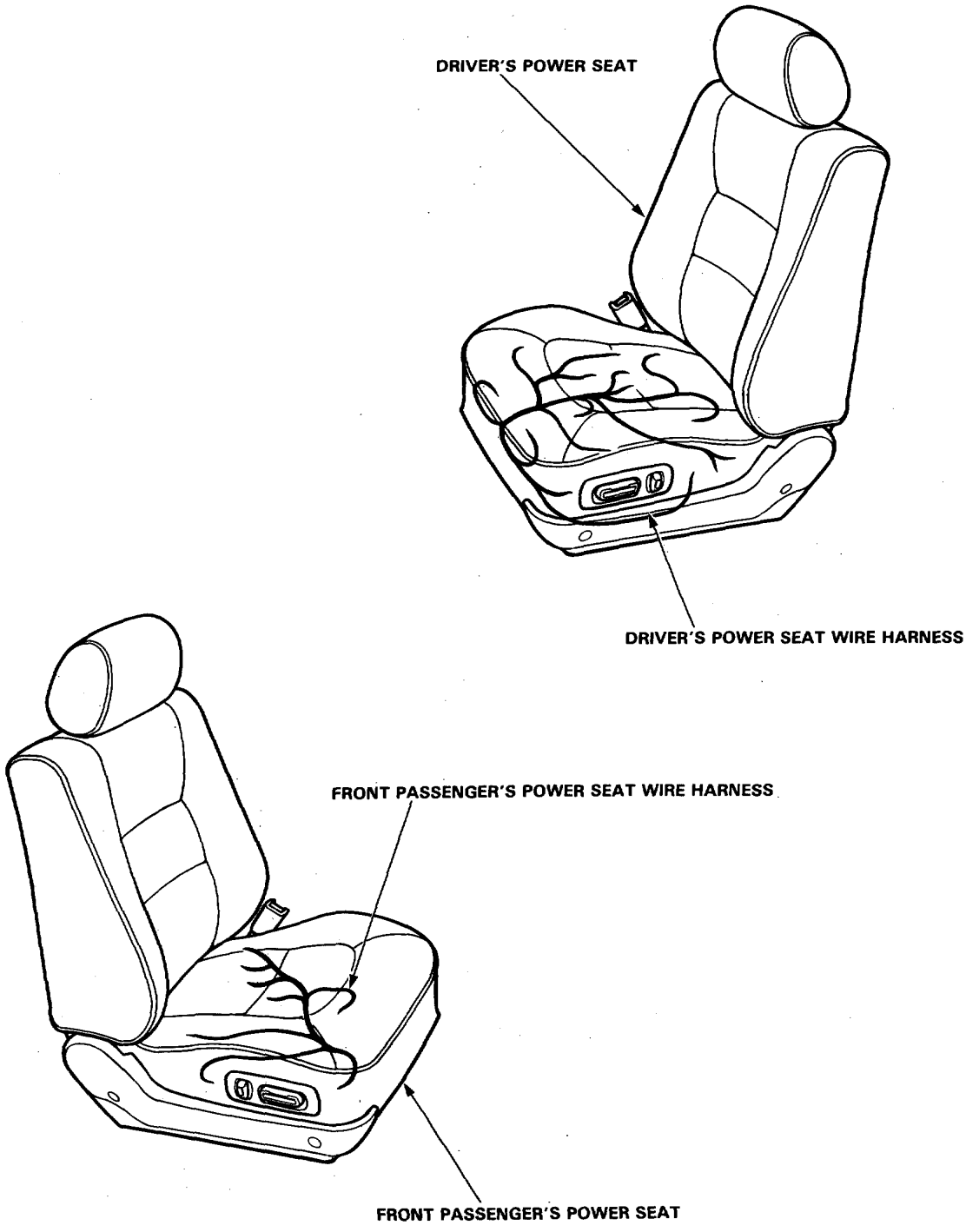




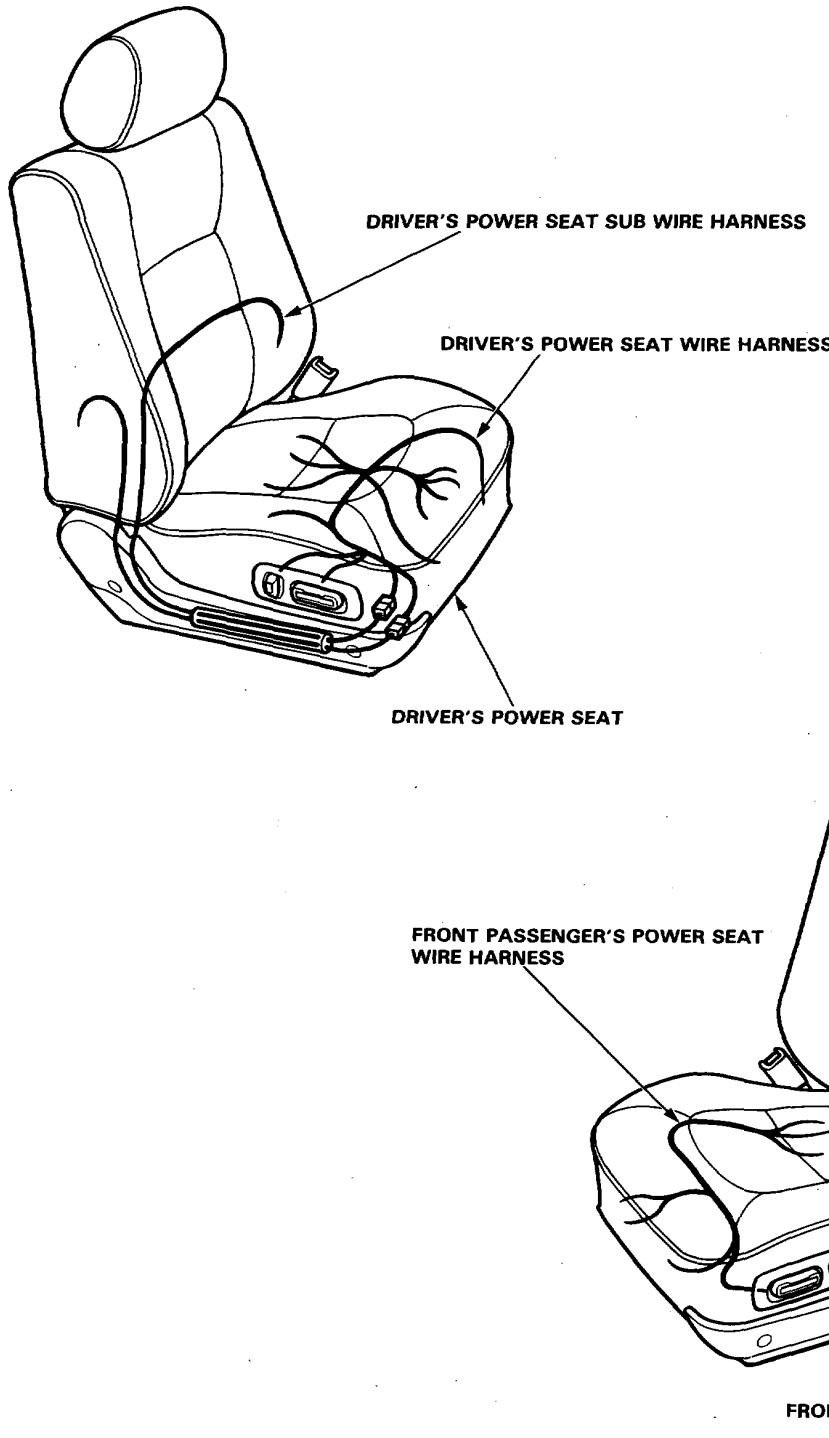
cardiagn.com

Wire Harness and Ground Locations

Seat (LHD)



cardiagn.com

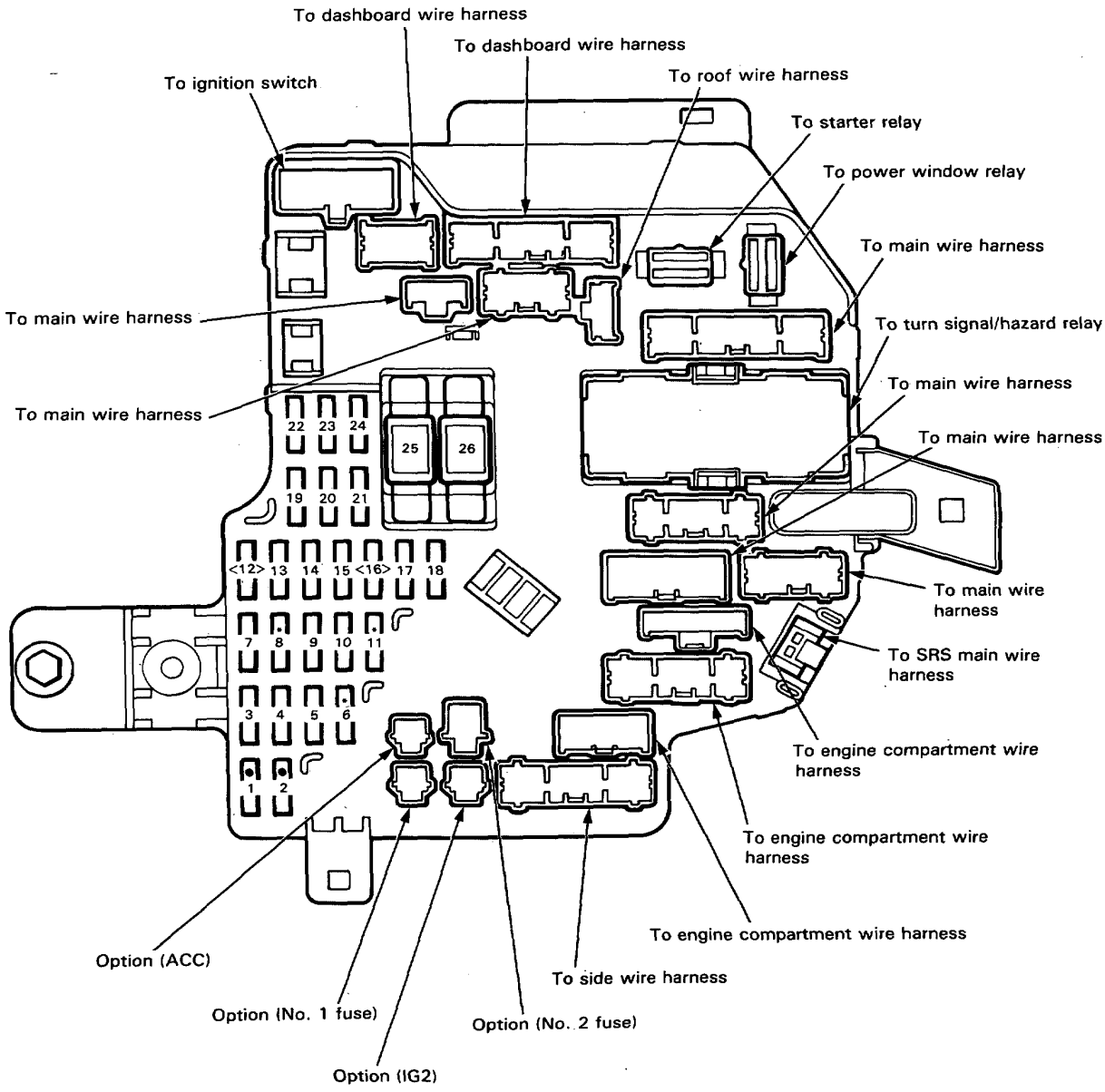


cardiagn.com

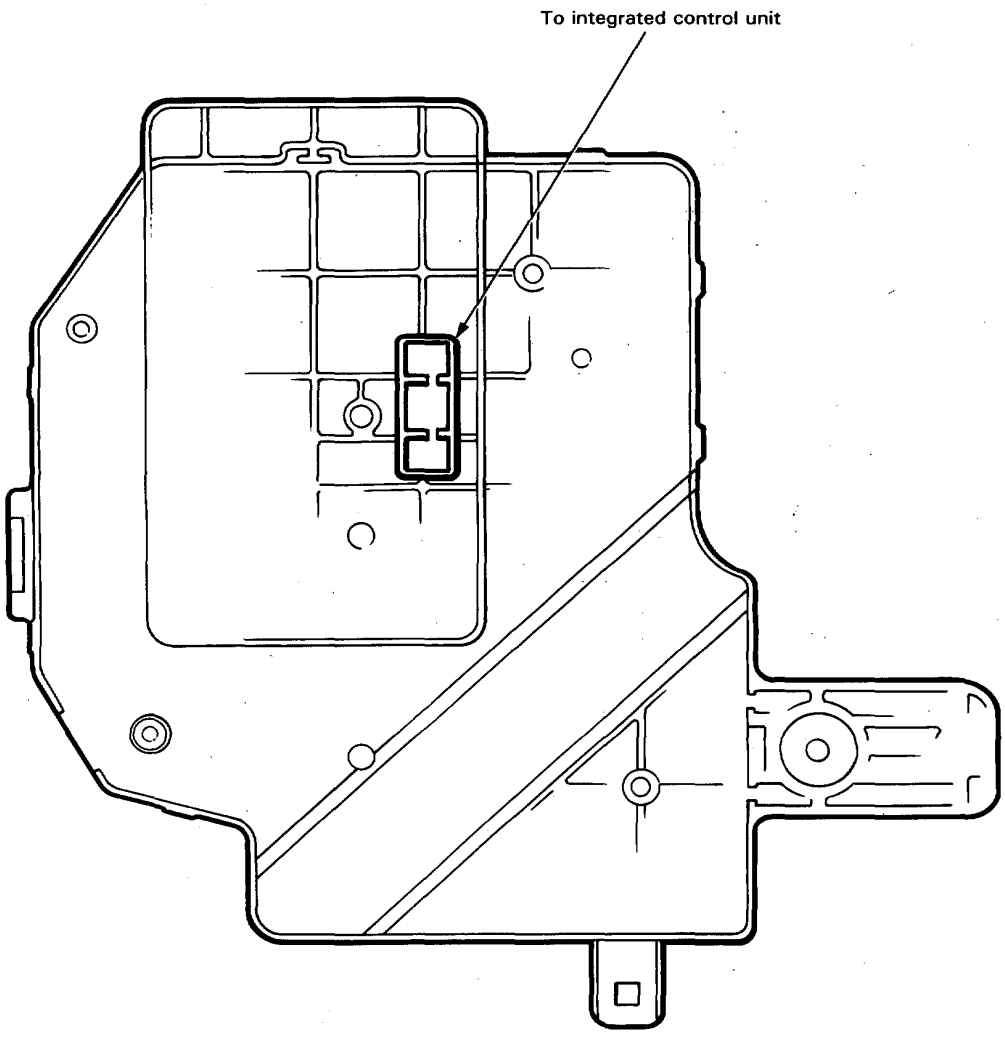
Fuses

Under-Dash Fuse Box (LHD)

*: NOT USED
●: OPTION
< >: KS model



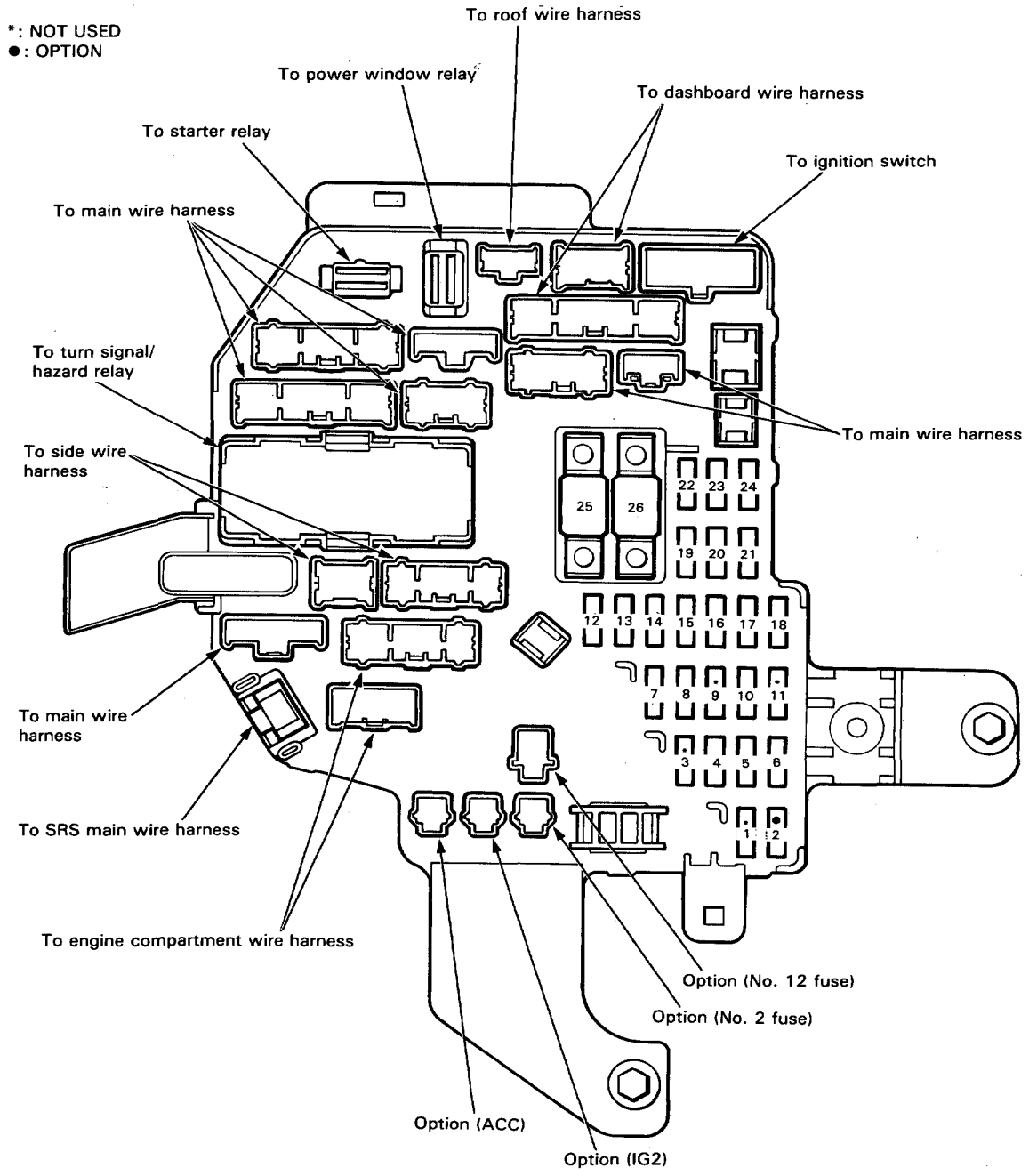
cardiagn.com



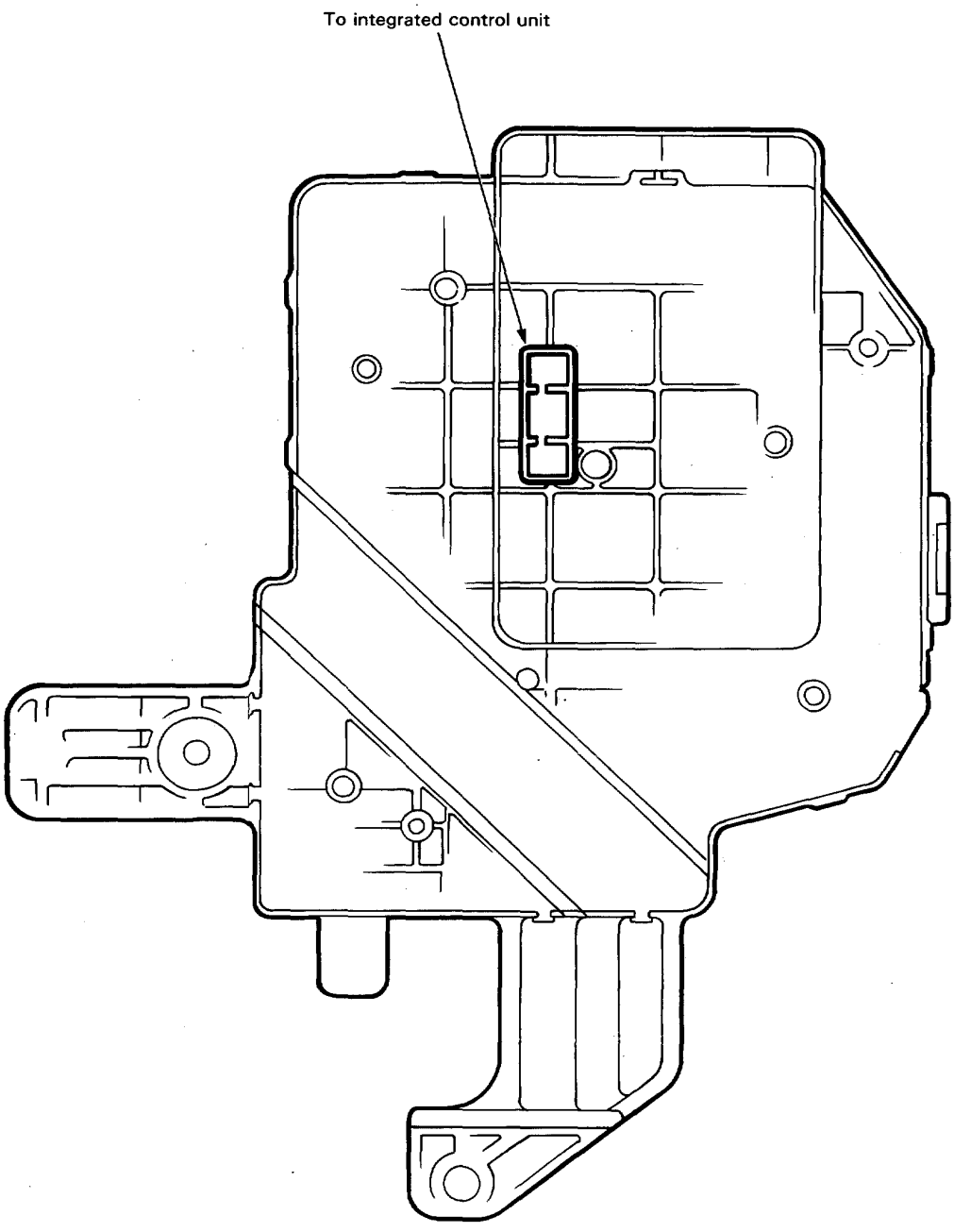
cardiagn.com

Fuses

Under-Dash Fuse Box (RHD)



cardiagn.com

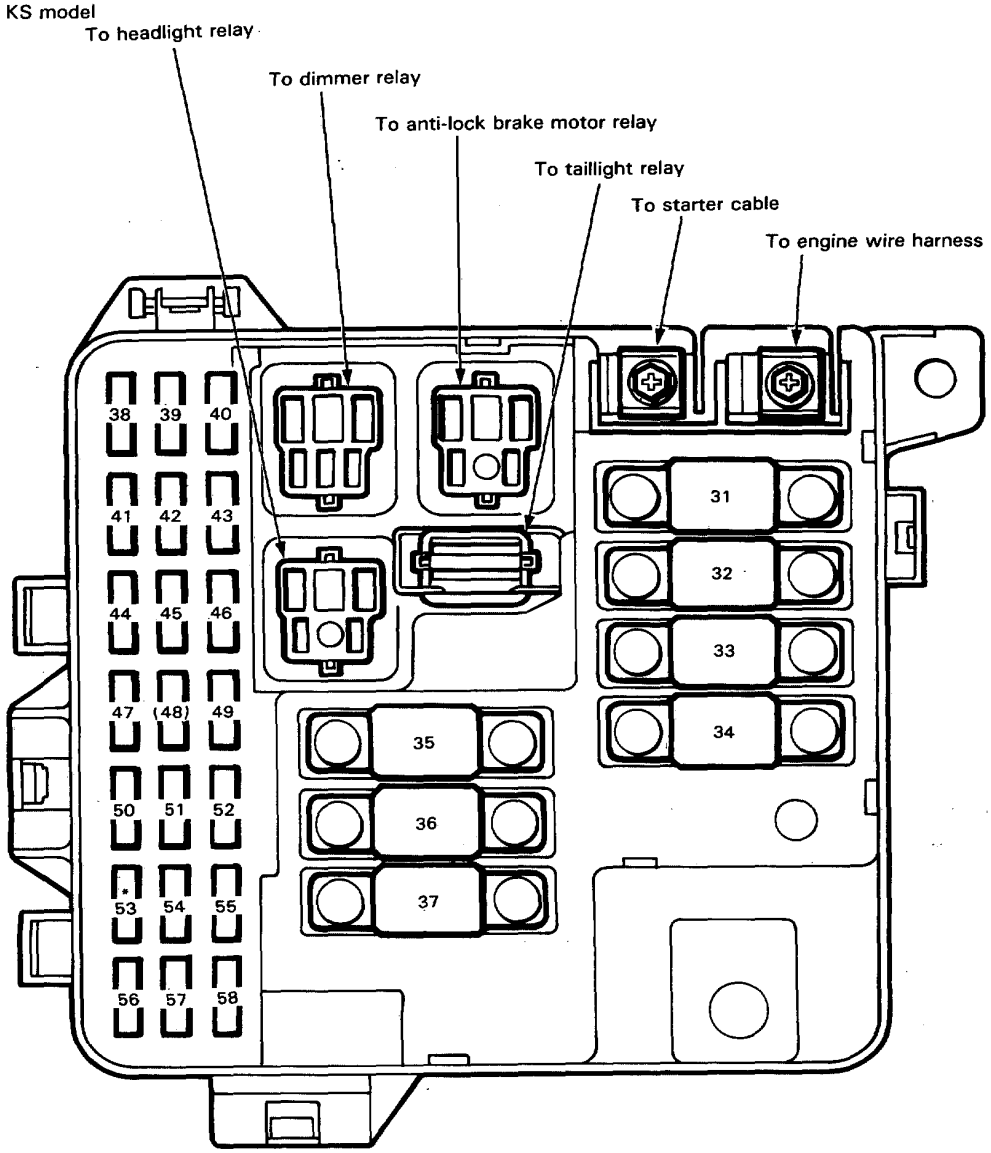


cardiagn.com

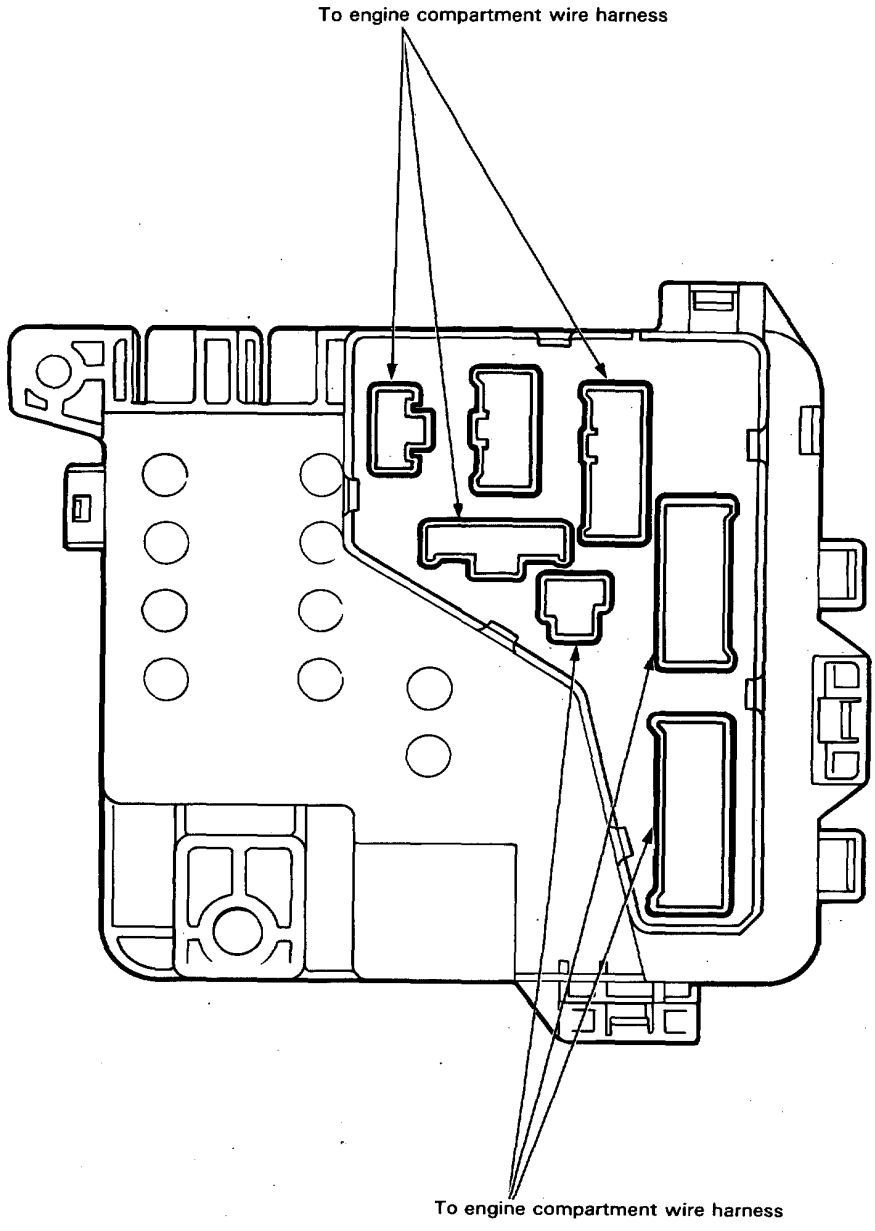
Fuses

Under-Hood Fuse/Relay Box

* : NOT USED
( ): EXCEPT KS model



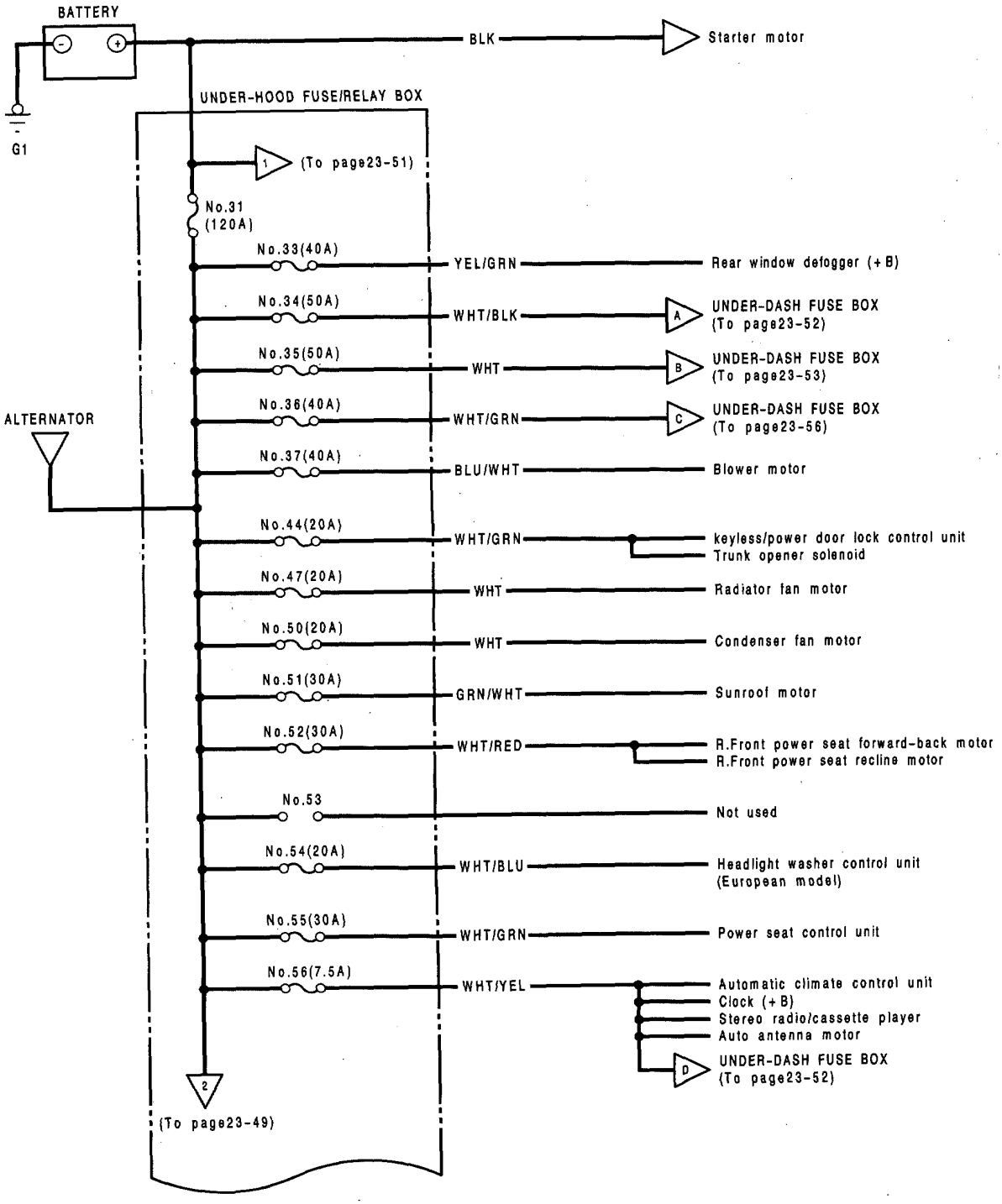
cardiagn.com



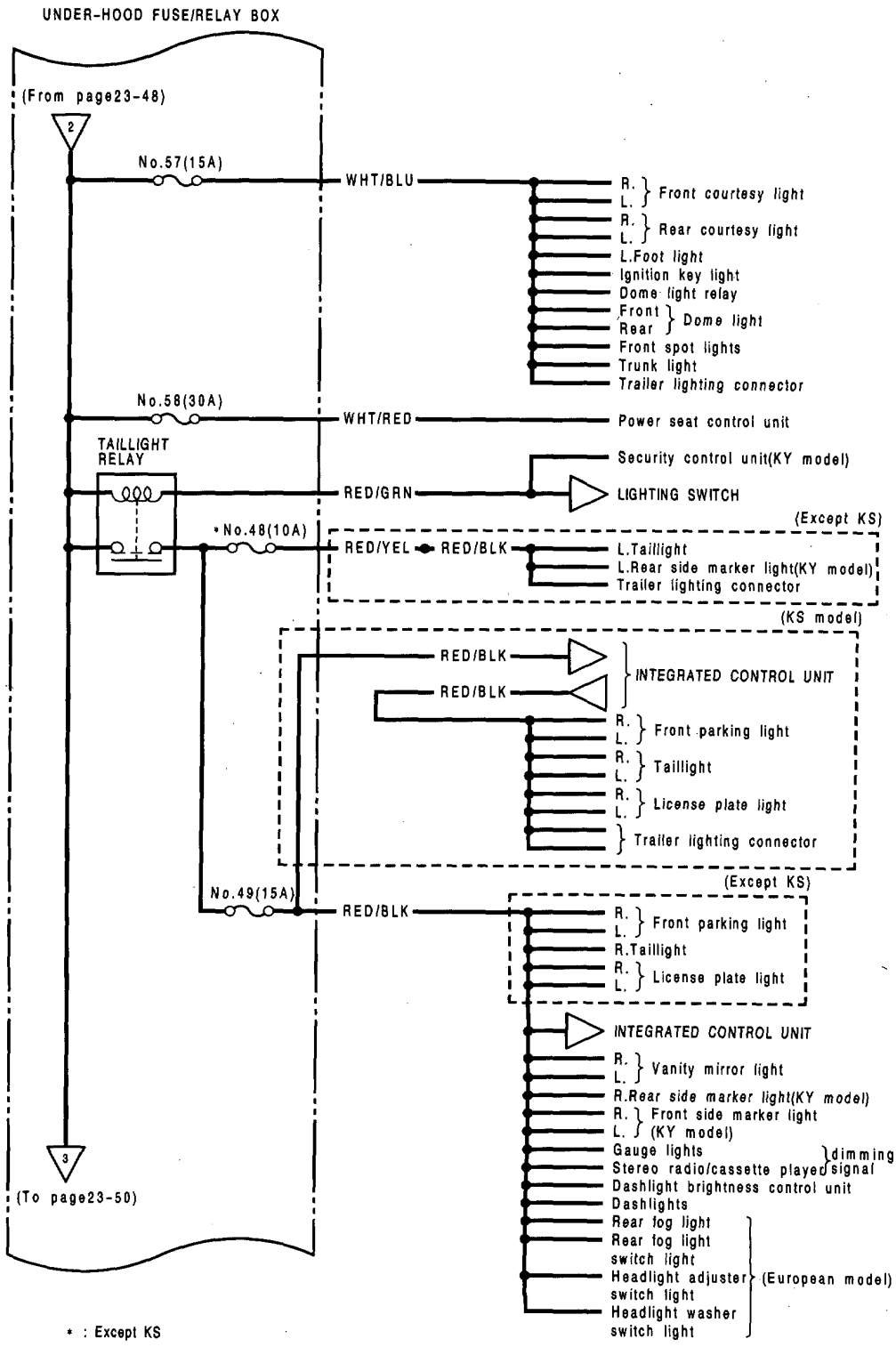
cardiagn.com

Power Distribution (LHD)

Circuit Identification

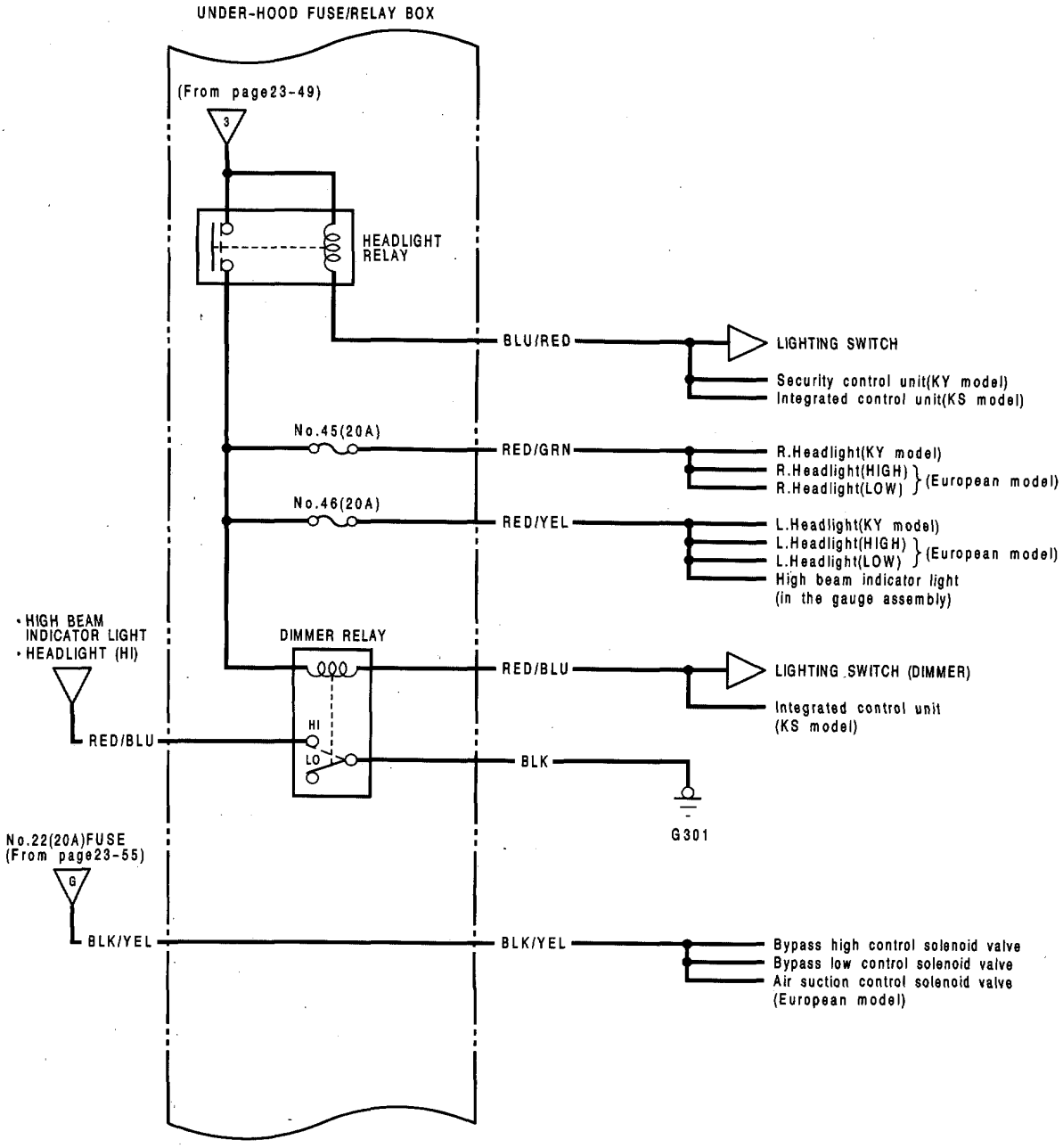


cardiagn.com

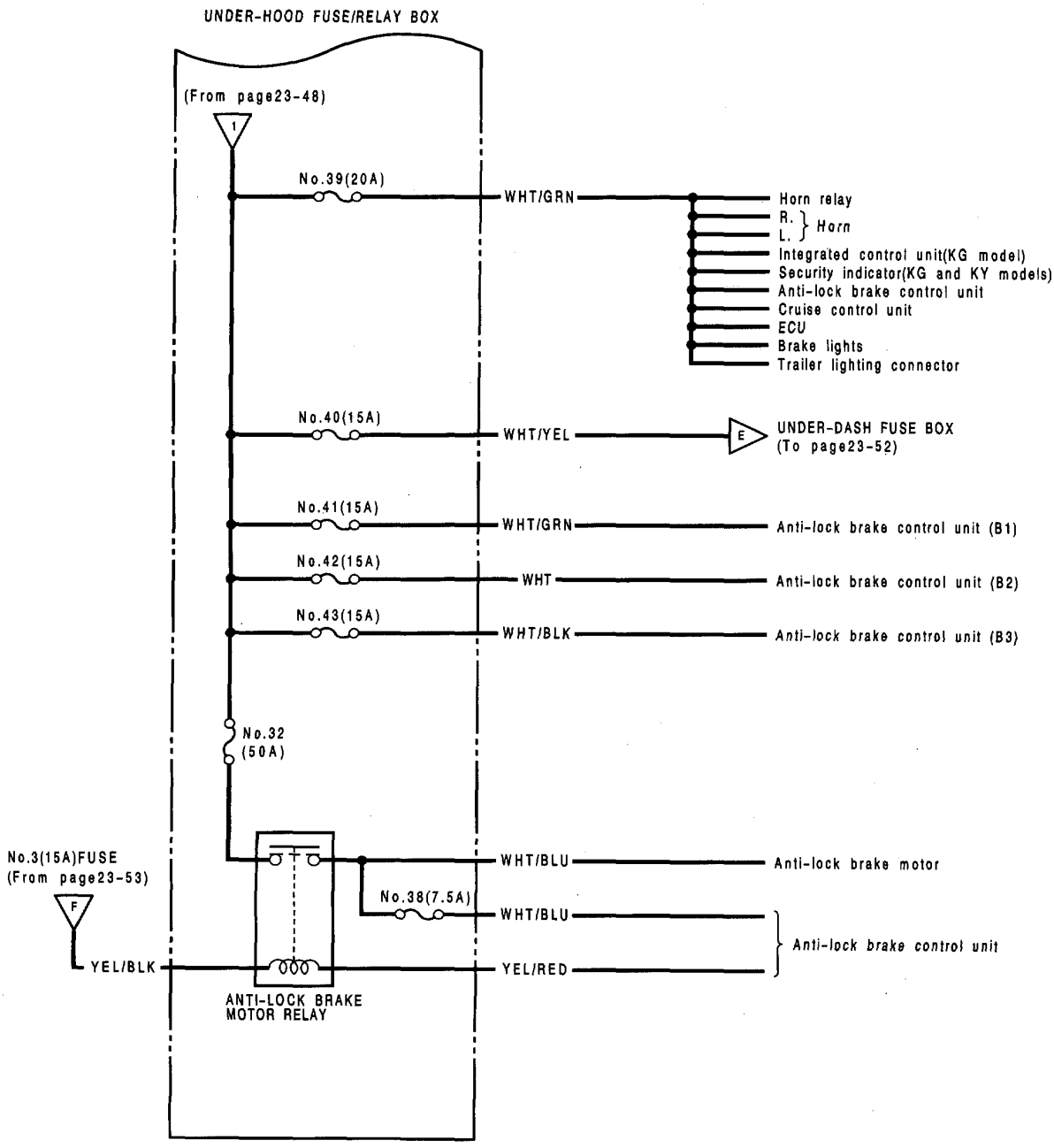


(cont'd)

cardiagn.com



cardiagn.com

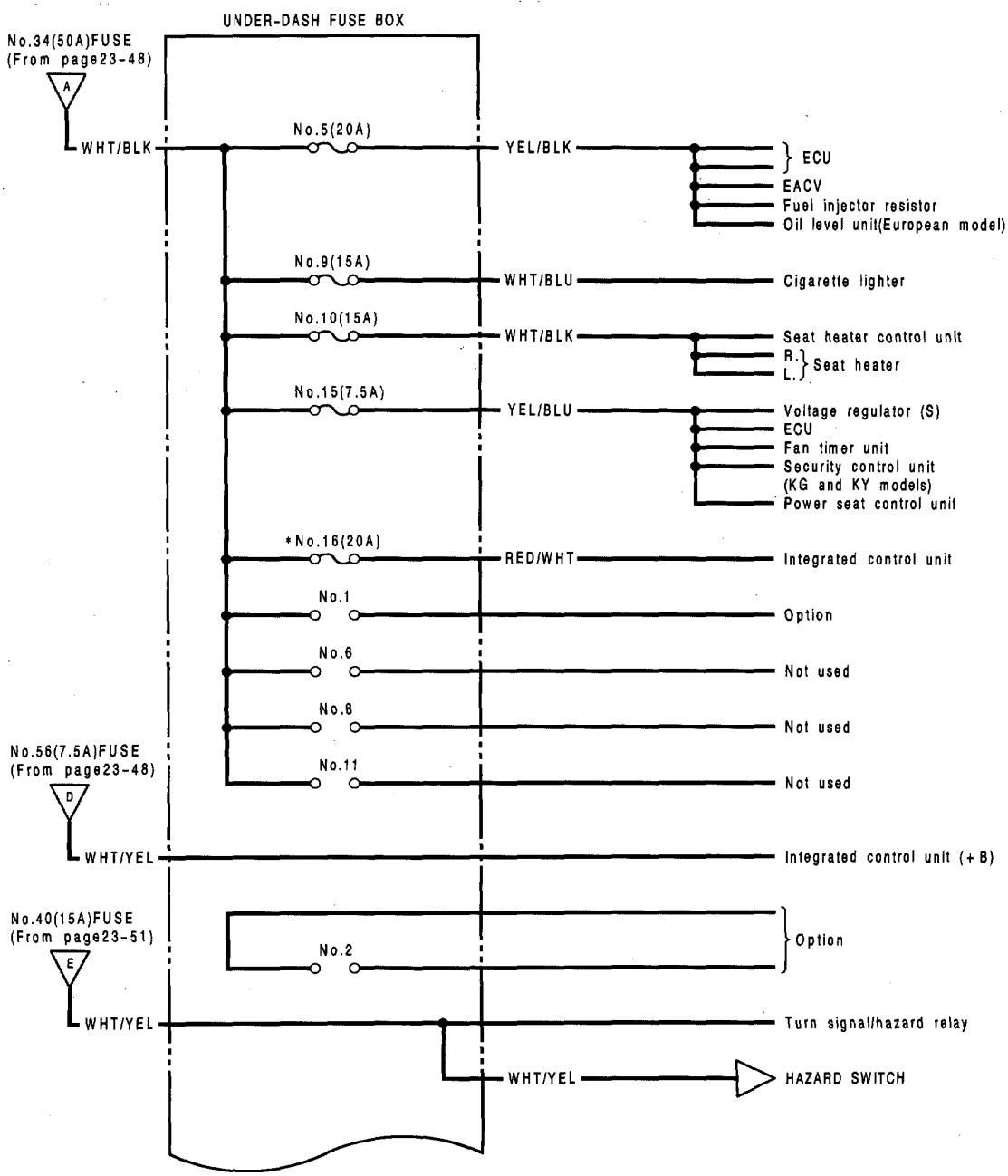


cardiagn.com

(cont'd)

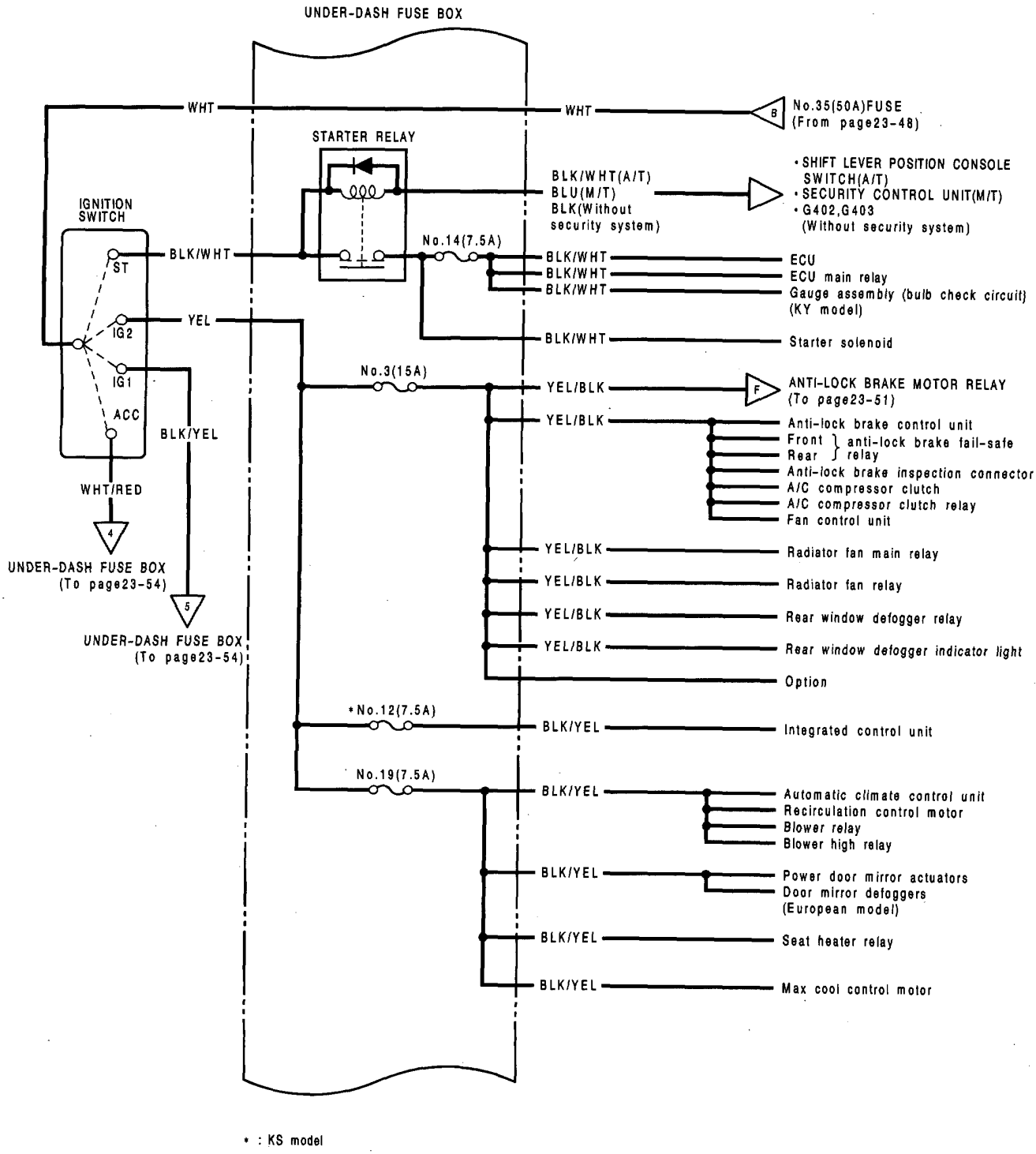
Power Distribution (LHD)

Circuit Identification (cont'd)



* : KS model

cardiagn.com



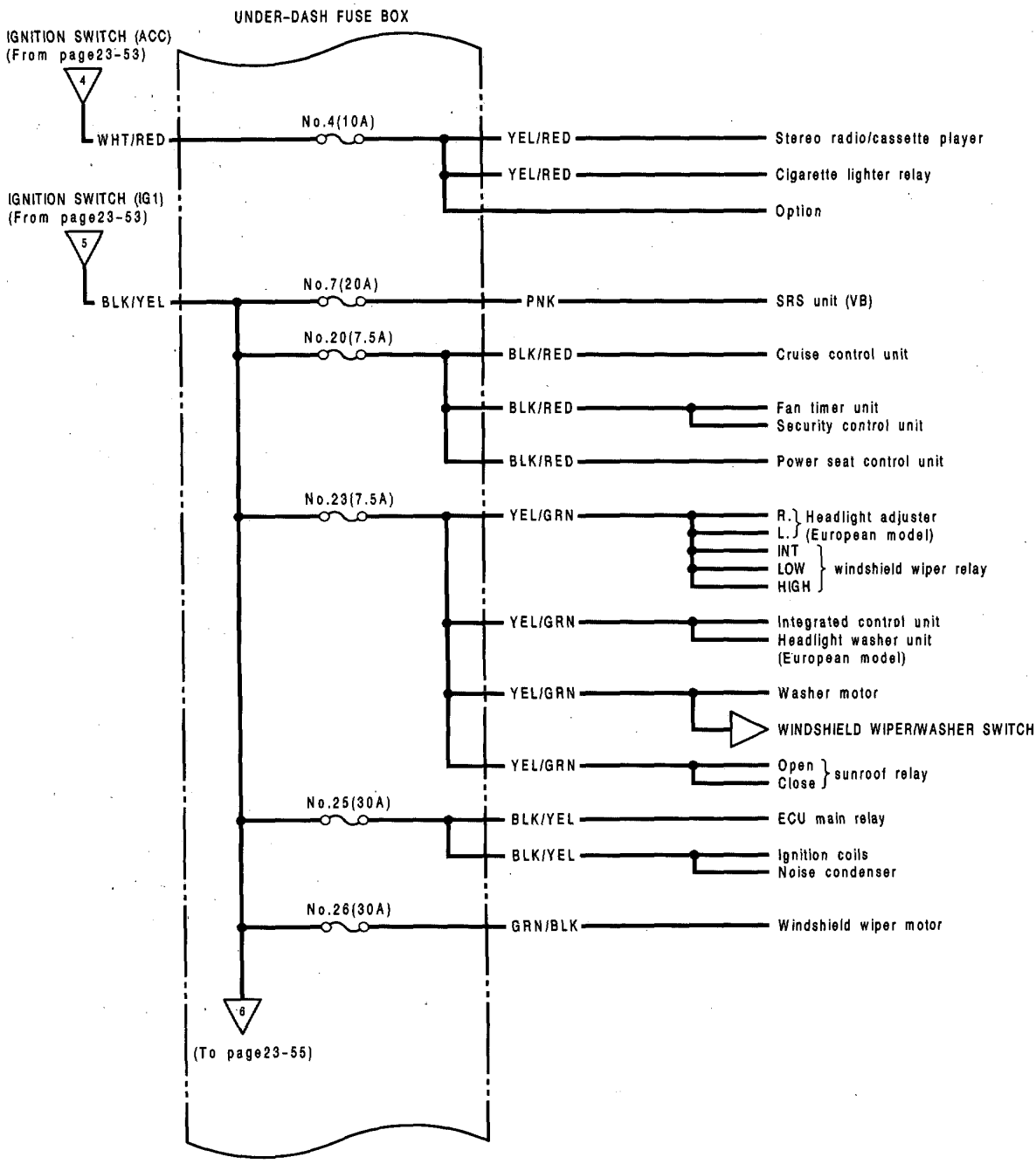
* : KS model

(cont'd)

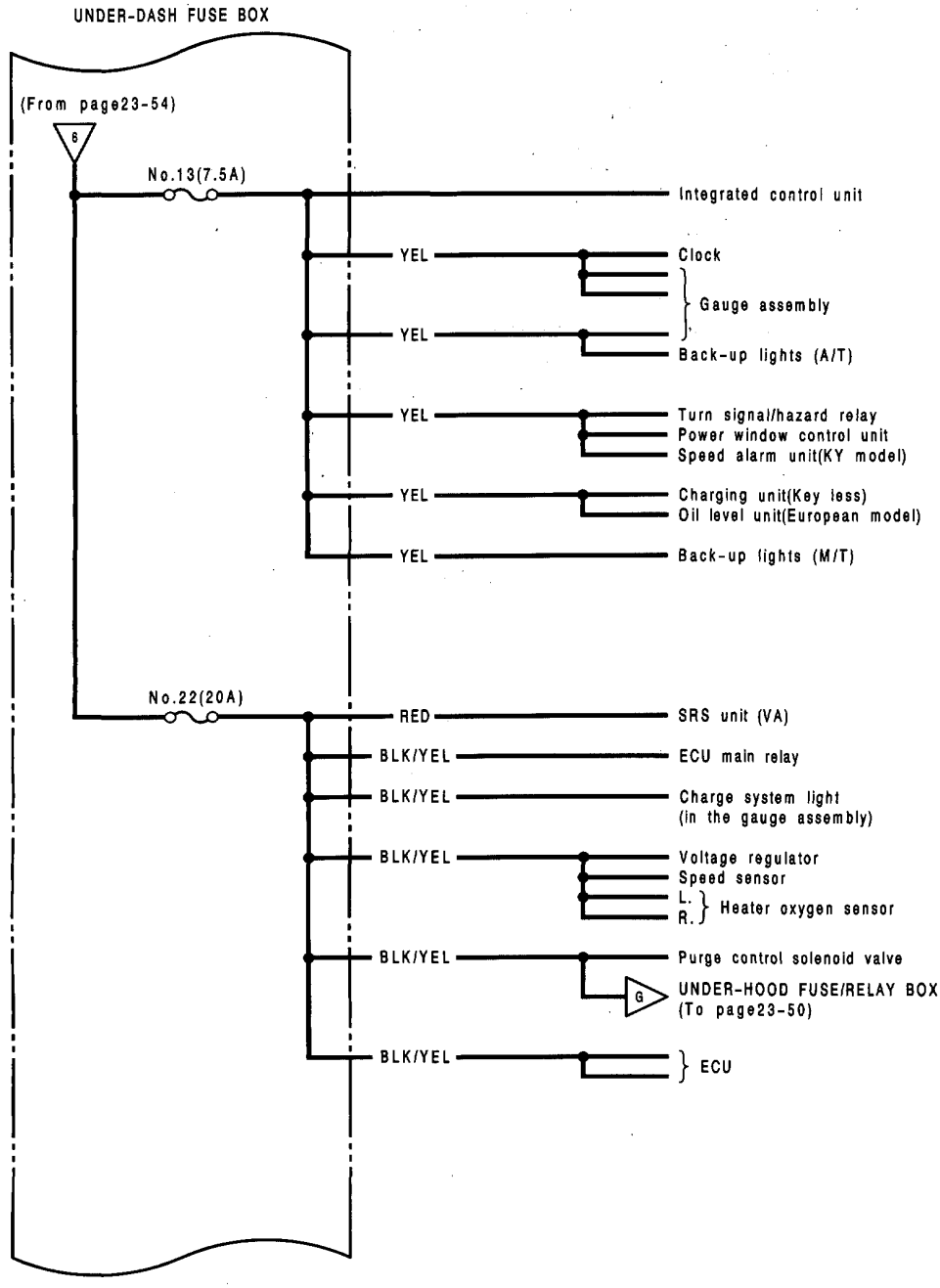
cardiagn.com

Power Distribution (LHD)

Circuit Identification (cont'd)



cardiagn.com

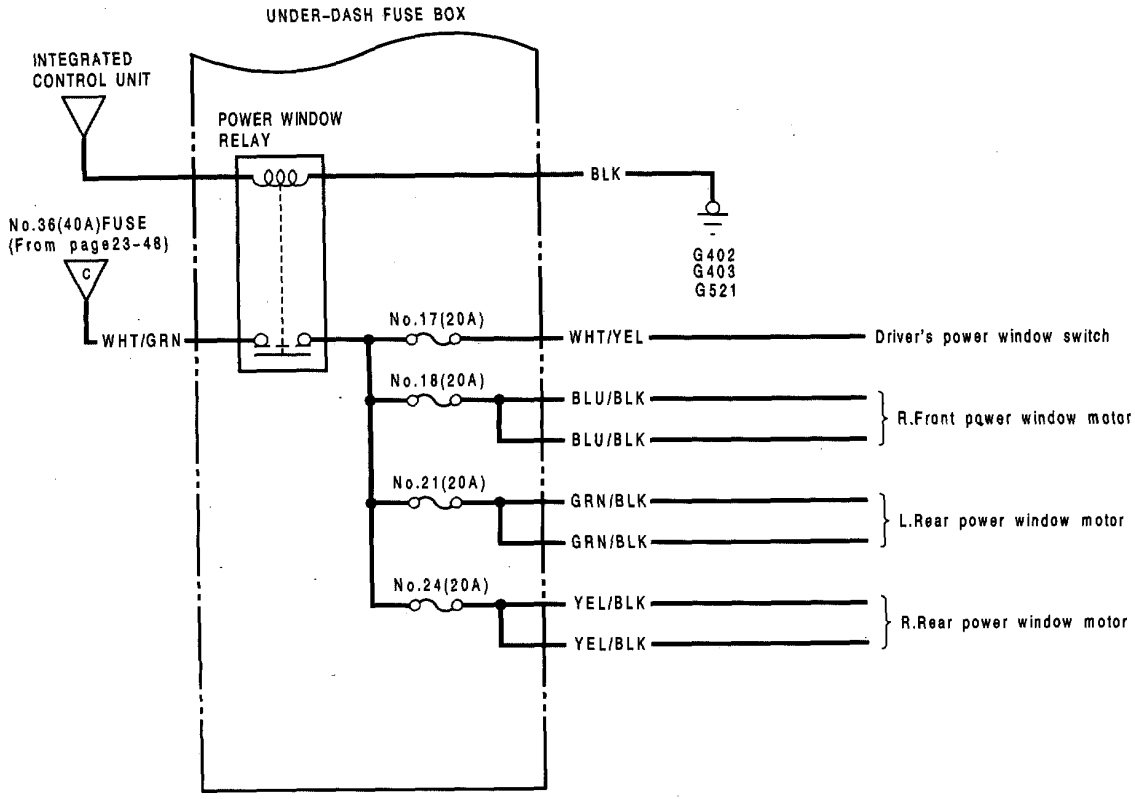


cardiagn.com

(cont'd)

Power Distribution (LHD)

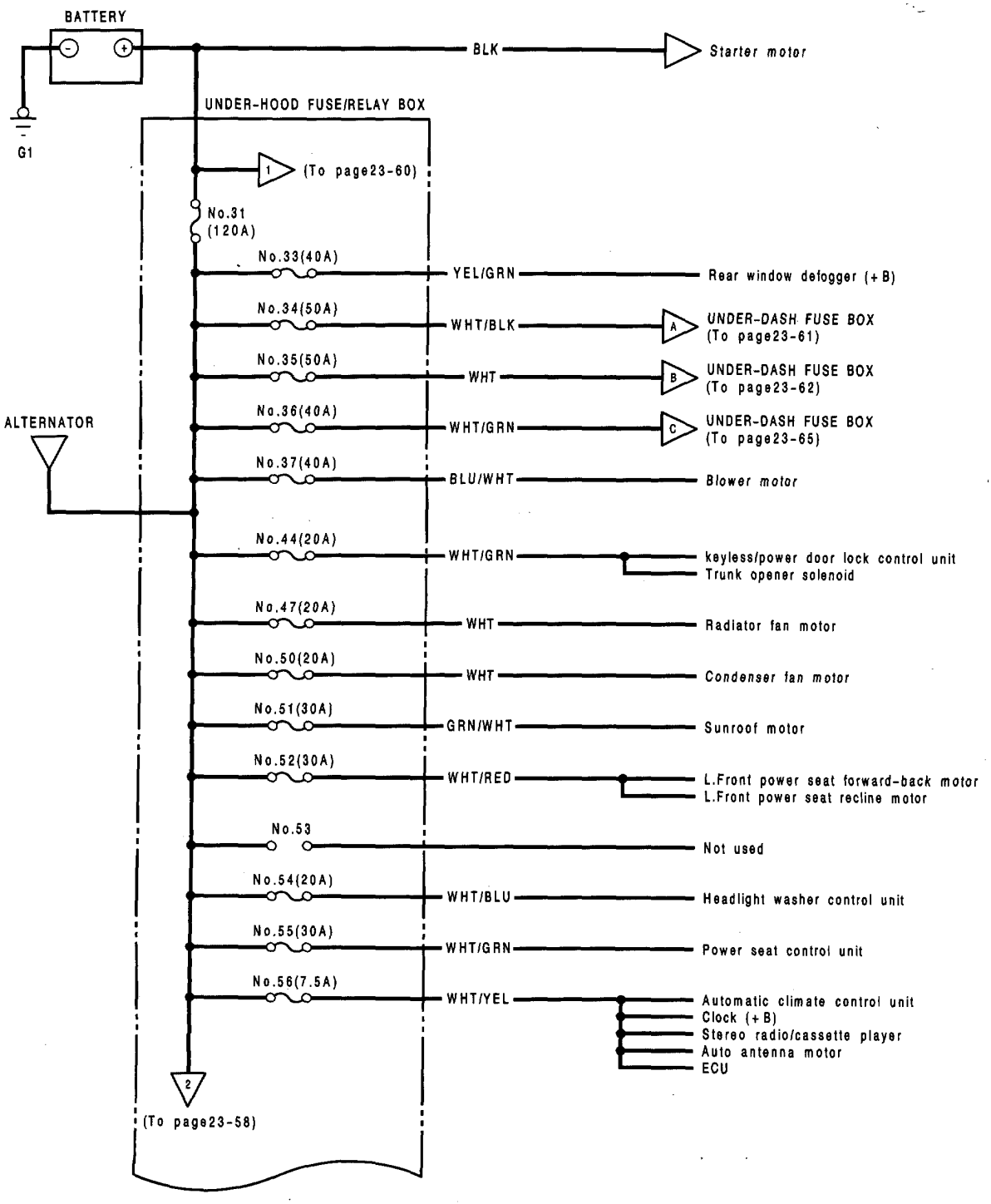
Circuit Identification (cont'd)



cardiagn.com

Power Distribution (RHD)

Circuit Identification

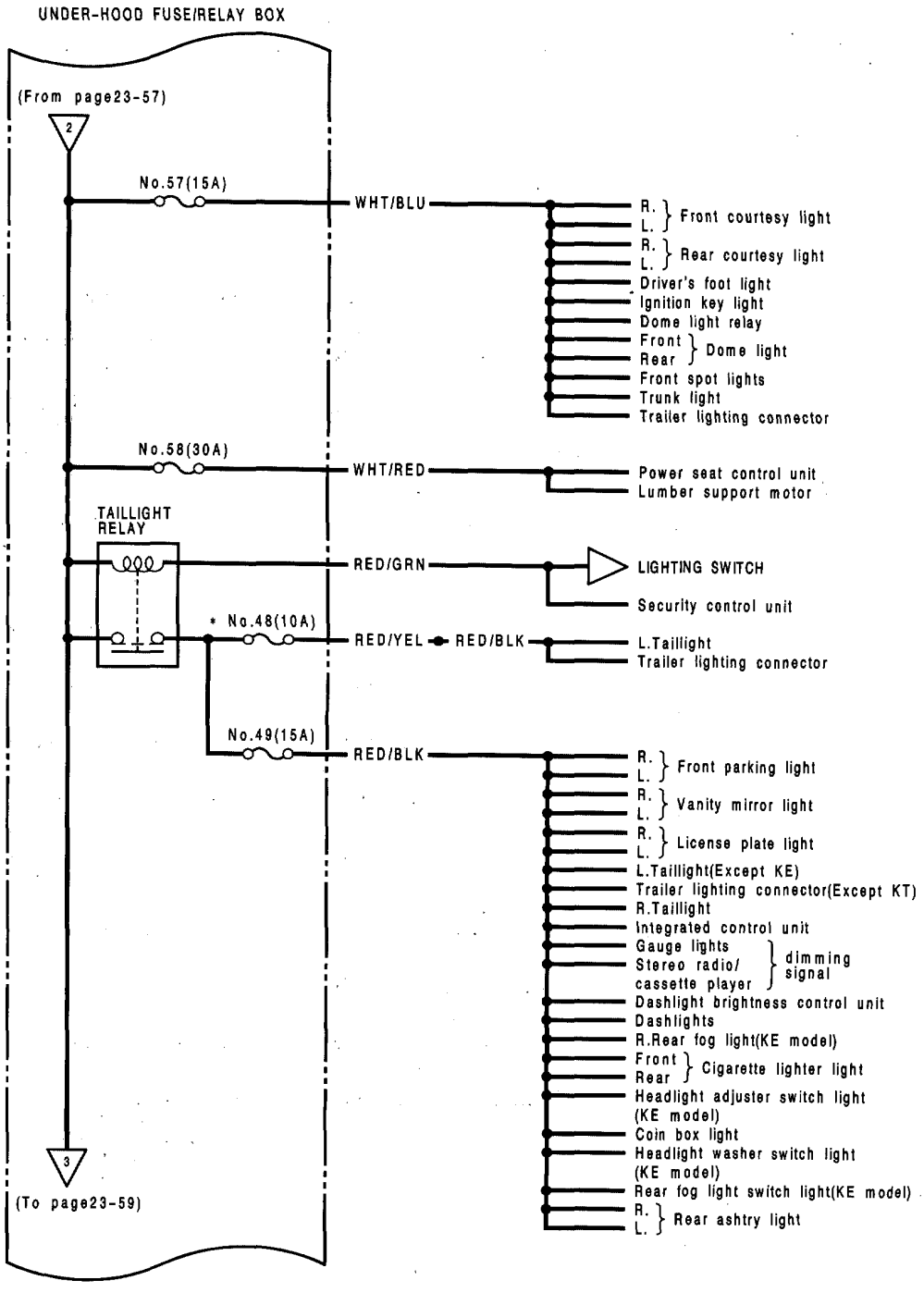


(cont'd)

cardiagn.com

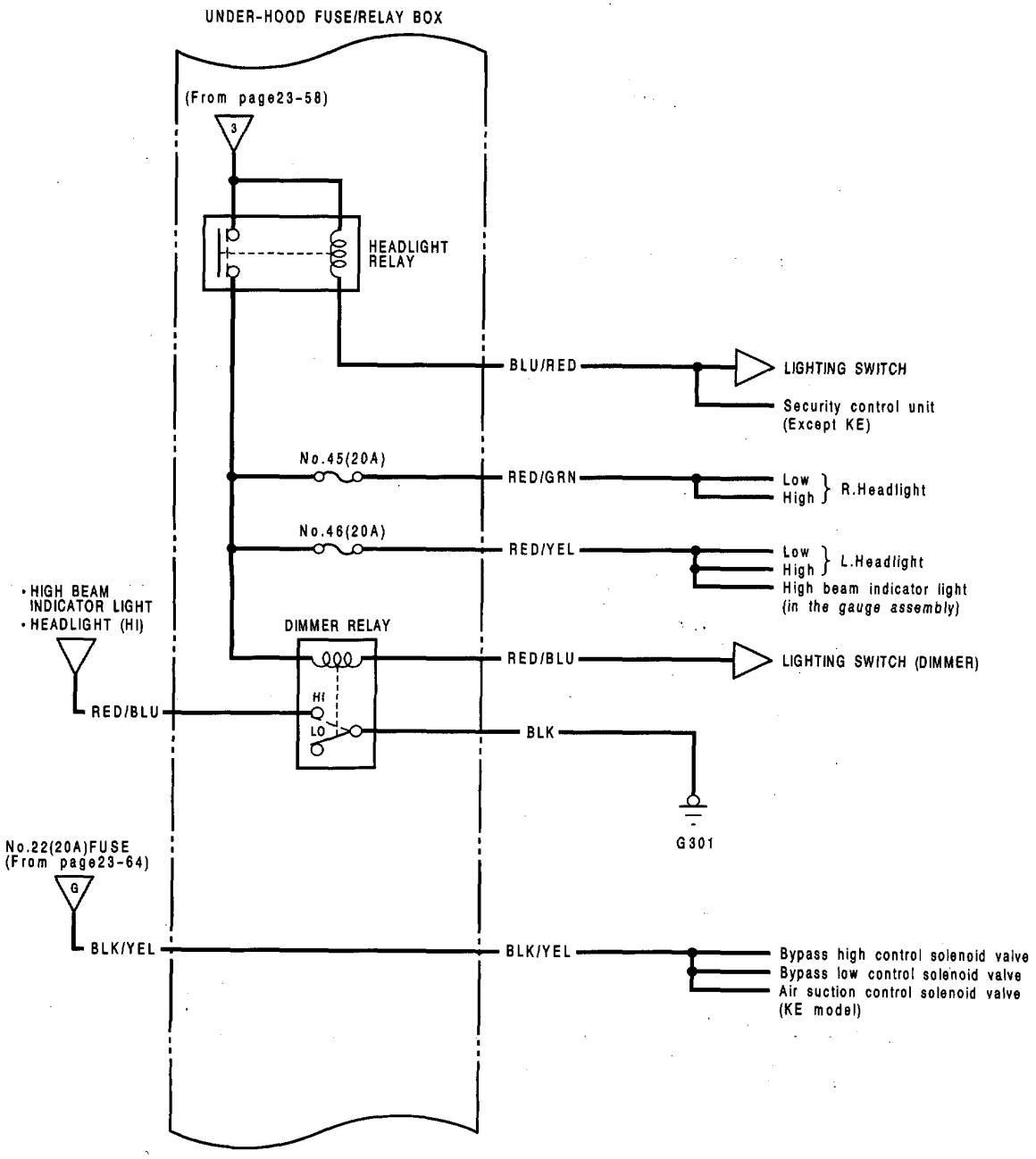
Power Distribution (RHD)

Circuit Identification (cont'd)



* : KE model

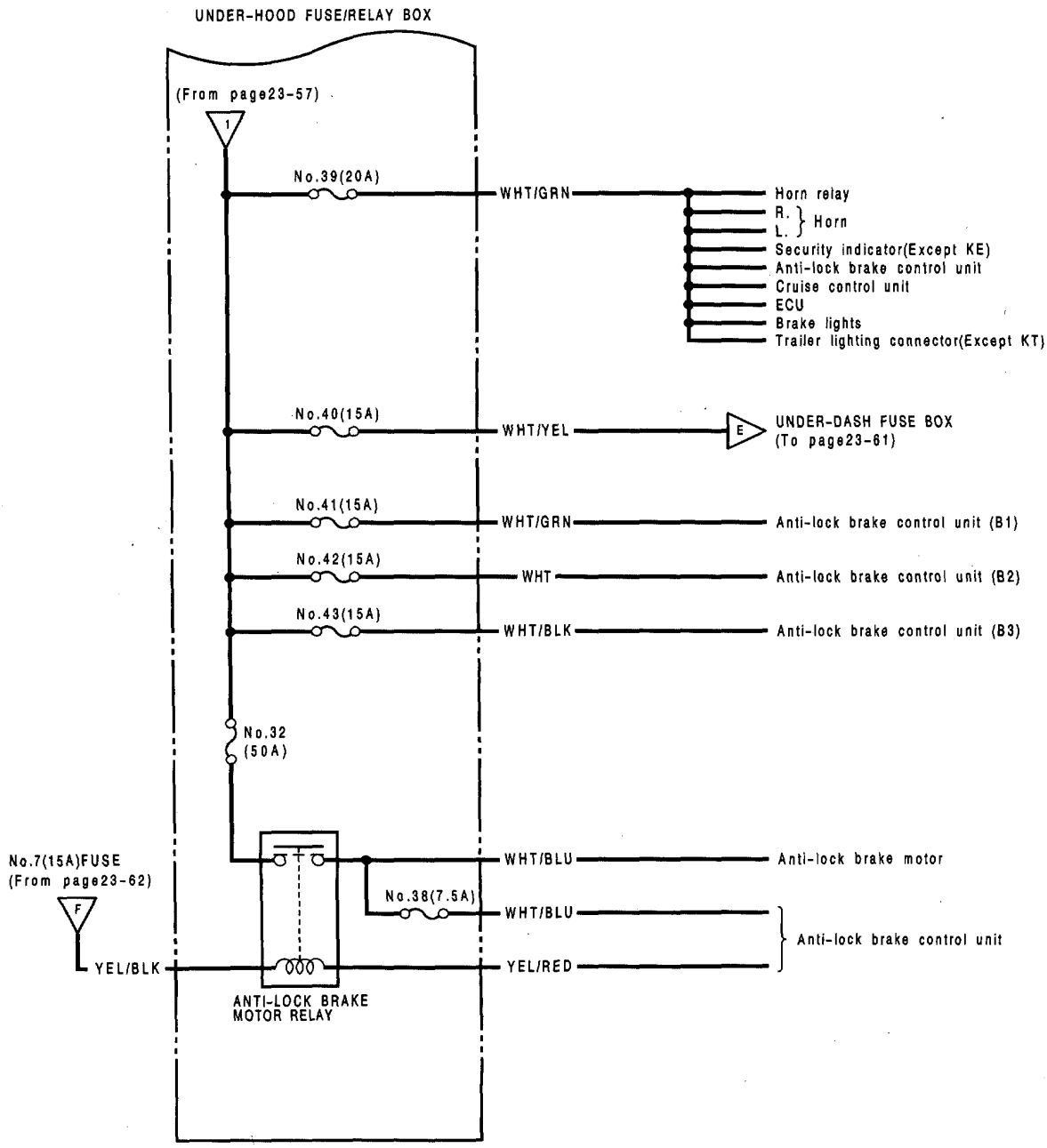
cardiagn.com



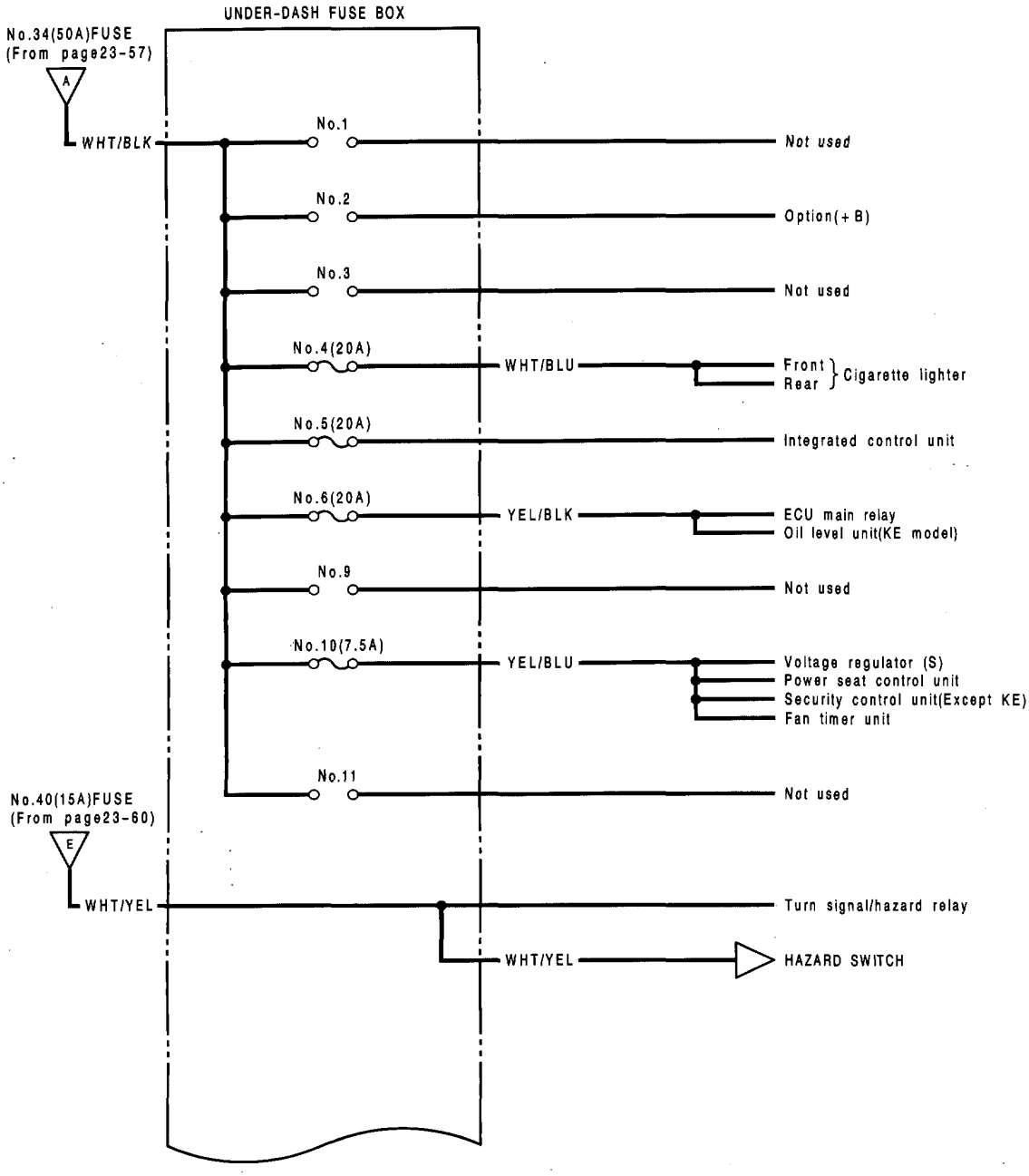
cardiagn.com

(cont'd)

Circuit Identification (cont'd)



cardiagn.com

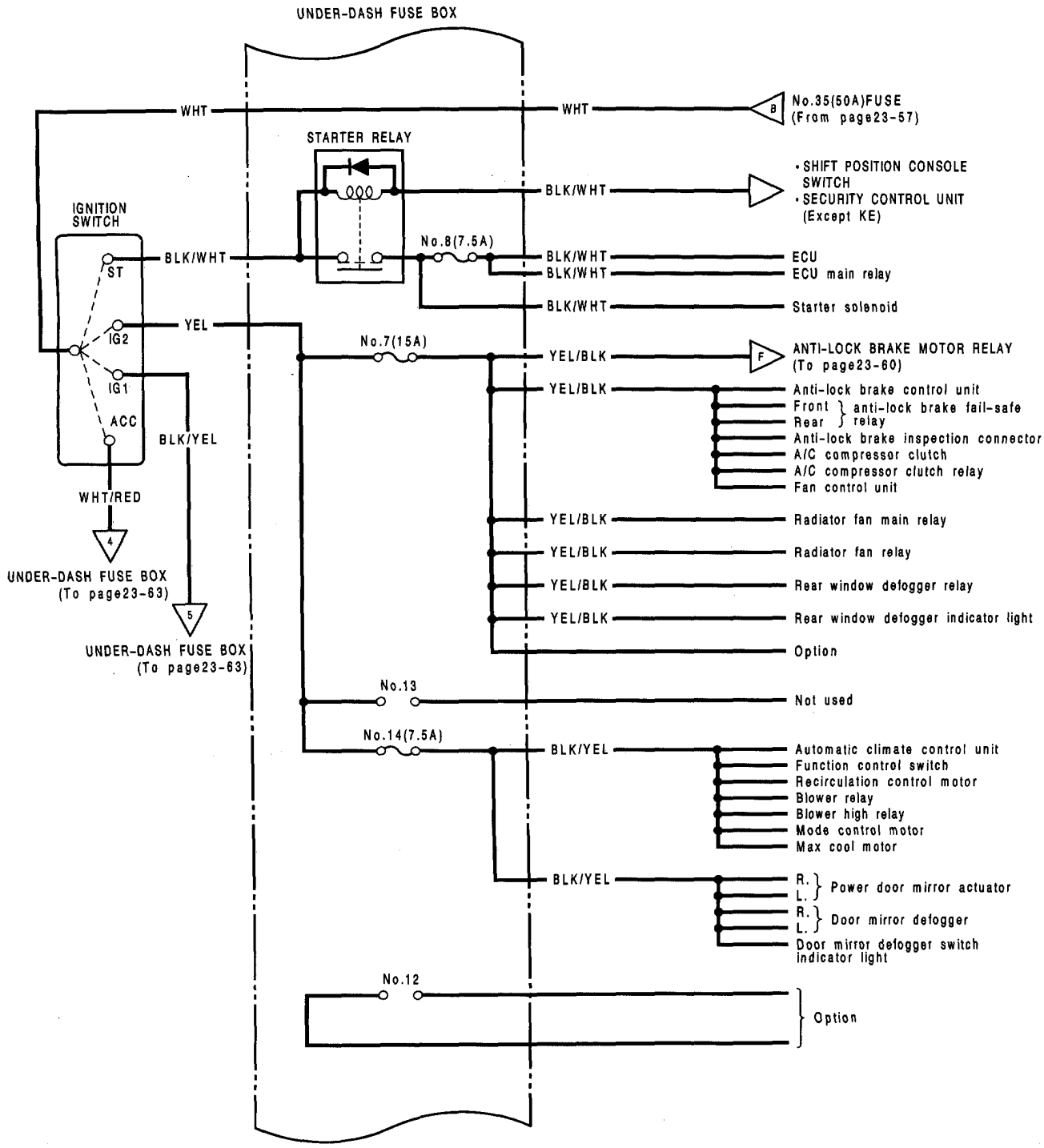


(cont'd)

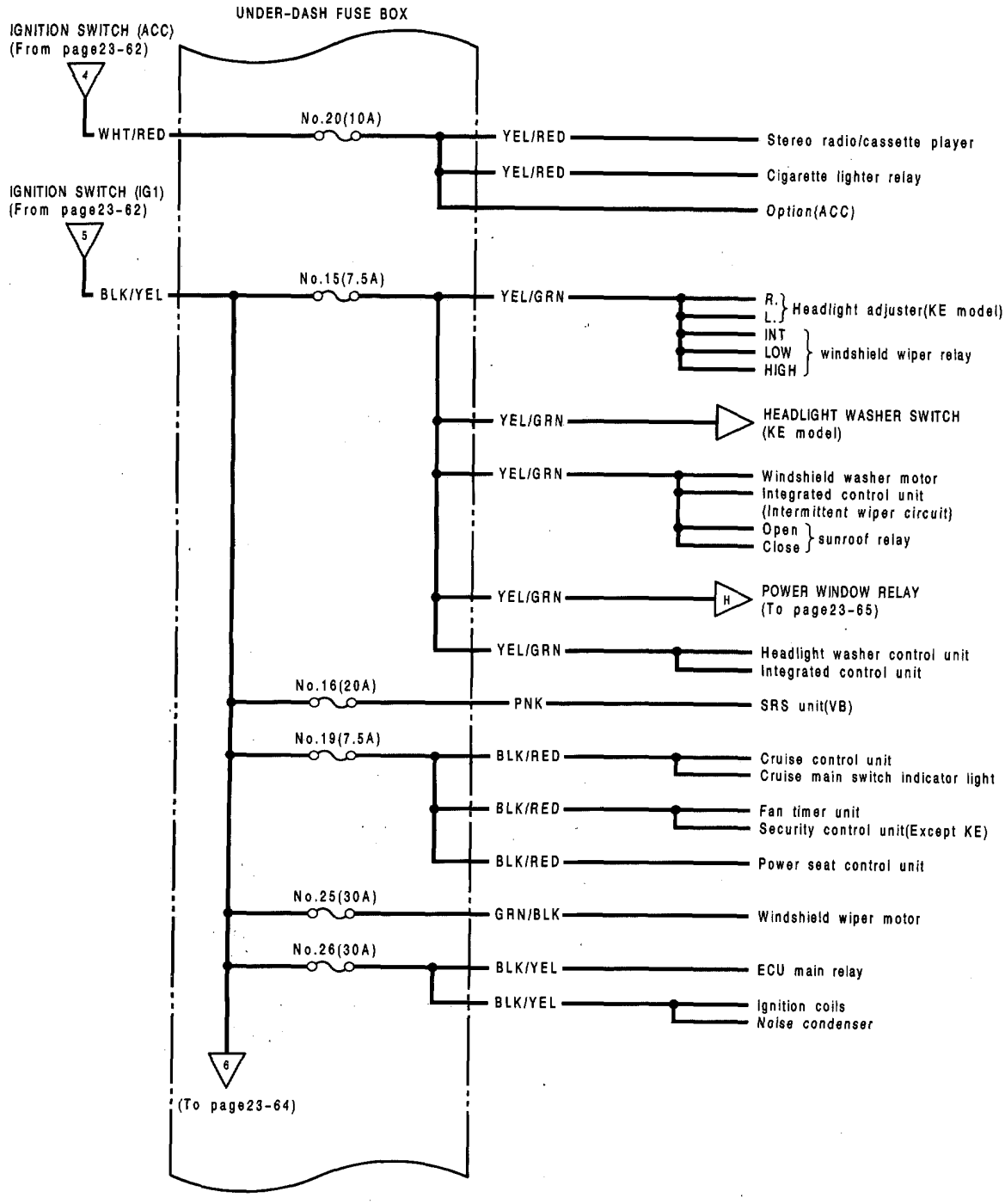
cardiagn.com

Power Distribution (RHD)

Circuit Identification (cont'd)



cardiagn.com

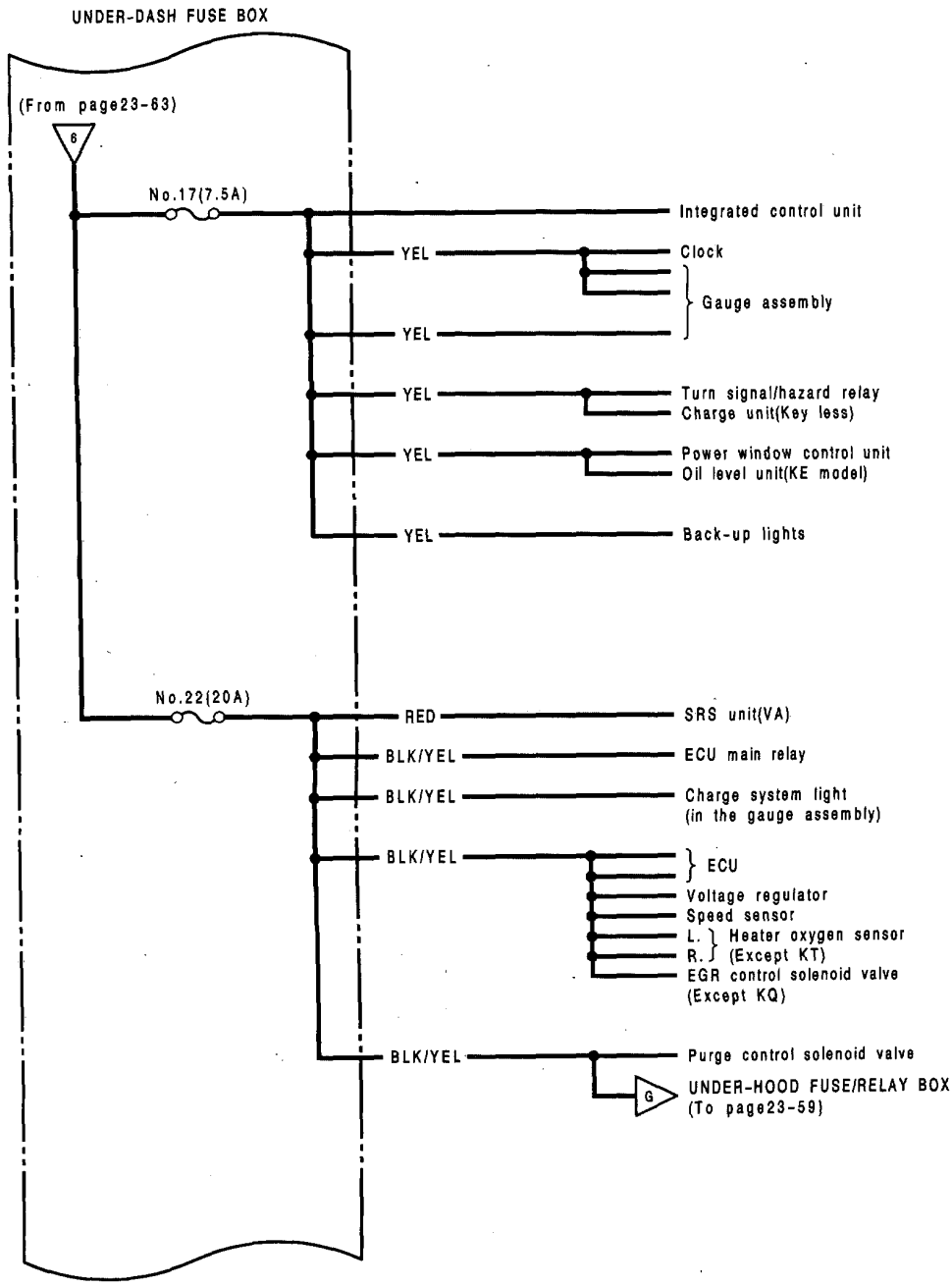


cardiagn.com

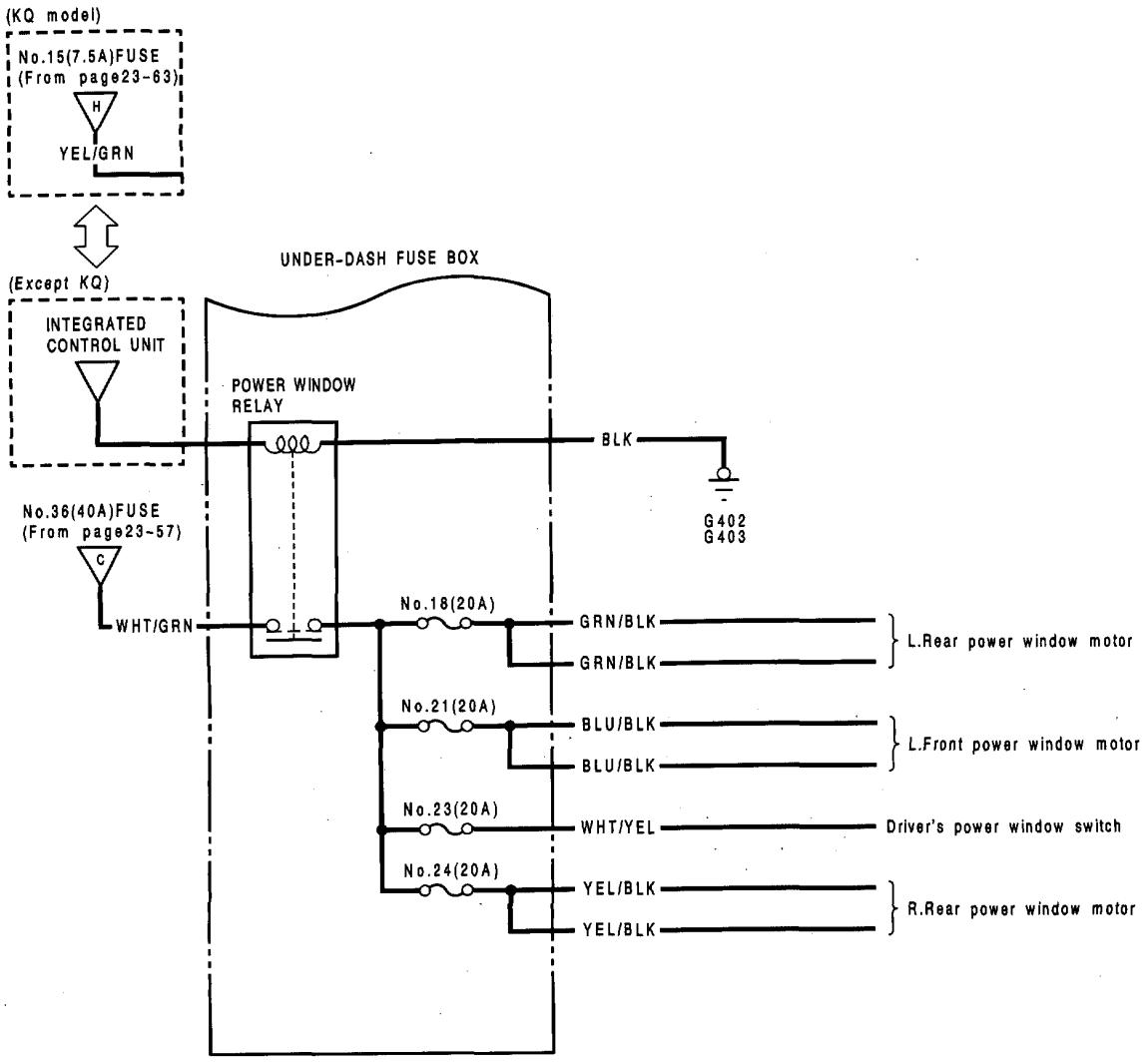
(cont'd)

Power Distribution (RHD)

Circuit Identification (cont'd)



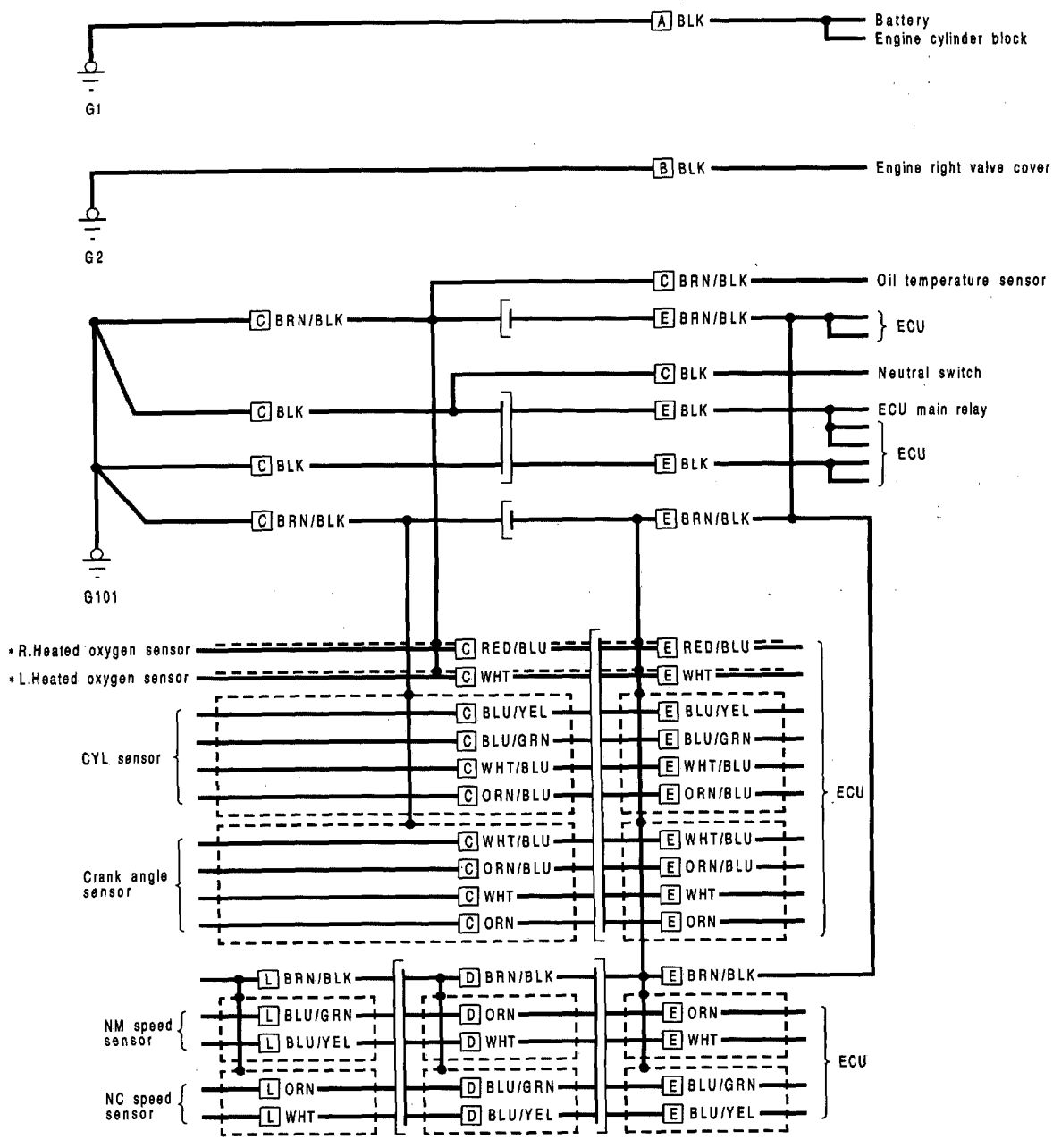
cardiagn.com



cardiagn.com

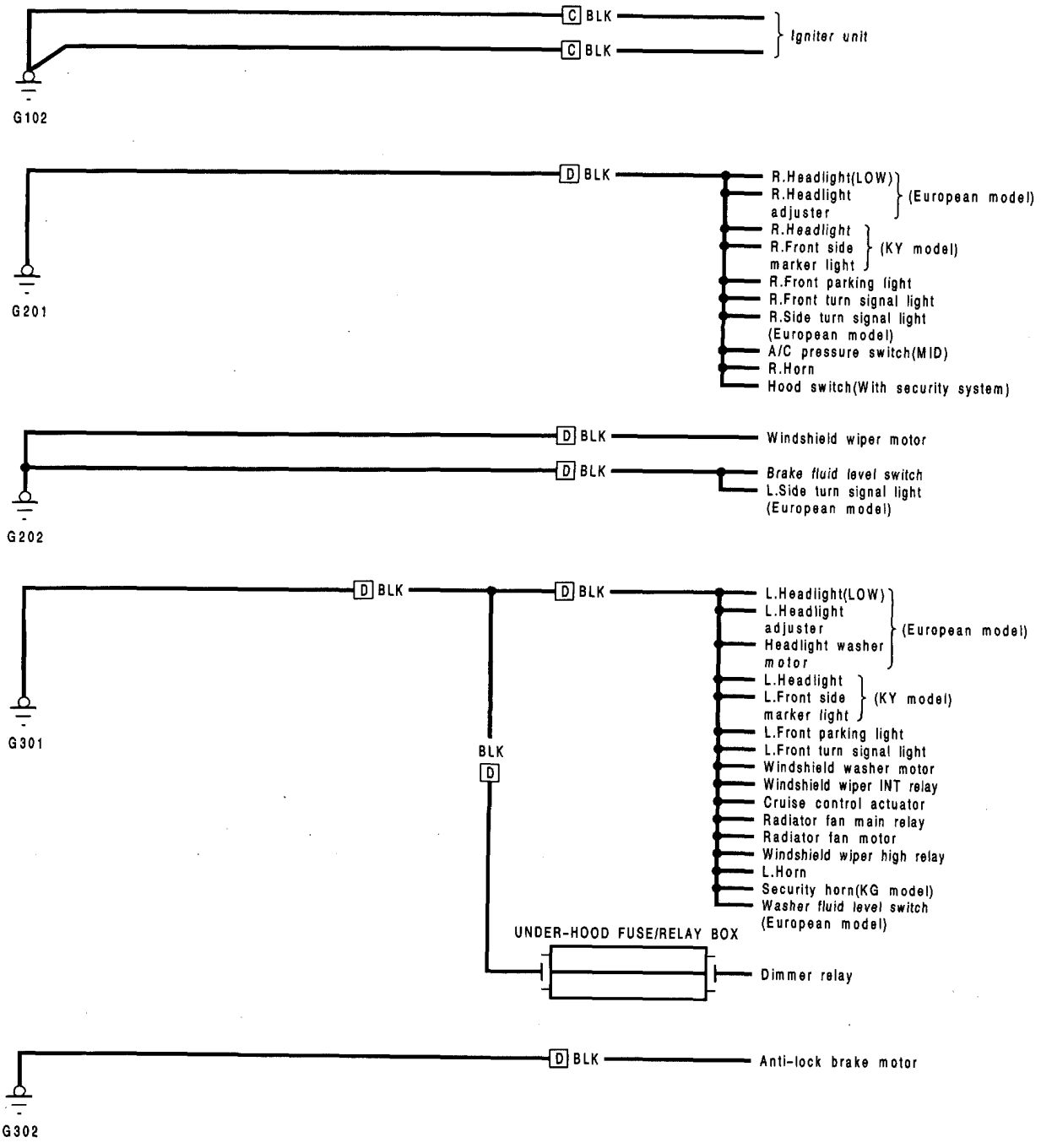
Ground Distribution (LHD)

Circuit Identification



A : Battery ground cables
B : Engine ground wire
C : Engine wire harness
D : Engine compartment wire harness
E : Main wire harness
L : A/T sub wire harness
--------- :Shielded wire
*: European model

cardiagn.com



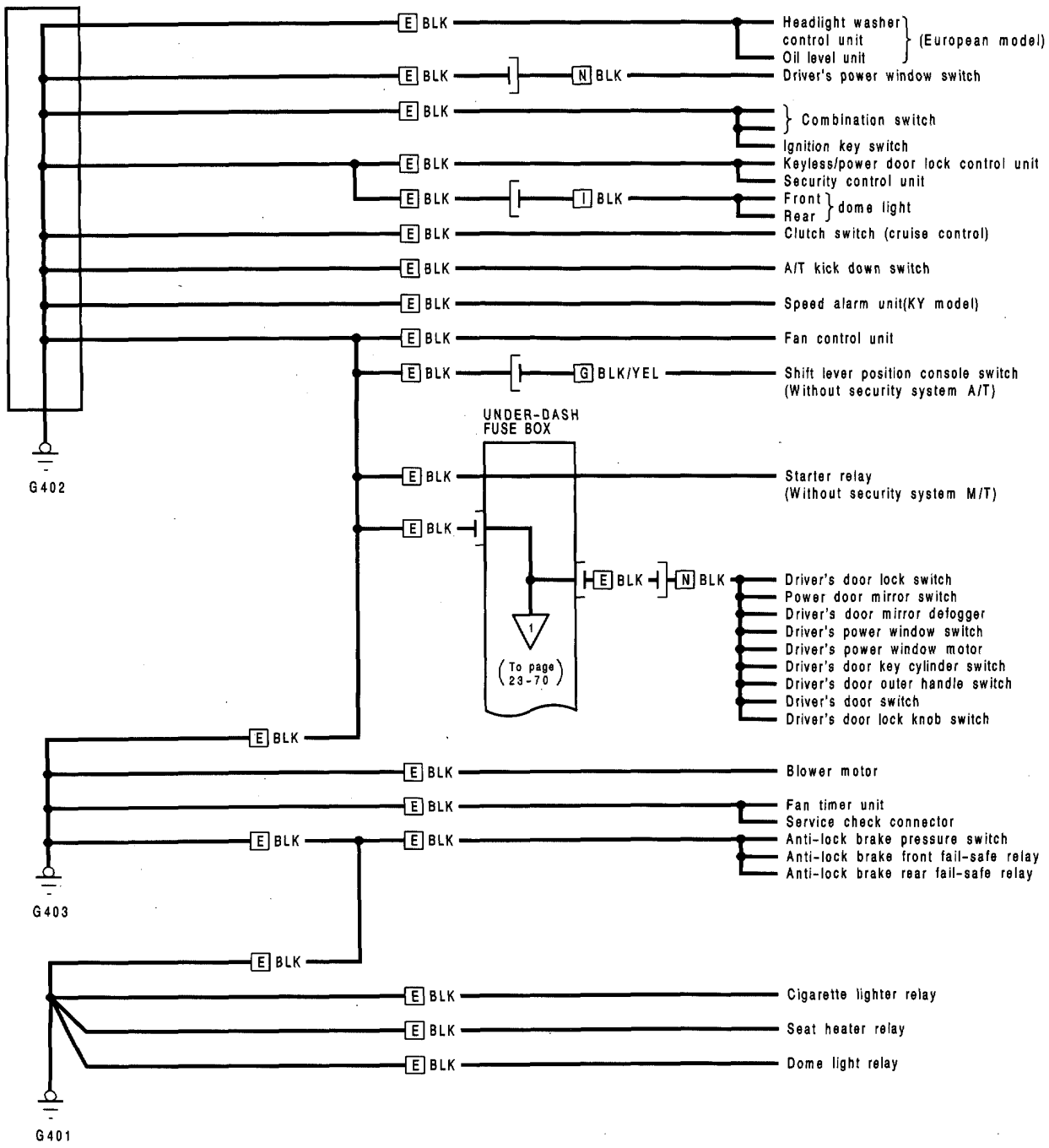
C : Engine wire harness
D : Engine compartment wire harness

(cont'd)

cardiagn.com

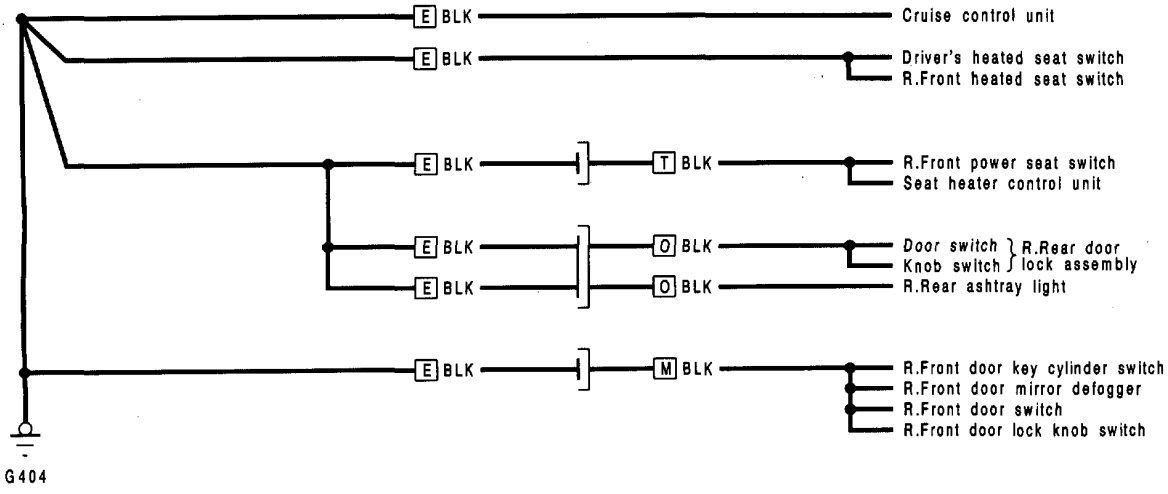
Ground Distribution (LHD)

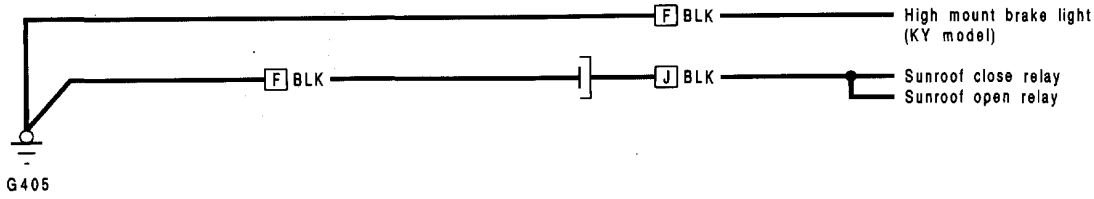
Circuit Identification (cont'd)

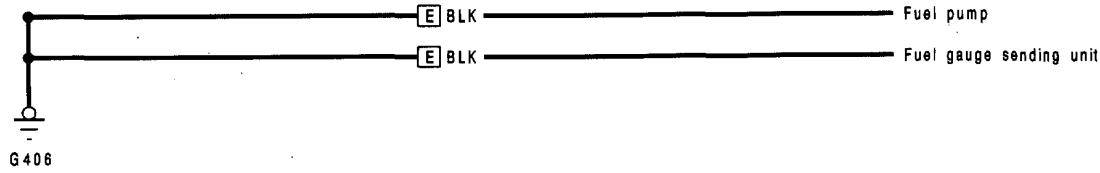


E : Main wire harness
G : Dashboard wire harness
I : Roof wires
N : Driver's door wire harness

cardiagn.com







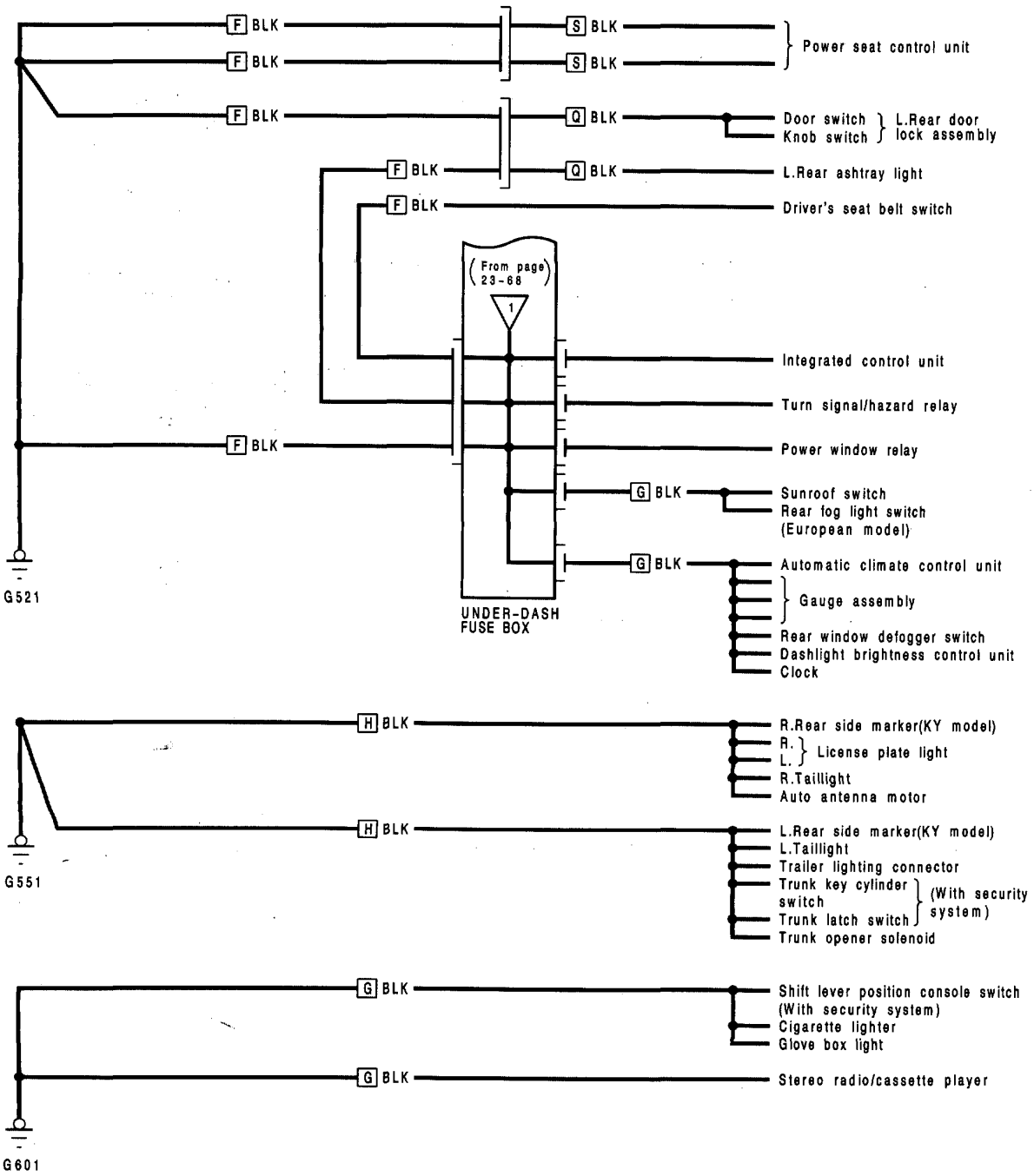
E : Main wire harness
F : Left side wire harness
J : Sunroof wires
M : R.Front door wire harness
O : R.Rear door wire harness
T : R.Front power seat wire harness

(cont'd)

cardiagn.com

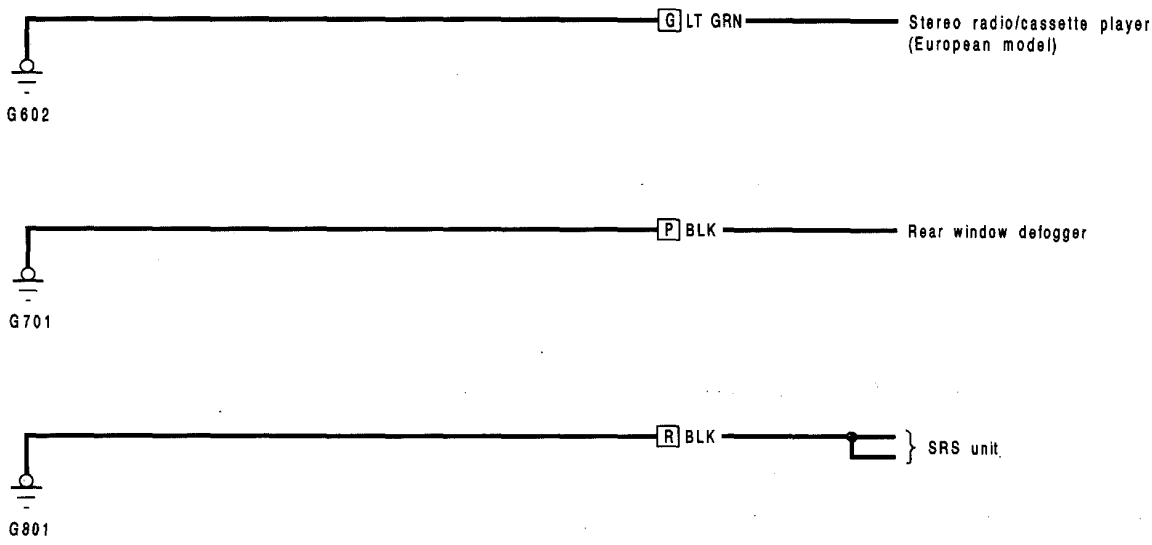
Ground Distribution (LHD)

Circuit Identification (cont'd)



F : Left side wire harness
G : Dashboard wire harness
H : Rear wire harness
Q : L.Rear door wire harness
S : Driver's power seat wire harness

cardiagn.com

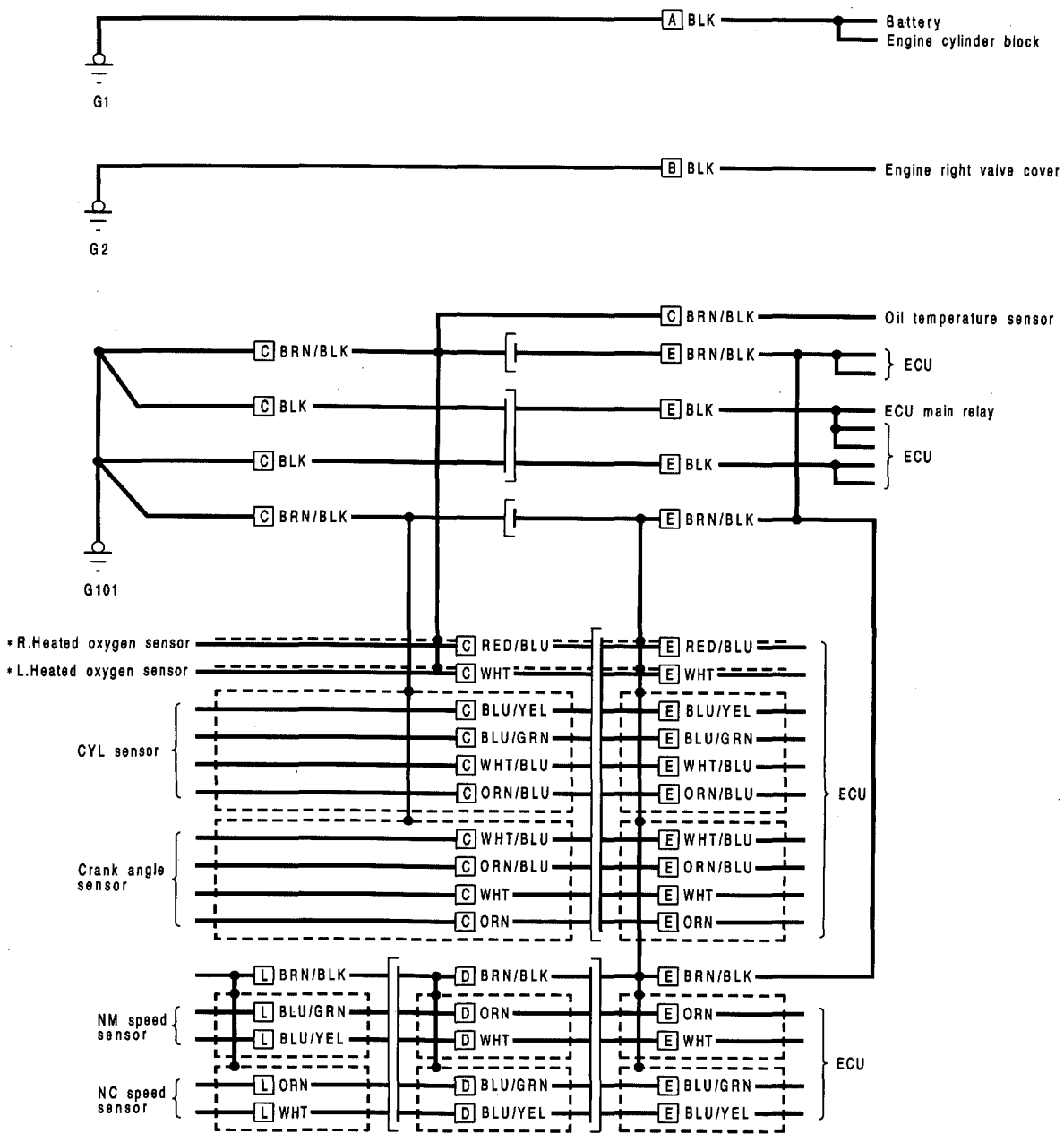


G : Dashboard wire harness
P : Rear defogger ground wire
R : SRS main wire harness

cardiagn.com

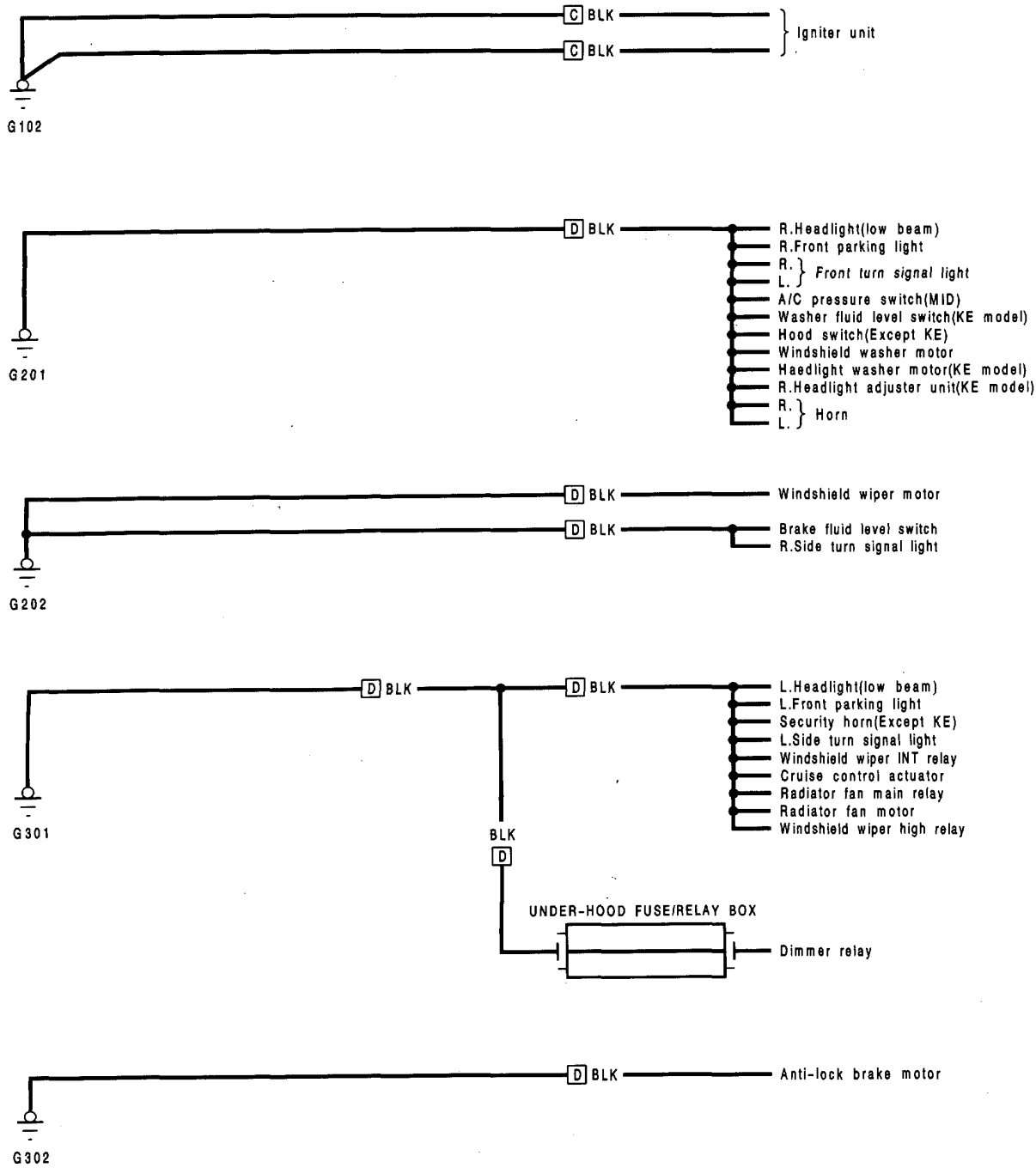
Ground Distribution (RHD)

Circuit Identification



[A] : Battery ground cables
[B] : Engine ground wire
[C] : Engine wire harness
[D] : Engine compartment wire harness
[E] : Main wire harness
[L] : A/T sub wire harness
- - - - - - - - :Shielded wire
*: Except KT

cardiagn.com



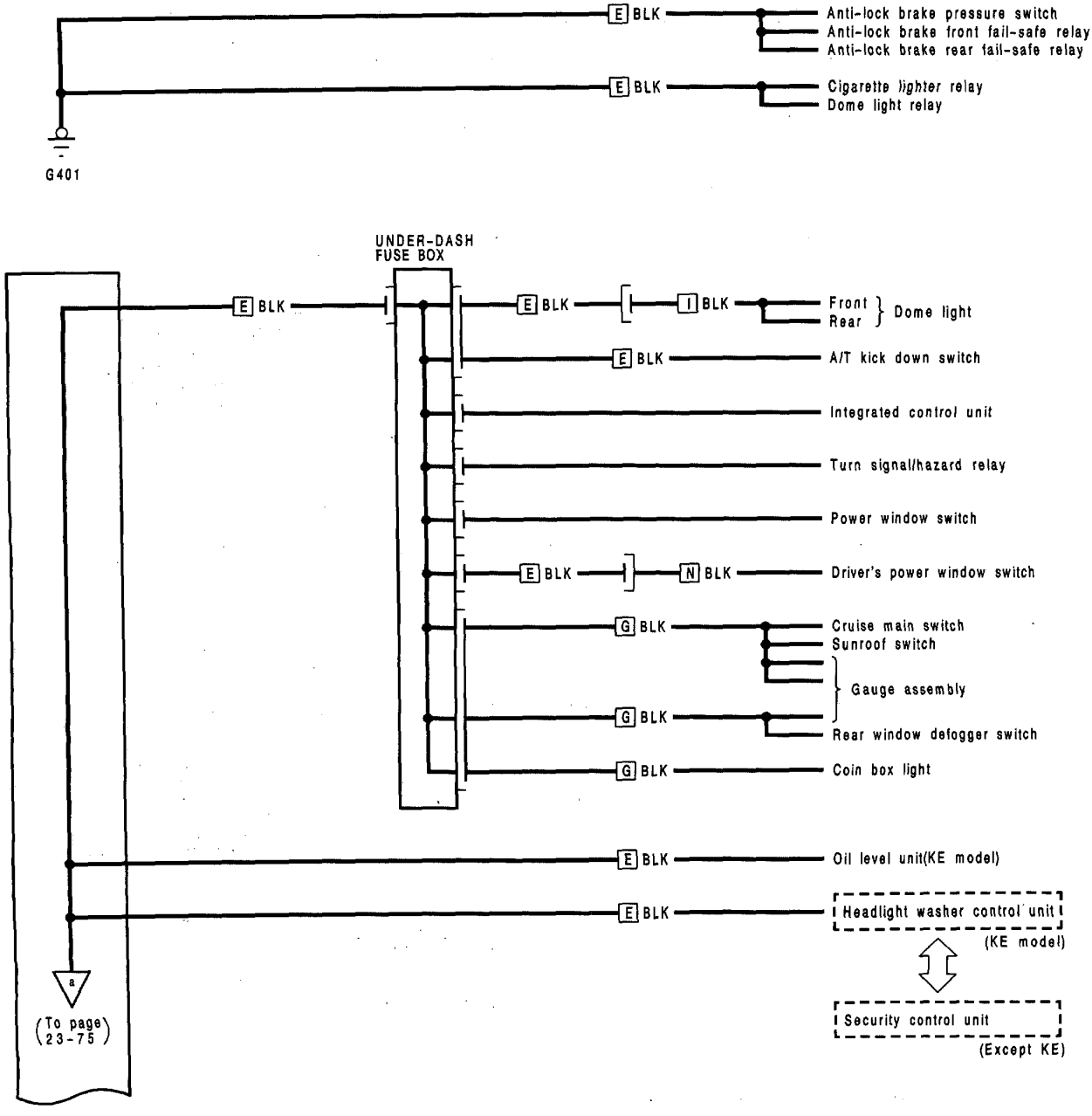
C : Engine wire harness
D : Engine compartment wire harness

(cont'd)

cardiagn.com

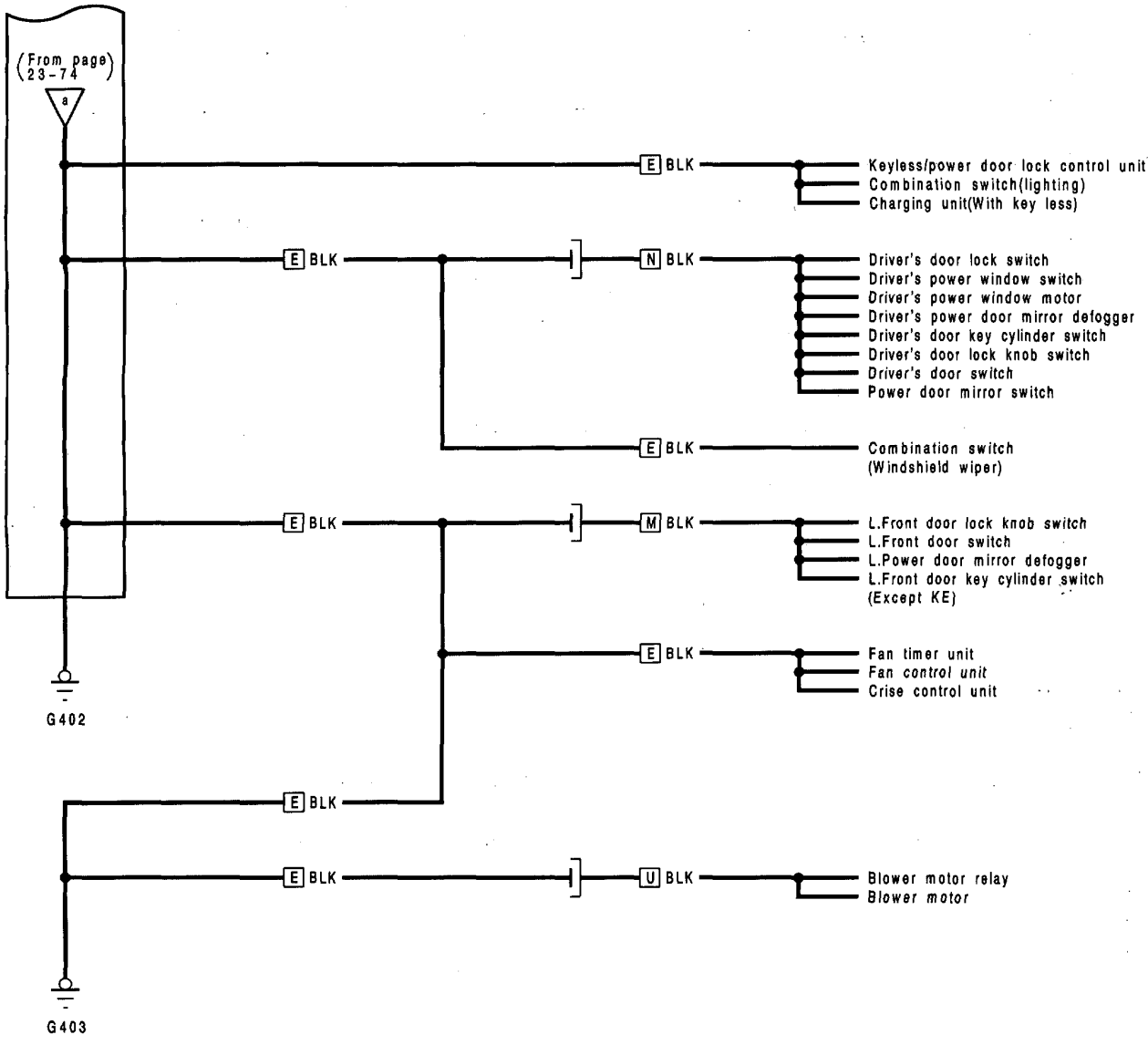
Ground Distribution (RHD)

Circuit Identification (cont'd)



E : Main wire harness
I : Roof wires
G : Dashboard wire harness
N : Driver's door wire harness

cardiagn.com



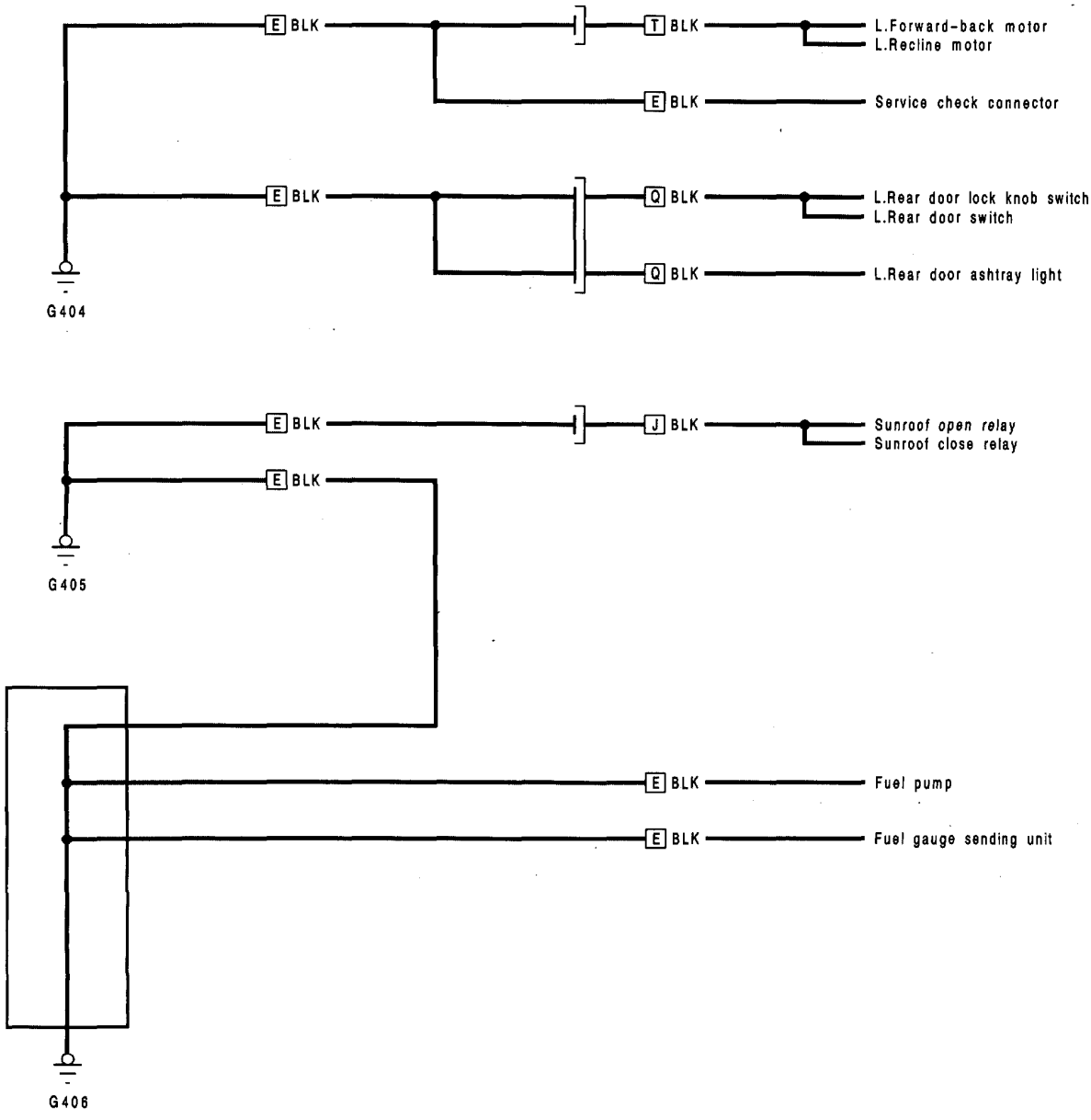
E : Main wire harness
M : L.Front door wire harness
N : Driver's door wire harness
U : Blower sub wire harness

(cont'd)

cardiagn.com

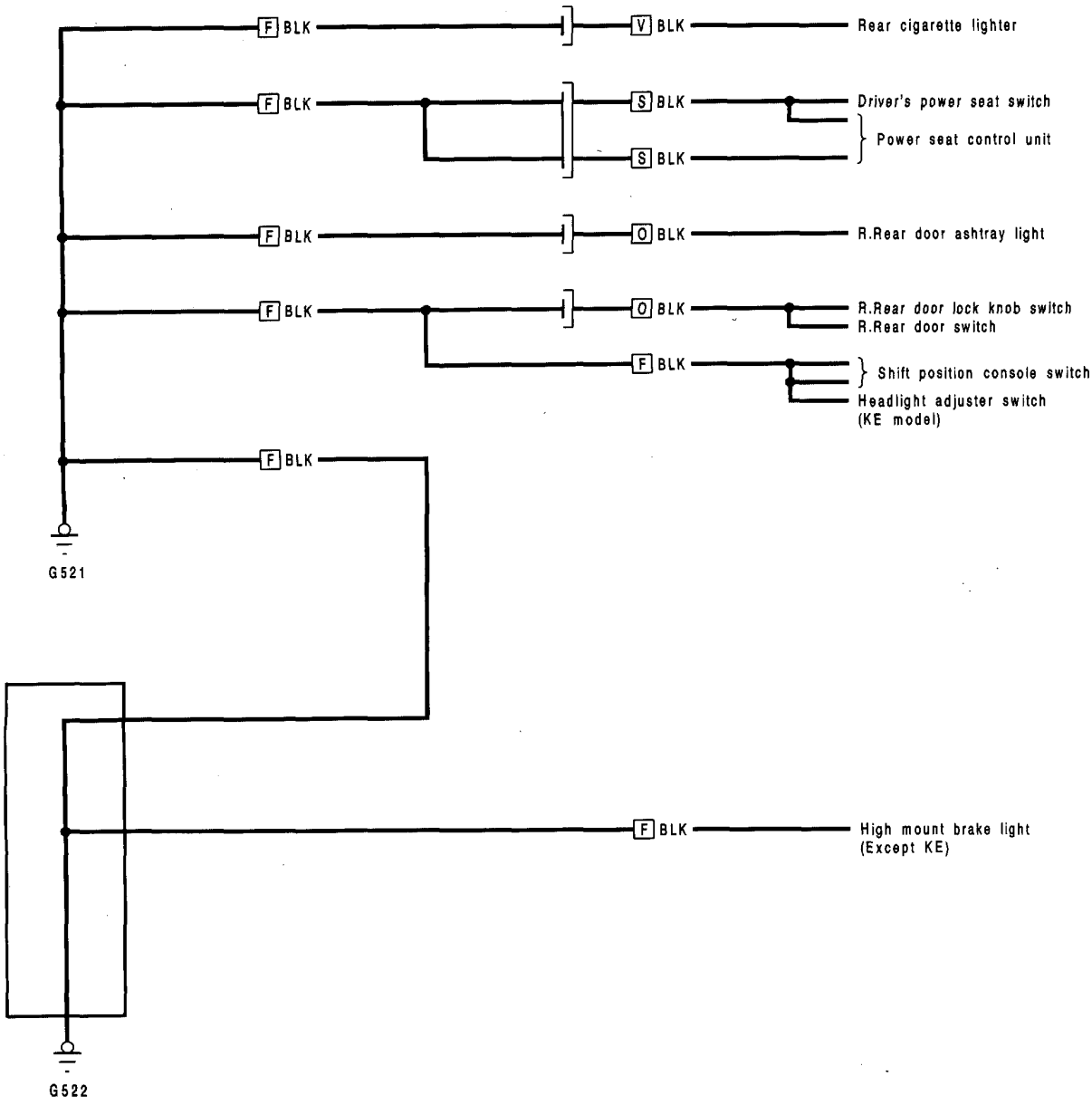
Ground Distribution (RHD)

Circuit Identification (cont'd)



E : Main wire harness
J : Sunroof wire harness
Q : L.Rear door wire harness
T : L.Front power seat wire harness

cardiagn.com



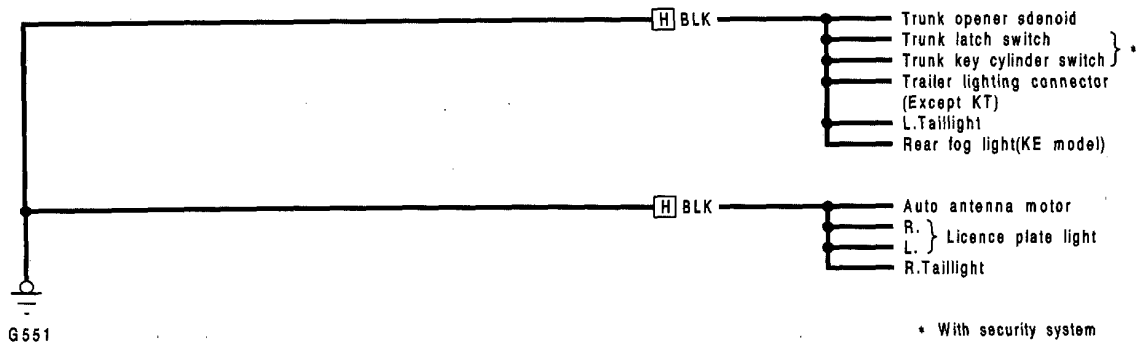
F : R.Side wire harness
O : R.Rear door wire harness
S : Driver's power seat wire harness
V : Floor sub wire

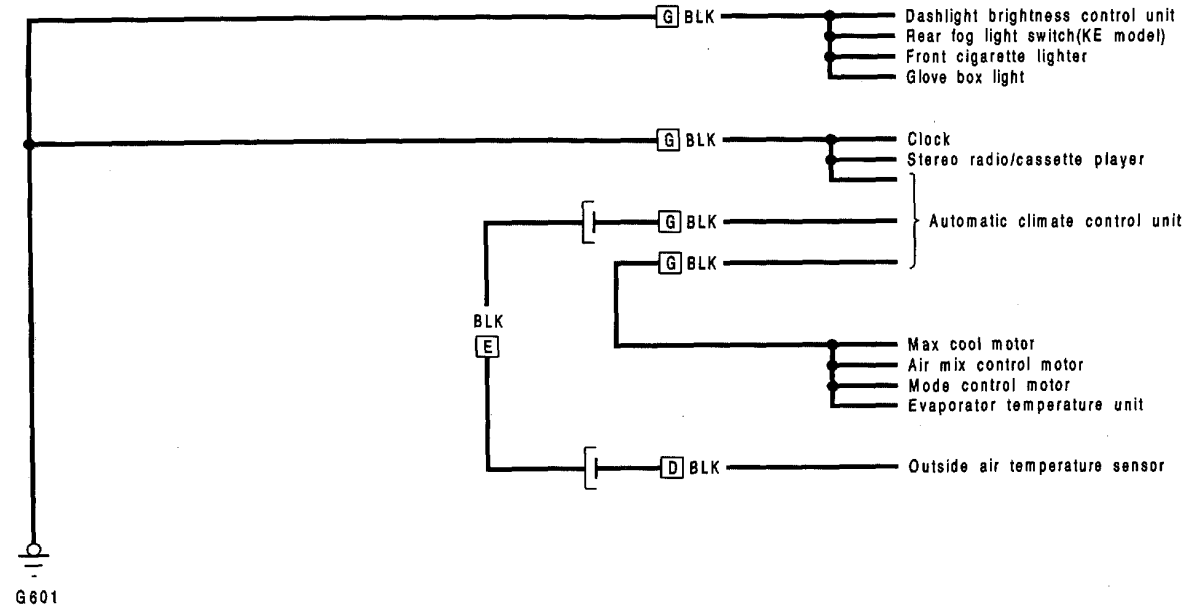
(cont'd)

cardiagn.com

Ground Distribution (RHD)

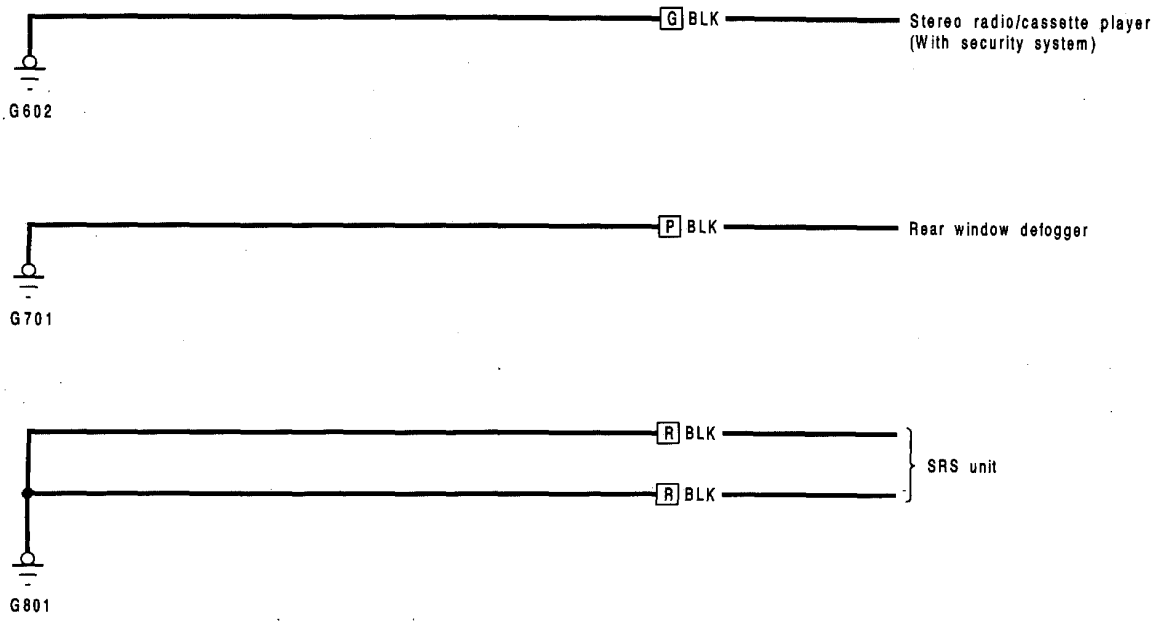
Circuit Identification (cont'd)





D : Engine compartment wire harness
E : Main wire harness
G : Dashboad wire harness
H : Rear wire harness

cardiagn.com



G : Dashboard wire harness
P : Rear defogger ground wire
R : SRS main wire harness

cardiagn.com

Battery

Test

⚠ WARNING

- **Battery fluid (electrolyte) contains sulfuric acid. It may cause severe burns if it gets on your skin or in your eyes.**
  Wear protective clothing and a face shield.
  —If electrolyte gets on your skin or clothes, rinse it off with water immediately.
  —If electrolyte gets in your eyes, flush it out by splashing water in your eyes for at least 15 minutes; call a physician immediately.

- **A battery gives of hydrogen gas. If ignited, the hydrogen will explode and could crack the battery case and splatter acid on you. Keep sparks, flames, and cigarettes away from the battery.**

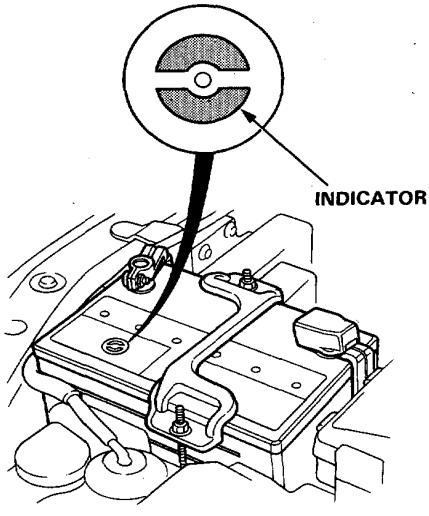
- **Overcharging will raise the temperature of the electrolyte. This may force electrolyte to spray out of the battery vents. Follow the charger manufacturer's instructions and charge the battery at a proper rate.**

NOTE: To get accurate results, the temperature of the electrolyte must be between 15 and 38°C (59 and 100°F) before testing.

Test Equipment Required:

- Battery tester with:
  Voltmeter with 0—18 V scale, Ammeter with 0—100 A and 0—500 A scales, and a carbon pile with 0—300 W.

- 12 V Battery Charger:
  Fast charge capability of 50 A and slow charge capability of 5 A.



Test Procedure:

1. Check for damage: If the case is cracked or the posts are loose, replace the battery.

2. Check indicator (for basic charge condition): Blue or Green is OK. If the indicator is red, peel the tape off, remove the caps, and add distilled water; then reinstall the caps and tape. If the indicator is clear, go to step 3.

3. Test battery load capacity by connecting a battery tester, and applying a load of 3 times the battery ampere hour rating.
   When the load has been applied for exactly 15 seconds, the battery voltage reading should stay above 9.6 V.
   - If the reading stays above 9.6 V, the battery is OK; clean its terminals and case, and reinstall it.
   - If the reading is between 6.5 and 9.6 V, fast charge the battery by connecting a battery charger, for 3 minutes at an initial rate of 40 amps.

   CAUTION: Amperage will drop as voltage increases; do not increase the amperage to compensate or you may damage the battery.

   Watch the battery voltage during the entire 3 minutes; the highest reading should stay below 15.5 V.

   — If the reading stays below 15.5 V, the battery is OK; clean its terminals and case, and reinstall it.

   — If the reading exceeds 15.5 V any time during the 3 minutes of fast charge, the battery is not good; replace it.

   - If the reading drops below 6.5 V, slow charge the battery by connecting a battery and charge, at 5 amps for no more than 24 hours, (or until the indicator shows full charge, or the specific gravity of the electrolyte is at least 1.250).
     Then test load capacity again.

     — If the voltage stays above 9.6 V, the battery is OK; clean its terminals and case, and reinstall it.

     — If the voltage still drops below 6.5 V, the battery is not good; replace it.

cardiagn.com

Dash Fuse Box

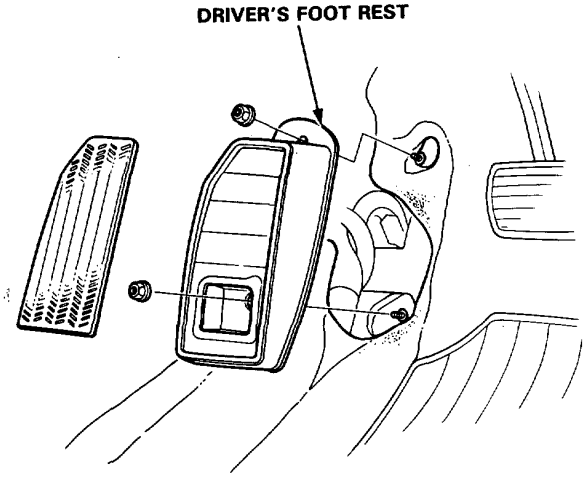
Removal/Installation

CAUTION:
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**

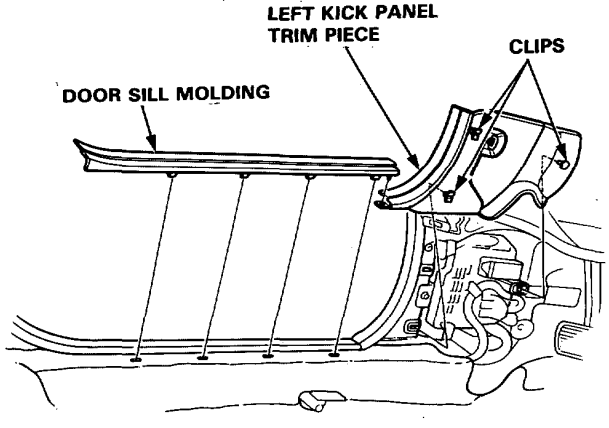
NOTE: LHD type is shown. RHD type is symmetrical to LHD type.

Removal:

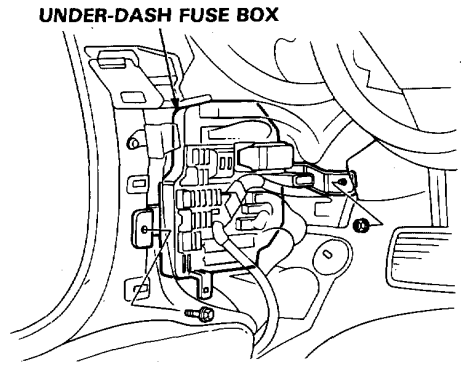
1. Remove the driver's foot rest.



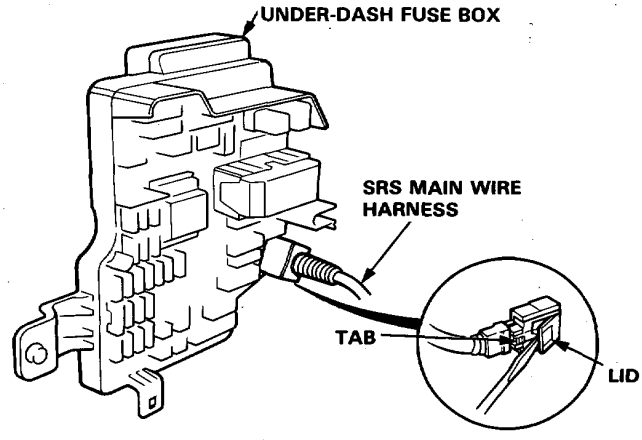
2. Remove the door sill molding and left kick panel trim piece.



3. Remove the mounting bolt and nut.



4. Disconnect the fuse box connectors and take out the fuse box.



NOTE: The SRS main wire harness connector is *double-locked. To remove it, first lift the connector* lid, then press the connector tab down and pull the connector out.

Installation:

1. Connect the connectors to fuse box.

   NOTE: To reinstall the SRS main wire harness connector, push it into position until it clicks, then close the connector lid.

2. Install the under-dash fuse box.

3. Put back the left front carpet, ana install the foot rest.

4. *Install the kick panel trim pieces and door sill* molding.

   NOTE: After installing the dash fuse box, confirm that all systems work properly.

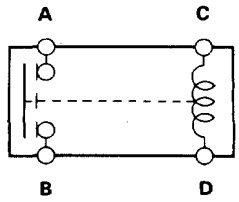
cardiagn.com

Power Relays

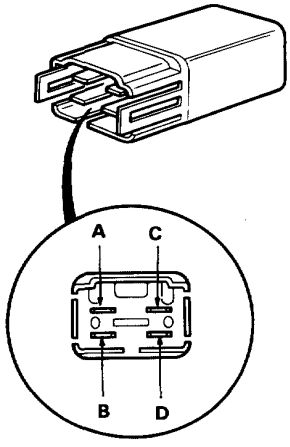
Relay Test

A-Type:

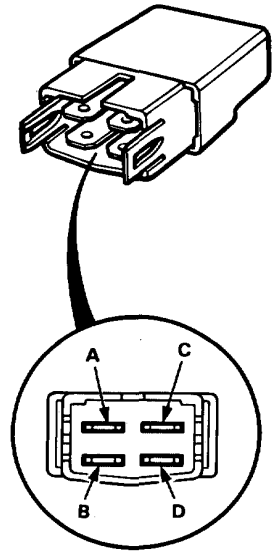
1. Remove the power relay from its socket.
2. There should be continuity between the C and D terminals.
3. There should be continuity between the A and B terminals when the battery is connected to the C and D terminals. There should be no continuity when the battery is disconnected.



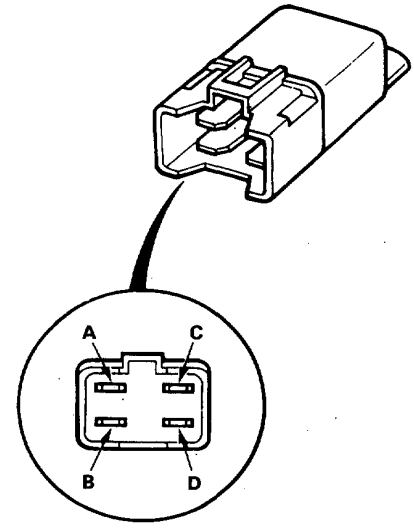
- Condenser fan relay
- Radiator fan relay
- A/C compressor clutch relay
- Horn relay
- Cigarette lighter relay
- Power window relay
- Windshield wiper high relay
- Seat heater relay
- Dome light relay
- Anti-lock brake front fail-safe relay
- Anti-lock brake rear fail-safe relay



- Taillight relay

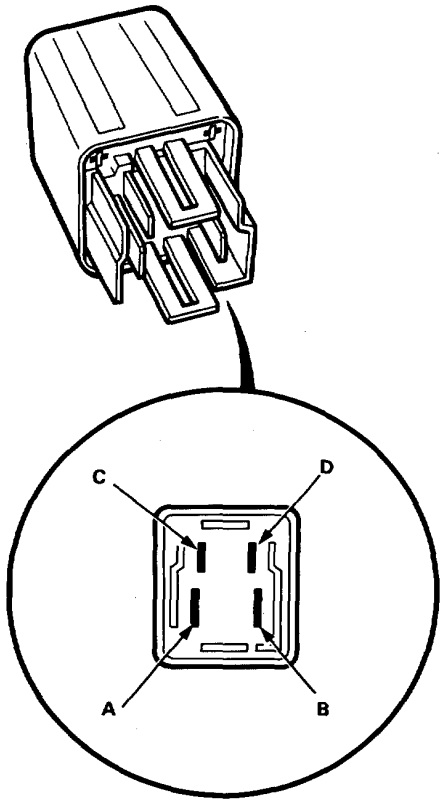


- Blower relay
- Blower high relay



cardiagn.com

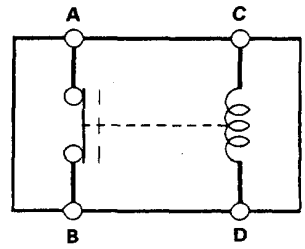
- Headlight relay
- Rear window defogger relay
- Anti-lock brake motor relay



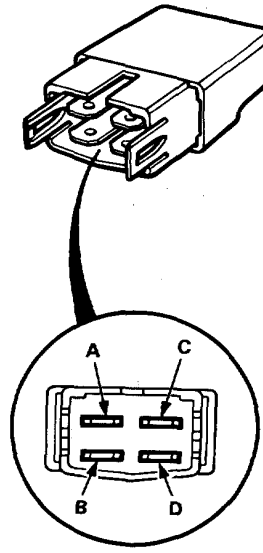
B-Type:

1. Remove the windshield wiper low relay from relay box B.

2. There should be no continuity between the A and B terminals when the battery is connected to the C and D terminals.
   There should be continuity when the battery is disconnected.



- Windshield wiper low relay



(cont'd)

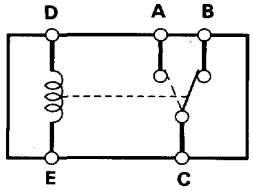
cardiagn.com

Relay Test (cont'd)

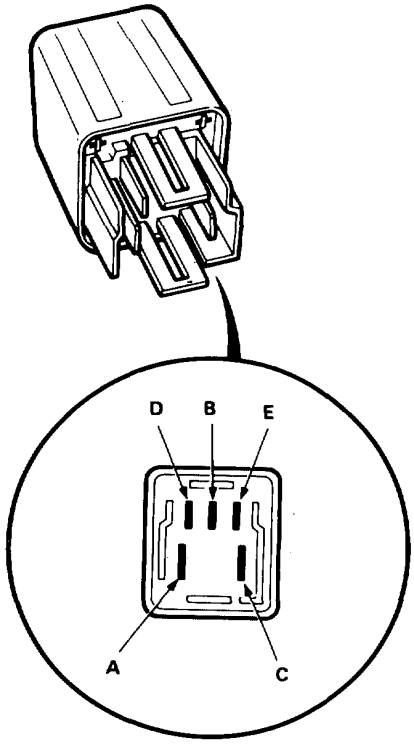
C-Type:

1. Remove the power relays from its socket.
2. There should be continuity between the A and C terminals when the battery is connected to the D and E terminals.

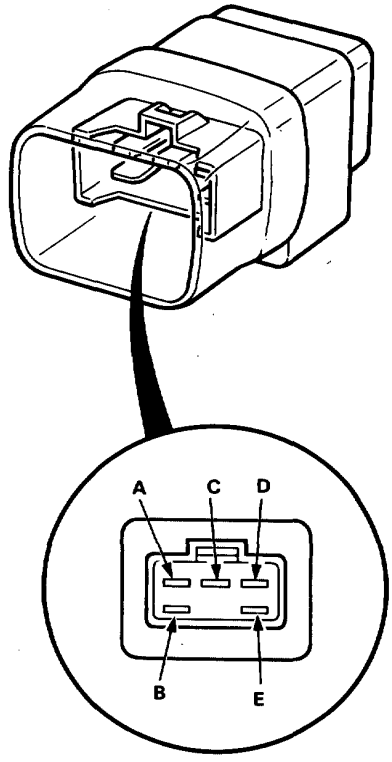
   There should be continuity between the B and C terminals when the battery is disconnected.



- Windshield wiper intermittent relay
- Dimmer relay
- Radiator fan main relay



- Sunroof open relay
- Sunroof close relay



cardiagn.com

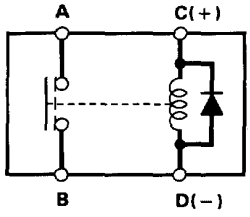
D-Type:

1. Remove the starter relay from the under-dash fuse box.

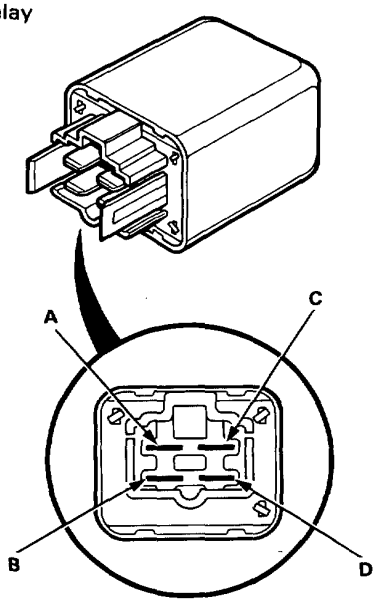
2. There should be continuity between the C (+) and D (−) terminals.

3. There should be continuity between the A and B terminals when the battery is connected to the C(+) and D(−) terminals.
   There should be no continuity when the battery is disconnected.

   NOTE: Do not connect the battery terminals to wrong polarities because a diode is inside the solenoid.



- Starter relay



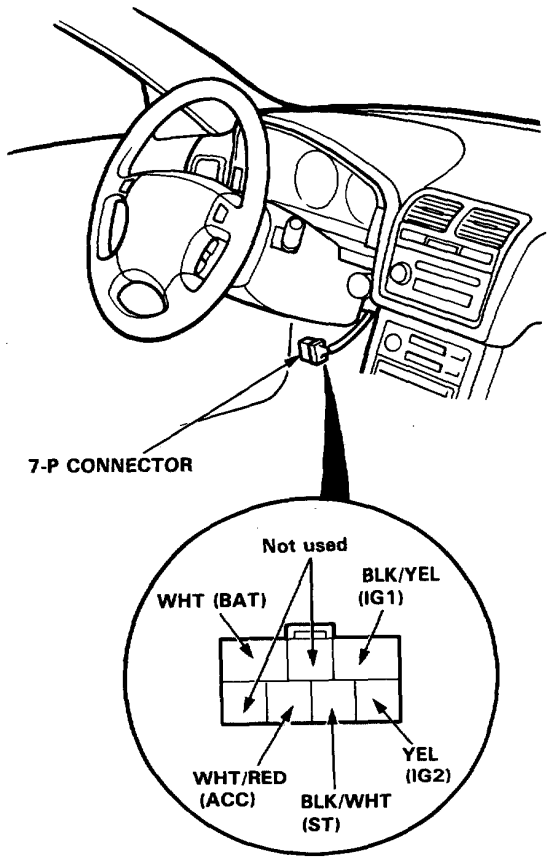
cardiagn.com

Ignition Switch

Test

1. Remove the dashboard lower panel. (See page 23-87).
2. Disconnect the 7-P connector from the under-dash fuse box.

   NOTE: The illustration shows LHD.



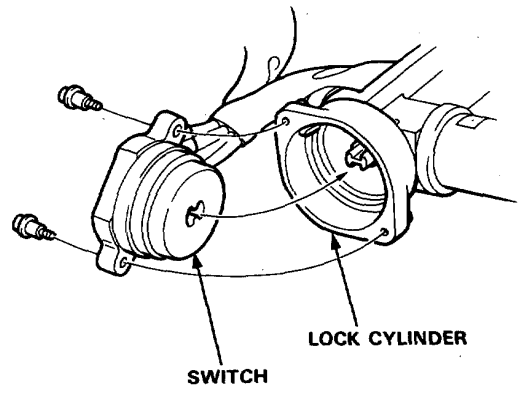
View from wire side

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

Terminal / Position	WHT/ RED (ACC)	WHT (BAT)	BLK/ YEL (IG1)	YEL (IG2)	BLK/ WHT (ST)
0					
I	○—○				
II	○—○	○—○	○—○		
III		○—○	○—○	○—○	

Electrical Switch Replacement

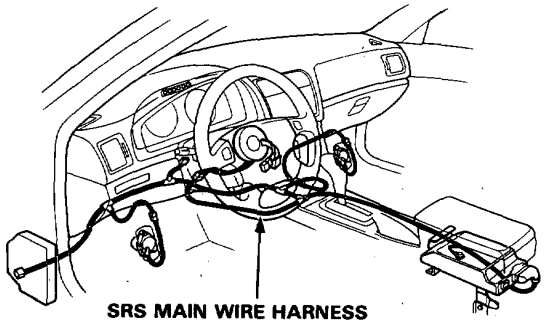
1. Remove the dashboard lower panel (See page 23-87).
2. Disconnect the 7-P connector from the under-dash fuse box.
3. Insert the key and turn it to "0".
4. Remove the 2 screws and replace the switch.



cardiagn.com

Steering Lock Replacement

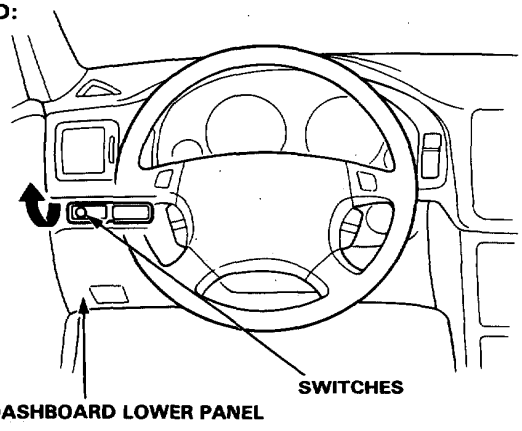
CAUTION:
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- ***Replace the entire affected SRS harness assembly if* there is an open circuit or damage to the wiring.**



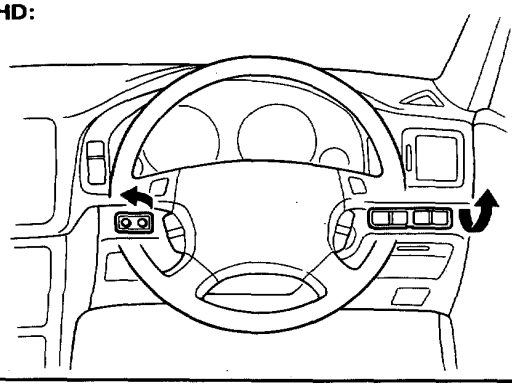
1. Remove the switches from the dashboard lower panel.

   NOTE: Be careful not to damage the switches and lower panel.

LHD:

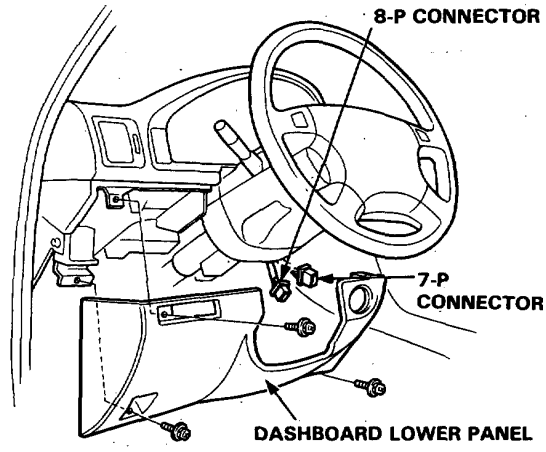


RHD:

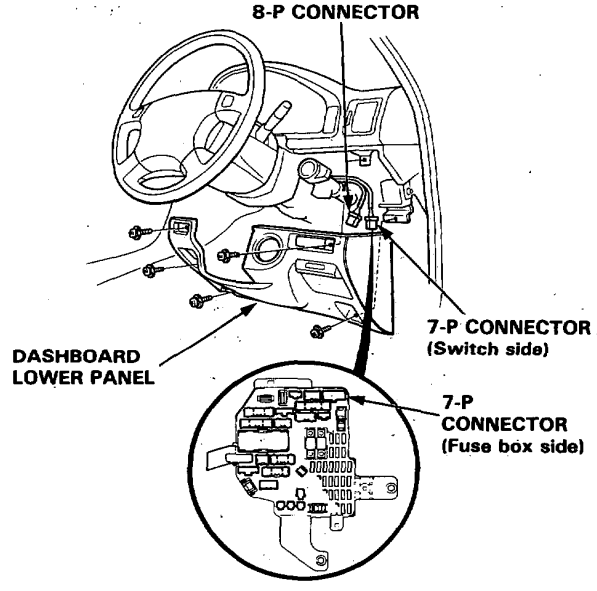


2. Remove the dashboard lower panel.
3. Disconnect the 8-P connector from the main wire harness.
4. Disconnect the 7-P connector from the under-dash fuse box.

LHD:



RHD:

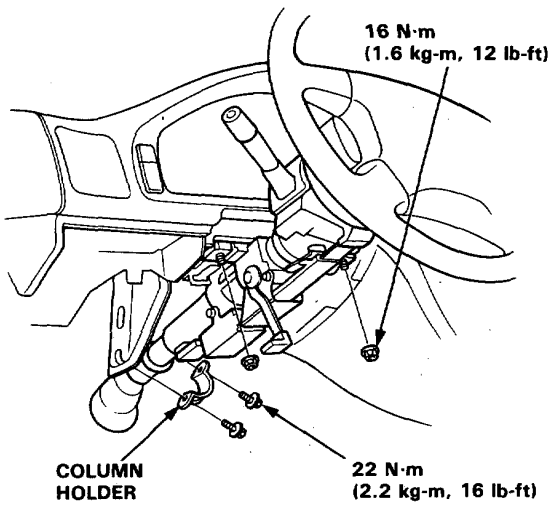


(cont'd)

cardiagn.com

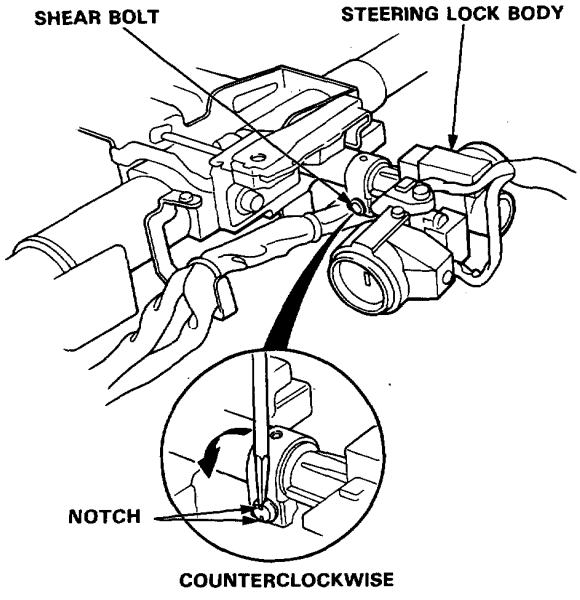
Steering Lock Replacement (cont'd)

5. Remove the column holder mount bolts and mounting nuts.



6. Lower the steering column assembly.
7. With a file, cut a notch in the edge of the shear bolt head.
   Using a chisel or screwdriver in the notch, tap the bolt clockwise until it is loose.

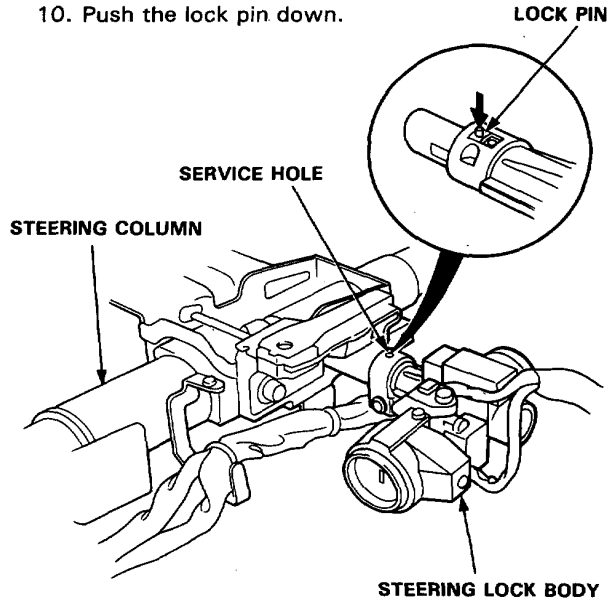
   CAUTION: Do not damage the switch body.



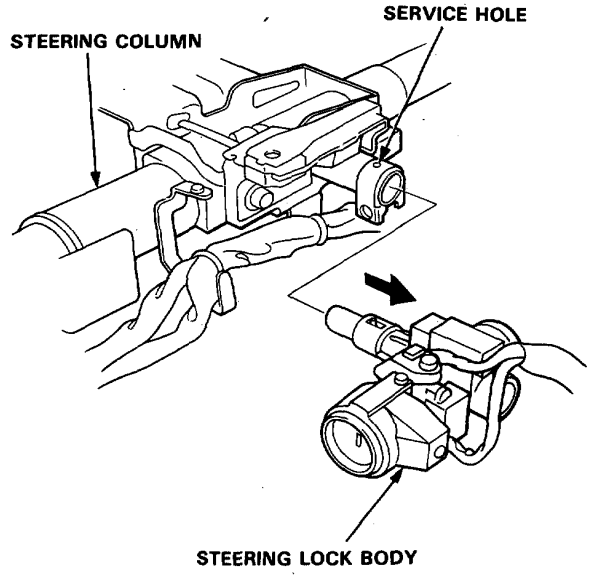
8. Remove the shear bolt from the switch body.
9. Insert the key and turn it to "I".

   NOTE: The illustration shows M/T.

10. Push the lock pin down.



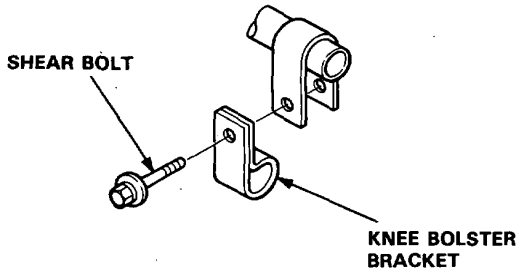
11. Pull out the steering lock body.



cardiagn.com

12. Turn the key to the "I", push the lock pin down, and insert the steering lock assembly into the steering column until it clicks into place.

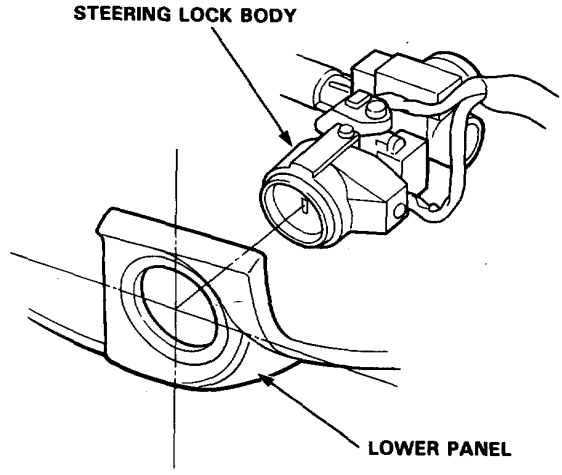
13. Loosely tighten the new shear bolt against the knee bolster bracket.



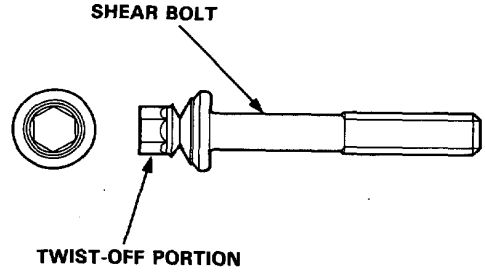
NOTE: Make sure the projection on the ignition switch is aligned with the hole in the steering column.

14. Insert the ignition key and check for proper operation of the steering wheel lock and that the ignition key turns freely.

15. Fit the steering lock body in the lower panel.

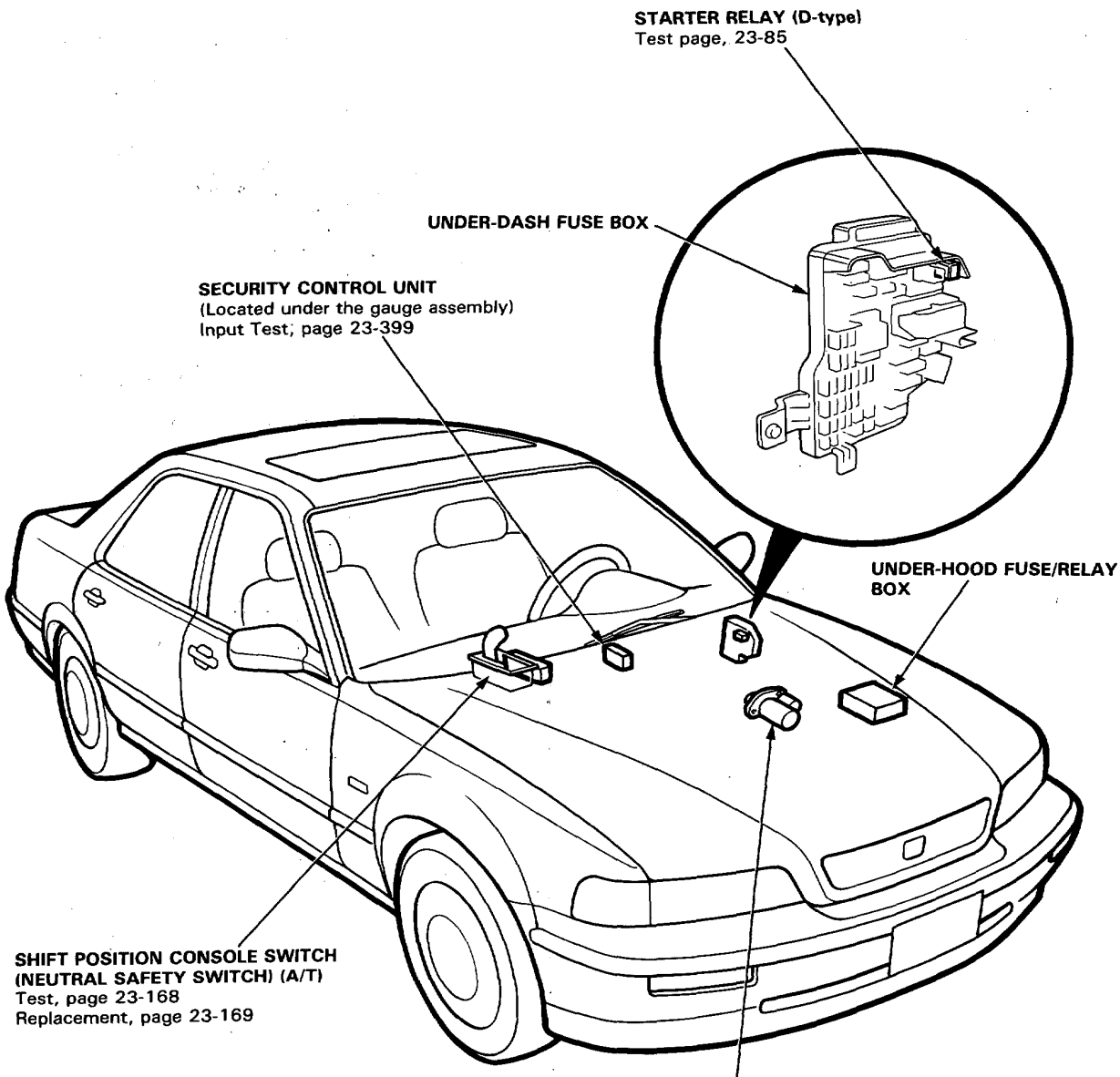


16. Tighten the shear bolt until the hex head twists off.



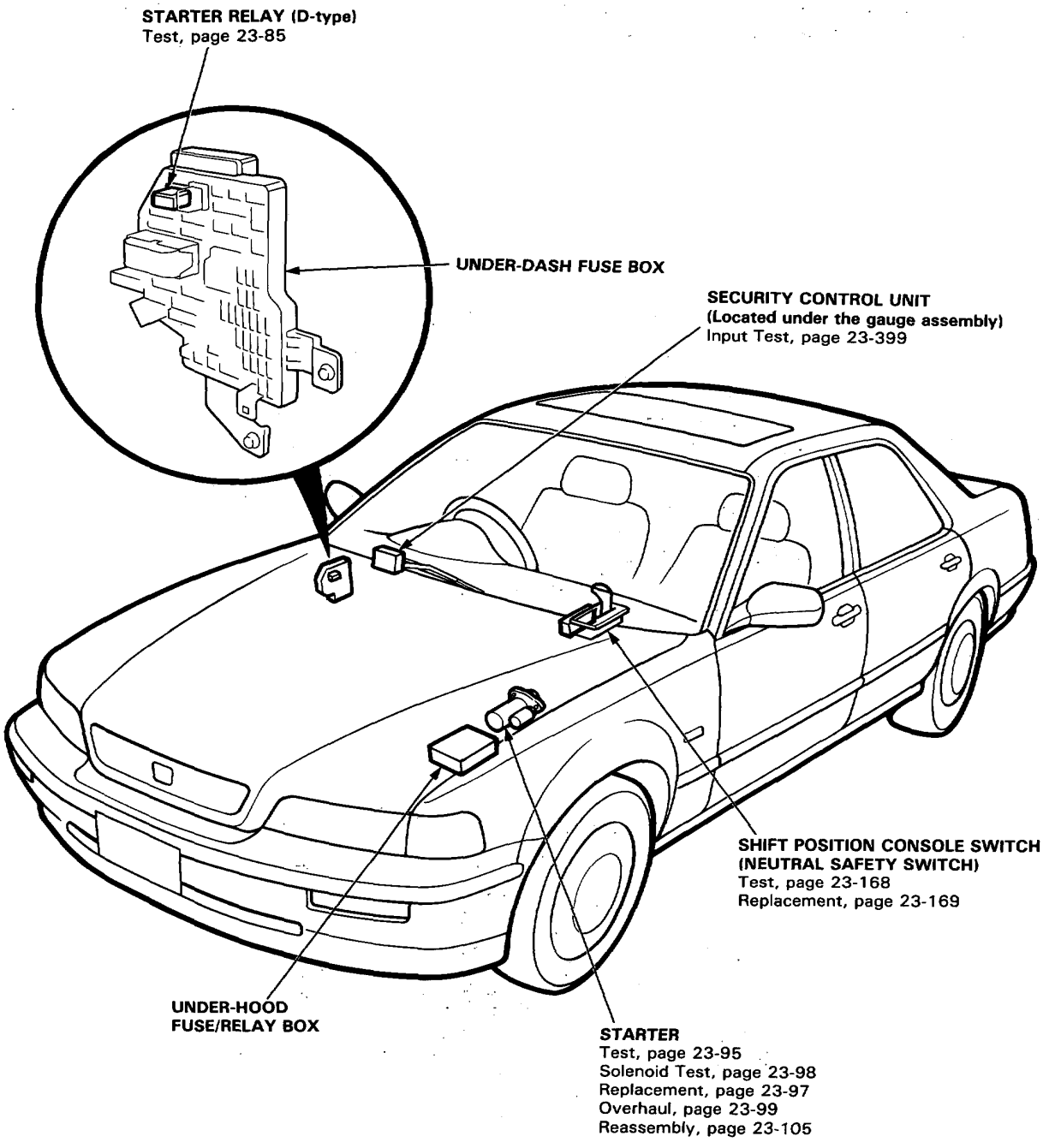
cardiagn.com

Component Location Index (LHD)



cardiagn.com

Component Location Index (RHD)



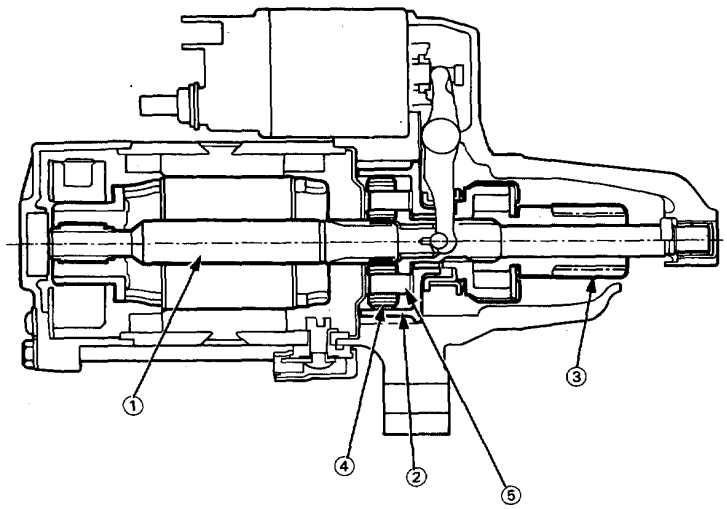
cardiagn.com

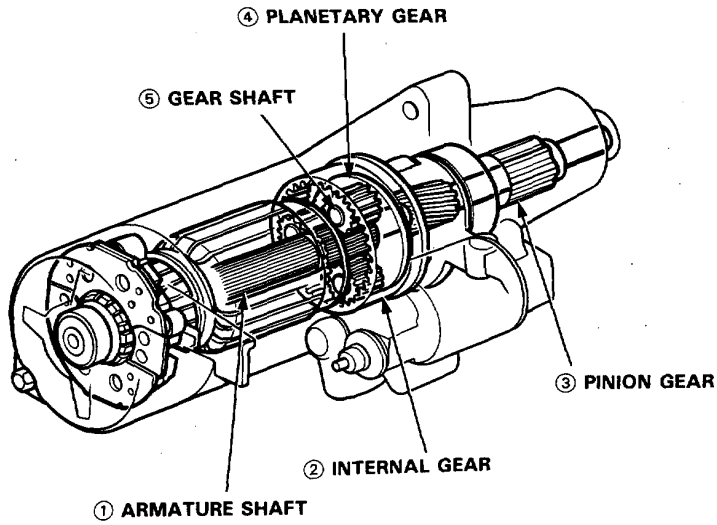
Starting System

Description

This reduction starter employs a planetary gear type vernier mechanism to improve the mounting versatility and reduce gear noise.

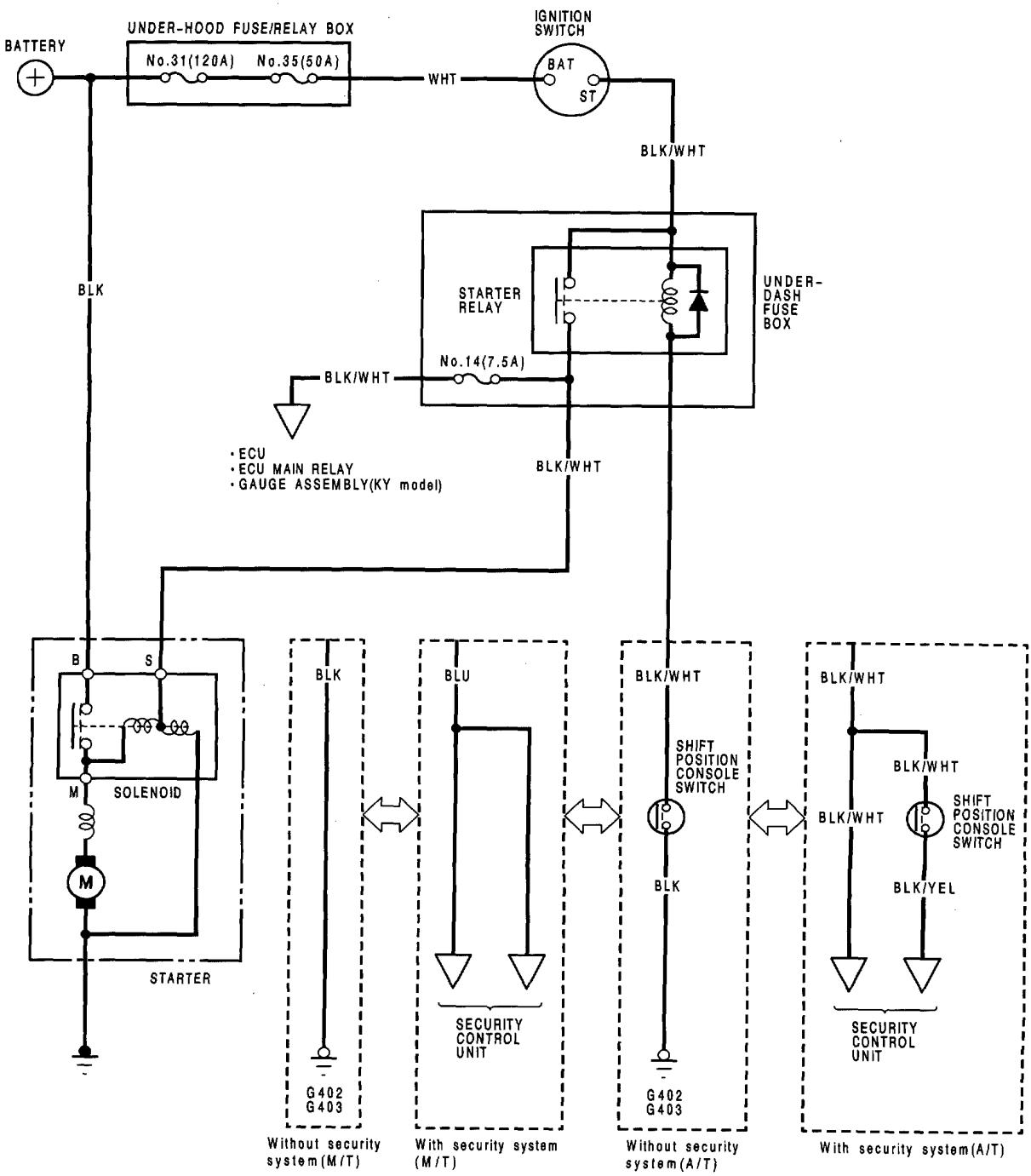
The vernier mechanism has a sun gear consisting of an internal gear, three planetary gears and an armature shaft. When the armature shaft rotates 4.38 turns, the pinion gear rotates one turn in the same direction and the output torque becomes 4.38 times greater than the motor torque.





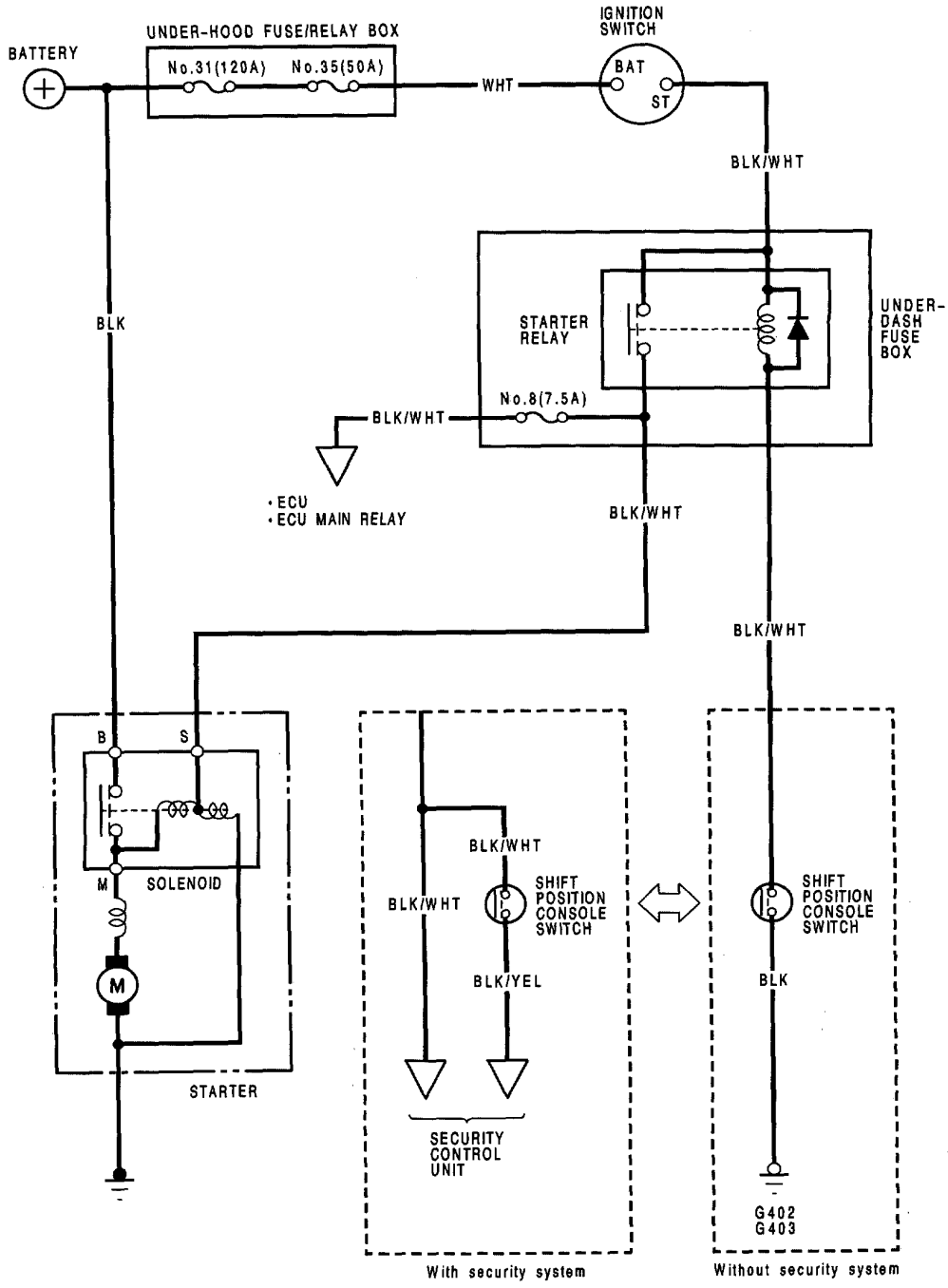
cardiagn.com

Circuit Diagram (LHD)



cardiagn.com

Circuit Diagram (RHD)



cardiagn.com

Starter Test

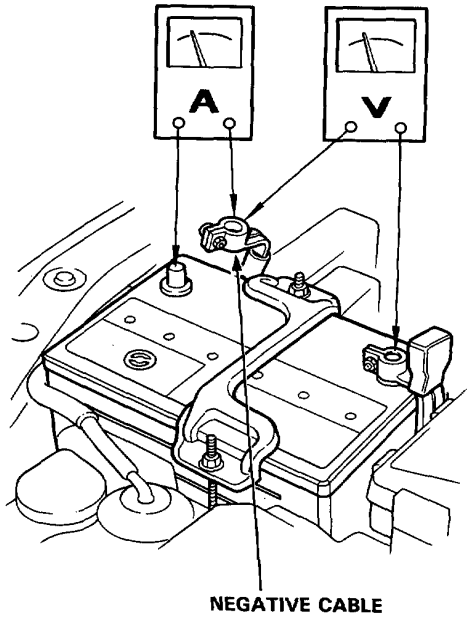
NOTE: The air temperature must be between 15 and 38°C (59 and 100°F) before testing.

Recommended Procedure:

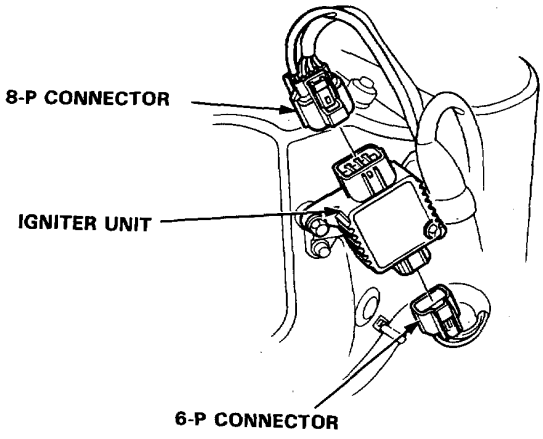
Use a starter system tester.
Connect and operate the equipment in accordance with manufacturer's instructions.
Test and troubleshoot as described.

Alternate Procedure:

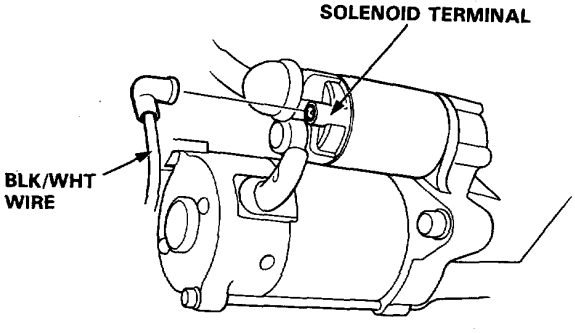
- Use the following equipment:
  - Ammeter, 0—400A
  - Voltmeter, 0—20 V (accurate within 0.1 volt)
  - Tachometer, 0—1200 rpm
- Hook up voltmeter and ammeter as shown.



1. Disconnect the 8-P and 6-P connectors from the Igniter unit.



2. Check the starter engagement:
   Turn the ignition switch to "Start." The starter should crank the engine.
   - If the starter does not crank the engine, check the battery, battery positive cable, ground and the wire connections for looseness and corrosion.
   - Test again.
     If the starter still does not crank the engine, bypass the ignition switch circuit as follows: Unplug the connector (BLK/WHT wire) from the starter. Connect a jumper wire from the battery positive (+) terminal to the solenoid terminal. The starter should crank the engine.



(cont'd)

cardiagn.com

Starter Test (cont'd)

— If the starter still does not crank the engine, remove the starter and diagnose its internal problems.

— If the starter cranks the engine, check for an open in the BLK/WHT wire circuit between the starter and ignition switch, and connectors. Check the ignition switch.
On cars with automatic transmission, check the shift position console switch (neutral safety switch) and connector.
On cars with manual transmission, check the starter relay, and connectors.

NOTE: Check the No. 35 (50A) fuse and the starter relay, and investigate the security alarm system.

3. Check for wear or damage:
The starter should crank the engine smoothly and steadily.

If the starter engages, but cranks the engine erratically, remove the starter motor. Inspect the starter, drive gear and flywheel ring gear for damage. Check the drive gear overrunning clutch for binding or slipping when the armature is rotated with the drive gear held. Replace the gears if damaged.

4. Check cranking voltage and current draw:
Voltage should be no less than 8.5 volts.
Current should be no more than 350 amperes.

If voltage is too low, or current draw too high, check for:

- Battery fully charged.
- Open circuit in starter armature commutator segments.
- Starter armature dragging.
- Shorted armature winding.
- Excessive drag in engine.

5. Check cranking rpm:
Engine speed during cranking should be above 100 rpm.

If speed is too low, check for:

- Loose battery or starter terminals.
- Excessively worn starter brushes.
- Open circuit in commutator segments.
- Dirty or damaged helical spline or drive gear.
- Defective drive gear overrunning clutch.

6. Check the starter disengagement:
Turn the ignition switch to "III" and release to "II"
The starter drive gear should disengage from the flywheel ring gear.

If the drive gear hangs up on the flywheel ring gear, check for:

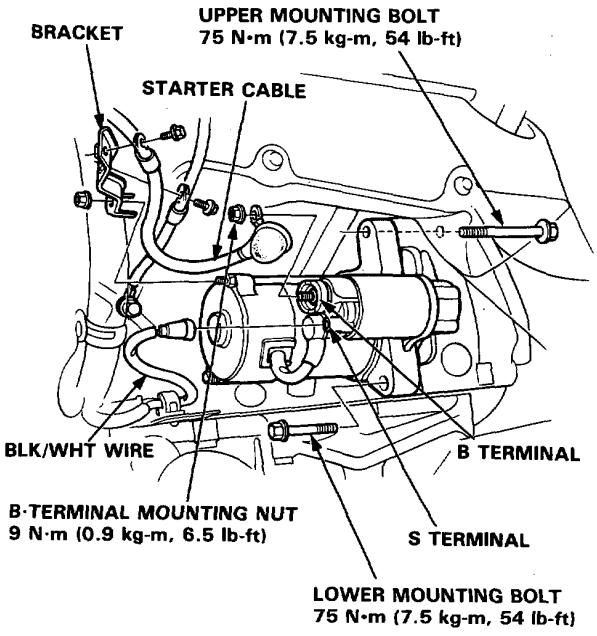
- Solenoid plunger and switch malfunction.
- Dirty drive gear assembly or damaged overrunning clutch.

cardiagn.com

Starter Replacement

1. Disconnect the battery negative (−) cable.
2. Remove the starter cable from the harness clip on the starter motor bracket.
3. Disconnect the starter cable from the B terminal on the solenoid, and the BLK/WHT wire from the S terminal.
4. Remove the starter motor bracket.
5. Remove the exhaust pipe A (See section 13).
6. Remove the 2 bolts holding the starter, and remove the starter.

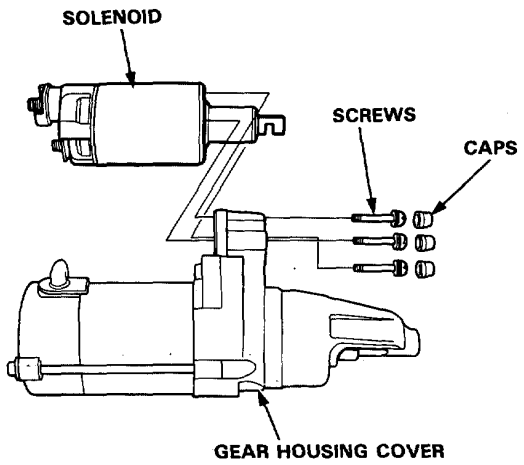
NOTE: While rotating the starter 180 degrees back and forth, draw it downward from between the upper arm and the drive shaft. Take care not to damage the drive shaft boot.



cardiagn.com

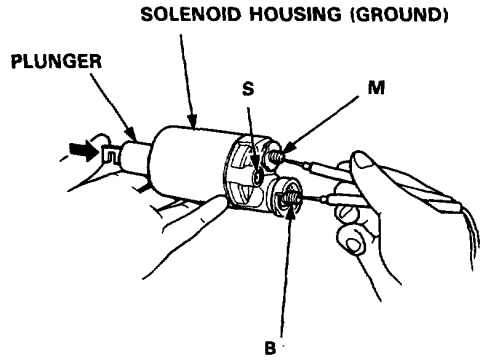
Starter Solenoid Test

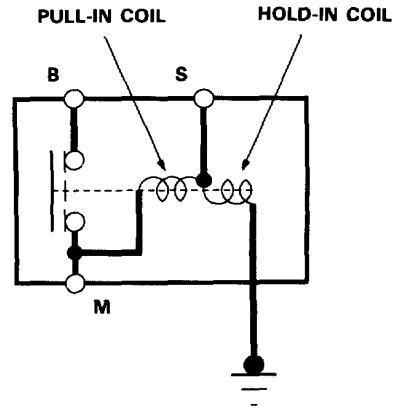
1. Remove the starter solenoid from the gear housing cover.



2. Check for continuity between the terminals in each solenoid plunger position according to the table.

Terminal / Position	B	M	S	GROUND
RELEASED		○	○	○
PUSHED	○	○	○	○

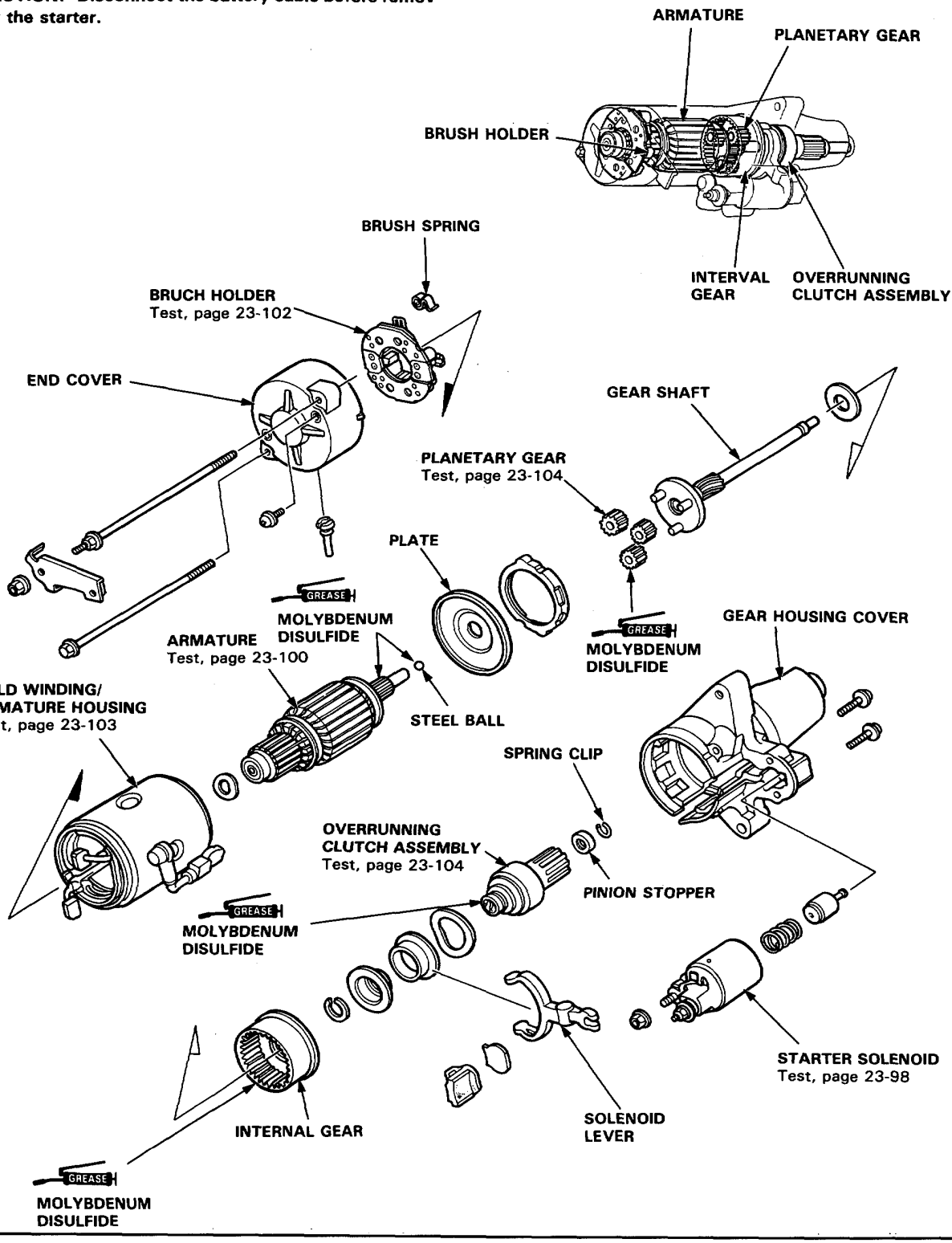




cardiagn.com

Starter Overhaul

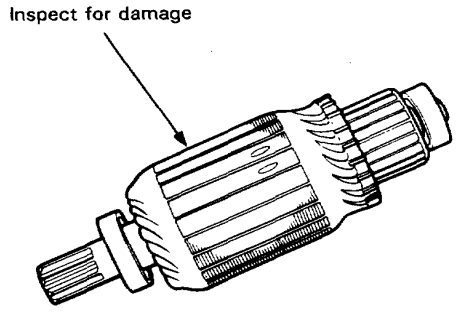
CAUTION: Disconnect the battery cable before removing the starter.



cardiagn.com

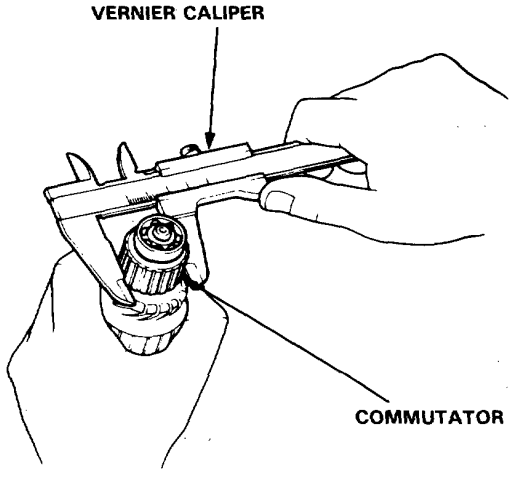
Armature Inspection and Test

1. Inspect the armature for wear or damage due to contact with the field coil magnets.

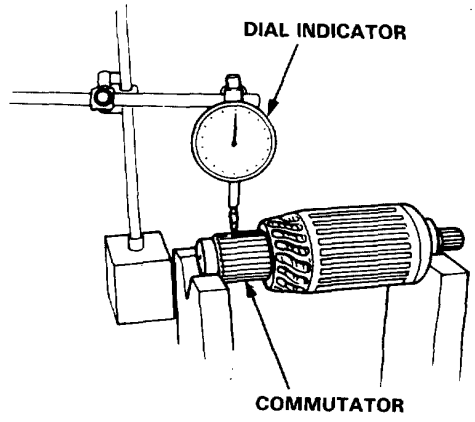


2. A dirty or burnt commutator surface may be resurfaced with emery cloth or a lathe within the following specifications.

Commutator Diameter
Standard (New): 31.9—32.1 mm (1.256—1.263 in)
Service Limit : 31.5 mm (1.24 in)



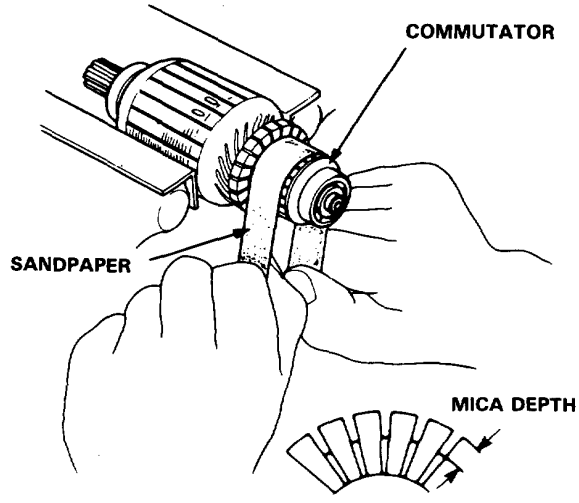
Commutator Runout
Standard (New): 0—0.05 mm (0.002 in)
Service Limit : 0.1 mm (0.004 in)



3. If the commutator runout and diameter are within limits, check the commutator for damage or for carbon dust or brass chips between the segments.

cardiagn.com

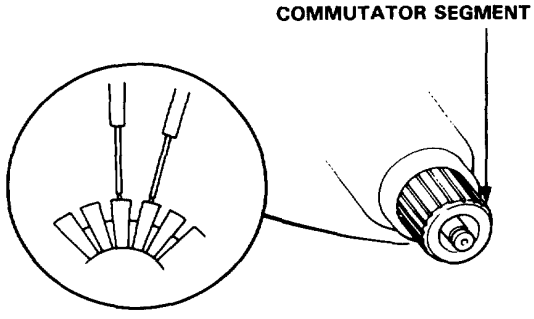
4. If surface is dirty, recondition it with a #500 or #600 sandpaper. Then, check mica depth. If necessary, undercut mica with a hacksaw blade to achieve proper depth.



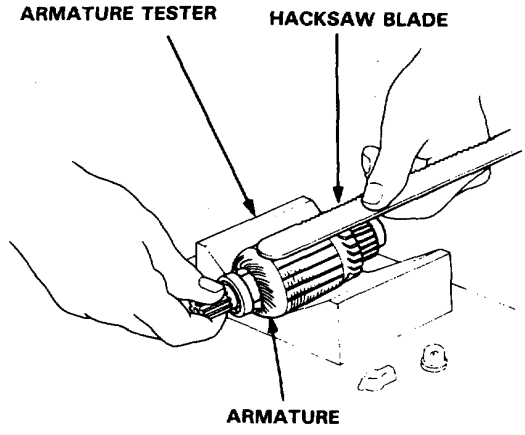
Commutator Mica Depth

Standard (New): 0.5—0.8 mm (0.02—0.03 in)
Service Limit: 0.2 mm (0.008 in)

5. Check for continuity between each segment of the commutator. If an open circuit exists between any segment, replace the armature.

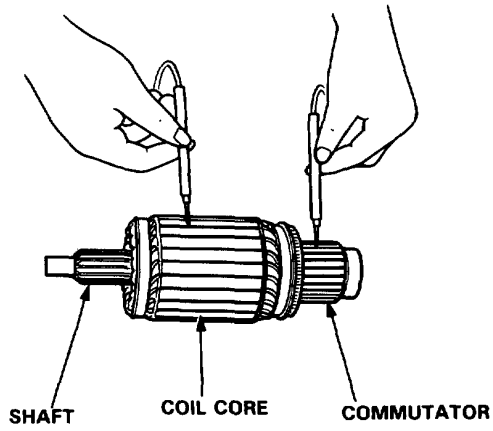


6. Place the armature on an armature tester. Hold a hacksaw blade on the armature core.



If the blade is attracted to the core or vibrates while core is turned, the armature is shorted. Replace the armature.

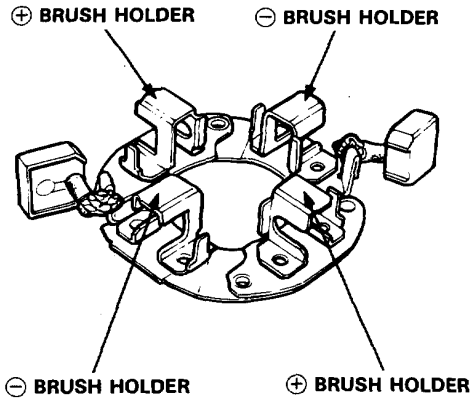
7. With an ohmmeter, check that no continuity exists between the commutator and armature coil core, and between the commutator and armature shaft. If continuity exists, replace the armature.



cardiagn.com

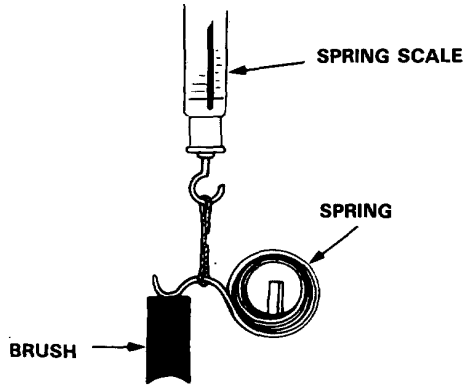
Starter Brush Holder Test

1. Check that there is no continuity between the ⊕ and ⊖ brush holders.
   If continuity exists, replace the brush holder assembly.



2. Insert the brush into the brush holder, and bring the brush into contact with commutator, then attach a spring scale to the spring. Measure the spring tension at the moment the spring lifts off the brush.

Spring Tension: 29.7–36.3 N (2.97–3.63 kg, 6.55–8.00 lb)



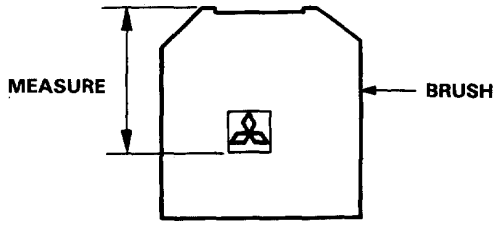
cardiagn.com

Starter Brush Inspection

Measure the brush length. If not within the service limit, replace the armature housing and brush holder assembly.

Brush Length

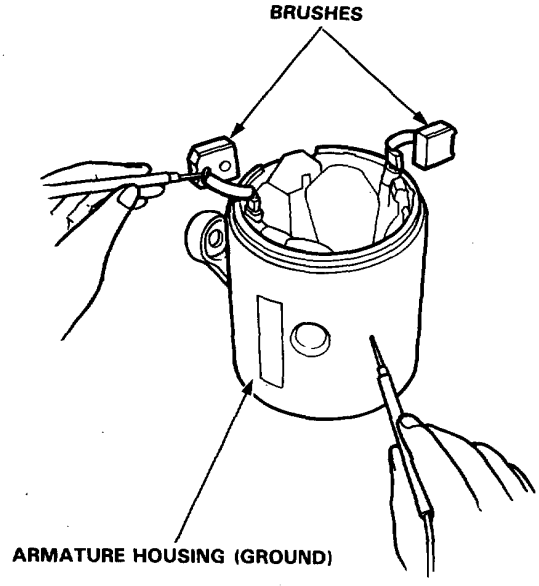
Standard (New): 18 mm (0.71 in)
Service Limit : 11 mm (0.43 in)



NOTE: To seat new brushes after installing them in their holders, slip a strip of #500 or #600 sandpaper, with the grit side up, over the commutator and smoothly rotate the armature. The contact surface of the brushes will be sanded to the same contour as the commutator.

Starter Field Winding Test

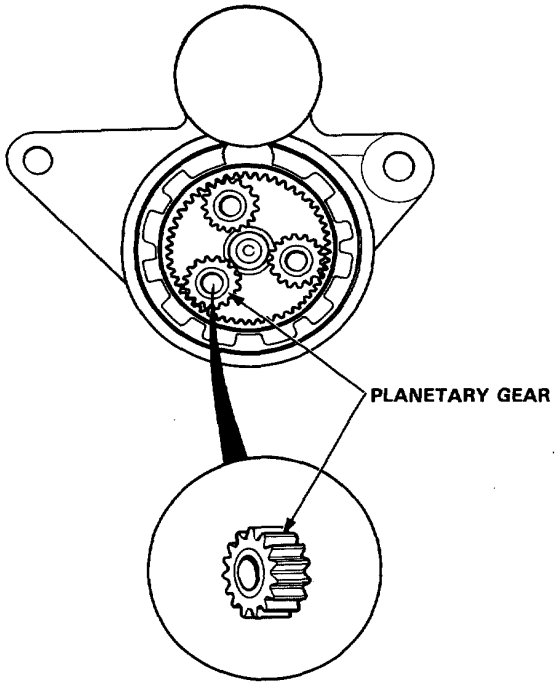
1. Check for continuity between the brushes. If there's no continuity, replace the armature housing.
2. Check for continuity between each brush and the armature housing (ground).
   If continuity exists, replace the armature housing.



cardiagn.com

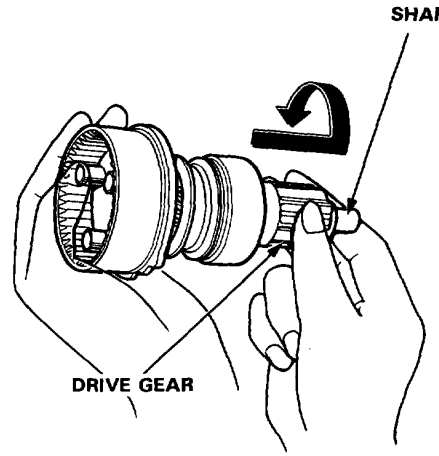
Planetary Gear Inspection

1. Check if the planetary gear is worn or damaged.
2. If the planetary gear is worn or damaged, check condition of the armature shaft gear, and internal gear.



Overrunning Clutch Inspection

1. Check if the overrunning clutch moves along the shaft freely. If not, replace the overrunning clutch assembly.
2. Check if the overrunning clutch locks in one direction and rotates smoothly in reverse. If it does not lock in either direction or it locks in both directions, replace the overrunning clutch assembly.



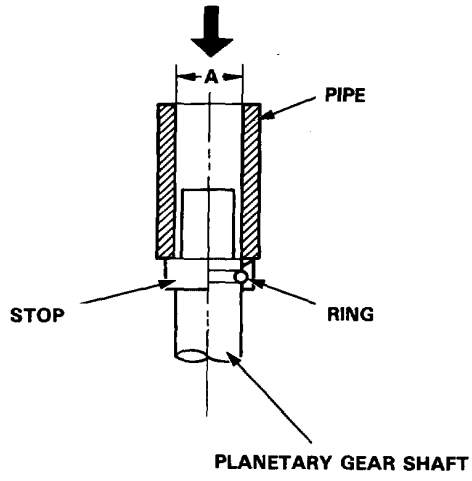
3. Check if the starter drive gear is worn or damaged. If the gear is worn or damaged, replace the overrunning clutch assembly; the gear is not available separately.
4. Check condition of the flywheel or torque converter ring gear if the starter drive gear teeth are damaged.

cardiagn.com

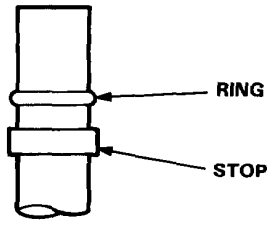
Overrunning Clutch Removal

1. Put the end of a pipe (inner diameter 13 mm (0.51 in)) against the stop and strike the pipe to dismount the stop from the ring.

A: 13 mm (0.51 in)



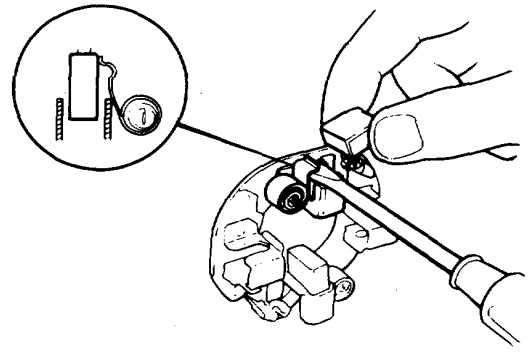
2. Remove the ring then pull the stop and overrunning clutch off the shaft.



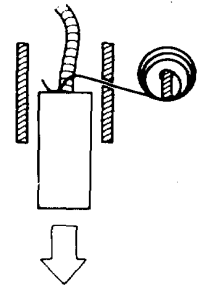
Starter Reassembly

Reassemble the starter in the reverse order of disassembly.

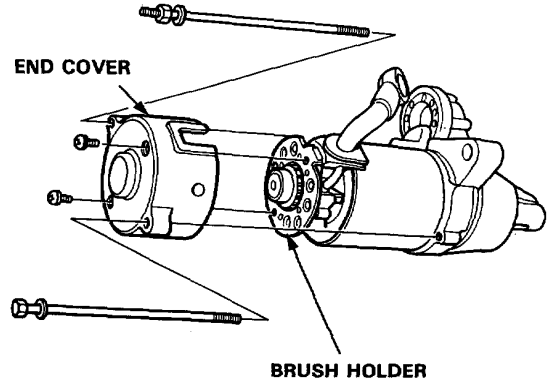
1. Pry back each brush spring with a screwdriver, then position the brush about halfway out of its holder, and release the spring to hold it there.



2. Install the armature in the housing. Next pry back each brush spring again and push the brush down until it seats against the commutator, then release the spring against the end of the brush.



3. Install the end cover on the brush holder.



cardiagn.com

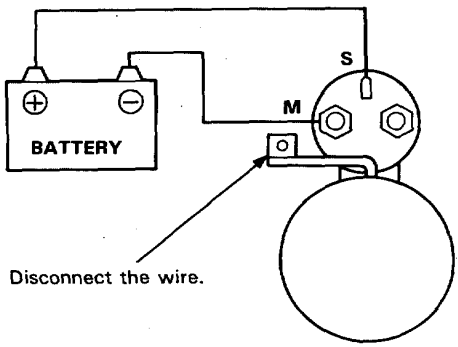
Performance Test

NOTE: Before starting the following checks, disconnect the wire from terminal **M**, and make a connection as described below using as heavy a wire as possible (preferably equivalent to the wire used for the vehicle).

Pull-in Coil Test:

Connect the battery between terminals **S** and **M** on the solenoid. If the pinion protrudes, it is working properly. properly.

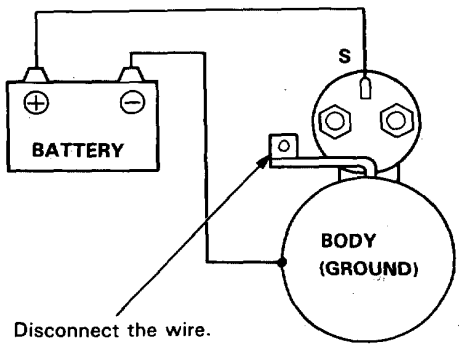
NOTE: Do not leave the battery connected for more than 10 seconds.



Holding Coil Test:

Connect the battery between terminal **S** on the solenoid and the body. Manually pull out the pinion until it reaches the pinion stop. If the pinion does not snap back when it is released, the holding coil is working properly.

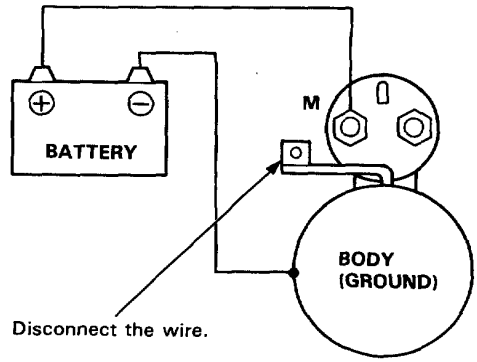
NOTE: Do not leave the battery connected for more than 10 seconds.



Retracting Test:

Connect the battery between terminal **M** on the solenoid and the body. Manually *pull out* the pinion until it reaches the pinion stop.
If the pinion retracts immediately when it is released, it is working properly.

NOTE: Do not leave the battery connected for more than 10 seconds.



cardiagn.com

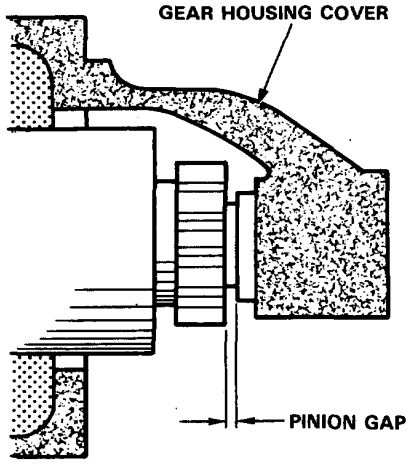
Pinion Gap Check:

1. Disconnect the wire from terminal **M**.
2. When the battery is connected between terminals **S** and **M**, the pinion protrudes and stops. Keep the pinion in this position and measure the gap between the pinion and the stop.

   NOTE: *Do not leave the battery connected for* more than 10 seconds.

Specification:
Pinion Gap: 0.5—2 mm (0.02—0.08 in)

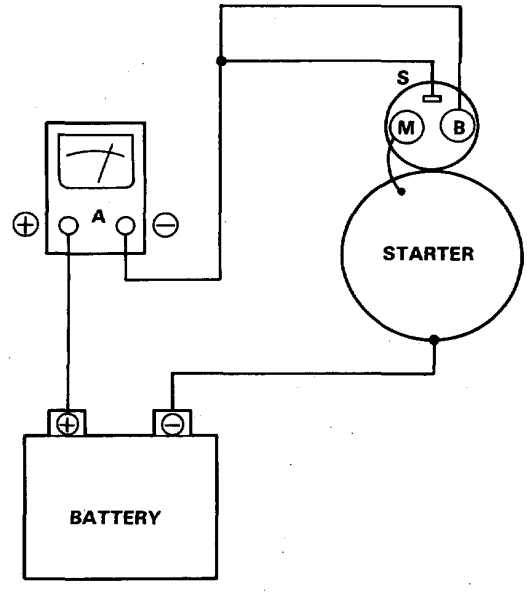
3. If the pinion gap is out of the specified range, adjust the gap by increasing or decreasing the number of washers between the magnetic switch and the housing cover. When the number of washers is increased, the gap becomes smaller.



Starter No-Load Test:

1. Clamp the starter firmly in a vise.
2. Connect the starter to the battery as described in the diagram below and confirm that the motor starts and keeps rotating.
3. If the electric current and motor speed meet the specifications when the battery voltage is at 11 V, it is working properly.

Specifications: 140A or less (Electric current), 3,800rpm or more (Motor speed)

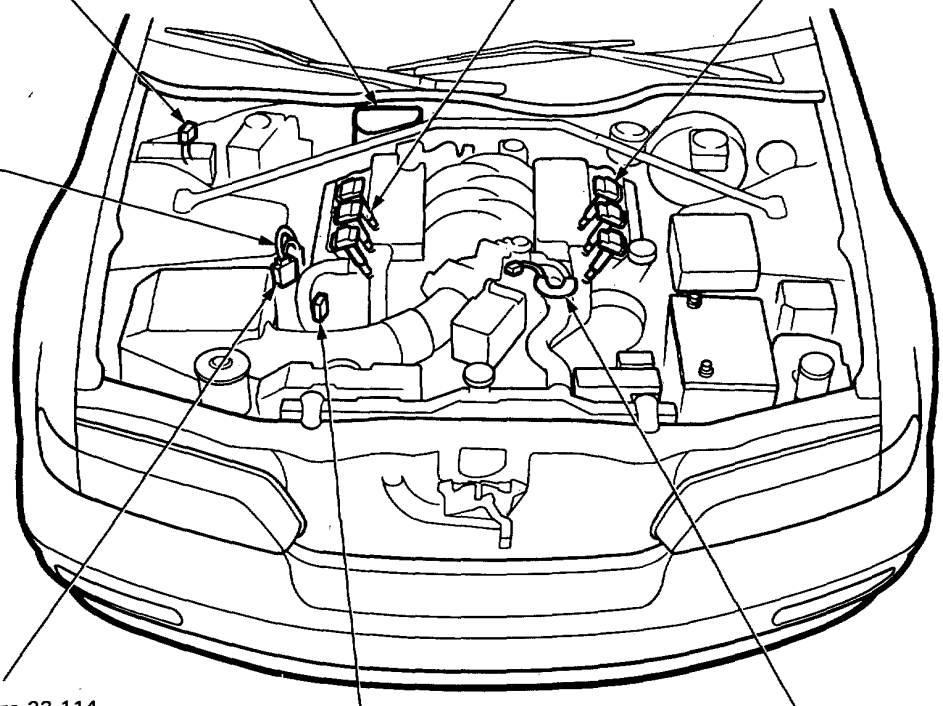


cardiagn.com

Ignition System

Component Location Index (LHD)

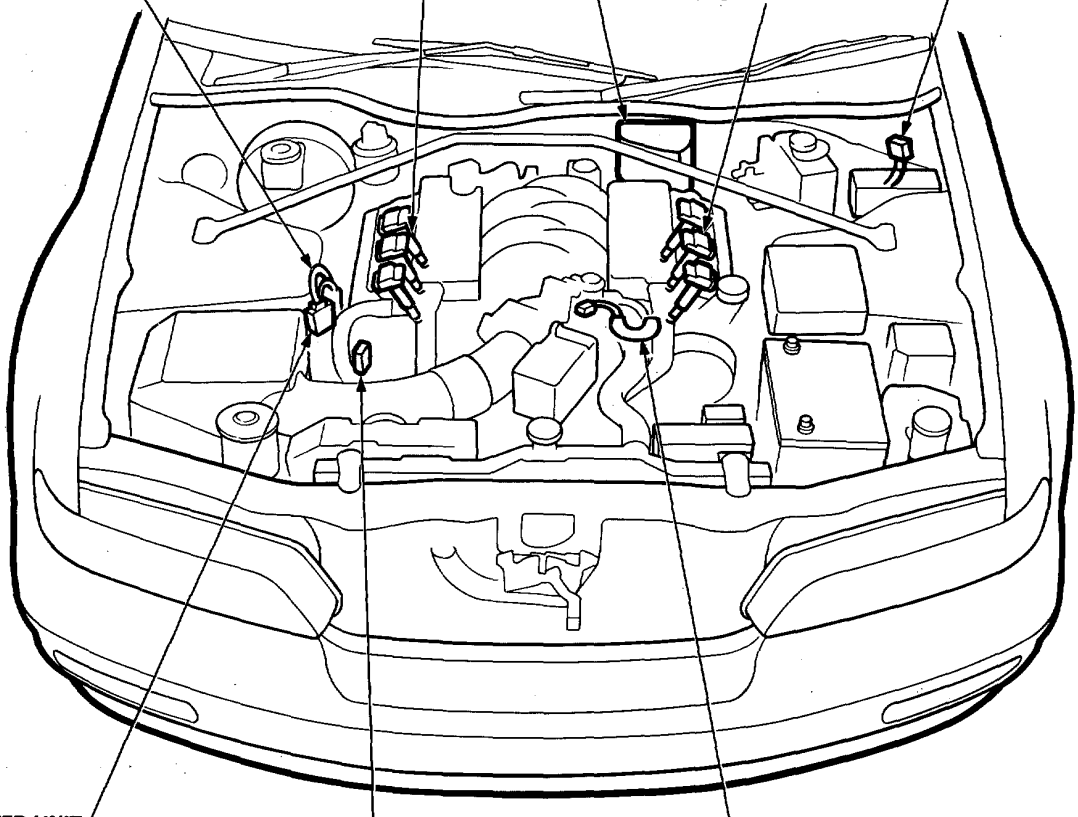
IGNITION TIMING CONTROL SYSTEM
- Troubleshooting, section 11
- Inspection and setting, page 23-112
- Description, page 23-110



cardiagn.com

Component Location Index (RHD)

IGNITION TIMING CONTROL SYSTEM
- Description, page 23-110
- Inspection and setting, page 23-112
- Troubleshooting, section 11

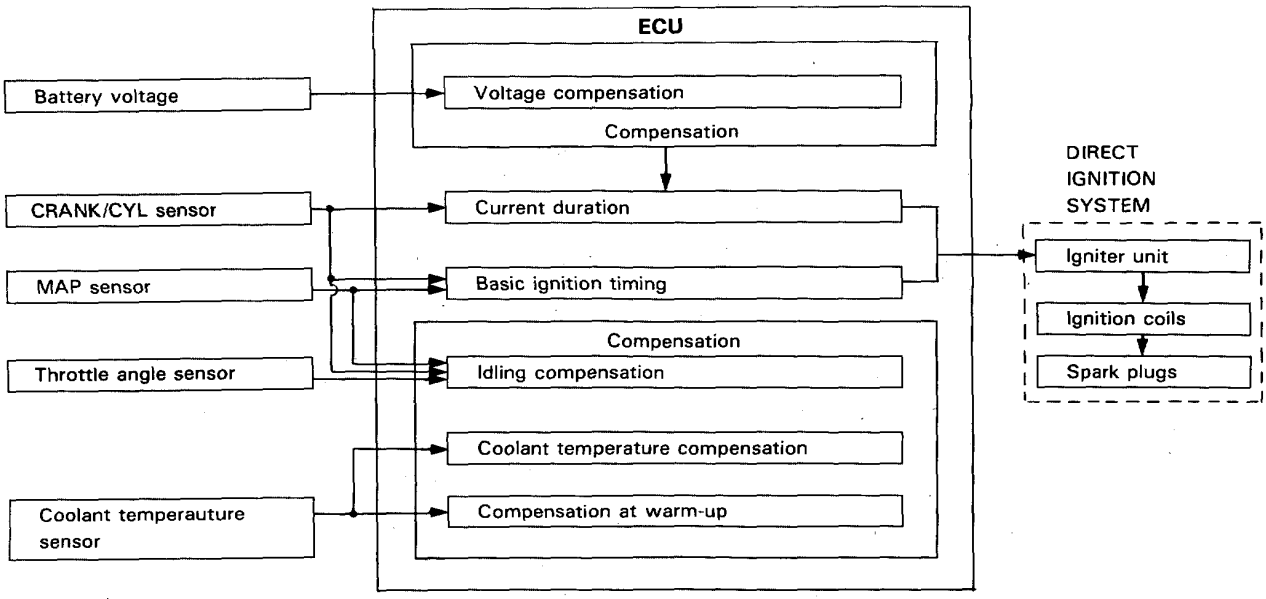


cardiagn.com

Ignition System

Description

Ignition Timing Control:
The programmed ignition system on this engine use a microcomputer (ECU) to determine optimum ignition timing based on continuous inputs from a CRANK/CYL sensor, throttle angle sensor, coolant temperature sensor and MAP (manifold absolute pressure) sensor. This system, not dependent on a governor or vacuum diaphragm, is capable of providing ignition advance characteristics which cannot be provided by conventional timing controls.



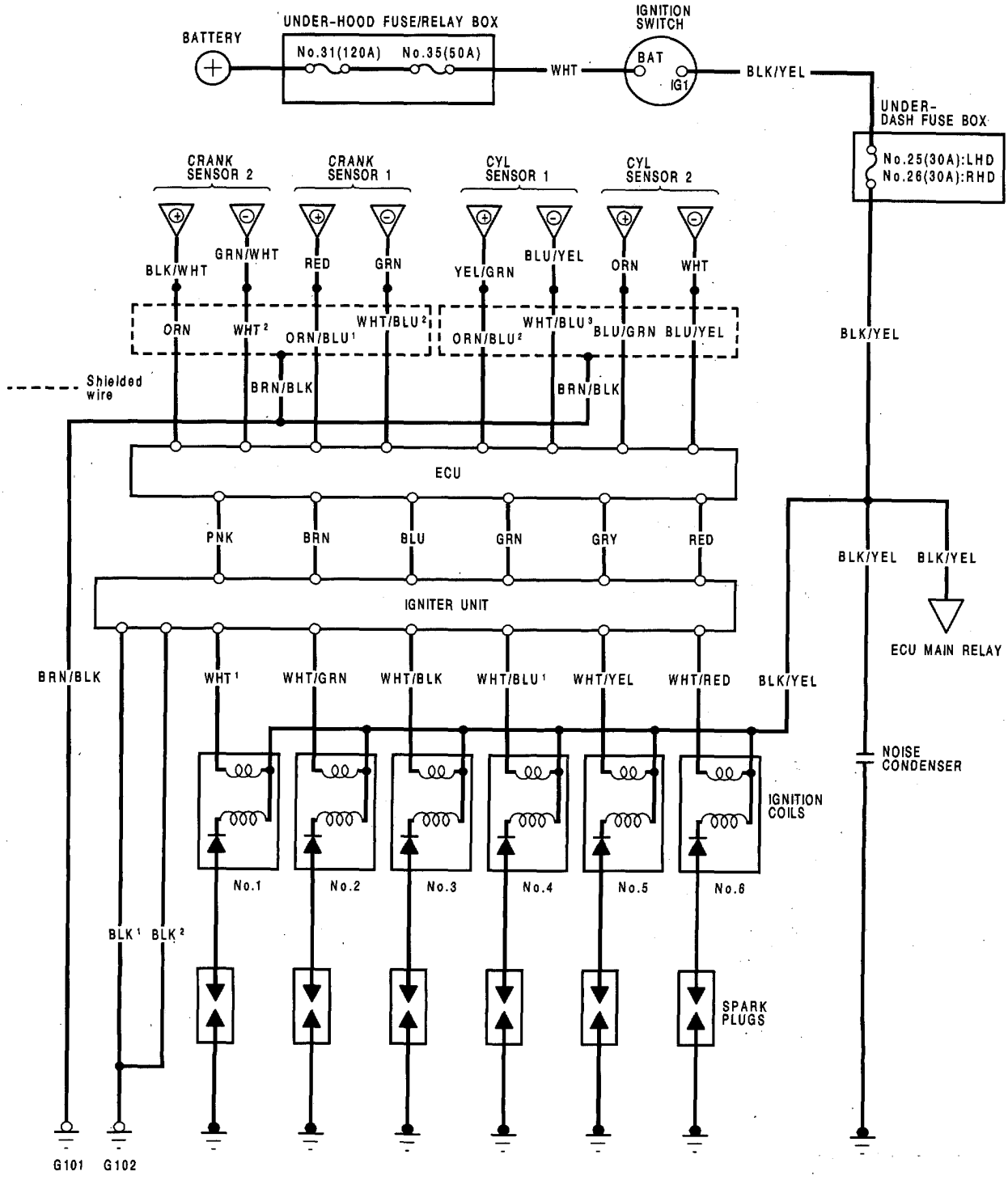
Basic Control
Determination of ignition timing/current duration:
The control unit has stored within it the basic ignition timing for operating conditions based upon engine speed and intake manifold pressure. With the input signals from sensors, the system determines optimum timing for present conditions and sends voltage pulses to the igniter unit.

Compensation of ignition timing:

Compensation Item	Related Sensor and Information	Description
Idling	CRANK/CYL sensor MAP sensor	Ignition timing is controlled to the target speed with compensation according to the idling speed.
Compensation at warm-up	Coolant temperature sensor	Timing is adjusted in accordance with the warming up conditions to bring about a good balance between operating performance and exhaust gas level.
Coolant temperature compensation	Coolant temperature sensor	Compensation for timing at low and high coolant temperatures.

cardiagn.com

Circuit Diagram

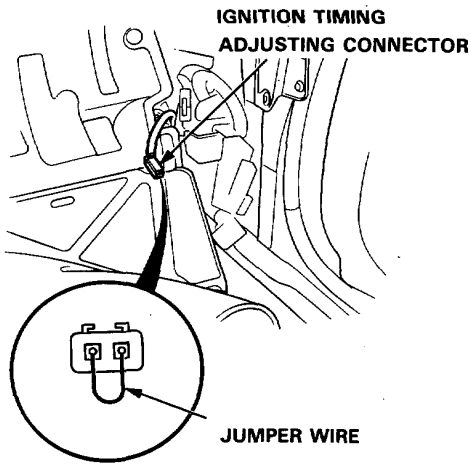


cardiagn.com

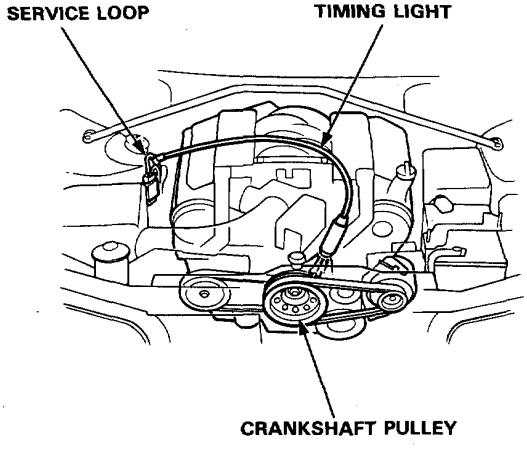
Ignition Timing Inspection and Setting

1. Start the engine and allow it to warm up (cooling fan comes on).
2. Pull out the ignition timing adjusting connector located under the dash on the right side. Connect the WHT and BLK terminals with a jumper wire.

   NOTE: RHD type is symmetrical to LHD type.



3. Connect a timing light to the service loop; while the engine idles, point the light toward the pointer on the timing belt cover.



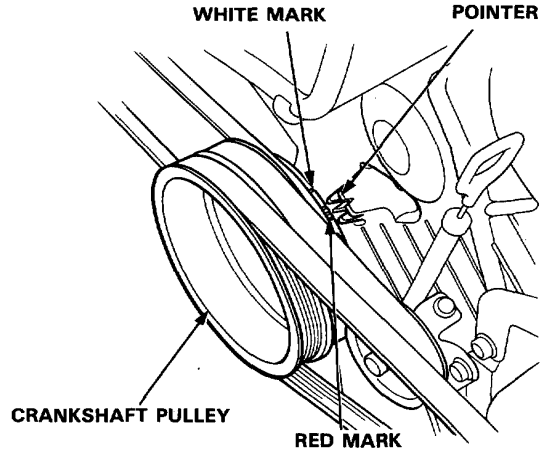
4. Check the idle speed (See page 23-113).

   NOTE: Adjust the idle speed, if necessary, by turning the idle adjusting screw (See section 11).

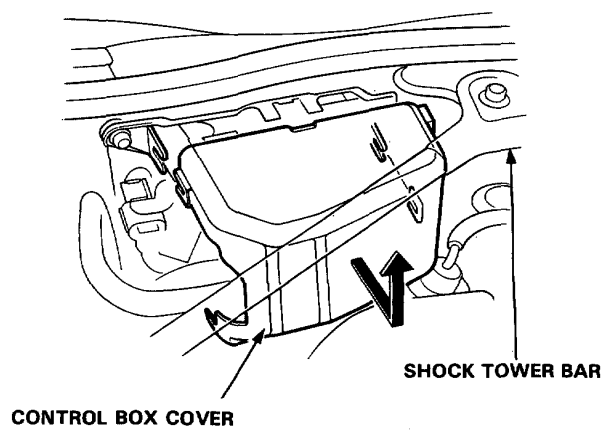
5. Inspect ignition timing at idle.

   Ignition Timing: 15° ± 2° BTDC (RED)

   - **Manual Transmission (at 650 ± 50 min^{-1} (rpm) in neutral)**
   - **Automatic Transmission (at 600 ± 50 min^{-1} (rpm) in neutral)**



6. If necessary to adjust the ignition timing, remove the control box cover. Be careful not to damage the vacuum hose when removing the control box cover.

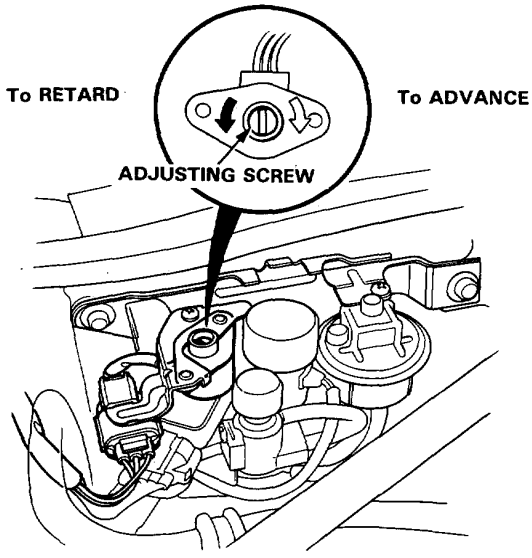


cardiagn.com

7. Drill the 2 rivets off with a 3/16 in. drill bit, then separate the cover from the adjuster.

   CAUTION: Do not damage the adjuster when *removing the rivets*.

8. Adjust the *ignition timing* by turning the adjusting screw on the ignition timing adjuster.



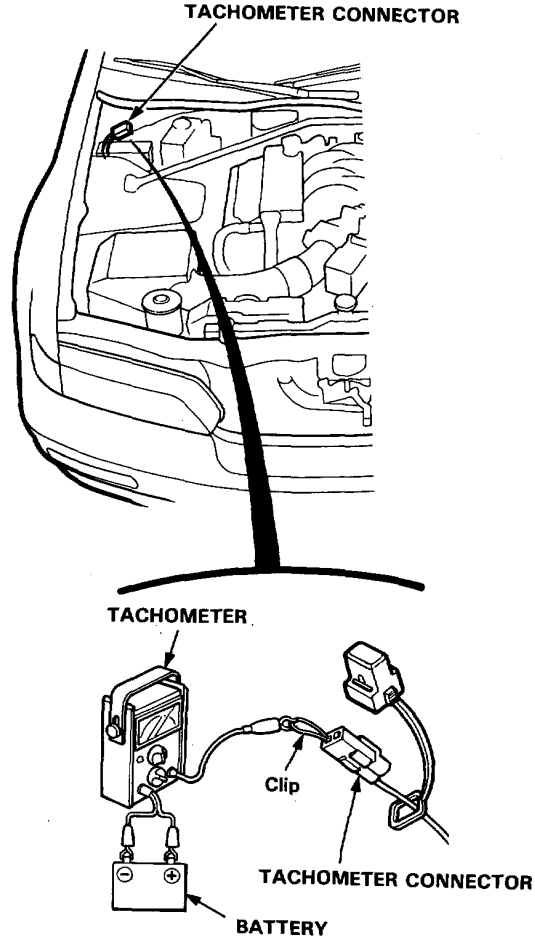
9. Remove the jumper wire from the timing adjusting connector.

10. After adjusting, reinstall the cover on the ignition timing adjuster with new rivets, then reinstall the adjuster on the control box.

Idle Speed Inspection

1. Start the engine and allow it to warm up (cooling fan comes on).

2. Connect a tachometer to the tachometer connector.



Idle speed:
M/T: 650 ± 50 min^{-1} (rpm) in neutral
A/T: 600 ± 50 min^{-1} (rpm) in neutral

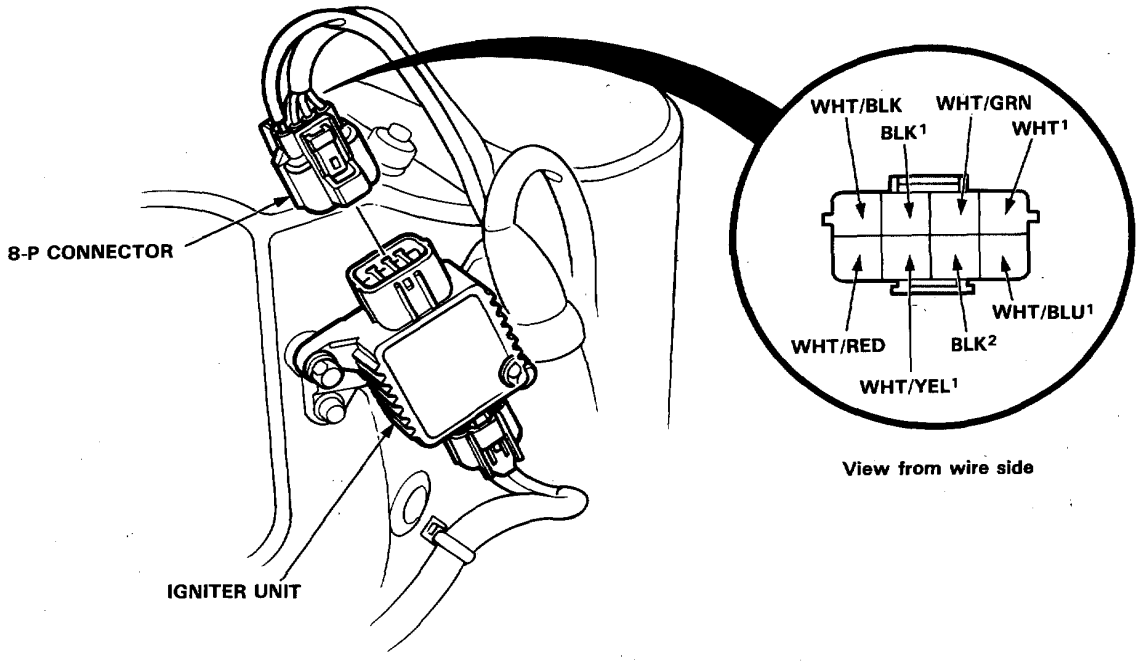
3. Adjust the *idle speed, if necessary* (*See section* 11).

cardiagn.com

Igniter Unit Input Test

Disconnect the 8-P connector from the igniter unit.
Make the following input tests at the harness pins.
If all tests prove OK, yet the system still fails to work, replace the igniter unit.

NOTE:
- See section 11 when self-diagnostic indicator blinks.
- Perform an input test on the igniter unit after finishing the fundamental tests for the ignition system and fuel emission system.
- The tachometer should operate normally.



No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLK[1]	Under all conditions.	Check for continuity to ground: There should be continuity.	• Poor ground (G102). • An open in the wire.
2	BLK[2]			
3	WHT[1]	Ignition switch ON.	Check for voltage to ground: There should be battery voltage.	• Blown * (30A) fuse. • Faulty ignition coil. • An open in the wire.
4	WHT/GRN			
5	WHT/BLK			
6	WHT/BLU			
7	WHT/YEL			
8	WHT/RED			

* { No. 25 (30A): LHD
  { No. 26 (30A): RHD

cardiagn.com

Ignition Coil Test

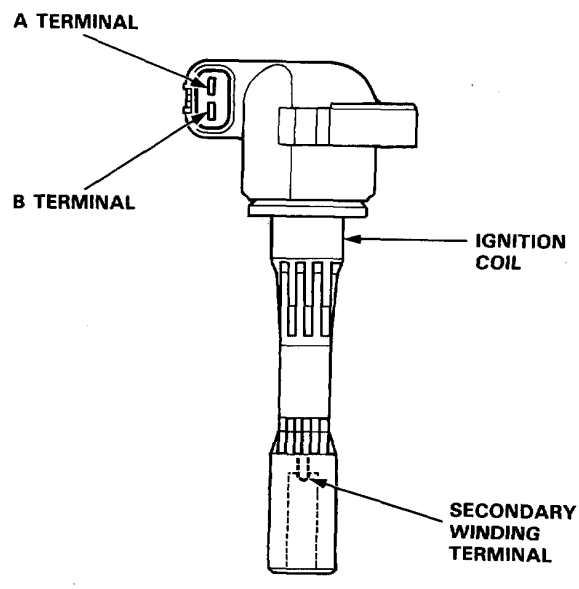
1. With the Ignition switch OFF, remove the ignition coil.

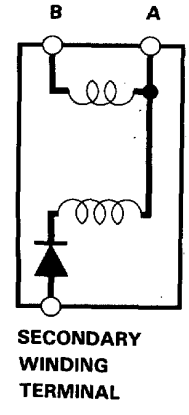
2. Using an ohmmeter, measure resistance between the terminals.

   NOTE: Resistance will vary with the coil temperature; specification is at 25°C (77°F).

   Primary Winding Resistance
   (between the A and B terminals):
   0.9—1.1 ohms

   - If the resistance is not within specification, replace the coil.
   - If the resistance is OK, but other troubleshooting doesn't reveal the cause of the problem, substitute a known-good ignition coil and check engine operation again.
     If the engine then runs OK, replace the original coil.

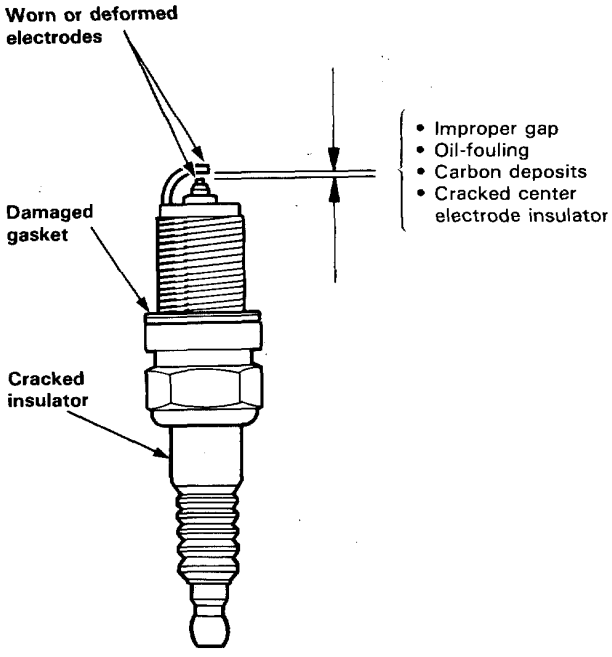




cardiagn.com

Spark Plug Inspection

1. Inspect the electrodes and ceramic insulator for:

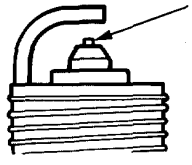


Burned or worn electrodes may be caused by:
- Advanced ignition timing
- Loose spark plug
- Plug heat range too low
- Insufficient cooling

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

2. Make sure that the 1.3 mm (0.051 in.) plug gauge does not fit into the gap of the platinum tip plug. If the gauge fits into the gap, do not attempt to adjust. Replace the plug with new one.

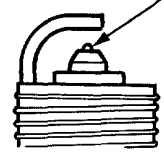
Electrode Gap: 1.00—1.10 mm (0.039—0.043 in)



Platinum tip plug: Check and confirm that the 1.3 mm (0.051 in) plug gauge does not go into the gap.

3. Replace the plug at the specified interval, or if the center electrode is rounded as shown below:

ROUNDED ELECTRODE



NOTE: Do not use spark plugs other than those listed below, because these plugs are a new type (ISO standard).



This symbol is on the air cleaner cover.

Spark plug:

PFR6G-11 (NGK) PK20PR-L11 (ND)	For all normal driving.
PFR7G-11 (NGK) PK22PR-L11 (ND)	For hot climates or continuous high speed driving.
PFR5G-11 (NGK) PK 16PR-L11 (ND)	For cold climate driving.

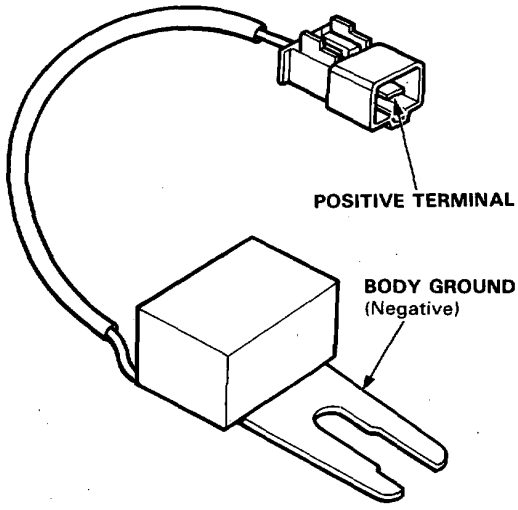
4. Screw the plugs into the cylinder head finger tight, then torque them to 18 N·m (1.8 kg-m, 13 lb-ft).

cardiagn.com

Noise Condenser Capacity Test

1. Use a commercially available condenser tester. Connect the tester probes and measure the condenser capacity.

   Condenser capacity: 0.47 ± 0.09 microfarads (μF)



   NOTE: The noise condenser is intended to reduce ignition noise in the radio. However, condenser failure may cause the engine to stop running.

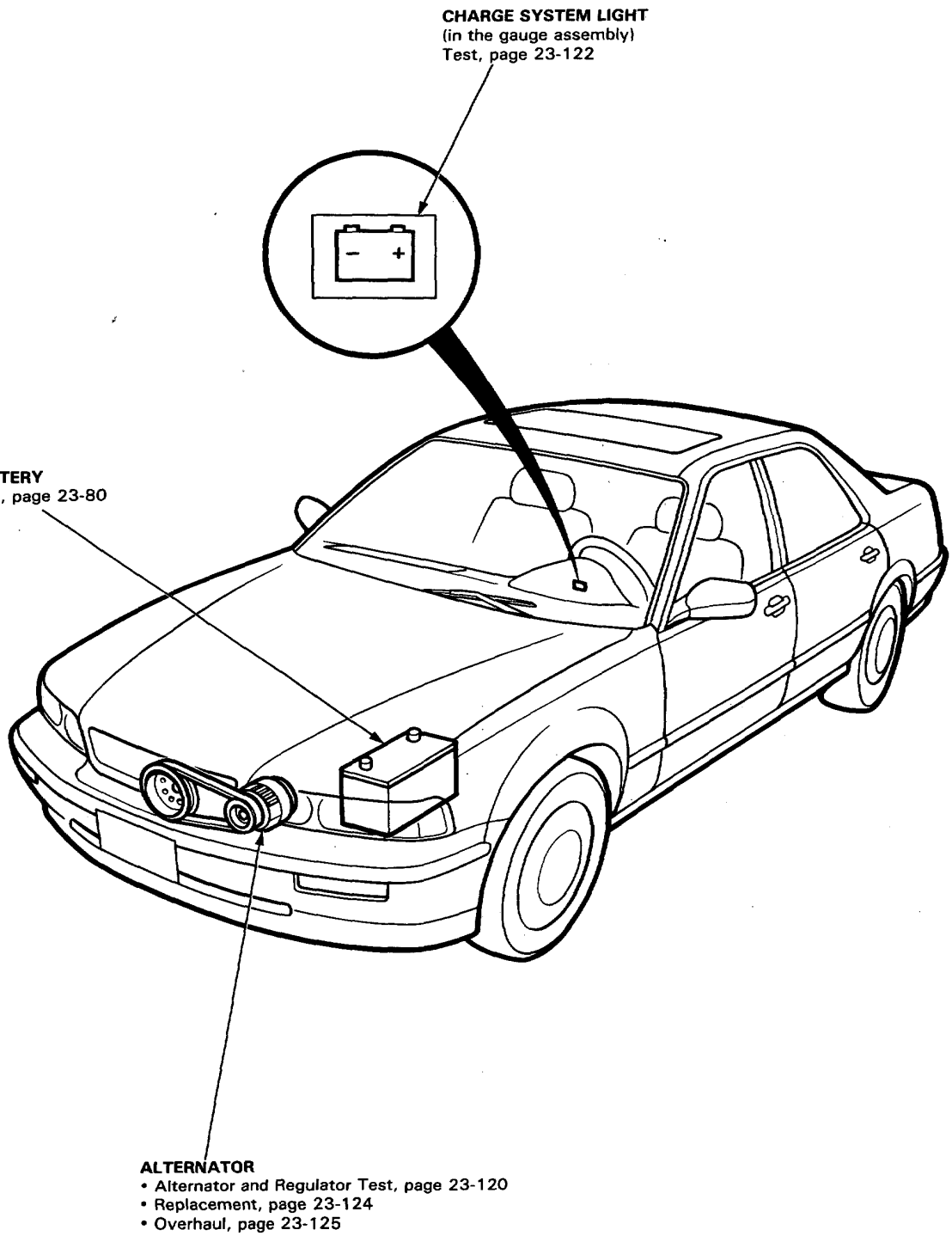
2. If not within the specification, replace the noise condenser.

cardiagn.com

Charging System

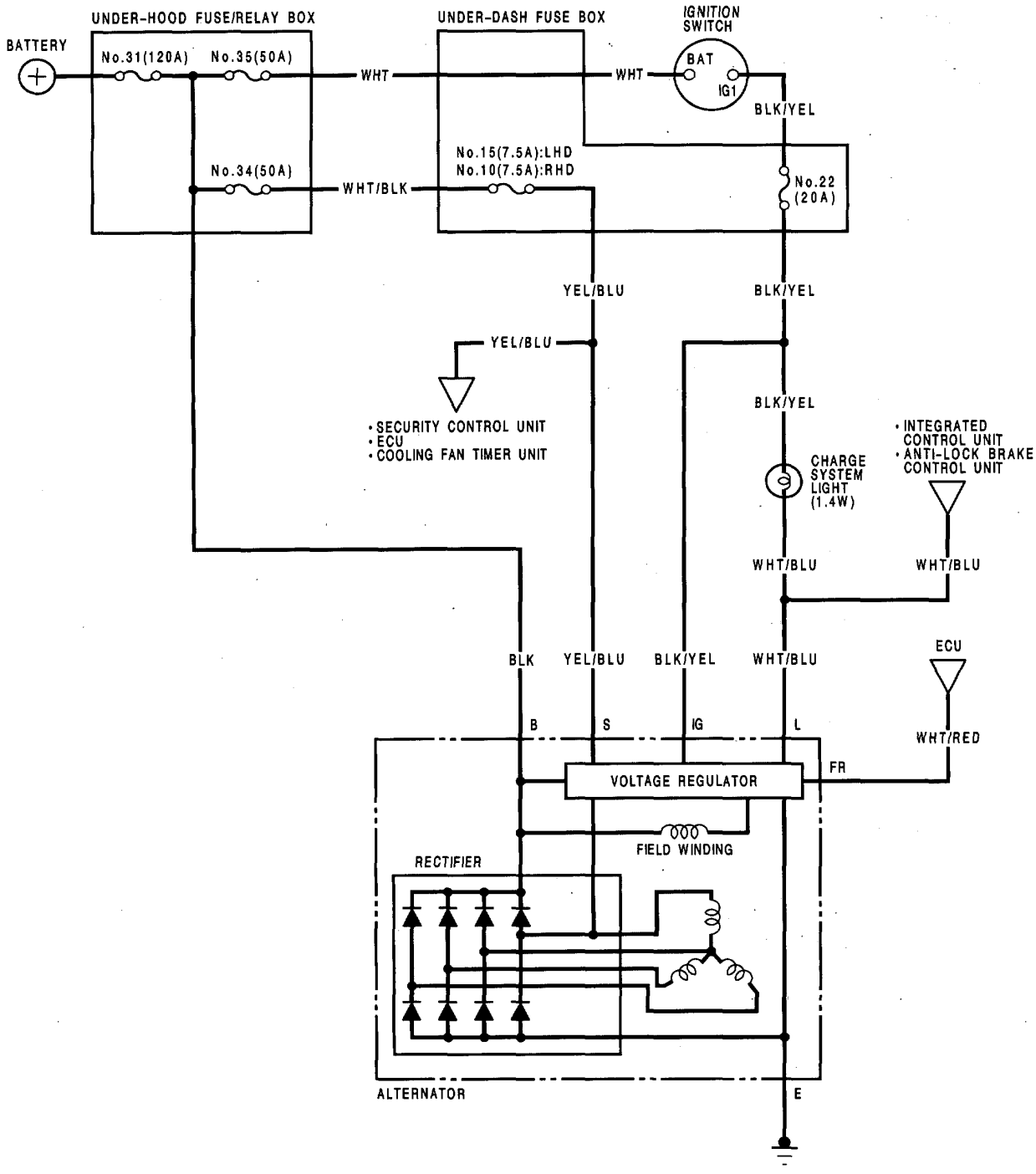
Component Location Index

NOTE: LHD type is shown. RHD type is similar.



cardiagn.com

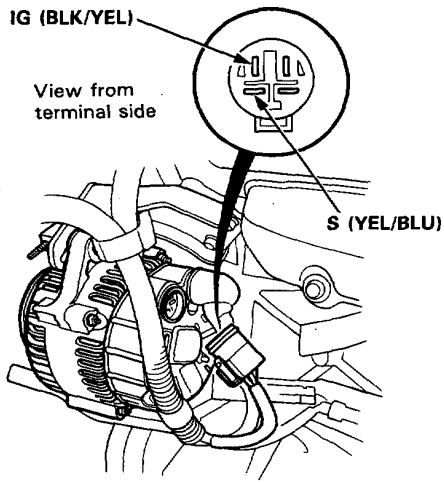
Circuit Diagram



cardiagn.com

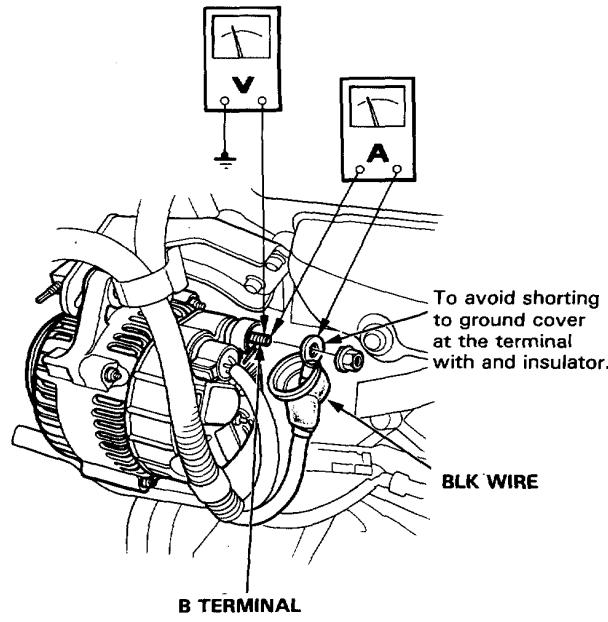
Alternator and Regulator Test

1. Verify battery condition, and that the alternator belt is tight and in good condition. Check the connections at the alternator and under-hood fuse/relay box. Check the No. 15: LHD or No. 10: RHD (7.5A) fuse (if blown, the charge system light will come on even if the system's working properly) and No. 22 (20A) fuse in the under-dash fuse box.
2. Disconnect the 4-P connector from the alternator. With the ignition switch on, there should be battery voltage between the IG (BLK/YEL) terminal and body ground, and between the S (YEL/BLU) terminal and body ground.



- If there is no voltage, check for:
  - An open in the BLK/YEL wire between the under-dash fuse box and the voltage regulator, or the YEL/BLU wire between the under-dash fuse box and the voltage regulator.
- If there is battery voltage, go to step 3.

3. If these check OK, connect a voltmeter between the alternator terminal B and body ground, and an ammeter (100 amp capacity or higher) between the alternator terminal B and the BLK wire as shown (An inductive pick up can be used instead of disconnecting the BLK wire).



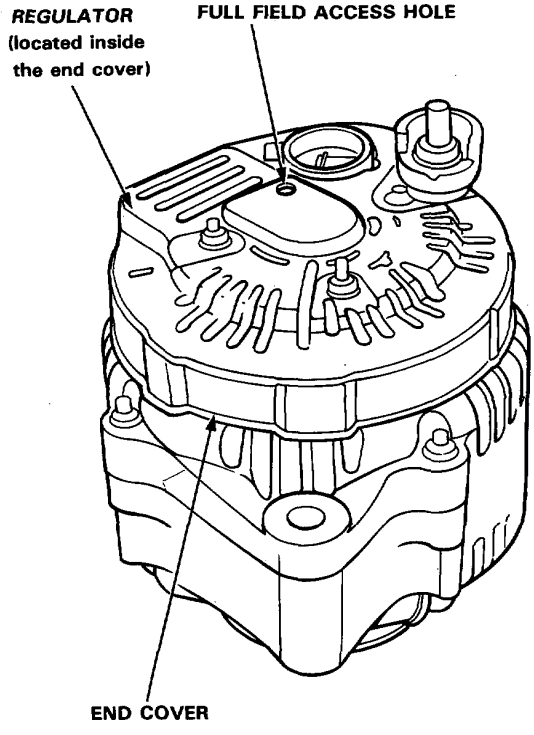
cardiagn.com

4. Start the engine. Turn off all accessories, raise engine speed to 2,000 rpm and hold (make sure cooling fans are off). Check the reading on the ammeter and voltmeter.

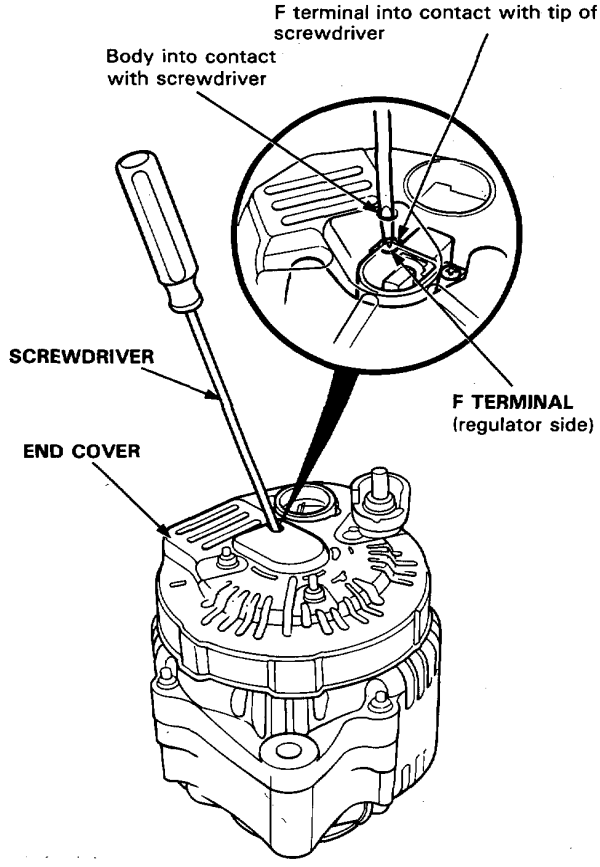
   Standard amperage: 10 A or less
   Standard voltage: 13.5 V—15.1 V at 25°C (77°F)

   - If the voltage is between 13.5 V and 15.1 V the voltage regulator is OK, go to step 6.
   - If the voltage is less than standard voltage go to step 5. If the voltage is more standard voltage replace the voltage regulator.

5. Stop the engine. Perform full field test:
   Insert a short screwdriver into the full field access hole at the back of the alternator.
   While grounding the screwdriver, start the engine and check the voltage reading.



NOTE: As an alternative, use a screwdriver and an ammeter to full field the alternator.



CAUTION: The voltage will rise quickly when the alternator is full fielded. Do not allow the voltage to exceed 18 volts or damage to the electrical system may result.

- If the amperage is within specification, replace the regulator.
- If the amperage is not within specification, replace the alternator.

6. Start the engine, and turn on the headlights, blower motor, rear window defogger, etc.

7. Raise engine speed to 2,000 rpm and hold. Check the reading on the ammeter.

   Standard amperage: 30 A or more

   NOTE: If the battery is fully charged, the indication will sometimes be less that standard amperage.

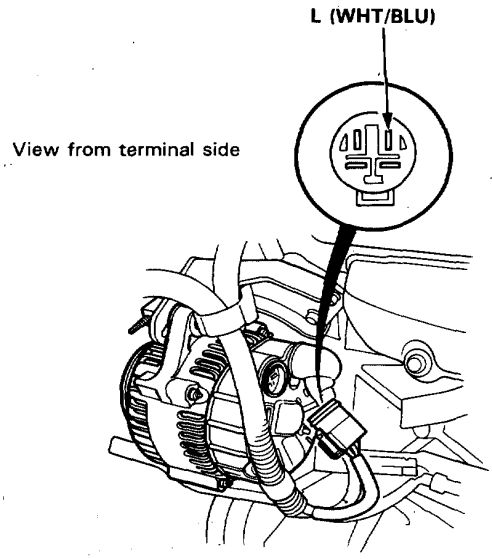
   - If the amperage is less than standard amperage replace the alternator.

cardiagn.com

Charge System Light Test

NOTE: Before testing, check the wire harness connection, alternator belt tension, No. 22 (20 A) fuse and No. 15: LHD or No. 10: RHD (7.5 A) fuse in the under-hood fuse/relay box.

1. Turn the ignition switch on. The charge system light should come on.
   If it does not come on, disconnect the alternator connector and short the pin of the L (WHT/BLU) terminal to ground.



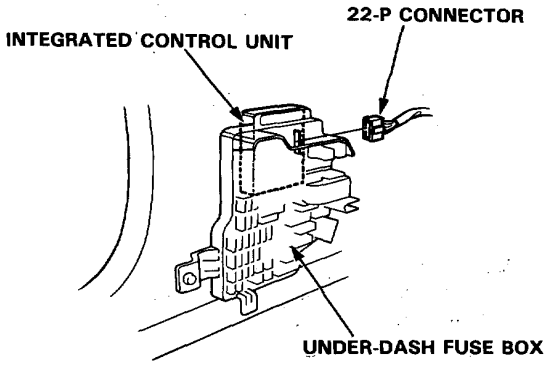
- If the light still does not come on, check for:
  - Bad bulb.
  - An open in the WHT/BLU wire between the light and voltage regulator.
  - An open in the BLK/YEL wire between the light and the under-dash fuse box, or the under-dash fuse box and the ignition switch.

- If the light comes on, check the alternator and regulator (See page 23-120).

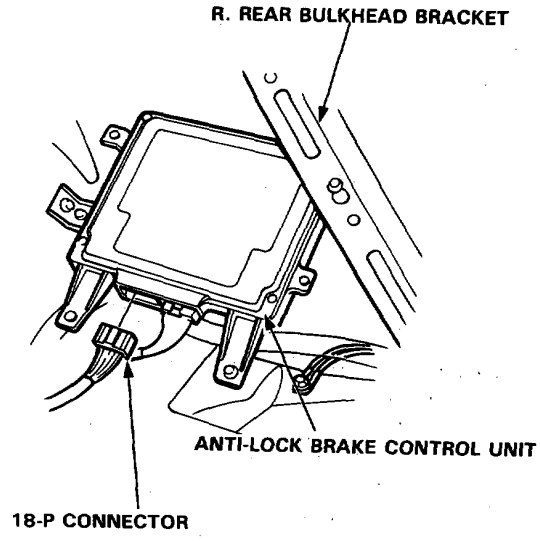
2. Start the engine and let it idle. The charge system light should go off.
   If it stays on, check the YEL/BLU wire between the under-hood fuse/relay box and the alternator.
   If the fuse and wire are OK, check the alternator and regulator (See page 23-120).
   If the system is charging, proceed as follows.

cardiagn.com

3. Remove the door sill molding and kick panel lining pieces.
4. Remove the foot rest, and pull the carpet back.
5. Remove the under-dash fuse box mounting bolt and nut.
6. Disconnect the 22-P connector from the integrated control unit behind the under-dash fuse box.
   Do not disconnect all of the connectors from the under-dash fuse box.



- If the light goes off, there is a short in the integrated control unit.
- If the light does not go off, remove the rear seat (See section 20) and disconnect the 18-P connector from the anti-lock brake control unit.



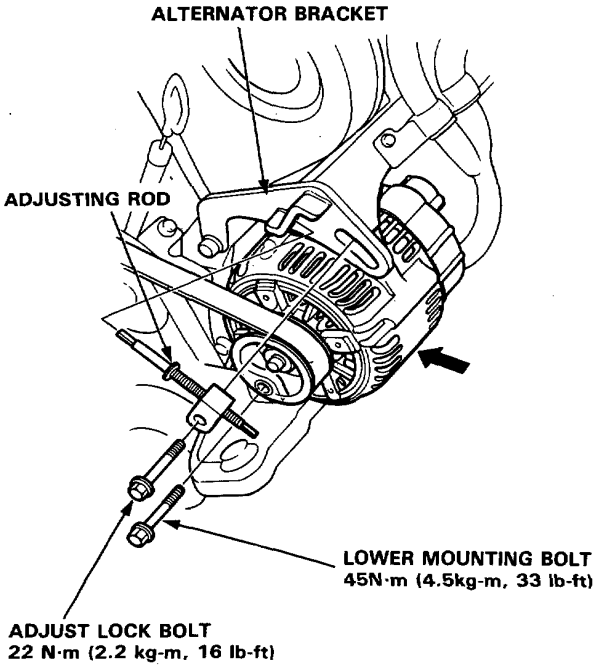
— If the light goes off, there is a short in the anti-lock brake control unit.

— If the light does not go off, there is a short to ground in the WHT/BLU wire.

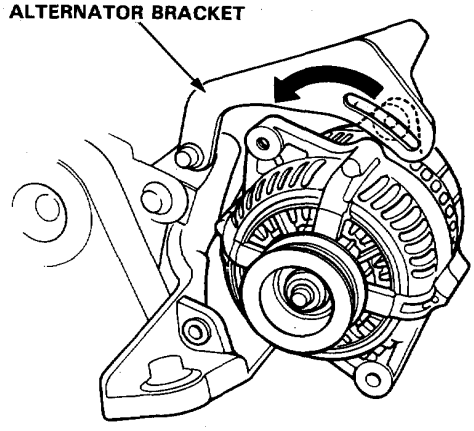
cardiagn.com

Alternator Replacement

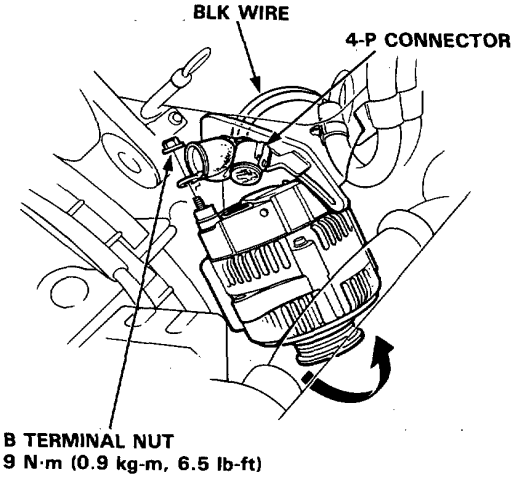
1. Disconnect both the negative cable and positive cable from the battery.
2. Remove the battery, then remove the battery base.
3. Remove the lower mounting bolt, adjusting lock bolt and adjusting rod, then remove the belt from the pulley.



4. As shown in the illustration, rotate the alternator 90 degrees in a counterclockwise direction and lift it toward you.



5. Disconnect the 4-P connector and harness clamp, then remove the terminal nut and the BLK wire from the B terminal. Take out the alternator.



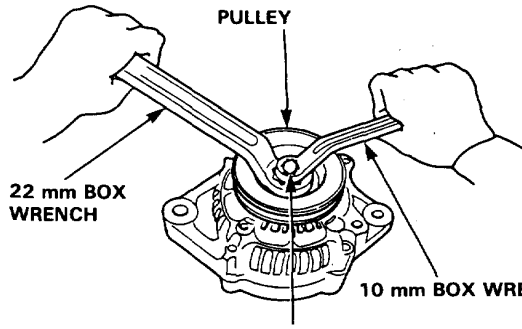
6. Alternator installation is the reverse order of removal. Adjust belt tension after installing the alternator (See page 23-129).

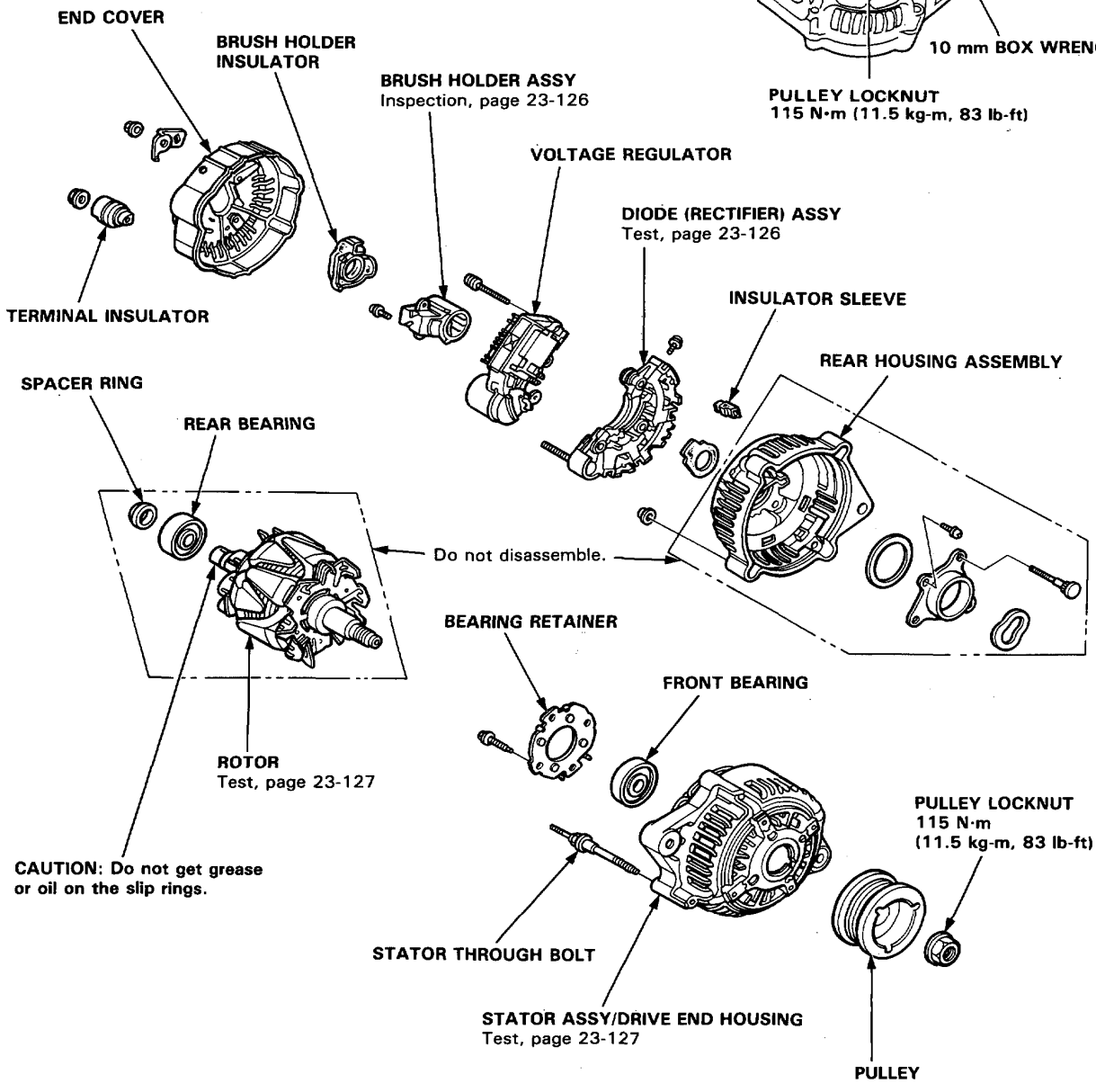
cardiagn.com

Alternator Overhaul

NOTE: It is only necessary to separate the pulley, drive end housing and rotor when the front bearing needs replacement.

To remove the pulley and rotor, use 10 mm and 22 mm box wrenches to loosen the pulley locknut. Use an impact wrench to remove the nut if necessary.



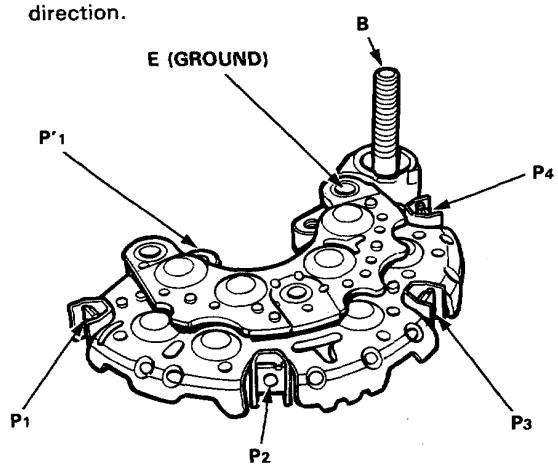


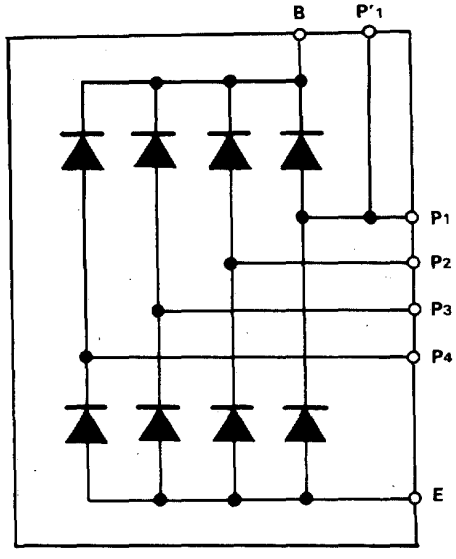
cardiagn.com

Rectifier Test

NOTE:
- The diodes are designed to pass current in one direction and block current in the opposite direction. Since the alternator rectifier is made up of eight diodes (4 pairs), each diode must be tested for continuity in both directions; a total of 16 checks.
- Use an ohmeter capable of checking diodes.

1. Check for continuity in each direction between the B and P (of each diode pair) terminals, and between the E (ground) and P (of each diode pair) terminals. All diodes should have continuity in only one direction.





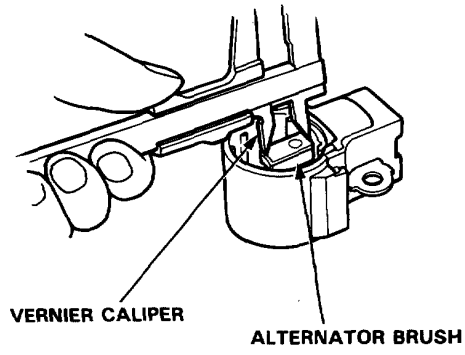
2. If any of the 8 diodes test bad, replace the rectifier assembly (diodes are not available separately.).

Alternator Brush Inspection

1. Remove the end cover, then take out the brush holder by removing its 2 screws.

2. Measure length of the brushes with a vernier caliper.

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

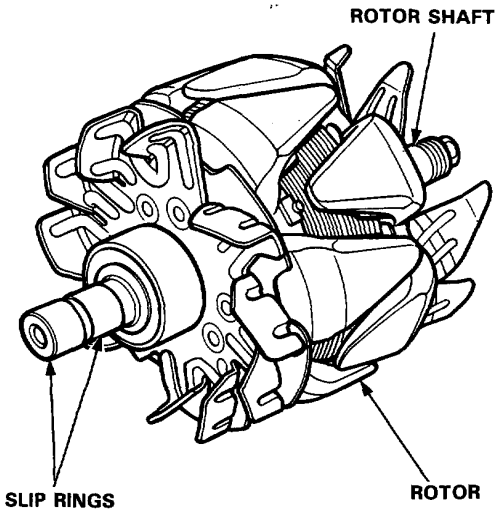


If the brushes are less than the service limit, replace the brush holder assembly.

cardiagn.com

Rotor Slip Ring Test

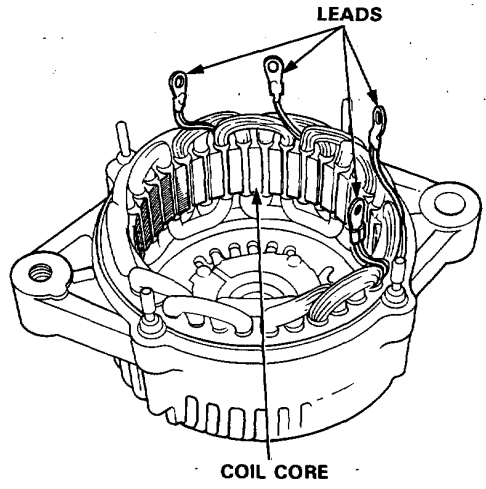
1. Check that there is continuity between the slip rings.
2. Check that there is no continuity between the rings and the rotor or rotor shaft.



3. If the rotor fails either continuity check, replace it.

Stator Test

1. Check that there is continuity between each pair of leads.
2. Check that there is no continuity between each lead and the coil core.



3. If the coil fails either continuity check, replace the stator.

cardiagn.com

Alternator Belt Adjustment

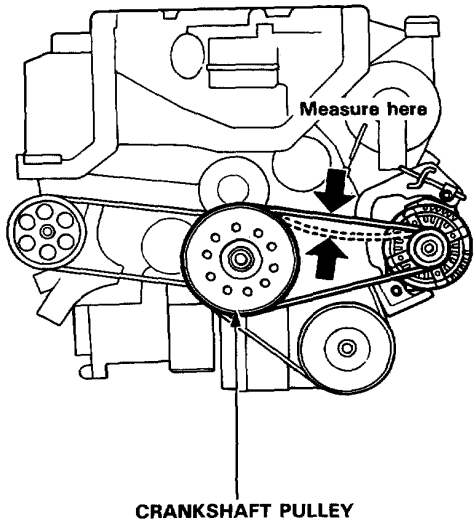
Deflection method:

Apply a force of 100 N (10 kg, 22 lb) and measure the deflection between the alternator and crankshaft pulley.

Deflection: 9.5 – 11.5 mm (0.37 – 0.55 in)

NOTE:

- On a brand-new belt, the deflection should be 5.5 – 7.5 mm (0.21 – 0.30 in) when first measured.
- If there are cracks or any damage evident in the belt, replace it with a new one.



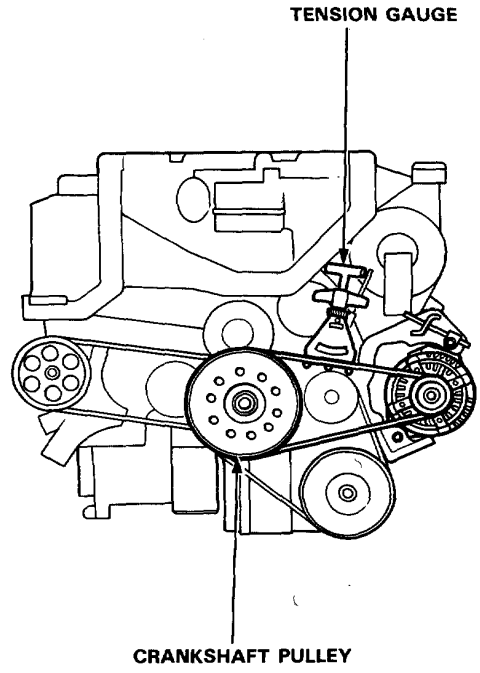
Tension gauge method:

Attach the belt tension gauge to the belt and measure the tension of the belt.

Tension: 392 – 588 N (40 – 60 kg, 88 – 132 lb)

NOTE:

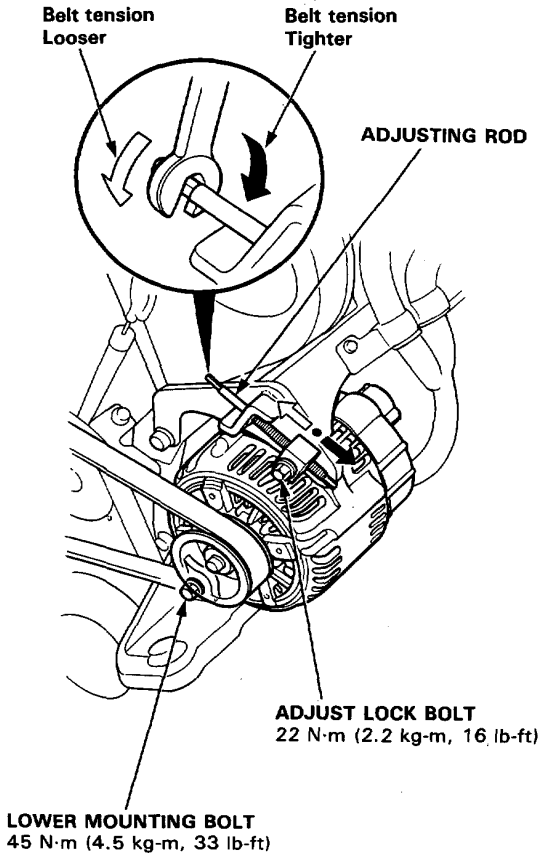
- On a brand-new belt, the tension should be 784 – 980 N (80 – 100 kg, 176 – 220 lb) when first measured.
- See the instructions for the belt tension gauge.
- If there are cracks or any damage evident in the belt, replace it with a new one.



cardiagn.com

If adjustment is necessary:

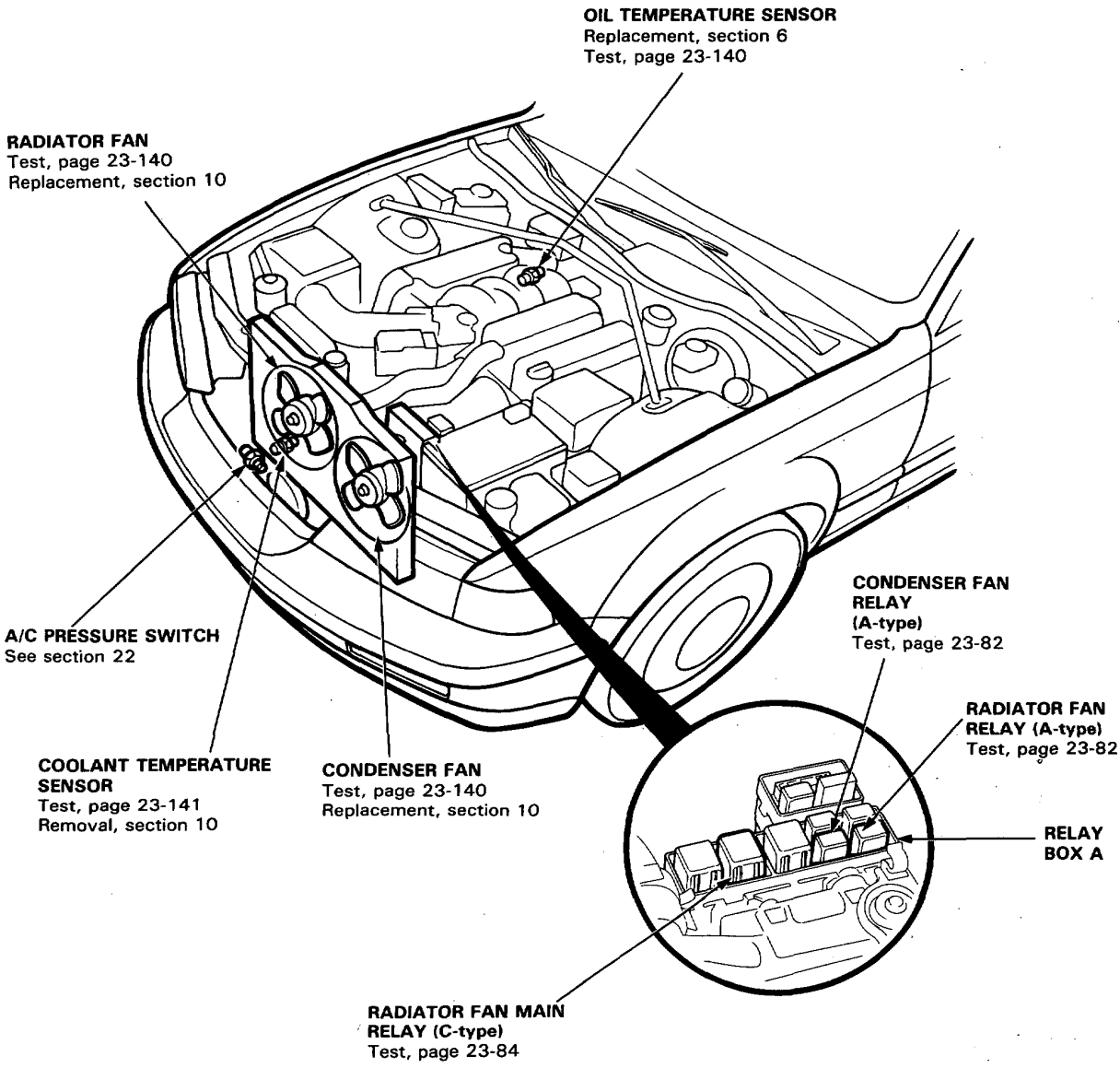
1. Loosen the lower mounting bolt and adjust lock bolt.
2. Move the alternator by turning the adjusting rod to obtain the proper belt tension, then retighten the bolts.
3. Recheck the deflection of the belt.



cardiagn.com

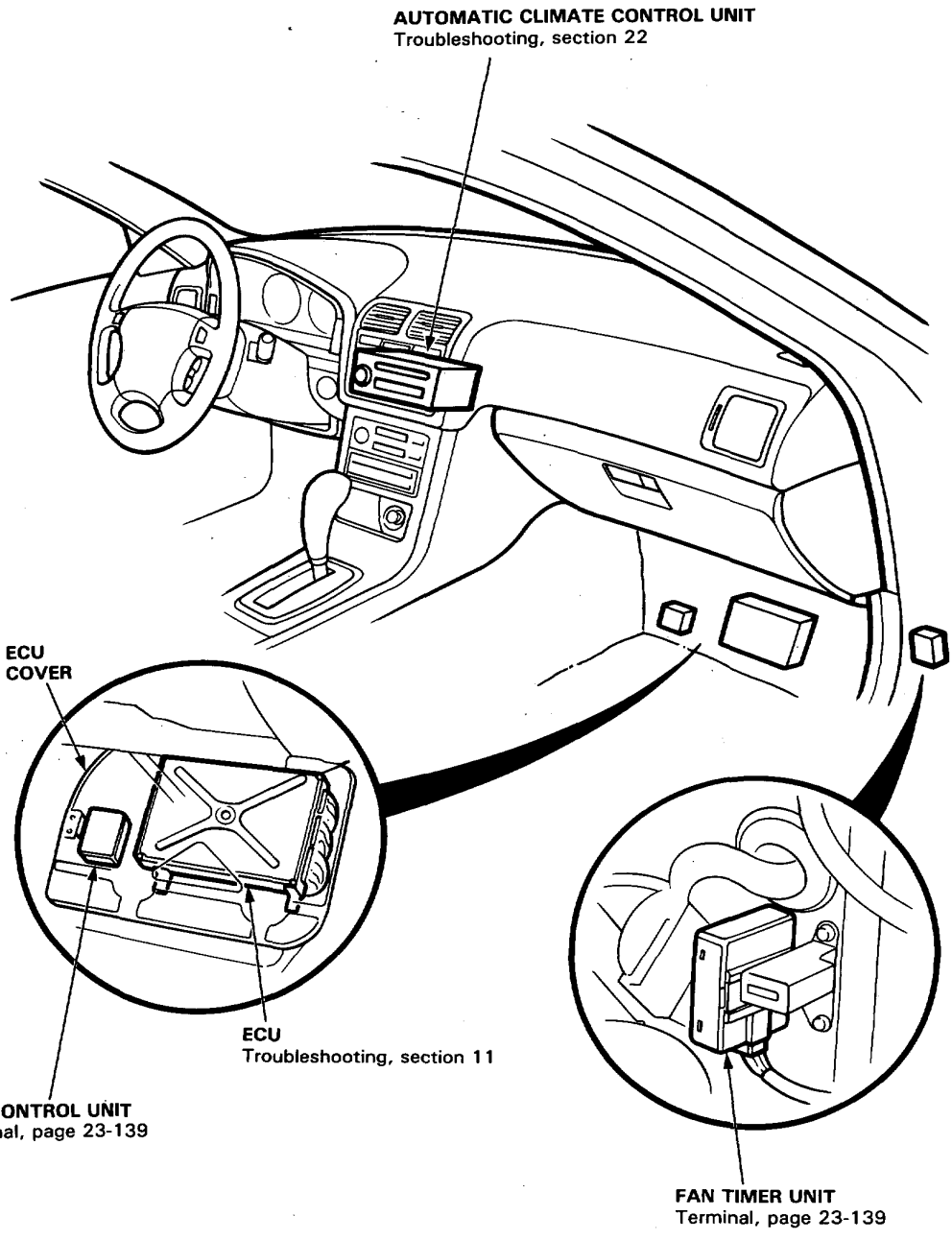
Radiator and Condenser Fan Controls

Component Location Index



cardiagn.com

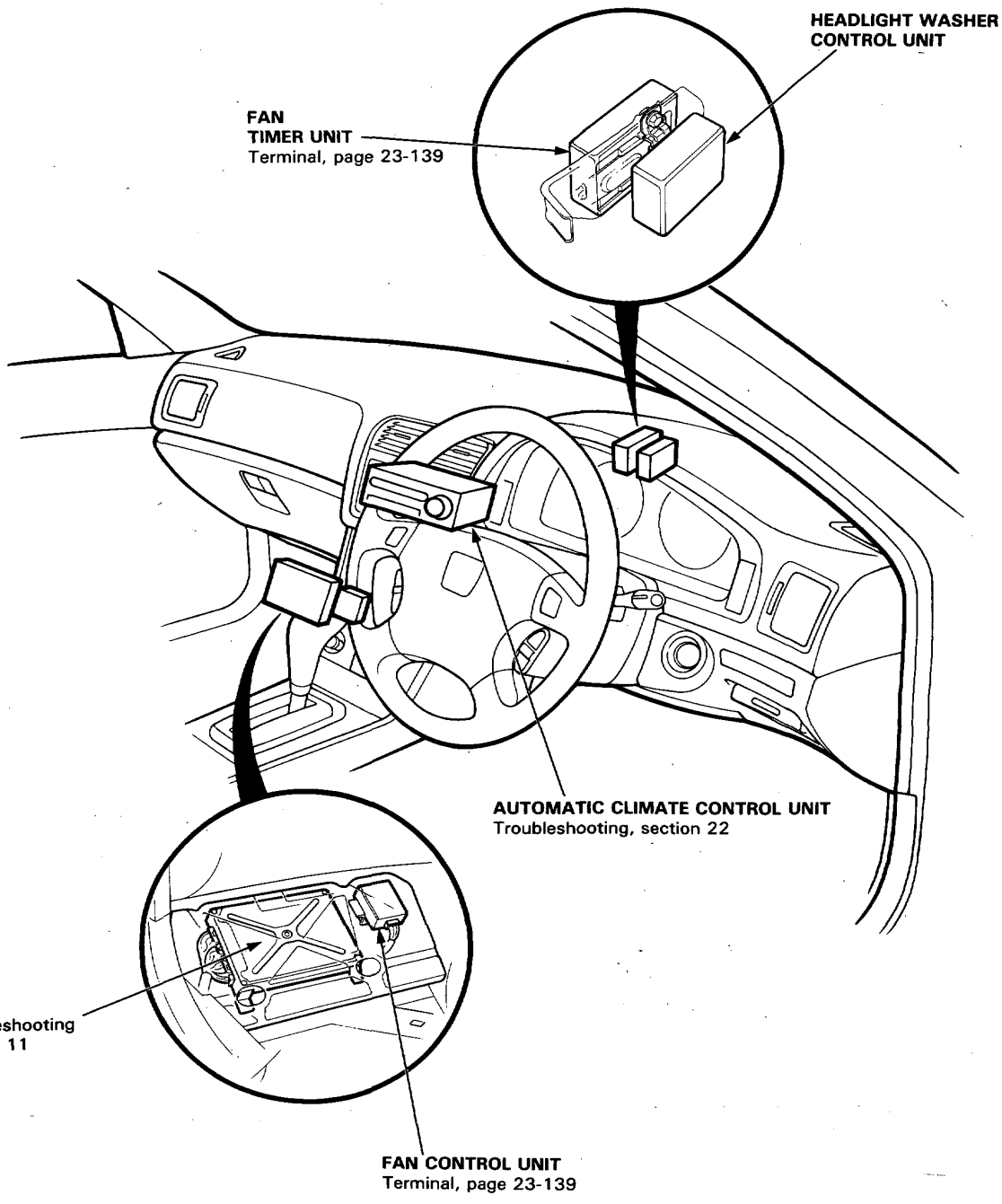
Component Location Index (LHD)



cardiagn.com

Radiator and Condenser Fan Controls

Component Location Index (RHD)



cardiagn.com

Description

Fan Control system:
The fan control unit controls the operation of the radiator fan and condenser fan.
It uses inputs from the coolant temperature sensor and A/C pressure switch (A and B) on the A/C system to determine when the fans should run and at what speed.
Additionally the temperature switch shuts down the A/C system if the coolant temperature exceeds 109°C (228°F).
If the pressure in the A/C system is higher than normal, pressure switch A closes and the fans run at high speed only.
See the A/C section for description and specification of that function.

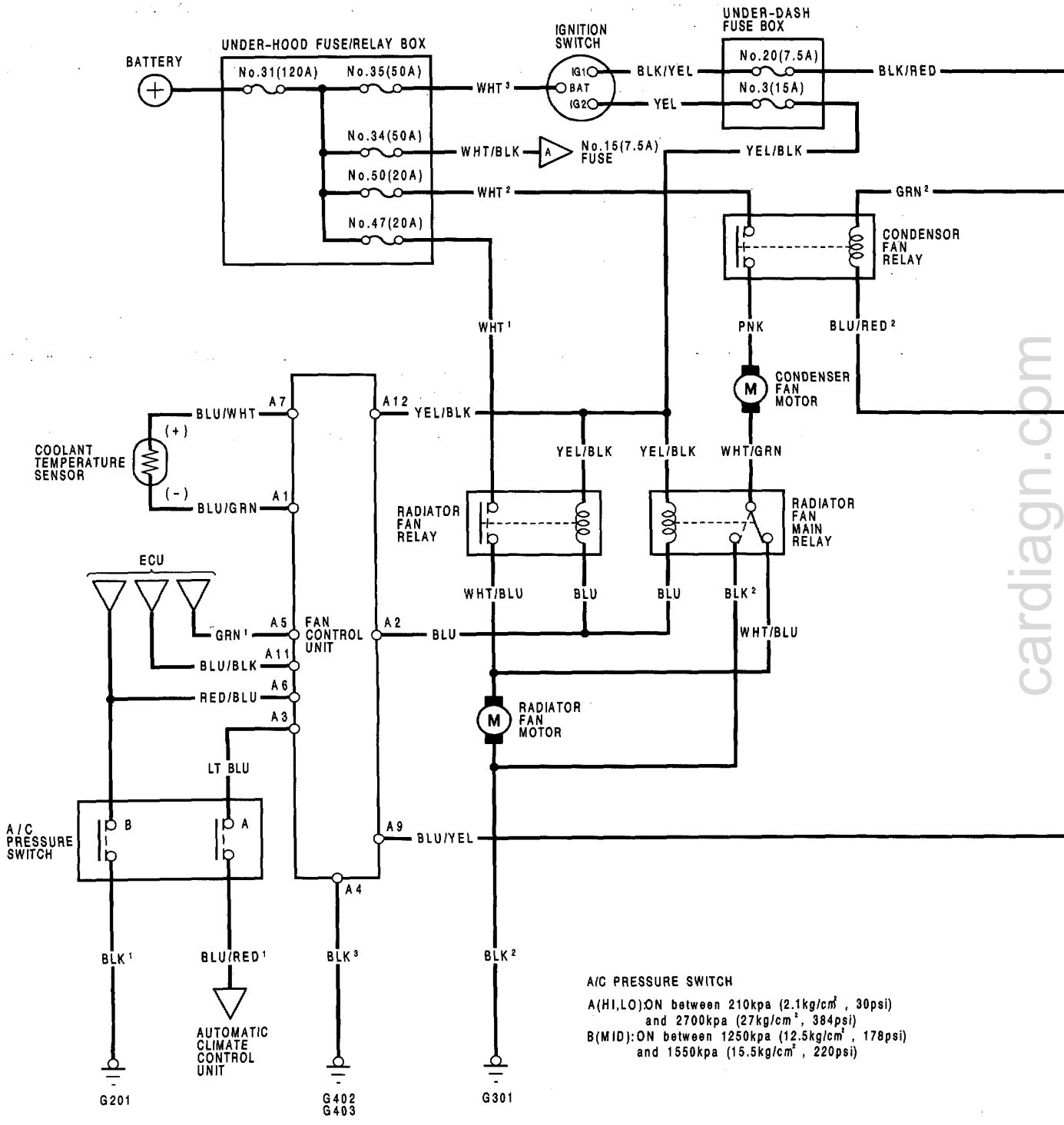
Function / Operating Condition	ON	OFF
At low speed	84°C (183°F)	78°C (172°F)
At high speed	90°C (194°F)	84°C (183°F)
A/C cut	109°C (228°F)	107°C (225°F)

Fan Timer System:
When the engine oil temperature is above approx. 92°C (198°F) after the engine is stopped, the radiator fan and condenser fan goes on to cool the engine for a maximum of 15 minutes.
When the temperature falls below approx. 77°C (171°F), the fan stops.
The fan motor runs at low speed to decrease operating noise.
The oil temperature switch is located on the right valve cover and the fan timer unit is located on the right kick panel.

cardiagn.com

Radiator and Condenser Fan Controls

Circuit Diagram (LHD)

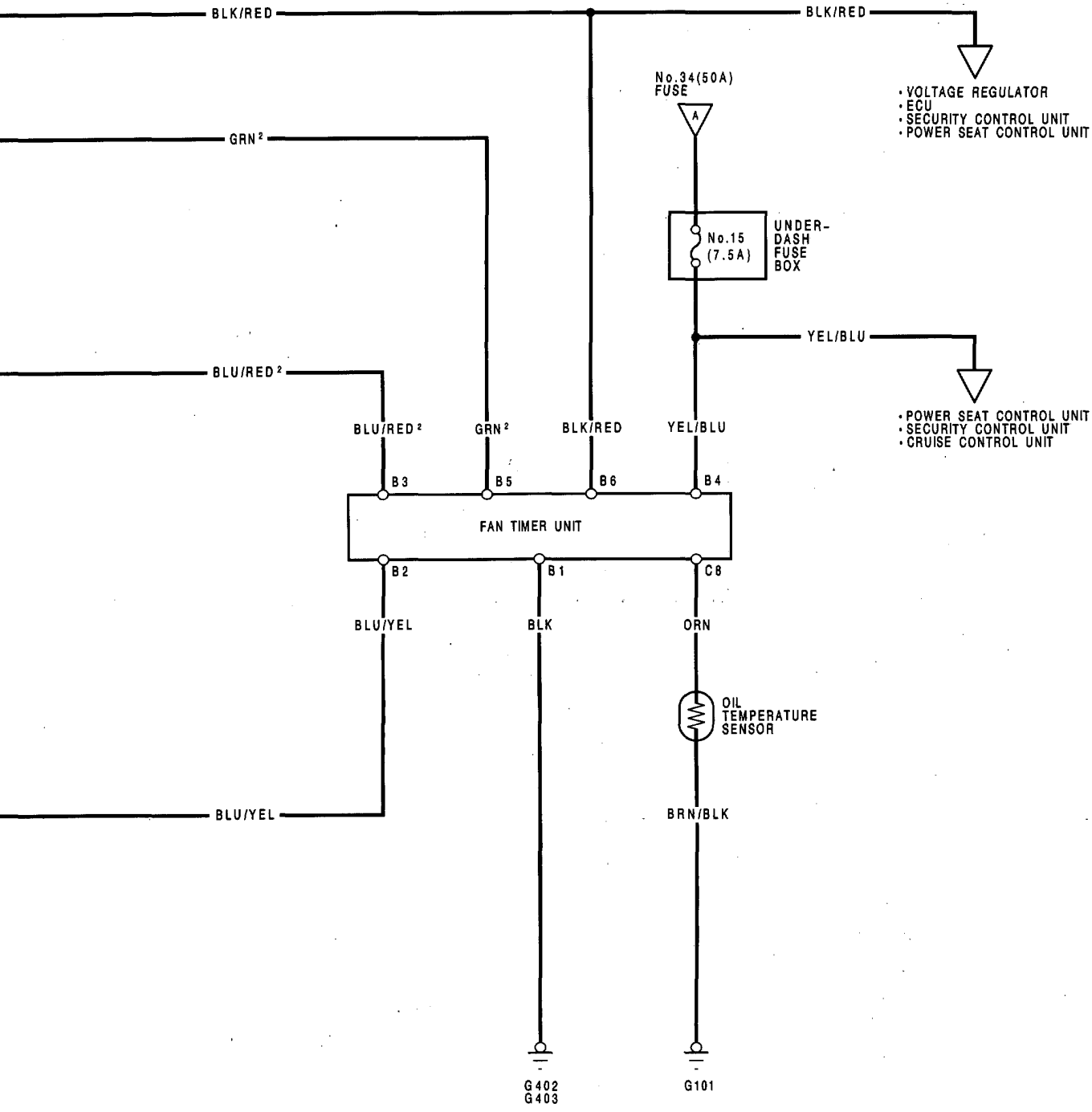


A/C PRESSURE SWITCH

A(HI,LO):ON between 210kpa (2.1kg/cm², 30psi) and 2700kpa (27kg/cm², 384psi)

B(MID):ON between 1250kpa (12.5kg/cm², 178psi) and 1550kpa (15.5kg/cm², 220psi)

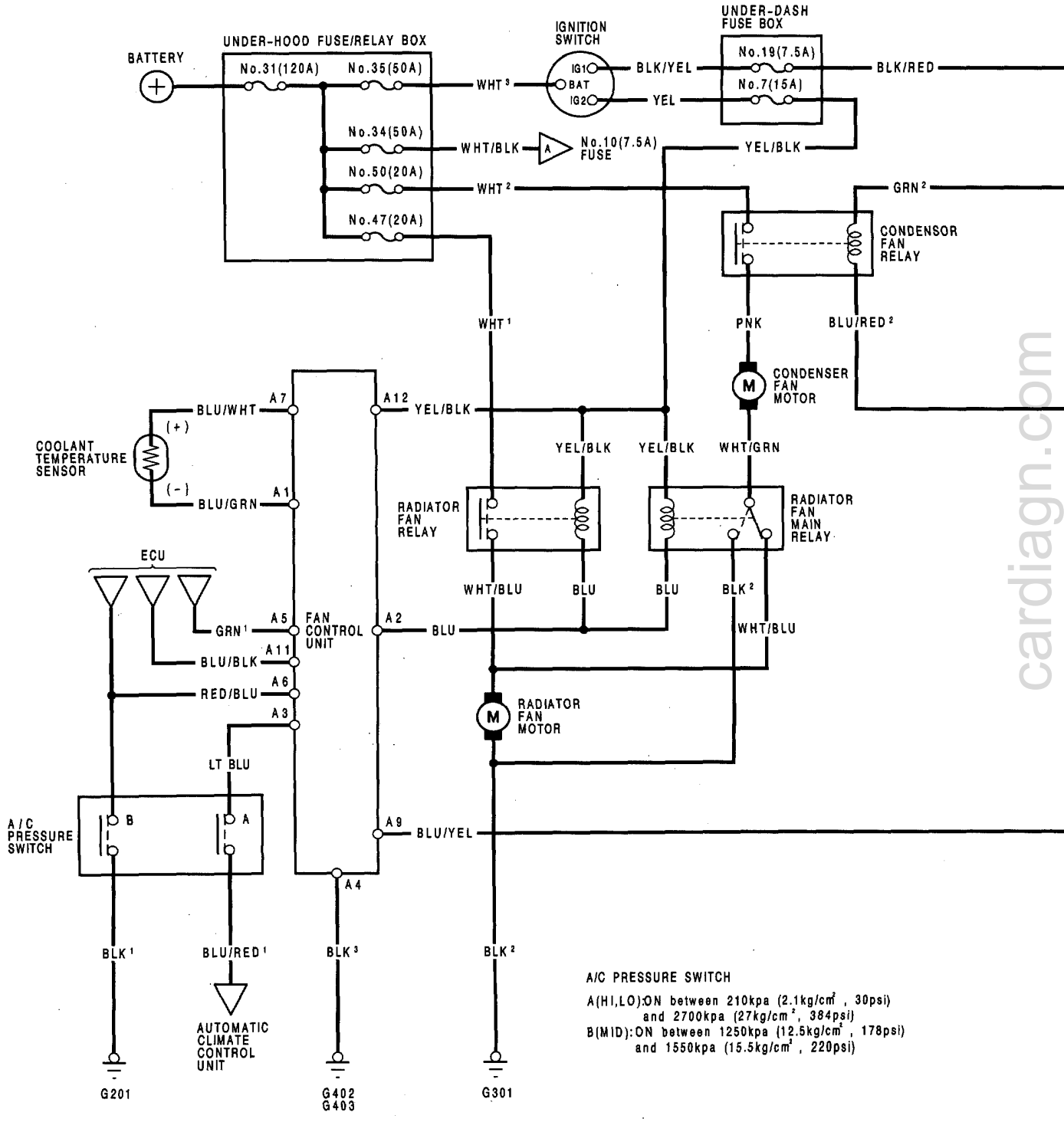
cardiagn.com



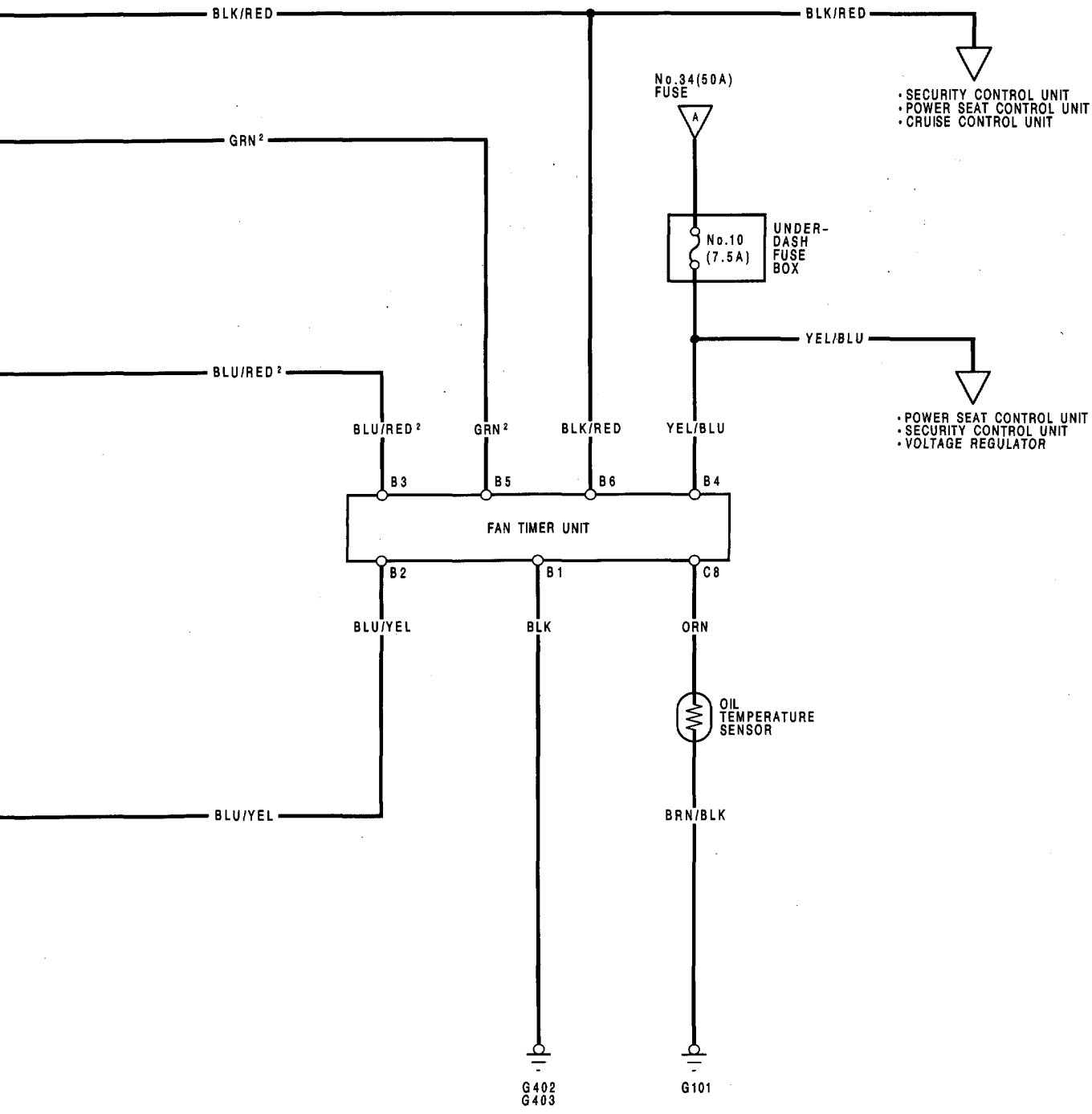
cardiagn.com

Radiator and Condenser Fan Controls

Circuit Diagram (RHD)



cardiagn.com



cardiagn.com

Radiator and Condenser Fan Controls

Troubleshooting

NOTE: The numbers in the table show the troubleshooting sequence.

Symptom	Item to be inspected	Blown No. 47 (20A) or No. 50 (20A) fuse (in the under-hood fuse/relay box)	Blown * 1 (15A) fuse (in the under-dash fuse box)	Blown * 2 (7.5A) fuse (in the under-dash fuse box)	Blown * 3 (7.5A) fuse (in the under-dash fuse box)	Relay	Coolant temperature sensor	Radiator fan or condenser fan motor	Faulty cooling fan control unit	Faulty cooling fan timer unit	* A/C and ECU systems	Faulty A/C pressure switch or oil temperature sensor	Poor ground	Open circuit in wires or disconnected terminals
Only one fan operates (with engine and A/C ON).		1				2	3							WHT[1], WHT[2], PNK, WHT/GRN, WHT/BLU, GRN[2] or BLU/RED
Fans do not operate.	Under all conditions.		1				2		3				G301, G402 G403	YEL/BLK, BLU/WHT or BLU/GRN
	At low speed.			1	2	3	4		5				G301 G402 G403	BLK/RED, YEL/BLU, GRN[2], BLU/RED, BLU/WHT, BLU/GRN, YEL/BLK or BLU
	At high speed.		1			2	3		4				G301 G402 G403	YEL/BLK, BLU, WHT/GRN, WHT/BLU, BLU/WHT or BLU/GRN
Compressor clutch does not engage.									3		1	2	G402 G403	GRN, BLU/BLK, RED/BLU or LT BLU
Fan timer unit fails to function properly.				1	2					4		3	G101 G402 G403	ORN, YEL/BLU, BLU/RED[2] or GRN[2]

*: Refer to section 22 for pressure inspection of the A/C system.

*1 {No. 3 (15 A) fuse: LHD
No. 7 (15 A) fuse: RHD

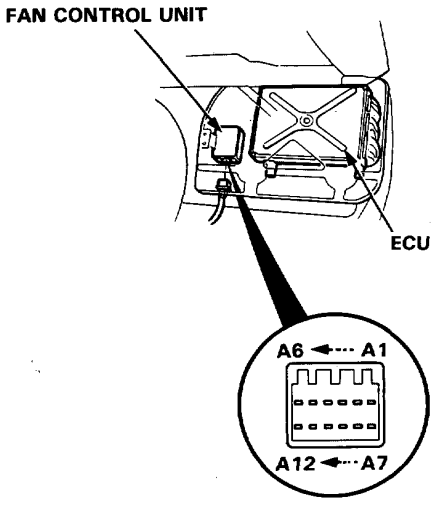
*2 {No. 15 (7.5 A) fuse: LHD
No. 10 (7.5 A) fuse: RHD

*3 {No. 20 (7.5 A) fuse: LHD
No. 19 (7.5 A) fuse: RHD

cardiagn.com

Control Unit Terminals

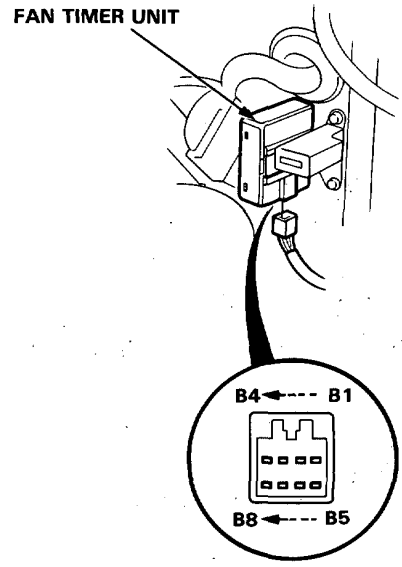
NOTE: The illustration shows LHD.



Terminal	Wire	Destination
A1	BLU/GRN	Coolant temperature sensor ⊖
A2	BLU	Radiator fan relays (coil ⊖)
A3	LT BLU	A/C pressure switch A
A4	BLK	Ground (G402, G403)
A5	GRN	ECU
A6	RED/BLU	A/C pressure switch B
A7	BLU/WHT	Coolant temperature sensor ⊕
A8		Not used
A9	BLU/YEL	Timer unit
A10		Not used
A11	BLU/BLK	ECU (ACS)
A12	YEL/BLK	IG2 (Main power supply)

Timer Unit Terminals

NOTE: The illustration shows LHD.



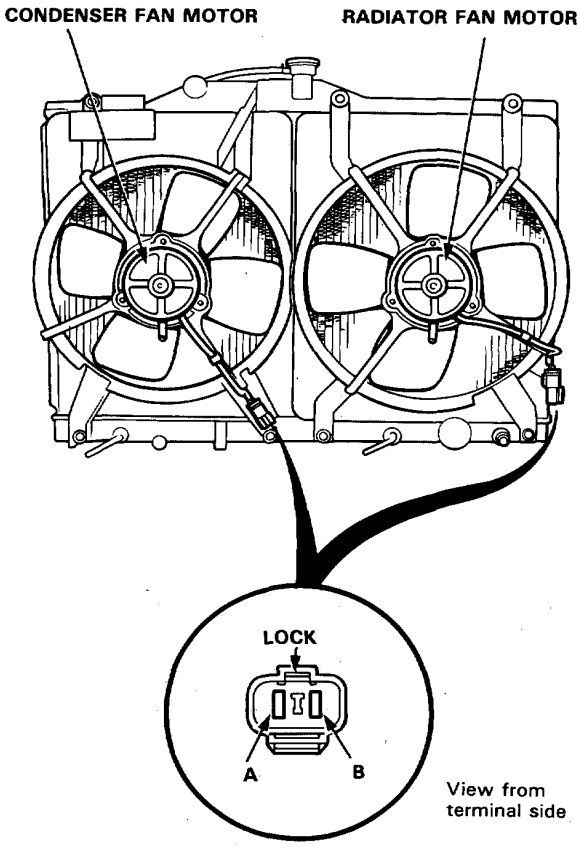
Terminal	Wire	Destination
B1	BLK	Ground (G402, G403)
B2	BLU/YEL	Fan control unit
B3	BLU/RED	Condenser fan relay ⊖
B4	YEL/BLU	Power supply (For condenser fan relay with ignition switch ON)
B5	GRN	Condenser fan relay ⊕
B6	BLK/RED	Power supply (for condenser fan relay with ignition switch OFF)
B7		Not used
B8	ORN	Oil temperature sensor

cardiagn.com

Radiator and Condenser Fan Controls

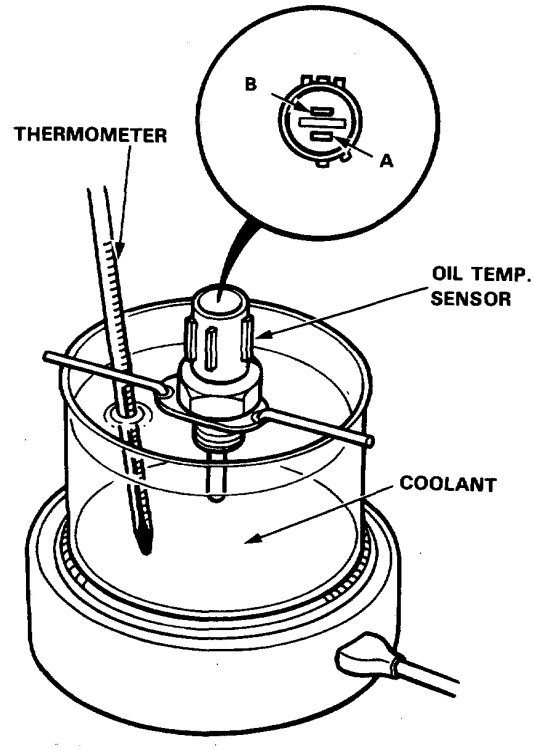
Fan Motor Test

1. Disconnect the 2-P connector from each fan motor.
2. Test motor operation by connecting battery positive to the A terminal, and negative to the B terminal.
3. If the motor fails to run smoothly, replace it.



Oil Temperature Sensor Test

1. Remove the oil temperature sensor from the cylinder head.
2. Suspend the oil temperature sensor in a container of coolant as shown.



3. Heat the coolant and check coolant temperature with a thermometer (see table below).
4. Check for continuity between the A and B terminals according to the table.

Temperature \ Terminal	A	B
Above 89–95°C (192–203°F)	○———	———○
Below 69–85°C (156–185°F)		

cardiagn.com

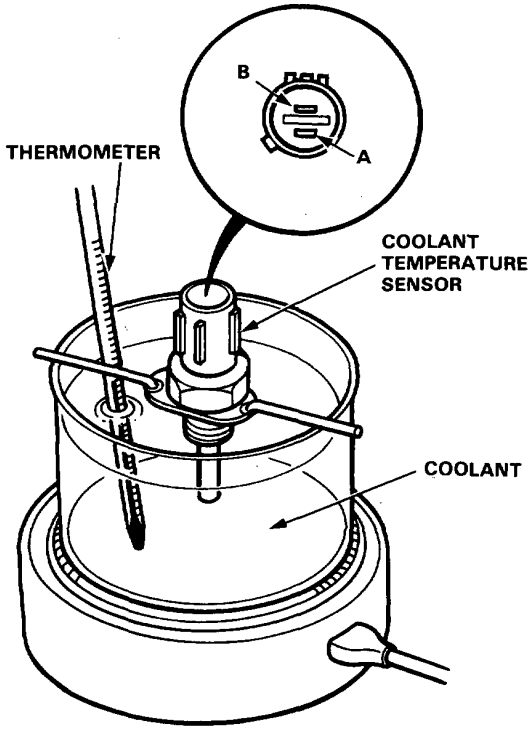
Coolant Temperature Sensor Test

CAUTION: Do not remove the radiator cap when engine is hot. The coolant is under pressure and may blow out and scald you. Open the cap slowly when *the engine is cool*.

NOTE: Bleed air out of the cooling system after installing the coolant temperature sensor (See section 10).

CAUTION: *Failure to comply with the bleeding procedure* could cause imperfect bleeding, which may result in severe engine damage.

1. Remove the coolant temperature sensor from the thermostat housing.
2. Suspend the coolant temperature sensor in a container of coolant as shown.



3. Heat the coolant and check coolant temperature with a thermometer (See table below).
4. Measure the resistance between the A and B terminals according to the table.

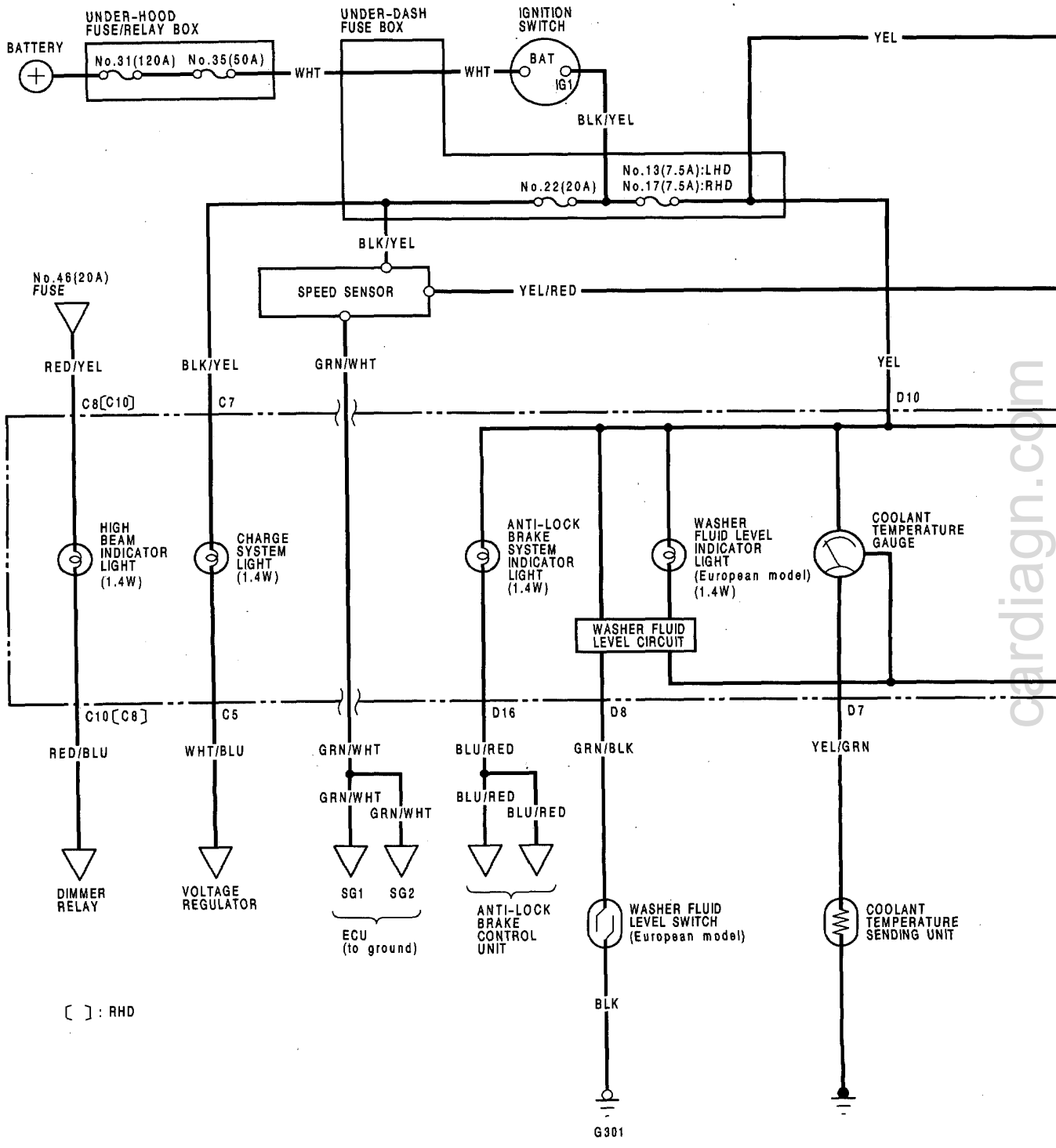
Temperature	84° (183°F)	90° (194°F)	108° (226°F)	110° (230°F)
Resistance (KΩ)	1.047–1.255	0.872–1.024	0.519–0.573	0.489–0.541

5. If unable to obtain the above readings, replace the temperature sensor.

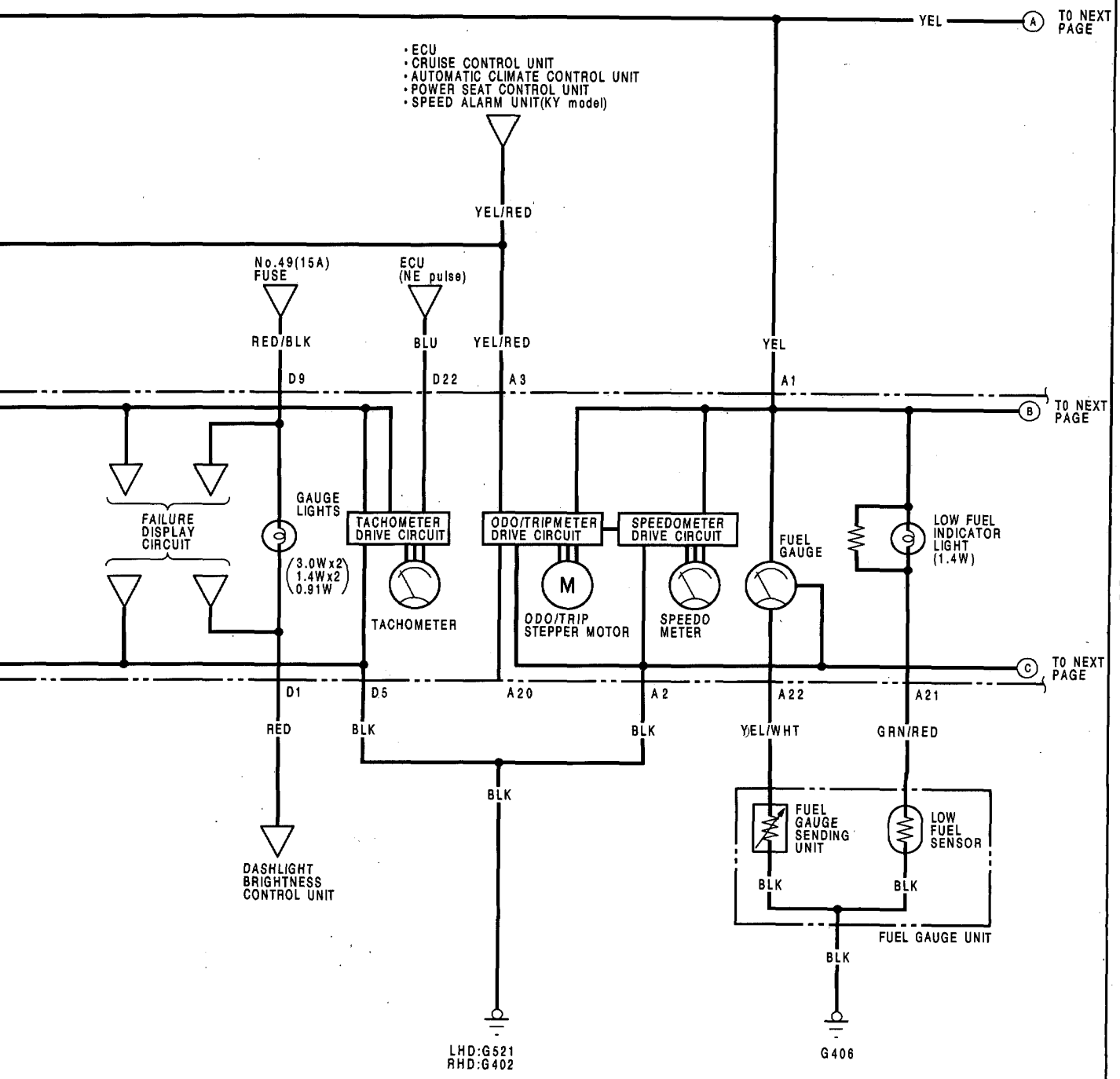
cardiagn.com

Gauge Assembly

Circuit Diagram



cardiagn.com

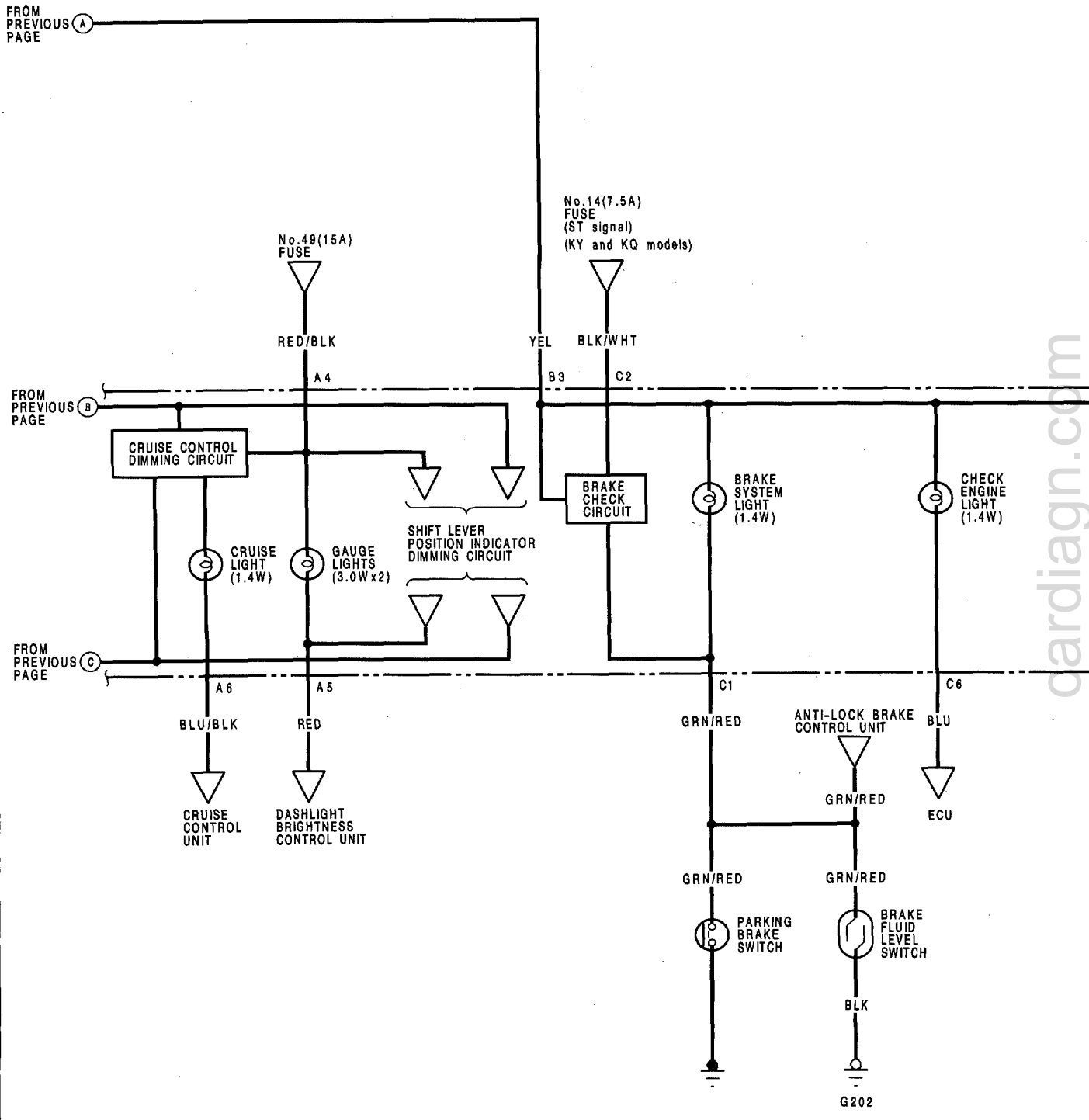


(cont'd)

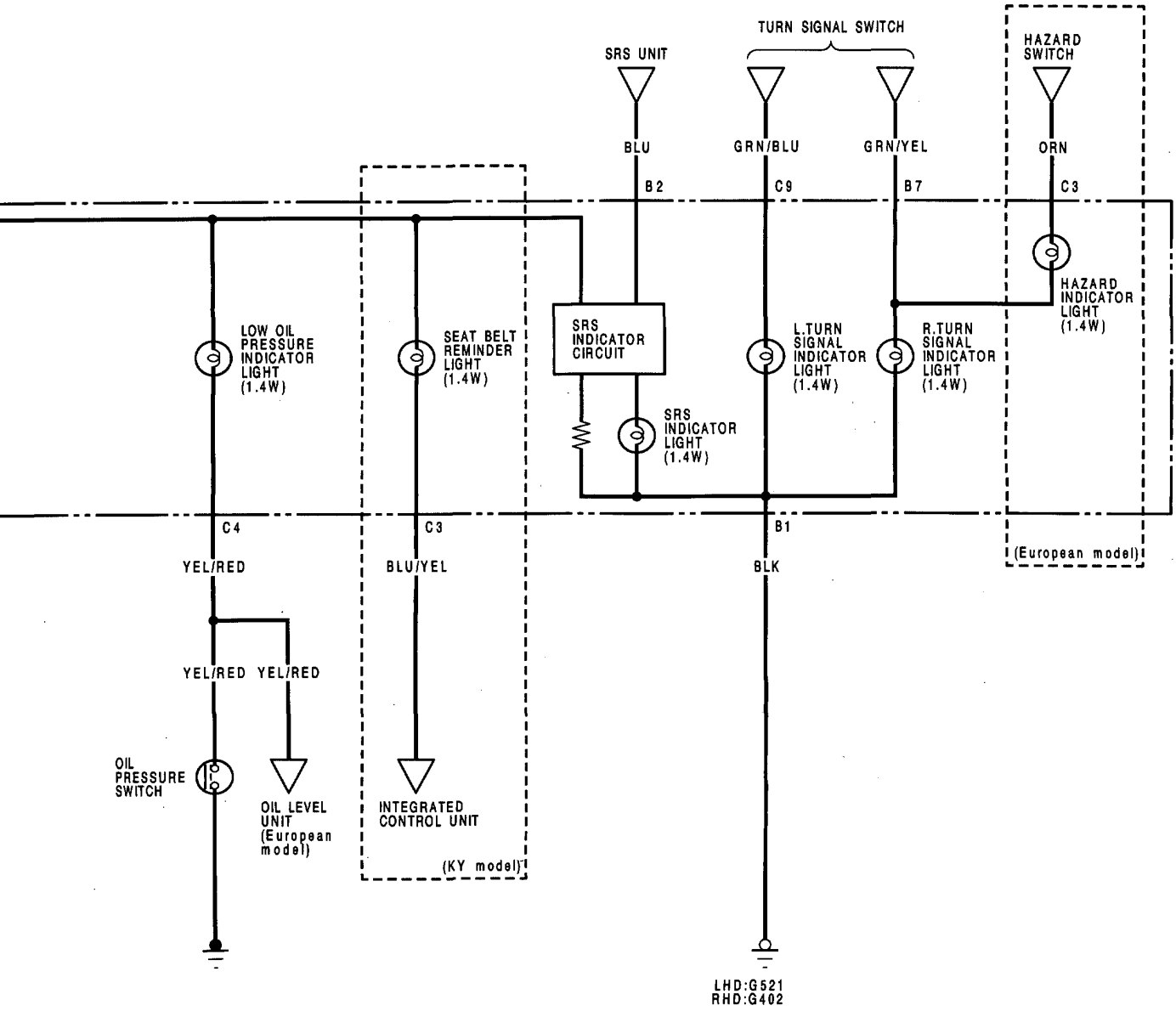
cardiagn.com

Gauge Assembly

Circuit Diagram (cont'd)



cardiagn.com



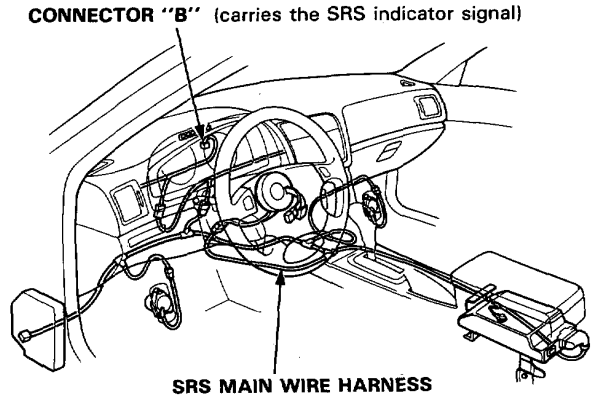
cardiagn.com

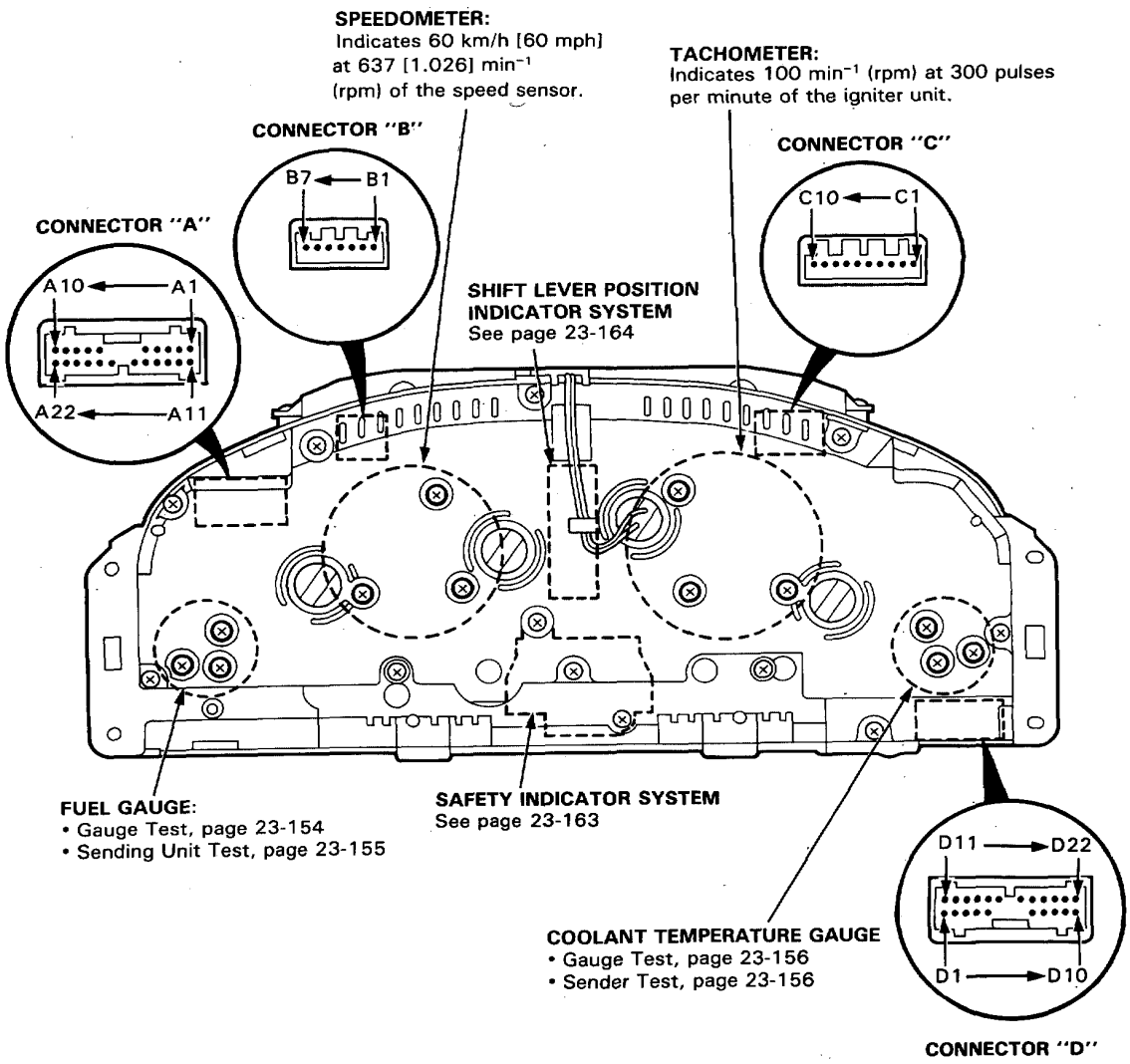
Gauge Assembly

Gauge/Indicator Location Index

CAUTION:

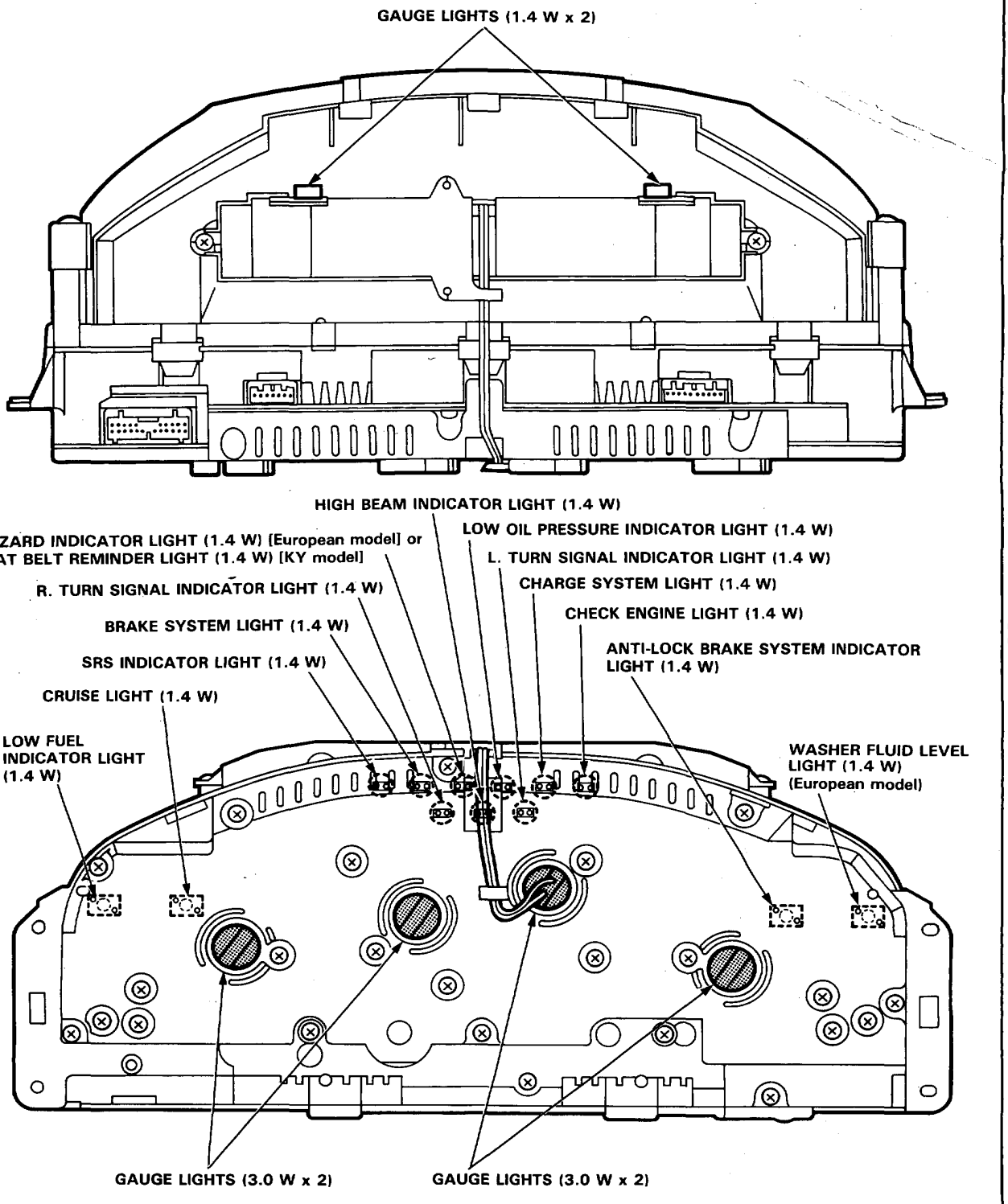
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**
- **After installation of the gauge assembly, recheck the operation of the SRS indicator light.**





cardiagn.com

Bulb Location



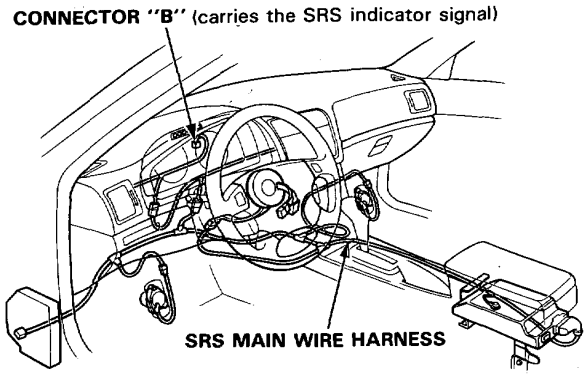
cardiagn.com

Gauge Assembly

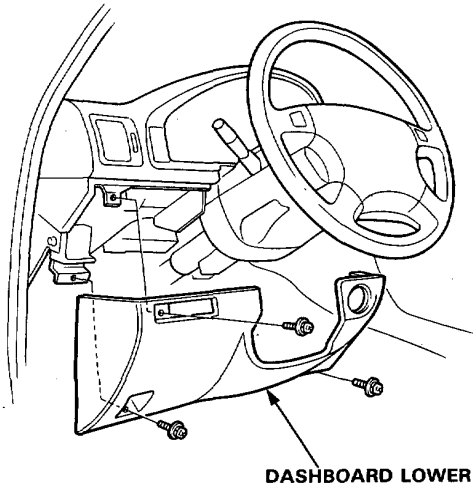
Removal

CAUTION:

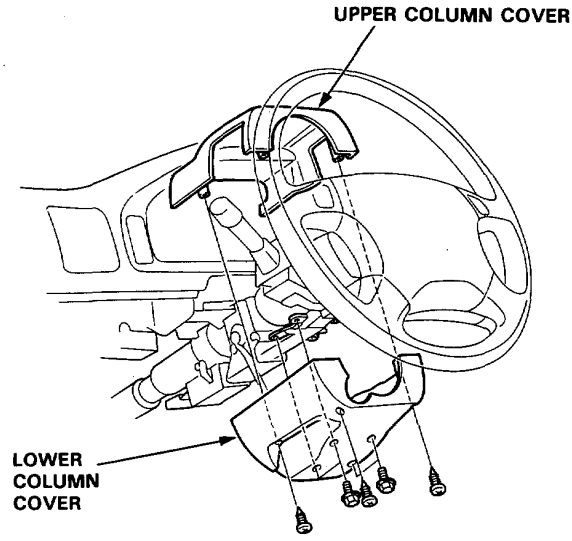
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**
- **After installation of the gauge assembly, recheck the operation of the SRS indicator light.**



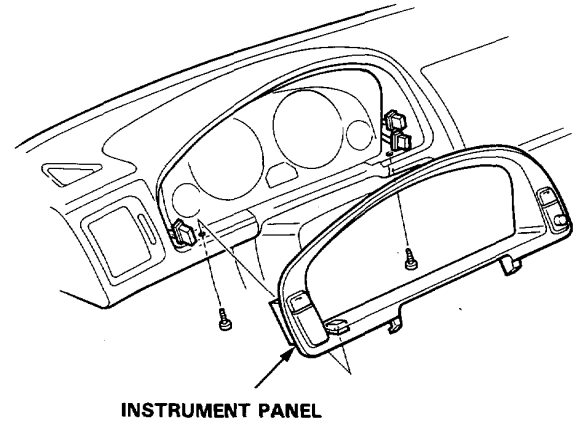
1. Remove the dashboard lower panel.



2. Remove the upper and lower column covers.

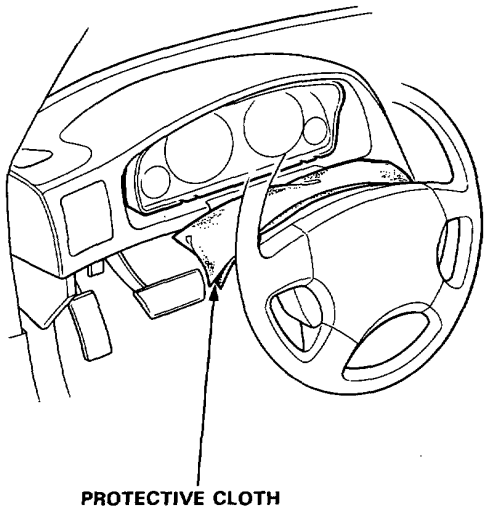


3. Remove the 2 screws, then disconnect the switch connectors and remove the instrument panel.

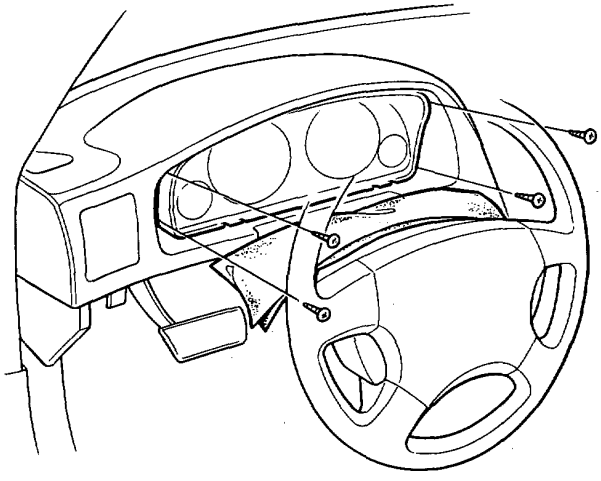


cardiagn.com

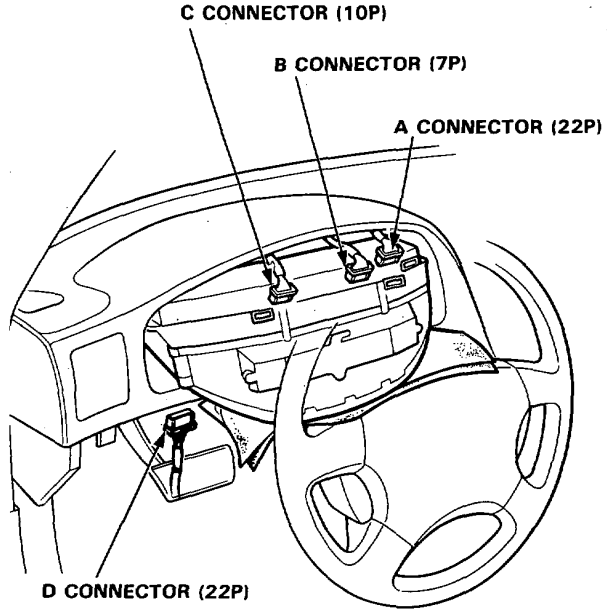
4. Place a protective cloth over the combination switch to prevent scratching the gauge assembly.



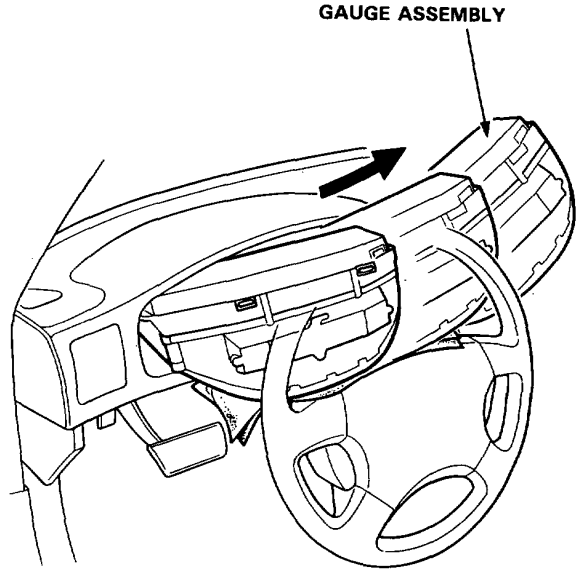
5. Remove the 4 screws from the gauge assembly.



6. Disconnect the connectors from the gauge assembly.



7. Take out the gauge assembly as shown.

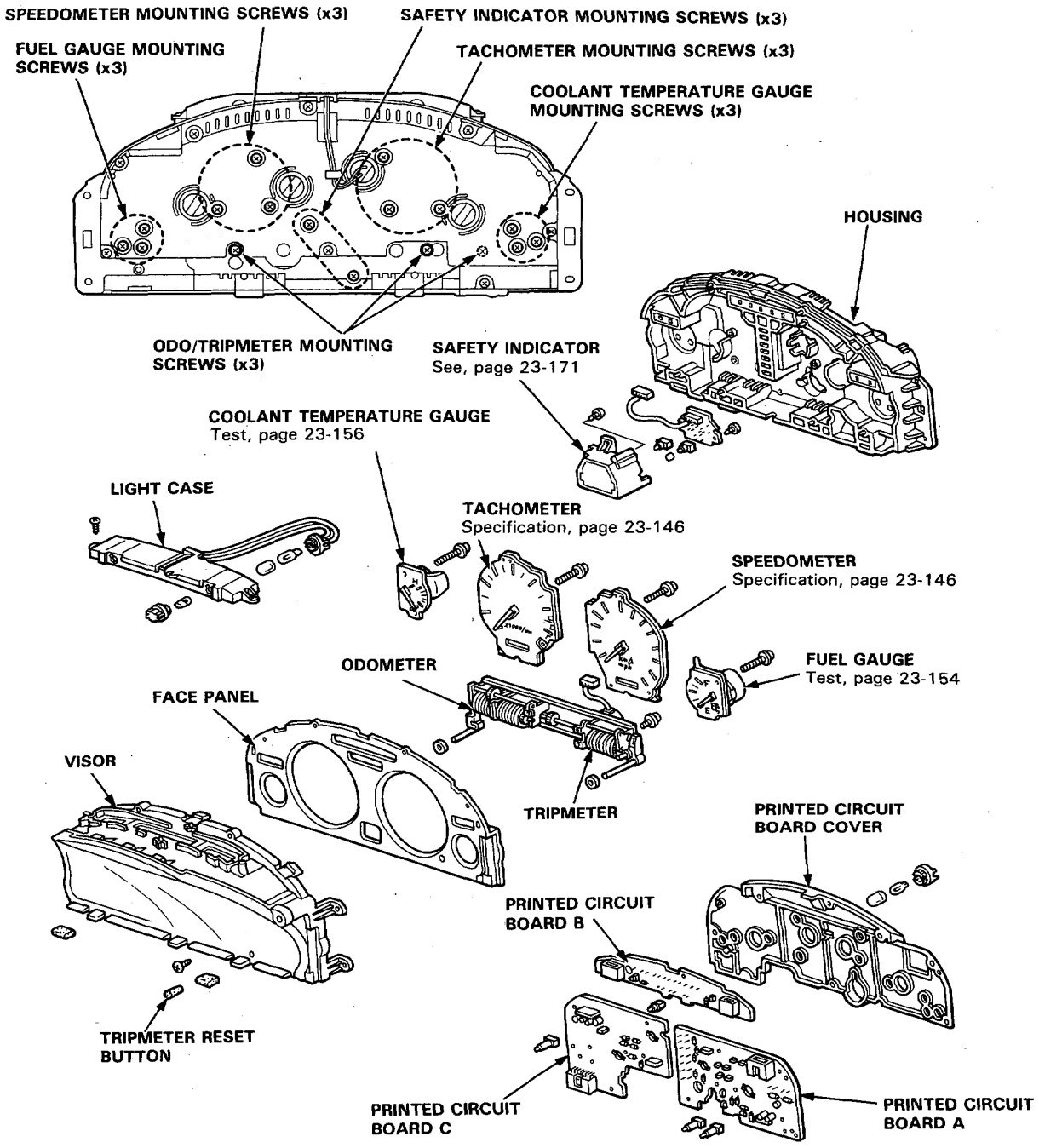


cardiagn.com

Gauge Assembly

Disassembly

NOTE:
- Handle the terminals and printed circuit boards carefully to avoid damaging them.
- If replacement is required, replace the odometer and tripmeter as a unit.



cardiagn.com

Speedometer/Tripmeter/Odometer

Troubleshooting

NOTE: The numbers in the table show the troubleshooting sequence.

Item to be inspected / Symptom	Blown * (15A) fuse (in the under-dash fuse box)	Speedometer	Odo/tripmeter	Printed circuit board A	Speed sensor input test	Speed sensor is not installed correctly	Poor ground	Open circuit in wires or loose or disconnected terminals
Speedometer operates, but reads wrong.				2		1		
Odo/tripmeter operates, but registers wrong.				2		1		
Odometer and tripmeter operate, but speedometer does not operate.		1		2				
Speedometer operates, but odometer and tripmeter do not operate.			1	2				
Speedometer, odometer and tripmeter do not operate.	1			3	2		G521: LHD G402: RHD	GRN/WHT YEL

NOTE: Speed sensor ground is via ECU (G101).

*: { No. 13 (7.5A): LHD
   { No. 17 (7.5A): RHD

(cont'd)

cardiagn.com

Troubleshooting (cont'd)

Speedometer does not operate.

Inspect No. 22 (20A) fuse in under-dash fuse box before testing.

Disconnect 3-P connector at speed sensor.

Check for continuity between the GRN/WHT terminal and body ground.

Is there continuity?

NO → **Repair open between speed sensor and ground G101 (via ECU)**

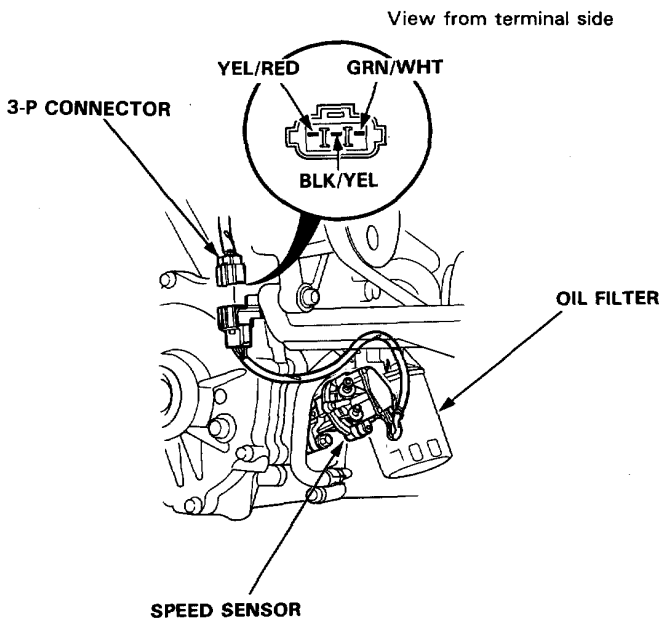
YES

Turn the ignition switch ON.

Measure voltage between the BLK/YEL wire terminal and body ground.

A

(To next page)



cardiagn.com

(From previous page)
A

Is there battery voltage?
NO → **Repair open BLK/YEL wire, between speed sensor and under-dash fuse box.**
YES

Measure voltage between the YEL/RED wire terminal and body ground.

Is there approx. 5 V?
NO → **Repair YEL/RED wire or short to body ground.**
YES

Reconnect 3-P connector at speed sensor.

Raise front of car and support it with stands.

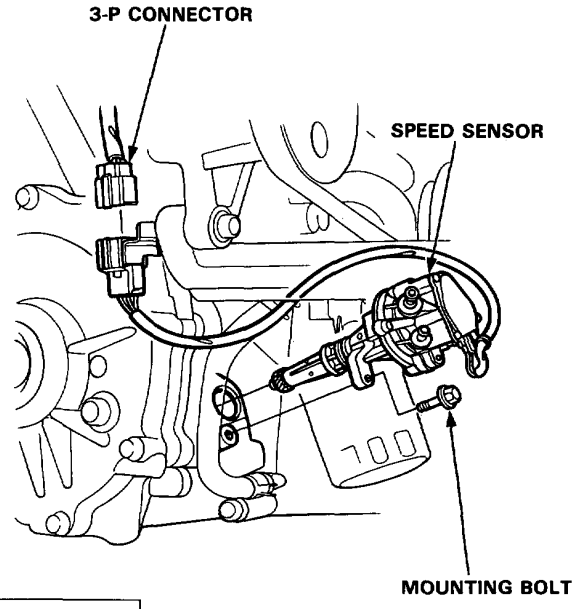
Back-probe the YEL/RED wire and connect it to body ground through a voltmeter.

Put car in neutral, key ON.

Slowly rotate one wheel with other wheel blocked.

Does voltage pulse 0 to approx 5 V?
NO → **Replace speed sensor**
YES

Replace speedometer



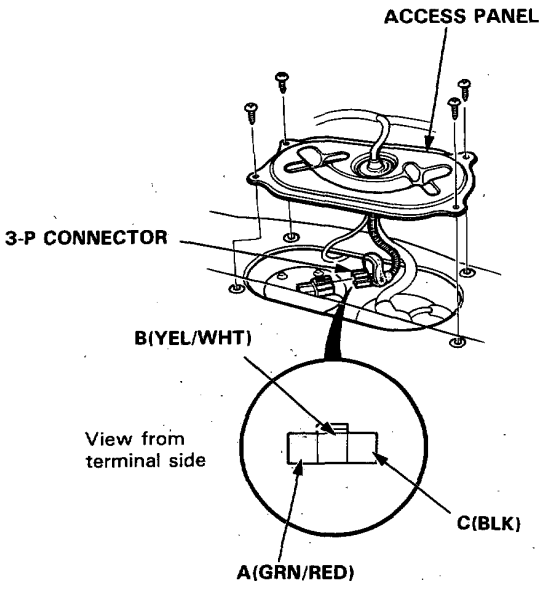
cardiagn.com

Fuel Gauge

Gauge Test

NOTE: Refer to page 23-143 for the fuel gauge system circuit.

1. Check the No. 13: LHD or No. 17: RHD (7.5 A) fuse in the under-dash fuse box before testing.
2. Remove the access panel.
3. Disconnect the 3-P connector from the fuel gauge sending unit.



4. Connect the voltmeter positive probe to the B (YEL/WHT) terminal and the negative probe to the C (BLK) terminal, then turn the ignition switch ON. There should be between 5 and 8V.

   - If the voltage is as specified, go to step 4.
   - If the voltage is not as specified, check for:
     — An open in the YEL, YEL/WHT or BLK wire.
     — Poor ground (G406).

5. Turn the ignition switch OFF. Attach a jumper wire between the B (YEL/WHT) and C (BLK) terminals.

   Turn the ignition switch ON.
   Check that the pointer of the fuel gauge starts moving toward "F" mark.

   CAUTION: Turn the ignition switch OFF before the pointer reaches "F" on the gauge dial. Failure to turn the ignition switch OFF before the pointer reaches the "F" mark may cause damage to the fuel gauge.

   NOTE: The fuel gauge is a bobbin (cross coil) type, hence the fuel level is continuously indicated even when the ignition switch is OFF, and the pointer moves more slowly than that of a bimetal type.

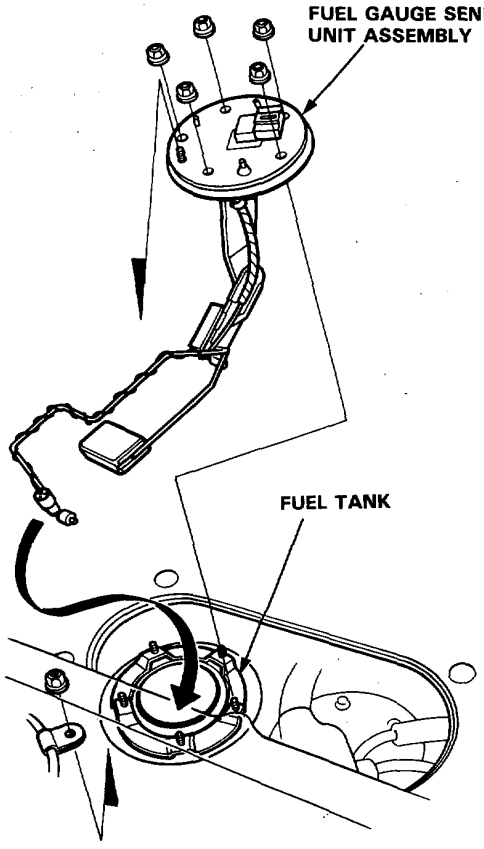
   - If the pointer of the fuel gauge does not move at all, replace the gauge.
   - If the gauge is OK, inspect the fuel gauge sending unit.

cardiagn.com

Sending Unit Test

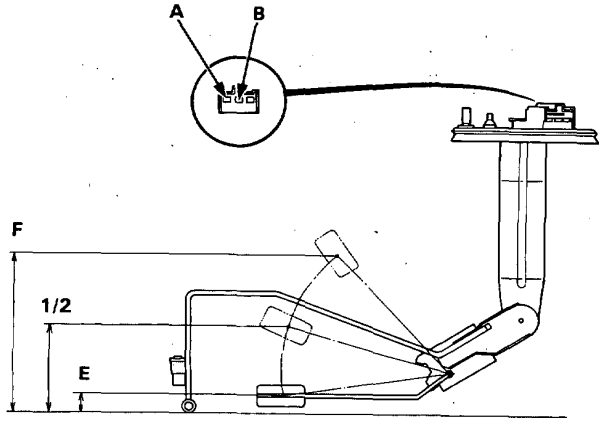
⚠ WARNING **Do not smoke while working on fuel system. Keep open flame away from work area.**

1. Remove the maintenance access cover.
2. With the ignition switch OFF, disconnect the 3-P connector from the fuel gauge sending unit.
3. Remove the 5 nuts, then take out the fuel gauge sending unit assembly from the fuel tank.



4. Measure the resistance between the A and B terminals at E (EMPTY), 1/2 (HALF FULL) and F (FULL) by moving the float.

Float Position	E	1/2	F
Resistance (Ω)	105—110	25.5—39.5	2—5



(bottom of the fuel tank)

E	1/2	F
15.2mm (0.60in)	72.8mm (2.87in)	136.2mm (5.36in)

5. If unable to obtain the above readings, replace the fuel gauge sending unit.

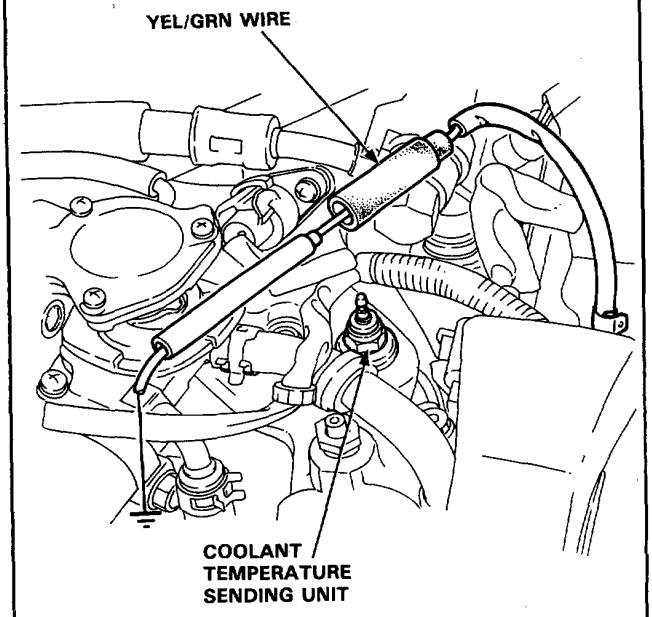
cardiagn.com

Coolant Temperature Gauge

Gauge Test

NOTE: Refer to page 23-142 for wiring description of the coolant temperature gauge circuit diagram.

1. Check the No. 13: LHD or No. 17: RHD (7.5 A) fuse in the under-dash fuse box before testing.
2. Make sure ignition switch is OFF, then disconnect the YEL/GRN wire from the temperature gauge sending unit and ground it with a jumper wire.



3. Turn the ignition switch ON.
   Check that the pointer of the temperature gauge starts moving toward the "H" mark.

   CAUTION: Turn the ignition switch OFF before the pointer reaches "H" on the gauge dial. Failure to turn the ignition OFF quickly enough may cause damage to the gauge.

   - If the pointer of the gauge does not move at all, check for:

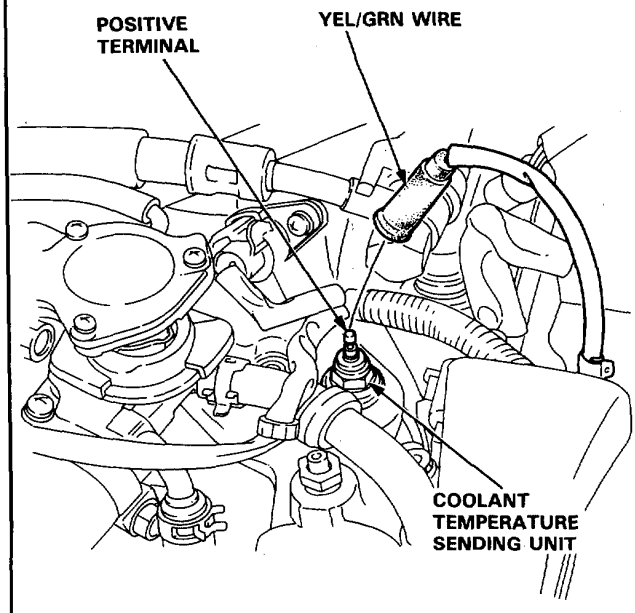
     — An open in the YEL or YEL/GRN wire.

     If the wires are OK, replace the coolant temperature gauge.

   - If the gauge works, inspect the sending unit.

Sending Unit Test

1. Disconnect the YEL/GRN wire from the sender.
2. With the engine cold, use an ohmmeter to measure resistance between the positive terminal and the engine (ground).



3. Check the temperature of the coolant.
4. Run the engine and measure the change in resistance with the engine at operating temperature (Cooling fan comes on).

Temperature	56°C (133°F) ["C" mark]	85°C (185°F)–100°C (212°F)
Resistance (Ω)	142	49–32

5. If obtained readings are substantially different from specifications above, replace the sending unit.

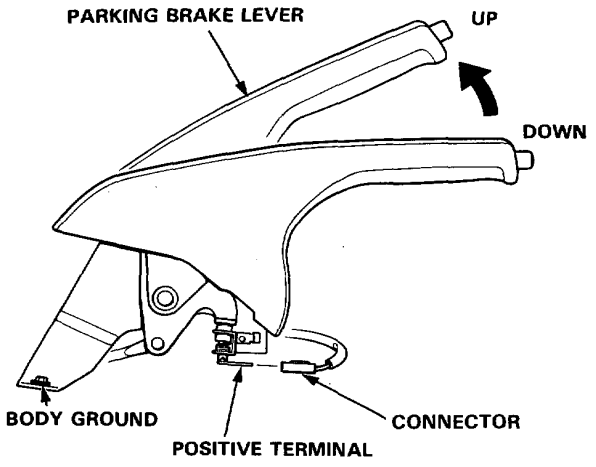
cardiagn.com

Brake Warning System

Parking Brake Switch Test

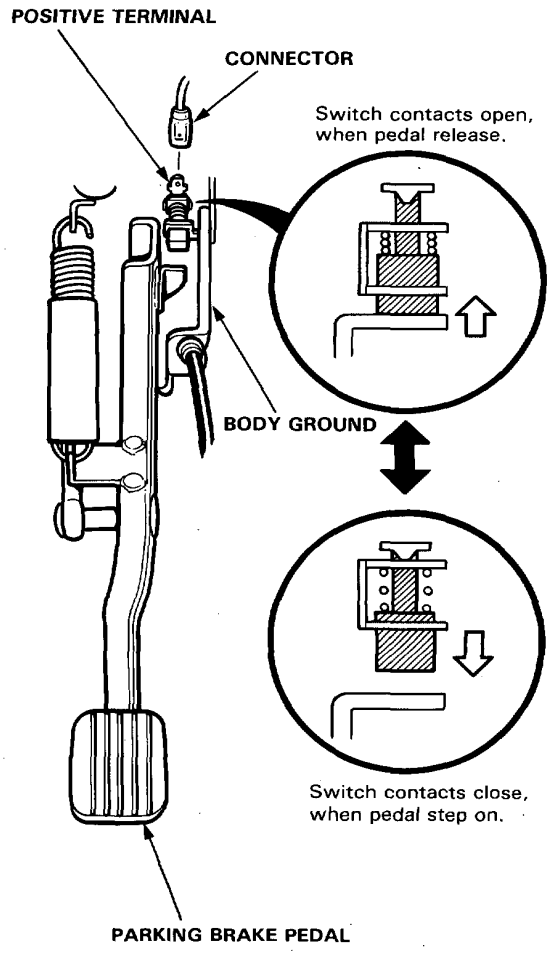
LEVER TYPE:

1. Remove the center console and disconnect the connector from the switch.
2. There should be continuity between the positive terminal and body ground with the brake lever up. There should be no continuity with the parking brake lever down.



PEDAL TYPE:

1. Remove the dashboard lower panel and disconnect the connector from the switch.
2. There should be continuity between the positive terminal and body ground with the parking brake pedal step on.
   There should be no continuity with the parking brake pedal release.



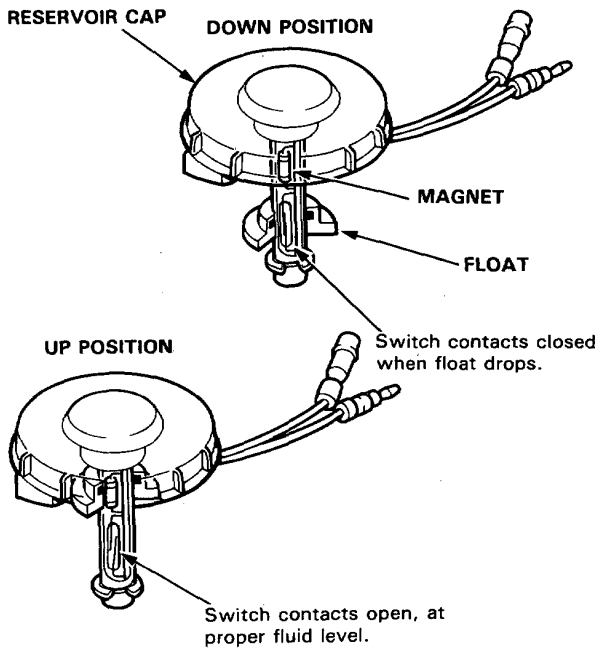
cardiagn.com

Brake Warning System

Brake Fluid Level Switch Test

1. Remove the reservoir cap. Check that the float moves up and down freely.
   Replace the reservoir cap assembly if the float does not move freely.

2. Check for continuity between the terminals with the float up and down.
   There should be continuity with the float down and no continuity with the float up.
   Replace the reservoir cap assembly if necessary.



Low Fuel Indicator

Indicator Light Test

NOTE: Refer to page 23-143 for wiring description of the low fuel Indicator circuit.

1. Park car on level ground.

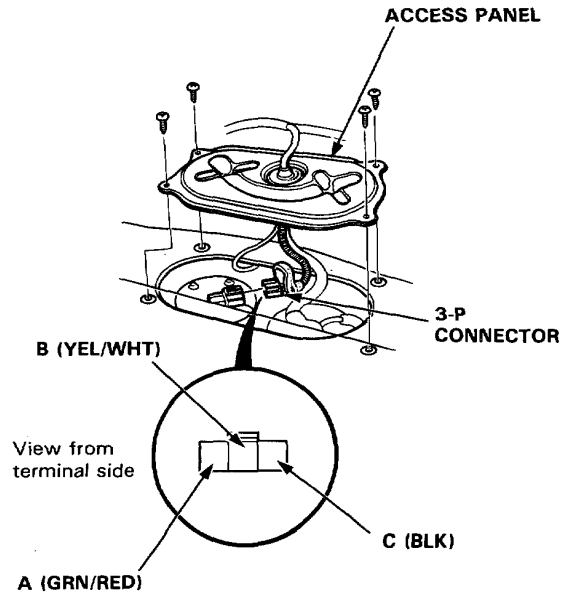
   ⚠ WARNING **Do not smoke while working on fuel stystem. Keep open flame away from work area. Drain fuel only into an approved container.**

2. Drain fuel tank into an approved container.
   Then install the drain bolt with a new washer.

3. Add less than 11 ℓ (2.9 U.S. Gal, 2.4 Imp. Gal) of fuel and turn the ignition switch on.
   The low fuel Indicator light should come on within 4 minutes.

4. Then add approx. 4 ℓ (1.1 U.S. Gal, 0.9 Imp. Gal) of fuel.
   The light should go out within 4 minutes.

   - If the light did not come on in step 3, remove the access panel and disconnect the 3-P connector from the fuel gauge sending unit. Connect the A (GRN/RED) terminal to the C (BLK) terminal with a jumper wire.
     - If the light comes on, the problem is either the sending unit or its ground.
     - If the light does not come on, the problem is an open in the GRN/RED wire to the gauge assembly, or no power to the gauge or a bad bulb.



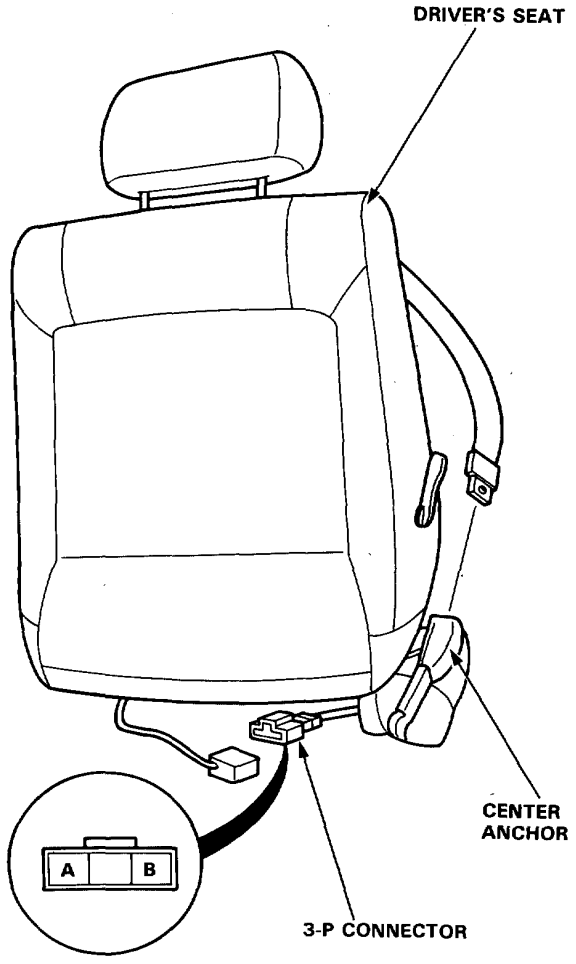
cardiagn.com

Seat Belt Reminder (KY model)

Seat Belt Switch Test

1. Slide the driver's seat forward until the seat belt center anchor bolt is accessible, then disconnect the 3-P connector from the seat belt switch under the driver's seat.

2. There should be continuity between the A and B terminals when the driver's seat belt is not buckled. There should be no continuity when the driver's seat belt is buckled.



Lights-on Reminder (KY model)

Chime Test

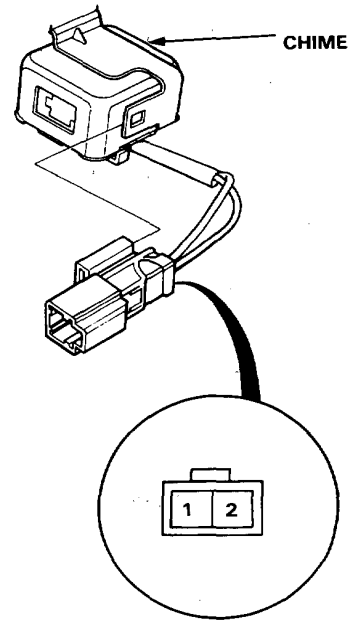
NOTE: Refer to page 23-191 for wiring description of the lights-on reminder circuit, and page 23-193 for the input test of the circuit.

When the ignition key is turned to "O" position and removed, with the lights on, voltage is applied to the reminder circuit on the integrated control unit. When you open the driver's door, the circuit senses ground through the closed door switch.
with voltage at the "A6" terminal, ground at the "A7" terminal and no voltage at the "A2" terminal, the chime is activated to remind the driver to turn off the lights.

NOTE: Chime is located near the brake light switch.

1. Remove the dashboard lower panel.

2. Disconnect the 2-P connector from the main wire harness.



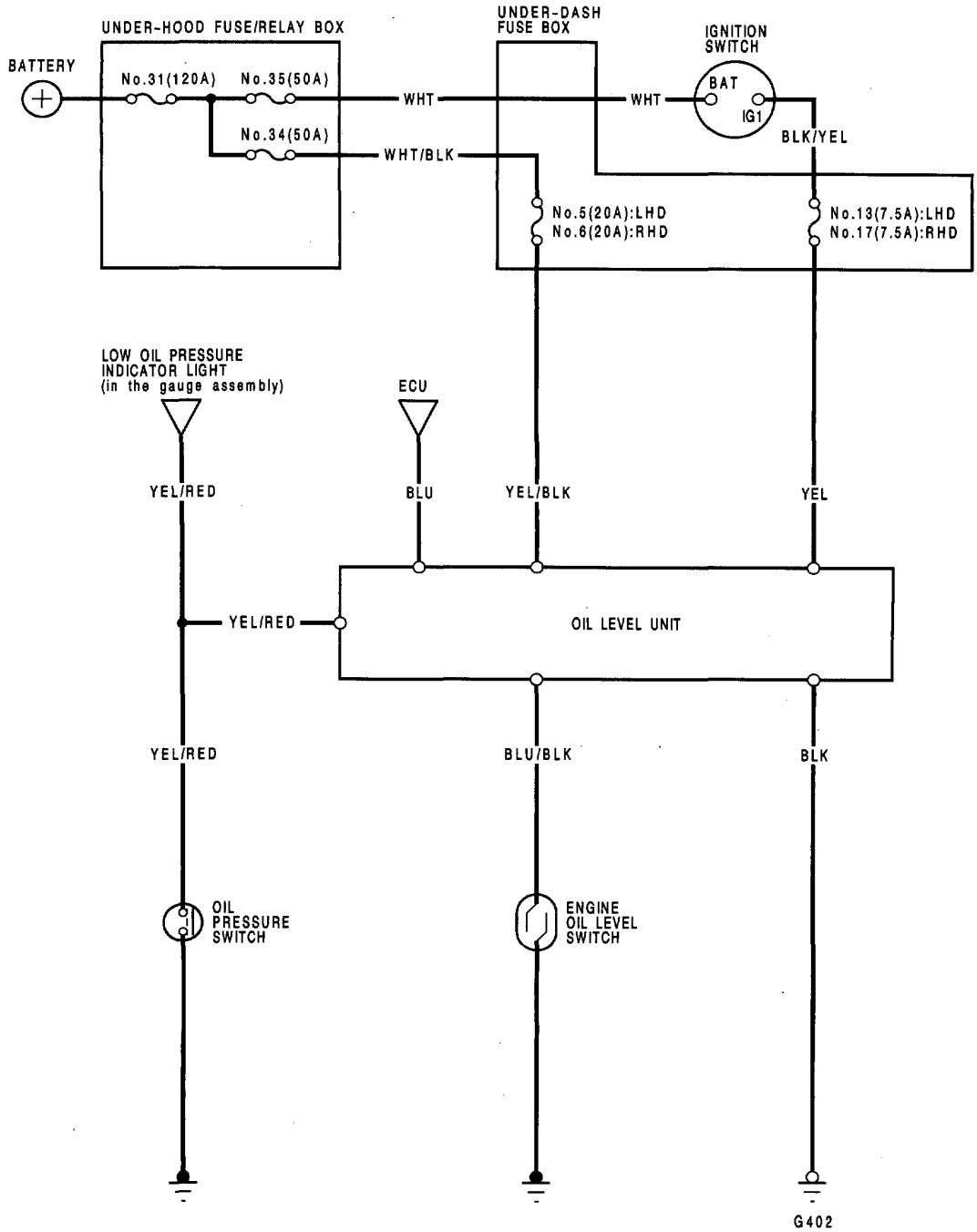
3. Test chime operation by connecting battery power to No. 2 terminal, grounding No. 1 terminal, and cycling the power on-off repeatedly.

4. If the chime fails to sound every time power is cycled, replace it.

cardiagn.com

Oil Pressure/Oil Level Warning System (European model)

Circuit Diagram

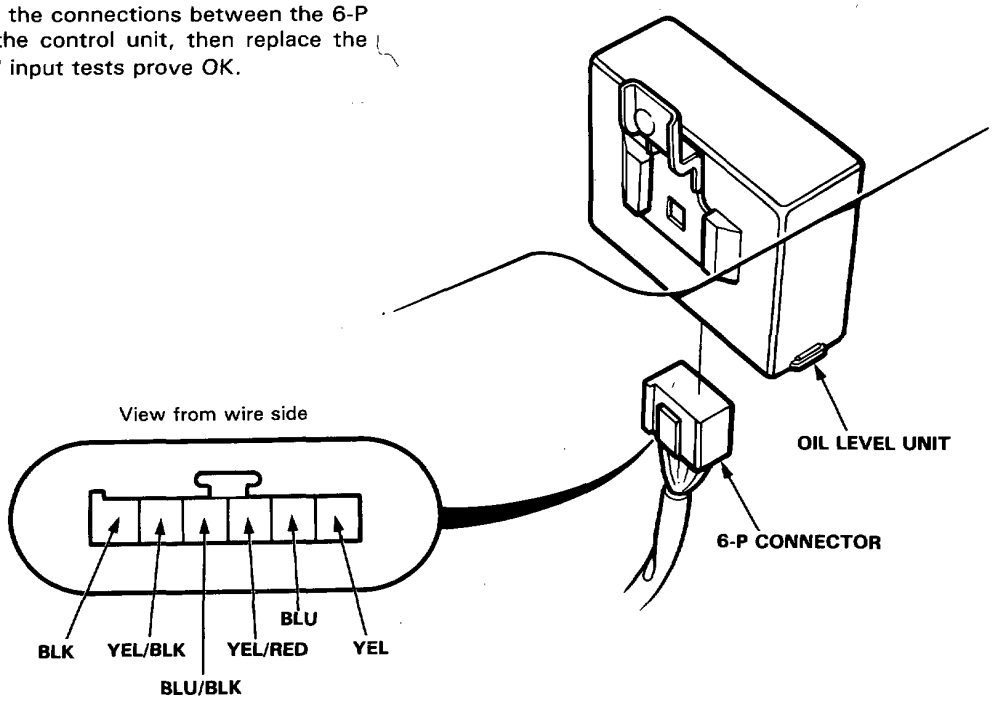


cardiagn.com

Unit Input Test

Remove the dashboard lower panel, then disconnect the 6-P connector from the control unit. Make the following tests at connector terminals.

NOTE: Recheck the connections between the 6-P connector and the control unit, then replace the control unit if all input tests prove OK.



No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	YEL/BLK	Under all conditions.	Check for voltage to ground: should be battery voltage.	• Blown *1 (20A) fuse. • An open in the YEL/BLK wire.
2	YEL	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown *2 (7.5A) fuse. • An open in the YEL wire.
3	BLK	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor ground (G402). • An open in the BLK wire.
4	BLU	Start the engine.	Check for voltage to ground: should be about 5 V.	• Faulty ECU. • An open in the BLU wire.
5	YEL/RED	Stop the engine.	Check for continuity to ground: should be continuity.	• Faulty oil pressure switch. • An open in the YEL/RED wire.
6	BLU/BLK	Proper engine oil level.	Check for continuity to ground: should be continuity.	• Faulty engine oil level switch. • An open in the BLU/BLK wire.

*1 { No. 5 (20A): LHD
No. 6 (20A): RHD

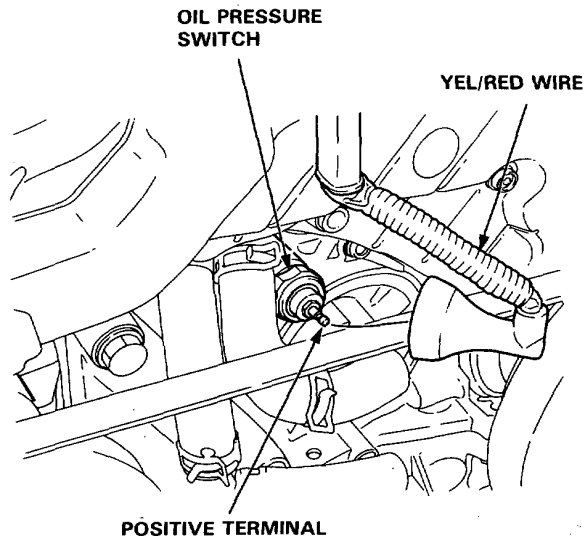
*2 { No. 13 (7.5A): LHD
No. 17 (7.5A): RHD

cardiagn.com

Oil Pressure/Oil Level Warning System (European model)

Oil Pressure Switch Test

1. Remove the YEL/RED wire from the oil pressure switch.

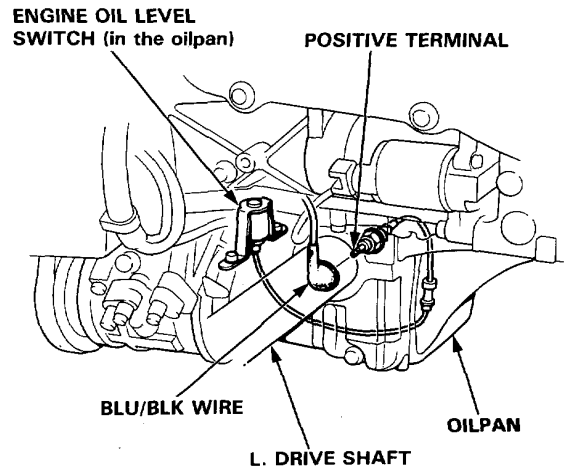


2. There should be continuity between the positive terminal and the engine (ground) with the engine stopped. There should be no continuity when the engine runs.

3. If the switch fails to operate, check the engine oil level.
   If the oil level is correct, check oil pump pressure (See section 8).

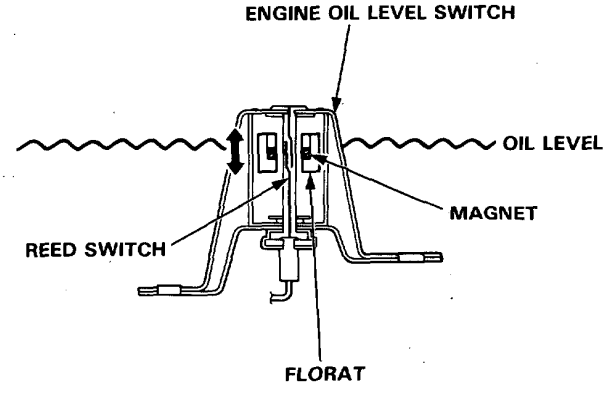
Engine Oil Level Switch

1. Disconnect the BLU/BLK wire from the positive terminal of the engine oil level switch.



2. There should be continuity between the positive terminal and the engine (ground) with proper engine oil level.
   There should be no continuity when no engine oil is left in the oilpan.

3. If the switch fails to operate, remove the oilpan and check for disconnected wire between the positive terminal and the switch, then replace the switch if necessary.



cardiagn.com

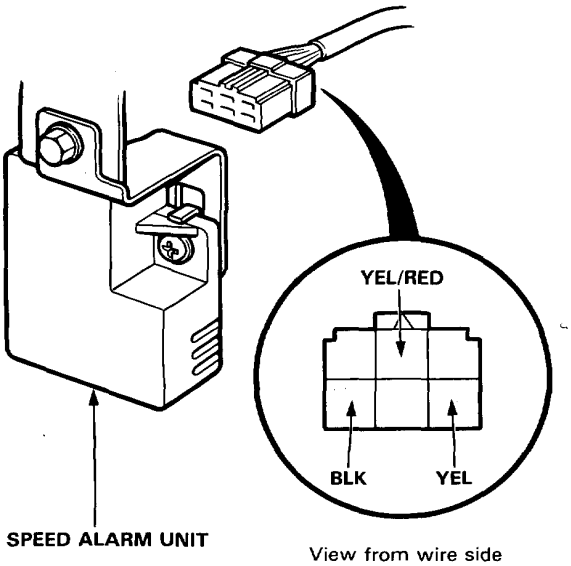
Speed Alarm System (KY model)

Speed Alarm Unit Test

NOTE: Check for the NO. 13 (7.5A) fuse in the under-dash fuse box, before testing.

1. Remove the dashboard lower panel, then disconnect the 6-P connector from the speed alarm unit.

   NOTE: Speed alarm unit is located near the brake light switch.



View from wire side

2. Check for continuity between the BLK terminal and the body ground.
   There should be continuity.
   - If there is no continuity, check for:
     — An open in the BLK wire.
     — Poor ground (G402).

3. Check for voltage between the YEL terminal and the body ground with the ignition switch ON.
   There should be battery voltage.
   - If there is no voltage, check for an open in the YEL wire.
   - If there is battery voltage, go to step 4.

4. Ignition switch OFF, reconnect the 6-P connector to the speed alarm unit, and connect the voltmeter to the YEL/RED terminal.

5. Raise the car and place safety stands in the proper locations (See section 1).

6. Turn the ignition switch on again and rotate the front wheel slowly, then check to see the voltmeter indicator moves from 0 V to 5 V and then from 5 V to 0 V alternately.

   - If there is no voltage, check for:
     — Defective speed sensor (See page 23-152).
     — An open in the YEL/RED wire.

7. Replace the speed alarm unit if the speed sensor is normal.

cardiagn.com

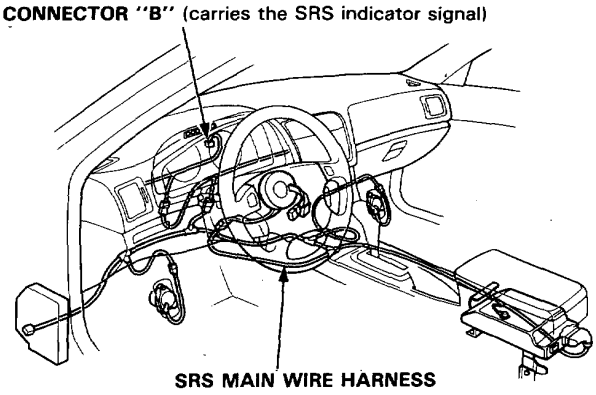
Shift Lever Position Indicator

Component Location Index

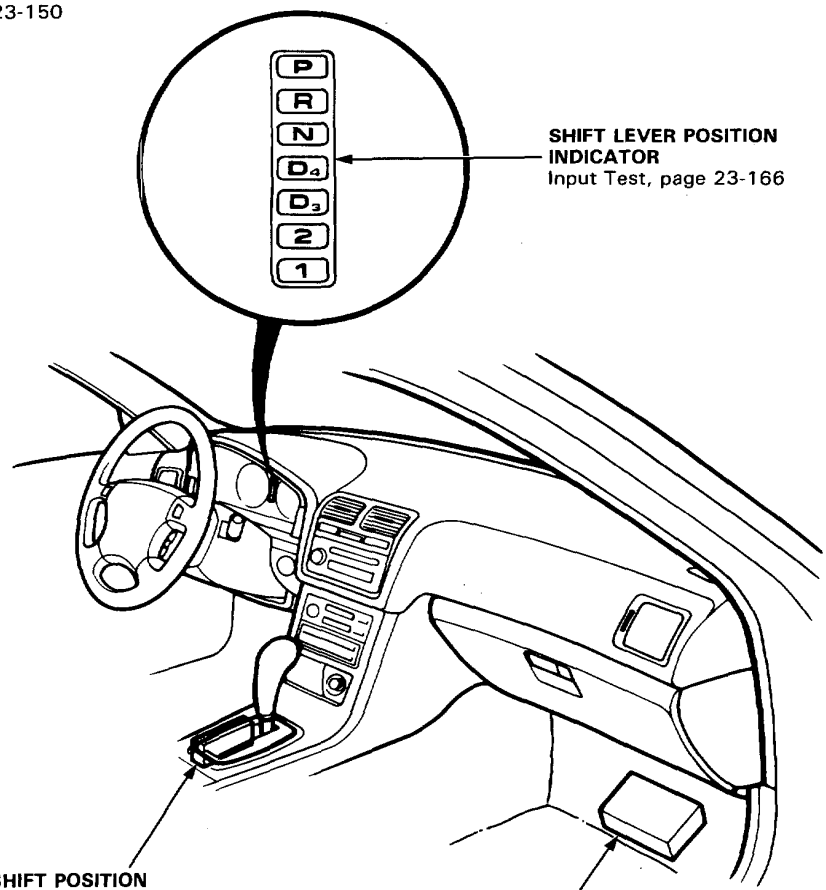
CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**
- **After installation of the gauge assembly, recheck the operation of the SRS indicator light.**

NOTE: RHD type is symmetrical to LHD type.



• **GAUGE ASSEMBLY**
Removal, page 23-148
Disassembly, pages 23-150



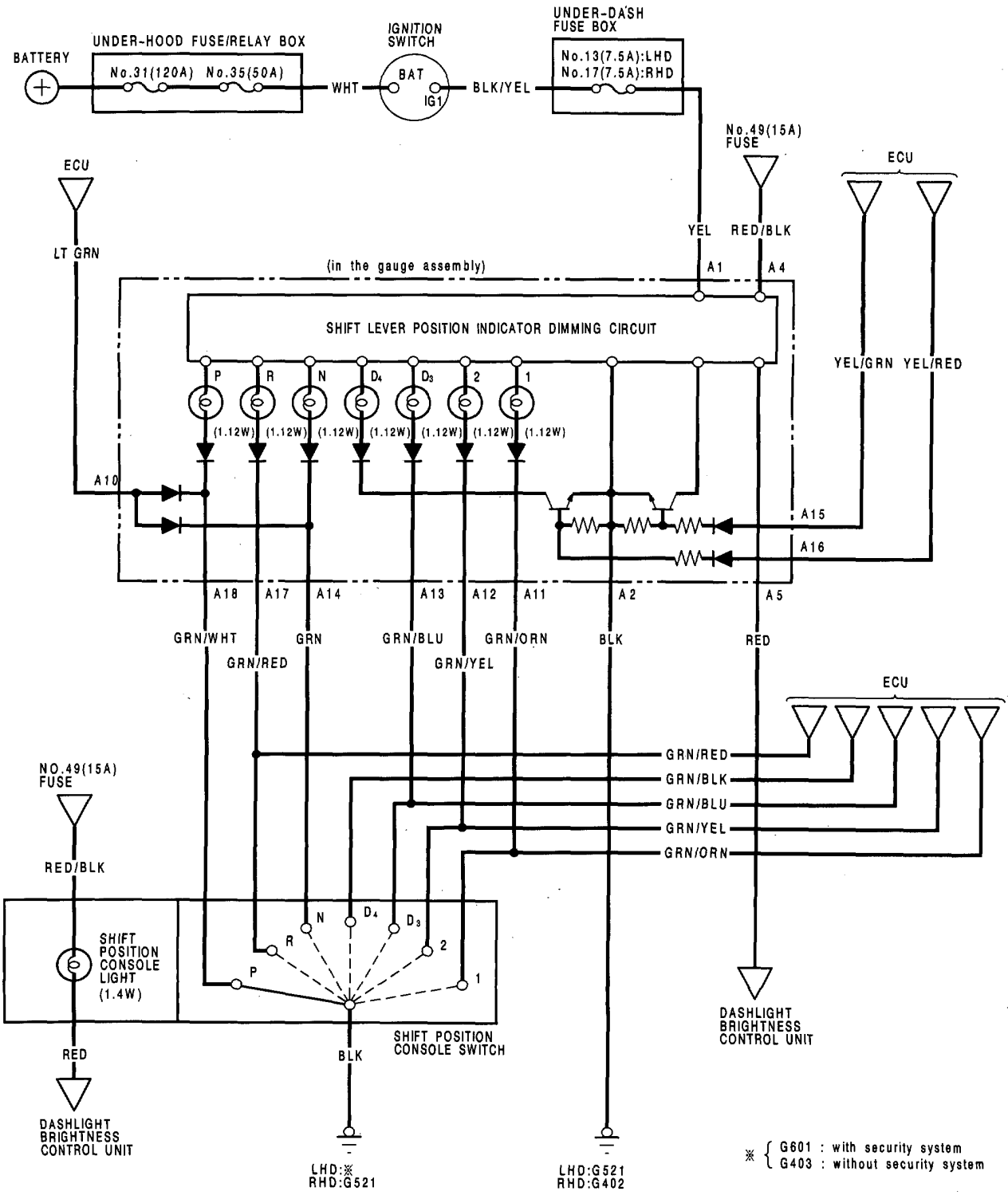
SHIFT LEVER POSITION INDICATOR
Input Test, page 23-166

SHIFT POSITION CONSOLE SWITCH
Test, page 23-168
Replacement, page 23-169

ECU
See Automatic Transmission section 14

cardiagn.com

Circuit Diagram



cardiagn.com

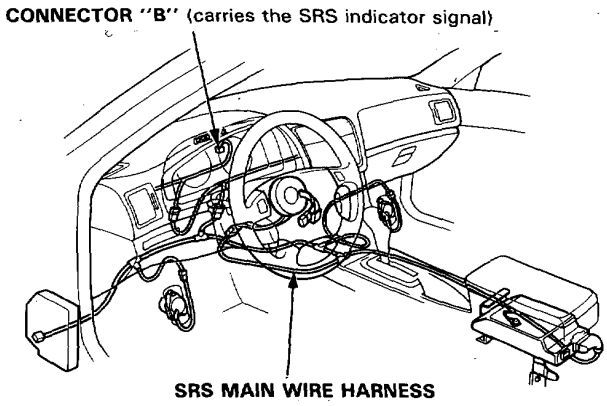
Shift Lever Position Indicator

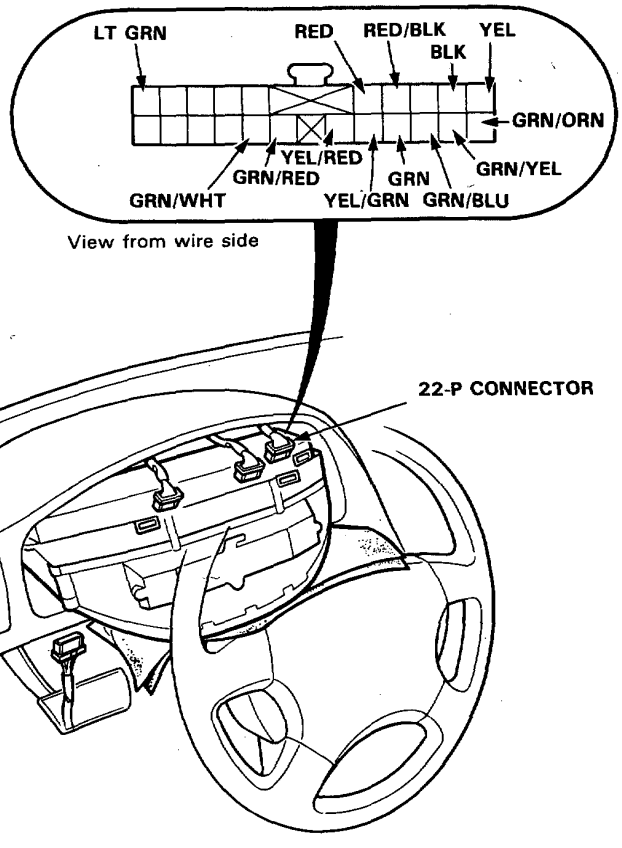
Indicator Input Test

CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**
- **After installation of the gauge assembly, recheck the operation of the SRS indicator light.**

Remove the gauge assembly from the dashboard and disconnect the 22-P connector from the gauge assembly. Make the following input tests at the harness pins. If all tests prove OK, yet the indicator still fails to work, replace printed circuit board C.





cardiagn.com

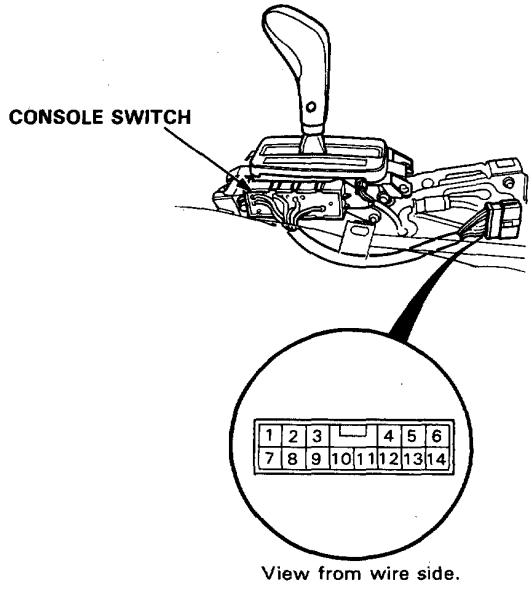
No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLK	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor ground (G521: LHD or G402: RHD). • An open in the wire.
2	YEL	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 13: LHD or No. 17: RHD (7.5 A) fuse. • An open in the wire.
3	GRN/WHT	Shift lever position in P.	Check for continuity to ground: should be continuity.	• Faulty shift position console switch. • Poor ground (G601, G403: LHD or G521: RHD). • An open in the wire.
	GRN/RED	Shift lever position in R.		
	GRN	Shift lever position in N.		
	GRN/BLU	Shift lever position in D_3.		
	GRN/YEL	Shift lever positon in 2.		
	GRN/ORN	Shift lever position in 1.		
4	YEL/RED	Ignition switch ON and shift lever position in D_4.	Check for voltage to ground: should be battery voltage.	• Faulty shift position console switch. • Faulty ECU. • Poor ground (G601, G403: LHD or G521: RHD). • An open in the wire.
5	RED/BLK and RED	Lighting switch ON and dashlight brightness control dial on full bright.	Check for voltage between RED/BLK and RED terminals: should be battery voltage.	• Faulty dashlight brightness control system. • An open in the wire.
6	YEL/RED	Ignition switch ON and shift lever in any position except D_4.	Check for voltage to ground: should be less than 1V for two seconds after the ignition switch is turned ON and more than battery voltage two seconds later.	• Faulty ECU. • An open in the wire.
7	YEL/GRN	Ignition switch ON, and shift lever in any position except D_4.	Check for voltage to ground: should be less than 1V for two seconds after the ignition switch is turned ON and more than 5V two seconds later.	• Faulty ECU. • An open in the wire.
8	LT GRN	Ignition switch ON.	Check for voltage to ground: should be about 5 V.	• Faulty ECU. • An open in the wire.

cardiagn.com

Shift Lever Position Indicator

Shift Position Console Switch Test

1. Remove the console, then disconnect the 14-P connector from the console switch.
2. Check for continuity between the terminals in each switch position according to the table.
   - Move the lever back and forth without touching the push button at each switch position, and check for continuity within the range of free play of the shift lever.
   - If there's no continuity within the range of free play, adjust the position of the console switch.



Shift Position Console Switch — **Back-up Light Switch** — **Neutral Safety Switch**

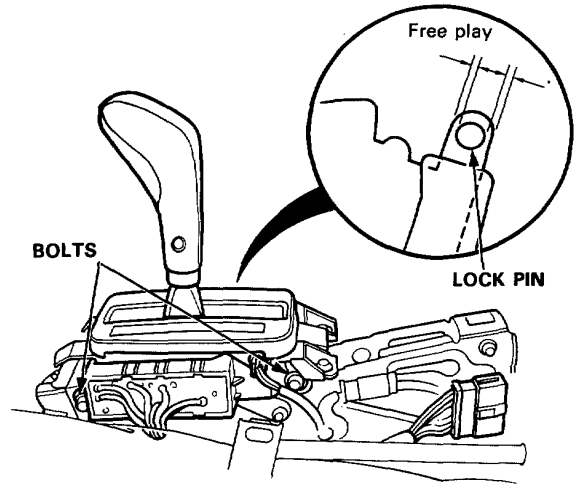
Terminal / Position	9	1	2	3	4	5	7	8	12	10	11	6	14
1	○				○								
2	○			○		○							
3	○		○			○							
D	○	○				○							
N	○						○					○	○
R	○							○		○	○		
P	○								○			○	○

Adjustment:

1. Shift to the "P" position, then loosen the bolts.
2. Slide the switch in the direction of D position [within 2.0 mm (0.079 in)] so that there is continuity between No. 9 and No. 12 terminals (within the range of free play of the shift lever).
3. Recheck for continuity between each of the terminals.

NOTE:

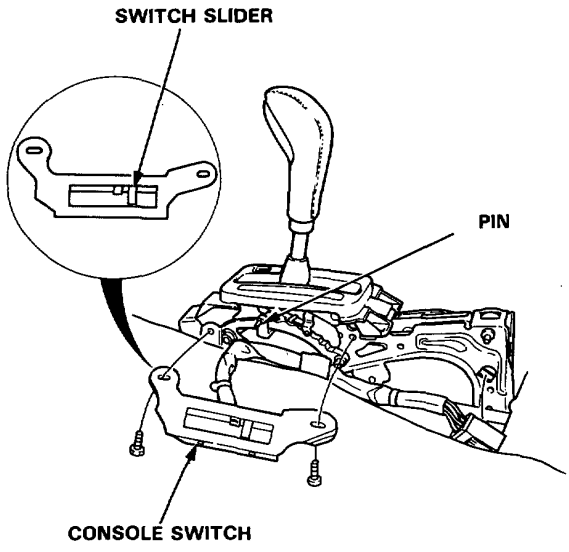
- If adjustment is not possible, check for damage to the shift lever detent and/or bracket.
  If there is no damage, replace the console switch.
- The engine should start when the shift lever is in N position (within the range of free play).



cardiagn.com

Shift Position Console Switch Replacement

1. Remove the console, then disconnect the 14-P connector from the console switch.
2. Remove the 2 console switch mounting bolts.



3. Position the switch slider to "Neutral" (N).
4. Shift the select lever to "Neutral", then slip the console switch into position.
5. Attach the switch with the 2 bolts.
6. Test the console switch in the P and N positions (see page 23-168).

   NOTE: The engine should start when the shift lever is in the N position (within the range of free play).

7. Connect the 14-P connector, clamp the harness and install the console.

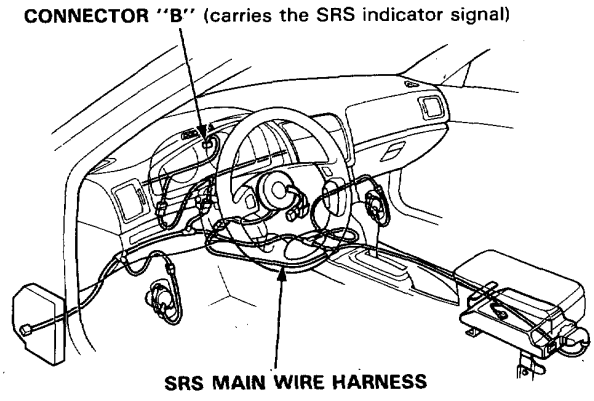
cardiagn.com

Shift Lever Position Indicator

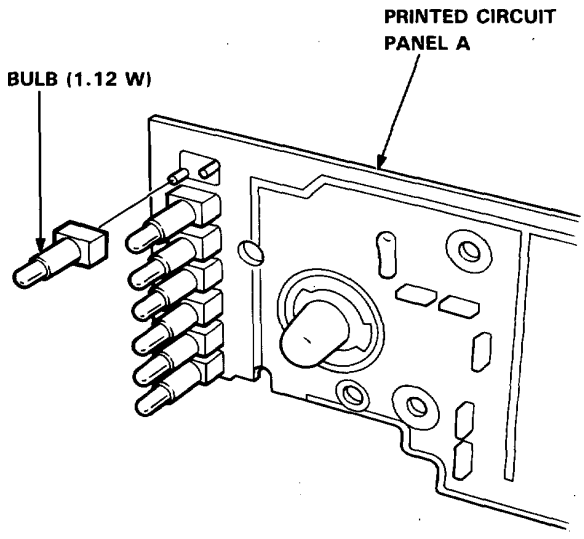
Bulb Replacement

CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly, if there is an open circuit or damage to the wiring.**
- **After installation of the gauge assembly, recheck the operation of the SRS indicator light.**



1. Remove the gauge assembly (See page 23-148).
2. Disassemble the gauge assembly (See page 23-150).
3. Remove the bulb.



4. Installation is in the reverse order of removal.

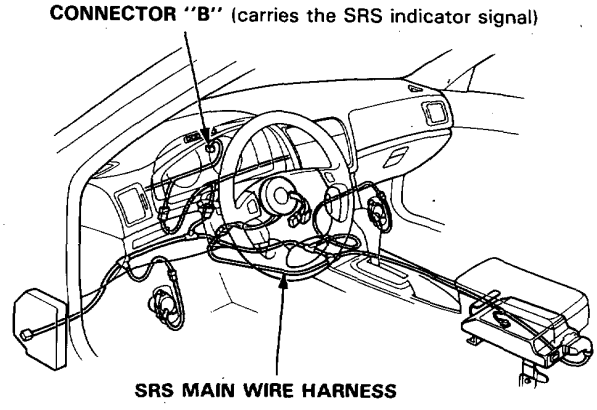
cardiagn.com

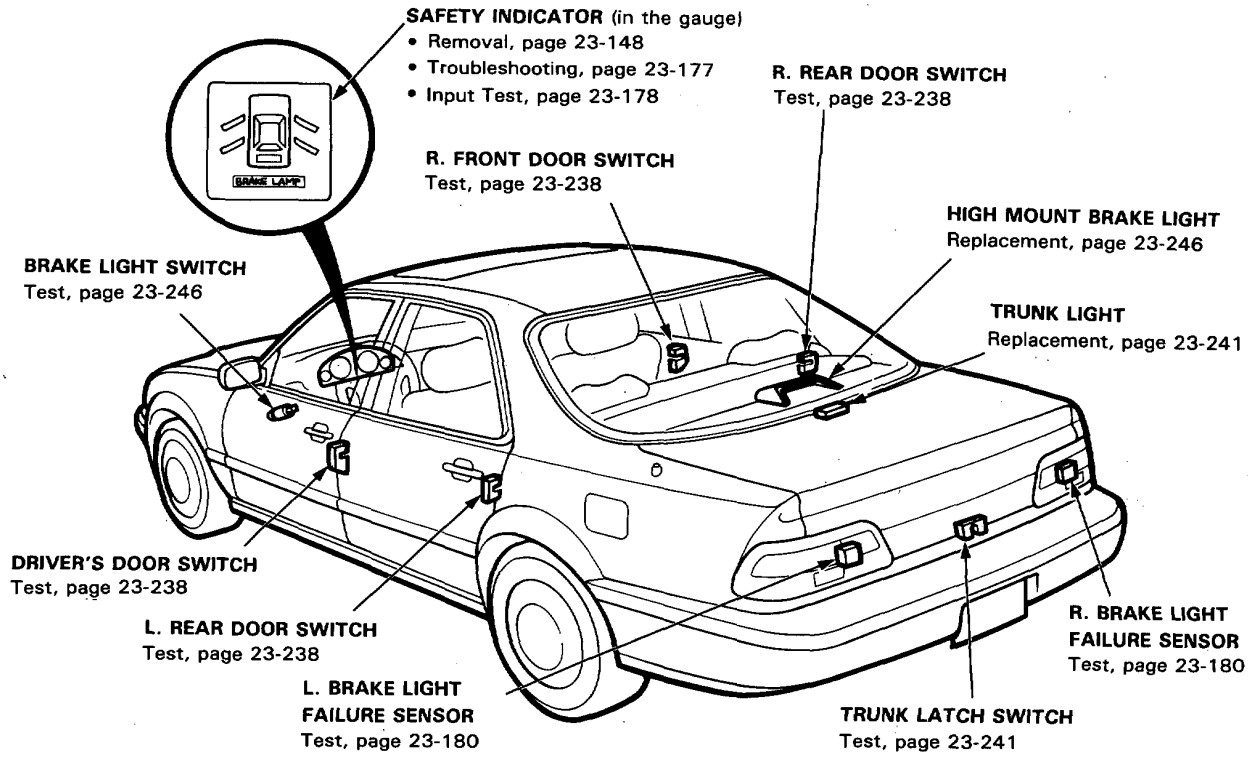
Component Location Index

CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install *the short connector on the airbag then disconnect* the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**
- **After installation of the gauge assembly, recheck the operation of the SRS indicator light.**

NOTE: RHD type is symmetrical to LHD type.

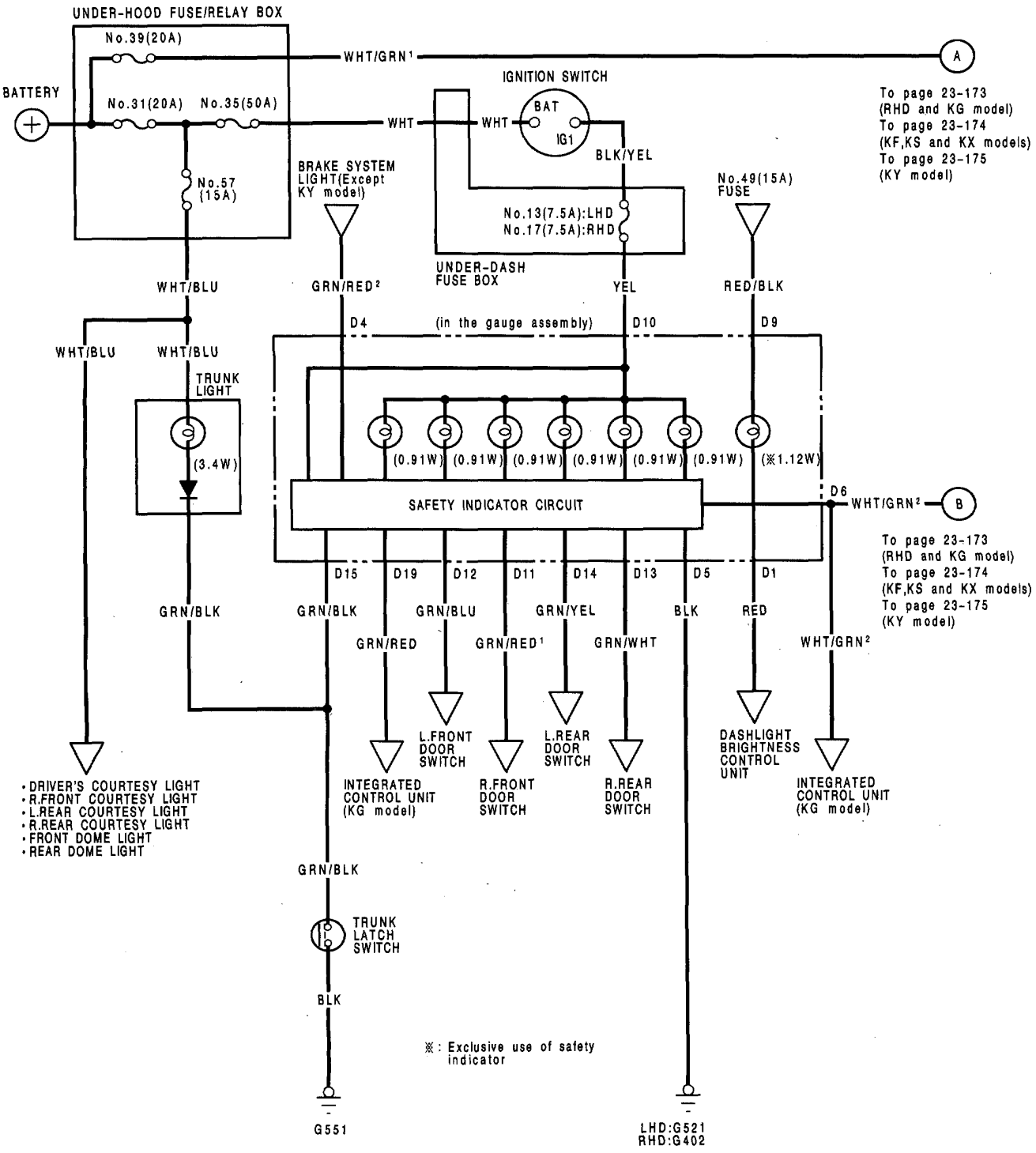




cardiagn.com

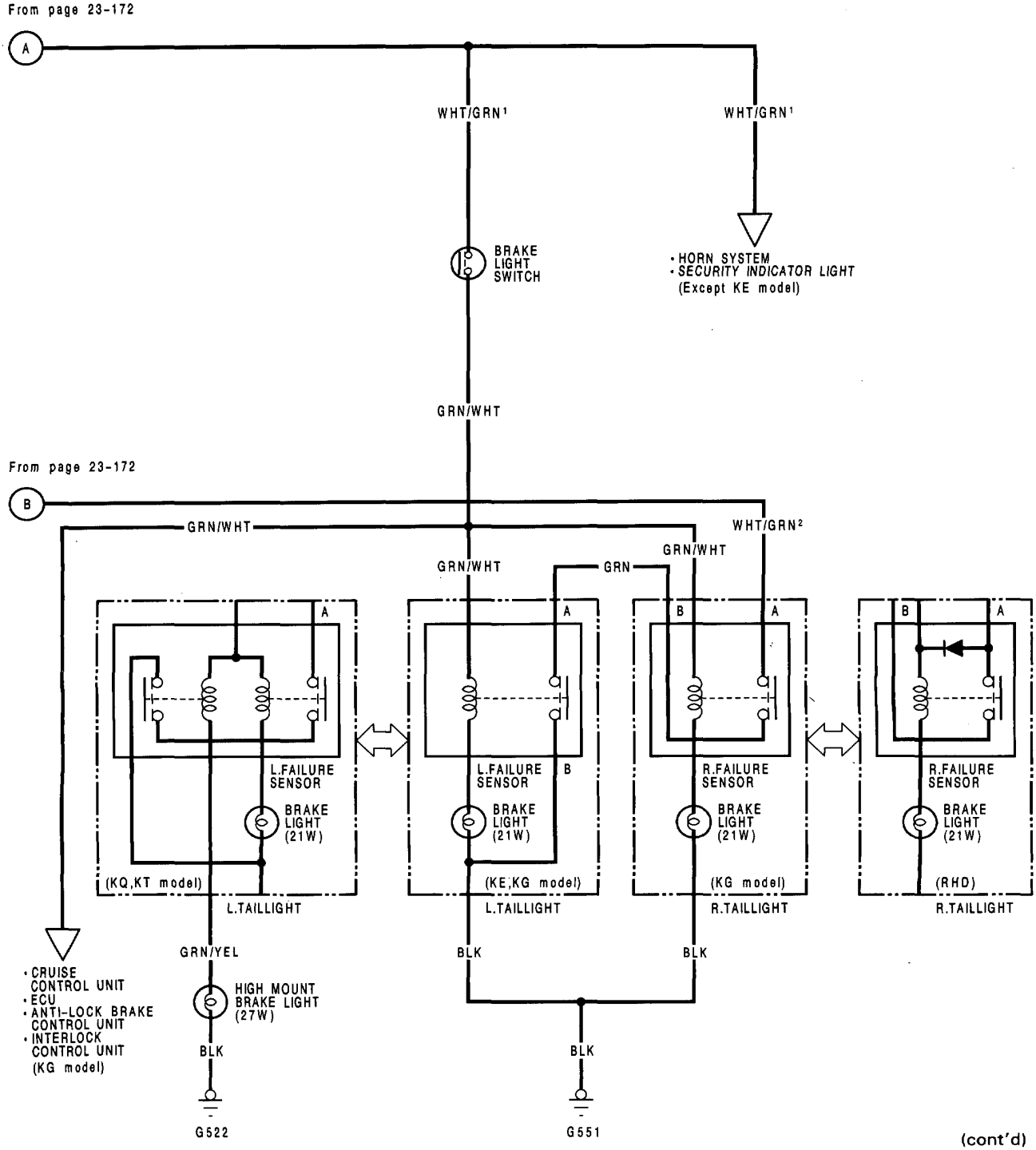
Safety Indicator

Circuit Diagram



cardiagn.com

RHD and KG model:

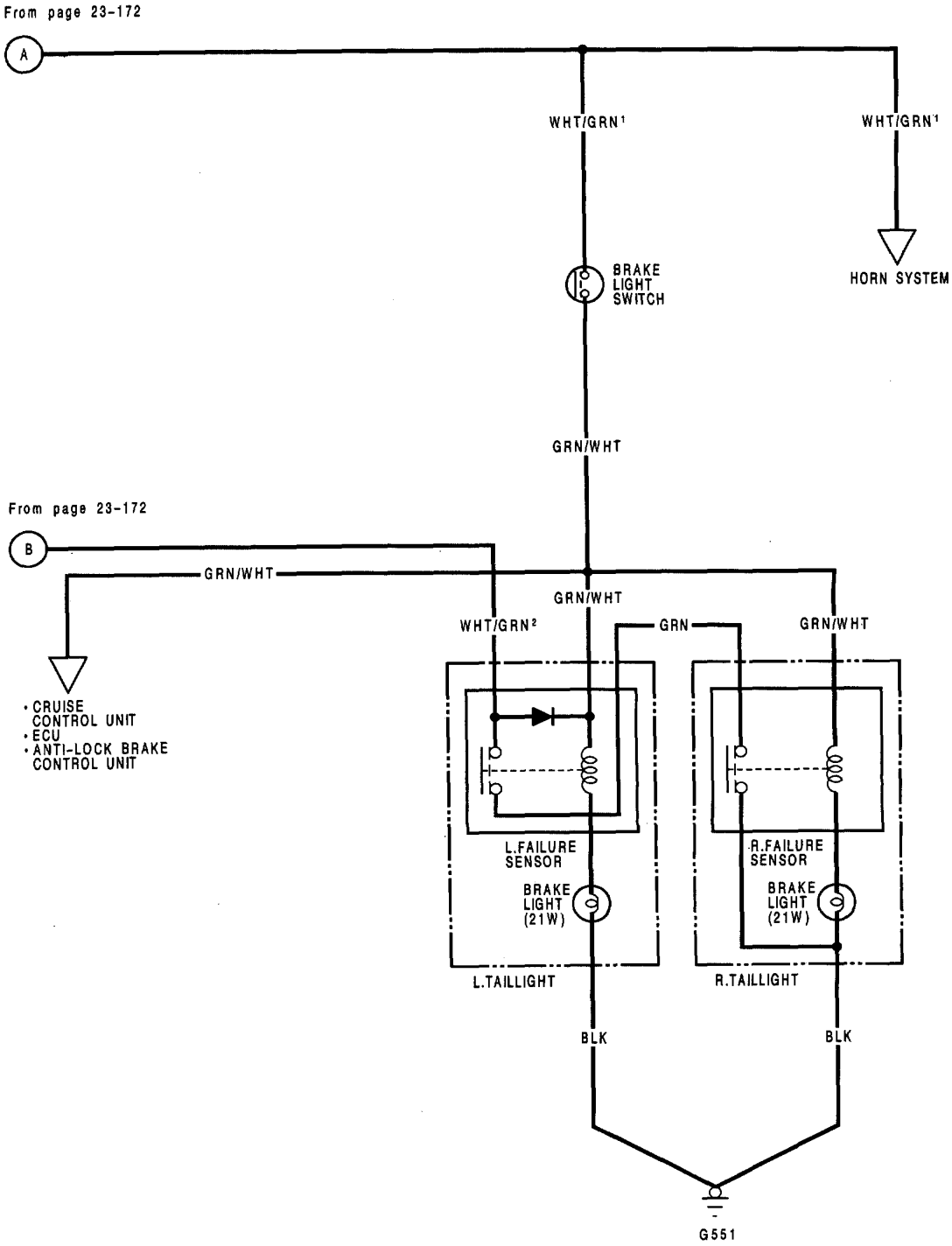


(cont'd)

cardiagn.com

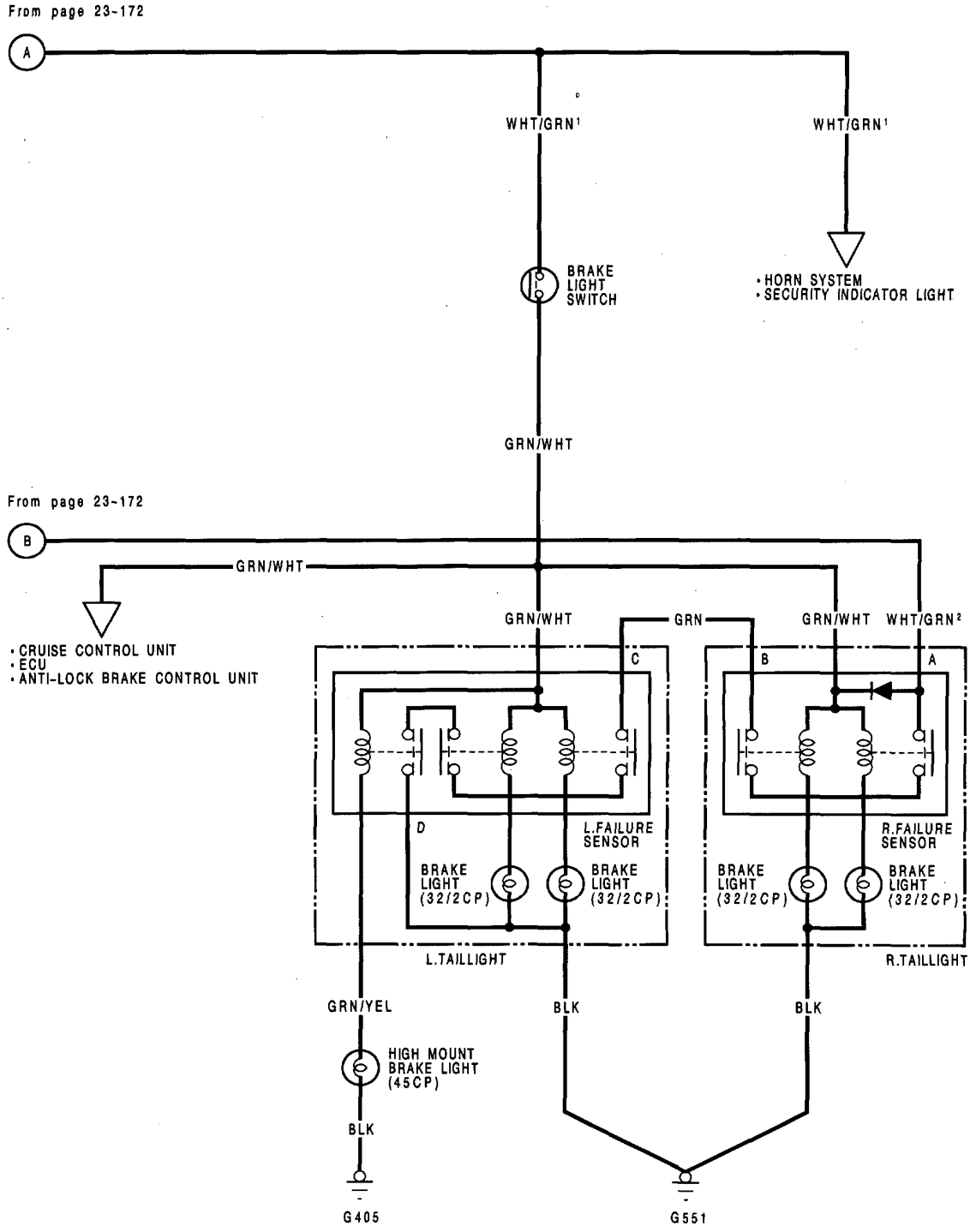
Circuit Diagram (cont'd)

LHD (Except KG, KY model):



cardiagn.com

KY model:



cardiagn.com

Safety Indicator

Description

Safety Indicator System:
Bulbs are used to indicator when the trunk lid or a door is not fully closed, or when a brake lights is faulty, the bulbs will remain ON for about 2 seconds after the ignition switch has been turned ON to show that the system circuit is functioning.

Brake Light Bulb Failure Indicator: European model
If all brake light bulbs are OK, the indicator light stays off because the WHT/GRN wire is constantly being grounded by the two brake light failure sensors connected in series. With the brake light off, the ground is provided through the diode, the failure sensor relay coil and bulb filaments to ground. With the brake light on, all 2 relays, (1 in the left sensor, 1 in the right sensor) connected in series, supply ground. If any of the 2 bulbs is not working, the chain is broken and the WHT/GRN wire is not being grounded. The indicator light comes on.

Brake light Bulb Failure Indicator: KQ, KT models
If all brake light bulbs are OK, the indicator light stays off because the WHT/GRN wire is constantly being grounded by the two brake light failure sensors connected in series. With the brake light off, the ground is provided through the diode, the failure sensor relay coil and bulb filaments to ground. With the brake light on, all 3 relays, (2 in the left sensor, 1 in the right sensor) connected in series, supply ground. If any of the 3 bulbs is not working, the chain is broken and the WHT/GRN wire is not being grounded. The indicator light comes on.

Brake Light Bulb Failure Indicator: KY model
If all brake light bulbs are OK, the indicator light stays off because the WHT/GRN wire is constantly being grounded by the two brake light failure sensors connected in series. With the brake light off, the ground is provided through the diode, the failure sensor relay coil and bulb filaments to ground. With the brake light on, all 5 relays, (3 in the left sensor, 2 in the right sensor) connected in series, supply ground. If any of the 5 bulbs is not working, the chain is broken and the WHT/GRN wire is not being grounded. The indicator light comes on.

Brake Light Circuit Failure Indicator: KG model
When the ignition switch is turned ON, the brake system light stays on.
When the brake pedal is depressed once, the brake system light should go out. If there is defect in the brake system (blown fuse, faulty brake light switch, open or short circuit and blown bulbs), the brake system light stays on with the brake pedal operated.

cardiagn.com

Safety Indicator

Troubleshooting

NOTE: The numbers in the table show the troubleshooting sequence.

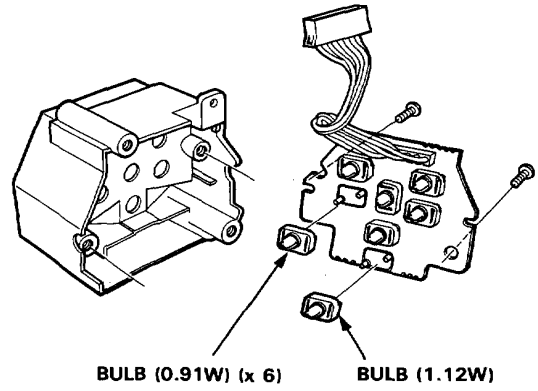
Item to be inspected / Symptom	Blown * (7.5 A) fuse (in the under-dash fuse box)	Blown No. 57 (15 A) fuse (in the under-hood fuse/relay box)	Safety indicator input test	Blown bulb	Brake light failure sensor	Door switch	Trunk latch switch	Poor ground	Open circuit in wires or loose or disconnected terminals
No indicators operate.	1		2					G521 [G402]	YEL
Indicator panel illumination not lit with lighting switch ON.				1					RED/BLK or RED
Indicator lights fail to come on when ignition switch is turned to ON.			1						
Door warning lights not on with doors open.			2			1			GRN/BLU GRN/RED[1] GRN/YEL or GRN/WHT
Trunk warning light not on with trunk lid open.		1	3				2		GRN/BLK
Brake Indicator light not on with blown brake light bulb.			1						WHT/GRN or GRN
Brake Indicator light remains on with good brake light bulbs.			2		1			G551	

* { No. 13 (7.5 A): LHD [ ]: RHD
  { No. 17 (7.5 A): RHD

Bulb Replacement

Remove the safety indicator assembly from the gauge housing (see page 23-150).

Remove the 2 screws, then replace the bad bulb.



cardiagn.com

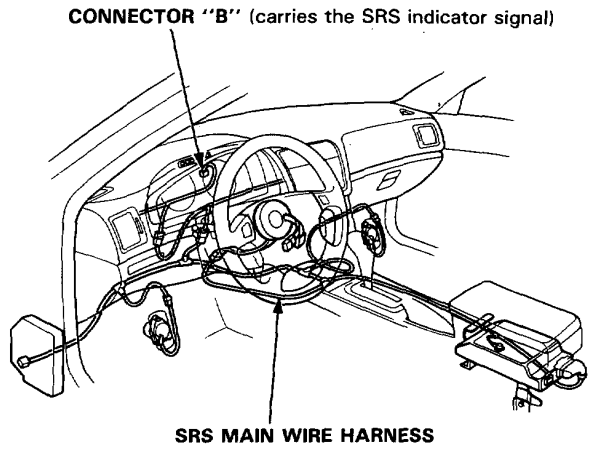
Safety Indicator

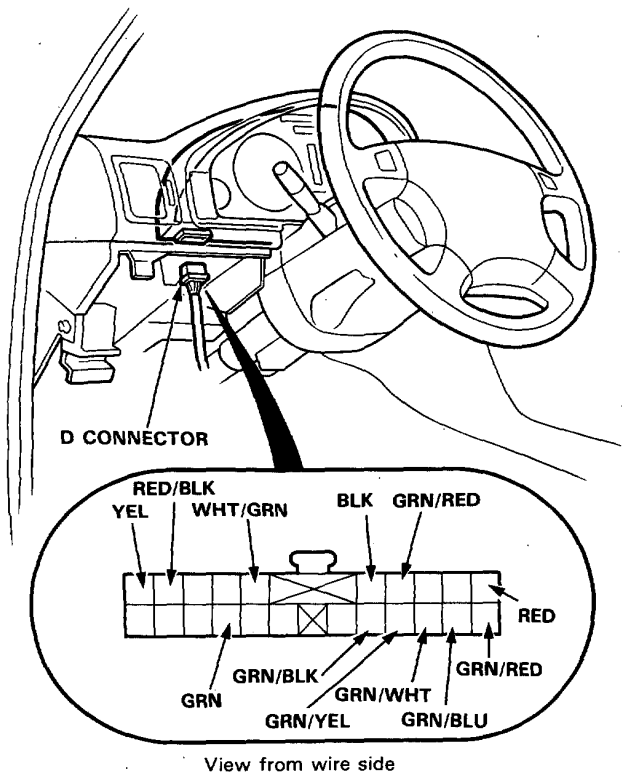
Indicator Input Test

CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an opencircuit or damage to the wiring.**
- **After installation of the gauge assembly, recheck the operation of the SRS indicator light.**

Remove the dashboard lower panel. Disconnect the D connector (22-P) from the gauge assembly (See page 23-148). Make the following input tests at the harness pins. If all tests prove OK, yet the indicator still fails to work, replace the safety indicator assembly.





View from wire side

cardiagn.com

No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLK	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor gound (G251, 301, 302) • An open in the wire.
2	YEL	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 13 (15 A) fuse. • An open in the wire.
3	WHT/GRN	Brake pedal pushed.	Check for continuity to ground: should be continuity with the pedal pushed.	• Blown No. 39 (20 A) fuse. • Faulty brake light switch. • Blown brake light bulbs. • Faulty brake light failure sensors. • Poor ground (G452). • An open in the WHT/GRN or GRN/WHT wire.
4	GRN/BLK	Trunk lid opened.	Check for continuity to ground: should be continuity. NOTE: before testing, remove No. 57 (15 A) fuse.	• Faulty trunk latch switch. • An open in the wire.
5	RED/BLK and RED	Lighting switch ON and dashlight brightness control dial in full bright.	Check for voltage between RED/BLK (+) and RED (−) terminals: should be battery voltage.	• Faulty dashlight brightness control system. • An open in the wire.
6	GRN/BLU	Driver's door open.	Check for continuity to ground: should be continuity. NOTE: Before testing, remove No. 57 (15 A) fuse.	• Faulty door switch. • An open in the wire.
	GRN/RED[1]	R. Front door open.		
	GRN/YEL	L. Rear door open.		
	GRN/WHT	R. Rear door open		
7	GRN/RED[2]	Ignition switch ON.	Attach to ground: brake system light in the gauge should come on.	• Faulty safety indicator circuit. • Blown bulb. • An open in the wire.

KG model:

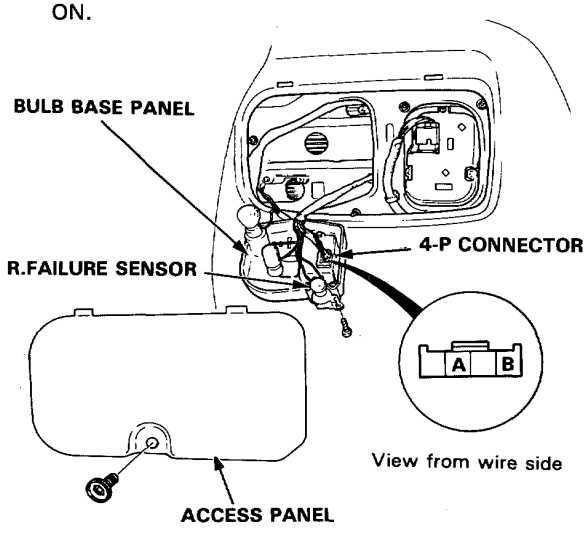
8	GRN	With brake pedal released, ignition switch OFF to ON.	Check for continuity in both directions between the GRN and BLK terminals: should be continuity in only one direction as the ignition switch is turned ON, then no continuity in both directions with brake pedal pushed.	• Faulty brake light circuit failure sensor.

cardiagn.com

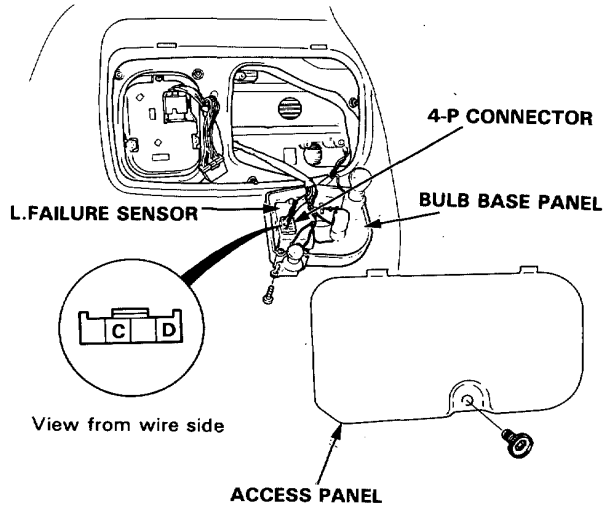
Safety Indicator

Brake Light Failure Sensor Test (KE and KG models)

1. First make sure the brake lights come on when the brake pedal is pressed.
   - If all the brake lights come on, go to step 2.
   - If one of the brake lights does not come on, check whether the bulb is blown. If the bulb is OK, go to step 2.
   - If none of the brake lights come on, check the brake light circuit (See page 23-243).
2. Open the trunk lid and remove the access panel to the right taillight. Remove the screw, then open the bulb base panel. Make sure the BRAKE LAMP of the safety indicator does not come on when the **A**(WHT/GRN) wire of the 4-P connector is grounded and the ignition switch is turned from OFF to ON.



   - If the BRAKE LAMP comes on, check for an open in the **A**(WHT/GRN) wire between the safety indicator and the right failure sensor.
   - If the BRAKE LAMP does not come on, go to step 3.
3. Make sure the BRAKE LAMP does not come on when the ignition switch is turned from OFF to ON with the **B**(GRN) wire of the 4-P connector grounded and the brake pedal pressed.
   - If the BRAKE LAMP comes on, replace the right failure sensor.
   - If the BRAKE LAMP does not come on, go to step 4.
4. Remove the access panel to the left taillight. Remove the screw, then open the bulb base panel. Make sure the BRAKE LAMP does not come on when the ignition switch is turned from OFF to ON with the **C**(GRN) wire of the 4-P connector grounded and the brake pedal pressed.

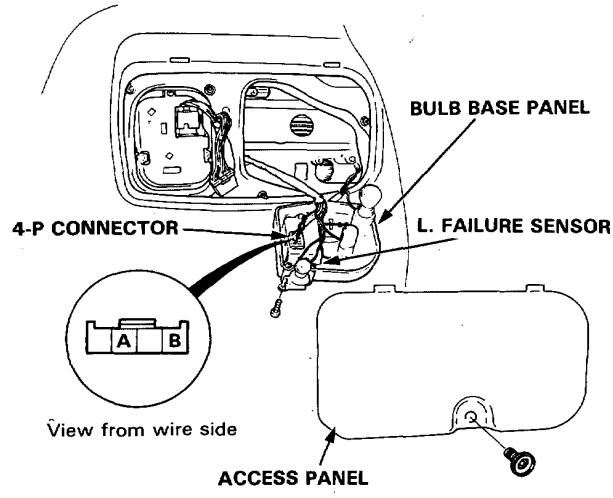


   - If the BRAKE LAMP comes on, there is an open in the **C**(GRN) wire between the left failure sensor and the right failure sensor.
   - If the BRAKE LAMP does not come on, go to step 5.
5. Make sure the BRAKE LAMP does not come on when the ignition switch is turned from OFF to ON with the **D**(BLK) wire of the 4-P connector grounded and the brake pedal pressed.
   - If the BRAKE LAMP comes on, replace the left failure sensor.
   - If the BRAKE LAMP does not come on, check for an open in the **D**(BLK) wire between the left failure sensor and ground, and check for a poor ground at G551.

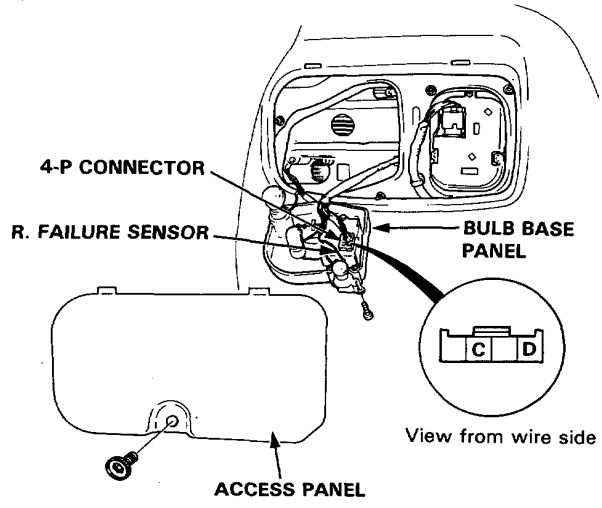
cardiagn.com

Brake Light Failure Sensor Test (KF, KS and KX models)

1. First make sure the brake lights come on when the brake pedal is pressed.
   - If all the brake lights come on, go to step 2.
   - If one of the brake lights does not come on, check whether the bulb is blown. If the bulb is OK, go to step 2.
   - If none of the brake lights come on, check the brake light circuit (See page 23-244).
2. Open the trunk lid and remove the access panel to the left taillight. Remove the screw, then open the bulb base panel. Make sure the BRAKE LAMP of the safety indicator does not come on when the **A**(WHT/GRN) wire of the 4-P connector is grounded and the ignition switch is turned from OFF to ON.



   - If the BRAKE LAMP comes on, check for an open in the **A**(WHT/GRN) wire between the safety indicator and the left failure sensor.
   - If the BRAKE LAMP does not come on, go to step 3.
3. Make sure the BRAKE LAMP does not come on when the ignition switch is turned from OFF to ON with the **B**(GRN) wire of the 4-P connector grounded and the brake pedal pressed.
   - If the BRAKE LAMP comes on, replace the left failure sensor.
   - If the BRAKE LAMP does not come on, go to step 4.
4. Remove the access panel to the right taillight. Remove the screw, then open the bulb base panel. Make sure the BRAKE LAMP does not come on when the ignition switch is turned from OFF to ON with the **C**(GRN) wire of the 4-P connector grounded and the brake pedal pressed.



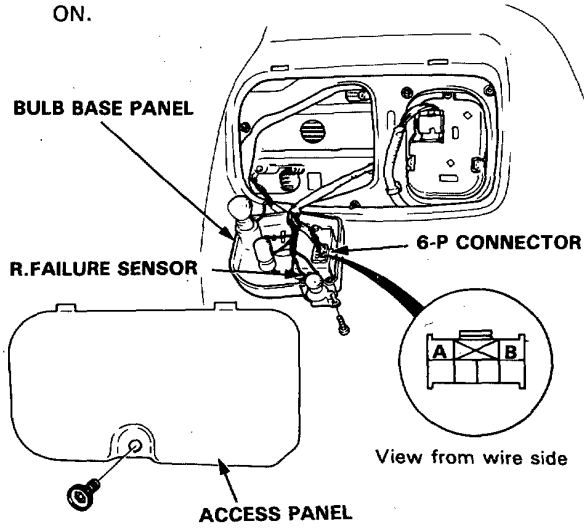
   - If the BRAKE LAMP comes on, there is an open in the **C**(GRN) wire between the right failure sensor and the right failure sensor.
   - If the BRAKE LAMP does not come on, go to step 5.
5. Make sure the BRAKE LAMP does not come on when the ignition switch is turned from OFF to ON with the **D**(BLK) wire of the 4-P connector grounded and the brake pedal pressed.
   - If the BRAKE LAMP comes on, replace the right failure sensor.
   - If the BRAKE LAMP does not come on, check for an open in the **D**(BLK) wire between the left failure sensor and ground, and check for a poor ground at G551.

cardiagn.com

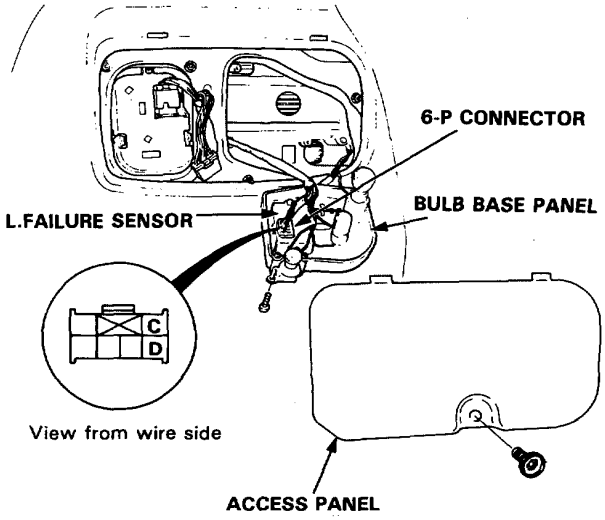
Safety Indicator

Brake Light Failure Sensor Test (KY model)

1. First make sure the brake lights come on when the brake pedal is pressed.
   - If all the brake lights come on, go to step 2.
   - If one of the brake lights does not come on, check whether the bulb is blown. If the bulb is OK, go to step 2.
   - If none of the brake lights come on, check the brake light circuit (See page 23-245).
2. Open the trunk lid and remove the access panel to the right taillight. Remove the screw, then open the bulb base panel. Make sure the BRAKE LAMP of the safety indicator does not come on when the **A**(WHT/GRN) wire of the 6-P connector is grounded and the ignition switch is turned from OFF to ON.



   - If the BRAKE LAMP comes on, check for an open in the **A**(WHT/GRN) wire between the safety indicator and the right failure sensor.
   - If the BRAKE LAMP does not come on, go to step 3.
3. Make sure the BRAKE LAMP does not come on when the ignition switch is turned from OFF to ON with the **B**(GRN) wire of the 6-P connector grounded and the brake pedal pressed.
   - If the BRAKE LAMP comes on, replace the right failure sensor.
   - If the BRAKE LAMP does not come on, go to step 4.
4. Remove the access panel to the left taillight. Remove the screw, then open the bulb base panel. Make sure the BRAKE LAMP does not come on when the ignition switch is turned from OFF to ON with the **C**(GRN) wire of the 6-P connector grounded and the brake pedal pressed.

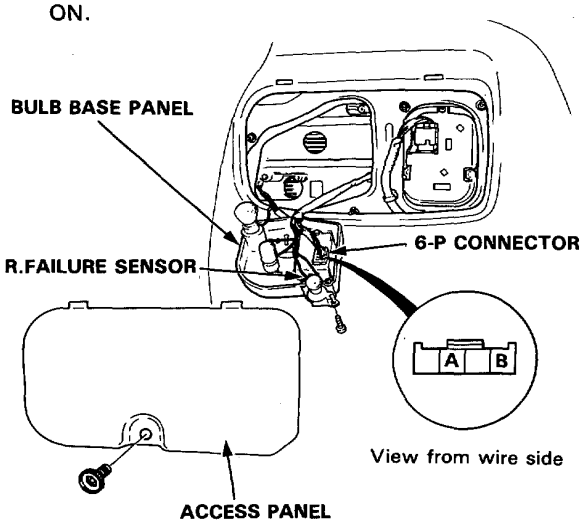


   - If the BRAKE LAMP comes on, there is an open in the **C**(GRN) wire between the left failure sensor and the right failure sensor.
   - If the BRAKE LAMP does not come on, go to step 5.
5. Make sure the BRAKE LAMP does not come on when the ignition switch is turned from OFF to ON with the **D**(BLK) wire of the 6-P connector grounded and the brake pedal pressed.
   - If the BRAKE LAMP comes on, replace the left failure sensor.
   - If the BRAKE LAMP does not come on, check for an open in the **D**(BLK) wire between the left failure sensor and ground, and check for a poor ground at G551.

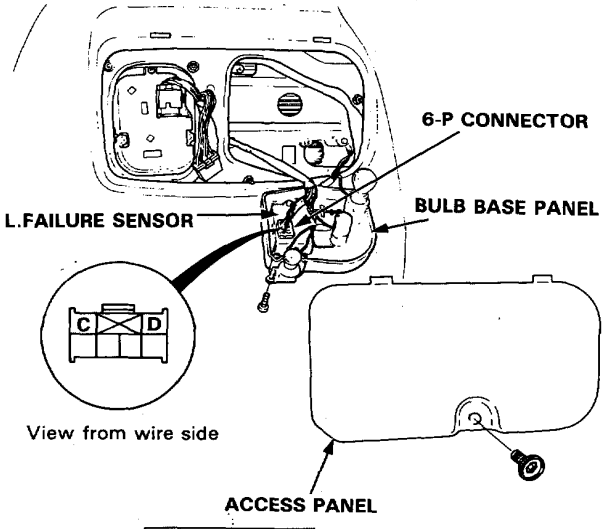
cardiagn.com

Brake Light Failure Sensor Test (KQ and KT models)

1. First make sure the brake lights come on when the brake pedal is pressed.
   - If all the brake lights come on, go to step 2.
   - If one of the brake lights does not come on, check whether the bulb is blown. If the bulb is OK, go to step 2.
   - If none of the brake lights come on, check the brake light circuit (See page 23-243).
2. Open the trunk lid and remove the access panel to the right taillight. Remove the screw, then open the bulb base panel. Make sure the BRAKE LAMP of the safety indicator does not come on when the **A**(WHT/GRN) wire of the 4-P connector is grounded and the ignition switch is turned from OFF to ON.



   - If the BRAKE LAMP comes on, check for an open in the **A**(WHT/GRN) wire between the safety indicator and the right failure sensor.
   - If the BRAKE LAMP does not come on, go to step 3.
3. Make sure the BRAKE LAMP does not come on when the ignition switch is turned from OFF to ON with the **B**(GRN) wire of the 4-P connector grounded and the brake pedal pressed.
   - If the BRAKE LAMP comes on, replace the right failure sensor.
   - If the BRAKE LAMP does not come on, go to step 4.
4. Remove the access panel to the left taillight. Remove the screw, then open the bulb base panel. Make sure the BRAKE LAMP does not come on when the ignition switch is turned from OFF to ON with the **C**(GRN) wire of the 6-P connector grounded and the brake pedal pressed.

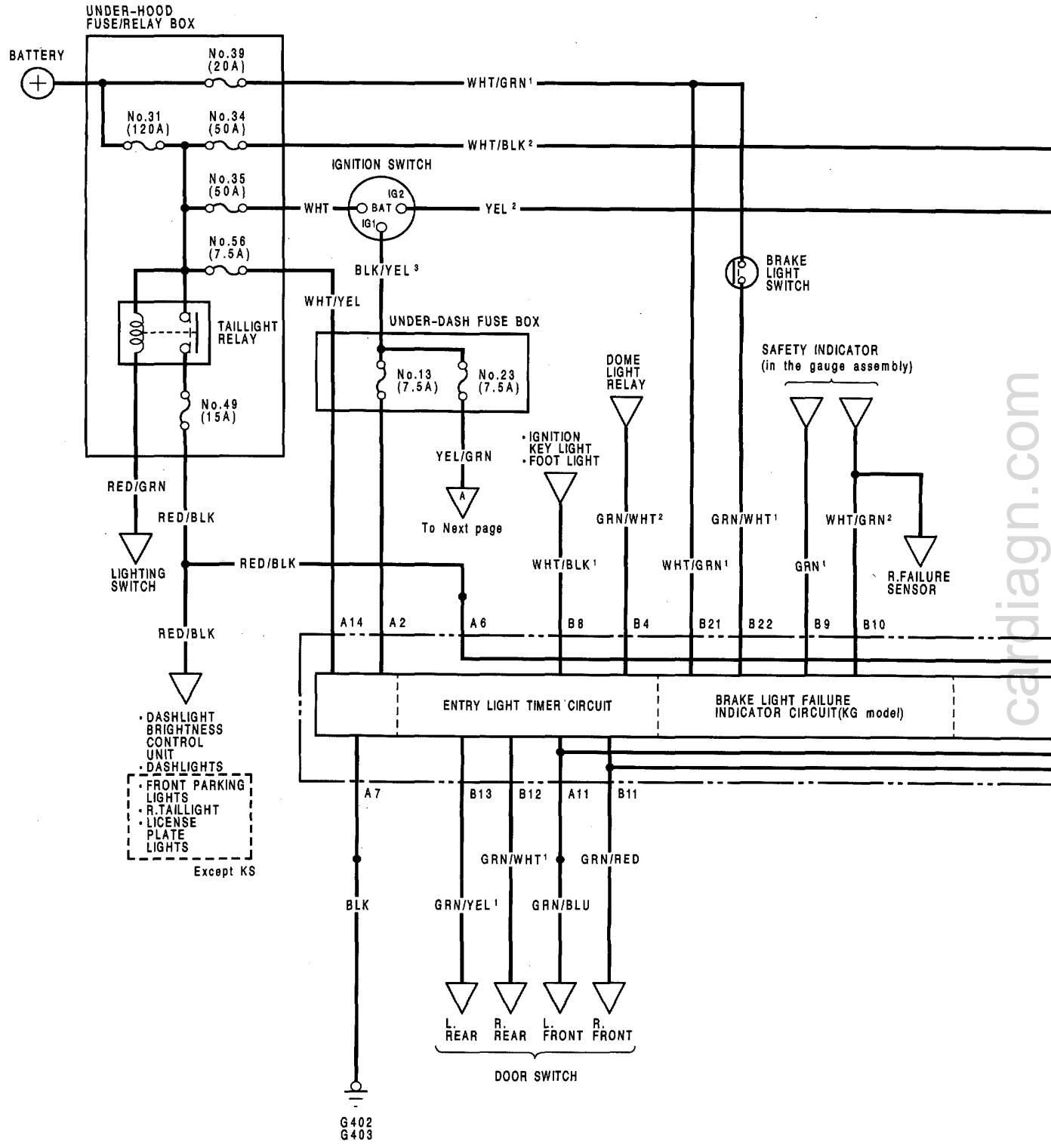


   - If the BRAKE LAMP comes on, there is an open in the **C**(GRN) wire between the left failure sensor and the right failure sensor.
   - If the BRAKE LAMP does not come on, go to step 5.
5. Make sure the BRAKE LAMP does not come on when the ignition switch is turned from OFF to ON with the **D**(BLK) wire of the 6-P connector grounded and the brake pedal pressed.
   - If the BRAKE LAMP comes on, replace the left failure sensor.
   - If the BRAKE LAMP does not come on, check for an open in the **D**(BLK) wire between the left failure sensor and ground, and check for a poor ground at G551.

cardiagn.com

Integrated Control Unit (LHD)

Circuit Diagram (European model)

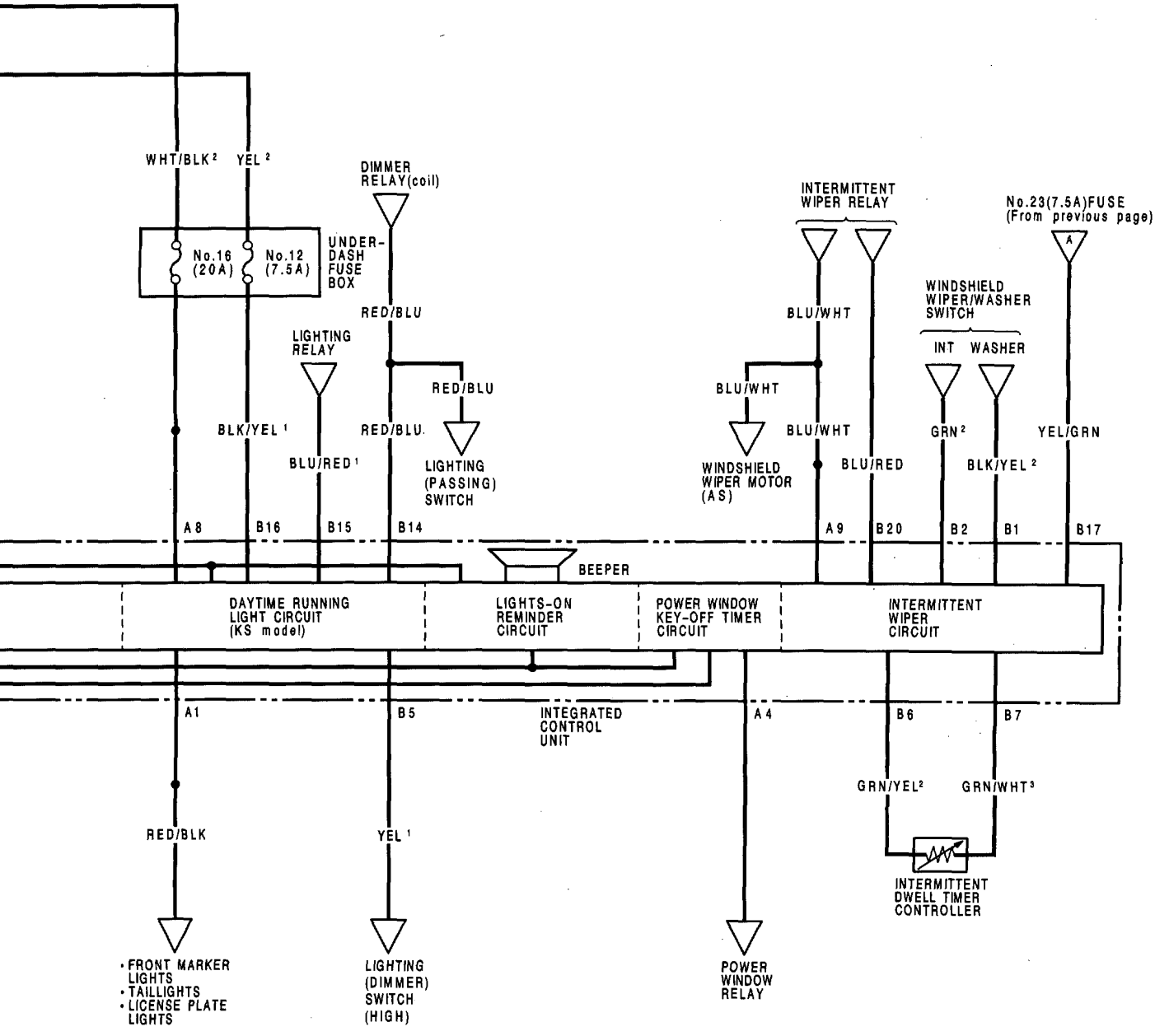


cardiagn.com

Description:

A multi-function control unit located on the left side kick panel integrates the functions of the entry light timer, brake light failure indicator (KG model), daytime running light control (KS model), lights-on reminder, power window key-off timer and intermittent wiper onto one circuit board, sharing common circuit functions.

NOTE: Several different wires have the same color. They have been given a number suffix to distinguish then (for example GRN/YEL[1] and GRN/YEL[2] are not the same).



cardiagn.com

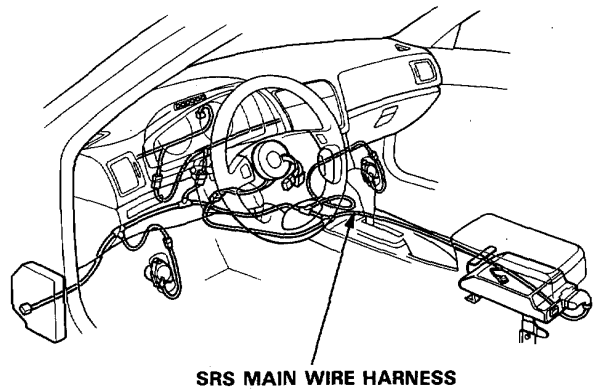
Integrated Control Unit (LHD)

Input Test (European model)

CAUTION:

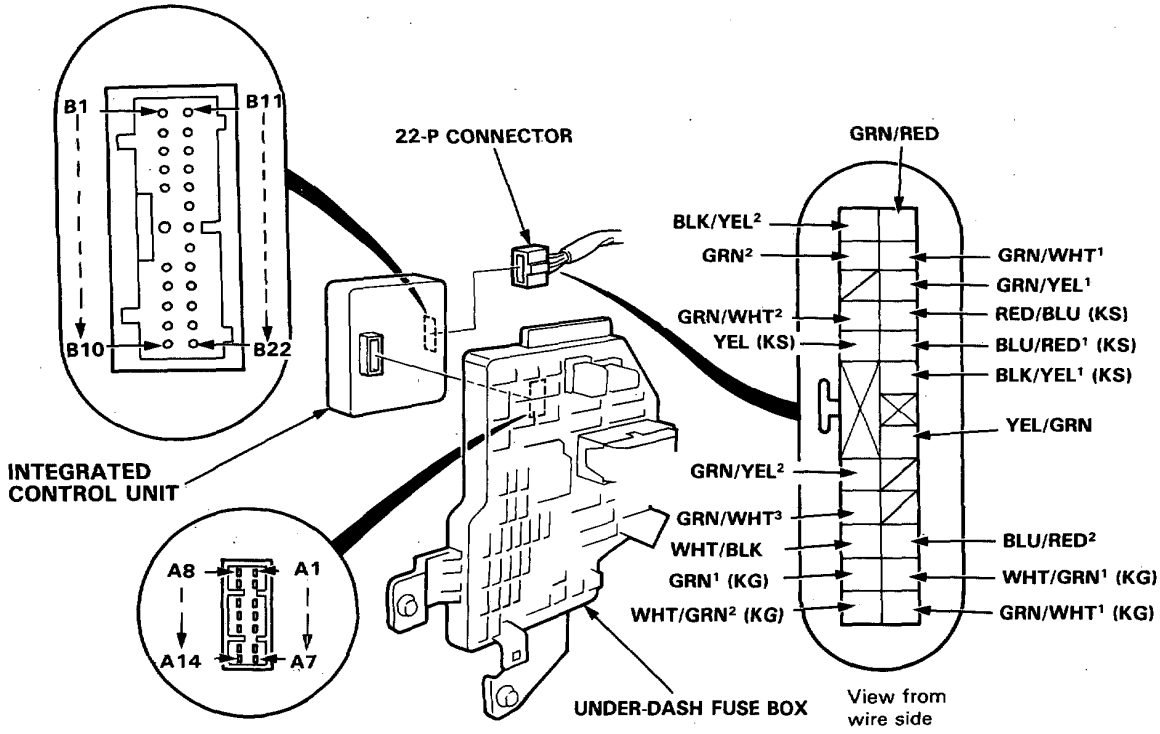
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

Remove the left kick panel cover, and under-dash fuse box, then disconnect the 22-P connector from the integrated control unit.
Remove the integrated control unit from the under-dash fuse box.

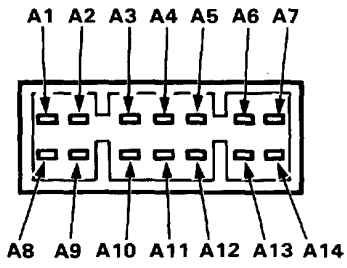


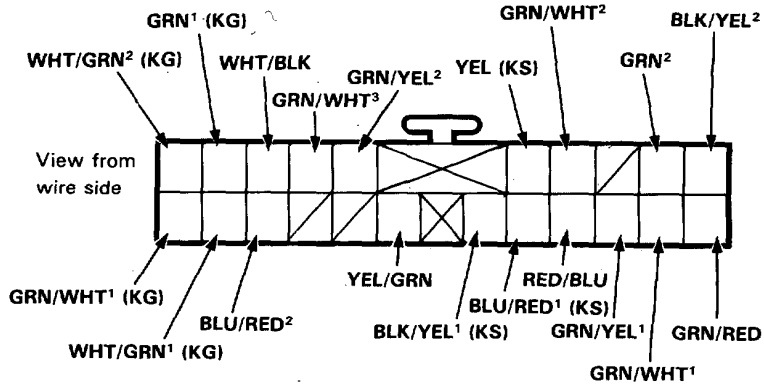
Make the following input tests at the connector terminals. If all tests prove OK, yet the system still falls to work, replace the control unit.

NOTE: Several different wires have the same color. They have been given a number suffix to distinguish them (for example WHT/BLK[1] and WHT/BLK[2] are not the same).



cardiagn.com





All Systems:

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	A7	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor ground (G402, G403). • An open in the wire.
2	A14	Under all conditions.	Check for voltage to ground: should be battery voltage.	• Blown No. 56 (7.5A) fuse. • An open in the wire.
3	A2	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown bulb or No. 13 (7.5A) fuse. • An open in the wire.

Entry Light Timer System:

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	A11	Driver's door opened.	Check for continuity to ground: should be continuity. NOTE: Before testing, remove No. 57 (15A) fuse.	• Faulty left door switch. • An open in the wire.
	GRN/RED	R. Front door opened.		
	GRN/YEL¹	L. Rear door opened.		
	GRN/WHT¹	R. Rear door opened.		
2	WHT/BLK¹	Under all conditions.	Connect to ground: foot light and ignition key light should come on.	• Blown bulb. • An open in the wire.
3	GRN/WHT²	Dome light switch at MIDDLE position.	Connect to ground: dome lights, front and rear courtesy lights should come on.	• Blown bulb. • Faulty dome light relay. • An open in the wire.

Lights on Reminder System:

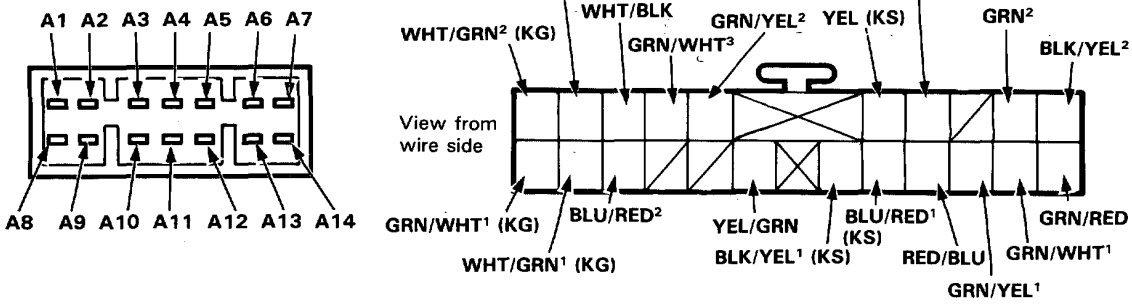
No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	A11	Driver's door opened.	Check for continuity to ground: should be continuity. NOTE: Before testing, remove No. 57 (15A) fuse.	• Faulty left door switch. • An open in the wire.
2	A6	Lighting switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 49 (15A) fuse. • Faulty lighting switch. • An open in the wire. • Faulty taillight relay.

(cont'd)

cardiagn.com

Integrated Control unit (LHD)

Input Test (European model, cont'd)



Brake Light Failure Indicator System (KG model):

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	WHT/GRN¹	Under all conditions.	Check for voltage to ground: should be battery voltage.	• Blown No. 39 (20 A) fuse. • An open in the wire.
2	WHT/GRN²	Brake pedal pushed.	Check for continuity to ground: should be continuity.	• Faulty failure sensor. • An open in the wire. • Poor ground (G551).
3	GRN¹	Ignition Switch ON.	Attach to ground: brake indicator light in the safety indicator should come on.	• Faulty safety indicator (in the gauge assembly). • An open in the wire.
4	GRN/WHT¹	Brake pedal pushed.	Check for voltage to ground: should be battery voltage.	• Faulty brake light switch. • An open in the wire.
		Brake pedal released.	Check for continuity to ground: should be continuity.	• Poor ground (G551). • An open in the wire.

Wiper System:

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	YEL/GRN BLU/RED	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 23 (7.5A) fuse. • Faulty intermittent relay. • An open in the wire.
2	GRN²	Ignition switch ON. and wiper switch INT.	Check for voltage to ground: should be battery voltage.	• Blown No. 23 (7.5 A) fuse. • Faulty wiper switch. • An open in the wire.
3	BLK/YEL²	Ignition switch ON and washer switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 23 (7.5A) fuse. • Faulty washer switch. • An open in the wire.
4	GRN/YEL² GRN/WHT³	Intermittent dwell time control ring turned.	Check for resistance between the terminals: should vary from 0 to 30,000 ohms as the ring is turned.	• Faulty intermittent dwell time controller. • An open in the wire.
5	A9	Ignition switch ON, wiper switch OFF.	Check for voltage to ground: should be battery voltage.	• Faulty wiper motor (automatic-stop circuit). • An open in the wire.

cardiagn.com

Power Window Key-off Timer System:

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	A11	Driver's door opened.	Check for continuity to ground: should be continuity. NOTE: Before testing, remove No. 57 (15A) fuse.	• Faulty door switch. • An open in the wire.
	GRN/RED	Front passenger's door opened.		
2	A4	Connect the A4 terminal to the A14 terminal.	Check window operation: Power windows should operate.	• Faulty power window relay. • Poor ground (G402, G403). • An open in the wire.

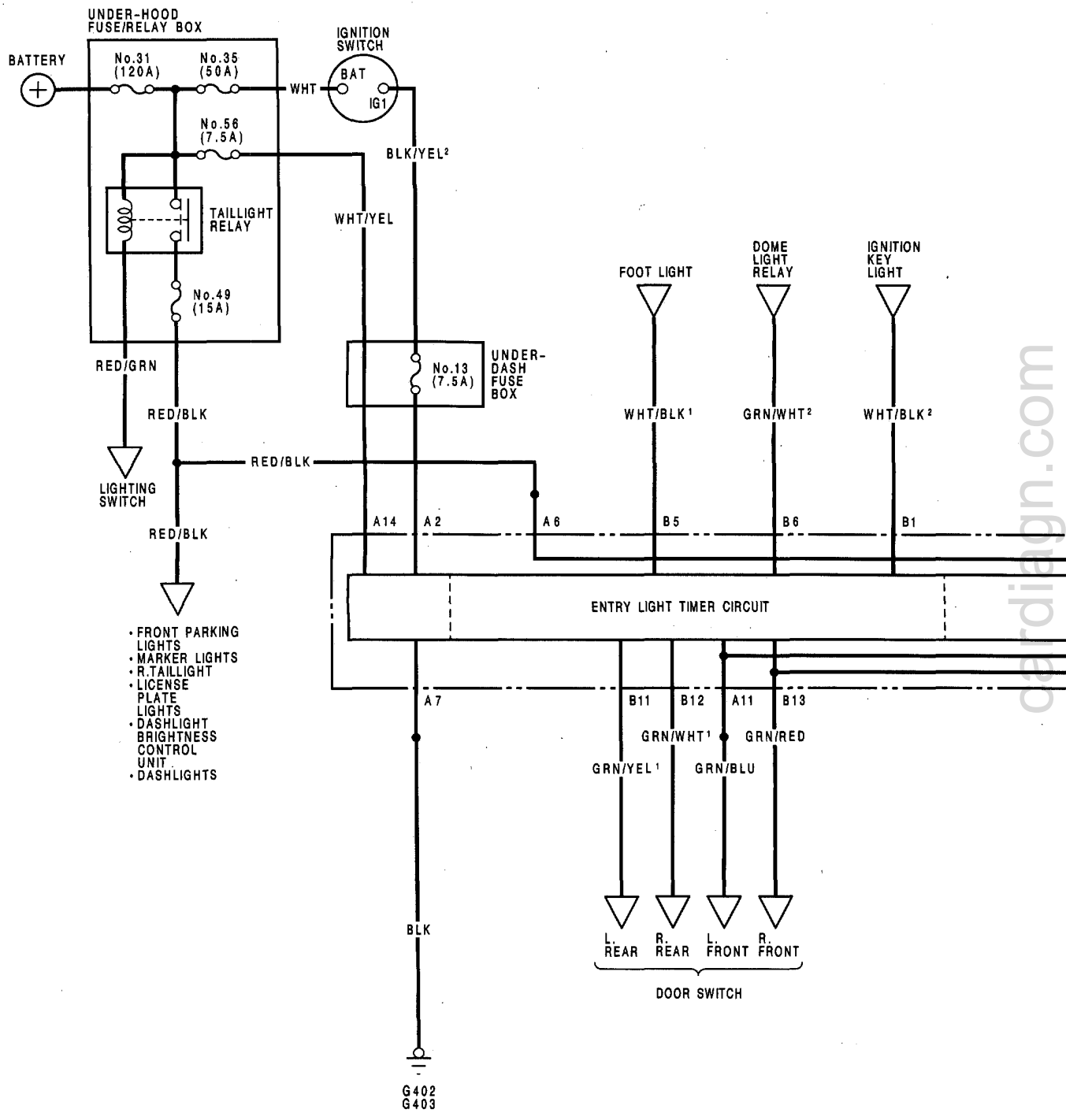
Daytime Running Light System (KS model):

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	A8	Under all conditions.	Check for voltage to ground: should be battery voltage.	• Blown No. 16 (20 A) fuse. • An open in the wire.
2	BLK/YEL[1]	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 12. (7.5 A) fuse. • An open in the wire.
3	YEL	Dimmer switch HI.	Check for continuity to ground: should be continuity.	• Faulty lighting switch. • An open in the wire. • Poor ground (G402, G403).
4	BLU/RED[1]	Under all conditions.	Check for voltage to ground: should be battery voltage.	• Faulty headlight relay. • An open in the wire.
		Lighting switch ≡D.	Headlights (LO) should come on.	• Faulty lighting switch and relay. • Blown bulb.
5	RED/BLU	Lighting switch ≡D.	Check for voltage to ground: should be battery voltage.	• Faulty dimmer relay. • An open in the wire.
		Lighting switch ≡D and passing switch ON.	Headlights (HI) should come on.	• Faulty lighting switch. • An open in the wire.
6	A6	Lighting switch ≡D or ≡DO≡.	Check for voltage to ground: should be battery voltage.	• Blown No. 49 (15 A) fuse. • Faulty taillight relay. • An open in the wire.
7	A1	Connect the A1 terminal to the A8 terminal.	Parking lights, taillights and license plate lights should come on.	• Blown bulbs. • An open in the wire.

cardiagn.com

Integrated Control unit (LHD)

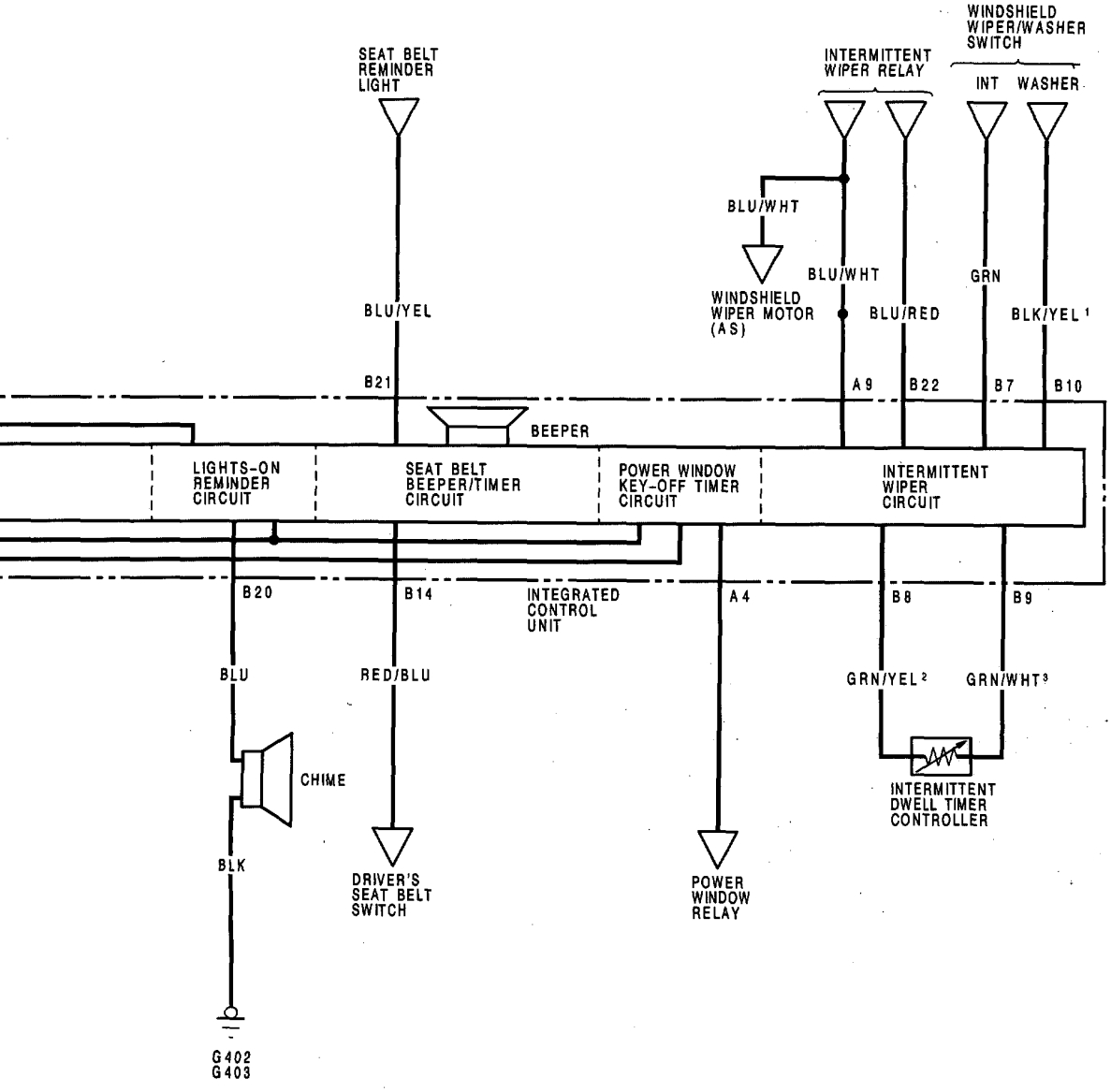
Circuit Diagram (KY model)



cardiagn.com

Description:
A multi-function control unit located on the left side kick panel integrates the functions of the entry light timer, lights-on reminder, seat belt reminder, power window key-off timer and intermittent wiper onto one circuit board, sharing common circuit functions.

NOTE: Several different wires have the same color. They have been given a number suffix to distinguish then (for example GRN/YEL[1] and GRN/YEL[2] *are not the same*).



cardiagn.com

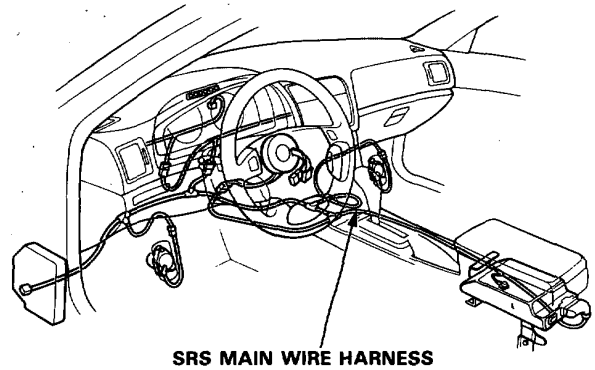
Integrated Control Unit (LHD)

Input Test (KY model)

CAUTION:

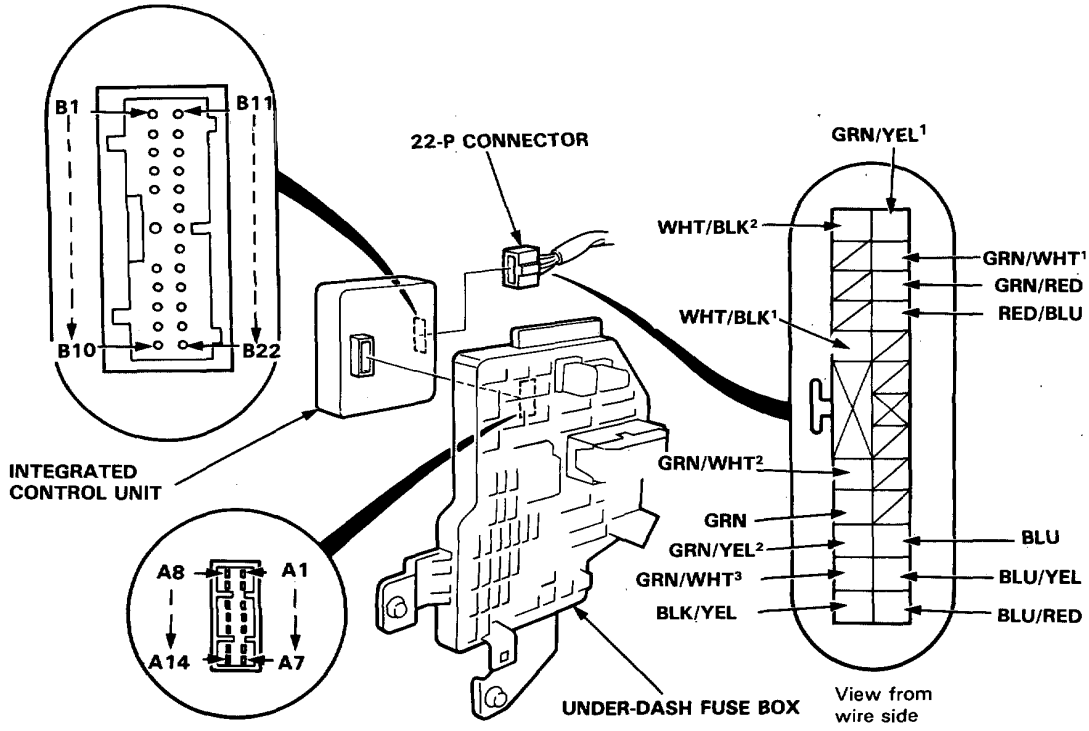
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

Remove the left kick panel cover, and under-dash fuse box, then disconnect the 22-P connector from the integrated control unit.
Remove the integrated control unit from the under-dash fuse box.

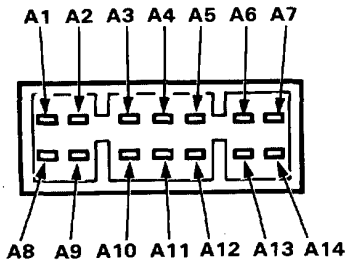


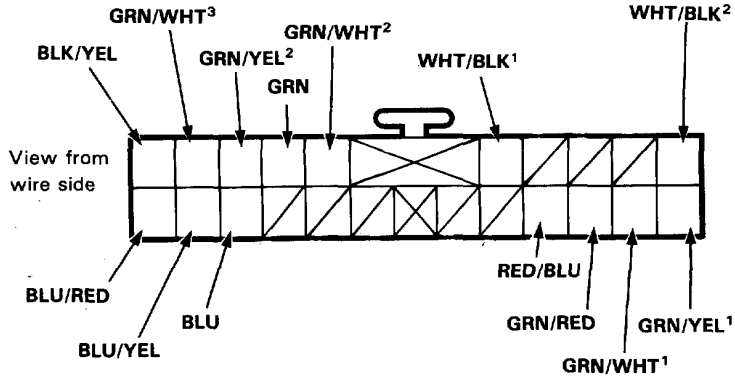
Make the following input tests at the harness pins. If all tests prove OK, yet the system still falls to work, replace the control unit.

NOTE: Several different wires have the same color. They have been given a number suffix to distinguish them (for example WHT/BLK[1] and WHT/BLK[2] are not the same).



cardiagn.com





All Systems:

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	A7	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor ground (G402, G403). • An open in the wire.
2	A14	Under all conditions.	Check for voltage to ground: should be battery voltage.	• Blown No. 56 (7.5A) fuse. • An open in the wire.
3	A2	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown bulb or No. 13 (7.5A) fuse. • An open in the wire.

Lights-on Reminder System:

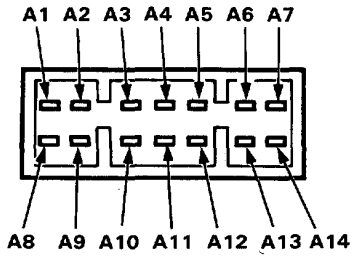
No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	A11	Driver's door opened.	Check for continuity to ground: should be continuity. NOTE: Before testing, remove No. 57 (15A) fuse.	• Faulty left door switch. • An open in the wire.
2	A6	Lighting switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 49 (15) fuse. • Faulty lighting switch. • An open in the wire. • Faulty taillight relay.
3	BLU	Connect the A14 terminal to the BLU terminal.	Check chime operation: Chime should activate each time the battery is connected.	• Faulty chime. • An open in the wire.

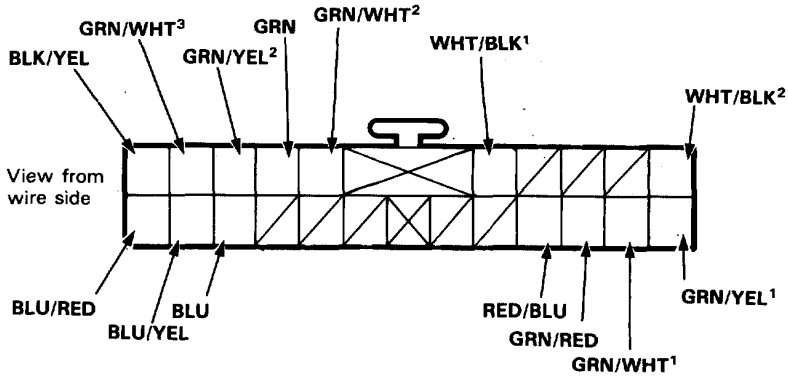
(cont'd)

cardiagn.com

Integrated Control Unit (LHD)

Input Test (KY model, cont'd)





Seat Belt Reminder System:

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLU/YEL	Ignition switch ON.	Connect to ground: seat belt reminder light should come on.	• Blown No. 13 (7.5A) fuse. • Blown bulb. • An open in the wire.
2	RED/BLU	Driver's seat belt not buckled.	Check for continuity to ground: should be continuity.	• Faulty seat belt switch. • Poor ground (G521). • An open in the wire.

Engry Light Control System:

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	A11	Driver's door opened.	Check for continuity to ground: should be continuity. NOTE: Before testing, remove No. 57 (15A) fuse.	• Faulty left door switch. • An open in the wire.
	GRN/RED	R. Front door opened.		
	GRN/YEL[1]	L. Rear door opened.		
	GRN/WHT[1]	R. Rear door opened.		
2	WHT/BLK[1]	Under all conditions.	Connect to ground: foot light should come on.	• Blown bulb. • An open in the wire.
3	WHT/BLK[2]	Under all conditions.	Connect to ground: ignition key light should come on.	• Blown bulb. • An open in the wire.
4	GRN/WHT[2]	Dome light switch at MIDDLE position.	Connect to ground: dome lights, front and rear courtesy lights should come on.	• Blown bulb. • Faulty dome light relay. • An open in the wire.

cardiagn.com

Power Window Key-off Timer System:

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	A11	Driver's door opened.	Check for continuity to ground: should be continuity. NOTE: Before testing, remove No. 57 (15A) fuse.	• Faulty door switch. • An open in the wire.
	GRN/RED	Front passenger's door opened.		
2	A4	Connect the A4 terminal to the A14 terminal.	Check window operation: Power windows should operate.	• Faulty power window relay. • Poor ground (G402, G403). • An open in the wire.

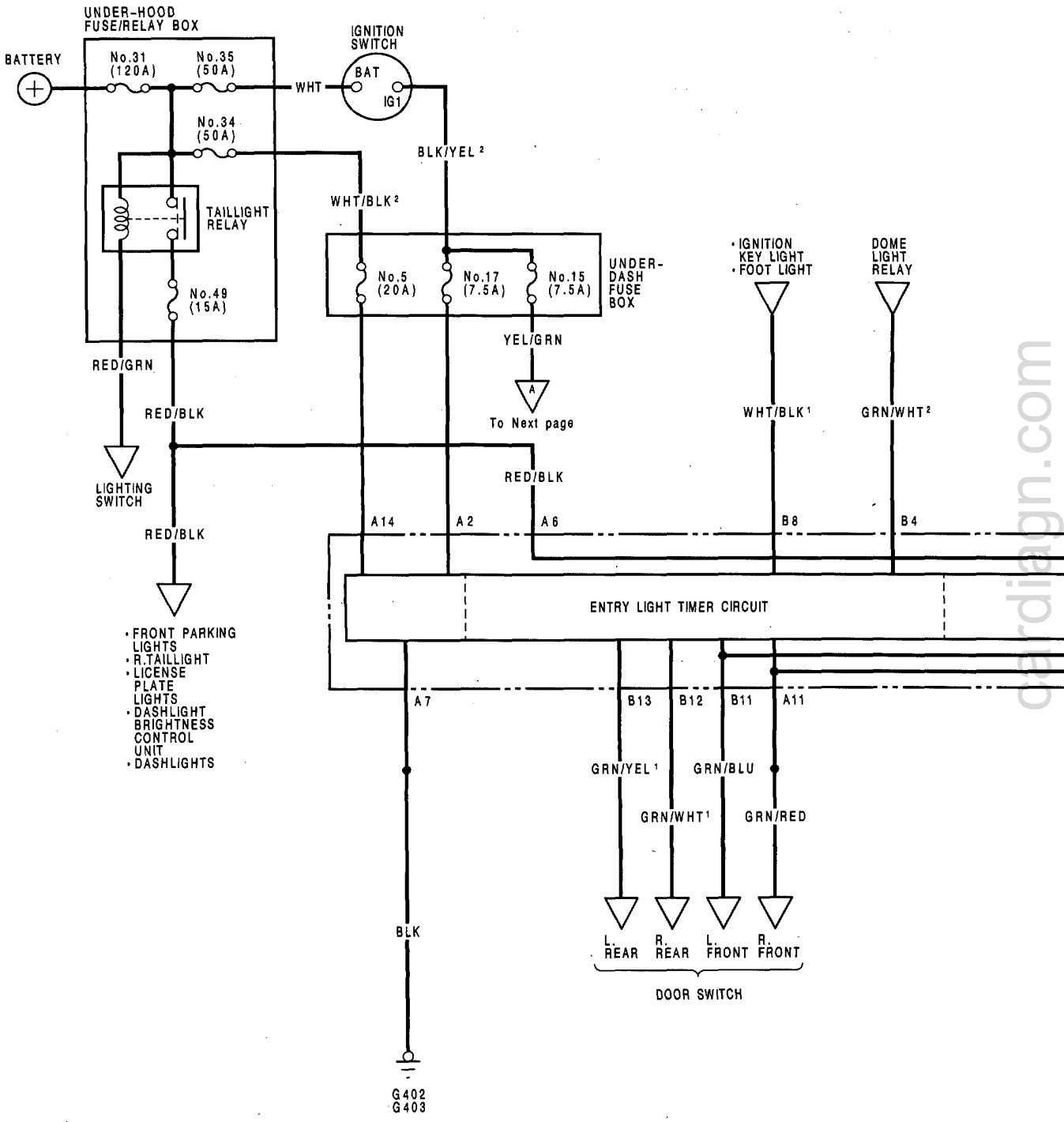
Wiper System:

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLU/RED	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 23 (7.5A) fuse. • Faulty intermittent relay. • An open in the wire.
2	GRN	Ignition switch ON. and wiper switch at INT position.	Check for voltage to ground: should be battery voltage.	• Blown No. 23 (7.5 A) fuse. • Faulty wiper switch. • An open in the wire.
3	BLK/YEL	Ignition switch ON and washer switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 23 (7.5A) fuse. • Faulty washer switch. • An open in the wire.
4	GRN/YEL[2]	Intermittent dwell time control ring turned.	Check for resistance between the terminals: should vary from 0 to 30,000 ohms as the ring is turned.	• Faulty intermittent dwell time controller. • An open in the wire.
	GRN/WHT[3]			
5	A9	Ignition switch ON, wiper switch OFF	Check for voltage to ground: should be battery voltage.	• Faulty wiper motor (automatic-stop circuit). • An open in the wire.

cardiagn.com

Integrated Control Unit (RHD)

Circuit Diagram

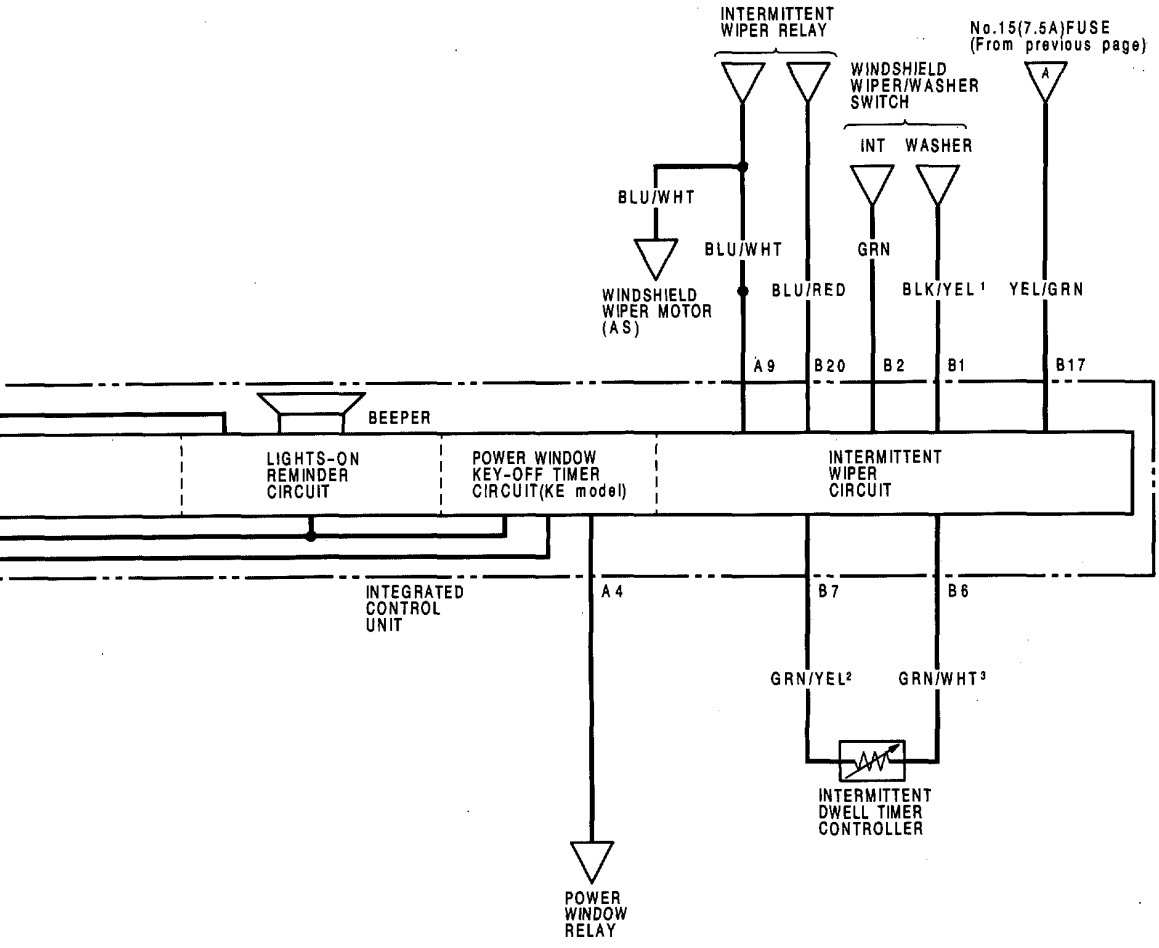


cardiagn.com

Description

A multi-function control unit located on the left side kick panel integrates the functions of the entry light timer, lights-on reminder, power window key-off timer and intermittent wiper onto one circuit board, sharing common circuit functions.

NOTE: Several different wires have the same color. They have been given a number suffix to distinguish then (for example GRN/YEL[1] and GRN/YEL[2] are not the same).



cardiagn.com

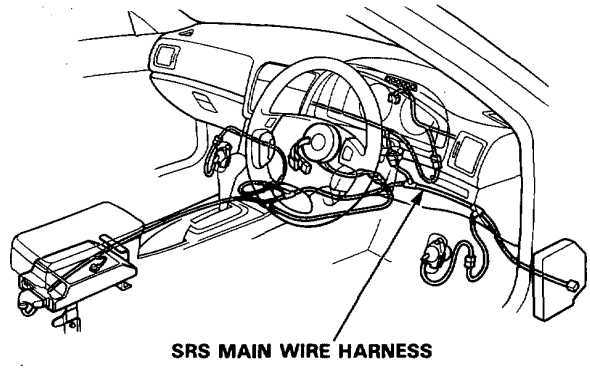
Integrated Control Unit (RHD)

Input Test

CAUTION:

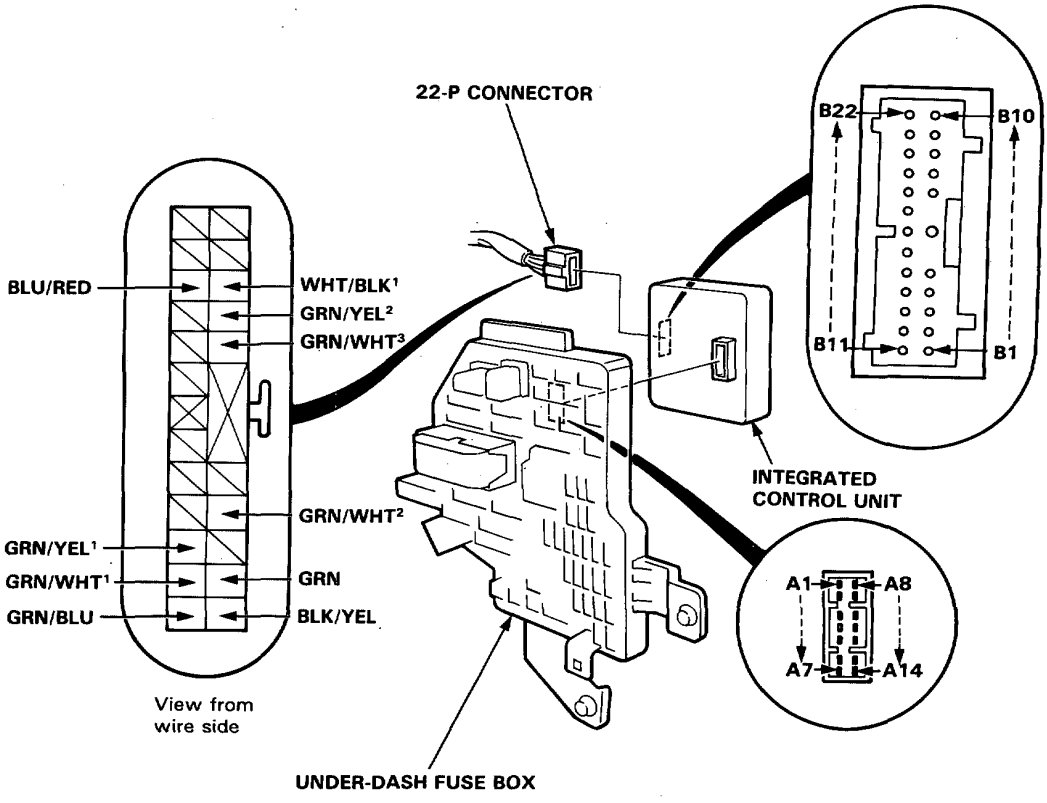
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

Remove the right kick panel cover, and under-dash fuse box, then disconnect the 22-P connector from the integrated control unit.
Remove the integrated control unit from the under-dash fuse box.

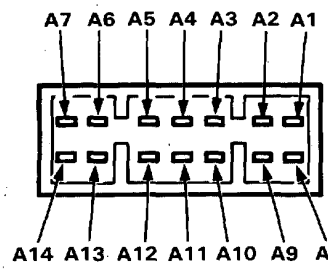


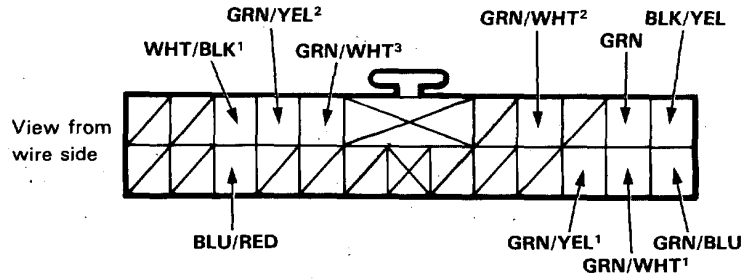
Make the following input tests at the harness pins. If all tests prove OK, yet the system still falls to work, replace the control unit.

NOTE: Several different wires have the same color. They have been given a number suffix to distinguish them (for example WHT/BLK[1] and WHT/BLK[2] are not the same).



cardiagn.com





All Systems:

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	A7	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor ground (G402, G403). • An open in the wire.
2	A14	Under all conditions.	Check for voltage to ground: should be battery voltage.	• Blown No. 5 (20A) fuse. • An open in the wire.
3	A2	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown bulb or No. 17 (7.5A) fuse. • An open in the wire.

Entry Light Timer System:

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	A11	Driver's door opened.	Check for continuity to ground: should be cotinuity. NOTE: Before testing, remove No. 57 (15A) fuse.	• Faulty left door switch. • An open in the wire.
	GRN/BLU	L. Front door opened.		
	GRN/YEL¹	L. Rear door opened.		
	GRN/WHT¹	R. Rear door opened.		
2	WHT/BLK¹	Under all conditions.	Connect to ground: foot light and ignition key light should come on.	• Blown bulb. • An open in the wire.
3	GRN/WHT²	Dome light switch at MIDDLE position.	Connect to ground: dome lights, front and rear courtesy lights should come on.	• Blown bulb. • Faulty dome light relay. • An open in the wire.

Lights-on Reminder System:

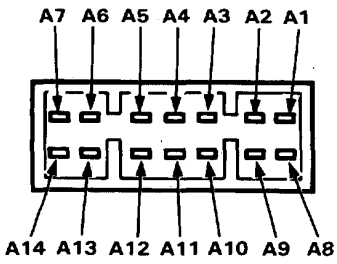
No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	A11	Driver's door opened.	Check for continuity to ground: should be continuity. NOTE: Before testing, remove No. 57 (15A) fuse.	• Faulty left door switch. • An open in the wire.
2	A6	Lighting switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 49 (15A) fuse. • Faulty lighting switch. • An open in the wire. • Faulty taillight relay.

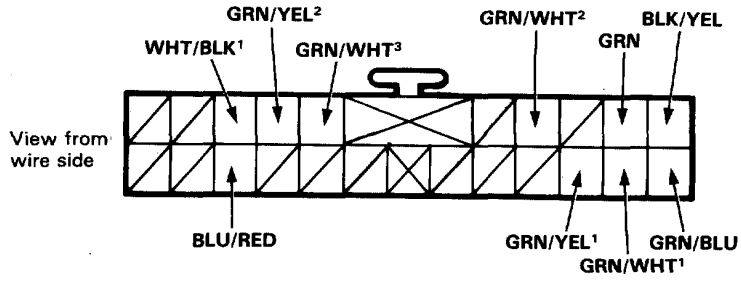
(cont'd)

cardiagn.com

Integrated Control Unit (RHD)

Input Test (cont'd)





Power Window Key-off Timer System:

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	A11	Driver's door opened.	Check for continuity to ground: should be continuity. NOTE: Before testing, remove No. 57 (15A) fuse.	• Faulty door switch. • An open in the wire.
	GRN/BLU	Front passenger's door opened.		
2	A4	Connect the A4 terminal to the A14 terminal.	Check window operation: Power windows should operate.	• Faulty power window relay. • Poor ground (G402, G403). • An open in the wire.

Wiper System:

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	YEL/GRN	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 23 (7.5A) fuse. • Faulty intermittent relay. • An open in the wire.
	BLU/RED			
2	GRN	Ignition switch ON. and wiper switch INT.	Check for voltage to ground: should be battery voltage.	• Blown No. 23 (7.5 A) fuse. • Faulty wiper switch. • An open in the wire.
3	BLK/YEL	Ignition switch ON and washer switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 23 (7.5A) fuse. • Faulty washer switch. • An open in the wire.
4	GRN/YEL²	Intermittent dwell time control ring turned.	Check for resistance between the terminals: should vary from 0 to 30,000 ohms as the ring is turned.	• Faulty intermittent dwell time controller. • An open in the wire.
	GRN/WHT³			
5	A9	Ignition switch ON, wiper switch OFF.	Check for voltage to ground: should be battery voltage.	• Faulty wiper motor (automatic-stop circuit). • An open in the wire.

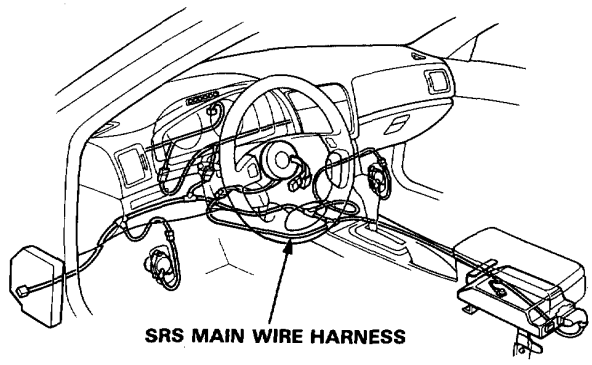
cardiagn.com



cardiagn.com

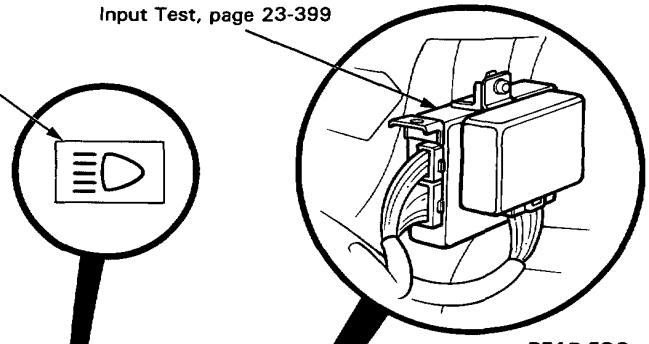
Component Location Index (LHD)

CAUTION:
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**



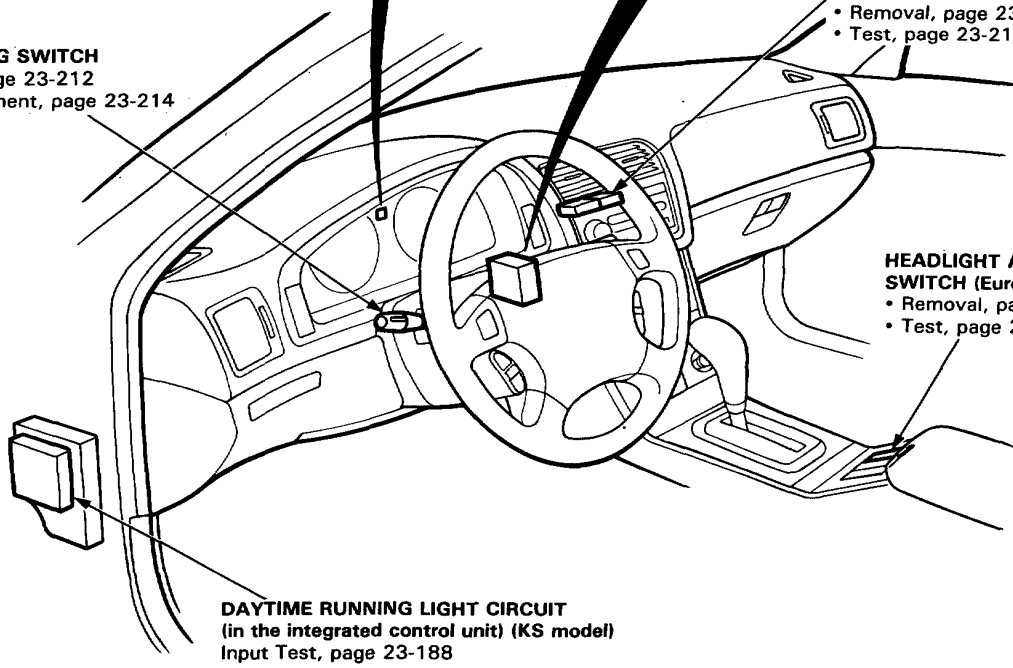
HIGH BEAM INDICATOR LIGHT
(in the gauge assembly)
Gauge assembly, page 23-146

SECURITY CONTROL UNIT
Input Test, page 23-399



REAR FOG
LIGHT SWITCH (European model)
- Removal, page 23-216
- Test, page 23-216

LIGHTING SWITCH
Test, page 23-212
Replacement, page 23-214

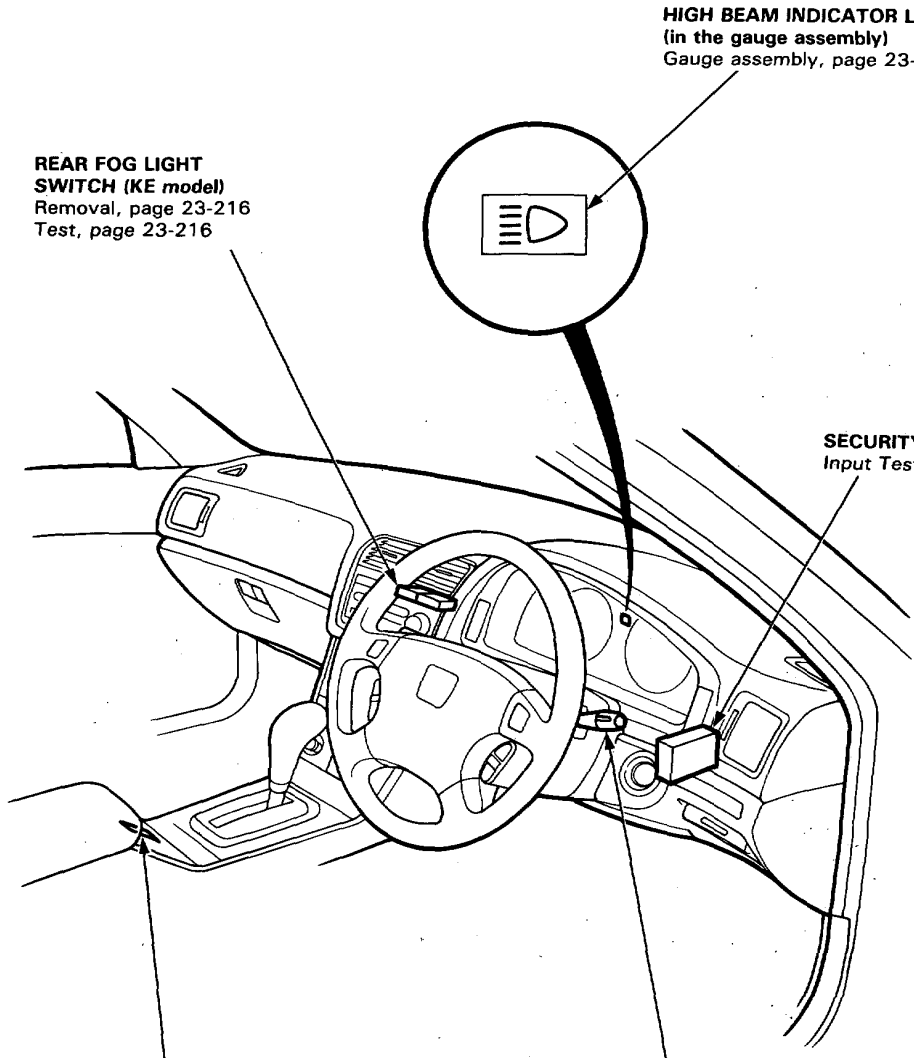


HEADLIGHT ADJUSTER
SWITCH (European model)
- Removal, page 23-217
- Test, page 23-217

DAYTIME RUNNING LIGHT CIRCUIT
(in the integrated control unit) (KS model)
Input Test, page 23-188

cardiagn.com

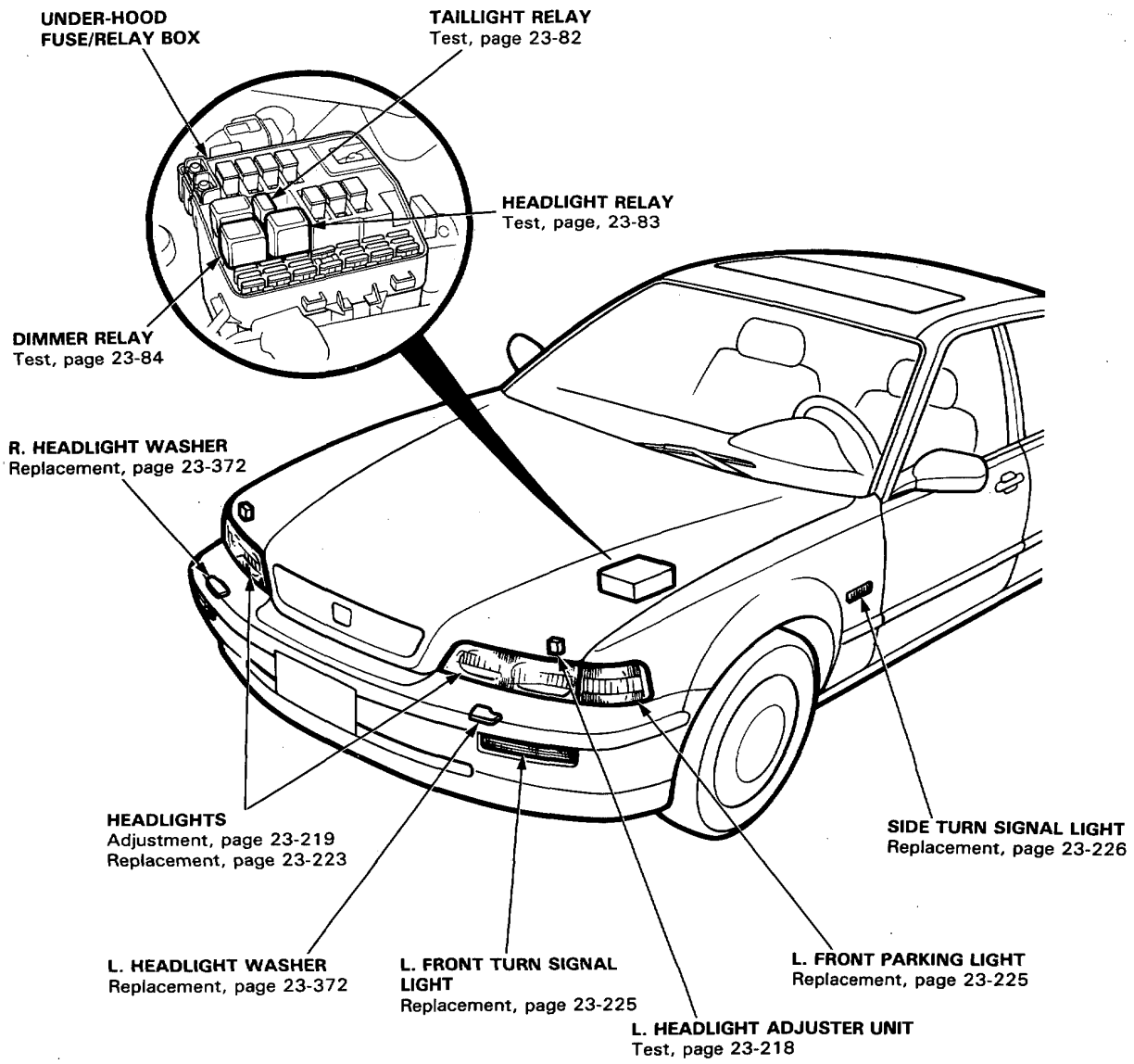
Component Location Index (RHD)



cardiagn.com

Component Location Index (European model)

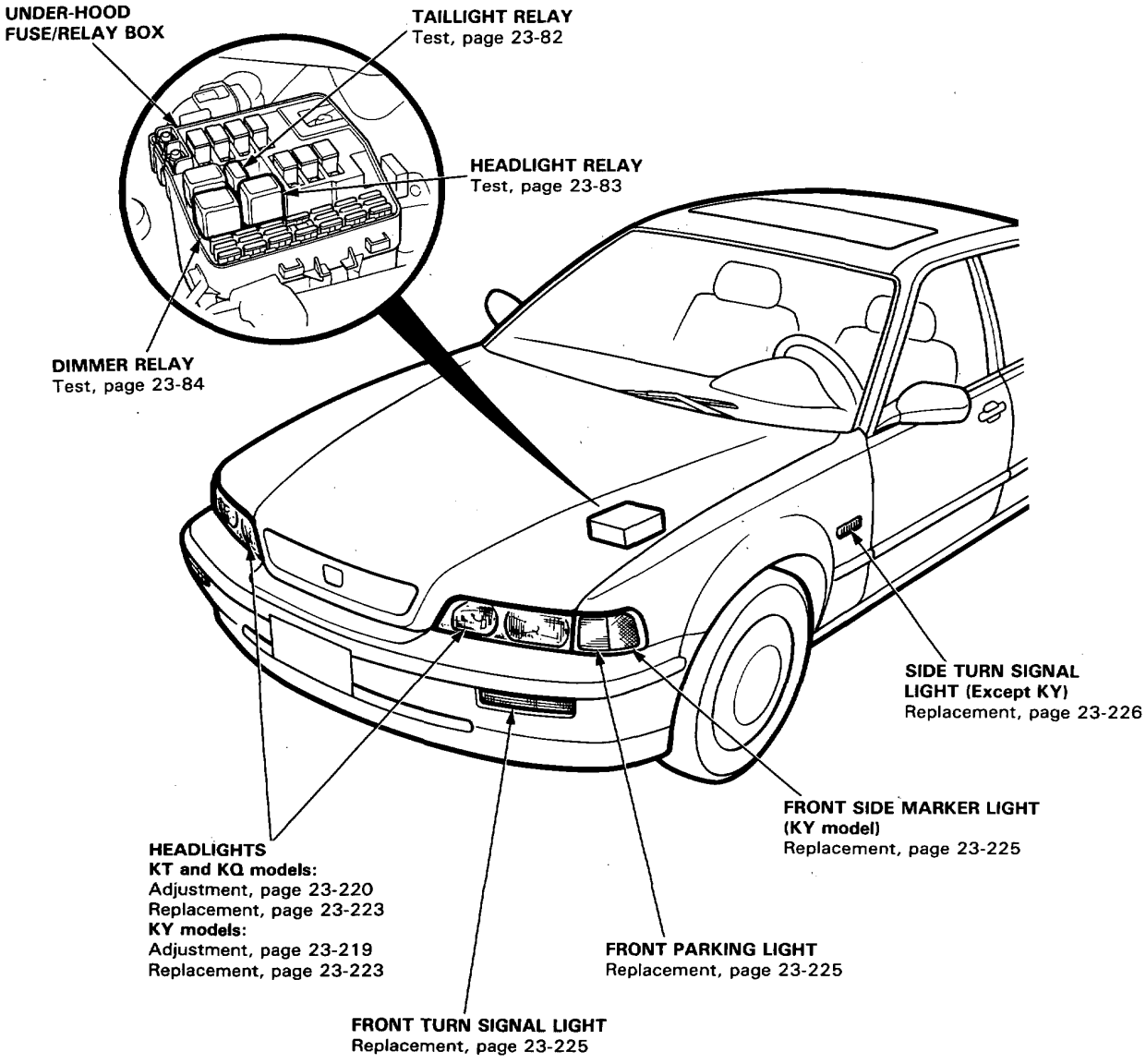
NOTE: The illustration shows LHD.



cardiagn.com

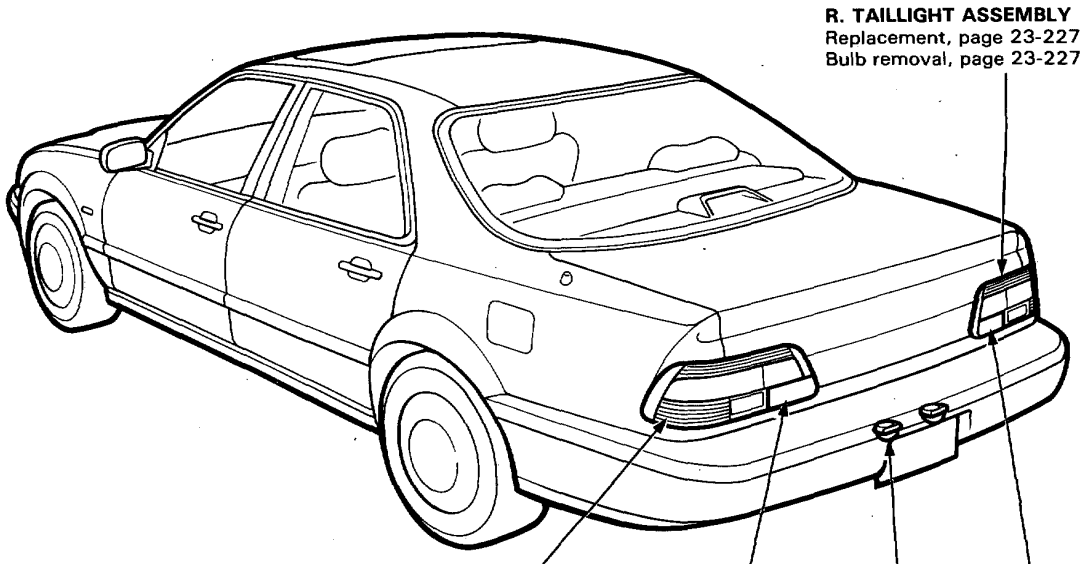
Component Location Index (KQ, KT and KY models)

NOTE: The illustration shows LHD.



cardiagn.com

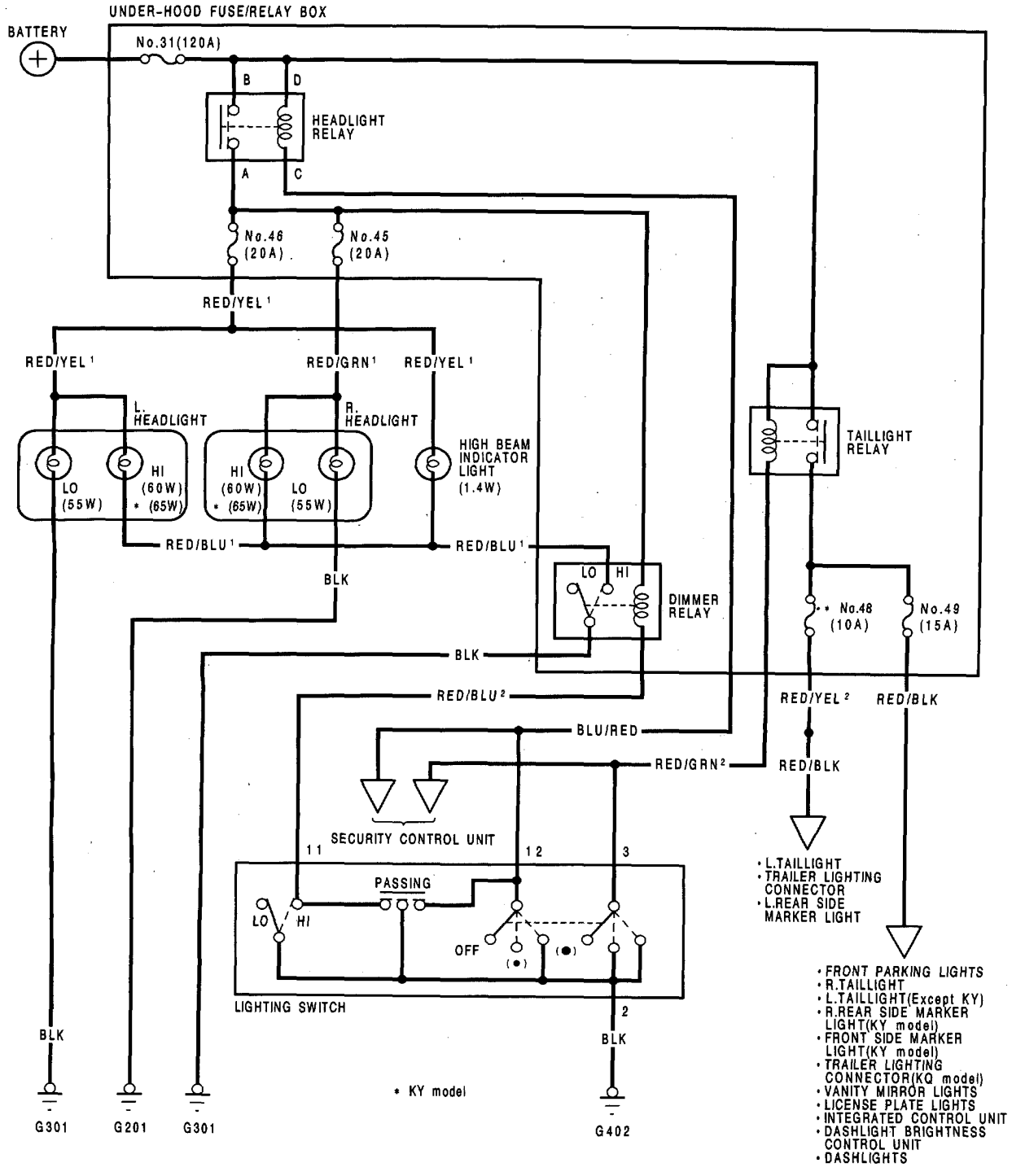
Component Location Index



cardiagn.com

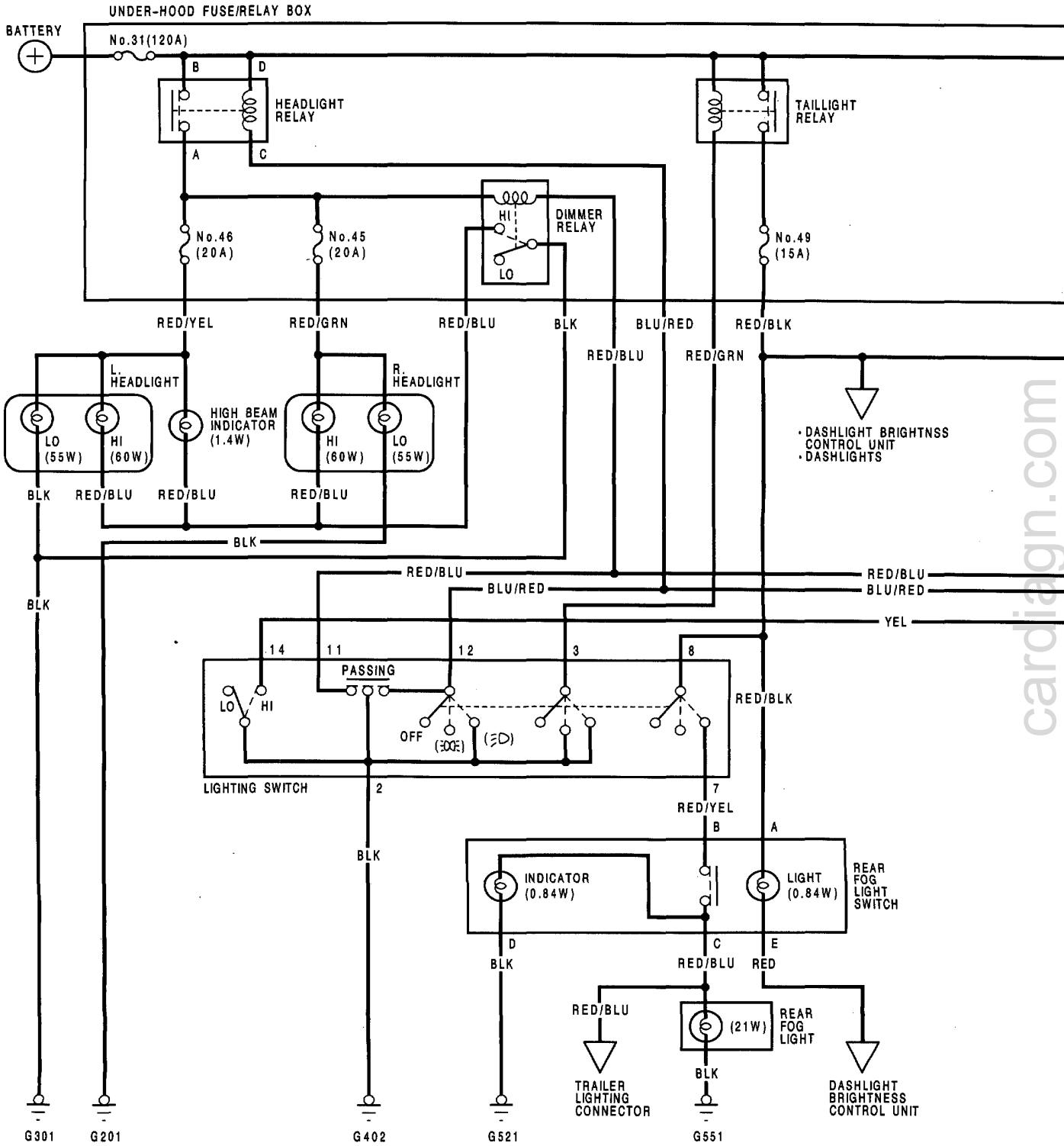
Circuit Diagram (KQ, KT and KY models)

NOTE: Several different wires have the same color. They have been given a number suffix to distinguish them (for example RED/YEL[1] and RED/YEL[2] are not the same).

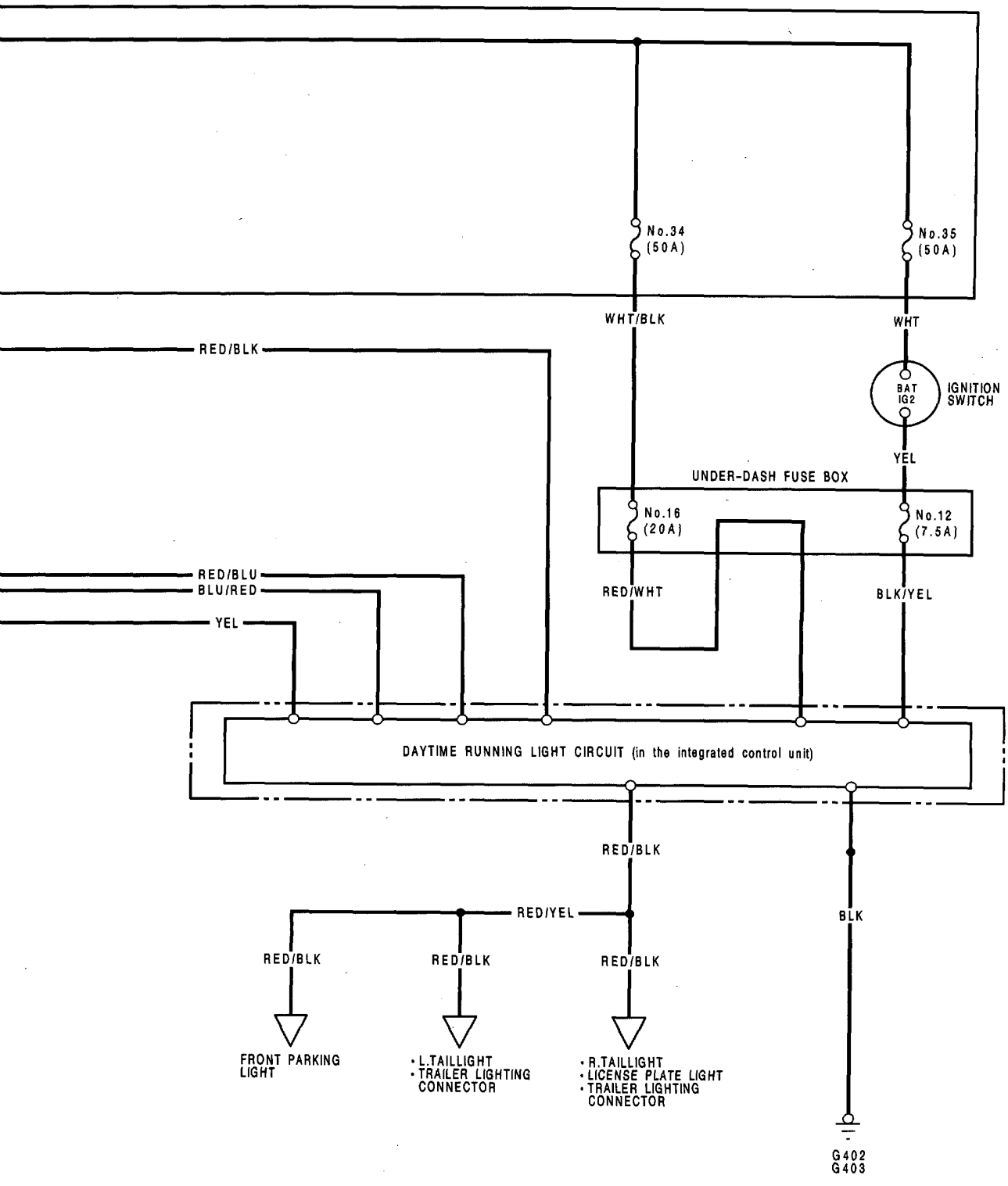


cardiagn.com

Circuit Diagram (KS and KF models)

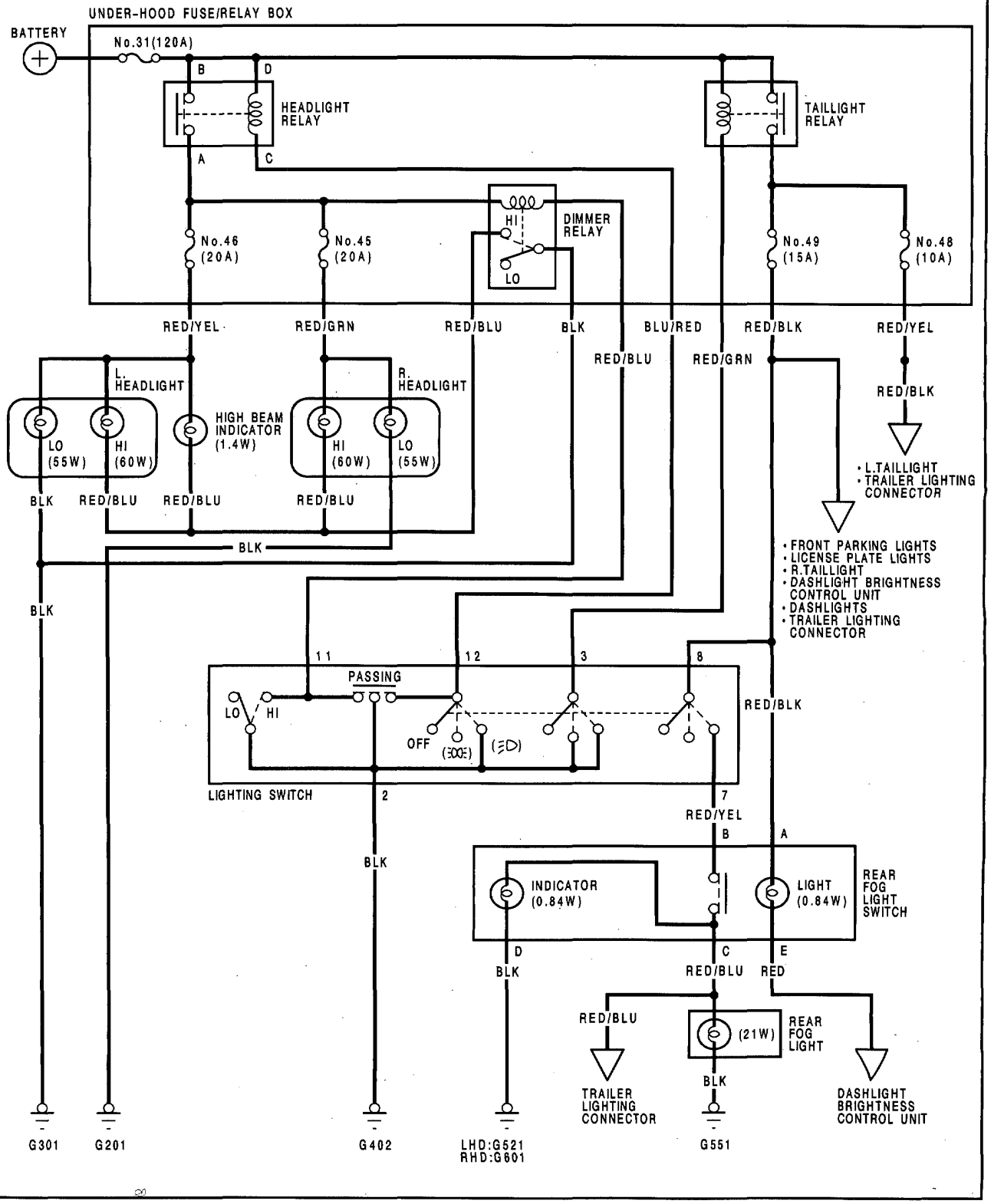


cardiagn.com



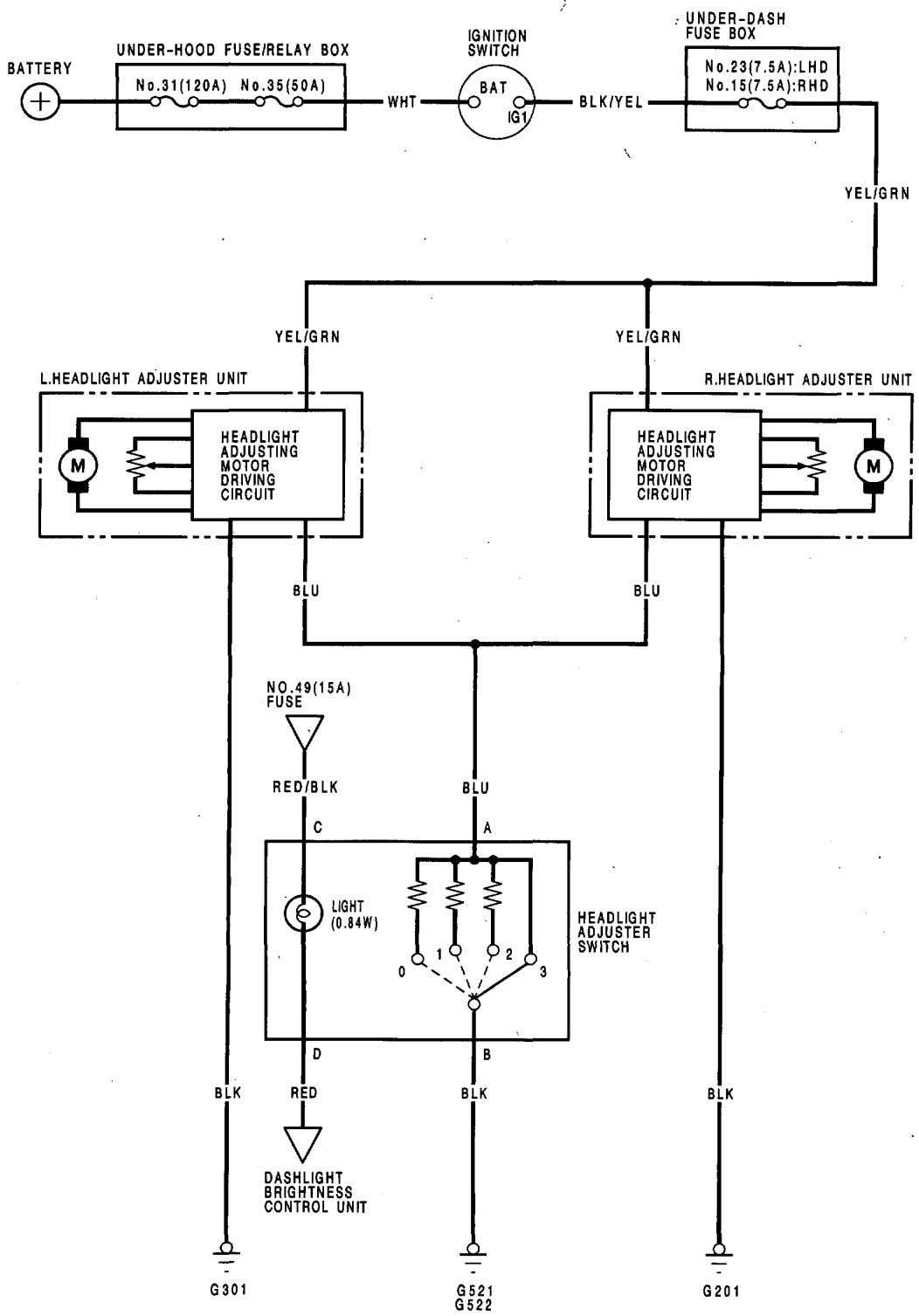
cardiagn.com

Circuit Diagram (Except KS, KW European models)



cardiagn.com

Circuit Diagram (European models)

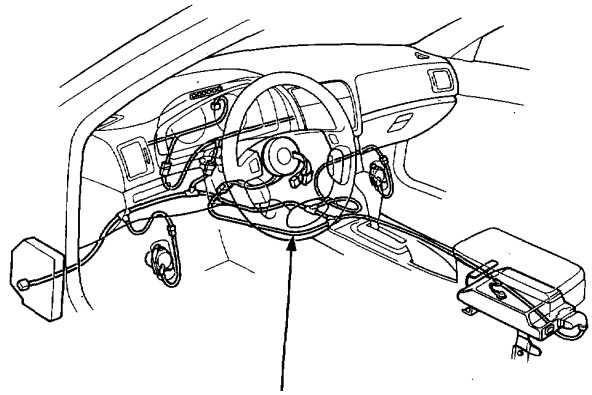


cardiagn.com

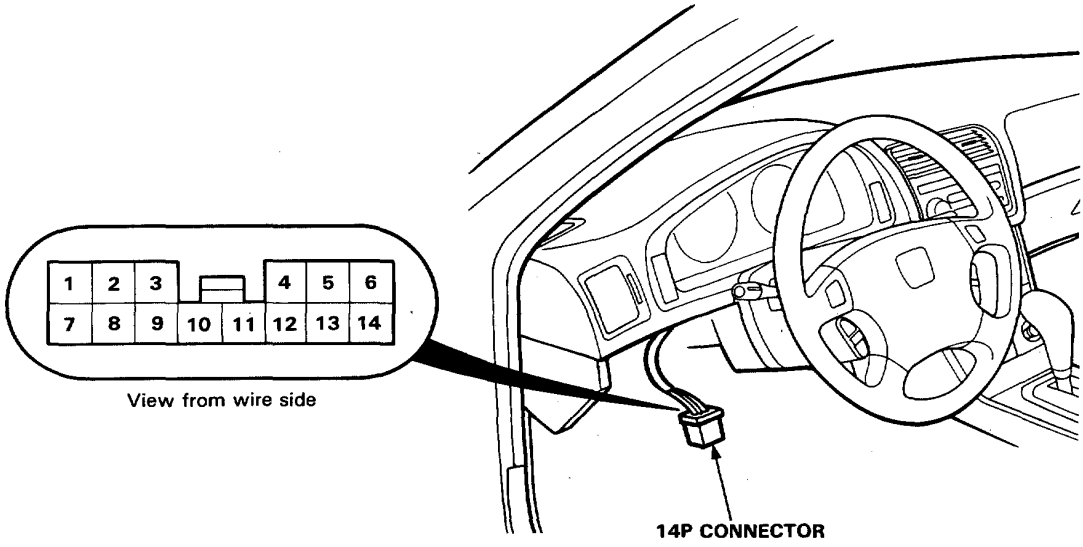
Lighting/Turn Signal Switch Test

CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**



SRS MAIN WIRE HARNESS



cardiagn.com

Lighting/Dimmer/Passing Switch (KQ, KT and KY models)

Position	Terminal	2	3	11	12
Lighting Switch	OFF				
	•	○———	———○		
	●	○———	———○	———	———○
Dimmer Switch	LOW				
	HIGH	○———	———	———○	
Passing Switch	OFF				
	ON	○———	———	———○	———○

Ligting/Dimmer/Passing Switch (Except KS, KF)

Position	Terminal	2	3	8	9	11	12
Lighting Switch	OFF						
	≡D○≡	○———	———○				
	≡D	○———	———○	———○	———○		———○
Dimmer Switch	LOW						
	HIGH	○———	———	———	———	———○	
Passing Switch	OFF						
	ON	○———	———	———	———	———○	———○

Ligting/Dimmer/Passing Switch (KS and KF models)

Position	Terminal	2	3	8	9	11	12	13
Lighting Switch	OFF							
	≡D○≡	○———	———○					
	≡D	○———	———○	———○	———○		———○	
Dimmer Switch	LOW							
	HIGH	○———	———	———	———	———	———	———○
Passing Switch	OFF							
	ON	○———	———	———	———	———○	———○	

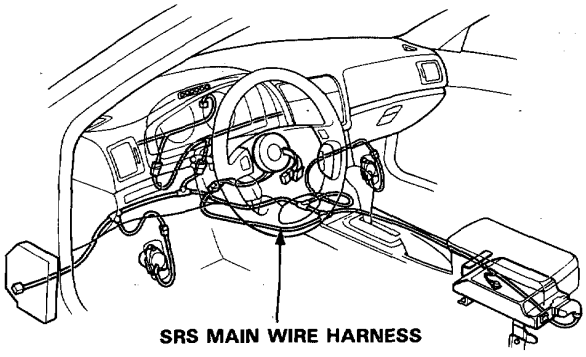
Turn Signal Switch:

Position	Terminal	4	5		6
R		○———	———	◀———	———○
NEUTRAL					
L			○———	◀———	———○

cardiagn.com

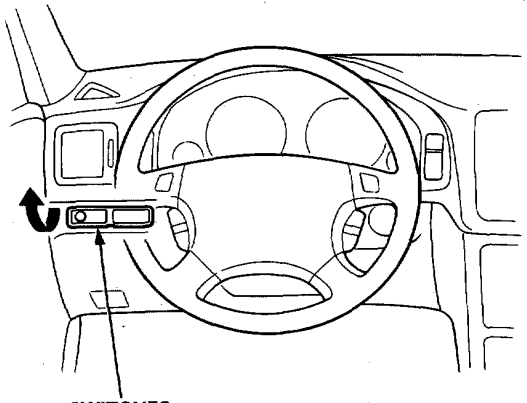
Lighting Switch Replacement

CAUTION:
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

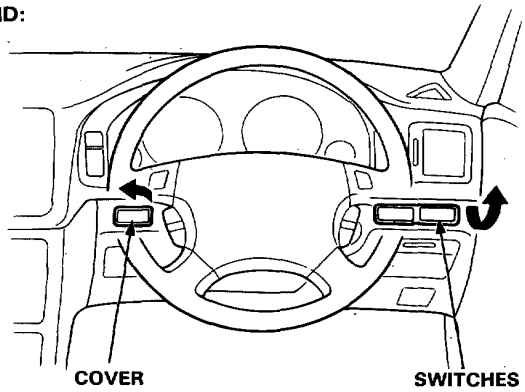


1. Remove the switches from the dashboard lower panel.

LHD:

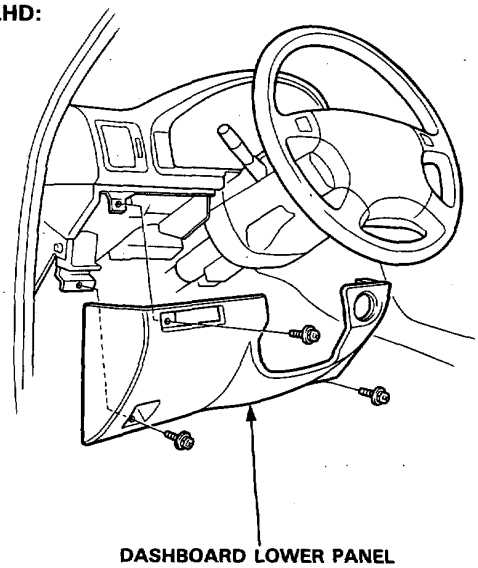


RHD:

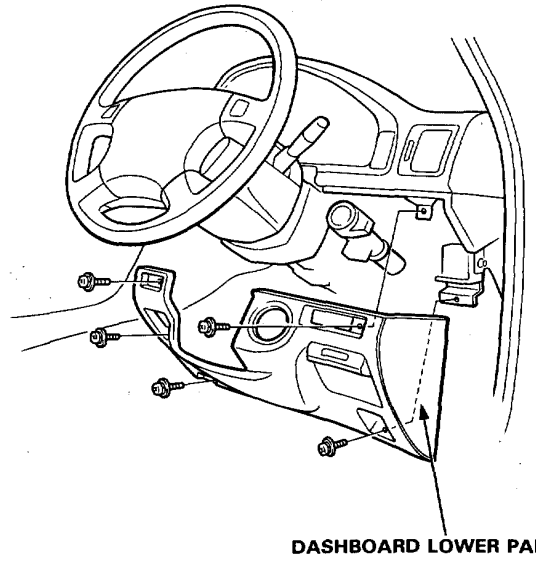


2. Remove the dashboard lower panel.

LHD:



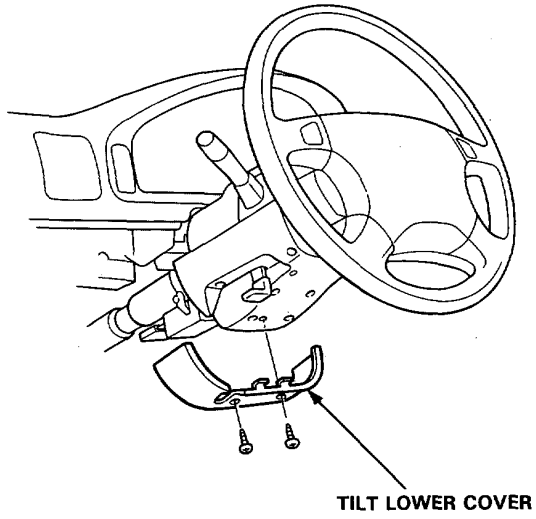
RHD:



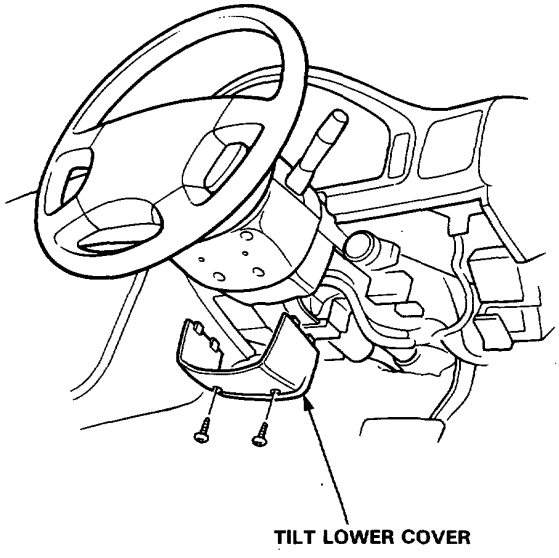
cardiagn.com

3. Remove the tilt lower cover.

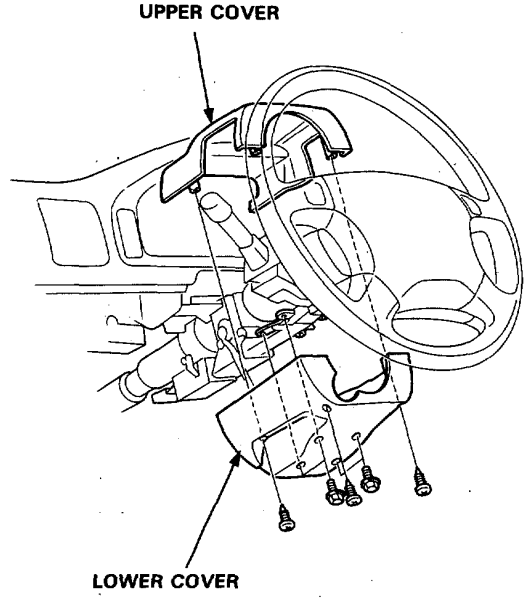
LHD:



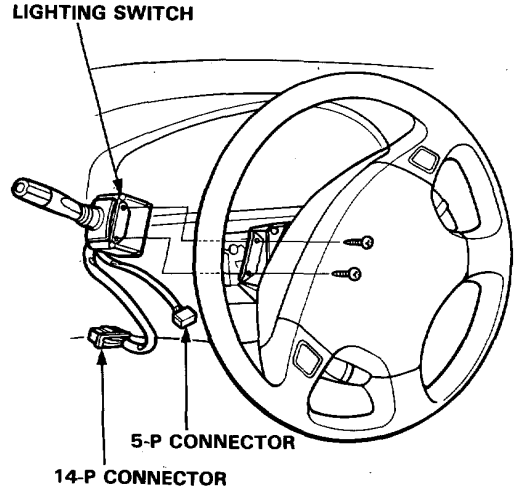
RHD:



4. Remove the steering column lower cover and upper cover.



5. Disconnect the 14-P connector from the lighting switch.
6. Disconnect the 5-P connector from the steering column (without SRS).



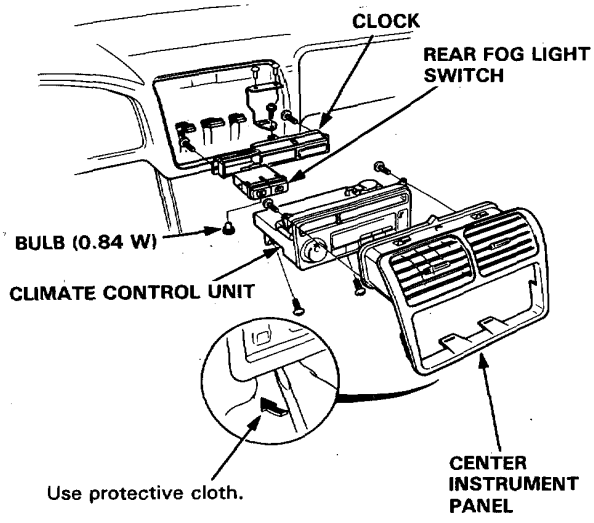
7. Remove the lighting switch.

cardiagn.com

Rear Fog Light Switch Removal (European model)

CAUTION: Be careful not to damage the center instrument panel.

1. Remove the center instrument panel.
2. Remove the clock and rear fog light switch from the climate control unit.
3. Remove the rear fog switch from the clock.

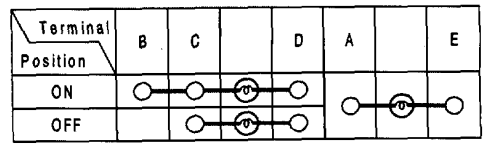


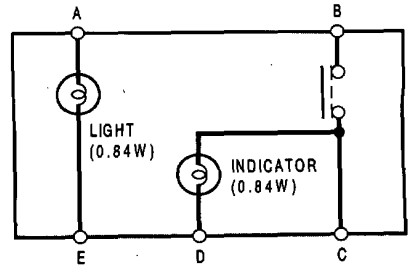
4. Turn the bulb socket 45° counterclockwise to remove it.

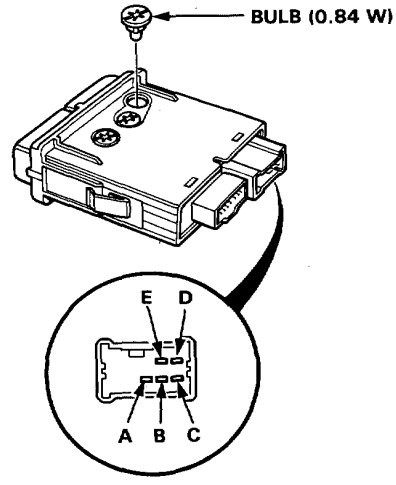
Rear Fog Light Switch Test (European model)

CAUTION: Be careful not to damage the center instrument panel.

1. Remove the rear fog light switch from the center instrument panel.
2. Check for continuity between the terminals in switch position according to the table.





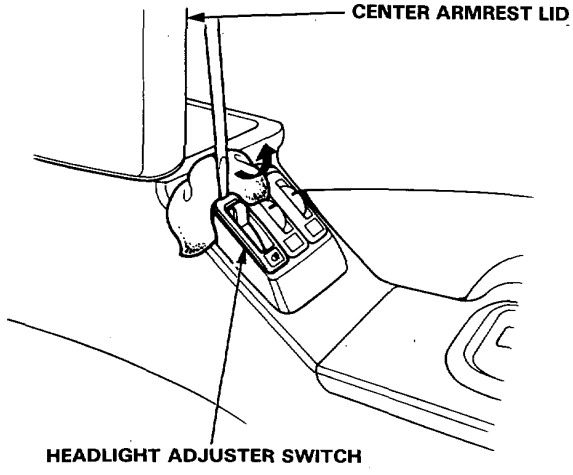


cardiagn.com

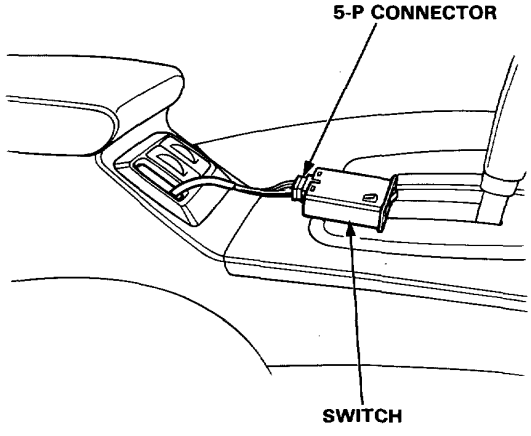
Headlight Adjuster Switch Removal (European model)

1. Open the center armrest lid.
2. Remove the switch from the center armrest.

   NOTE: The illustration shows LHD.

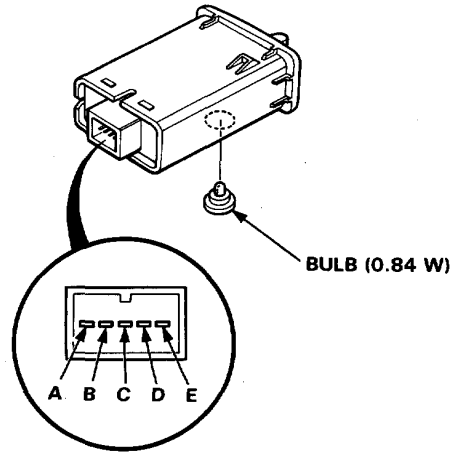


3. Disconnect the 5-P connector from the switch.

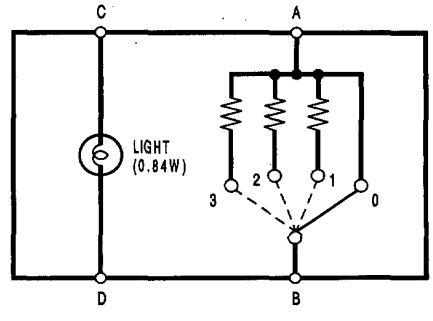


Headlight Adjuster Switch Test (European model)

1. Remove the switch from the center armrest.
2. Measure the resistance between the A and D terminals at 0, 1, 2 and 3 positions by moving the knob.
   Replace the switch if the resistance is not within specifications.



Knob Position	0	1	2	3
Resistance [Approx. (Ω)]	432	191	95.3	0

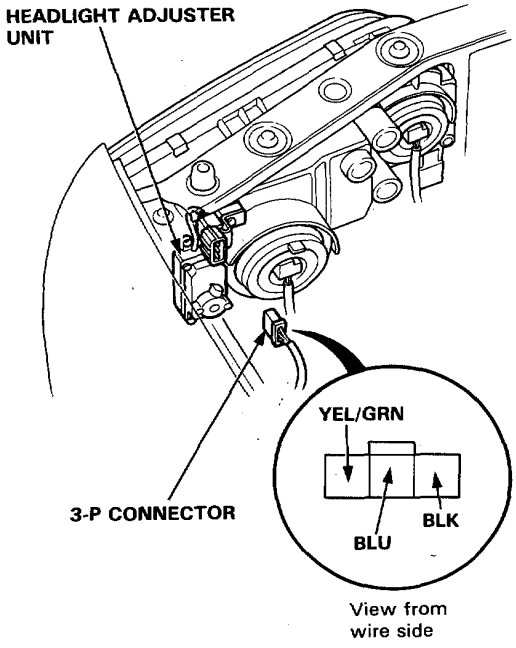


cardiagn.com

Headlight Adjuster Unit Input Test (European model)

NOTE: Before testing, check the wire harness connection and No. 23: LHD or No. 15: RHD (7.5 A) fuse in the under-dash fuse box.

1. Disconnect the 3-P connector for the right and left headlight adjuster units.



2. Check for continuity between the BLK terminal and body ground.
   There should be continuity.
   - If there is no continuity, check for
     — An open in the BLK wire.
     — Poor ground (G201 or G301).
   - If there is continuity, go to step 3.

3. Check for voltage between the YEL/GRN terminal and body ground with the ignition switch ON.
   There should be battery voltage.
   - If there is no voltage, check for an open in the YEL/ GRN wire.
   - If there is battery voltage, go to step 4.

4. Using an ohmmeter, measure resistance between the BLU terminal and body ground in "0" position of headlight adjuster switch. There should be approximately 432 Ω.
   - If resistance is not within specification, check for
     — An open in the BLU wire.
     — Faulty headlight adjuster switch.
   - If resistance is within specification, go to step 5.

5. If all tests are normal, but the headlight adjuster unit does not operate. Check for frozen, stuck or improperly installed the headlight adjuster unit. If mechanical check is OK, replace the headlight adjuster unit.

   NOTE: Check for connection of 3-P connectors after test. For example, malfunction of headlight adjuster is occurred by improper connection of one side.

cardiagn.com

Adjustment (Except KY)

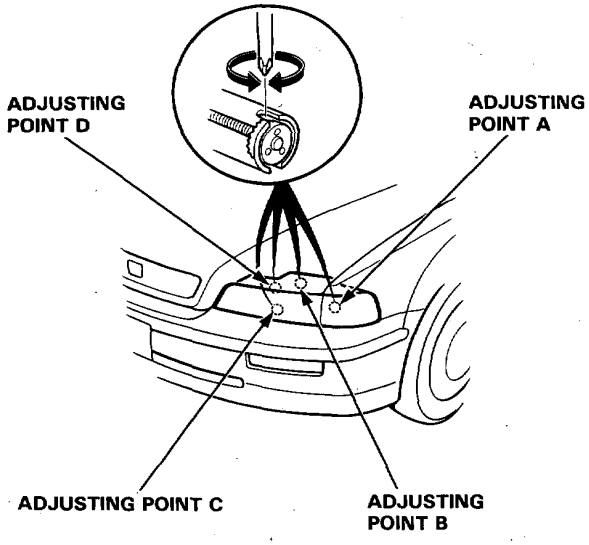
Outside Headlight Adjustment:
Adjust the points A and B.

(KG model)
1. Adjust the outside headlight with "0" position of headlight adjuster switch.

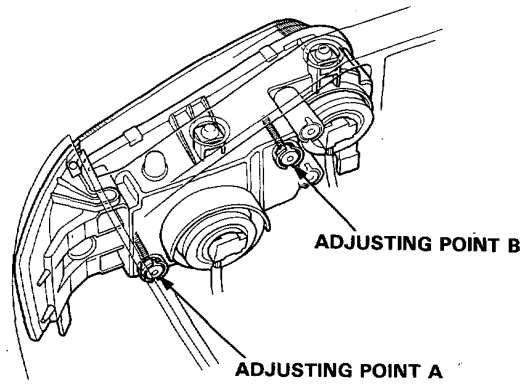
2. Check the dip of beam in each position of the headlight adjuster switch, after outside headlight adjustment.

Inside Headlight Adjustment:
Adjust the points C and D.

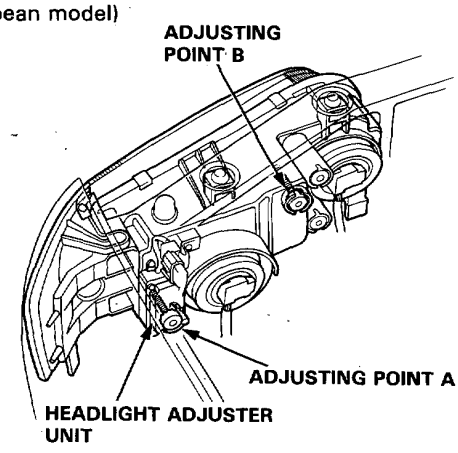
NOTE: Adjust the headlights to local requirements.



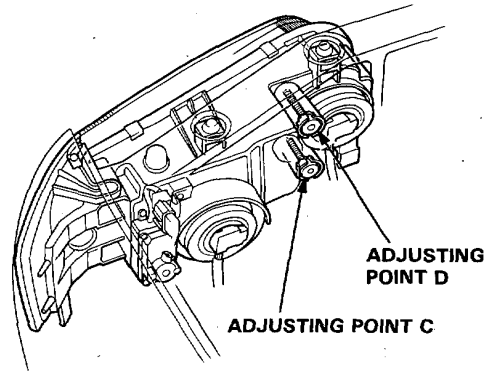
Outside headlight:
(KQ and KT model)



(European model)



Inside headlight:



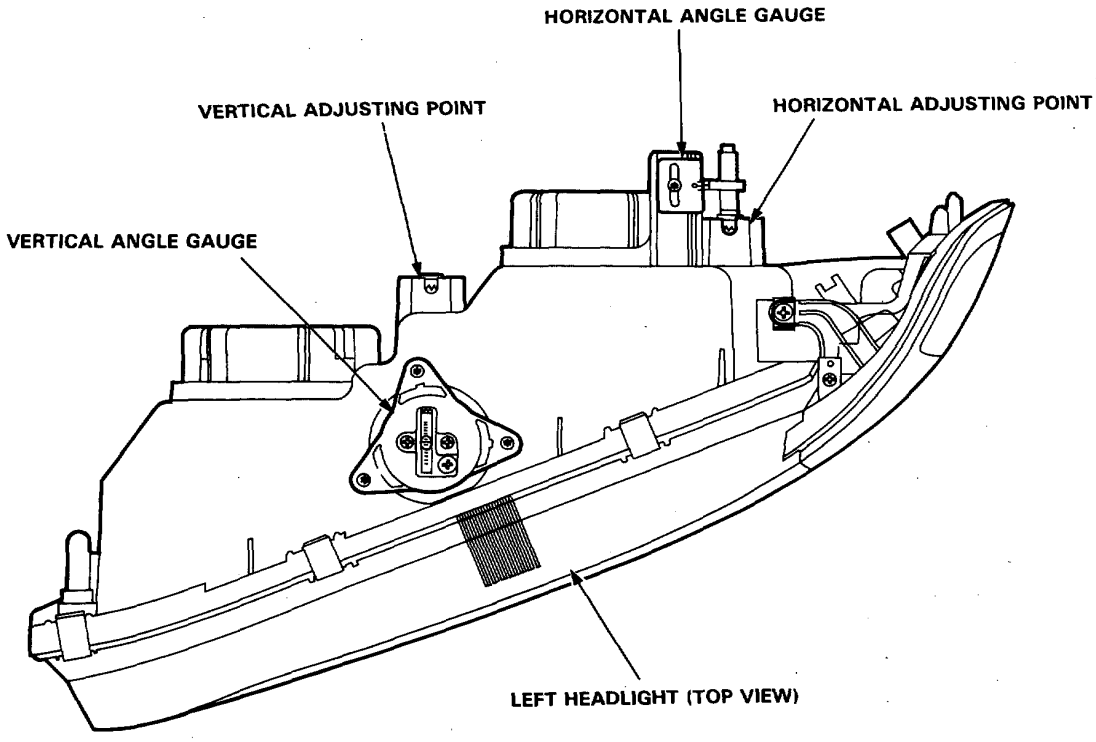
cardiagn.com

Headlights

Adjustment (KY model)

Before checking the adjustment:

- Make sure the fuel tank is full. Park the car on level ground.
- The driver or someone who weighs the same should be sitting in the driver's seat for all checks and adjustments. Load the trunk with items you normally carry. Push down on the front and rear bumpers several times to make sure the car is sitting normally.



Adjustment after headlight assembly replacement:

If the car has had front body repair, or if the headlight assembly has been replaced for any other reason, the horizontal and vertical aiming must be checked using conventional methods. Use the aiming charts on page 23-222.

If the horizontal angle gauge does not read "0" after aiming by the charts on page 23-222, the gauge must be re-calibrated.

1. Loosen the Torx® retaining screw (Step 2, next page).
2. Move the gauge scale until the "0" aligns with the indicator line.
3. Tighten the Torx® screw.

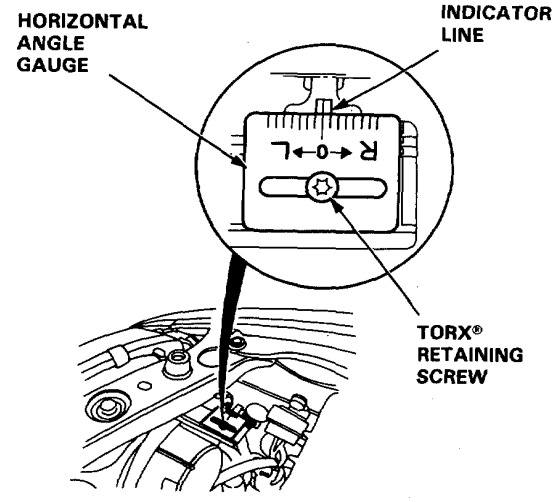
   NOTE: The vertical angle bubble gauge does not need to be re-calibrated as long as the bubble is centered on the "0" mark (Step 3, next page).

cardiagn.com

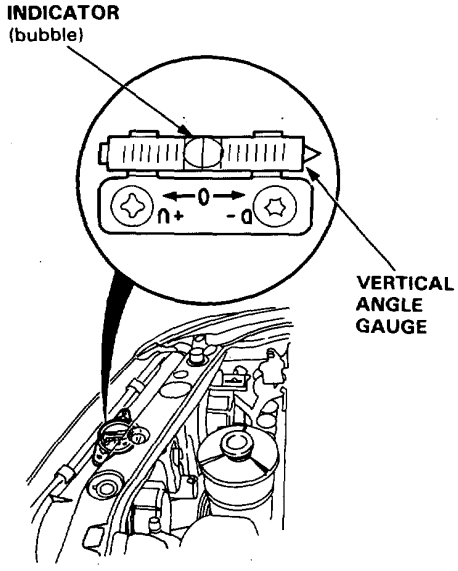
1. Open the hood.

2. Check the horizontal adjustment indicator. The line on the adjustment screw indicator should line up with the "0" mark on the gauge.

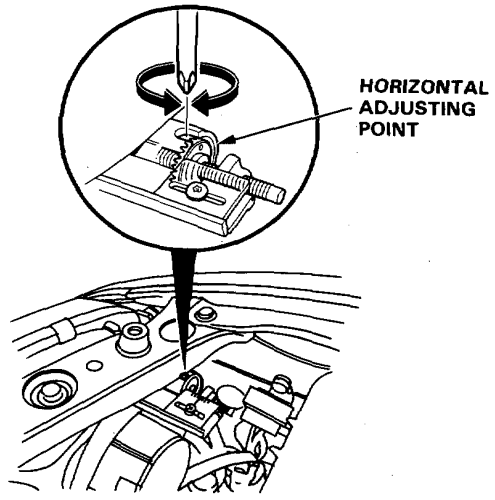
   NOTE: The illustration shows right side.



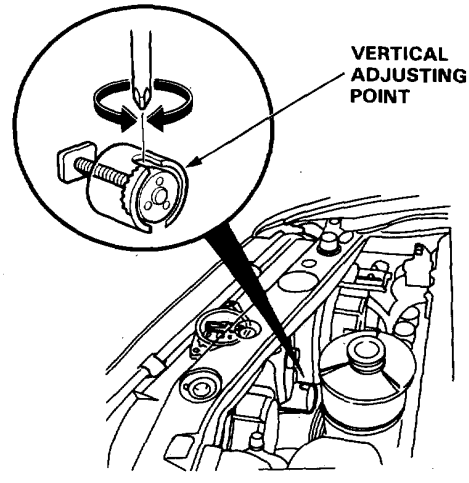
3. Check the vertical adjustment indicator. The bubble should be centered underneath the longest scribe mark on the gauge.



4. If the horizontal indicator is not aligned with its "0" mark as described above an adjustment can be made using a Phillips screwdriver to realign it with the "0" mark.



5. If the vertical indicator line is not aligned with its "0" mark as described above, an adjustment can be made using a Phillips screwdriver to realign it with the "0" mark.



(cont'd)

cardiagn.com

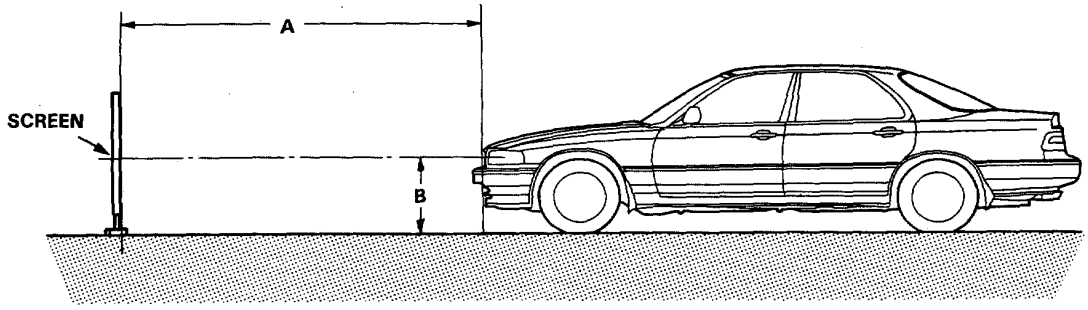
Headlights

Adjustment (KY model, cont'd)

Before checking the adjustment:
- Make sure the fuel tank is full. Park the car on level ground.
- The driver or someone who weighs the same should be sitting in the driver's seat for all checks and adjustments.
  Load the trunk with the items you normally carry.
  Push down on the front and rear bumpers several times to make sure the car is sitting normally.

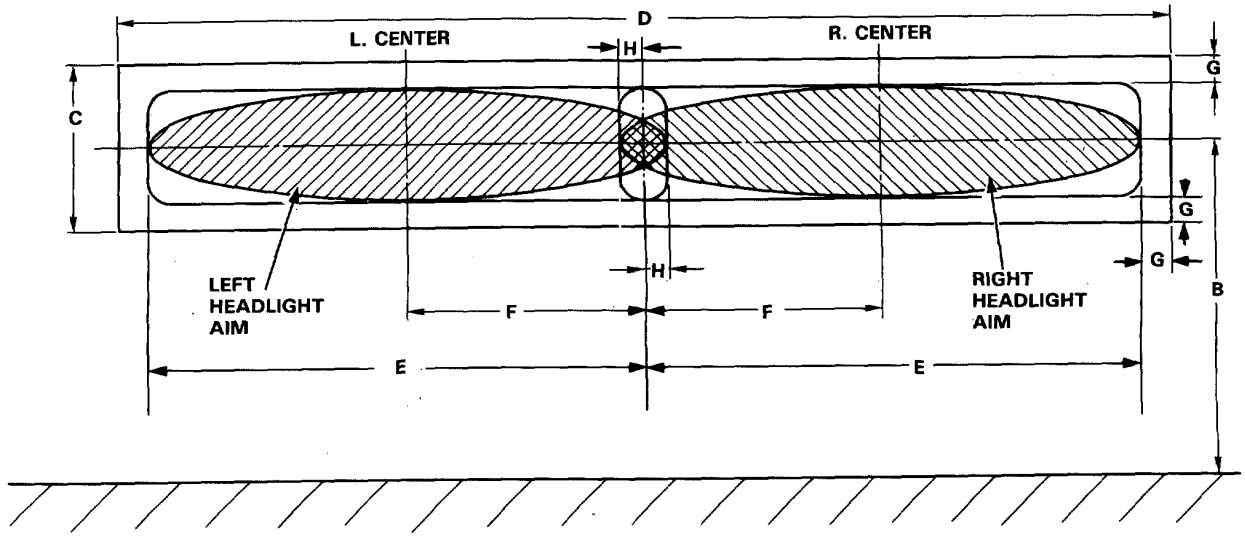
NOTE: To accurately locate the middle of the screen or wall, put a piece of adhesive tape on the windshield at the center line of the interior mirror and put another piece of adhesive tape on the rear window *centered* on the HONDA logo on the trunk. Looking from the rear of the car, align the two pieces of tape to locate the middle of the screen.

A : 9 ft 10 in. (3000 mm)
B : 24.8 in. (630 mm)



Headlight aiming (low beam):

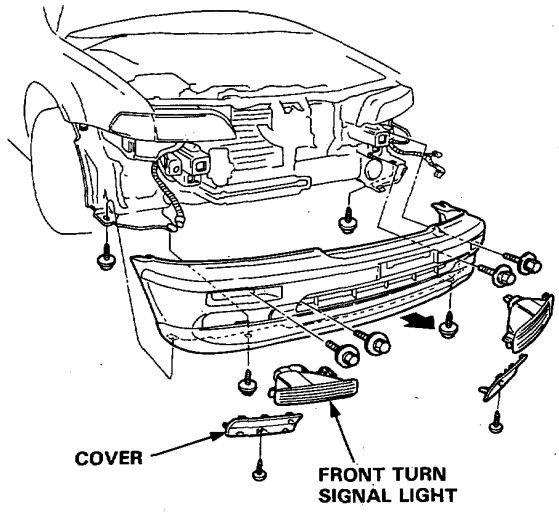
C : 12.4 in. (314 mm)
D : 74.8 in. (1900 mm)
E : 35.4 in. (899 mm)
F : 16.9 in. (429 mm)
G: 2.0 in. (52 mm)
H: 1.7 in. (42 mm)



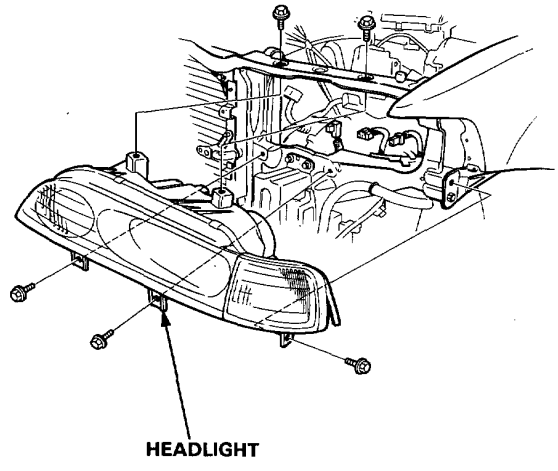
cardiagn.com

Headlight Assembly Replacement (Except KY)

1. Remove the covers from front bumper.
2. Remove the front turn signal lights.
3. Remove the front bumper.



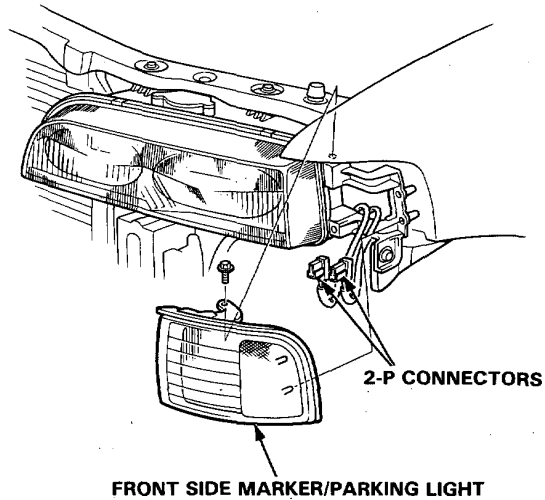
4. Remove the 5 headlight mounting bolts then pull off and disconnect the each connector from headlight.



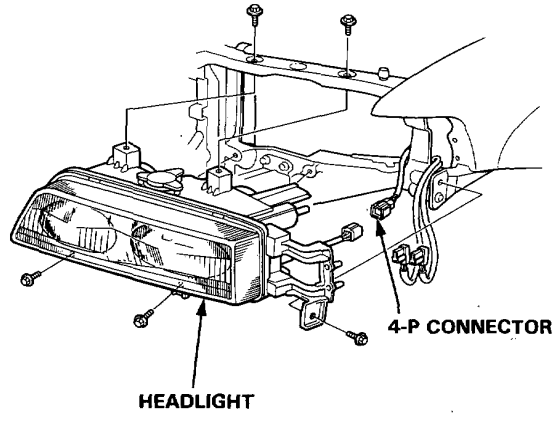
5. After installing the unit, adjust the headlights to local requirement's.

Headlight Assembly Replacement (KY model)

1. Remove the covers from front bumper.
2. Remove the front turn signal lights.
3. Remove the front bumper.
4. Remove the front side marker/parking light. Remove the mounting screw and pull the light out. Disconnect the 2-P connectors.



5. Remove the 5 headlight mounting bolts then pull off and disconnect the 4-P connector from the headlight.



6. After installing the unit, check the headlight horizontal and vertical aiming (See page 23-220 thru 222).

cardiagn.com

Headlights

Bulb Replacement (Except KY)

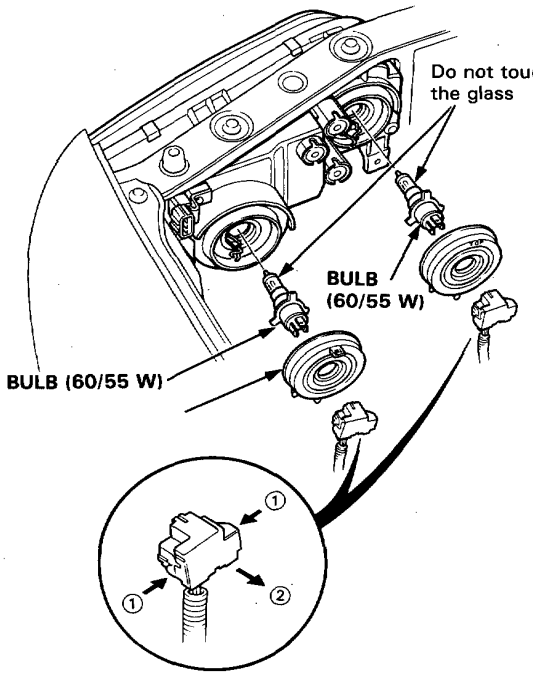
CAUTION:

- **Halogen headlights can become very hot in use: do not touch them or the attaching hardware immediately after they have been turned off.**
- **Do not try replace or clean the headlights with the lights on.**

NOTE: To replace the left bulb, the radiator reservoir tank and the inlet of the washer tank should be dislocated.

1. Disconnect the 3-P connectors, then remove the retaining and bulb.

NOTE: KF model is YELLOW bulbs.



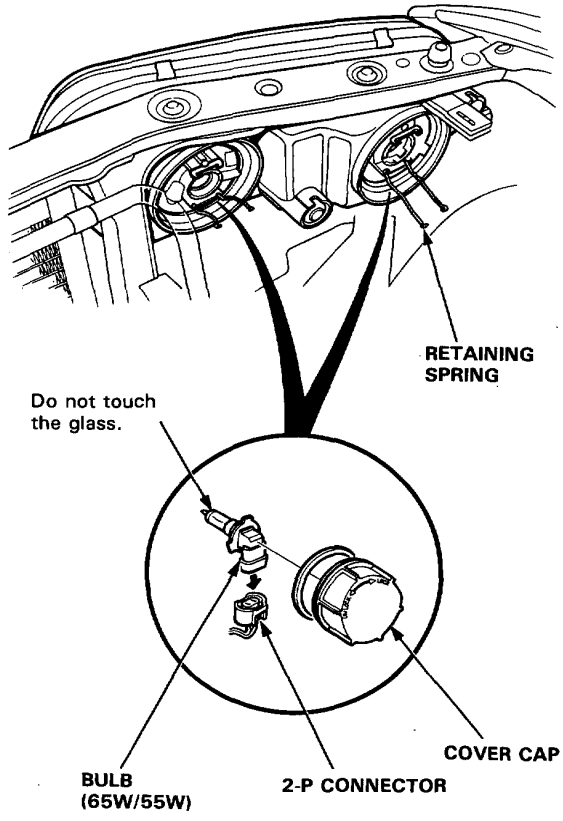
Bulb Replacement (KY model)

CAUTION:

- **Halogen headlights can become very hot in use; do not touch them or the attaching hardware immediately after they have been turned off.**
- **Do not try to replace or clean the headlights with the lights on.**

NOTE: To replace the left bulb, the radiator reservoir tank and the inlet of the washer tank should be dislocated.

1. Remove the cover cap.
2. Disconnect the 2-P connector, then remove the retaining spring and bulb.

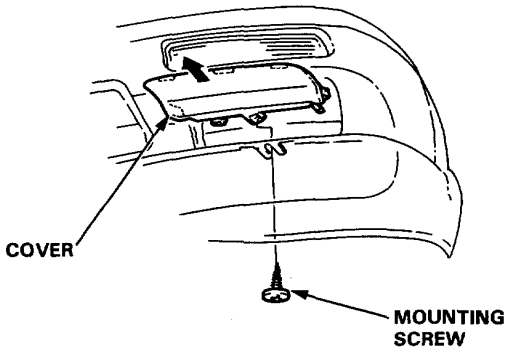


cardiagn.com

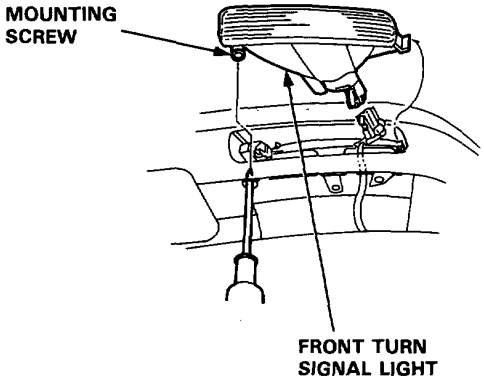
Front Turn Signal Lights

Replacement

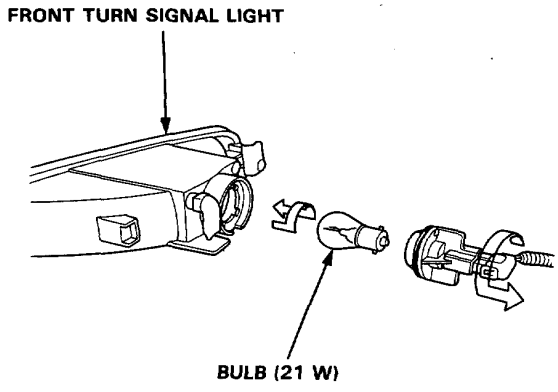
1. Remove the cover.



2. Remove the mounting screw. Pull the light out and disconnect the connector.



3. Remove the bulb from the front turn signal light by turning the bulb 45°.

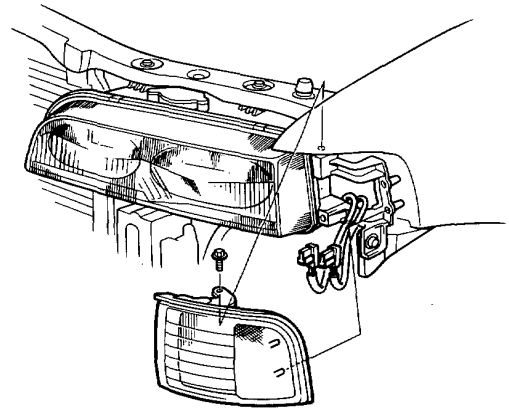


Front Side Marker/ Parking Lights

Replacement

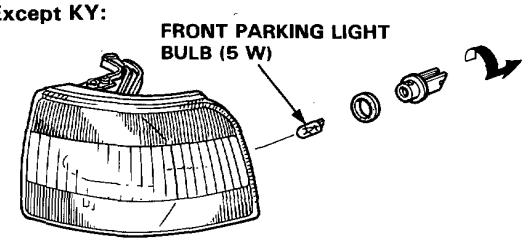
1. Loosen the mounting screw. Pull the light out and disconnect the 2-P connectors or 2-P connector.

   NOTE: The illustration shows KY model.

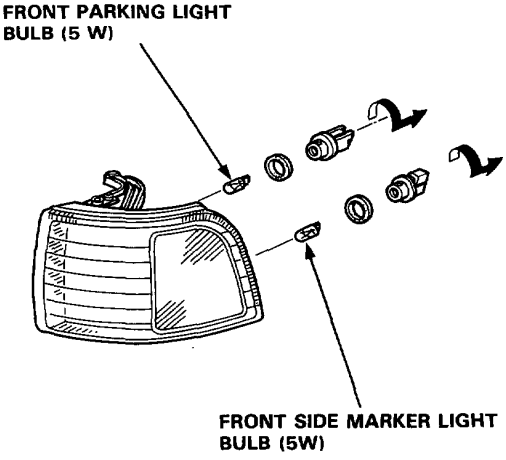


2. Remove the bulb from the housing by turning the bulb 45°.

Except KY:



KY model:



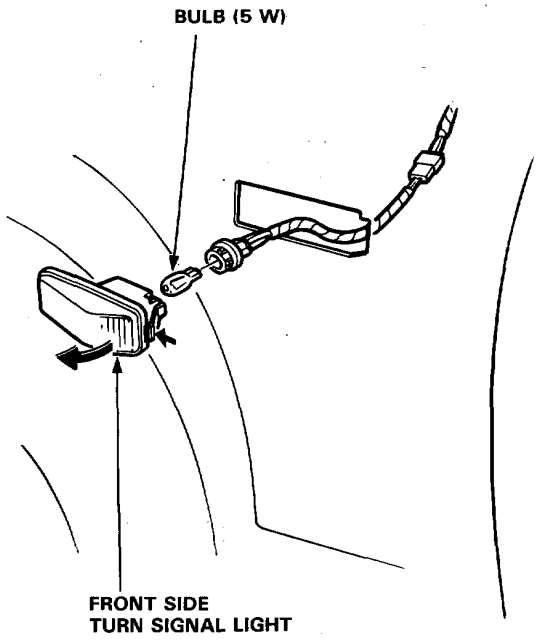
cardiagn.com

Front Side Turn Signal Lights

Replacement

1. Carefully pry out the front side turn signal light from the front fender.

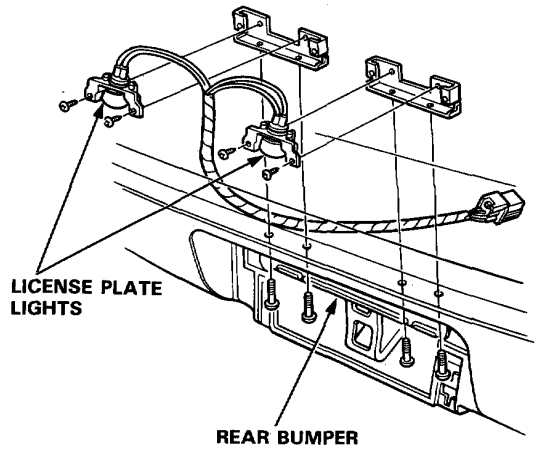
   NOTE: Be carefully not to damage the front side turn signal light or the front fender when prying out the front turn signal light.



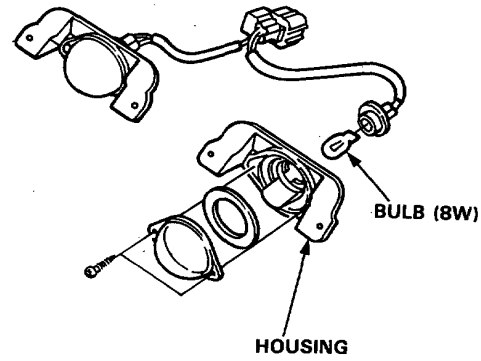
License Plate Lights

Replacement

1. Remove the 4 screws (for one light) and disconnect the 4-P connector.



2. Turn the bulb socket 45° counterclockwise to remove it from the housing.



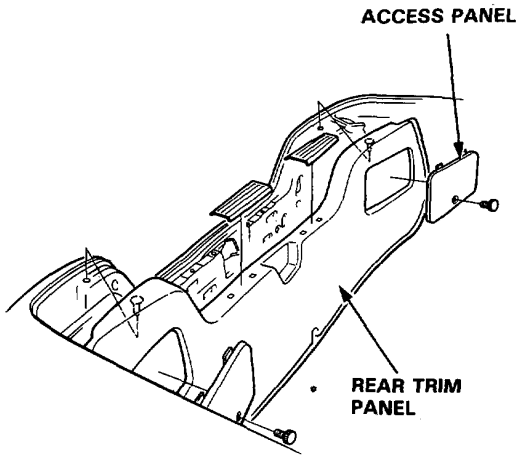
3. If necessary, separate the lens from the housing by removing the 2 screws.

cardiagn.com

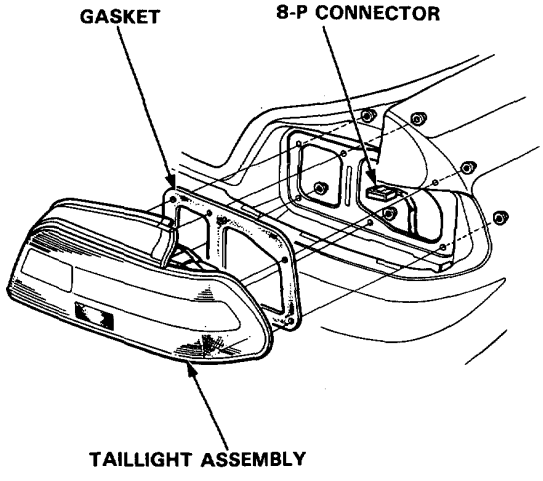
Taillights

Replacement

1. Remove the taillight access panel.
2. Remove the rear trim panel.



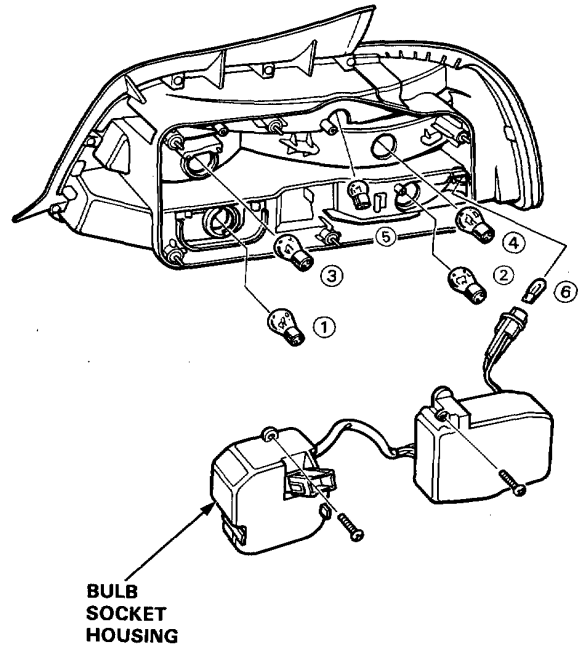
3. Disconnect the 8-P connector.
4. Remove the 6 mounting nuts from the taillight.



NOTE:
- Inspect the gasket; replace if it is distorted or stays compressed.
- After installation, run water over the lights to make sure they won't leak.

Bulb Replacement (KY model)

1. Open the trunk lid.
2. Remove the taillight access panel.
3. Remove the bulb socket housing.



4. Remove the bulb from the socket.

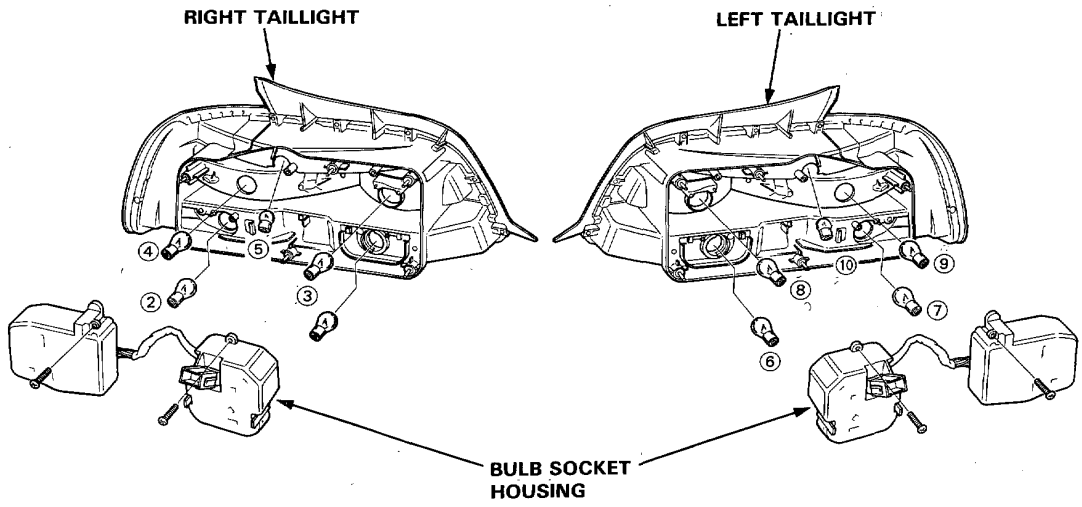
① } BRAKE LIGHT/TAILLIGHT
② } BULBS (32CP/2CP)
③ : BACK-UP LIGHT BULB (32CP)
④ : TURN SIGNAL LIGHT BULB (45CP)
⑤ : TAILLIGHT BULB (3CP)
⑥ : REAR SIDE MARKER LIGHT BULB (4CP)

cardiagn.com

Taillights

Bulb Replacement (Except KY)

1. Open the trunk lid.
2. Remove the taillight access panel.
3. Remove the bulb socket housing.
4. Remove the bulb from the socket housing.



① REAR FOG LIGHT BULB (21W): KE model
②, ⑦ BRAKE LIGHT BULBS (21W)
③, ⑧ BACK-UP LIGHT BULBS (21W)
④, ⑨ TURN SIGNAL LIGHT BULBS (21W)
⑤, ⑩ TAILLIGHT BULBS (5W)
⑥ REAR FOG LIGHT BULB (21W): Except KE european model

cardiagn.com

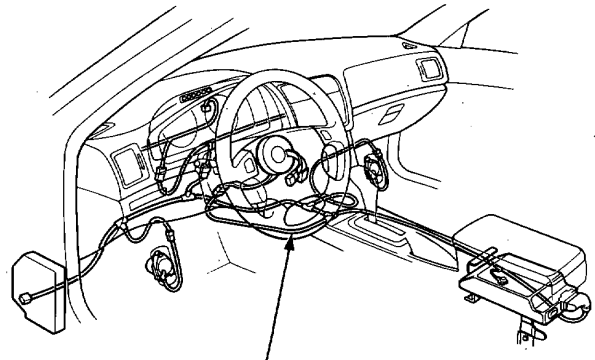
Dashlight Brightness Control

Component Location Index

CAUTION:

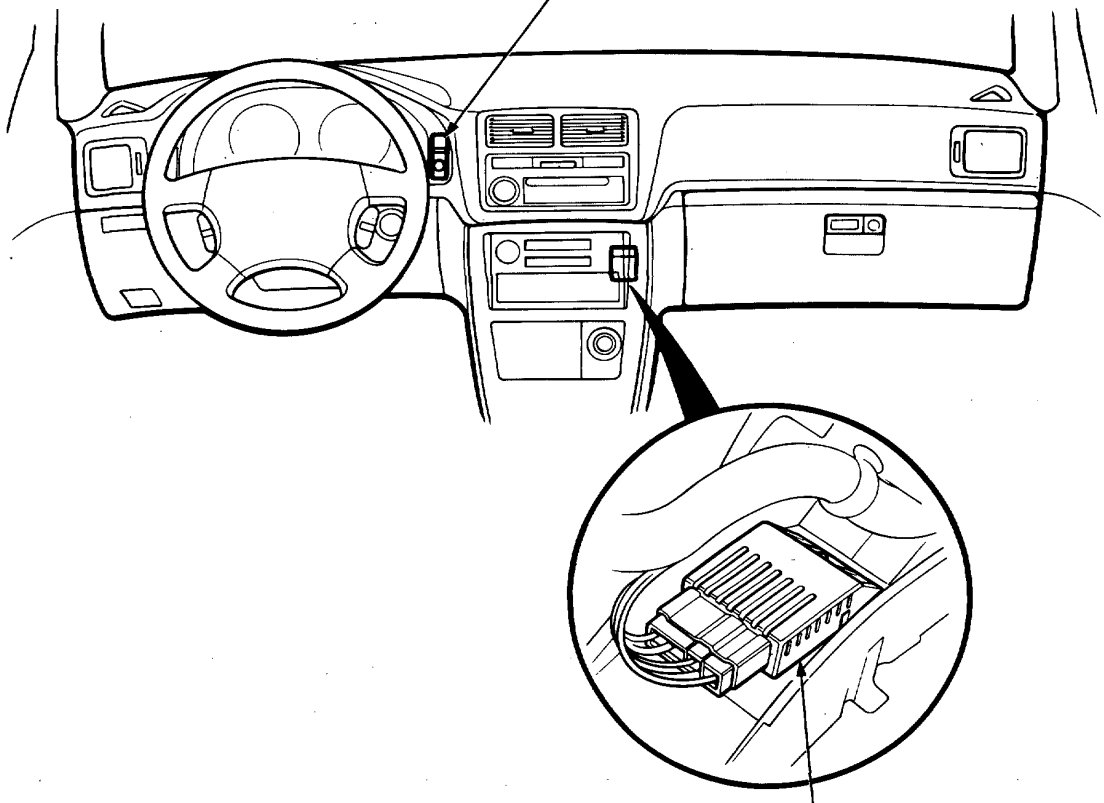
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**
- **After installation of the gauge assembly, recheck the operation of the SRS indicator light.**

NOTE: RHD type is symmetrical to LHD type.



SRS MAIN WIRE HARNESS

DASHLIGHT BRIGHTNESS CONTROLLER
Test/Replacement, page 23-232

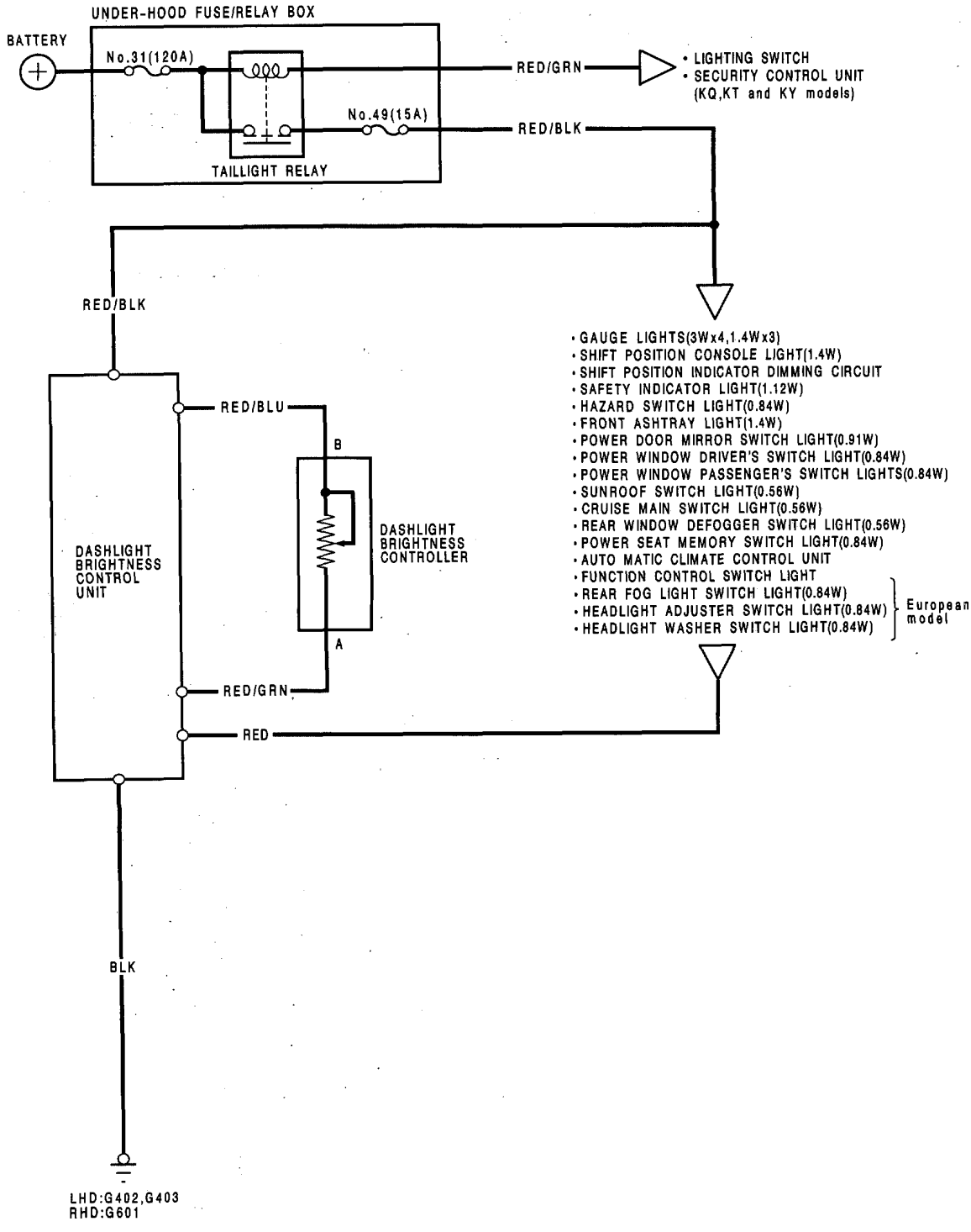


DASHLIGHT BRIGHTNESS CONTROL UNIT
Input Test, page 23-231

cardiagn.com

Dashlight Brightness Control

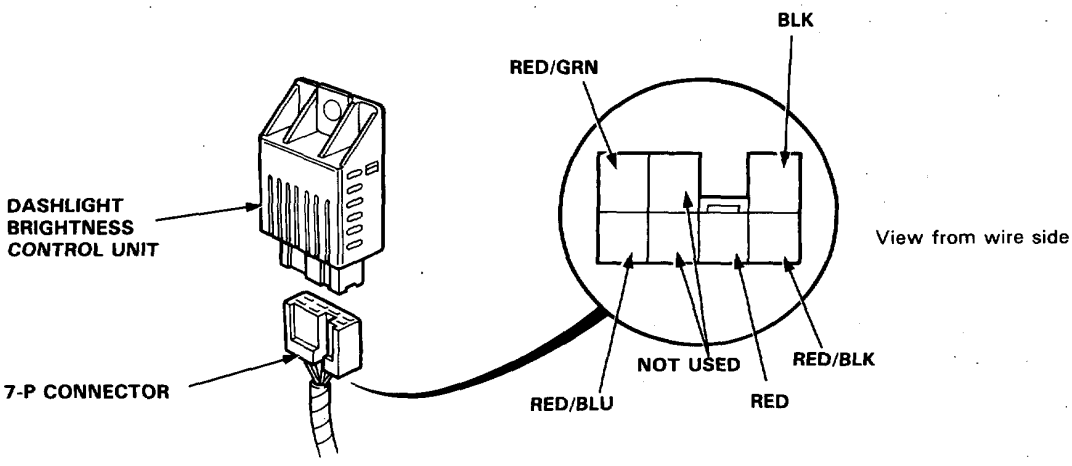
Circuit Diagram



cardiagn.com

Control Unit Input Test

Disconnect the 7-P connector from the control unit.
Make the following input tests at the harness pins.
If all tests prove OK, yet the dashlights still cannot be controlled, check the connector for a good connection.
If OK, substitute a known-good control unit and recheck.



No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLK	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor ground (LHD: G402, G403 RHD: G601). • An open in the wire.
2	RED/BLK	Lighting switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 49 (15A) fuse. • Faulty taillight relay. • Faulty lighting switch. • An open in the wire.
3	RED	Lighting switch ON.	Attach to ground: dashlights should come on full bright.	• An open in the RED/BLK or RED wire.
4	RED/GRN and RED/BLU	Adjusting dial rotated.	Check for resistance between the RED/GRN and RED/BLU terminals: should vary from 0 to 24,000 ohms as the dial is rotated.	• Faulty controller. • An open in the wire.

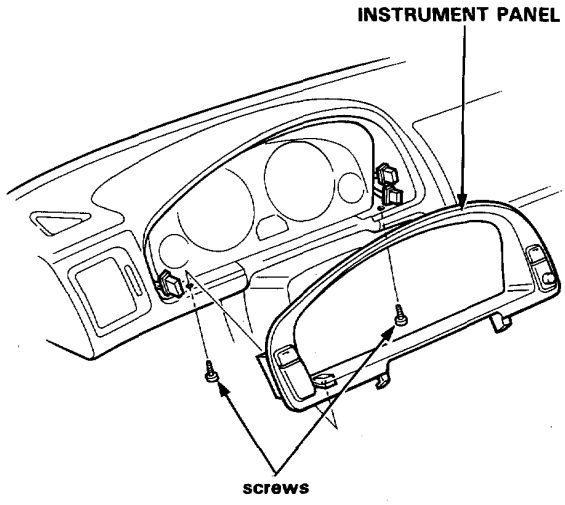
cardiagn.com

Dashlight Brightness Control

Controller Test/Replacement

1. Remove the 2 screws, then disconnect each switch connector and remove the instrument panel.

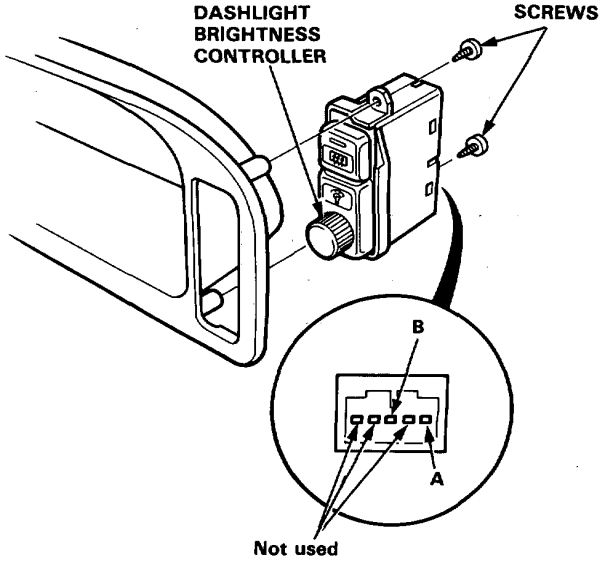
   NOTE: The illustration shows LHD.



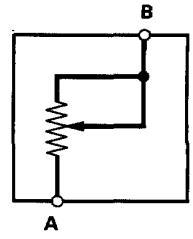
2. Remove the dashlight brightness controller from the instrument panel.
3. Measure resistance between A and B terminals while rotating the adjusting dial.

   Resistance should vary from 0 to 24,000 ohms as the dial is rotated.

   NOTE: Resistance will vary slightly with temperature.



Dashlight brightness controller circuit:



cardiagn.com

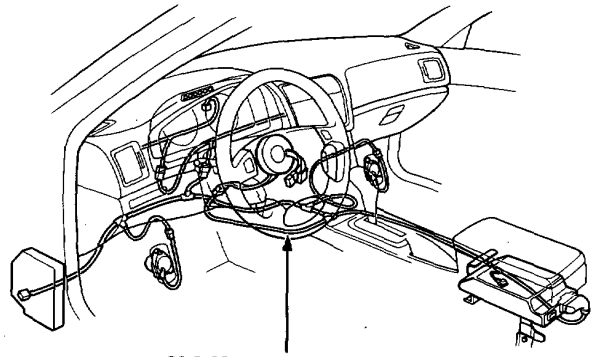
Entry Light Timer System

Component Location Index

CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

NOTE: RHD type is symmetrical to LHD type.



SRS MAIN WIRE HARNESS

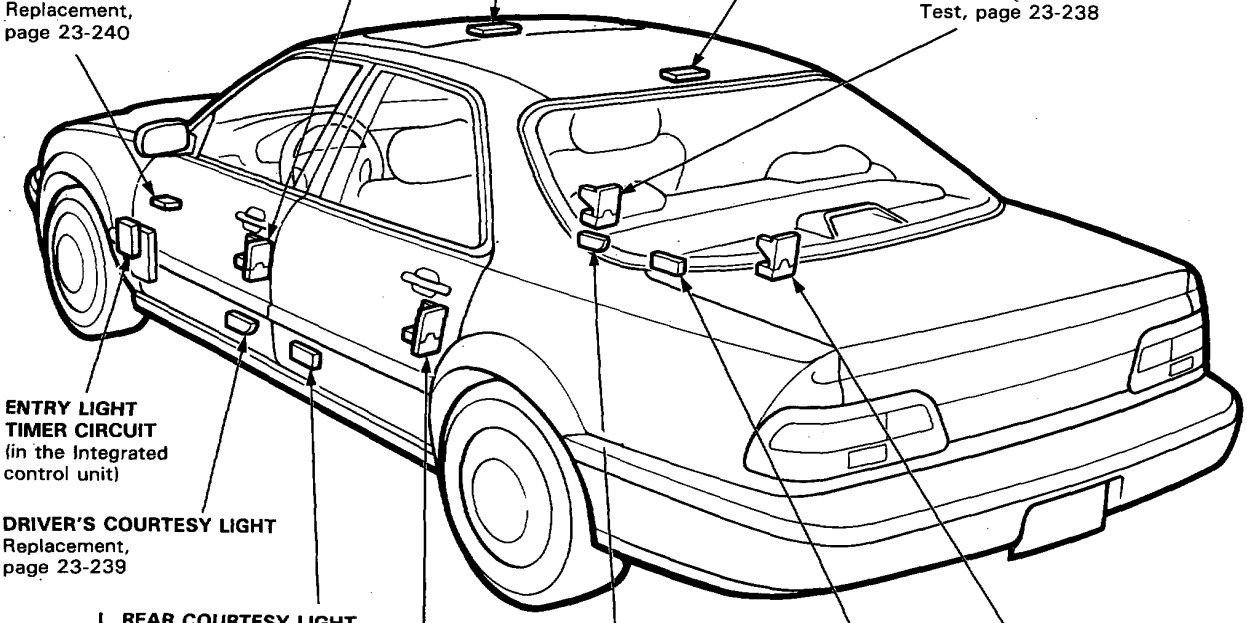
DRIVER'S DOOR SWITCH
Test, page 23-238

FRONT DOME LIGHTS
Test/Replacement, page 23-236

REAR DOME LIGHT
Test/Replacement, page 23-237

FOOT LIGHT
Replacement, page 23-240

R. FRONT DOOR SWITCH
Test, page 23-238



ENTRY LIGHT TIMER CIRCUIT
(in the Integrated control unit)

DRIVER'S COURTESY LIGHT
Replacement, page 23-239

L. REAR COURTESY LIGHT
Replacement, page 23-239

L. REAR DOOR SWITCH
Test, page 23-238

R. FRONT COURTESY LIGHT
Replacement, page 23-239

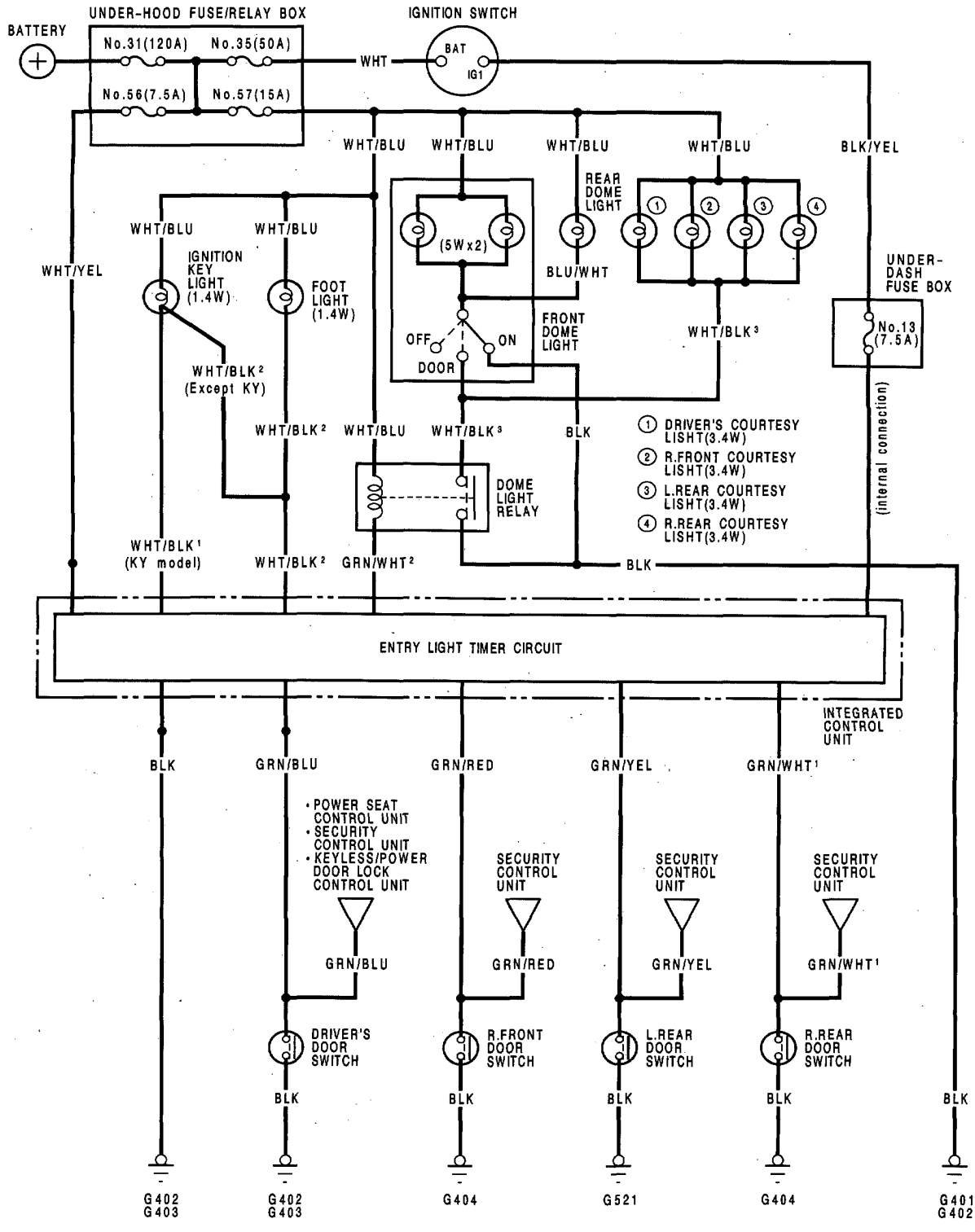
R. REAR DOOR SWITCH
Test, page 23-238

R. REAR COURTESY LIGHT
Replacement, page 23-239

cardiagn.com

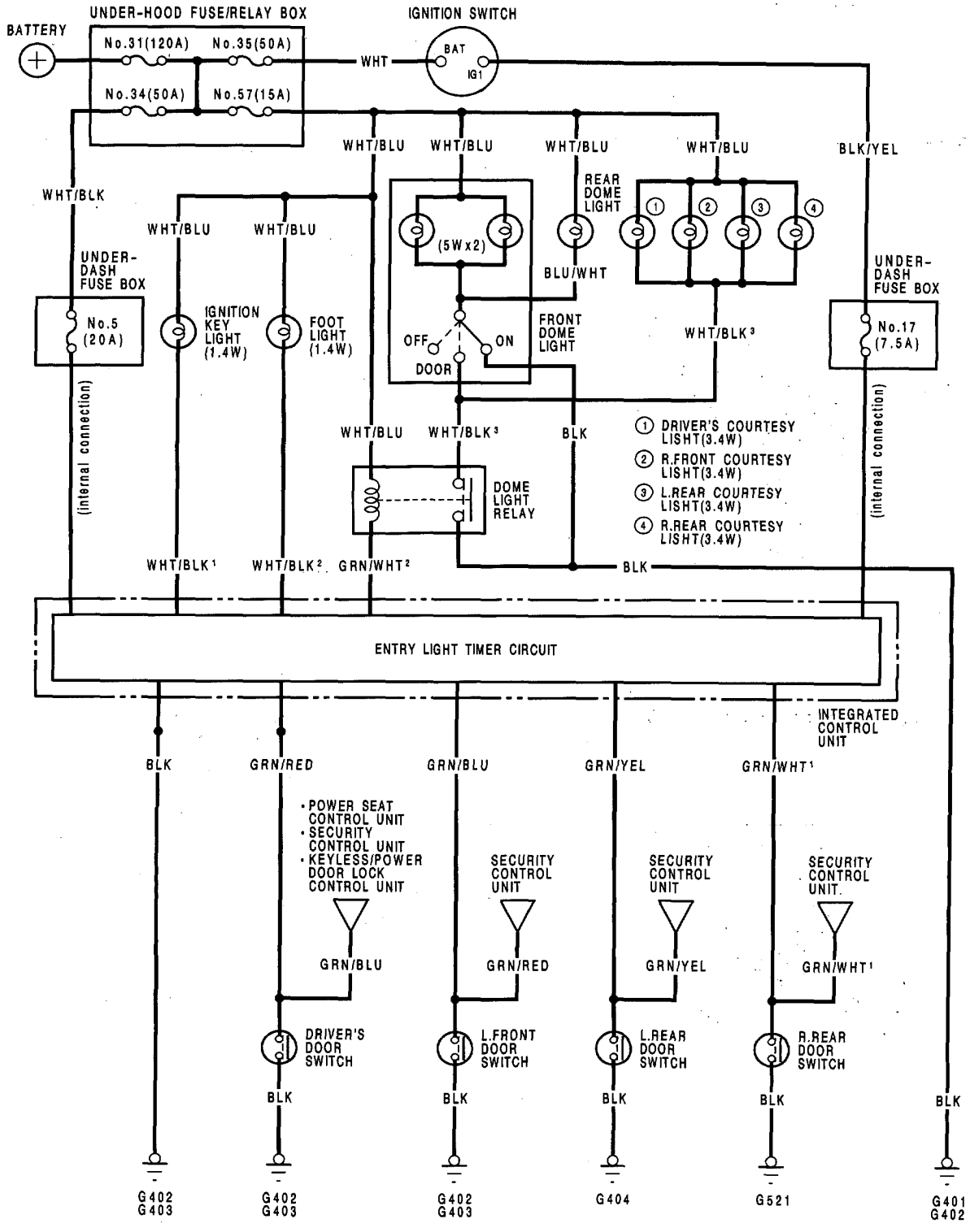
Entry Light Timer System

Circuit Diagram (LHD)



cardiagn.com

Circuit Diagram (RHD)

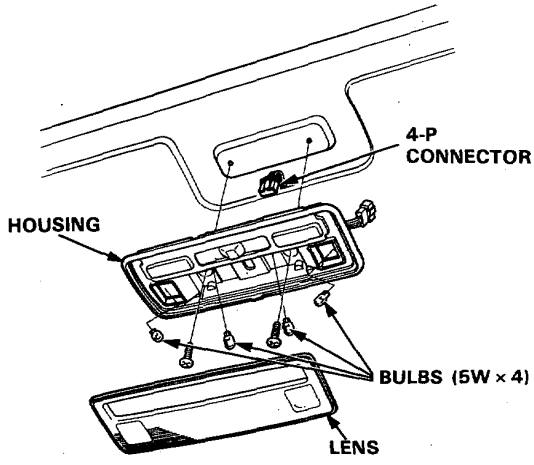


cardiagn.com

Entry Light Timer System

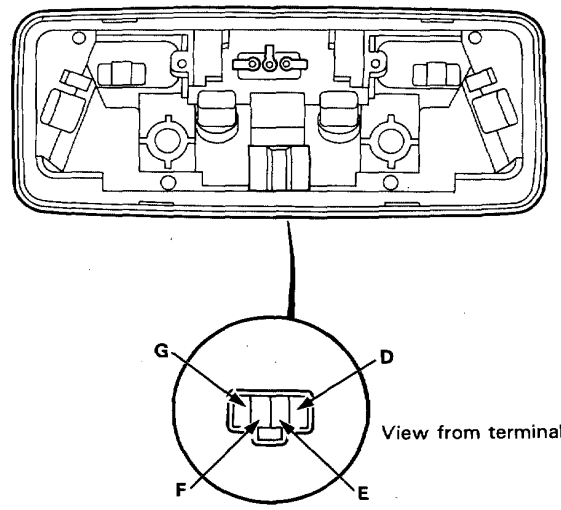
Front Dome Light Test/Replacement

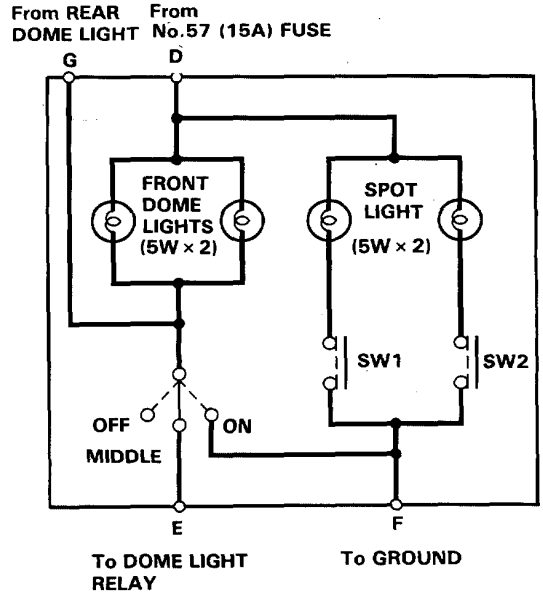
1. Turn the dome light switch OFF.
2. Pry off the lens.
3. Remove the 2 bolts and the housing.
4. Disconnect the 4-P connector from the housing.



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

Terminal / Position		D		E	F	G
OFF		○	○			○
MIDDLE		○	○		○	○
ON		○	○		○	○
SW1	ON	○	○		○	
	OFF					
SW2	ON	○	○		○	
	OFF					

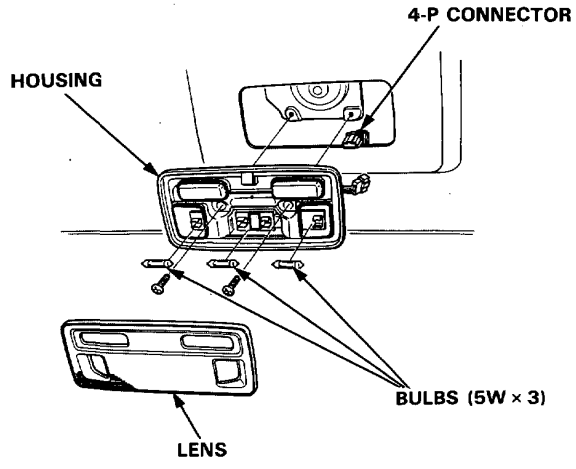


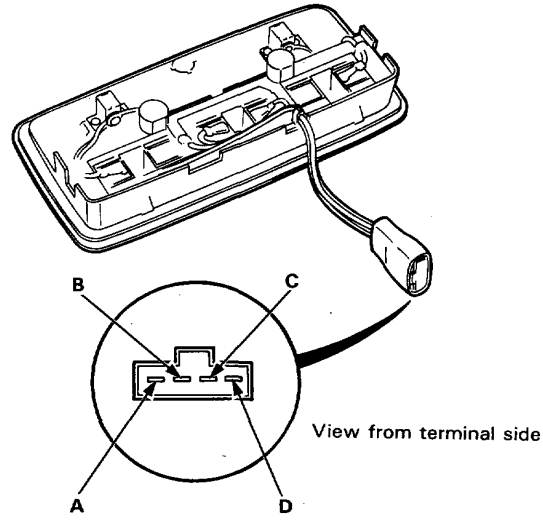


cardiagn.com

Rear Dome Light Test/Replacement

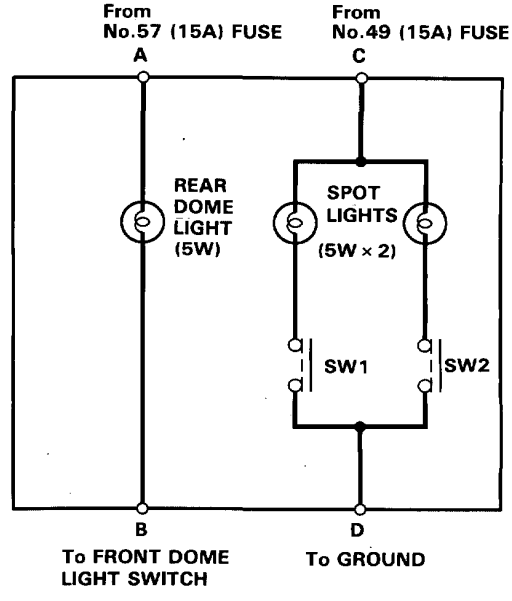
1. Turn front dome light switch OFF.
2. Pry off the lens.
3. Remove the 2 bolts and the housing.
4. Disconnect the 4-P connector from the housing.





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

Terminal / Position		A		B	C		D
Under all conditions		○	─	○			
SW1	ON				○	─	○
	OFF						
SW2	ON				○	─	○
	OFF						



cardiagn.com

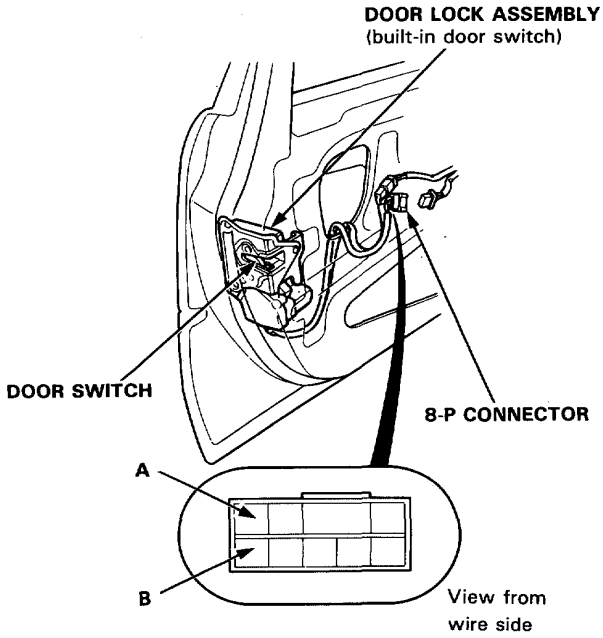
Entry Light Timer System

Door Switch Test

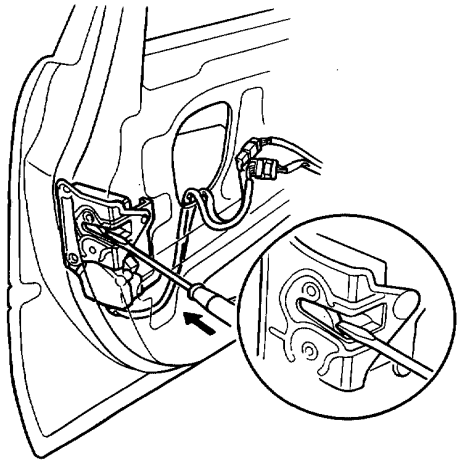
NOTE: Be careful not to damage the door trim panel when removing it.

FRONT DOOR SWITCH:

1. Remove the door trim panel.
2. Disconnect the 8-P connector from the door switch.

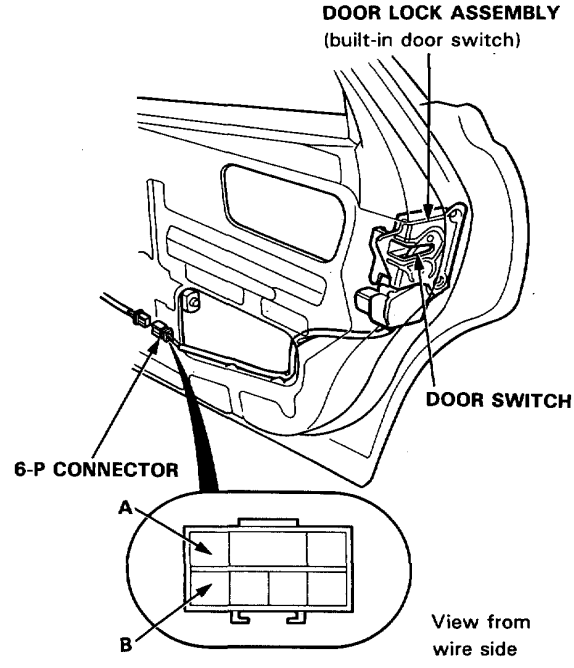


3. There should be continuity between the A terminal and B terminal with the switch released (door open).
4. There should be no continuity with the switch pushed (door closed).



REAR DOOR SWITCH:

5. Remove the rear door trim panel.
6. Disconnect the 6-P connector from the door switch.



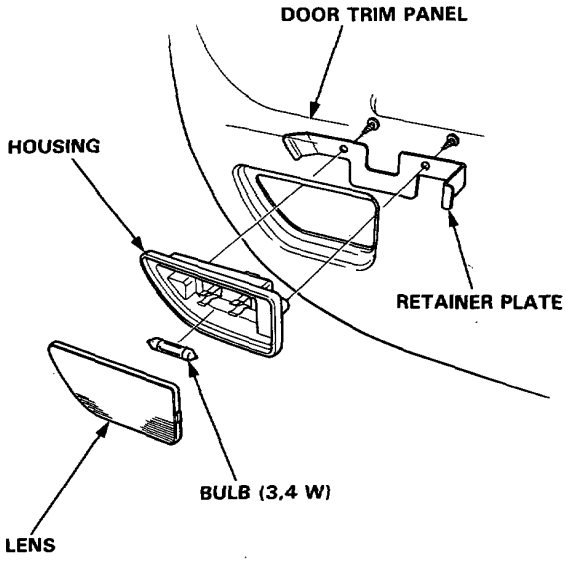
7. There should be continuity between the A terminal and B terminal with the switch released (door open).
8. There should be no continuity with the switch pushed (door closed).

cardiagn.com

Courtesy Light Replacement

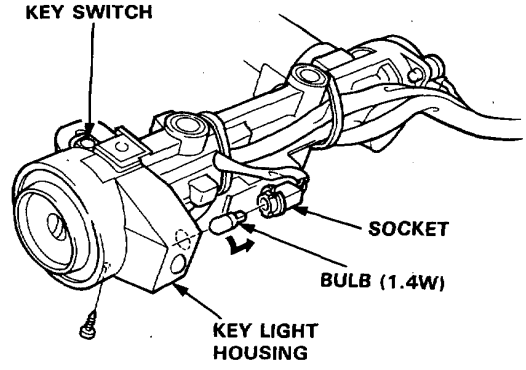
NOTE: The bulb or lens alone can be replaced without removing the door trim panel.

1. Remove the door trim panel.
2. Remove the 2 screws and the retainer plate to remove the light housing from the door trim panel.



Ignition Key Light Replacement

1. Remove the dashboard lower panel.
2. Remove the dashboard center panel.
3. Remove the bulb/socket from the key light housing by turning the socket 45°.



4. Remove the key light housing from the key cylinder by removing the attaching screw.

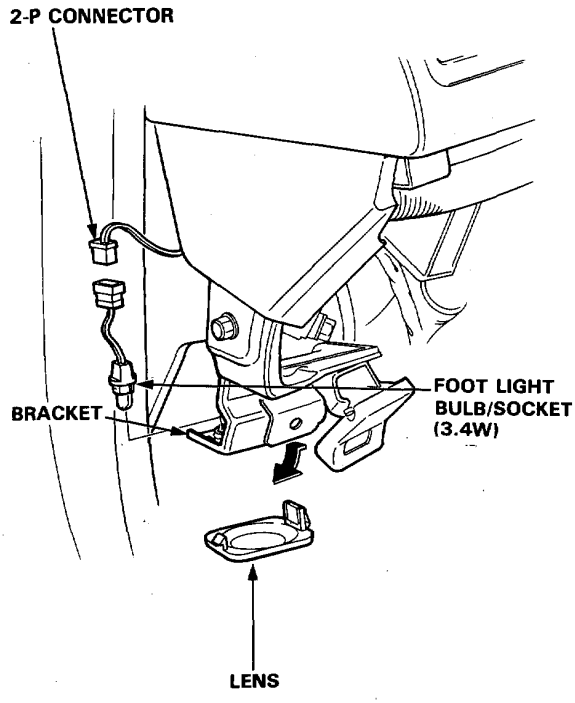
cardiagn.com

Entry Light Timer System

Foot Light Replacement

NOTE: The bulb or lens alone can be replaced without removing the dashboard lower panel.

1. Remove the dashboard lower panel.
2. Disconnect the 2-P connector from the foot light.
3. Remove the bulb/socket from the foot light bracket.

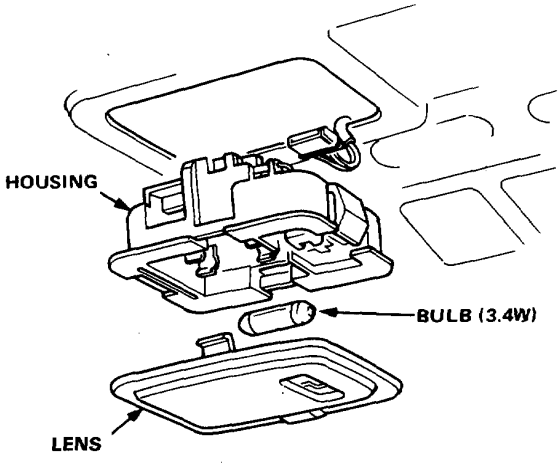


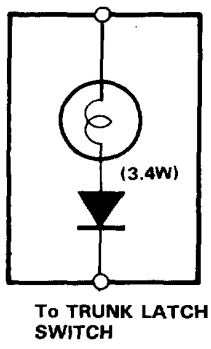
cardiagn.com

Trunk Light and Latch Switch

Trunk Light Replacement

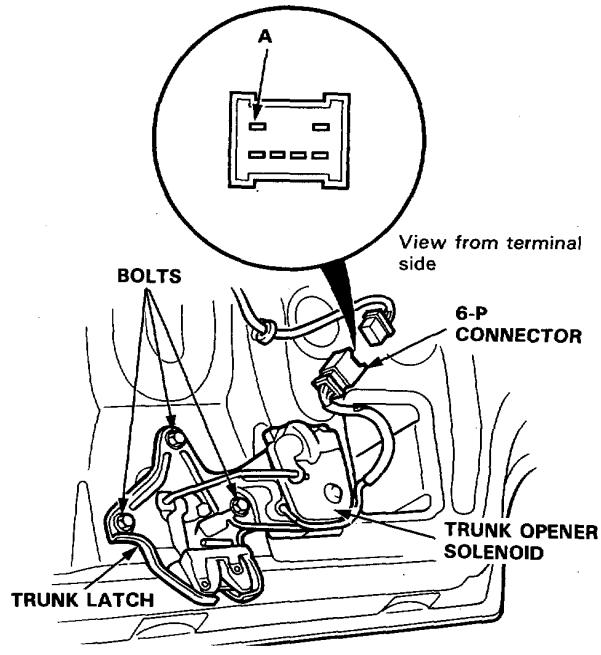
1. Pry the trunk light lens off the housing.
2. Pry out the light assembly.
3. Disconnect the 3-P connector from the housing.





Latch Switch Test/Replacement

1. Open the trunk lid and remove the trunk rear trim panel.
2. Disconnect the 6-P connector from the trunk latch.
3. There should be continuity between the A terminal and body ground when the latch is in the open position.



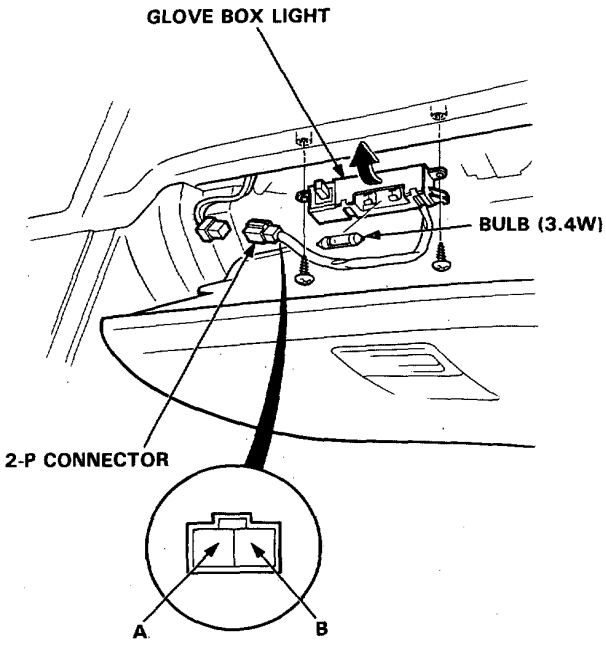
4. If necessary, remove the 3 bolts from the trunk lid, then remove the trunk latch assembly.
   The switch cannot be replaced separately.

cardiagn.com

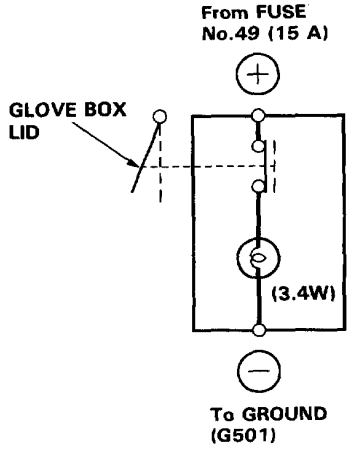
Glove Box Light

Test

1. Open the glove box.
2. Disconnect the 2-P connector from the glove box light.



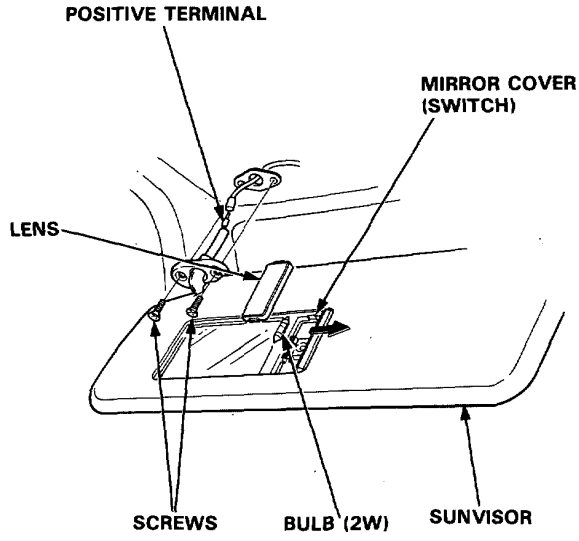
3. There should be continuity between the A terminal and B terminal with a bulb installed. There should be no continuity when the switch is pushed.



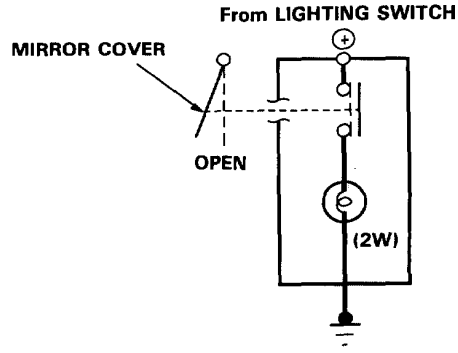
Vanity Mirror Light

Test

1. Remove the 2 screws from the sunvisor bracket.
2. Disconnect the connector and remove the sunvisor.



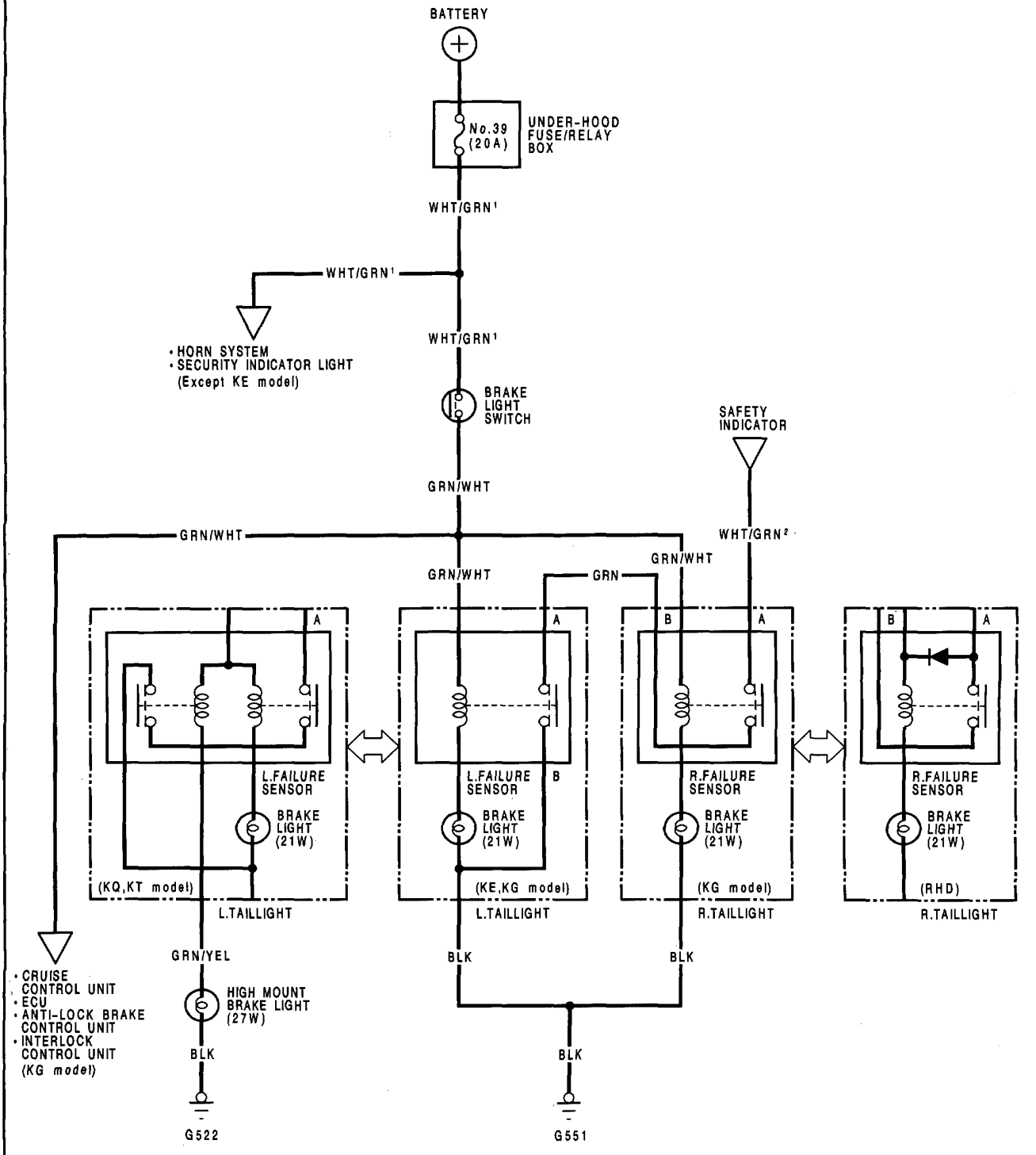
3. If necessary, pry off the lens and replace the bulb.
4. There should be continuity between the positive terminal and mount base (ground) with the mirror cover open, and a bulb installed.
   There should be no continuity when the cover is closed.



cardiagn.com

Brake Lights

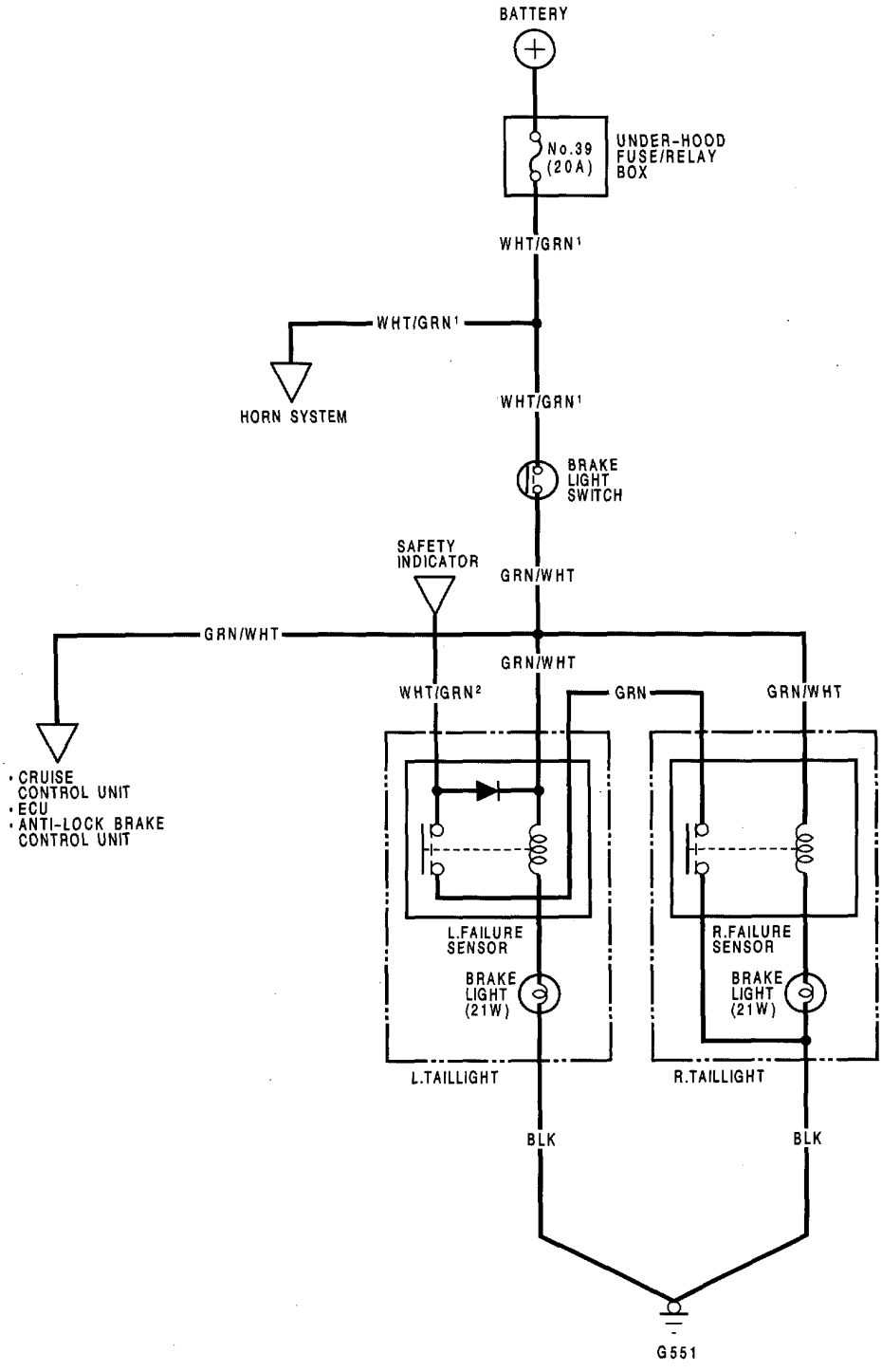
Circuit Diagram (RHD and KG model)



cardiagn.com

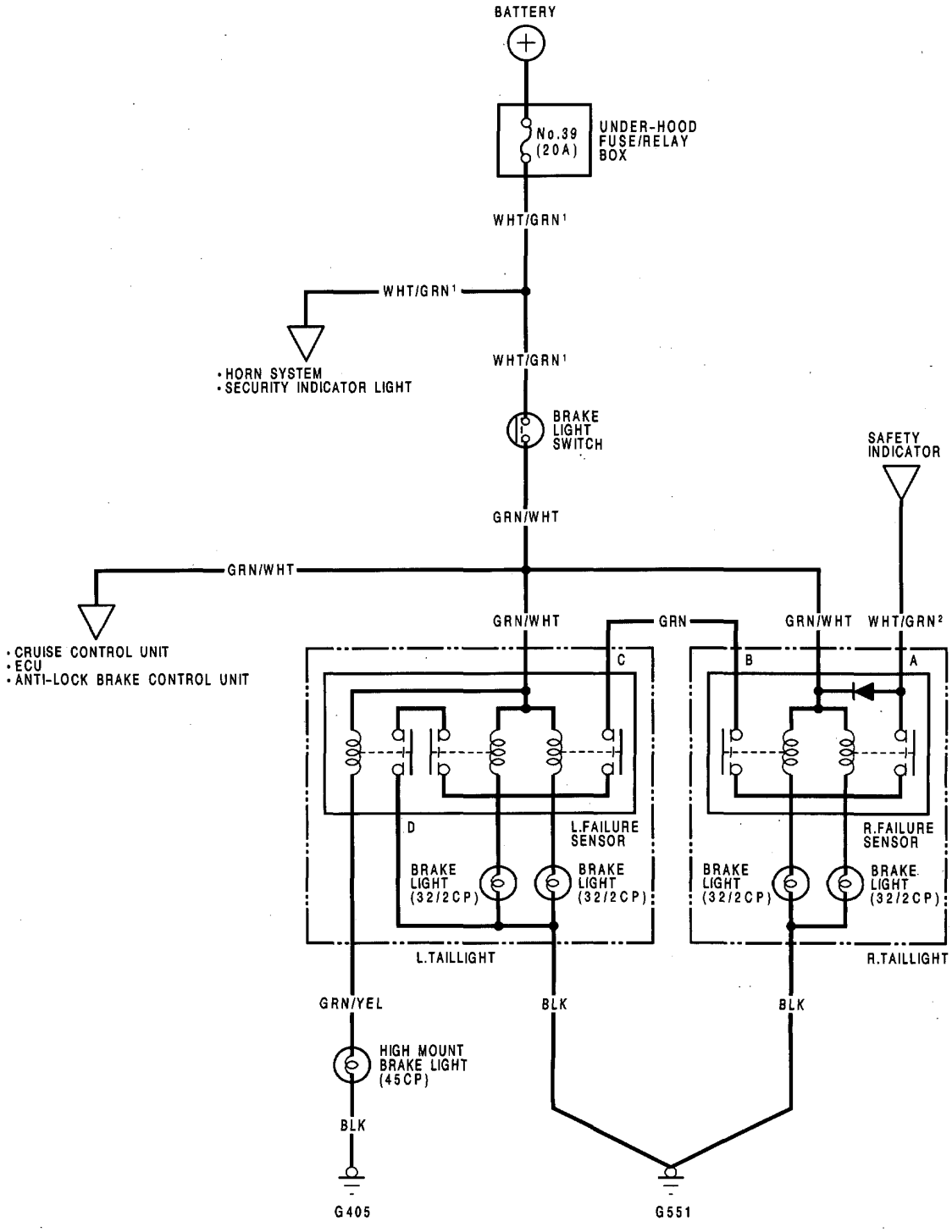
Brake Lights

Circuit Diagram (LHD: Except KG, KY models)



cardiagn.com

Circuit Diagram (KY model)

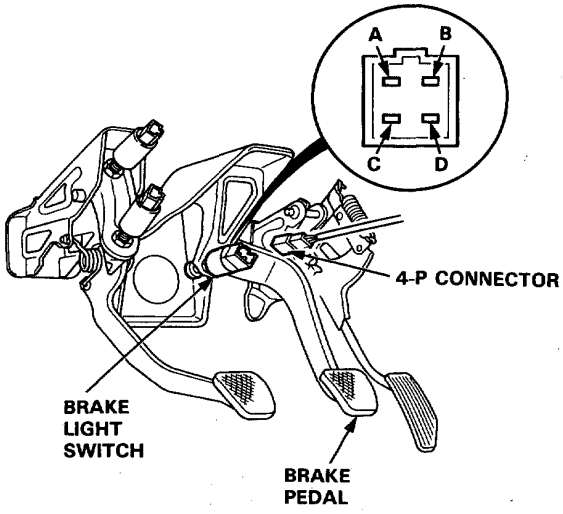


cardiagn.com

Brake Lights

Brake Light Switch Test

1. If the brake lights do not go on, check the No. 39 (20A) fuse in the under-hood fuse/relay box, and the brake light bulbs in the tailight assembly and high mount brake light.
2. If the fuse and bulbs are OK, disconnect the 4-P connector from the brake light switch.

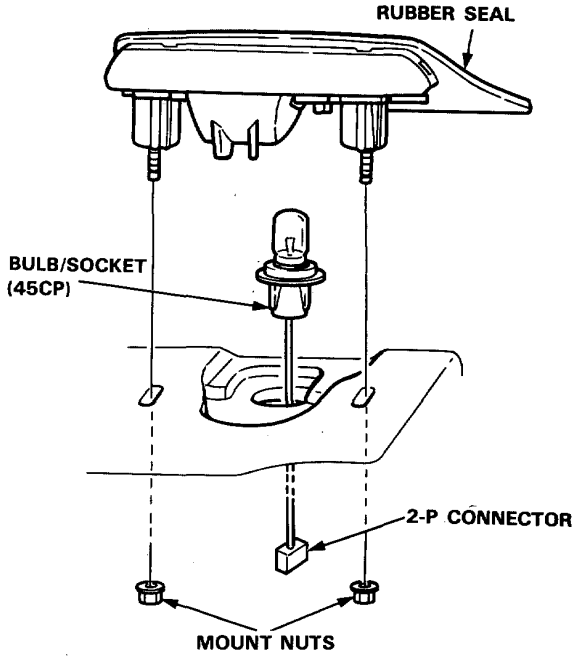


3. Check for continuity between the B and C terminals. There should be continuity with the brake pedal pushed.
   - If there is no continuity, replace the switch or adjust pedal height (See section 19).
   - If there is continuity, but the brake lights do not go on, inspect for:

   — Poor ground (G551, G522).
   — An open in the WHT/GRN[1] or GRN/WHT wire.
   — Faulty brake light failure sensors (see page 23-180).

High Mount Brake Light Replacement

1. Remove the rear shelf panel (See section 20).
2. Open the trunk lid and disconnect the 2-P connector from the high mount brake light.
3. Remove the 2 nuts, then remove the high mount brake light on the rear shelf.



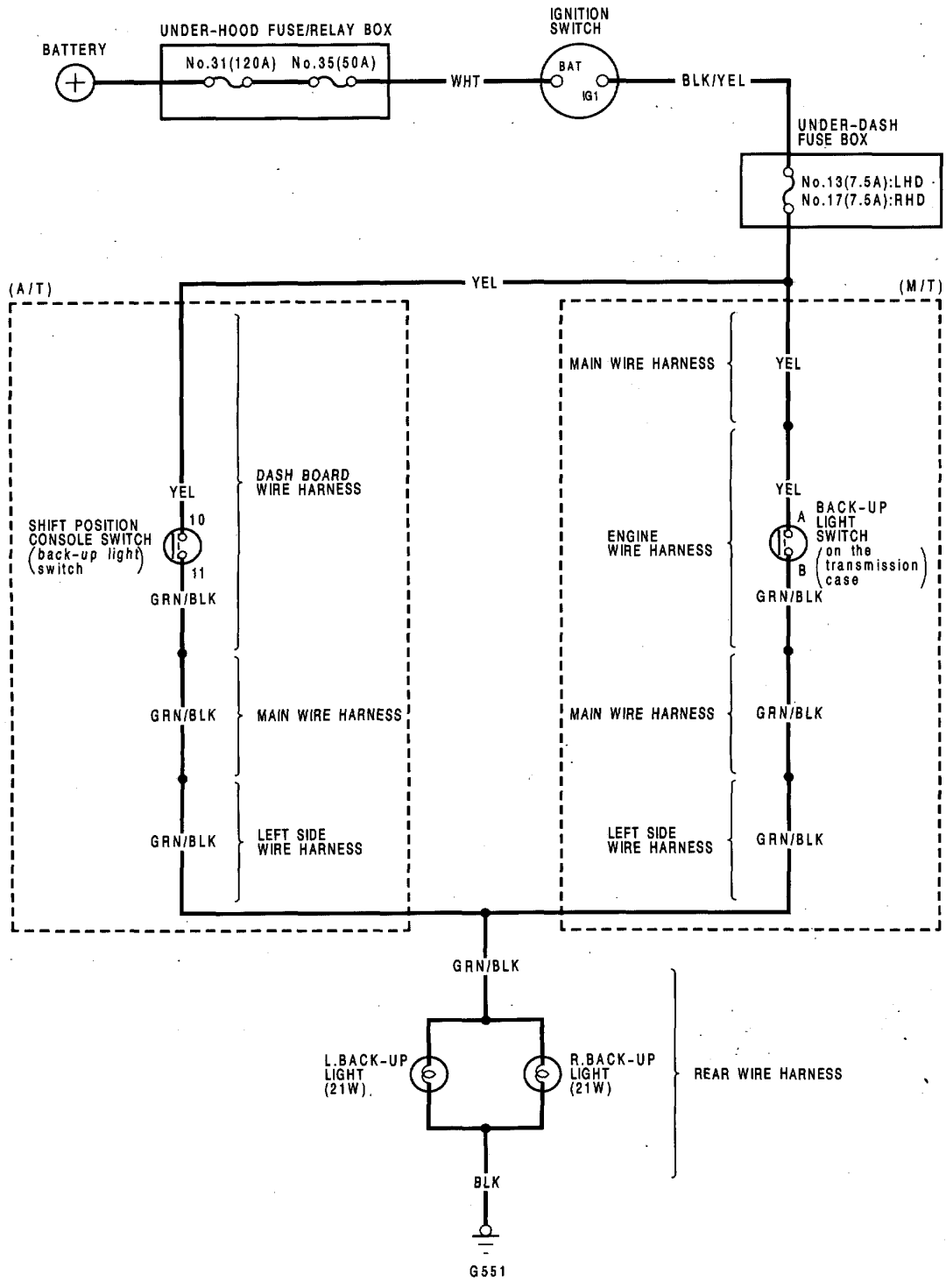
4. Install the high mount brake light in the reverse order of removal. Clean the rear window glass before installing.

   NOTE: When installing the high mount brake light, make sure the rubber seal is touching the glass all the way around.

cardiagn.com

Back-up Lights

Circuit Diagram



cardiagn.com

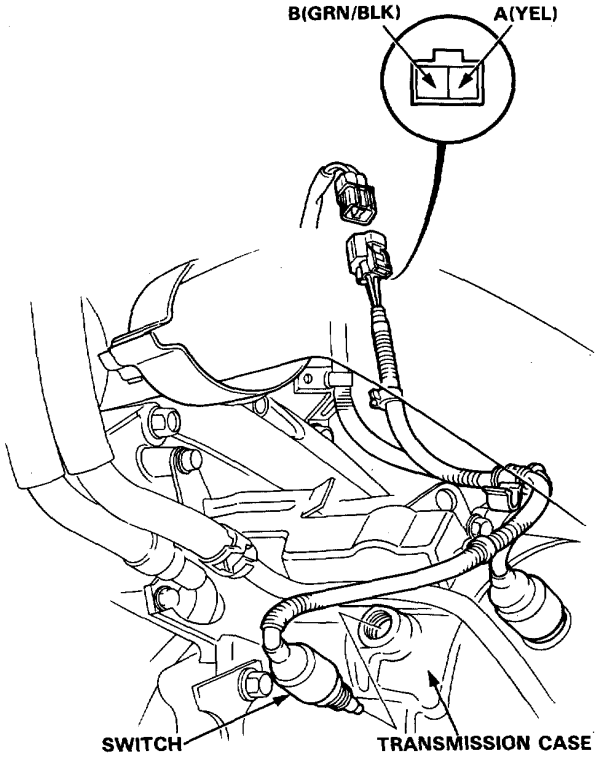
Back-up Lights

Test

Manual Transmission:

NOTE: Check the No. 13: LHD or No. 17: RHD (7.5 A) fuse in the under-dash fuse box before testing.

1. Test the back-up light switch by placing the shift lever in reverse and turning the ignition switch to ON.
2. If the back-up lights do not go on, check the back-up light bulbs in the taillight assembly.
3. If the fuse and bulbs are OK, disconnect the connector from the back-up light switch.



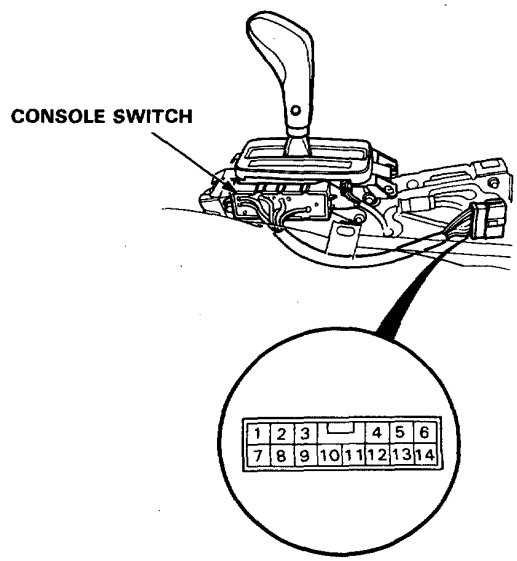
4. Check for continuity between the A and B wires with the switch installed. There should be continuity as the shift lever engages "R".
   - If there is no continuity, replace the switch.
   - If there is continuity, but the back-up lights do not go on, inspect for:
   - — Poor ground (G551).
   - — Open in the YEL or GRN/BLK wire.

Automatic Transmission:

NOTE: Check the No. 13: LHD or No. 17: RHD (7.5 A) fuse in the under-dash fuse box before testing.

1. Test the back-up light switch by shifting the select lever to "R" and turning the ignition switch ON.
2. If the back-up lights do not go on, check the back-up light bulbs in the taillight assembly.
3. If the fuse and bulbs are OK, remove the center console, then disconnect the 14-P connector from the shift position console switch (back-up light switch).

CAUTION: Do not damage the yellow-covered SRS wiring.



View from wire side

4. Check for continuity between No.10 and No.11 terminals. Move the lever back and forth without touching the push button at the "R" position, and check for continuity within the range of free play of the shift lever.
   - If there is no continuity, adjust the position of the console switch (See page 23-168).
   - If there is continuity, but the back-up lights do not go on, inspect for an open in the YEL or GRN/BLK wire.

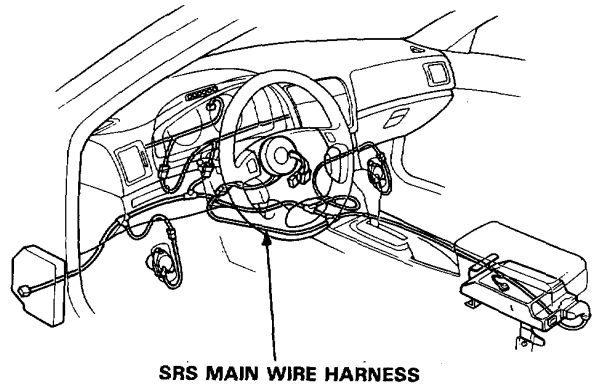
cardiagn.com

Turn Signal/Hazard Flasher System

Component Location (LHD)

CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

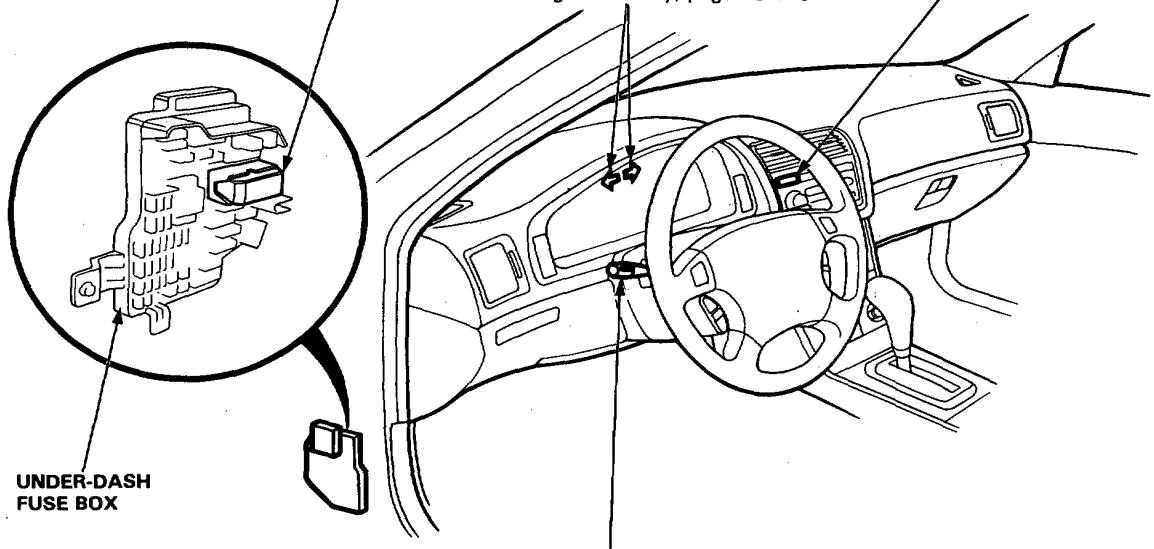


SRS MAIN WIRE HARNESS

TURN SIGNAL/HAZARD RELAY
Input Test, page 23-252

TURN SIGNAL INDICATOR LIGHTS
(in the gauge assembly)
Gauge Assembly, page 23-146

HAZARD SWITCH
Removal, page 23-254
Test, page 23-254



UNDER-DASH FUSE BOX

LIGHTING/TURN SIGNAL SWITCH
Test, page 23-212
Replacement, page 23-214

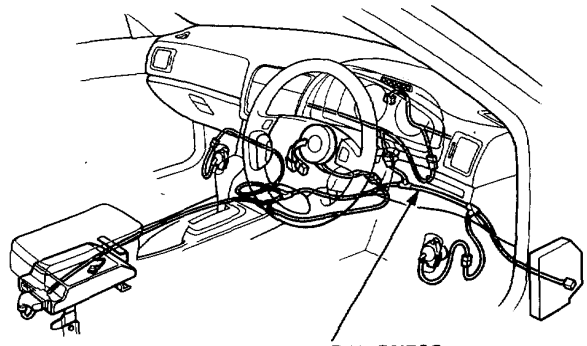
cardiagn.com

Turn Signal/Hazard Flasher System

Component Location (RHD)

CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

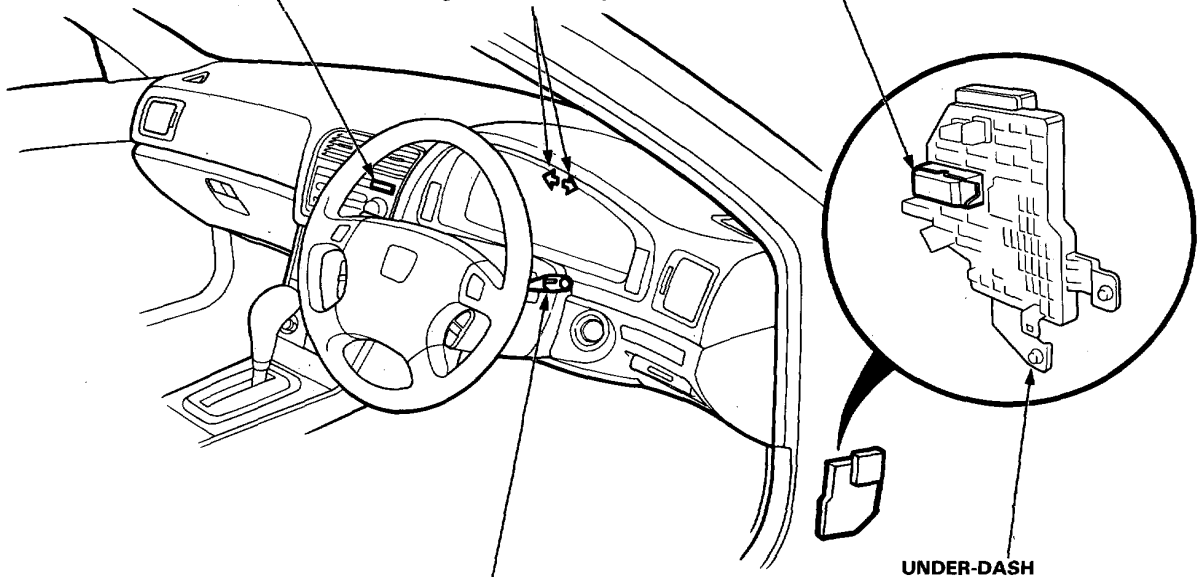


SRS MAIN WIRE HARNESS

HAZARD SWITCH
Removal, page 23-254
Test, page 23-254

TURN SIGNAL INDICATOR LIGHTS
(in the gauge assembly)
Gauge Assembly, page 23-146

TURN SIGNAL/HAZARD RELAY
Input Test, page 23-252

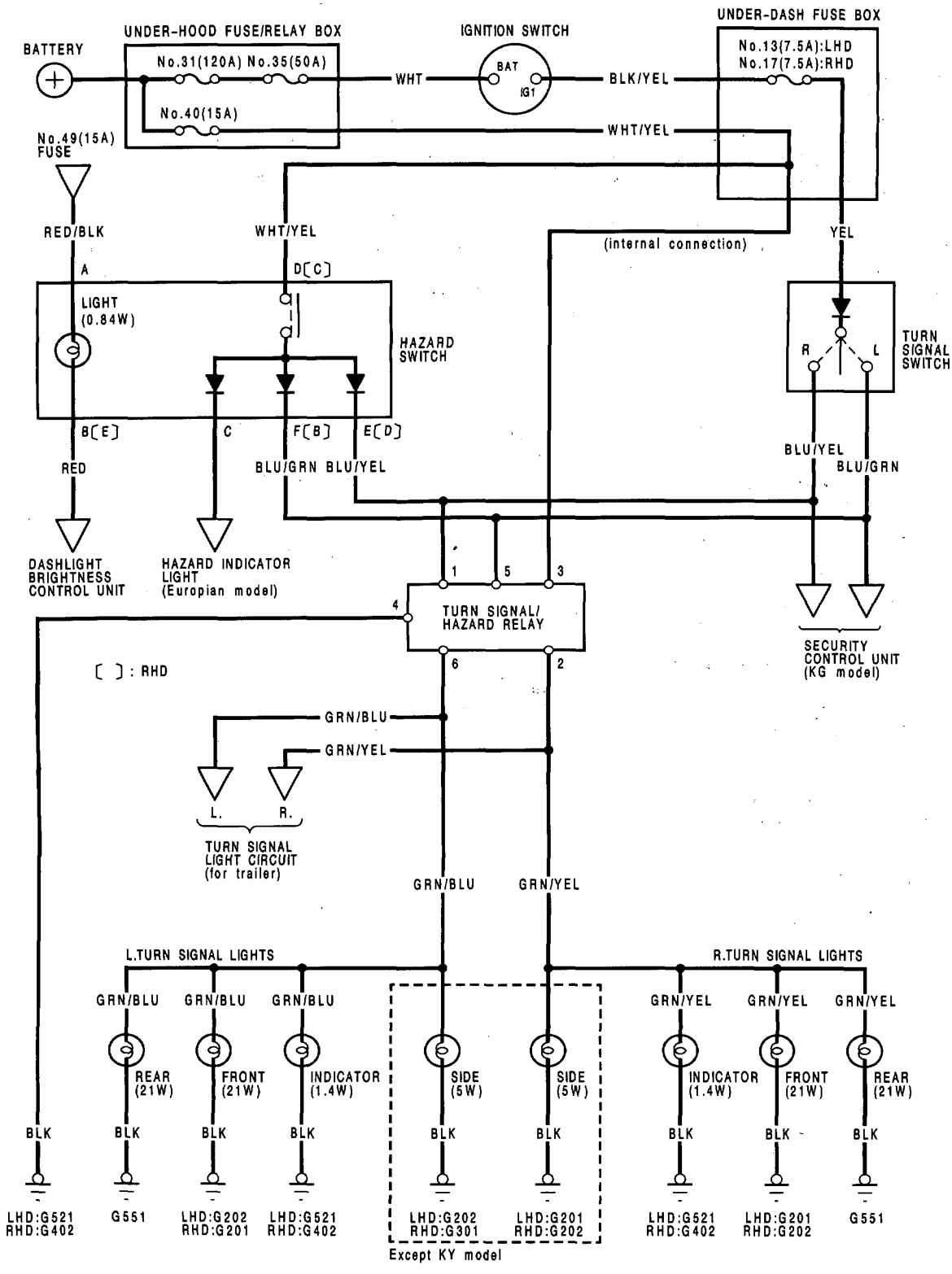


UNDER-DASH FUSE BOX

LIGHTING/TURN SIGNAL SWITCH
Test, page 23-212
Replacement, page 23-214

cardiagn.com

Circuit Diagram



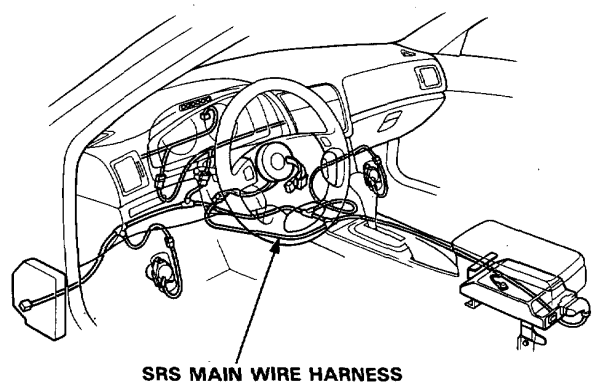
cardiagn.com

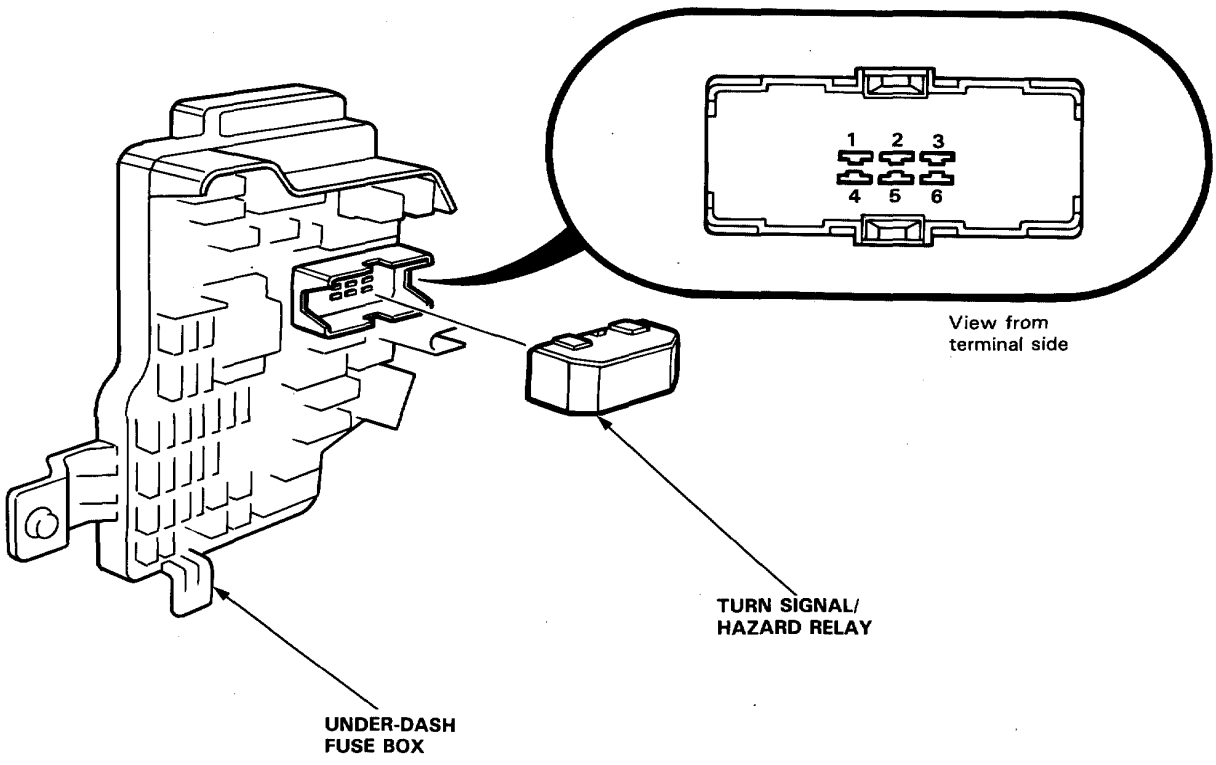
Turn Signal/Hazard Relay Input Test

CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

Remove the driver's side kick panel, then remove the turn signal/hazard relay from the under-dash fuse box.
Make the following input tests at the relay holder terminals.
If all tests prove OK but the relay fails to work, replace it.





cardiagn.com

No.	Terminal	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	4	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor ground (G521 [402]). • An open in the BLK wire.
2	3	Under all conditions.	Check for voltage to ground: should be battery voltage.	• Blown No. 40 (15 A) fuse. • An open in the WHT/YEL wire.
3	1	Hazard switch ON.	Check for voltage to ground: should be battery voltage.	• Faulty hazard switch. • An open in the BLU/YEL.
		Ignition switch ON and turn signal switch to R.		• Faulty turn signal switch. • An open in the BLU/YEL.
4	5	Hazard swith ON	Check for voltage to ground: should have battery voltage.	• Faulty hazard switch. • An open in the BLU/GRN.
		Ignition switch ON and turn signal switch to L.		• Faulty turn signal switch. • An open in the BLU/GRN.
5	3 • 6	Connect the 3 terminal to the 6 terminal	L. Turn signal lights should come on as the battery is connected.	• Blown bulb. • Poor ground (G201, G202, G301, G551, G521). • An open in the GRN/BLU wire.
6	3 • 2	Connect the 3 terminal to the 2 terminal.	R. Turn signal lights should come on as the battery is connected.	• Blown bulb. • Poor ground (G201, G202, G301, G551, G521). • An open the GRN/YEL wire.

[ ]: RHD

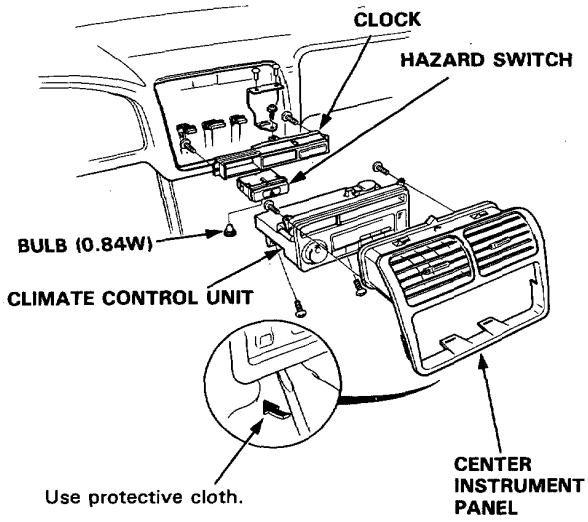
cardiagn.com

Turn Signal/Hazard Flasher System

Hazard Switch Removal

CAUTION: Be careful not to damage the center instrument panel.

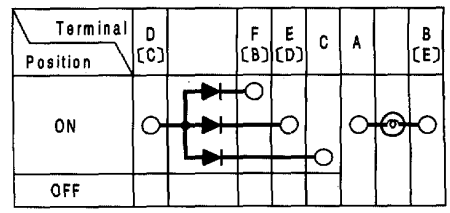
1. Remove the center instrument panel assembly.
2. Remove the stereo radio/cassette player (See page 23-257).
3. Remove the clock and hazard switch from the climate control panel.
4. Remove the hazard switch from the clock.

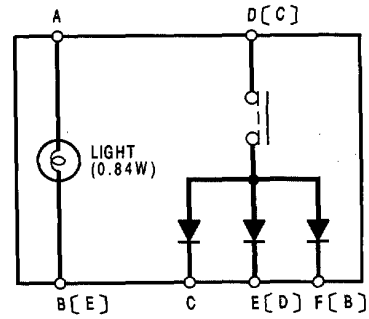


5. Turn the bulb socket 45° counterclockwise to remove it.

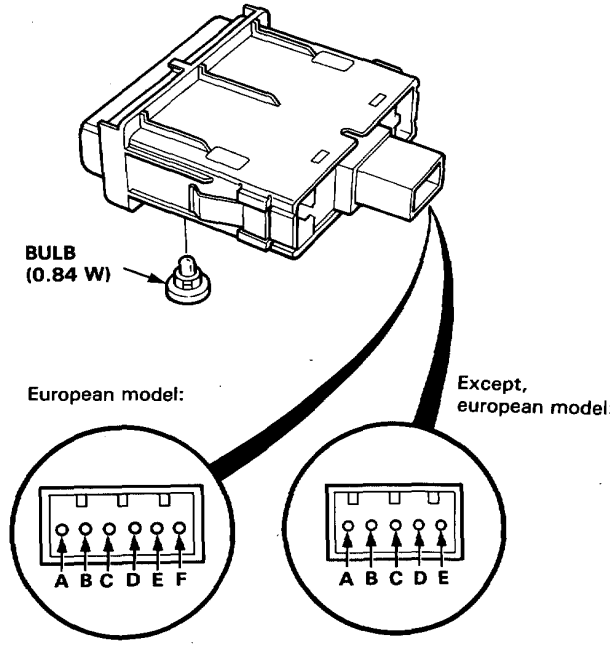
Hazard Switch Test

1. Remove the hazard switch from the center instrument panel.
2. Check for continuity between the terminals in each switch position according to the table.





[ ]: Execpt european model.



cardiagn.com

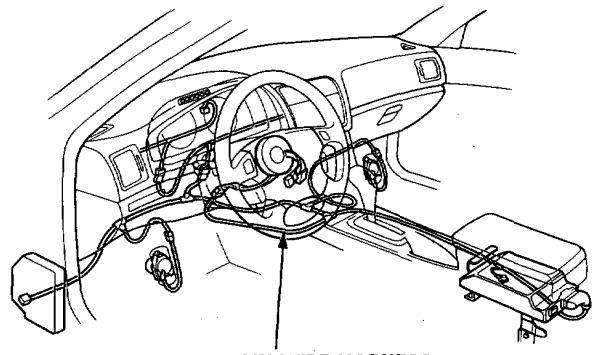
Stereo Sound System

Component Location Index

CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

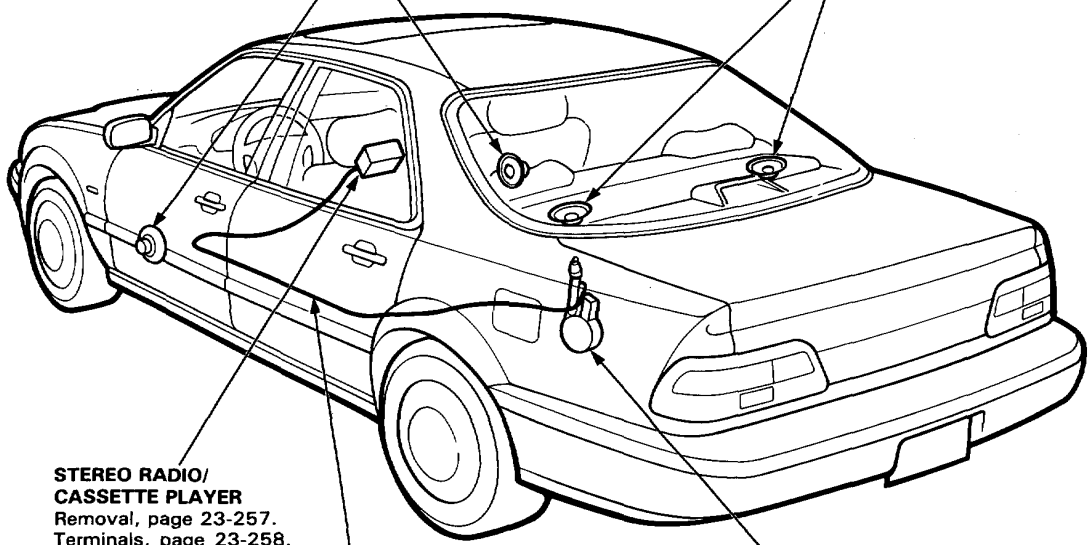
NOTE: RHD type is symmetrical to LHD type.



SRS MAIN WIRE HARNESS

DOOR SPEAKERS
Replacement, page 23-261.

REAR SPEAKERS
Replacement, page 23-261.



STEREO RADIO/ CASSETTE PLAYER
Removal, page 23-257.
Terminals, page 23-258.

ANTENNA LEAD

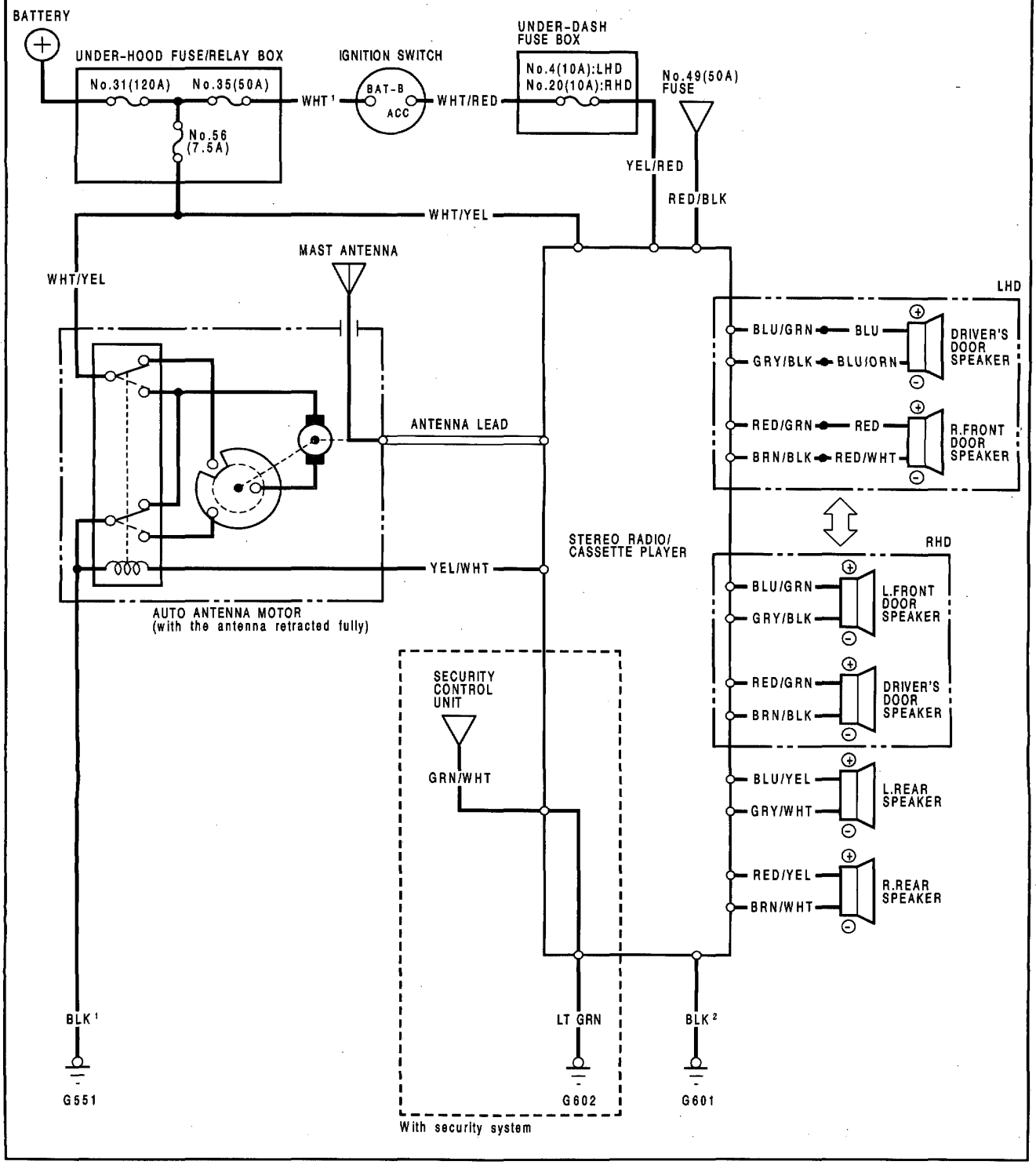
AUTO ANTENNA MOTOR
Test, page 23-259
Replacement, page 23-261

cardiagn.com

Stereo Sound System

Circuit Diagram

NOTE: Several different wires have the same color. They have been given a number suffix to distinguish them (for example BLK[1] and BLK[2] are not the same).

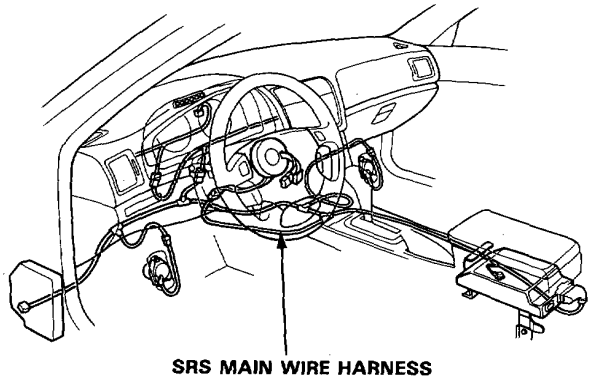


cardiagn.com

Unit Removal

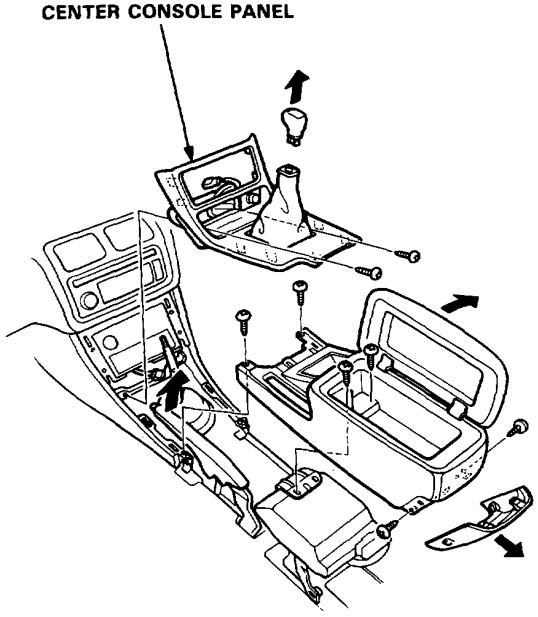
CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**



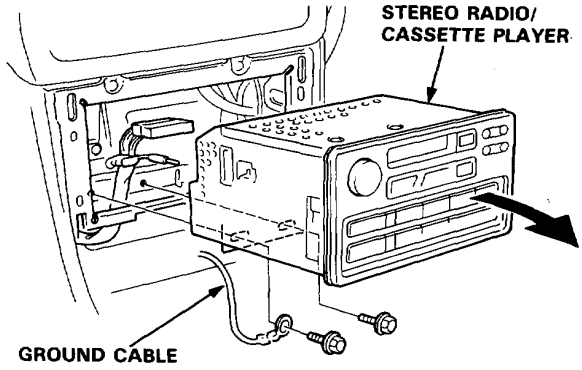
NOTE: Disconnect the battery negative cable before removing the unit.

1. Remove the center armrest and center console panel.



2. Remove the 2 mounting bolts, then disconnect the ground cable.
   Pull the stereo radio/cassette player out part of the way.

3. Disconnect the 16-P connector and mast antenna lead.



4. Installation is the reverse order of removal.

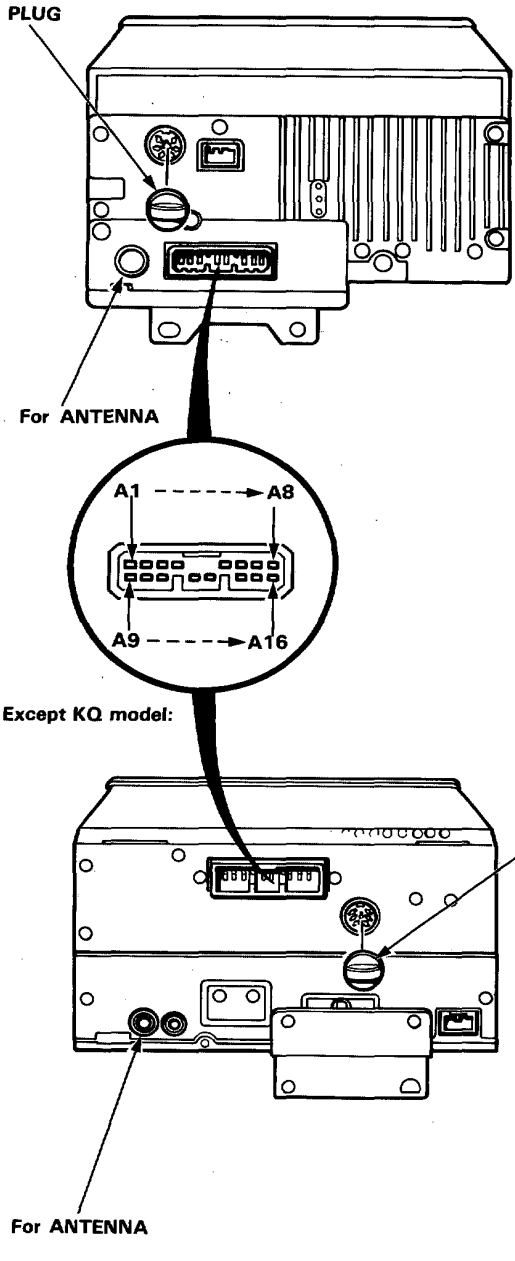
NOTE: Before tightening the mounting bolts, make sure the harnesses are not pinched.

cardiagn.com

Stereo Sound System

Radio/Cassette Unit Terminals

KQ model:



Terminal	Wire	Destination
A1	RED/GRN	Right front door speaker ⊕
A2	BLU/GRN	Left front door speaker ⊕
A3	RED/BLK	Light-on signal
A4	WHT/YEL	Constant power (Tuning memory)
A5	YEL/RED	ACC (Main stereo power supply)
A6	YEL/WHT	Radio switched power (To antenna)
A7	BLU/YEL	Left rear speaker⊕
A8	RED/YEL	Right rear speaker⊕
A9	BRN/BLK	Right front door speaker⊖
A10	GRY/BLK	Left front door speaker⊖
A11	BRN	Telephone mute signal
A12	GRN/WHT	Security (IN)
A13	LT GRN	Security (OUT)
A14	BLK	Ground (G501)
A15	GRN/WHT	Left rear speaker ⊖
A16	BRN/WHT	Right rear speaker ⊖

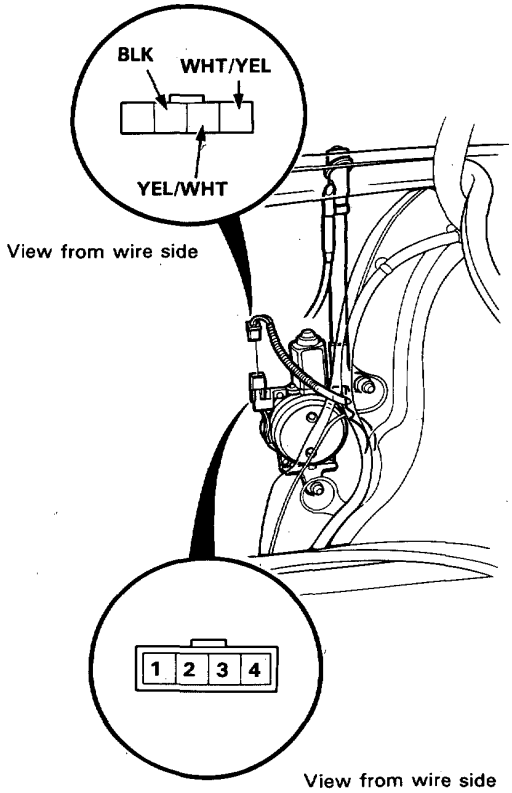
cardiagn.com

Auto Antenna Motor Test

1. Remove the trunk side trim panel.
2. Disconnect the 4-P connector from the motor and remove the connector from its clamp.
3. First check power to the motor at the harness pins: There should be battery voltage between the WHT/YEL (+) and BLK (−) terminals all the time. There should be battery voltage between the YEL/WHT (+) and BLK (−) terminals only with the ignition and radio switched ON.
4. Test motor operation:

   FULL EXTEND: Connect battery power to the No. 1 and No. 2 terminals and ground the No. 3 terminal.

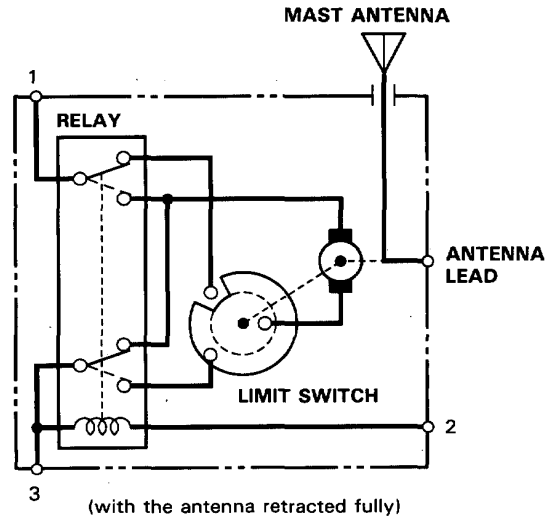
   RETRACTED: Then disconnect battery power from the No. 2 terminal.



View from wire side

View from wire side

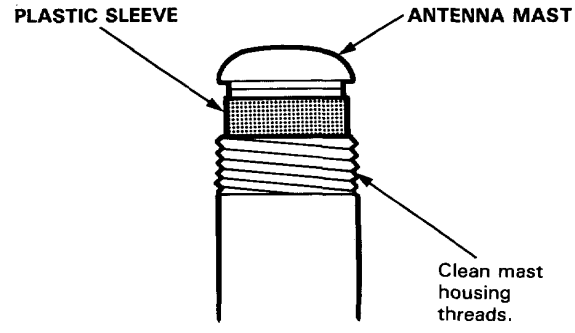
5. If the motor fails to operate properly, replace it.



(with the antenna retracted fully)

Sticking Antenna:
The antenna sticks in either the up or down position.

1. Remove the special nut, spacer, and bushing (See page 23-260).
2. Clean the antenna mast housing threads and reinstall the spacer and bushing.



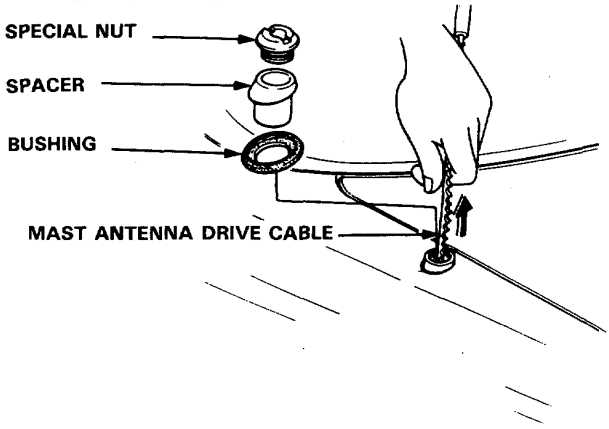
cardiagn.com

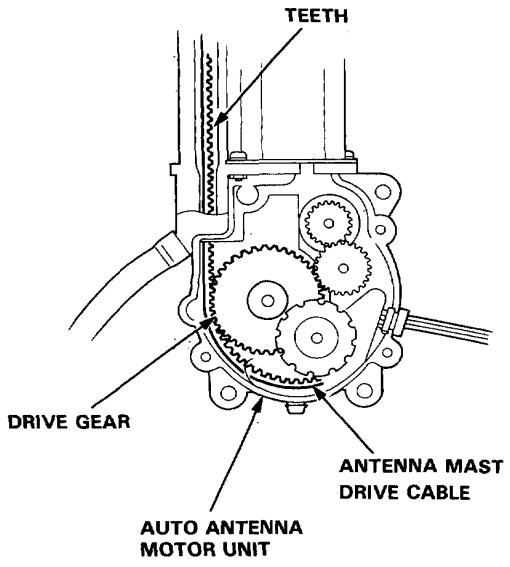
Mast Antenna Replacement

Removal

NOTE: The antenna mast alone can be replaced without having to remove the power antenna motor unit.

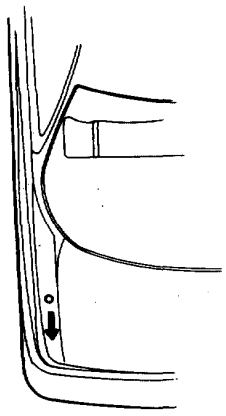
1. Remove the special nut, spacer and bushing.
2. Carefully withdraw the antenna mast while extending it by turning the radio switch ON.





Installation

1. Hold the antenna so the teeth on the drive cable face in the direction shown, and insert the drive cable into the antenna housing.



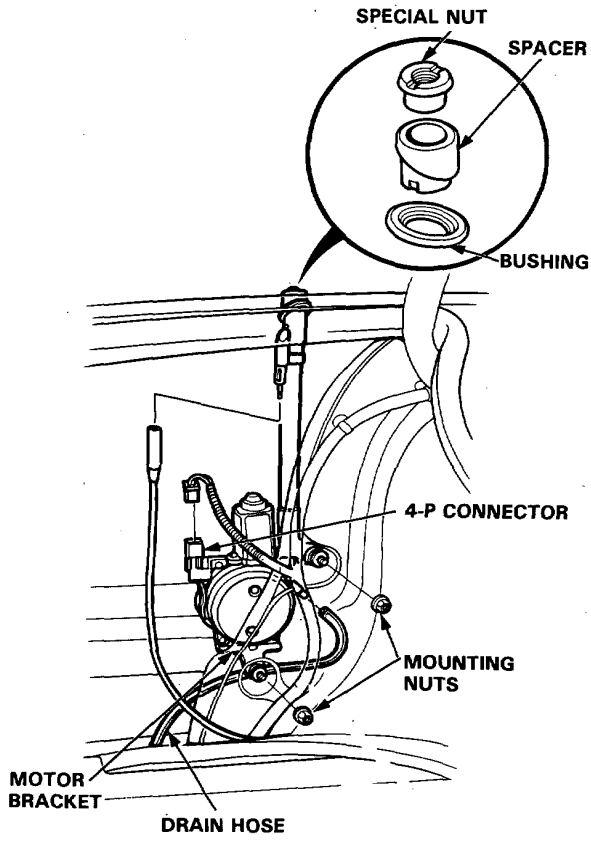
Direction of the teeth.

2. Check for engagement of the cable teeth to the drive gear by carefully moving the cable up and down.
3. Turn the radio switch "OFF", and let the motor pull the drive cable inside the antenna housing.
4. Clean the antenna mast housing threads and insert the antenna mast into the antenna housing. Install the bushing and spacer; tighten the special nut.
5. Check that the antenna mast retracts and extends fully when the radio switch is turned ON and OFF repeatedly.

cardiagn.com

Auto Antenna Motor Replacement

1. Remove the trunk side trim panel.
2. Disconnect the 4-P connector and antenna lead from the motor, then remove the special nut and 2 mount nuts to take out the motor with the mast antenna.

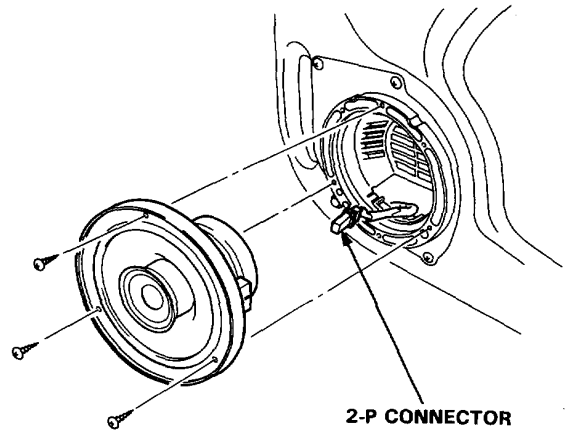


3. Install in reverse order of removal.

   NOTE: Tighten the special nut, then tighten 2 mount nuts to motor bracket.

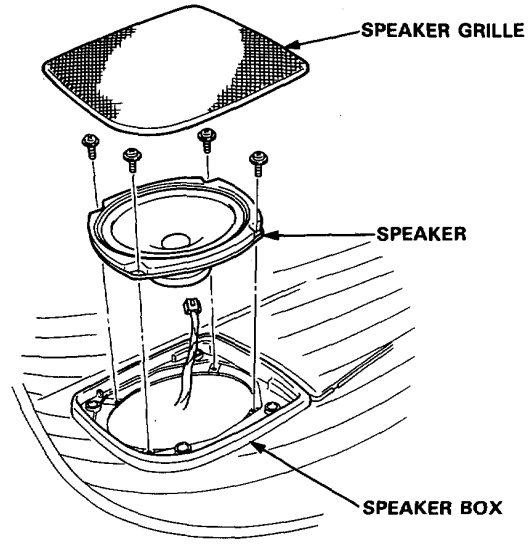
Front Speaker Replacement

1. Remove the door trim panel.
2. Remove the 3 screws, then disconnect the connector from the speaker.



Rear Speaker Replacement

1. Remove the speaker grille.
2. Remove the 4 screws, then disconnect the connector from the speaker.
3. Take out the speaker from the speaker box.



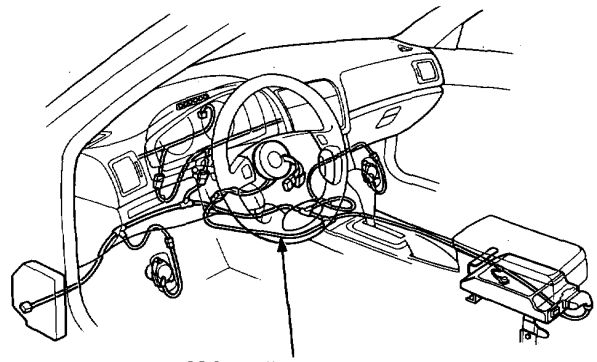
cardiagn.com

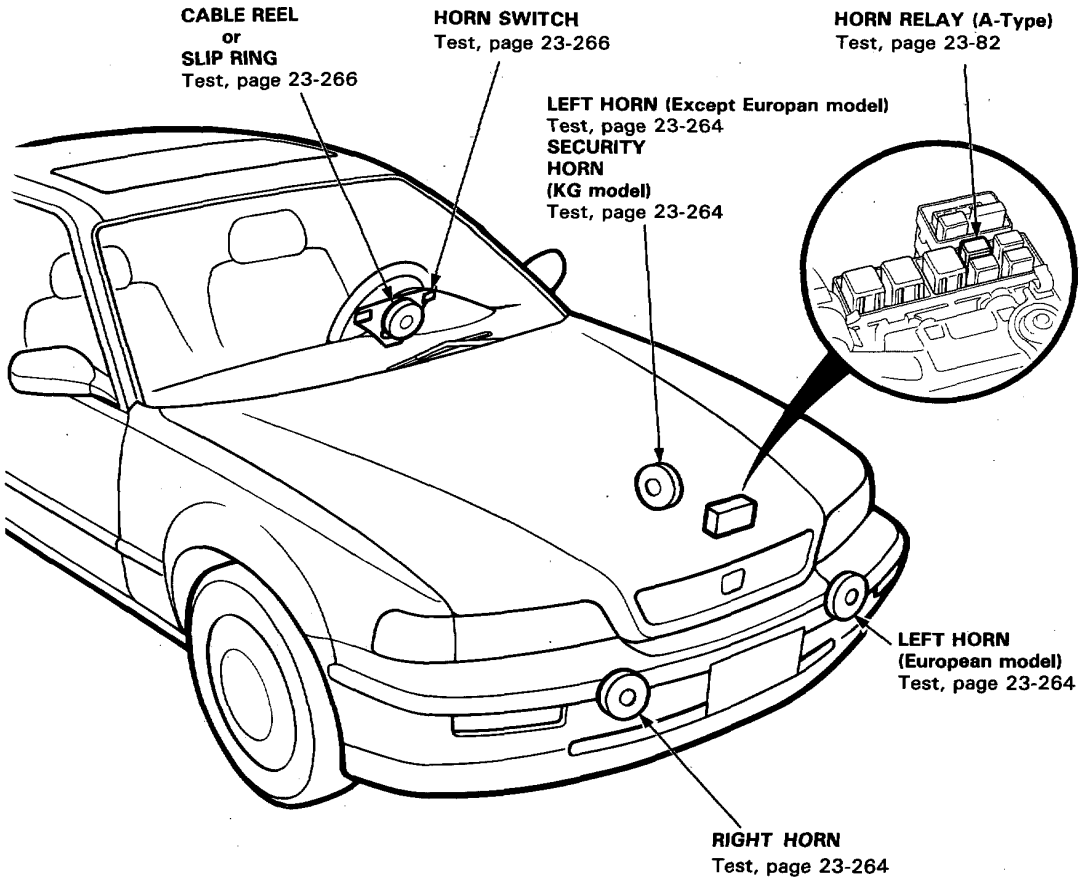
Horns

Component Location Index

CAUTION:

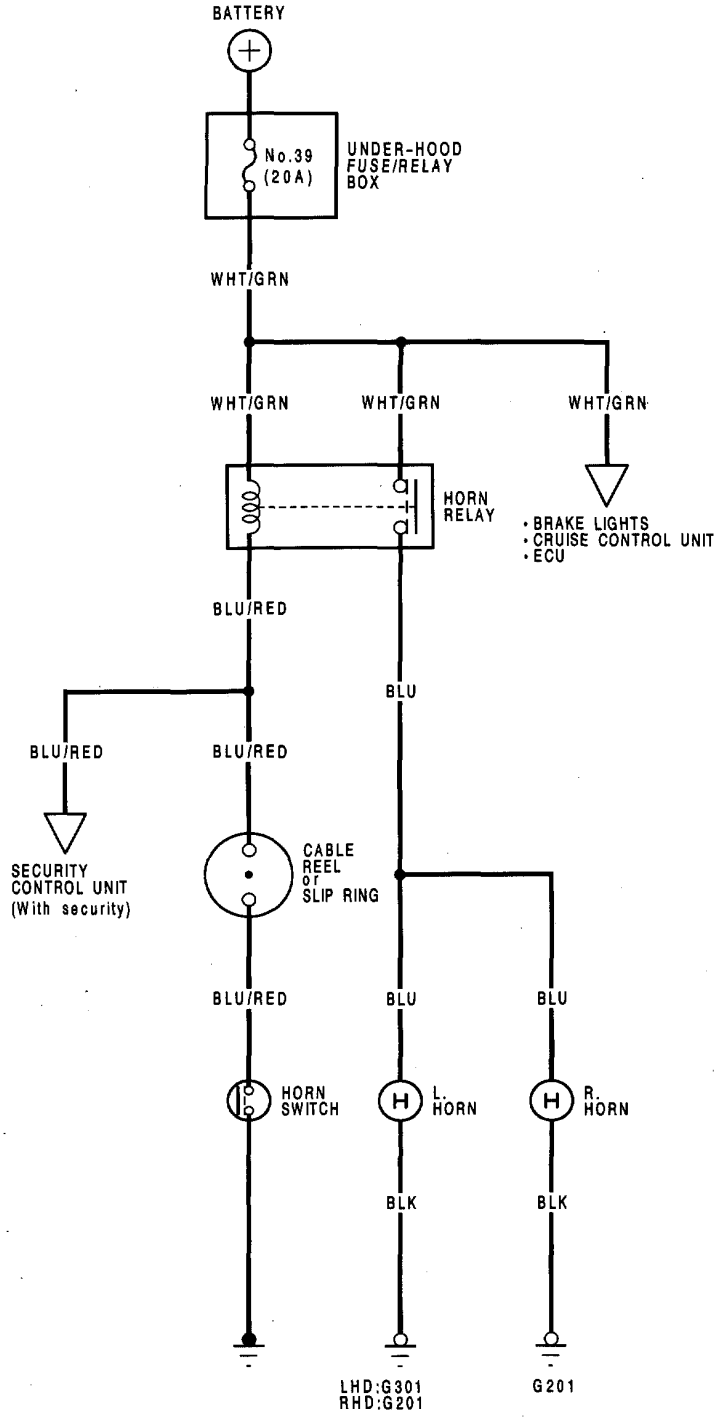
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short conenctor on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**





cardiagn.com

Circuit Diagram



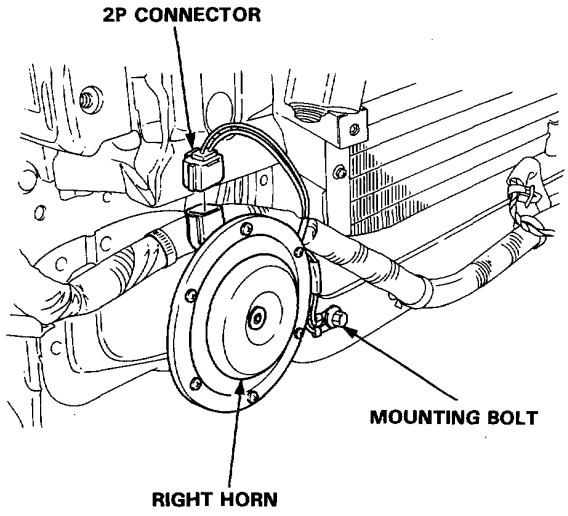
cardiagn.com

Horns

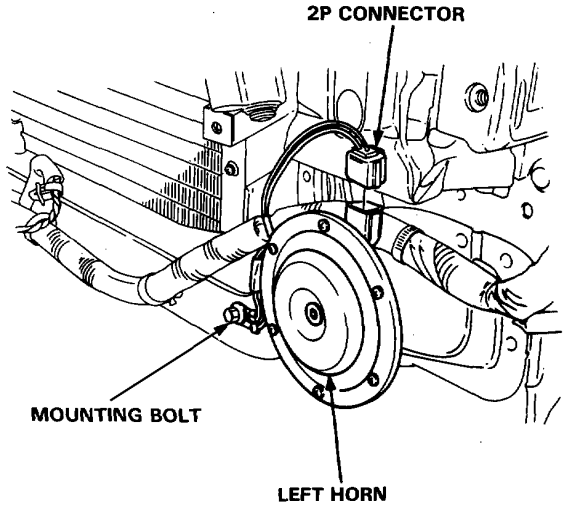
Horn Test

1. Disconnect the 2P connector from the horn.
2. Remove the right and left horns.

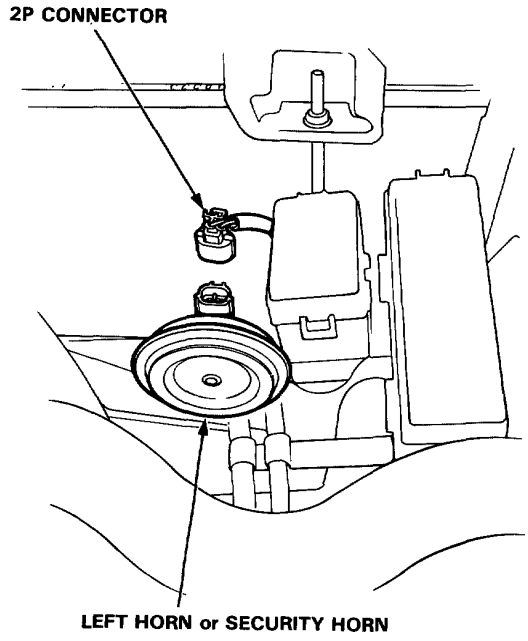
Right horn:



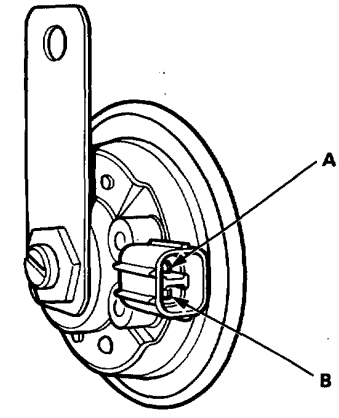
Left horn:
- **Europan model**



- **General export model and KG model (with Security system)**



3. Test the horn by connecting battery power to one terminal and grounding the other. The horn should sound.

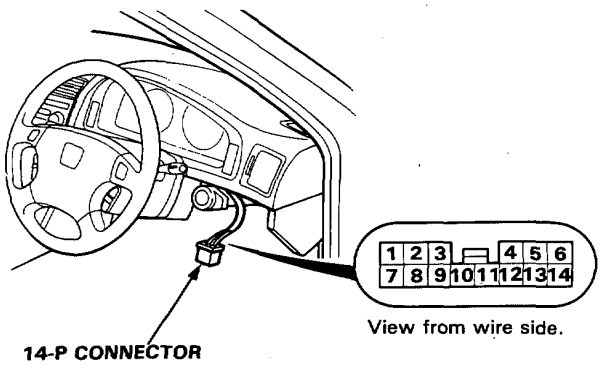


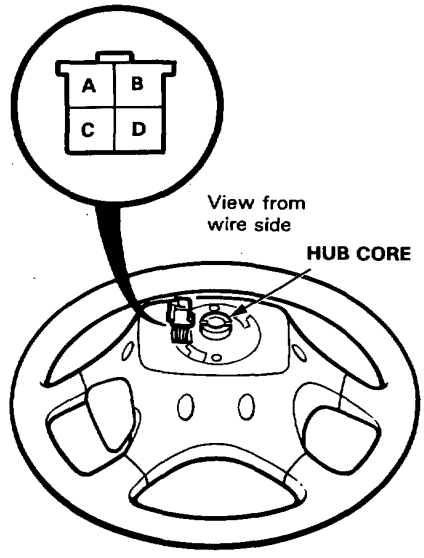
4. Replace the horn if it fails to sound.

cardiagn.com

Switch Test (without SRS)

1. Remove the dashboard lower panel.
2. Disconnect the 14-P connector from the main wire harness.
3. Check for continuity between the No. 10 terminal and body ground with the horn switch pressed. There should be continuty.
   - If there is continuity, the horn switch is OK.
   - If there is no continuity, go to step 4.
4. Remove the steering wheel, then turn it over.
5. Check for continuity between the hub core and the hub core and C terminal with the horn switch pressed. There should be continuity.
   - If there is continuity, check for slip ling and combination switch.
   - If there is no continuity, repair the horn switch.





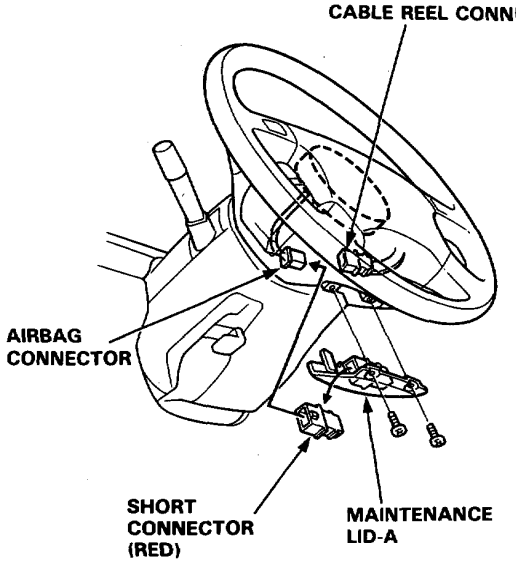
cardiagn.com

Switch Test (with SRS)

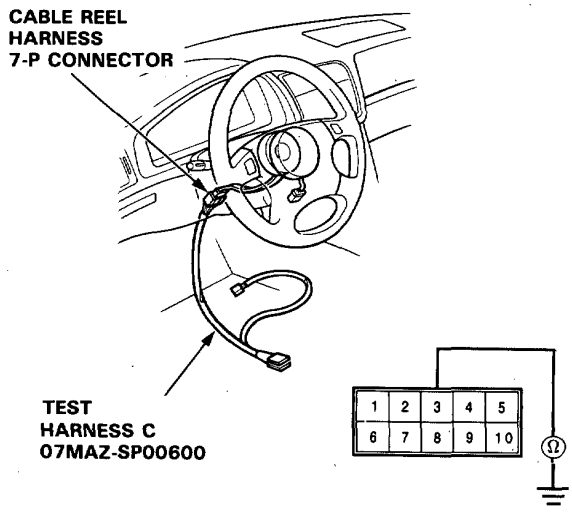
⚠ WARNING Store a removed airbag assembly with the pad surface up. If the airbag is improperly stored face down, accidental deployment could propel the unit with enough force to cause serious injury.

CAUTION:
- **Carefully inspect the airbag assembly before installing. Do not install an airbag assembly that shows signs of being dropped or improperly handled, such as dents, cracks or deformation.**
- **Always keep the short connector on the airbag connector when the harness is disconencted.**
- **Do not disassemble or tamper with the airbag assembly.**

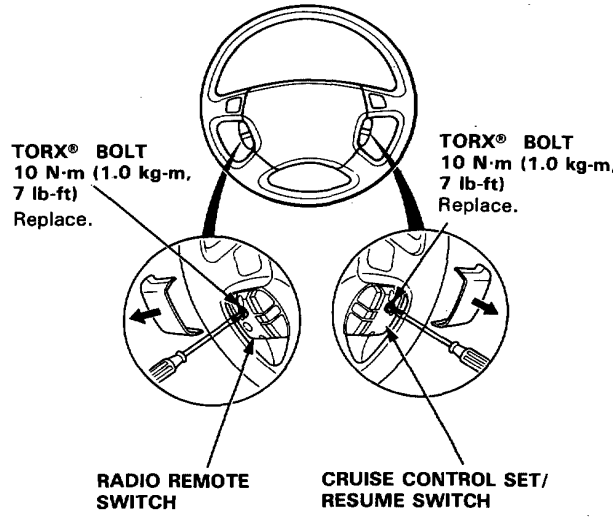
1. Disconnect the battery negative cable, then disconnect the positive cable.
2. Make sure the wheels are aligned straight ahead.
3. Remove the dashboard lower panel.
4. Connect the short connector on the airbag connector.



5. Disconnect the cable reel harness and main harness's 7-P connector, and connect Test Harness C only to the cable reel harness side of the connector.

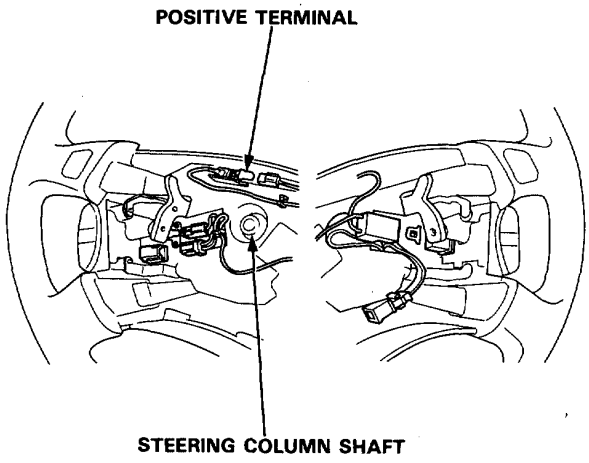


6. Check for continuity between the No. 3 teminal and body ground with the horn switch pressed. There should be continuity.
   - If there is continuity, the horn switch is OK.
   - If there is no continuity, go to step 7.
7. Remove the 2 TORX® bolts using a TORX® T30 bit, then remove the airbag assembly.



cardiagn.com

8. Check for continuity between the horn positive terminal and the steering column shaft with the horn switch pressed. *There should be continuity.*



- If there is continuity, replace the cable reel.
- If there is no continuity, remove the nut and the 4 screws then remove the steering wheel cover. Repair the horn switch.

9. Reinstall the steering wheel (Section 17).

cardiagn.com

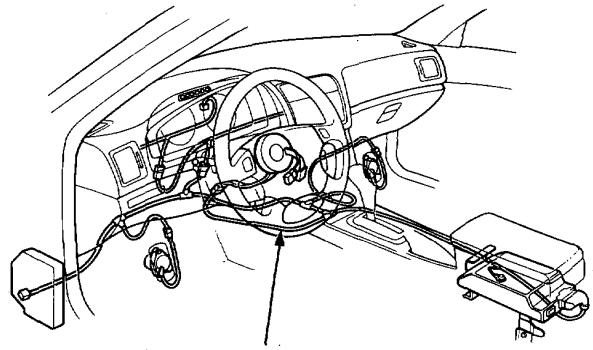
Trunk Opener

Component Location Index

CAUTION:

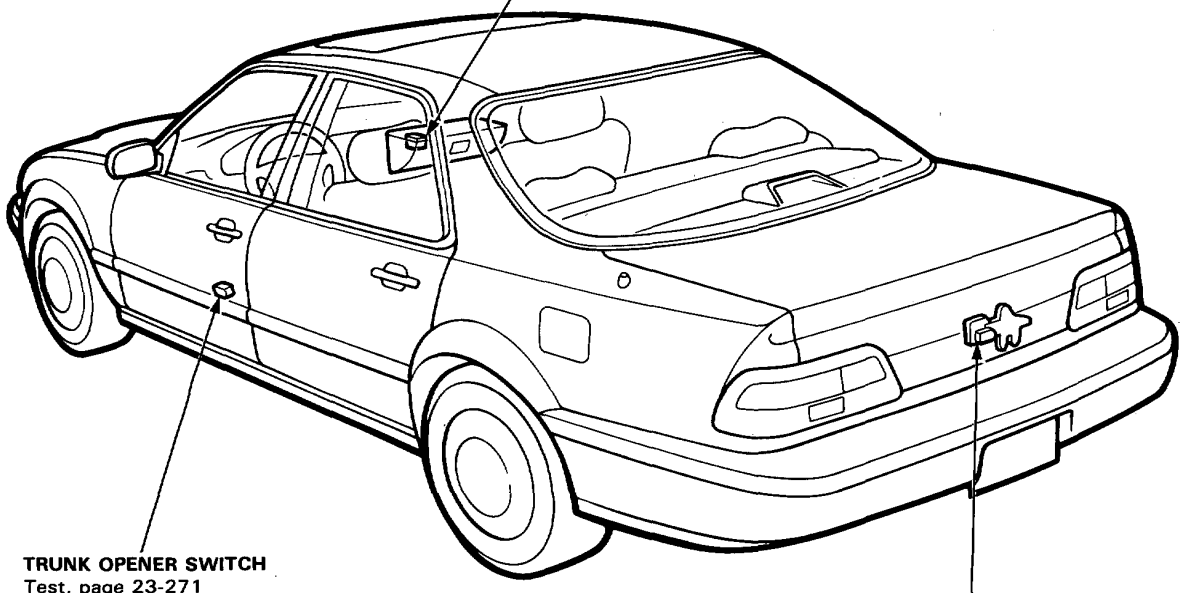
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

NOTE: RHD type is symmetrical to LHD type.



SRS HARNESS WIRE HARNESS

TRUNK OPENER MAIN SWITCH
Test, page 23-270

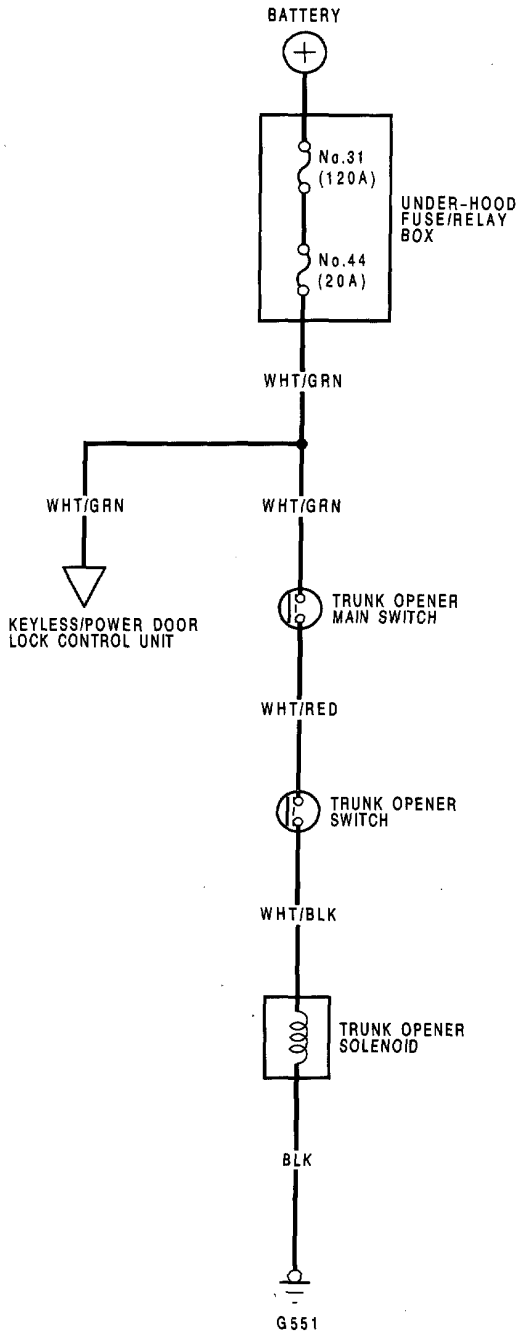


TRUNK OPENER SWITCH
Test, page 23-271

TRUNK OPENER SOLENOID
Test/Replacement, page 23-271

cardiagn.com

Circuit Diagram

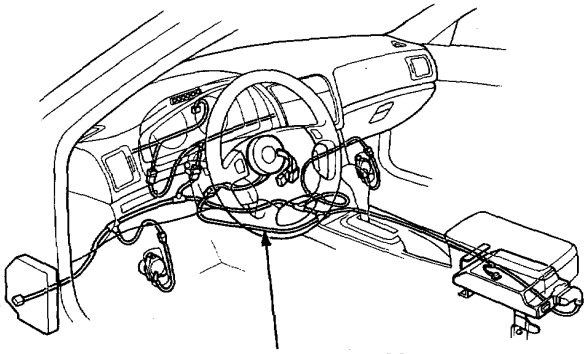


cardiagn.com

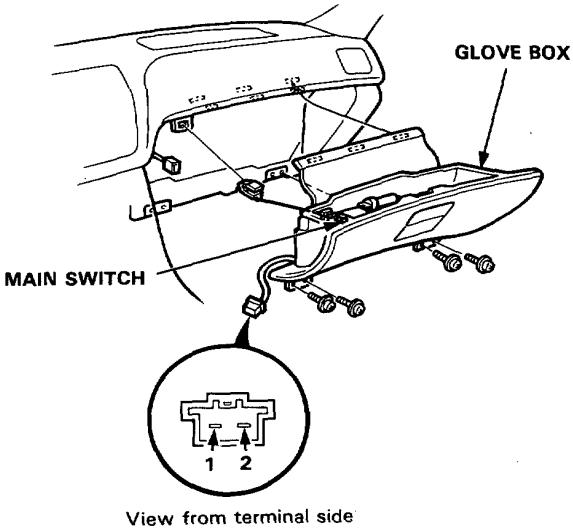
Trunk Opener

Main Switch Test

CAUTION:
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

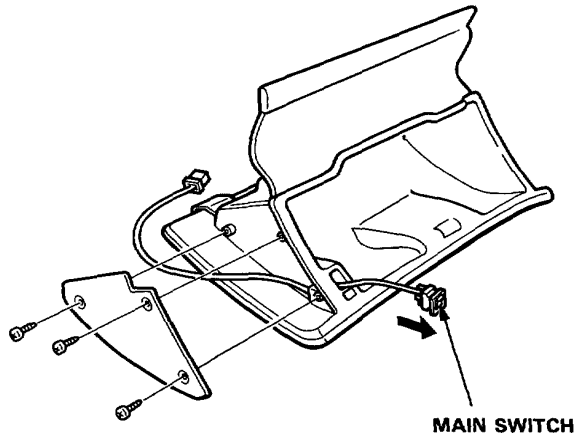


1. Remove the glove box lower panel, then remove the glove box.



View from terminal side

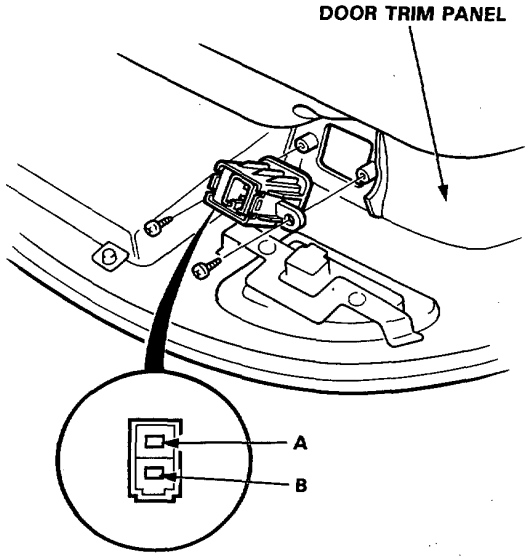
2. Disconnect the 2P connector from the switch.
3. There should be continuity between the No. 1 terminal and No. 2 terminal with the main switch ON. There should be no continuity with the main switch OFF.
4. If necessary, replace the switch.



cardiagn.com

Opener Switch Test

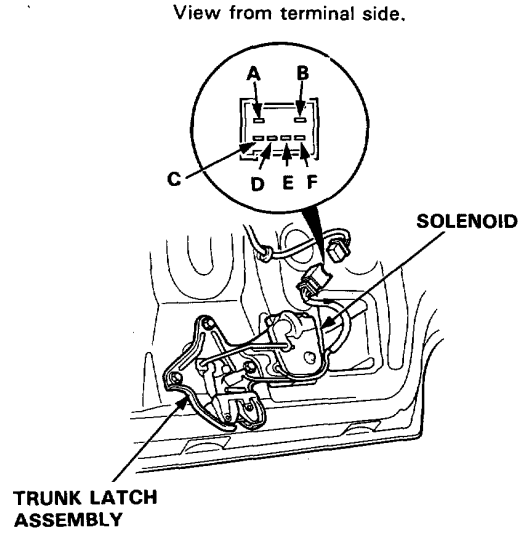
1. Remove the driver's door trim panel (See section 20).
2. Remove the 2 screws, then remove the opener switch from the door trim panel.



3. There should be continuity between the A and B terminals when the switch is pushed.
   There should be no continuity when the switch is released.
4. If necessary, replace the switch.

Solenoid Test/Replacement

1. Open the trunk lid and remove the trunk lid inner trim panel (See section 20).
2. Disconnect the 6-P connector from the solenoid.
3. Test the solenoid operation by momentarily connecting battery power to the C terminal and grounding to the D terminal.

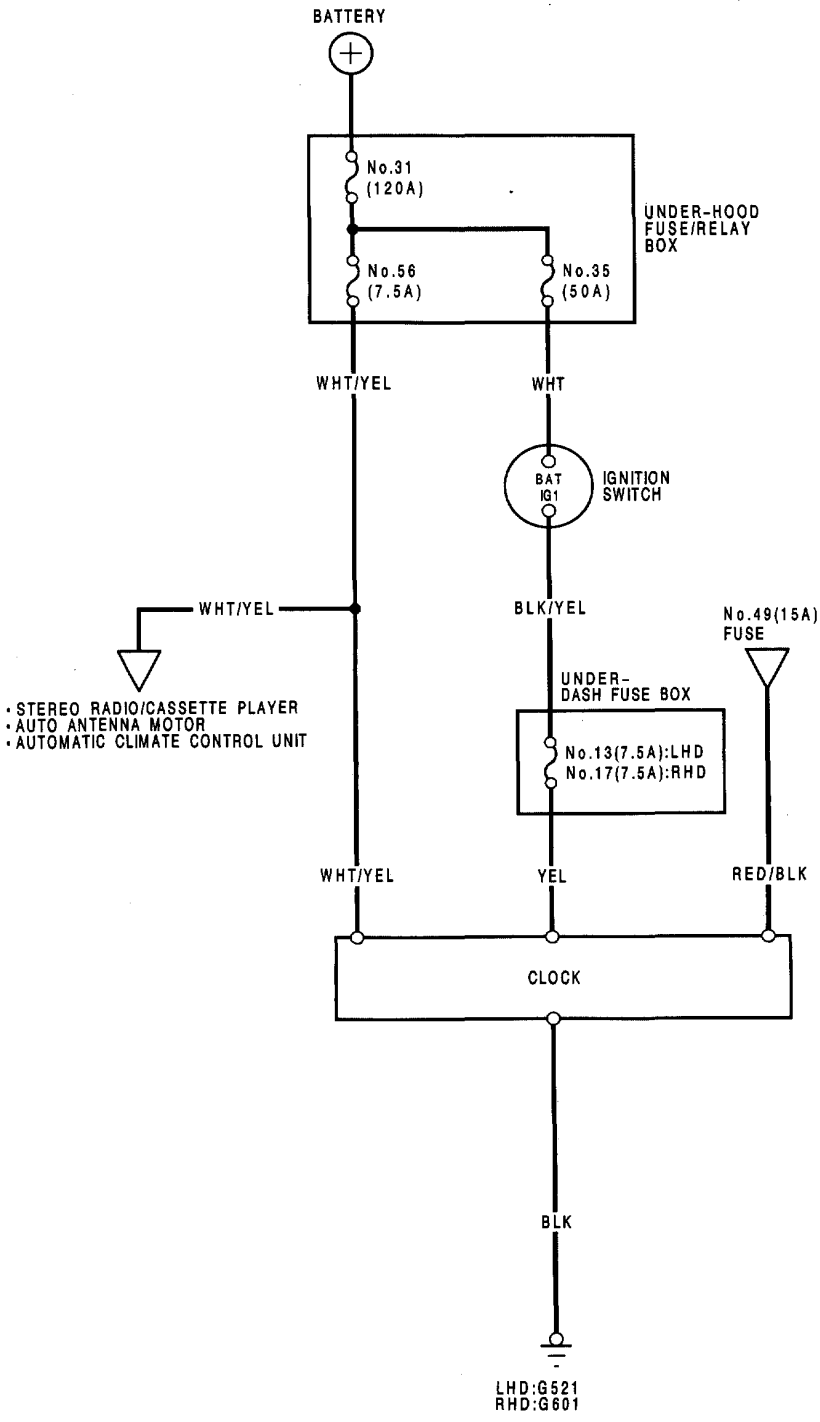


4. If necessary, remove the 3 bolts, then remove the trunk latch assembly from the trunk lid.

cardiagn.com

Clock

Circuit Diagram

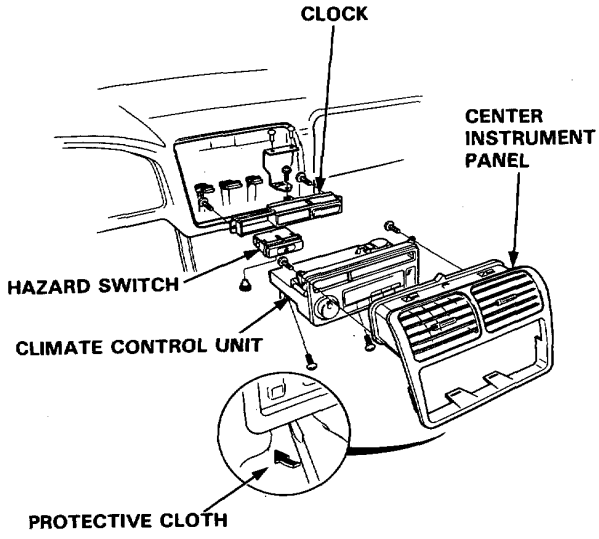


cardiagn.com

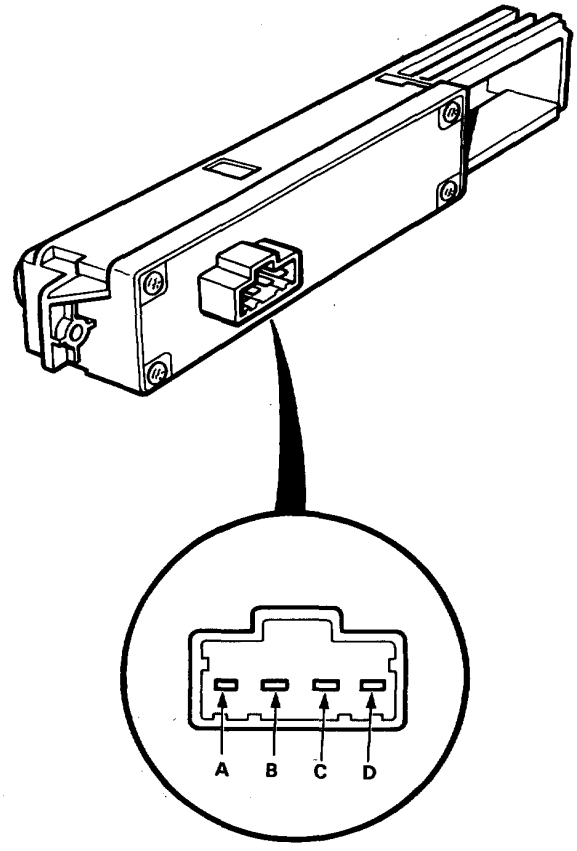
Replacement

CAUTION: Be careful not to damage the center instrument panel.

1. Remove the center instrument panel assembly.
2. Remove the stereo radio/cassette player (See page 23-257).
3. Remove the clock and hazard switch from the climate control panel.
4. Remove the hazard switch from the clock.
5. Install the clock in the reverse order of removal.



Terminals



Terminal	Wire	Destination
A	BLK	Ground
B	RED/BLK	Light-on signal
C	WHT/YEL	Constant power (Time memory)
D	YEL	IG! (Main clock power supply)

cardiagn.com

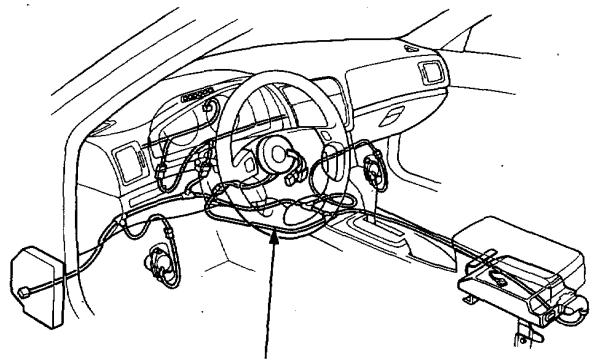
Cigarette Lighter

Component Location Index

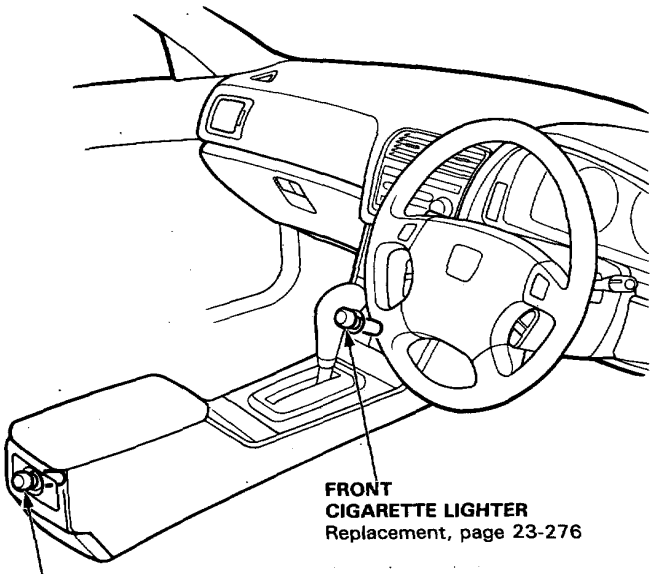
CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

NOTE: LHD type is symmetrical to RHD type.



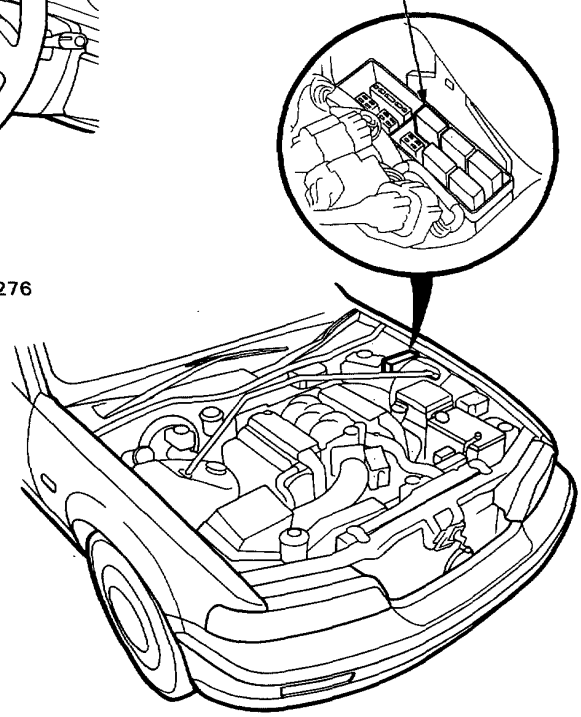
SRS MAIN WIRE HARNESS



FRONT CIGARETTE LIGHTER
Replacement, page 23-276

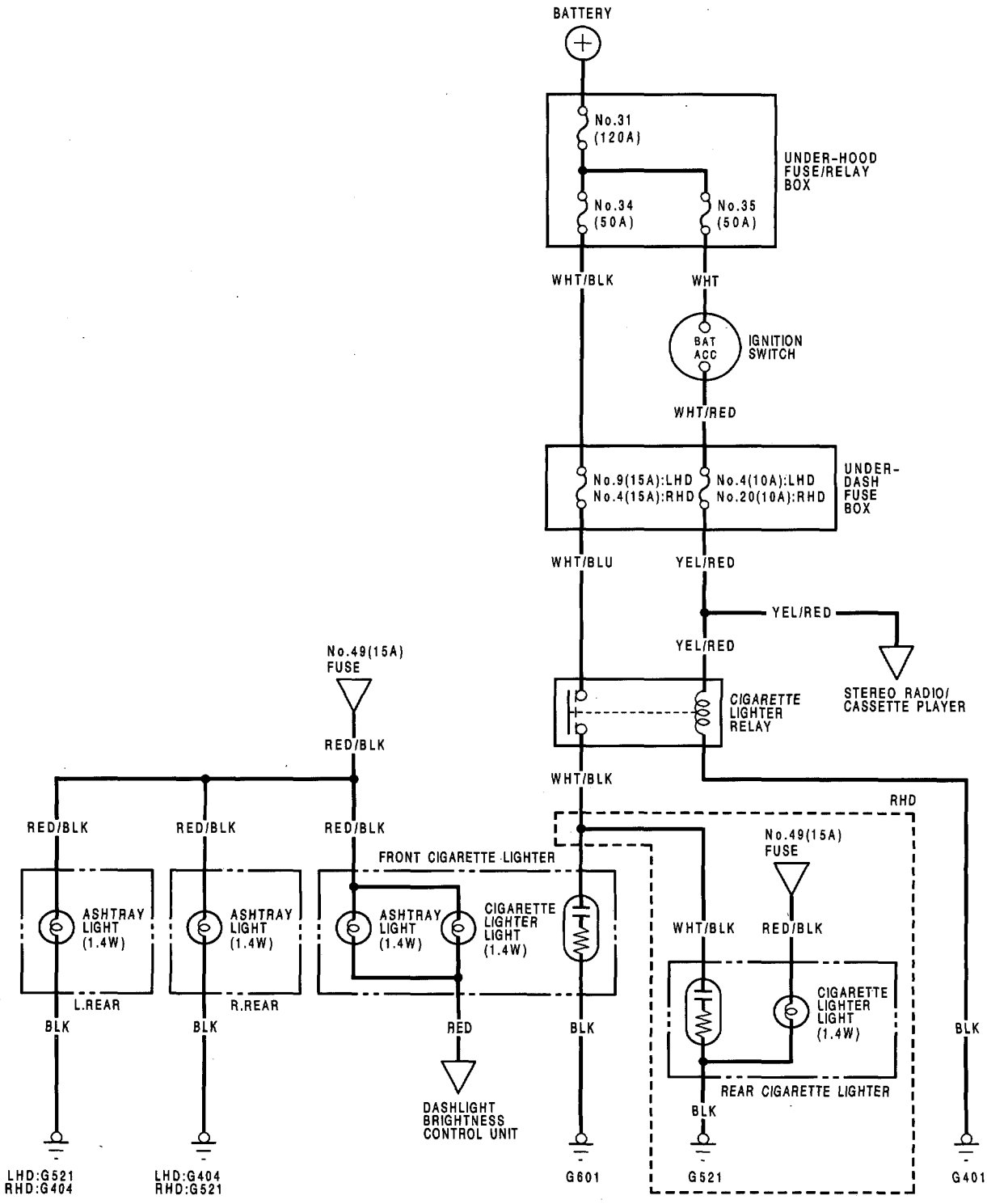
REAR CIGARETTE LIGHTER (RHD model)
Replacement, page 23-276

CIGARETTE LIGHTER RELAY
(A-Type)
Test, page 23-82



cardiagn.com

Circuit Diagram



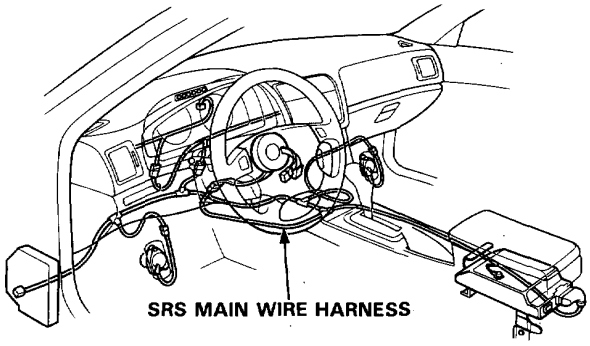
cardiagn.com

Cigarette Lighter

Replacement

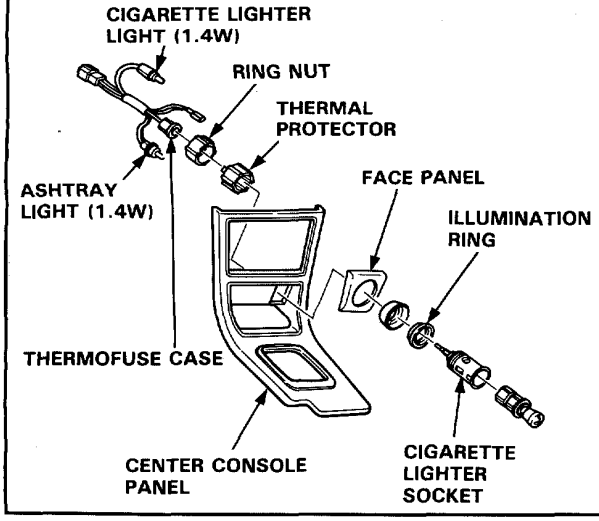
CAUTION:

- **All SRS electricla wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install on the airbag the short connector then disconnect the wire harness (See page 23-412).**



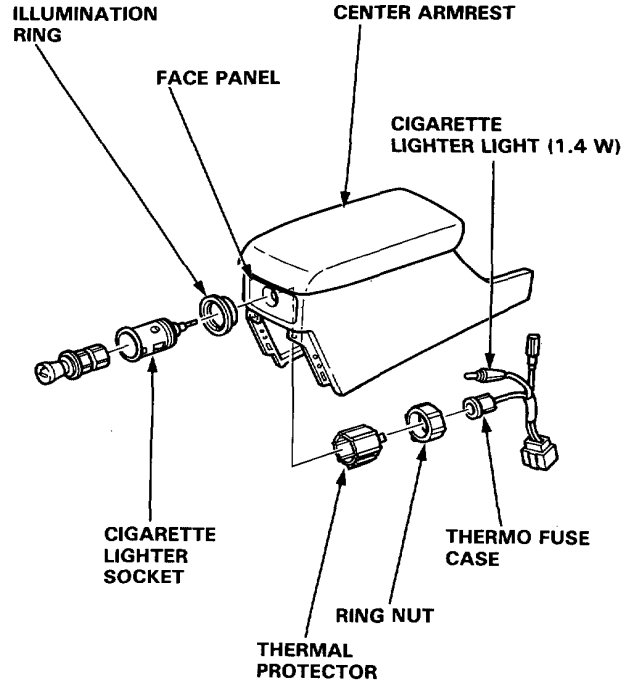
Front Cigarette Lighter:

1. Remove the center console panel. (See section 20).
2. Disconnect the thermofuse case from the socket end.
3. Remove the ring nut and separate the cigarette lighter socket from the thermal protector.
4. When installing the cigarette lighter, align each lug on the face panel, illumination ring and cigarette lighter socket with the groove of the hole, then position the bulb case on the thermal protector between the stoppers of the center console panel.
5. Make sure that the ground wire, bulb socket and thermo fuse case are seated to the cigarette lighter assembly.



Rear Cigarette Lighter:

1. Remove the center armrest (See section 20).
2. Disconnect the thermofuse case from the socket end.
3. Remove the ring nut and separate the cigarette lighter socket from the thermal protector.
4. When installing the cigarette lighter, align each lug on the face panel, illumination ring and cigarette lighter socket with the groove in the hole, then position the bulb case on the thermal protector between the stops in the center armrest.
5. Make sure that the ground wire, bulb socket and thermo fuse case are seated to the cigarette lighter assembly.



cardiagn.com

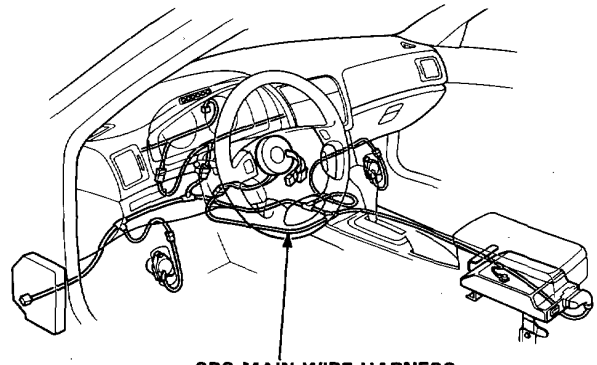
Rear Window Defogger

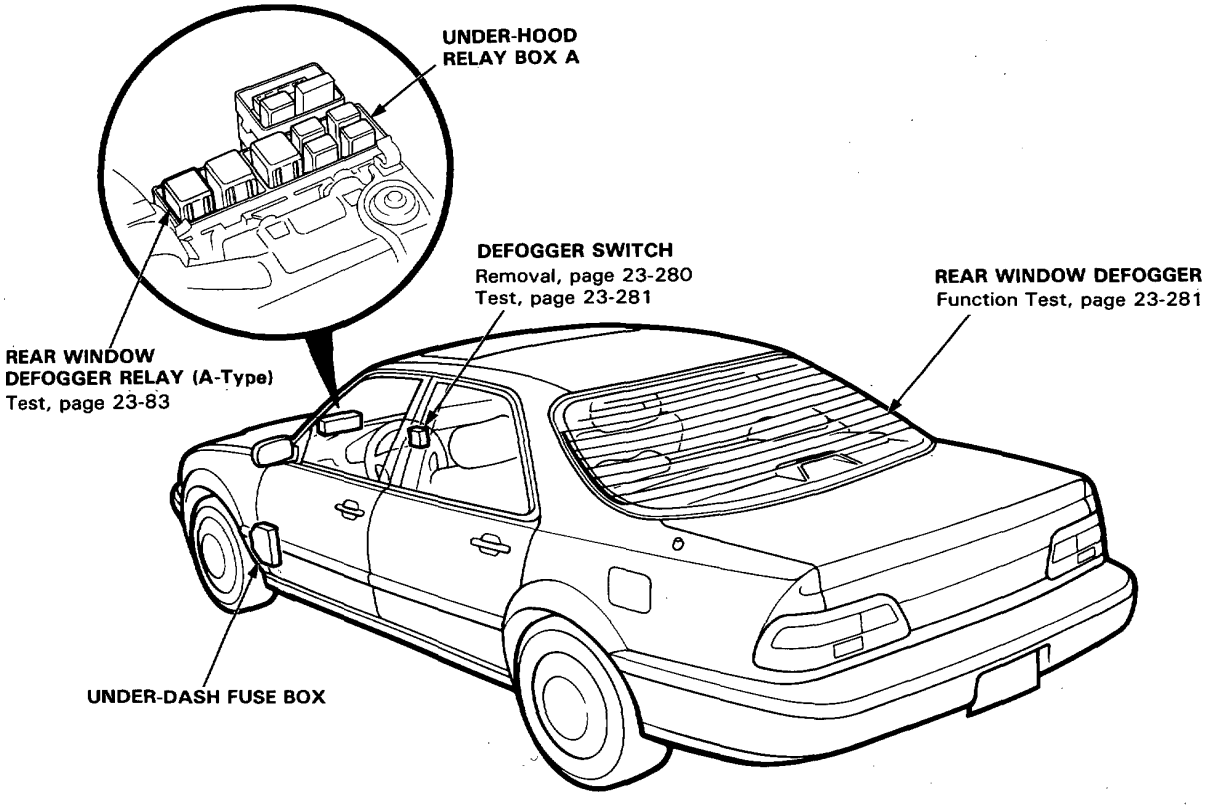
Component Location Index

CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

NOTE: RHD type is symmetrical to LHD type.

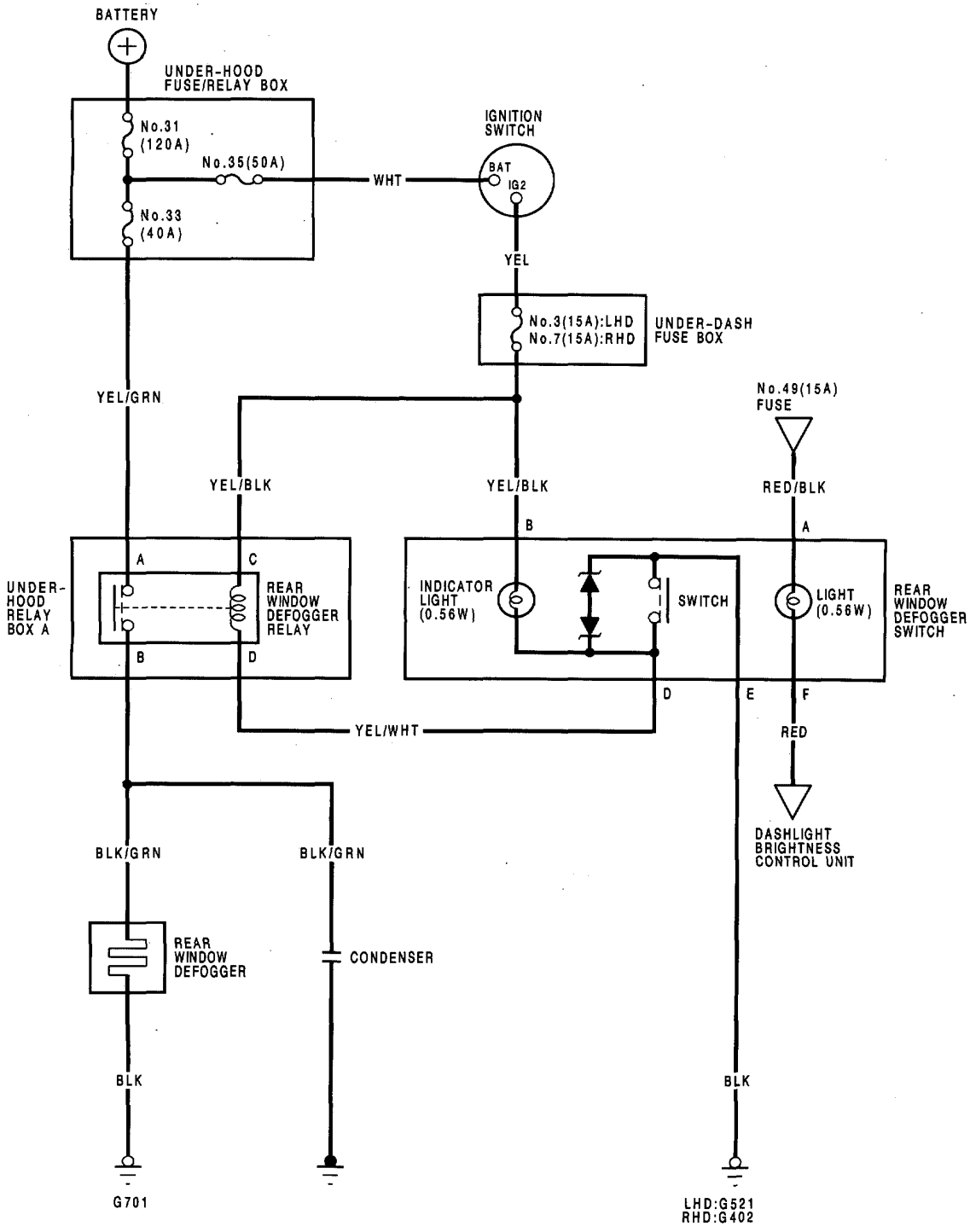




cardiagn.com

Rear Window Defogger

Circuit Diagram



cardiagn.com

Troubleshooting

NOTE: The numbers in the table show the troubleshooting sequence.

Item to be inspected / Symptom	Blown indicator light bulb	Blown *1 (15A) fuse (in the under-dash fuse box)	Blown No. 33 (40A) fuse (in the under-hood fuse/relay box)	Function test	Defogger relay	Defogger switch	Poor ground	Open circuit in wires or loose or disconnected terminals
Defogger operates, but indicator light does not go on.	1							YEL/BLK
Defogger does not operate and indicator light does not go on.		1				2	G521 [G402]	YEL, YEL/WHT or YEL/BLK
Defogger does not operate, but indicator light goes on.			1	3	2	4	G701	YEL/WHT, YEL/BLK or BLK/GRN

[ ]: RHD

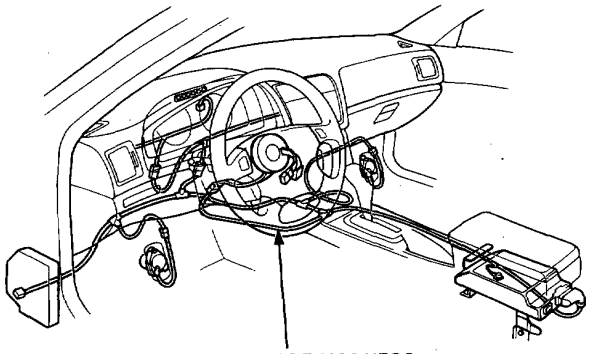
*1: { NO. 3: LHD / NO. 7: RHD }

cardiagn.com

Rear Window Defogger

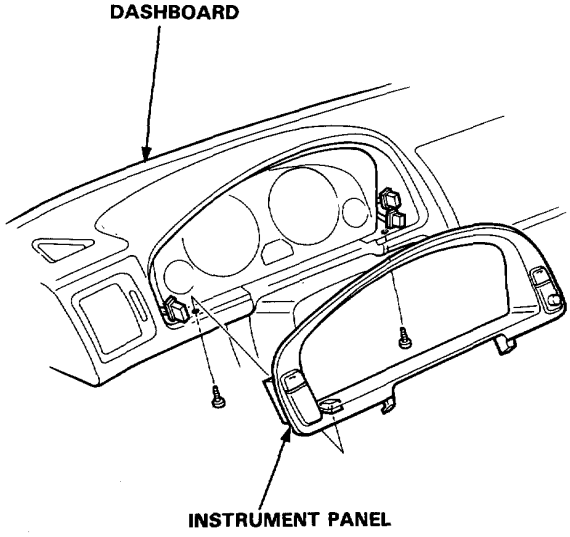
Switch Removal

CAUTION:
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

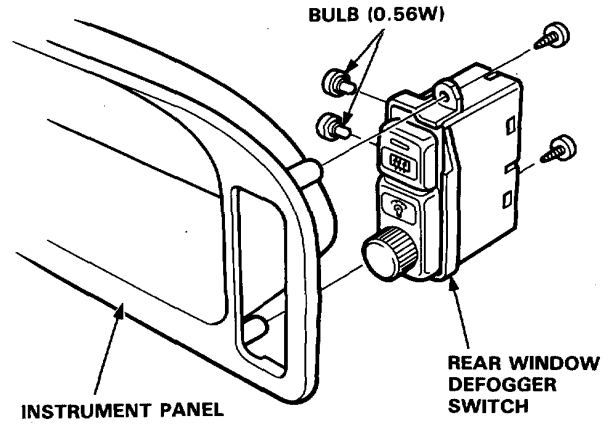


1. Remove the dashboard lower panel.
2. Remove the 2 screws, then remove the instrument panel from the dashboard.

   NOTE: Be careful not to damage the dashboard and steering column cover.



3. Disconnect all the connectors from the instrument panel.
4. Remove the 2 screws from the rear of the instrument panel, then remove the rear window defogger switch.

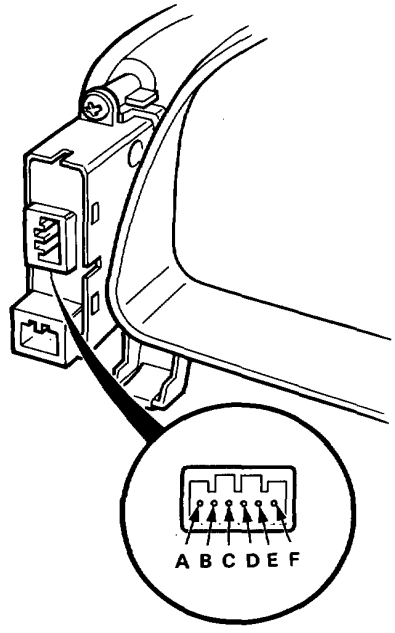


5. Turn the socket 45° counterclockwise to remove either bulb.

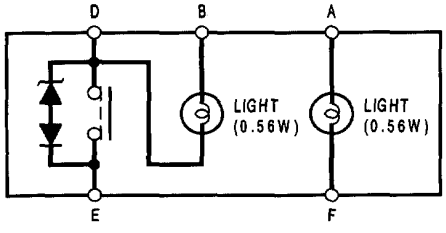
cardiagn.com

Switch Test

1. Remove the dashboard lower panel.
2. Remove the instrument panel.
3. Remove the rear window defogger switch.
4. Check for continuity between the terminal in each switch position according to the table.



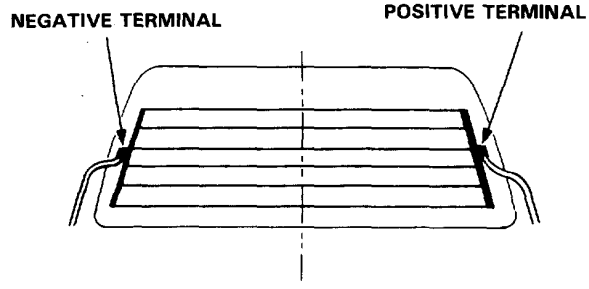
Terminal / Position	E	D		B	A		F
PUSHED	○	○	⏦	○		○	⏦ ○
RELEASED		○	⏦	○			



Function Test

CAUTION: Be careful not to scratch or damage the defogger wires with the tester probe.

1. Check for voltage between the positive terminal and body ground with the ignition switch and the defogger switch ON.
   There should be battery voltage.
   - If there is no voltage, check for:
     — Faulty defogger relay.
     — Faulty defogger switch
     — Faulty integrated control unit.
     — An open in the BLK/GRN wire.
   - If there is battery voltage, go to step 2.

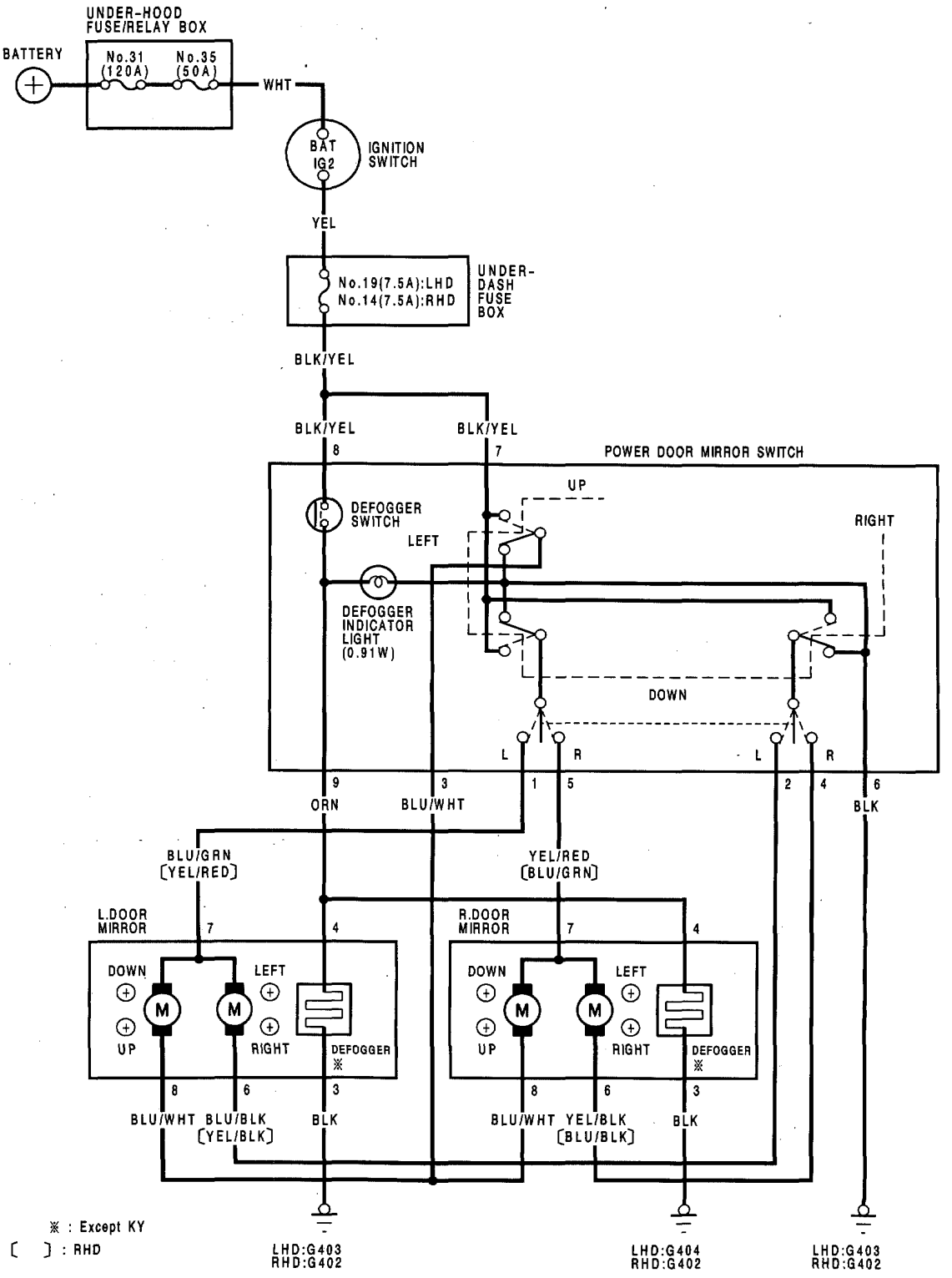


2. Check for continuity between the negative terminal and body ground.
   If no continuity, check for open in the defogger ground wire.
3. Connect the voltmeter positive probe to the middle of each defogger wire, and the negative probe to the negative terminal.
   The should be approximately 6 V with the ignition switch and the defogger switch ON.
   - If the voltage is as specified, the defogger wire is OK.
   - If there is battery voltage, the defogger wire is broken on the negative side.
   - If there is no voltage the defogger wire is broken on the positive side.

cardiagn.com

Power Door Mirrors

Circuit Diagram

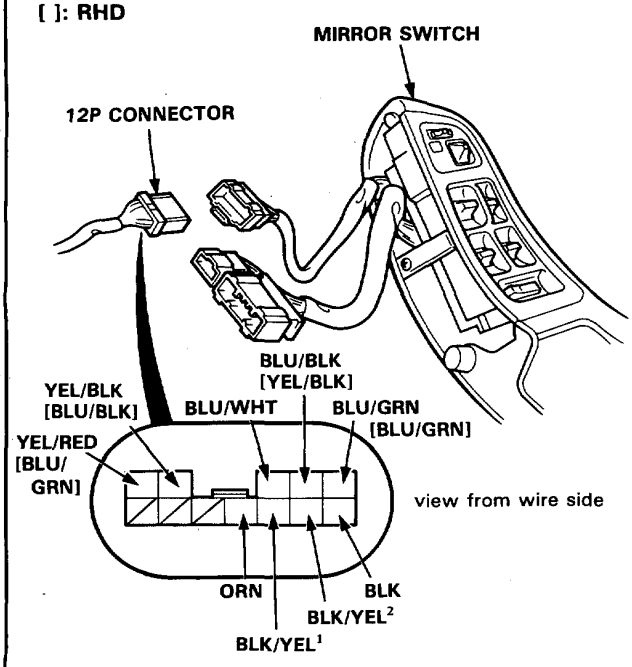


cardiagn.com

Function Test

NOTE: Before testing,
remove the driver's door trim panel and all connectors, then remove the switch from the arm rest.

[ ]: RHD



Mirror Test

One or both inoperative:

1. Check for voltage between the BLK/YEL² terminal and body ground with the ignition switch ON.
   There should be battery voltage.
   - If there is no voltage, check for
     - Blown No. 19: LHD or No. 14: RHD (7.5A) fuse in the dash fuse box.
     - An open in the BLK/YEL² wire.
   - If there is battery voltage, go to step 2.

2. Check for continuity between the BLK terminal and body ground.
   There should be continuity.
   - If there is no continuity, check for
     - An open in the BLK wire.
     - Poor ground (G403 [G402]).

Left [Right] inoperative:

Connect the BLK/YEL² terminal of the 12-P connector to the BLU/GRN [YEL/RED] terminal and the BLU/WHT (or BLU/BLK [YEL/BLK]) terminal to body ground with jumper wires.
The left [right] mirror should tilt down (or swing left) when the ignition switch is turned ON.

- If the mirror does not tilt down (or does not swing left), remove the left [right] door trim panel and check for an open in the BLU/WHT (or BLU/BLK [YEL/BLK]) wire between the left [right] door mirror and the switch.
  If the wire is OK, check the left [right] door mirror motor.

- If the mirror neither tilts down nor swings left, repair an open in the BLU/GRN [YEL/RED] wire.

- If the mirror operates properly, check the mirror switch.

Right [Left] inoperative:

Connect the BLK/YEL² terminal of the 12-P connector to the YEL/RED [BLU/GRN] terminal and the BLU/WHT (or YEL/BLK [BLU/BLK]) terminal to body ground with jumper wires.
The right [left] mirror should tilt down (or swing left) when the ignition switch is turned ON.

- If the mirror does not tilt down (or does not swing left), remove the right [left] door trim panel and check for an open in the BLU/WHT (or YEL/BLK [BLU/BLK] wire between the right [left] door mirror and the switch.
  If the wire is OK, check the right [left] door mirror motor.

- If the mirror neither tilts down nor swings left, repair an open in the YEL/RED [BLU/GRN] wire.

- If the mirror operates properly, check the mirror switch.

Defogger test (Except KY)

1. Check for voltage between the BLK/YEL¹ terminal of the 12-P connector and body ground with the ignition switch ON.
   There should be battery voltage.

   - If there is no voltage, check for an open in the BLK/YEL¹ wire between the dash fuse box and the defogger switch.

   - If there is battery voltage, go to step 2.

2. Connect the BLK/YEL¹ terminal of the 12-P connector to the ORN terminal with a jumper wire.
   Both the right and left mirrors should gradually warm up when the ignition switch is turned ON.

   - If neither warms up, repair the ORN wire.

   - If only one fails to warm up, check its mirror defogger element (See page 23-285).

   - If both warm up, check the switch.

cardiagn.com

Power Door Mirrors

Switch Test

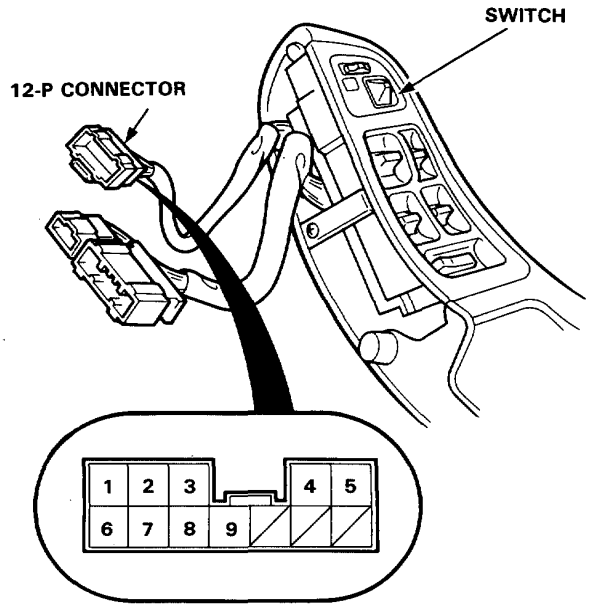
1. Remove the driver's door trim panel and all connectors, then remove the switch from the arm rest.
2. Check for continuity between the terminals in each switch position according to the table.

Mirror Switch

	Position \ Terminal	4	2	3	5	1	7	6
R	OFF	○		○	○			○
	UP			○			○	
	DOWN	○			○		○	
	LEFT			○			○	
					○		○	
	RIGHT	○					○	
L	OFF		○	○		○		○
	UP			○			○	
	DOWN		○			○	○	
						○	○	
	LEFT			○			○	
						○	○	
	RIGHT		○				○	

Defogger Switch [Except KY]

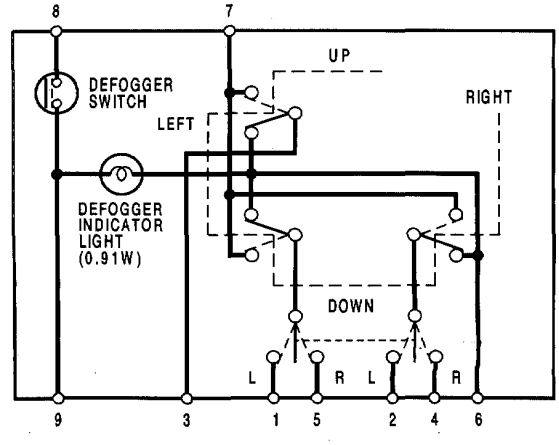
Position \ Terminal	9	8		6
ON	○	○	⊙	○
OFF	○		⊙	○



view from wire side

NOTE: LHD type is shown. RHD type is similar.

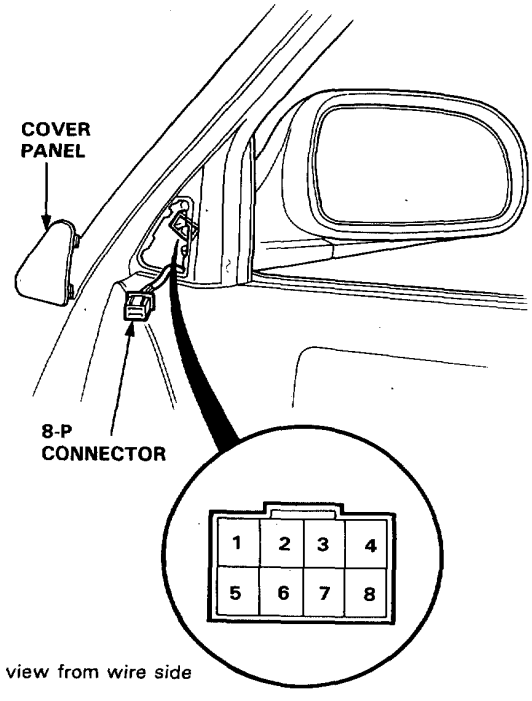
Circuit

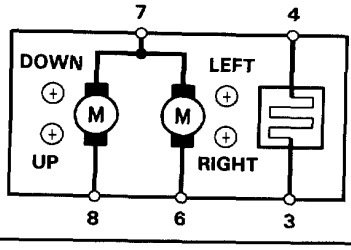


cardiagn.com

Door Mirror Test

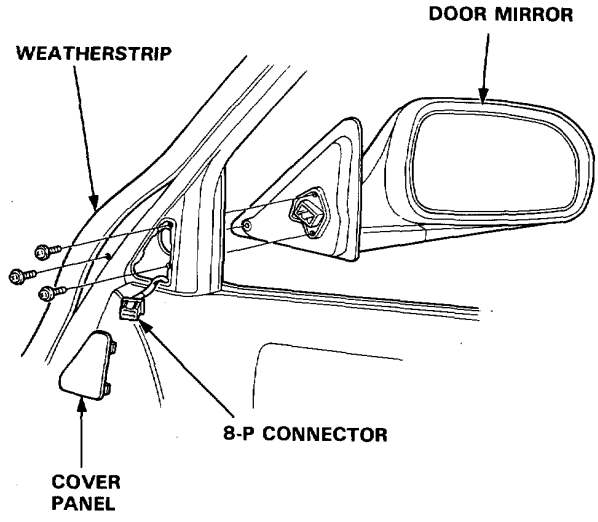
1. Remove the cover panel, then disconnect the 8-P connector from the mirror.
2. Test actuator operation:
   - TILT UP: Connect battery power to the No. 8 terminal and ground to the No. 7 terminal.
   - TILT DOWN: Connect battery power to the No. 7 terminal and ground to the No. 8 terminal.
   - SWING LEFT: Connect battery power to the No. 8 terminal and ground to the No. 6 terminal.
   - SWING RIGHT: Connect battery power to the No. 6 terminal and ground to the No. 8 terminal.
3. If the mirror fails to operate properly, replace it.
4. Check for continuity between the No. 3 and No. 4 terminals (R x 10^3 scale).
   There should be continuity (Except KY).





Door Mirror Replacement

1. Carefully pry out the cover panel with a flat tip screwdriver.
2. Disconnect the 8-P connector from the mirror.
3. While holding the mirror with one hand, remove its mount screws with the other.

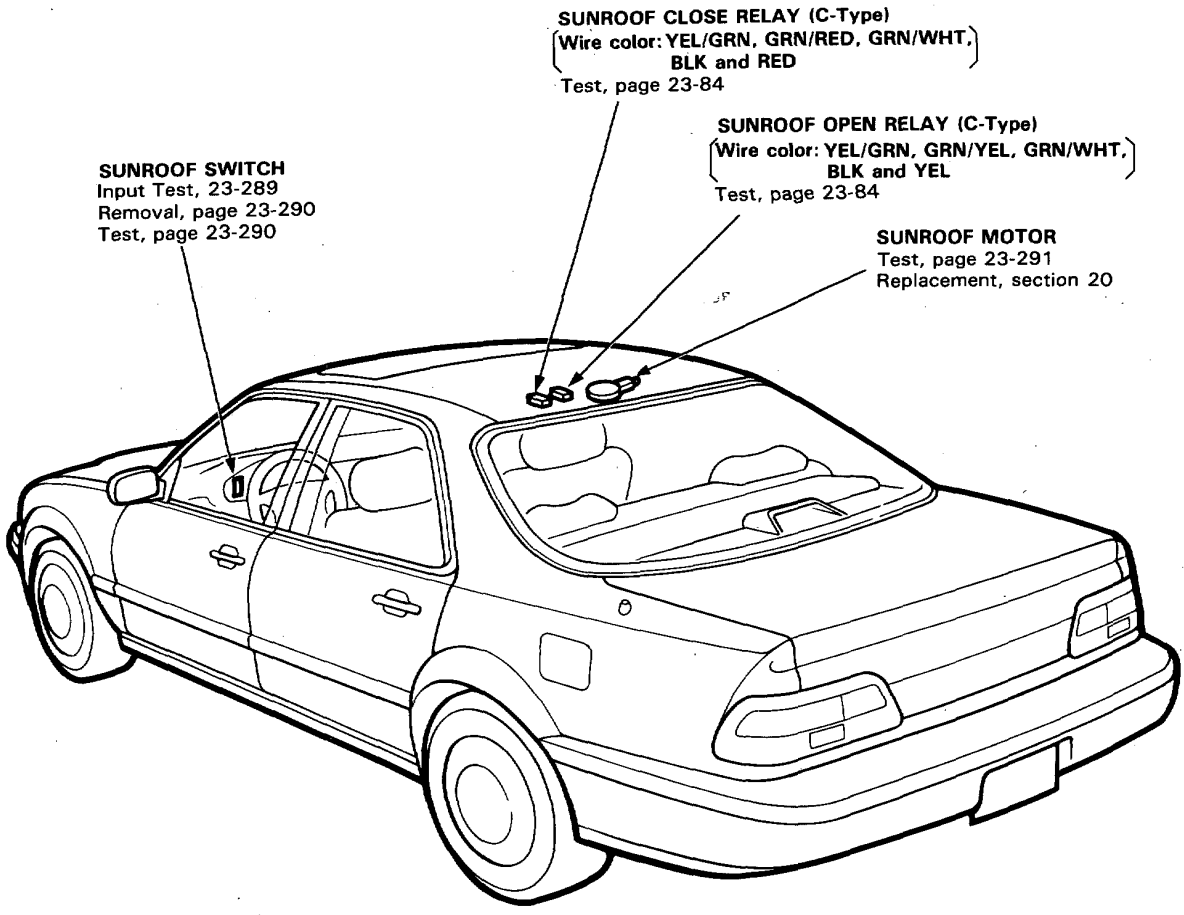


cardiagn.com

Sunroof

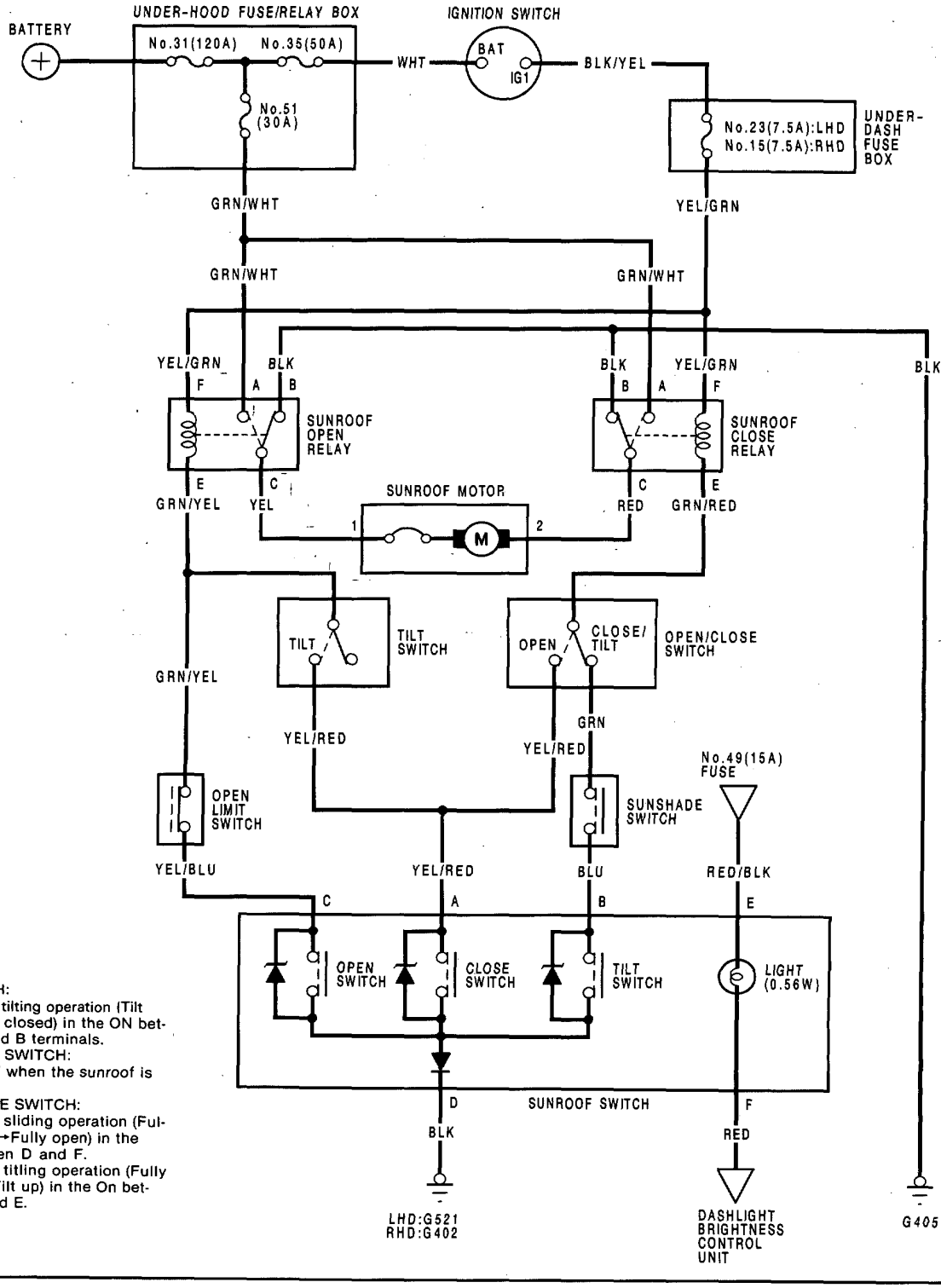
Component Location Index

NOTE: LHD type is shown. RHD type is similar.



cardiagn.com

Circuit Diagram



TILT SWITCH:
- During the tilting operation (Tilt up⟷Fully closed) in the ON between A and B terminals.

OPEN LIMIT SWITCH:
- In the OFF when the sunroof is fully open.

OPEN/CLOSE SWITCH:
- During the sliding operation (Fully closed⟷Fully open) in the ON between D and F.
- During the titling operation (Fully closed⟷Tilt up) in the On between D and E.

cardiagn.com

Electrical Troubleshooting

NOTE: The numbers in the table show the troubleshooting sequence.

Symptom \ Item to be inspected		Clutch out of adjustment, foreign matter stuck between guide rail and sunroof, or outer cable not attached properly.	Blown No. 51 (30 A) fuse (in the under-hood fuse/relay box)	Blown *1 (7.5 A) fuse (in the under-dash fuse box)	Sunroof switch input test	Open relay	Close relay	Sunroof motor	Sunroof switch	Poor ground	Open circuit in wires or loose or disconnected terminals.
Sunroof does not move, but motor turns.		1									
Sunroof does not move and motor does not turn (sunroof can be moved with sunroof wrench).	With all switches		1	2	3			5	4	G521 [G402] or G405	GRN/WHT, YEL/GRN, YEL, or RED
	With OPEN switch				4	1	2		3		GRN/YEL or YEL/BLU
	With CLOSE switch				4	2	1		3		GRN/RED or YEL/RED
	With TILT switch				4	2	1		3		GRN/RED or BLU

[ ]: RHD

*1 {No. 23: LHD
{No. 15: RHD

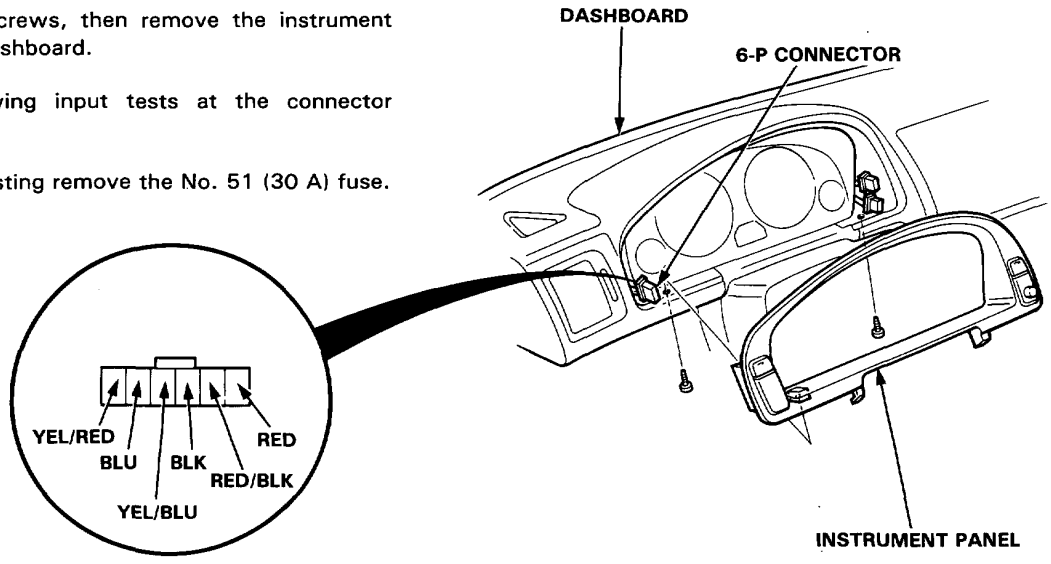
cardiagn.com

Switch Input Test

Remove the 4 screws, then remove the instrument panel from the dashboard.

Make the following input tests at the connector terminals.

NOTE: Before testing remove the No. 51 (30 A) fuse.



View from wire side.

No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLK	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor ground (G521 [G402]). • An open in the wire.
2	YEL/BLU	Ignition switch ON and fully close or open using the sunroof wrench.	Check for voltage to ground: should be battery voltage (close←→open).	• Faulty slide open switch. • An open in the wire.
3	YEL/RED	Ignition switch ON and fully close or tilt up using the sunroof wrench.	Check for voltage to ground: should be battery voltage.	• Faulty tilt switch. • An open in the wire.
		Ignition switch ON and fully close or fully open using the sunroof wrench.	Check for voltage to ground: should be battery voltage.	• Faulty open limit switch (open). • An open in the wire.
4	BLU	Ignition switch ON and fully close using the sunroof wrench, then sunshade fully close.	Check for voltage to ground: should be battery voltage.	• Faulty open/close switch. (close/tilt). • Faulty sunshade switch. • An open in the wire.

[ ]: RHD

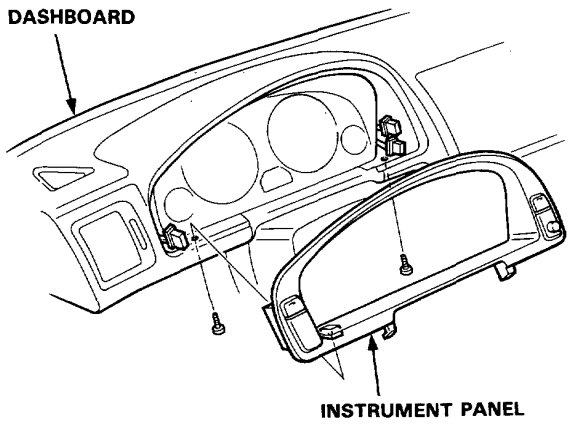
cardiagn.com

Sunroof

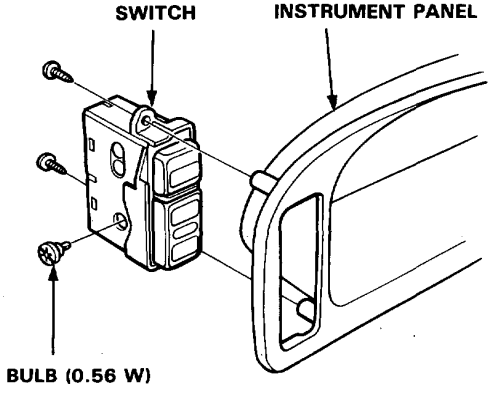
Switch Removal

1. Remove the dashboard lower panel.
2. Remove the 2 screws, then remove the instrument panel from the dashboard.

   NOTE: Be careful not to damage the dashboard and steering column cover.



3. Disconnect the connectors from the instrument panel.
4. Remove the 2 screws from the rear of the instrument panel, then remove the sunroof switch.



5. Turn the socket 45° counterclockwise to remove the bulb.

Switch Test

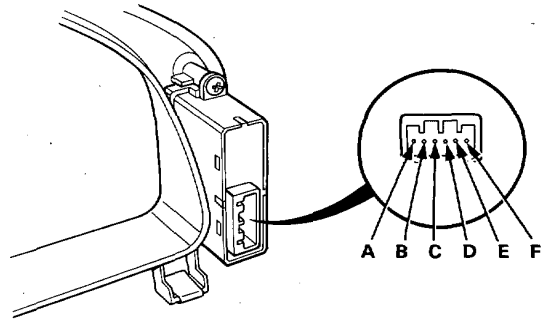
1. Remove the dashboard lower panel.
2. Remove the instrument panel from the dashboard.
3. Check for continuity between the terminals in each switch position according to the table.

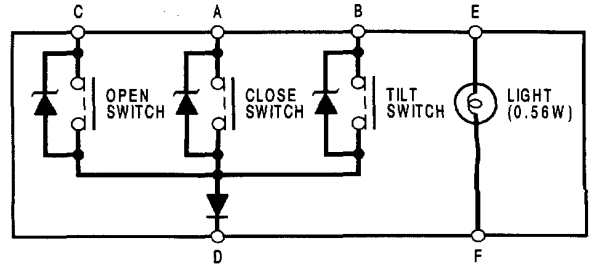
Switch

Terminal / Position	C		D		A		B
OFF							
OPEN	○	▶	○				
CLOSE			○	◀	○		
TILT			○			◀	○

Switch light

	E		F
	○	⊖	○



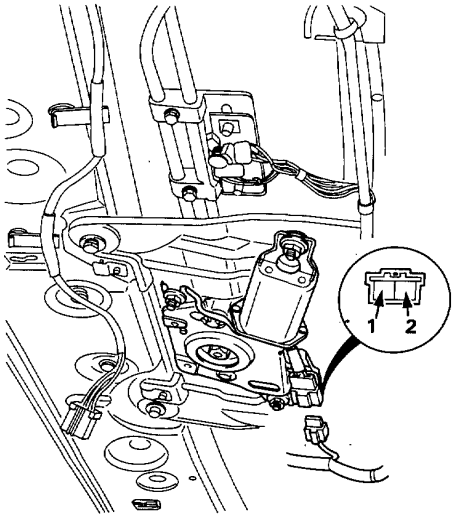


cardiagn.com

Motor Test

1. Remove the headliner.
2. Disconnect the 2-P connector from the sunroof motor.
3. Test motor operation by connecting the battery power to the No. 1 terminal and grounding the No. 2 terminal. Test the motor in each direction by switching the leads.
4. If the motor does not run, replace it.

   NOTE: See closing force check in section 20 for motor clutch test.



cardiagn.com

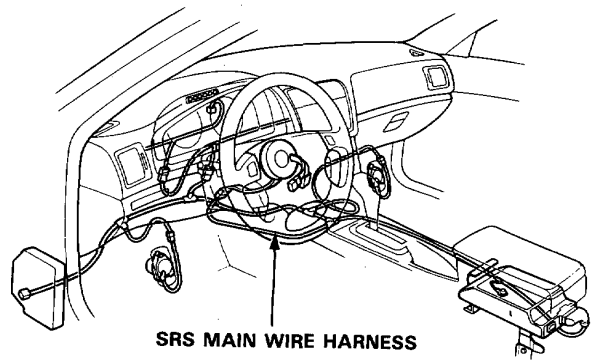
Power Windows

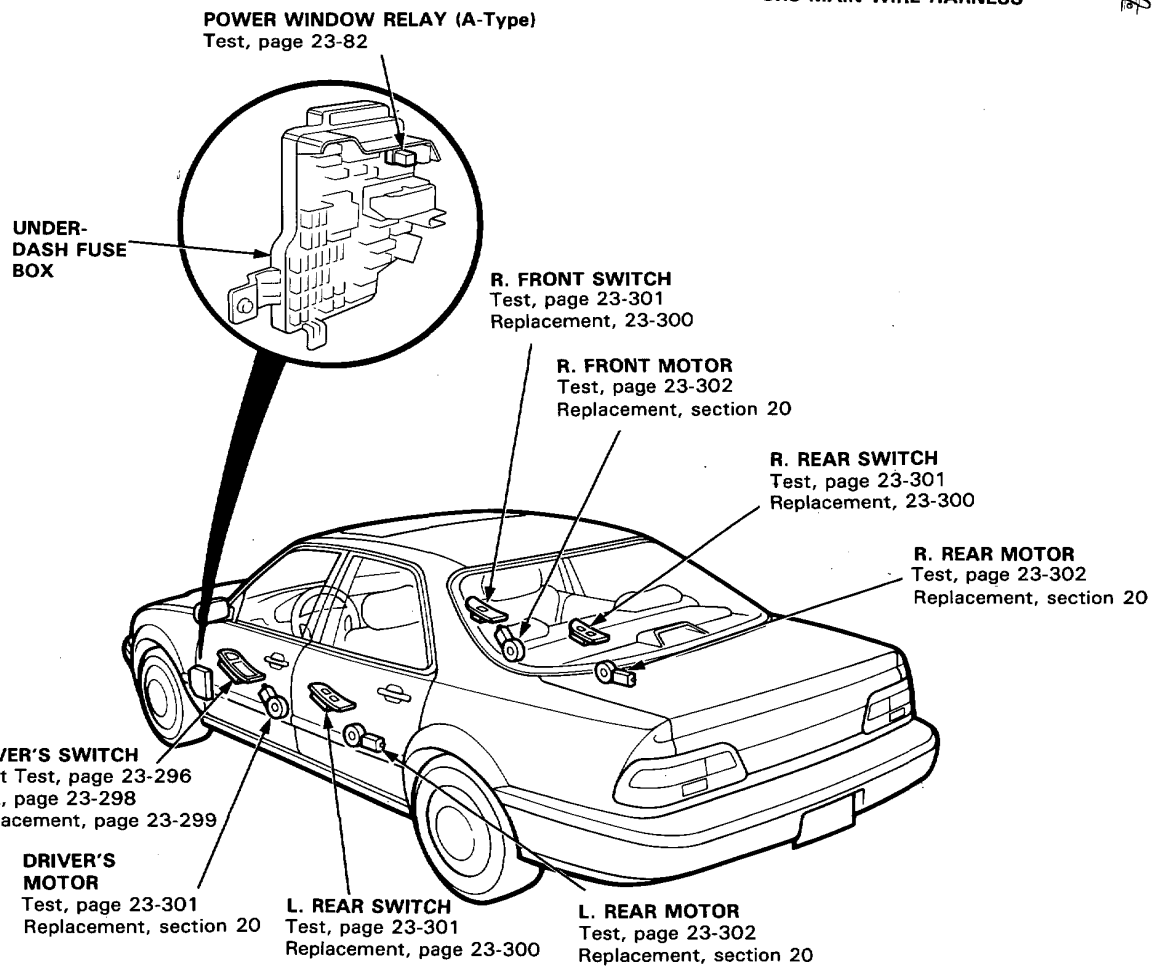
Component Location Index

CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

NOTE: RHD type is symmetrical to LHD type.



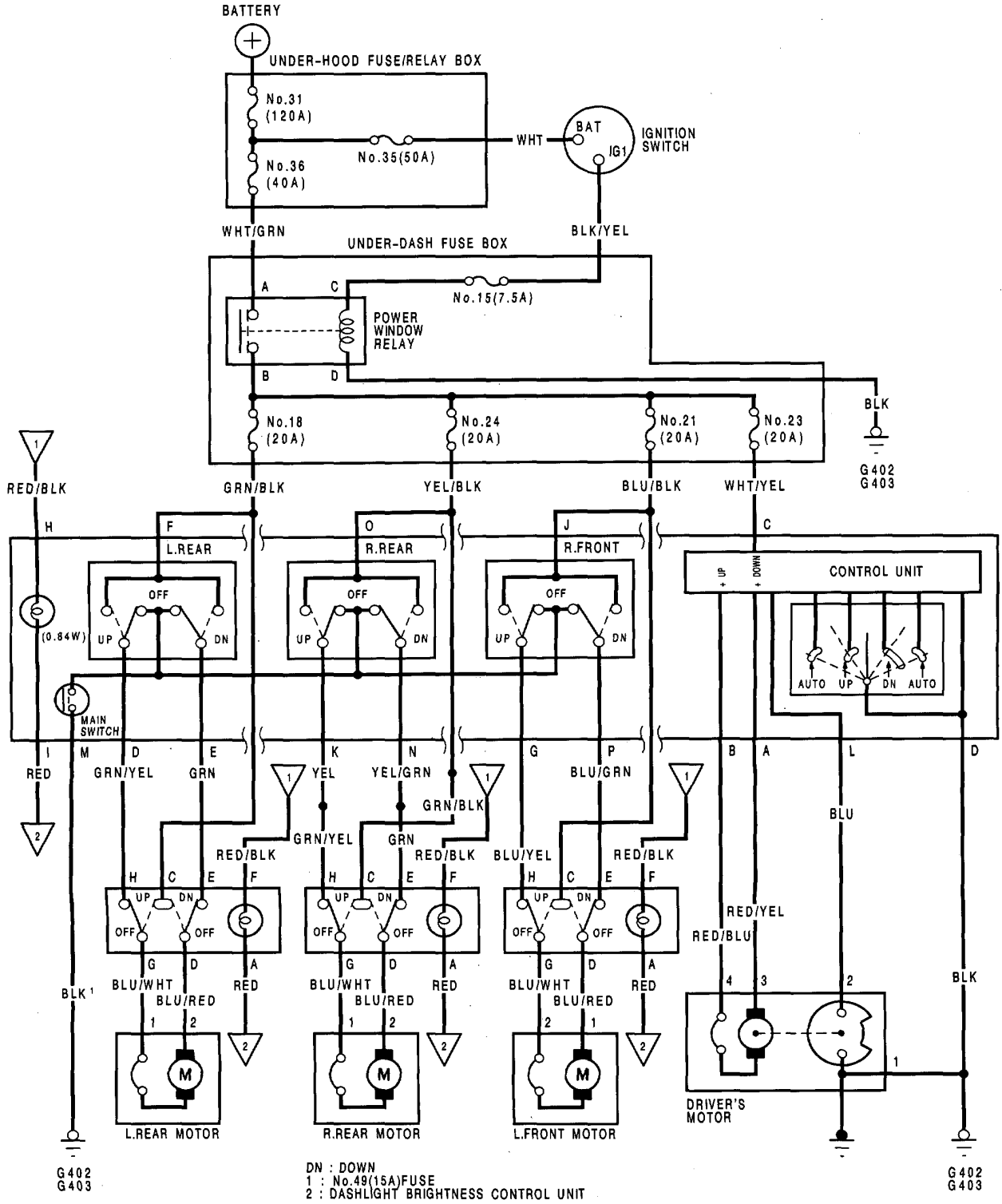


Description

Power Window Key-off Operation (Except KQ):
The power windows can still be operated for about 10 minutes after the ignition switch is turned from the "II" to the I" or "O" position as long as neither of the doors has been opened. This provides a convenience to parked occupants while offering a degree of security against unwanted or accidental window operation.

cardiagn.com

Circuit Diagram (KΩ model)

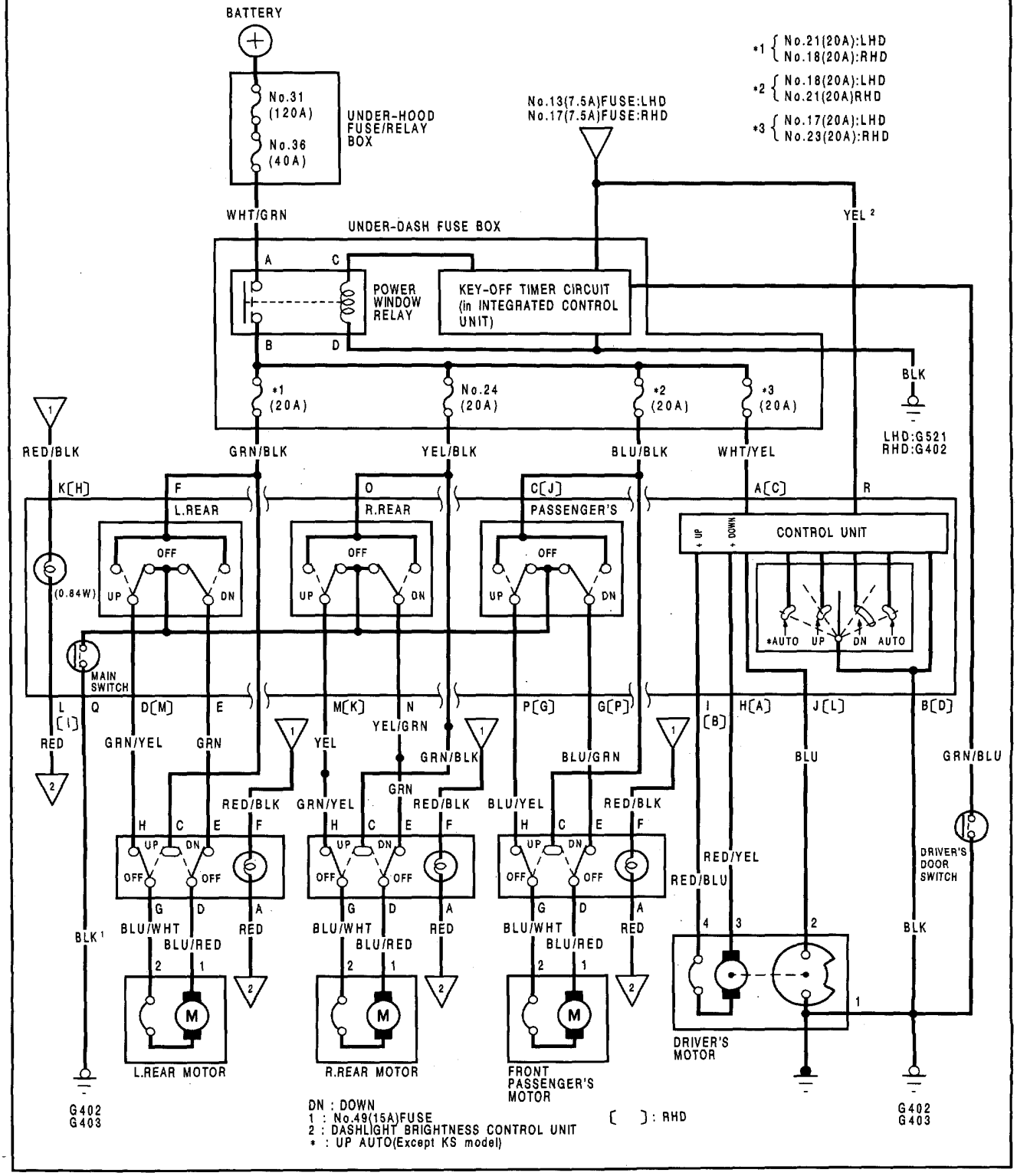


DN : DOWN
1 : No.49(15A)FUSE
2 : DASHLIGHT BRIGHTNESS CONTROL UNIT

cardiagn.com

Power Windows

Circuit Diagram (Except KQ)



cardiagn.com

Troubleshooting

NOTE: The numbers in the table show the troubleshooting sequence.

Item to be inspected / Symptom		Blown No. 36 (40 A) fuse (in the under-hood fuse/relay box)	Blown *1 (7.5 A) fuse (in the under-dash fuse box) *5	Power window relay	Blown *4 (20 A) fuse (in the under-dash fuse box)	Blown *3 (20 A) fuse (in the under-dash fuse box)	Blown *2 (20 A) fuse (in the under-dash fuse box)	Blown No. 24 (20 A) fuse (in the under-dash fuse box)	Driver's door switch	Passenger's switch	Driver's motor	Pulser (in driver's motor)	Passenger's motor	Window regulator	Driver's switch input	Door switches	Key-off timer circuit (in the integrated control unit) *5	Poor ground	Open circuit in wires or loose or disconnected terminals
All windows do not operate.		1	3	2													4	G403 [G402]	WHT/YEL or WHT/GRN
Driver's window does not operate.					1						2			3	4			G403 [G402]	WHT/YEL
Driver's window does not operate in AUTO												1			2				BLU
Passenger's windows do not operate	L[R]. front					1			2	3			4	5					BLU/BLK
	Left rear							1	2	3			4	5					GRN/BLK
	Right rear						1		2	3			4	5					YEL/BLK
All windows do not operate within 10 minutes after the ignition switch is OFF *5			1													2	3		

[ ]: RHD

*1 {NO. 13: LHD
NO. 17: RHD

*2 {NO. 21: LHD
NO. 18: RHD

*3 {NO. 18: LHD
NO. 21: RHD

*4 {NO. 17: LHD
NO. 23: RHD

*5: With key-off timer system

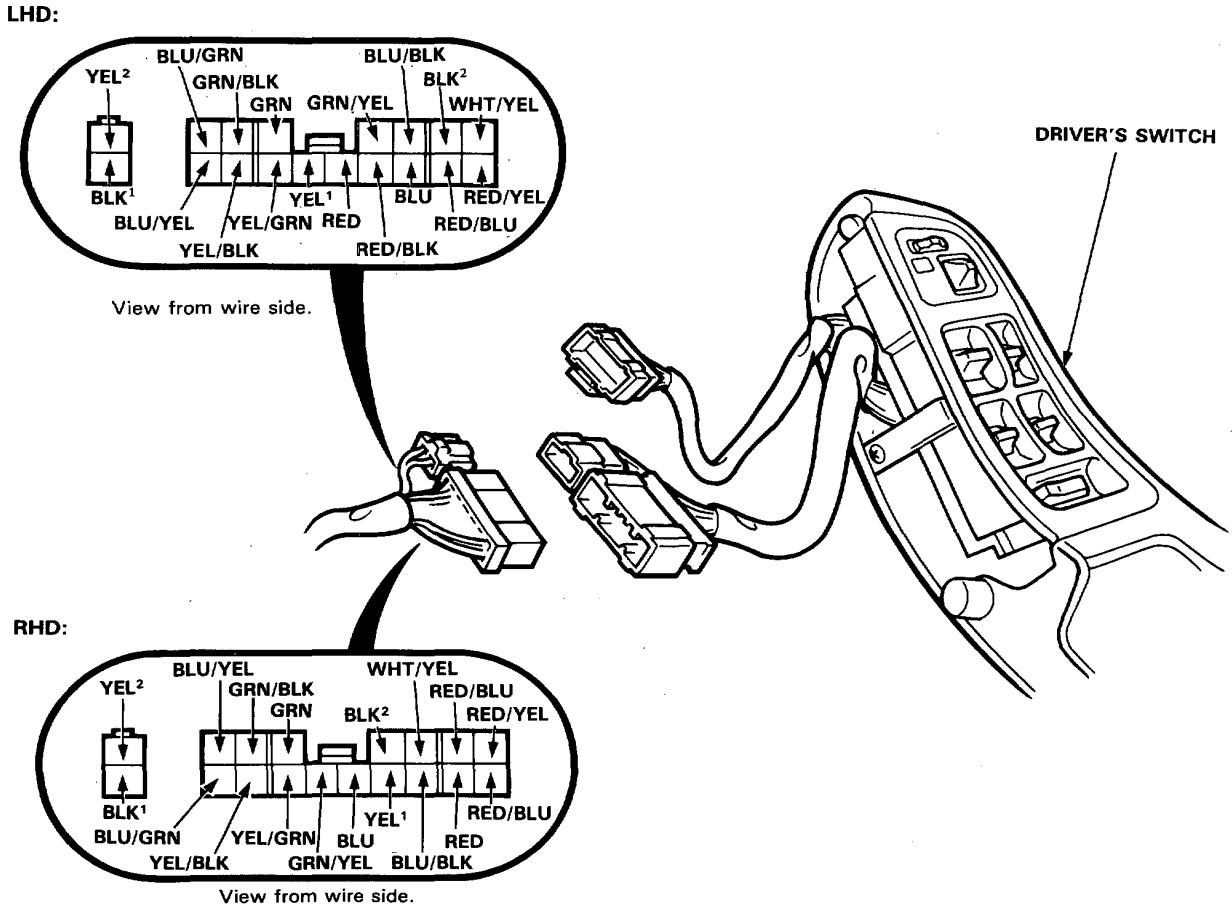
cardiagn.com

Driver's Switch Input Test

NOTE: The control unit is built into the driver's switch, and only controls driver's door window operation.

Remove the driver's door trim panel and disconnect the 16-P and 2-P connectors from the driver's switch. Make the following input tests at the connector terminals.

NOTE: Recheck the connections between the 16-P and 2-P connectors and the driver's switch, then replace the driver's switch if all input tests prove OK.



cardiagn.com

No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLK[1] and BLK[2]	Under all conditions.	Check for continuity to ground: *should be continuity*	• Poor ground (G402, G403). • An open in the wire.
2	WHT/YEL BLU/BLK YEL/BLK GRN/BLK	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 17, 18, 21 and 24. (20 A) fuse. • Faulty power window relay. • Faulty key-off timer circuit. • An open in the wire.
3	YEL[2]	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 13 (7.5 A) fuse (LHD), No. 17 (7.5 A) fuse (RHD). • An open in the wire.
4	RED/BLU and RED/YEL	Connect the WHT/YEL terminal to the RED/BLU terminal, and the RED/YEL terminal to the BLK[1] terminal, then ignition switch ON.	Check the driver's motor operation: should run.	• Faulty driver's motor.
5	BLU/YEL and BLU/GRN	Connect the BLU/BLK terminal to the BLU/YEL terminal, and the BLU/GRN terminal to the BLK[1] terminal, then ignition switch ON.	Check the front passenger's motor operation: should run.	• Faulty front passenger's motor. • Faulty front passenger's switch. • An open in the wire.
6	YEL[1] and YEL/GRN	Connect the YEL/BLK terminal to the YEL terminal, and the YEL/GRN terminal to the BLK[1] terminal then ignition switch ON.	Check the right rear motor operation: should run.	• Faulty R. rear motor. • Faulty R. rear switch. • An open in the wire.
7	GRN/YEL and GRN	Connect the GRN/BLK terminal to the GRN/YEL terminal, and the GRN terminal to the BLK[1] terminal, then ignition switch ON.	Check the left rear motor operation: should run.	• Faulty L. rear motor. • Faulty L. rear switch. • An open in the wire.
8	BLU and BLK[2]	Connect the WHT/YEL terminal to the RED/YEL terminal, and the BLK[2] terminal to the RED/BLU terminal, then ignition switch ON.	Check for needle movement on analog ohmmeter connected between BLU and BLK[2] while the window is moving.	• Faulty pulser. • Faulty driver's motor. • An open in the wire.
9	RED/BLK and RED	Lighting switch ON. Dashlight brightness controller dial rotated, dashlights should come on full bright.	Check for voltage between RED/BLK (+) and RED (−) terminals: should be battery voltage.	• Faulty dashlight brightness control system. • An open in the wire.

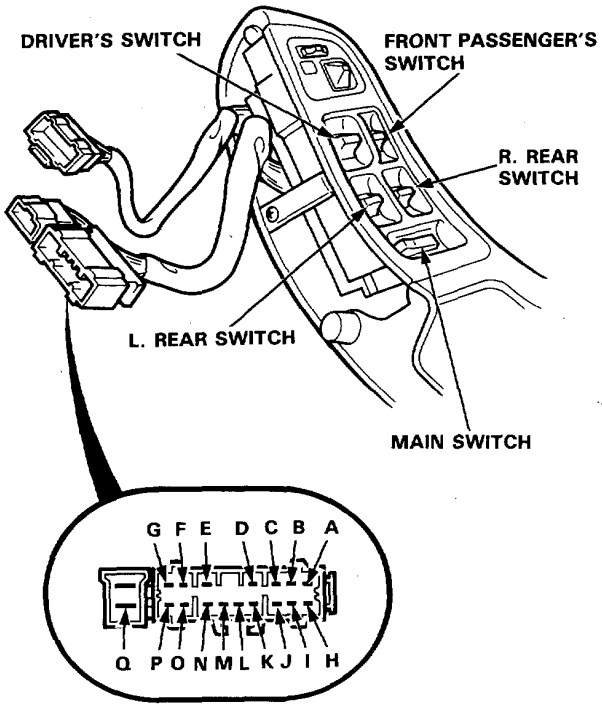
cardiagn.com

Power Windows

Driver's Switch Test

1. Remove the door trim panel.
2. Remove the driver's switch from the arm rest.
3. Check for continuity between the terminals in each switch position according to the tables.

NOTE: LHD type is shown. RHD type is similar.



View from terminal side

Driver's Switch
The driver's switch is assembled with the control unit as a single-unit assembly, therefore, you cannot check the driver's switch only. Perform input test procedures No. 1, 2, 3, 4 and 8. If there are normal, the driver's switch assembly is defective.

Front Passenger's Switch

Position	Main switch	C [J]	G [P]	P [G]	Q
OFF	ON		○	○	○
	OFF		○	○	
UP	ON	○	○	○	○
	OFF	○		○	
DOWN	ON	○		○	○
	OFF	○			

R. Rear Switch

Position	Main switch	O	M [K]	N	Q
OFF	ON		○	○	○
	OFF		○	○	
UP	ON	○		○	○
	OFF	○		○	
DOWN	ON	○	○		○
	OFF	○		○	

L. Rear Switch

Position	Main switch	F	E	D [M]	Q
OFF	ON		○	○	○
	OFF		○	○	
UP	ON	○	○		○
	OFF	○		○	
DOWN	ON	○		○	○
	OFF	○	○		

Switch Light

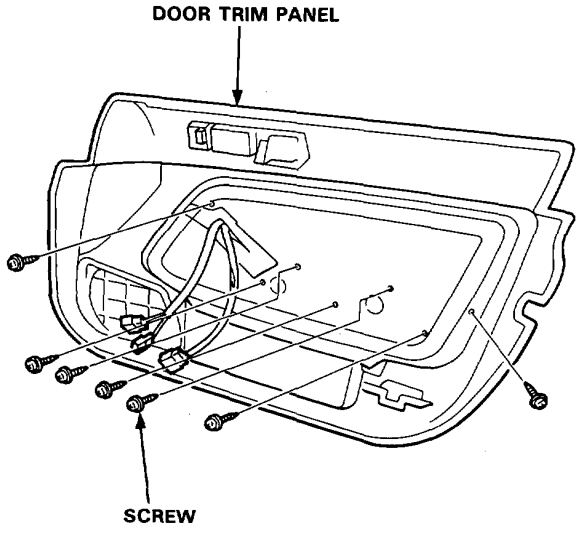
K [H]		L [I]
○	⊙	○

[ ]: RHD

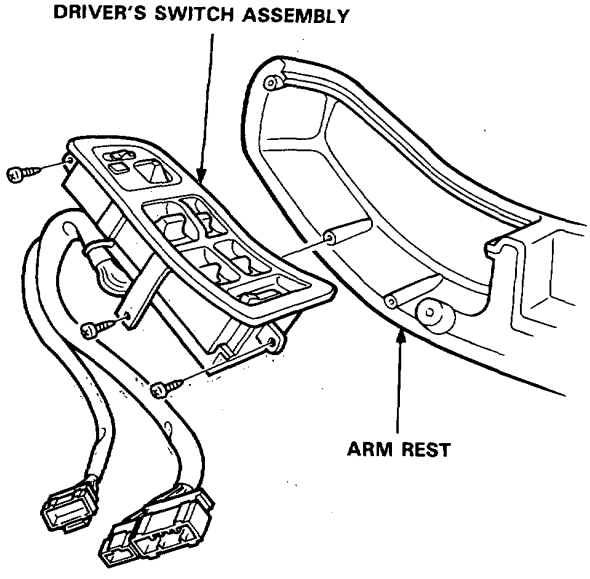
cardiagn.com

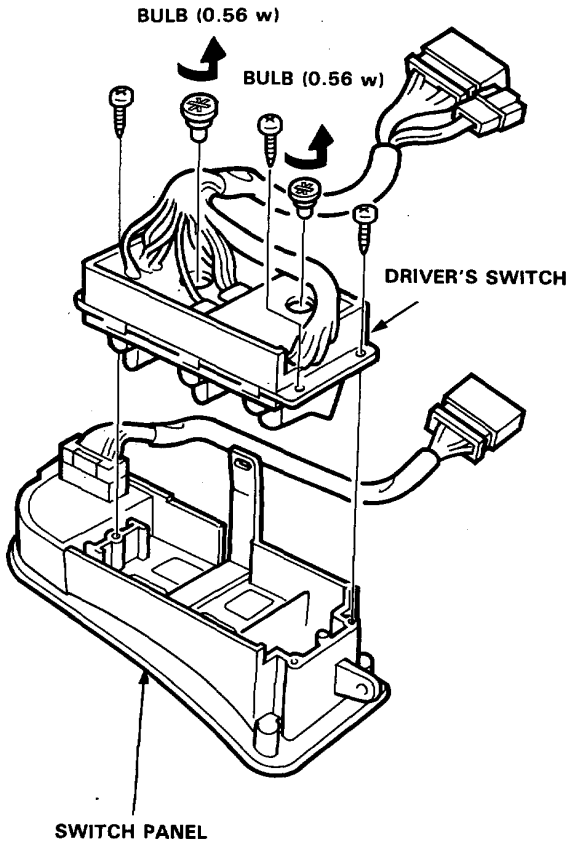
Driver's Switch Replacement

1. Remove the driver's door trim panel, then disconnect all of the connectors from the door trim panel.
2. Remove the arm rest from the door trim panel by removing the screws.



3. Remove the power window master switch assembly from the arm rest by removing 3 screws.



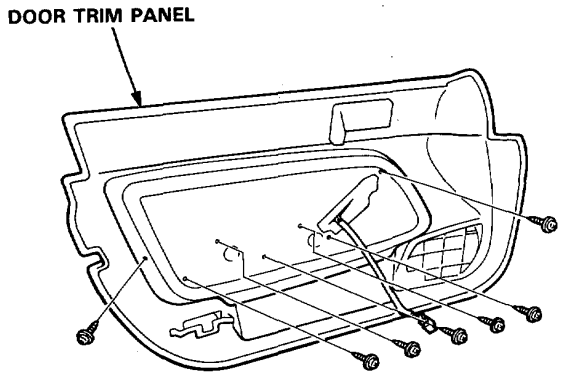


cardiagn.com

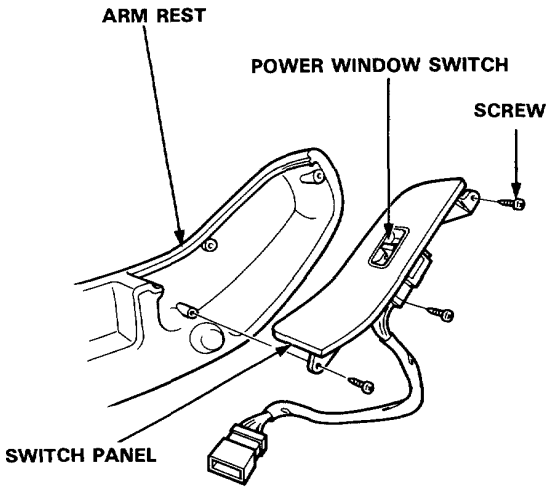
Passenger's Switch Replacement

Front Passenger's Switch:

1. Remove the door trim panel, then disconnect all of the connectors from the door trim panel.
2. Remove the arm rest from the door trim panel by removing the screws.

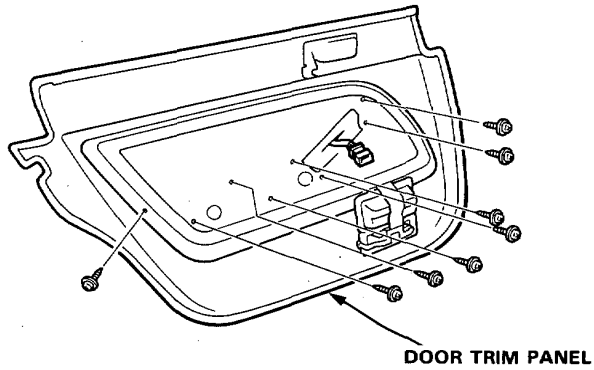


3. Remove the power window switch from the arm rest by removing 3 screws.

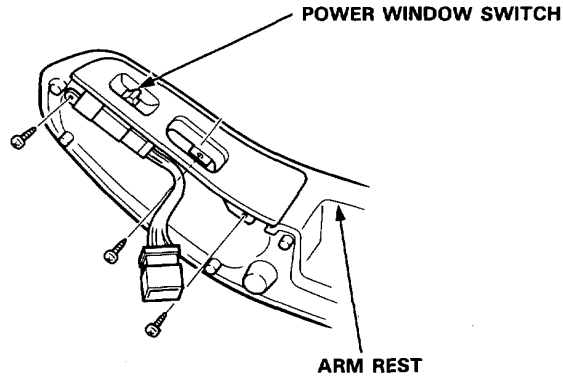


Rear Passenger's Switches:

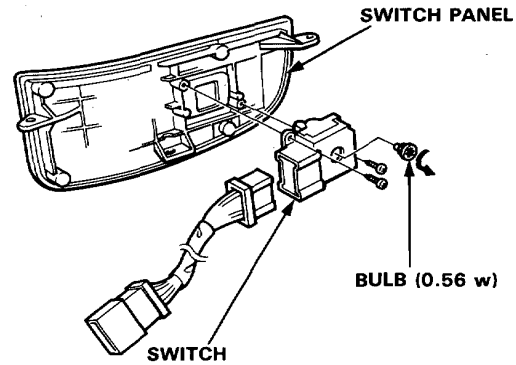
1. Remove the door trim panel, then disconnect all of the connectors from the door trim panel.
2. Remove the arm rest from the door trim panel by removing the screws.



3. Remove the power window switch from the arm rest by removing 3 screws.



4. Remove the power window switch from the switch panel by removing 2 screws.



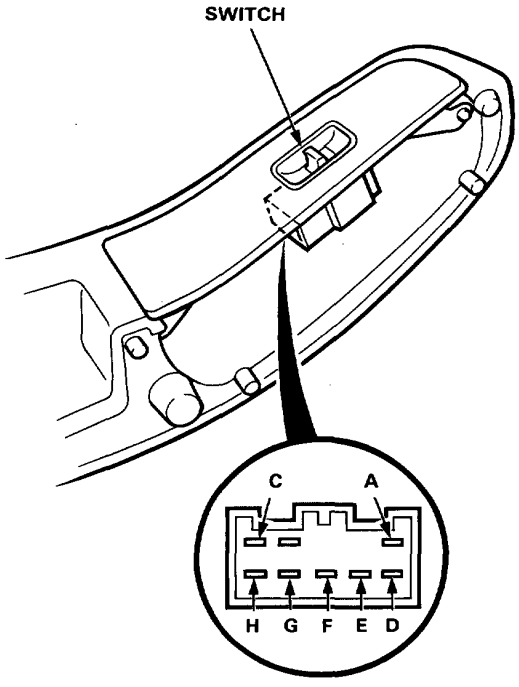
cardiagn.com

Passenger's Switch Test

1. Remove the switch from the arm rest, then disconnect the 8-P connector.
2. Check for continuity between the terminals in each switch position according to the table.

   NOTE: Front switch is shown. Rear switches are similar.

Position \ Terminal	C	D	E	G	H	A		F
UP		○		○				
OFF			○		○	○	⊖	○
DOWN	○			○				

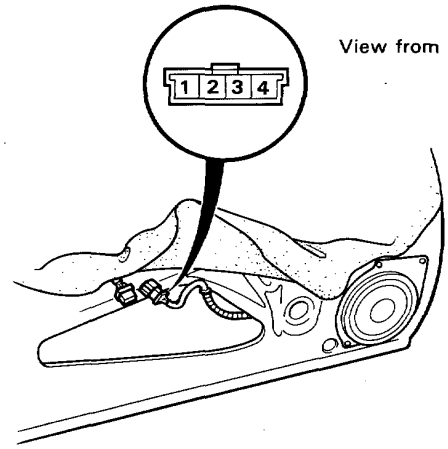


View from terminal side

Driver's Motor Test

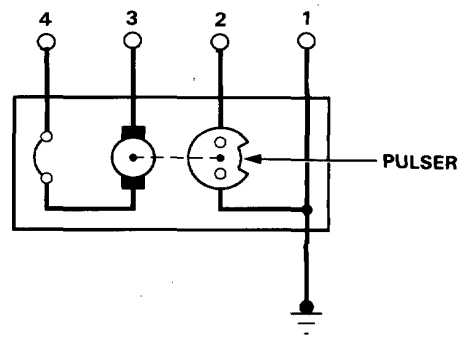
Motor Test:

1. Remove the door trim panel.
2. Disconnect the 4-P connector from the door wire harness.
3. Test motor operation by connecting battery voltage to the No. 3 terminal and grounding the No. 4 terminal.
   Test the motor in each direction by switching the leads from the battery.
4. If the motor does not run, replace it.



View from wire side

Pulser Test:
Using an analog ohmmeter, run the motor by connecting battery voltage to the No. 3 and No. 4 terminals. Check for needle movement with the test leads connected to the No. 1 and 2 terminals.
The analog ohmmeter needle should move back and forth.

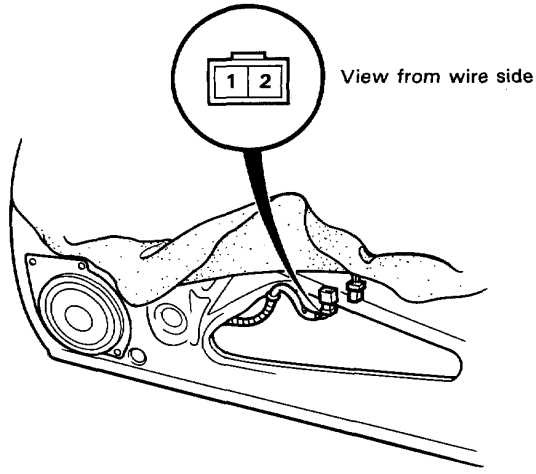


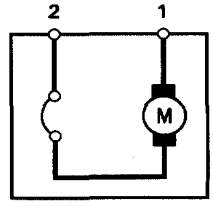
cardiagn.com

Passenger's Motor Test

1. Remove the door trim panel.
2. Disconnect the 2-P connector from the motor
3. Test motor operation by applying battery voltage to the No. 1 and No. 2 terminals.
   Test the motor in each direction by switching the leads from the battery.
4. If the motor does not run, replace it.

   NOTE: Front motor is shown, rear motors similar.





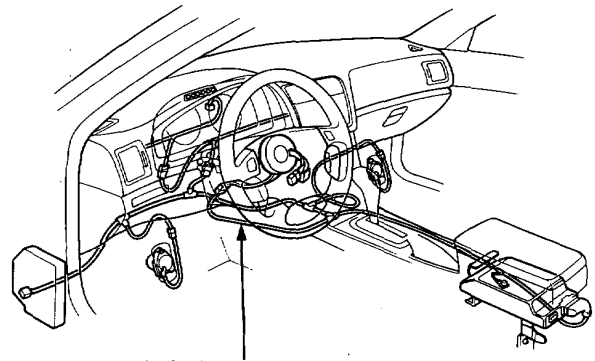
cardiagn.com

Component Location Index

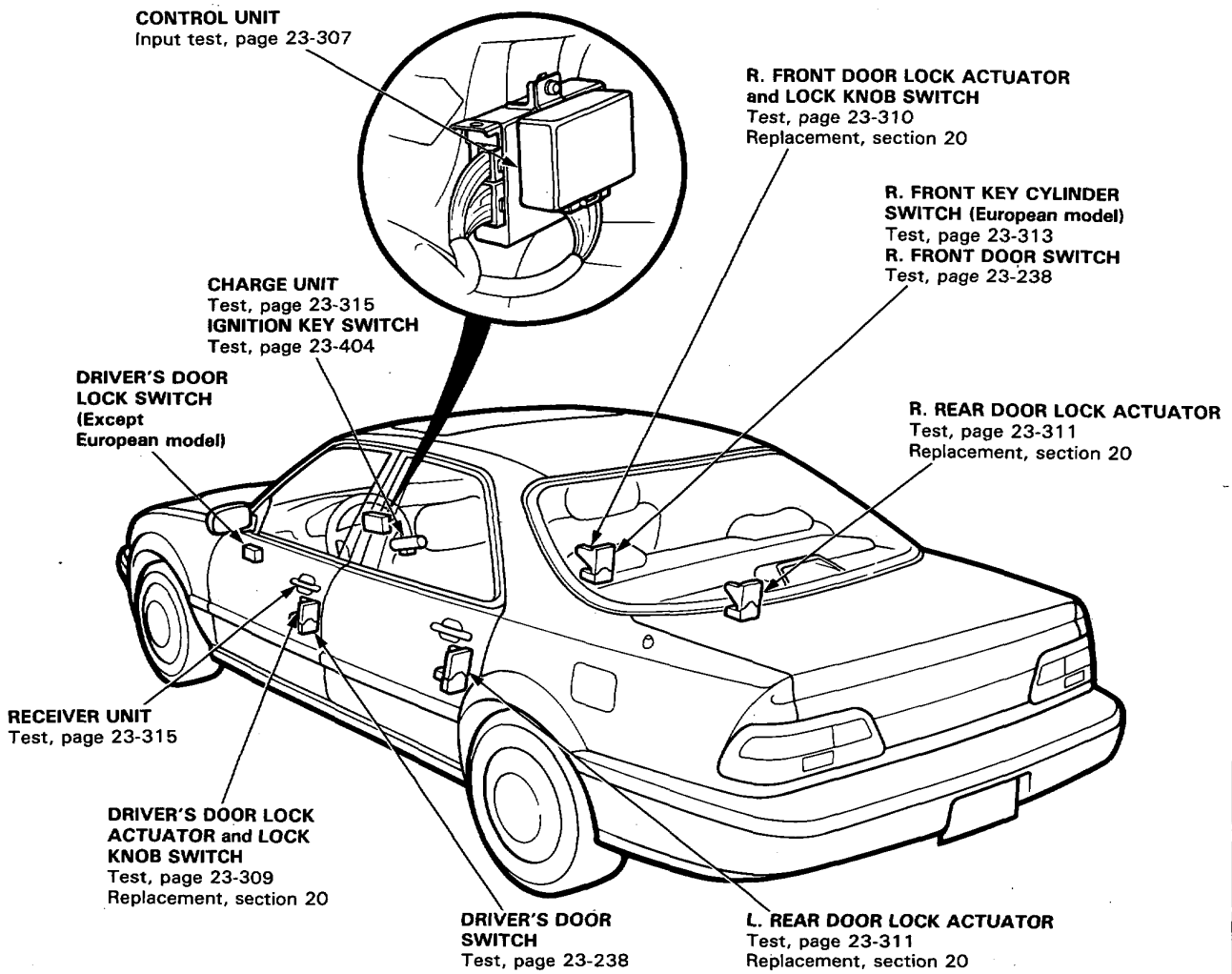
CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

NOTE: RHD type is symmetrical to LHD type.



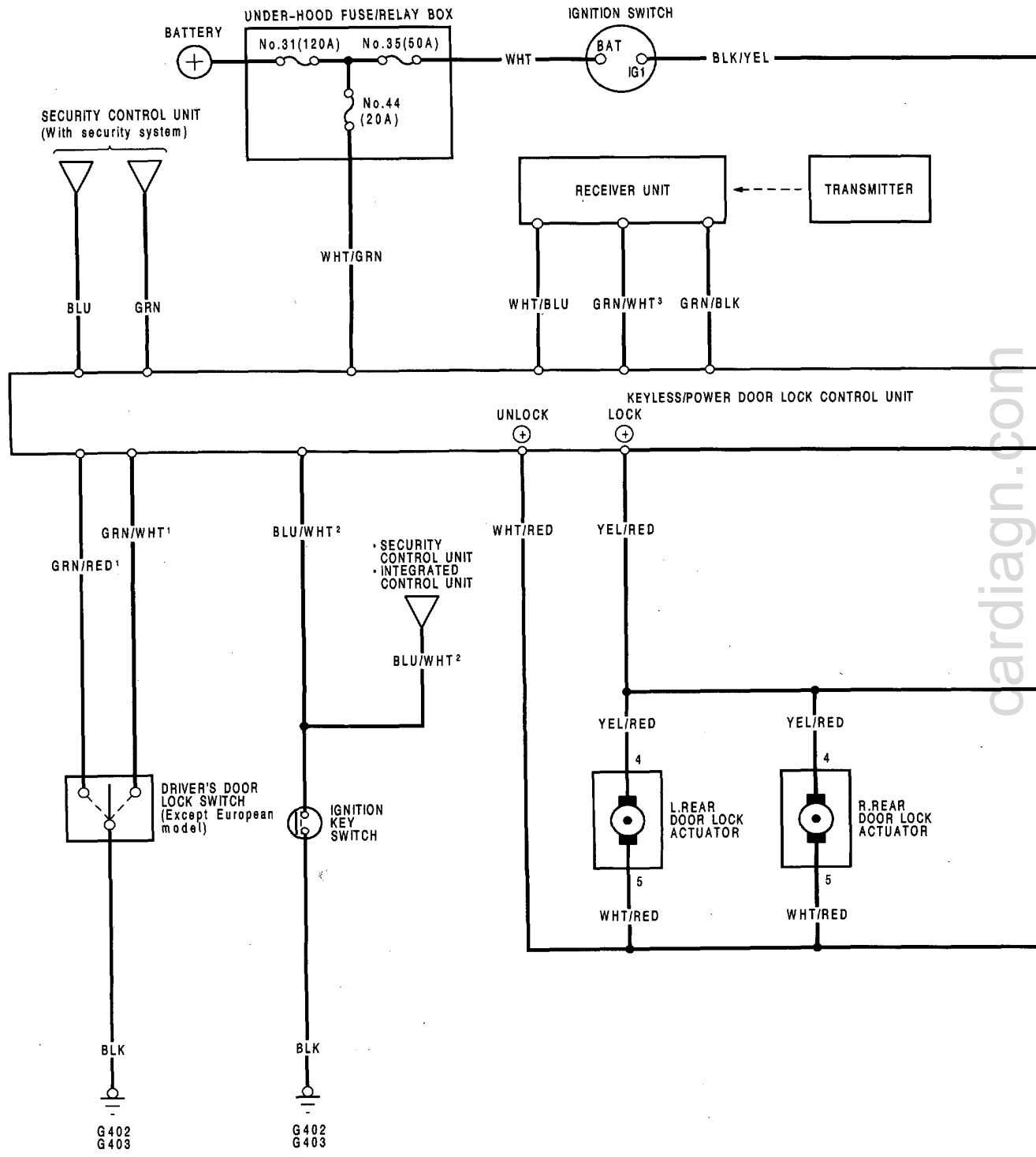
SRS MAIN WIRE HARNESS



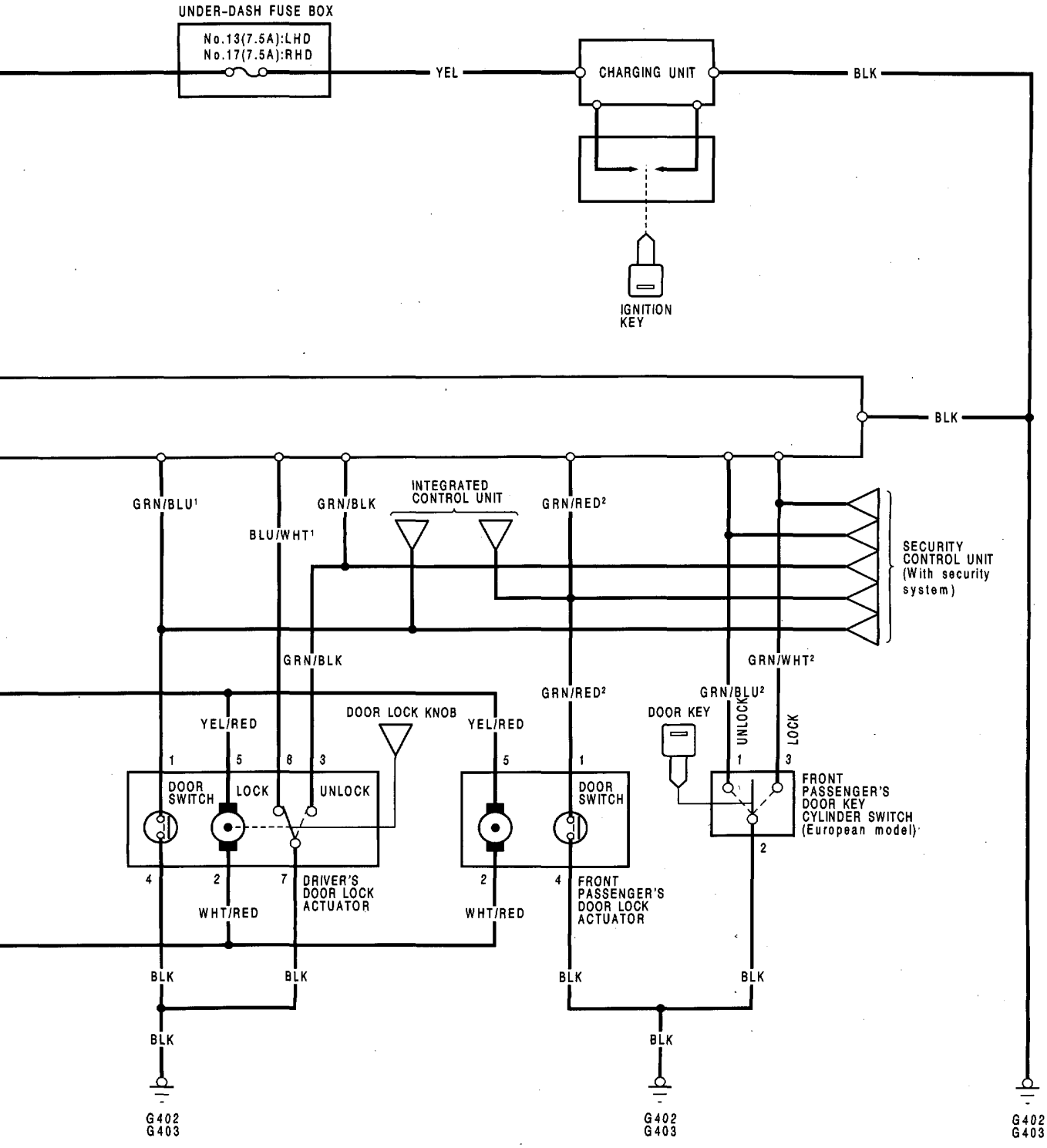
cardiagn.com

Keyless/Power Door Locks

Circuit Diagram



cardiagn.com



cardiagn.com

Keyless/Power Door Locks

Troubleshooting

NOTE: The numbers in the table show the troubleshooting sequence.

Symptom \ Item to be inspected		Blown No. 44 (20 A) fuse (in the under-hood fuse/relay box)	Disconnected or obstructed door lock rod/linkage	Driver's door lock knob switch (in the door lock actuator)	Driver's door lock actuator	Passenger's door lock actuator	Driver's door lock switch	Passenger's door key cylinder switch (in the door lock actuator)	Driver's door switch	Passenger's door switch	Ignition key switch	Control unit input test	Keyless entry system test	Poor ground	Open circuit in wires or loose or disconnected terminals
Power door lock system doesn't operate at all.		1										2		G402	WHT/GRN
Doors don't lock or unlock with the driver's power door lock switch. *1	All doors						1					2		G402, G403	GRN/RED or GRN/WHT
	One or more doors		1		2										
Doors don't lock or unlock with the driver's power door lock knob.	All doors			1								2		G402, G403	BLU/WHT or GRN/BLK
	One or more doors		1		2										
Doors don't lock with the passenger's door key. *2	All doors							1				2		G402, G403	GRN/BLU or GRN/WHT
	One or more doors		1		2										
The door is not supposed to be locked, but it is locked. (Remains locked after the ignition key has been inserted and the door opened.)									2		1	3		G402	BLU/WHT
The power door lock system operate properly but the Keyless entry system doesn't operate.												2	1	G402	WHT/BLU, GRN/WHT, GRN/BLK or YEL

*1: Except european model
*2: European model

cardiagn.com

Control Unit Input Test

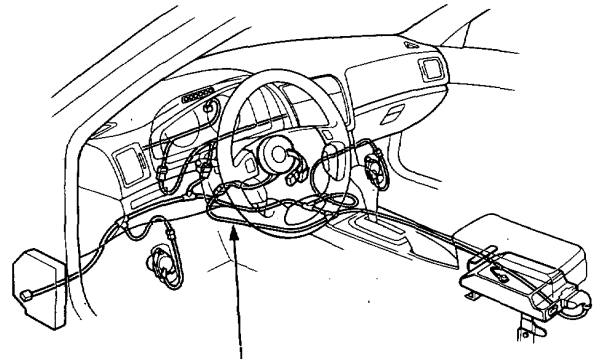
CAUTION:

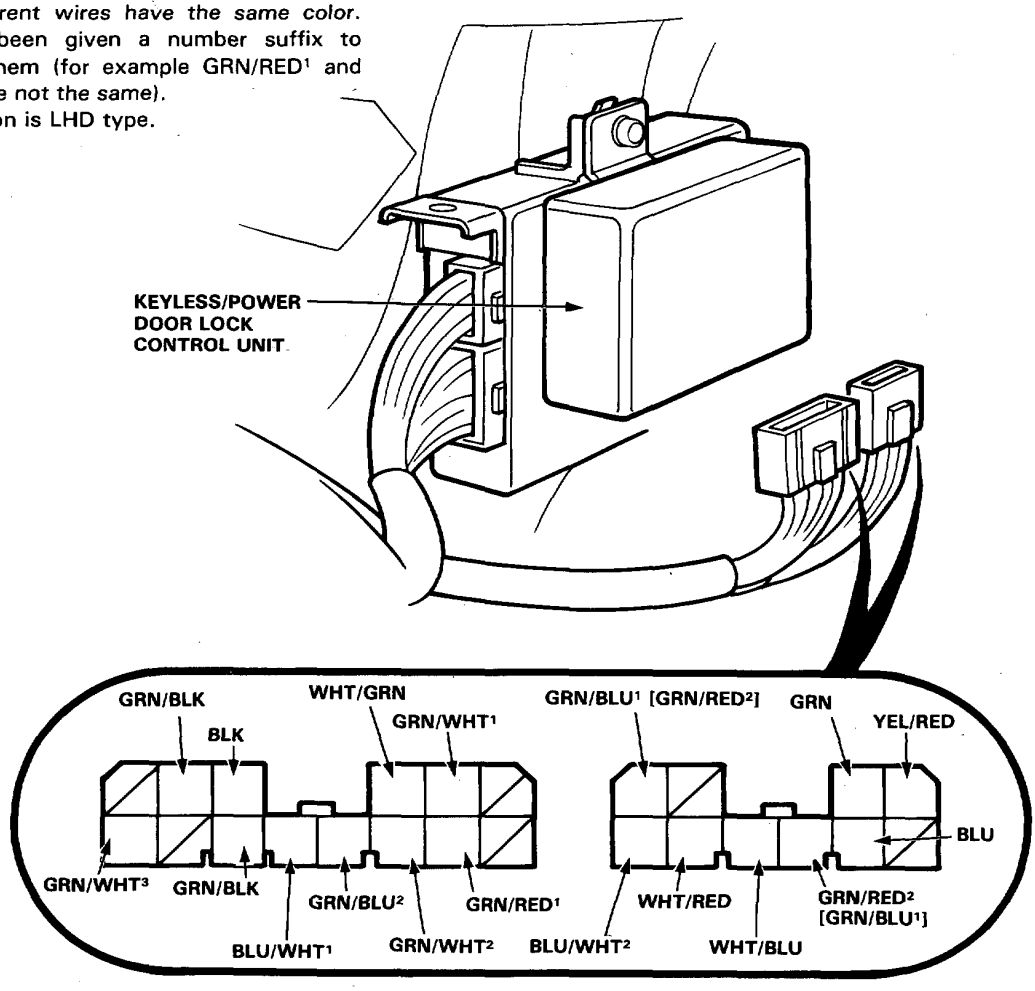
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

Remove the dashboard lower panel, then disconnect the 14-P and 10-P connector from the control unit. Make the following input tests at the harness pins.

NOTE:

- Recheck the connections between the 14-P and 10-P connector and the control unit, then replace the control unit if all input tests prove OK.
- Several different wires have the same color. They have been given a number suffix to distinguish them (for example GRN/RED[1] and GRN/RED[2] are not the same).
- The illustration is LHD type.





View from wire side. [ ]: RHD

(cont'd)

cardiagn.com

Keyless/Power Door Locks

Control Unit Input Test (cont'd)

No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLK	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor ground (G402, G403). • An open in the wire.
2	WHT/GRN	Under all conditions.	Check for voltage to ground: should be battery voltage.	• Blown No. 44 (20 A) fuse. • An open in the wire.
3 *1	GRN/WHT[1]	Driver's door lock switch in LOCK.	Check for voltage to ground: should be 1 V or less.	• Faulty driver's door lock switch. • Poor ground (G402, G403). • An open in the wire.
	GRN/RED[1]	Driver's door lock switch in UNLOCK.		
4	BLU/WHT[1]	Driver's door lock knob in LOCK.	Check for voltage to ground: 1 V or less.	• Faulty driver's door lock actuator. • Poor ground (G402, G403). • An open in the wire.
	GRN/BLK	Driver's door lock knob in UNLOCK.		
5	GRN/BLU[1]	Driver's door opened.	Check for voltage to ground: should be 1 V or less. NOTE: Before testing, remove No. 56 (7.5 A) fuse.	• Faulty left door switch. • Poor ground (G402, G403). • An open in the wire.
	GRN/RED[2]	Right [Left] door opened.		
6	BLU/WHT[2]	Ignition key is inserted into the ignition switch.	Check for voltage to ground: should be 1 V or less.	• Faulty ignition key switch. • Poor ground (G402, G403). • An open in the wire.
7 *2	GRN/WHT[2]	Passenger's door key cylinder in LOCK.	Check for voltage to ground: should be 1 V or less as the switch is turned.	• Faulty door key cylinder. • Poor grond (G402, G403). • An open in the wire.
	GRN/BLU[2]	Passenger's door key cylinder in UNLOCK.		
8	WHT/RED and YEL/RED	Connect the YEL/RED terminal to the WHT/GRN terminal, and the WHT/RED terminal to the BLK terminal momentarily.	Check door lock operation: All doors should unlock as the battery is connected momentarily.	• Faulty actuator. • An open in the wire.
		Connect the WHT/RED terminal to the WHT/GRN terminal, and the YEL/RED terminal to the BLK terminal momentarily.	Check door lock operation: All doors should lock as the battery is connected momentarily.	
9	GRN	Under all conditions.	Check for voltage to ground: should be battery voltage.	• Faulty security control unit. • An open in the wire.
10	BLU	Under all conditions.	Check for voltage to ground: should be battery voltage.	• Fauly security control unit. • An open in the wire.

*1: Except european model.
*2: European model.

cardiagn.com

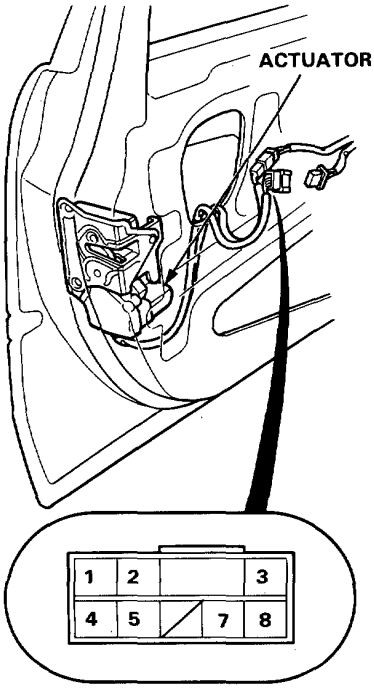
Driver's Door Actuator Test

1. Remove the door trim panel.
2. Disconnect the 8-P connector from the actuator.
3. Test actuator operation:

   LOCK: With battery power connected to the No. 2 terminal, grounding to the No. 5 terminal momentarily.

   UNLOCK: With battery power connected to the No. 5 terminal, grounding to the No. 2 terminal momentarily.

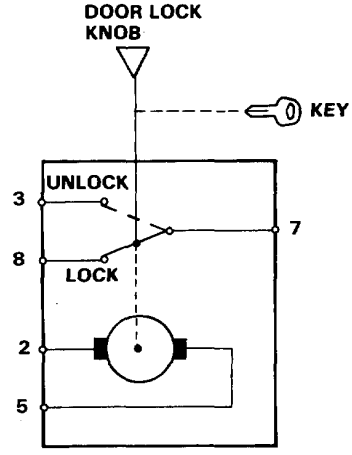
   CAUTION: To prevent damage to the motor, only apply battery voltage momentarily.



View from wire side

4. If the actuator fails to operate properly, replace it
5. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position	8	7	3
LOCK	○———	———○	
UNLOCK		○———	———○



cardiagn.com

Passenger Door Actuator Test

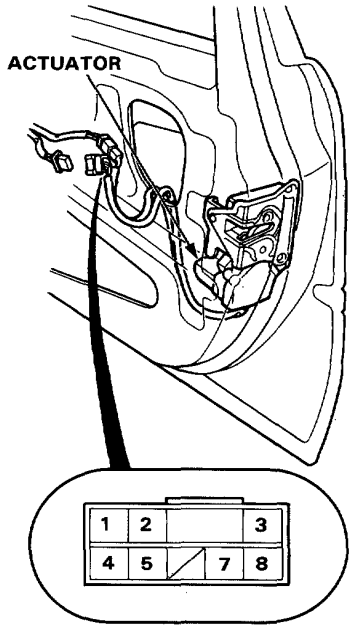
Front Passenger's Door:

1. Remove the door trim panel.
2. Disconnect the 8-P connector from the actuator.
3. Test actuator operation:

   LOCK: With battery power connected to the No. 2 terminal, grounding to the No. 5 terminal momentarily.

   UNLOCK: With battery power connected to the No. 5 terminal, grounding to the No. 2 terminal momentarily.

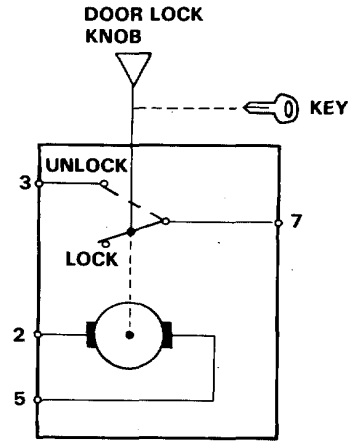
   CAUTION: To prevent damage to the motor, only apply battery voltage momentarily.



View from wire side

4. If the actuator fails to operate properly, replace it.
5. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position	7	3
LOCK		
UNLOCK	○	○



cardiagn.com

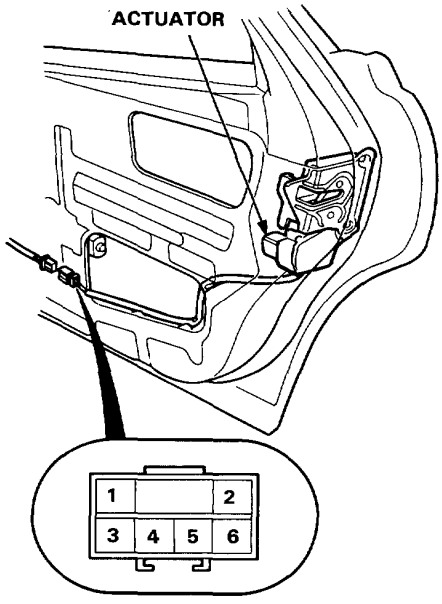
Left/Right Rear Door:

1. Remove the door trim panel.
2. Disconnect the 8-P connector from the actuator.
3. Test actuator operation:

   LOCK: With battery power connected to the No. 5 terminal, grounding to the No. 4 terminal momentarily.

   UNLOCK: With battery power connected to the No. 4 terminal, grounding to the No. 5 terminal momentarily.

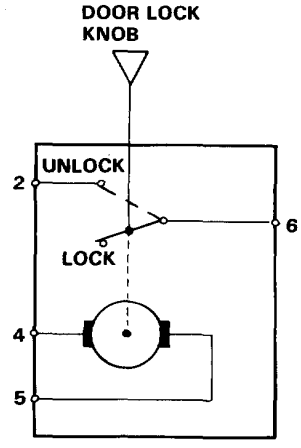
   CAUTION: To prevent damage to the motor, only apply battery voltage momentarily.



View from wire side

4. If the actuator fails to operate properly, replace it.
5. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position	2	6
LOCK		
UNLOCK	○	○



cardiagn.com

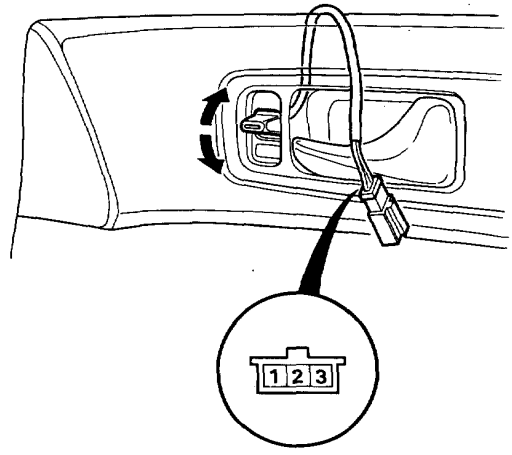
Door Lock Switch Test

Except European model:

1. Remove the door trim panel.
2. Disconnect the 3-P connector from the switch.
3. Check for continuity between the terminals in each switch position according to the tables.

Terminal / Position	1	2	3
UNLOCK		○———	———○
OFF			
LOCK	○———	———○	

NOTE: RHD type is shown. LHD type is similar.



View from wire side

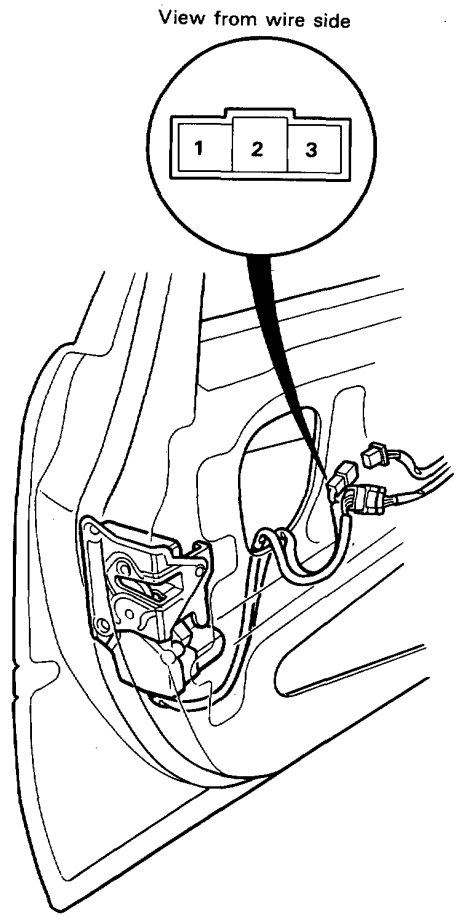
cardiagn.com

Key Cylinder Switch Test

European model:

1. Remove the door trim panel.
2. Disconnect the 3-P connector from the actuator.
3. Check for continuity between the terminals in each switch position according to the tables.

Terminal / Position	1	2	3
LOCK		○——○	
UNLOCK	○——○		



NOTE: RHD type is shown. LHD type is similar.

cardiagn.com

Keyless Entry System Test

NOTE: Befor proceeding to testing, make sure that the door lock system is functioning properly.

1. Turn the voltage select switch, then connect the Keyless Entry Checker to AC power outlet and check the power indicator light go on.

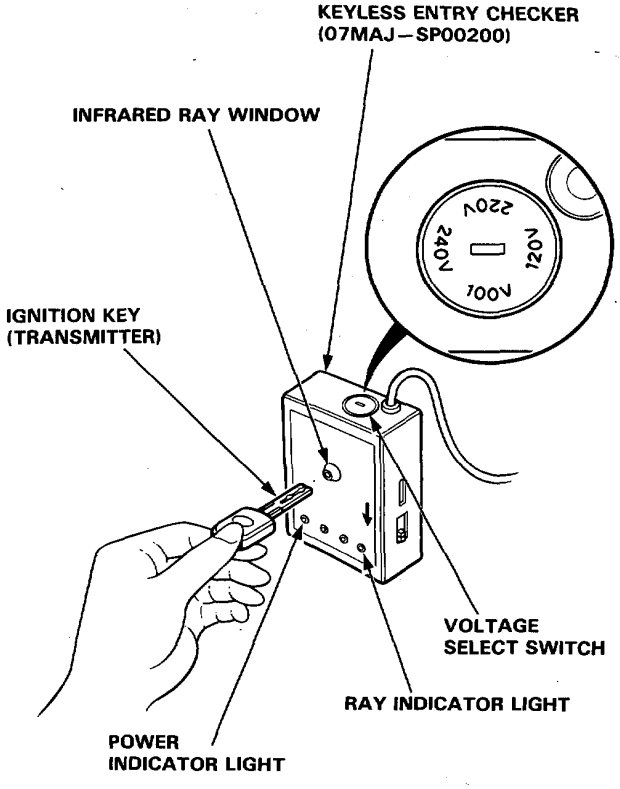
2. Place the ignition key (transmitter) within 500 mm (19.7 in) from the front of the infrared ray window and press the transmit button ON the ignition key (transmitter). Check the ray indicator light go on.

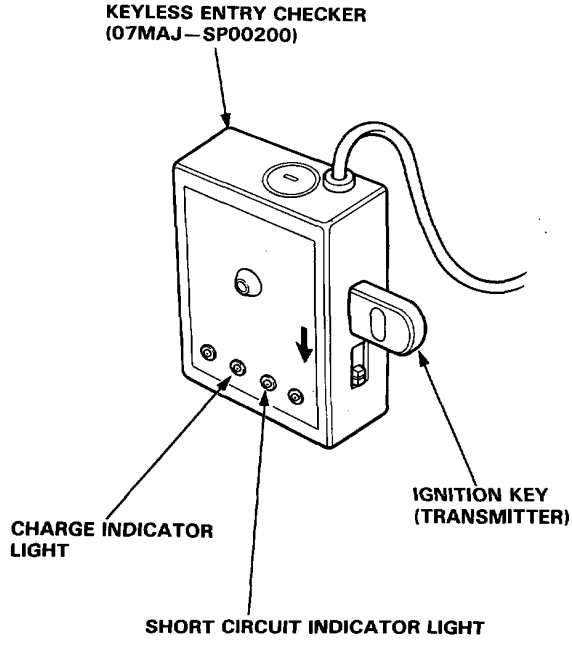
   - If ray indicator light go on, go to step 4.

3. The ray indicator light dose not go on, insent the ignition key in to the keyless checker (the charge indicator light go on), then check again.

   NOTE: If the short circuit indicator light go on, pull out the ignition key once and reinsert.

   - If ray indicator light go on, go to step 5.
   - If not illuminating, check for contaminated or deformed ignition key tip.
     If it is not contaminated or deformed the ignition key (transmitter) itselt is faulty.



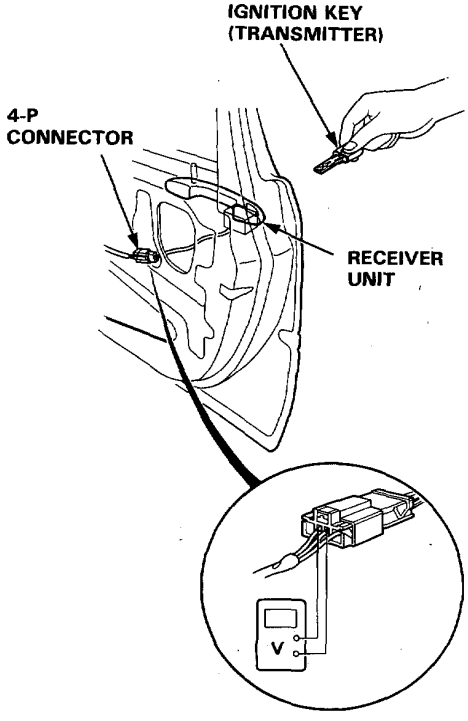


cardiagn.com

4. Remove the driver's door trim panel and check the receiver output level varies when the transmit button ON the transmitter is pressed.

   NOTE: Connect the positive (+) probe of the digital multimeter to the GRN/WHT terminal and the negative (−) probe to the GRN/BLK terminal.

   - Keep the 4-P connector connected.
   - Use a digital multimeter (DC range).
     - If the output voltage momentarily varies to the range of approx 3.5 mV −1 V, go to step 5.
     - If there is no voltage, check for contaminated sensor on the receiver and external damage. If sensor is not contaminated and no external damage, the receiver is faulty.

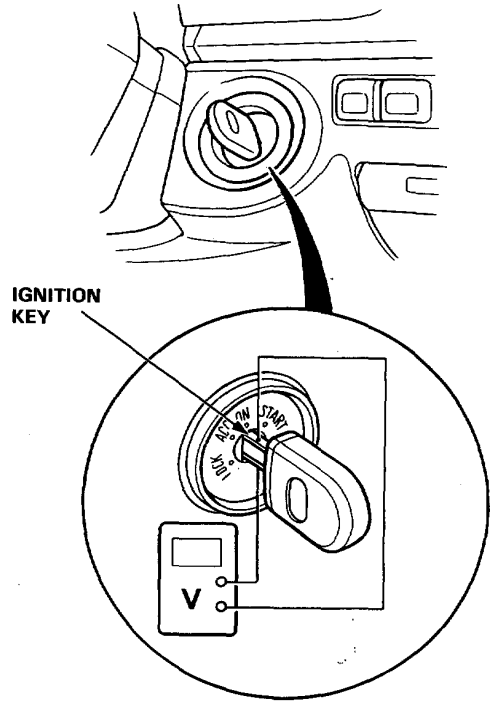


LHD type is symmetrical to RHD type.

5. Insert the ignition key (transmitter) into the ignition switch and turn to the ON, then check whether there is charged voltage of 8−10 V between the key terminals.

   NOTE: Take care not to short circuit between the key terminals or between the terminals and vehicle body during voltage measurement.

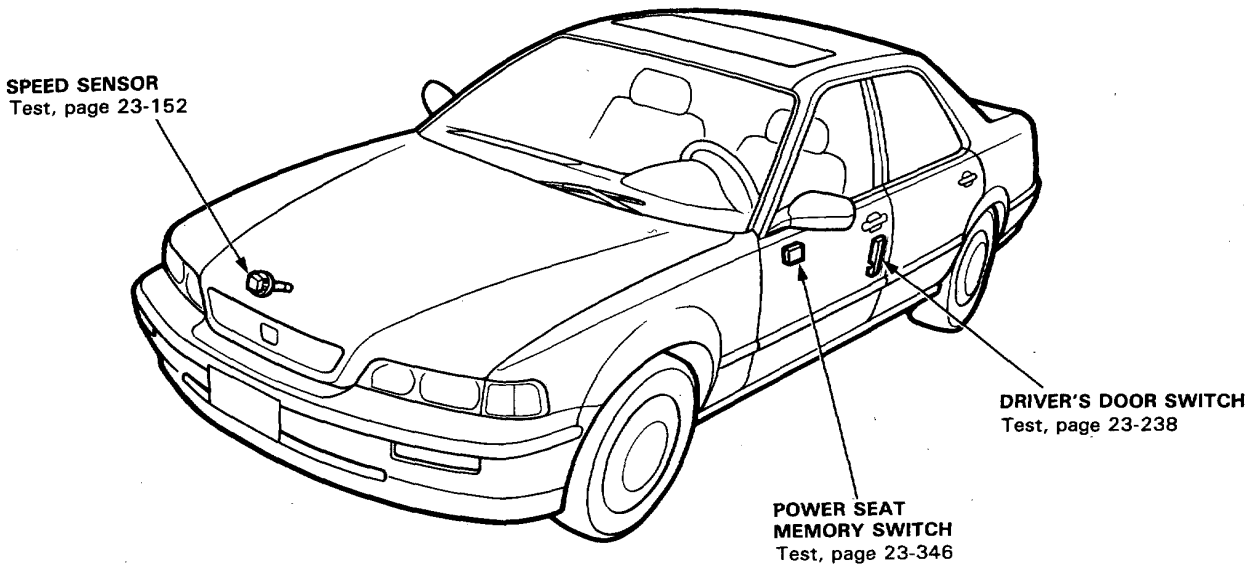
   - If there is proper voltage, check for contaminated sensor on the receiver and external damage.
   - If the voltage level is out of the proper range, the charging unit is faulty.

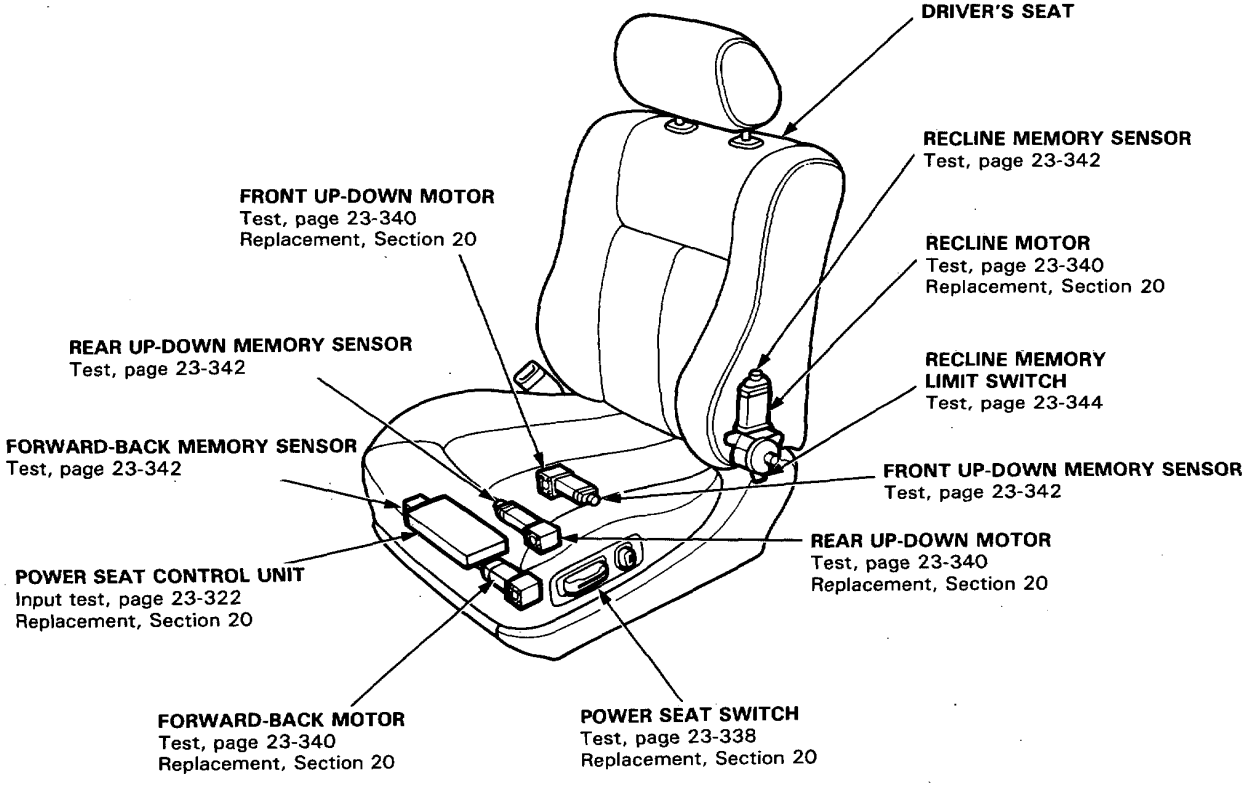


cardiagn.com

Power Driver's Seat

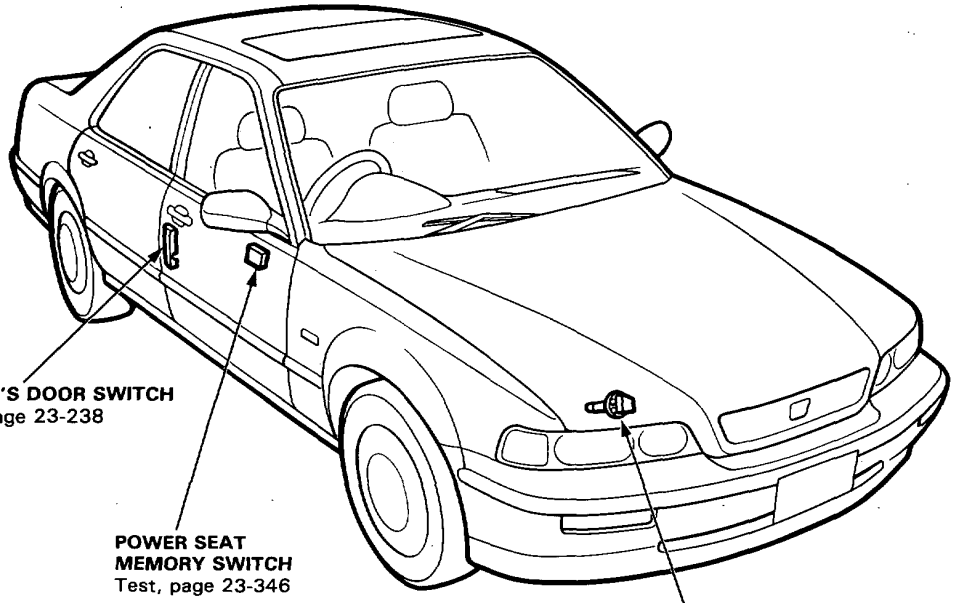
Component Location Index (LHD)

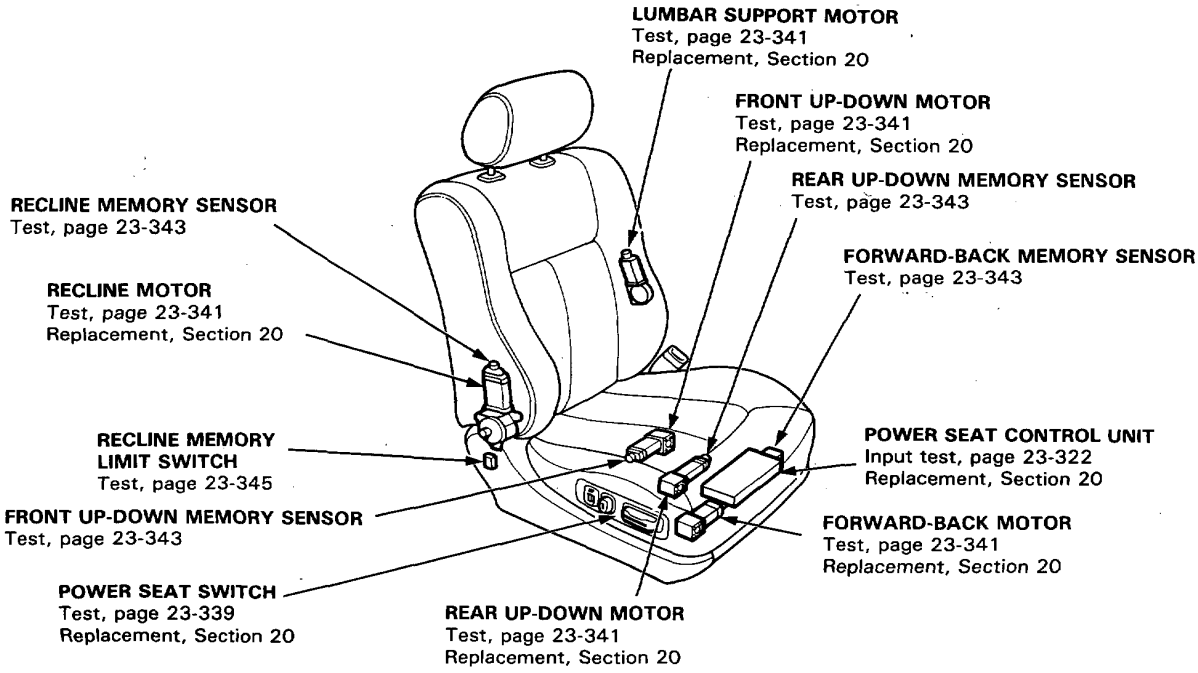




cardiagn.com

Component Location Index (RHD)

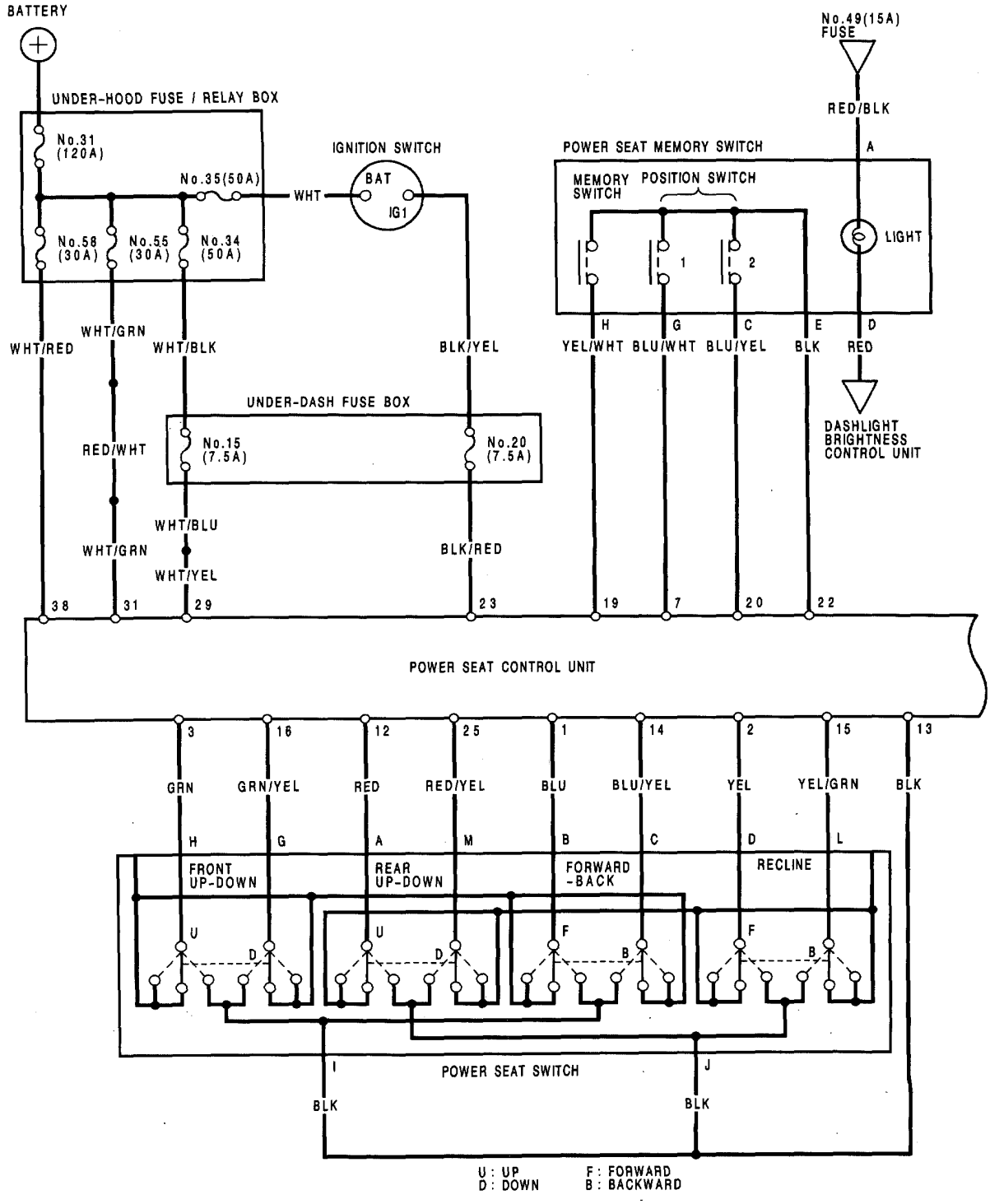




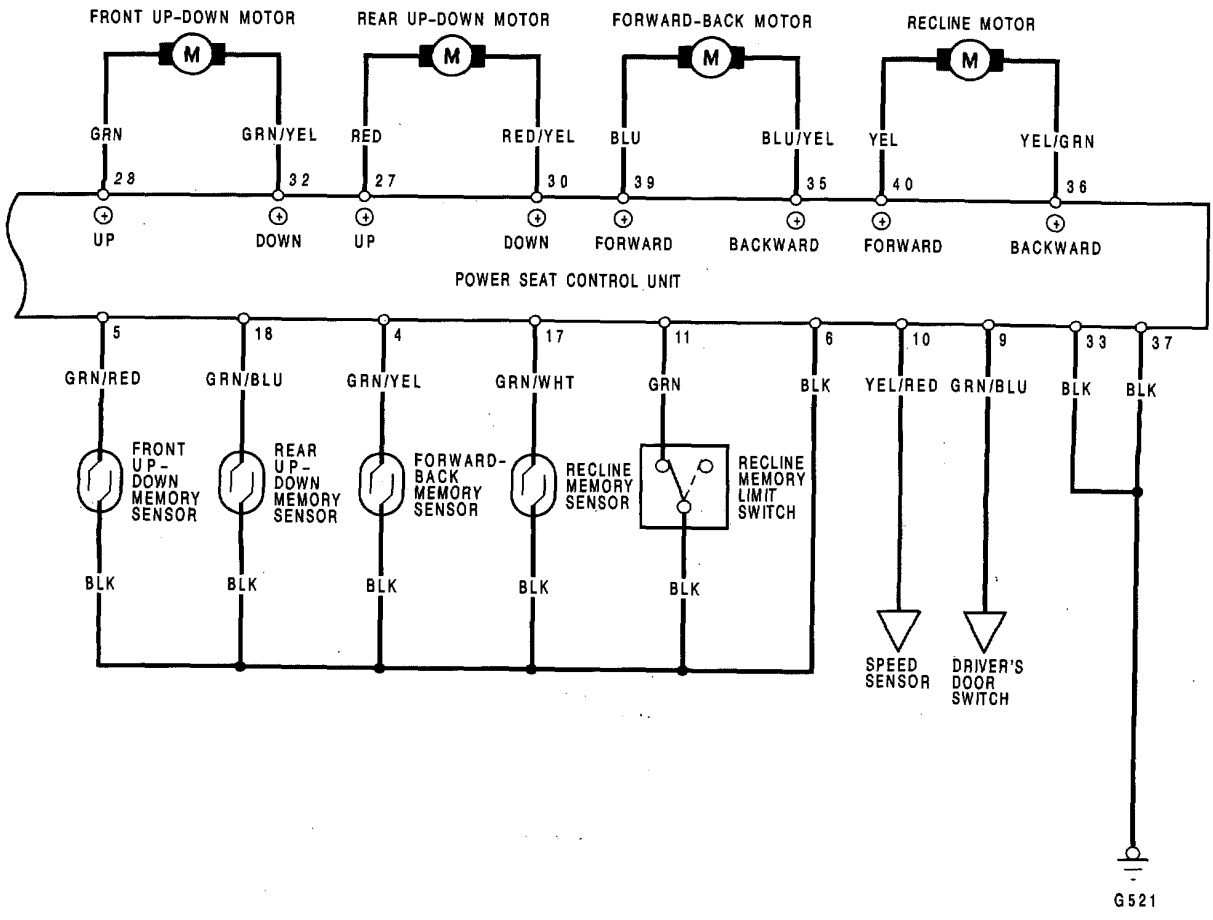
cardiagn.com

Power Driver's Seat

Circuit Diagram (LHD)



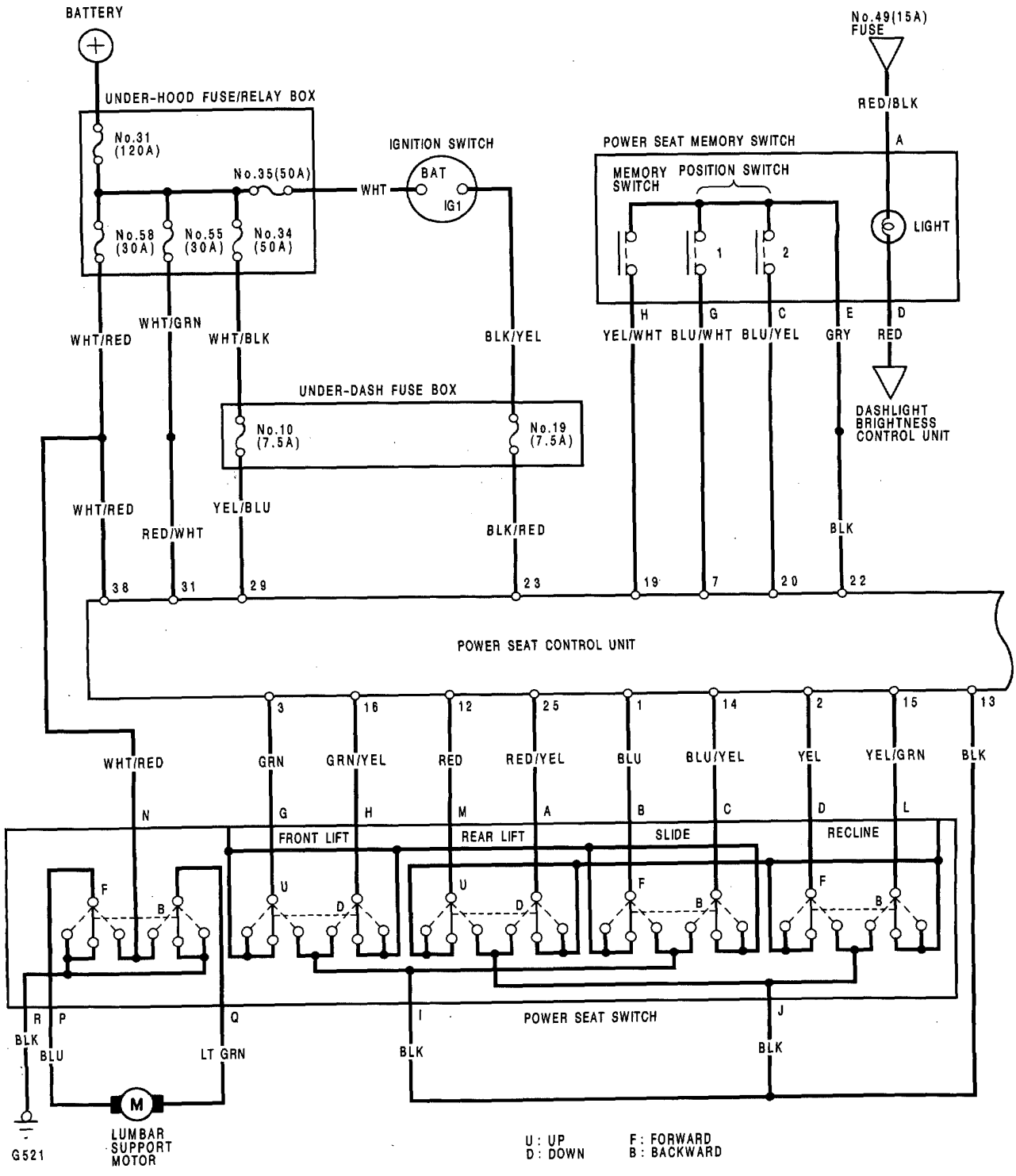
cardiagn.com



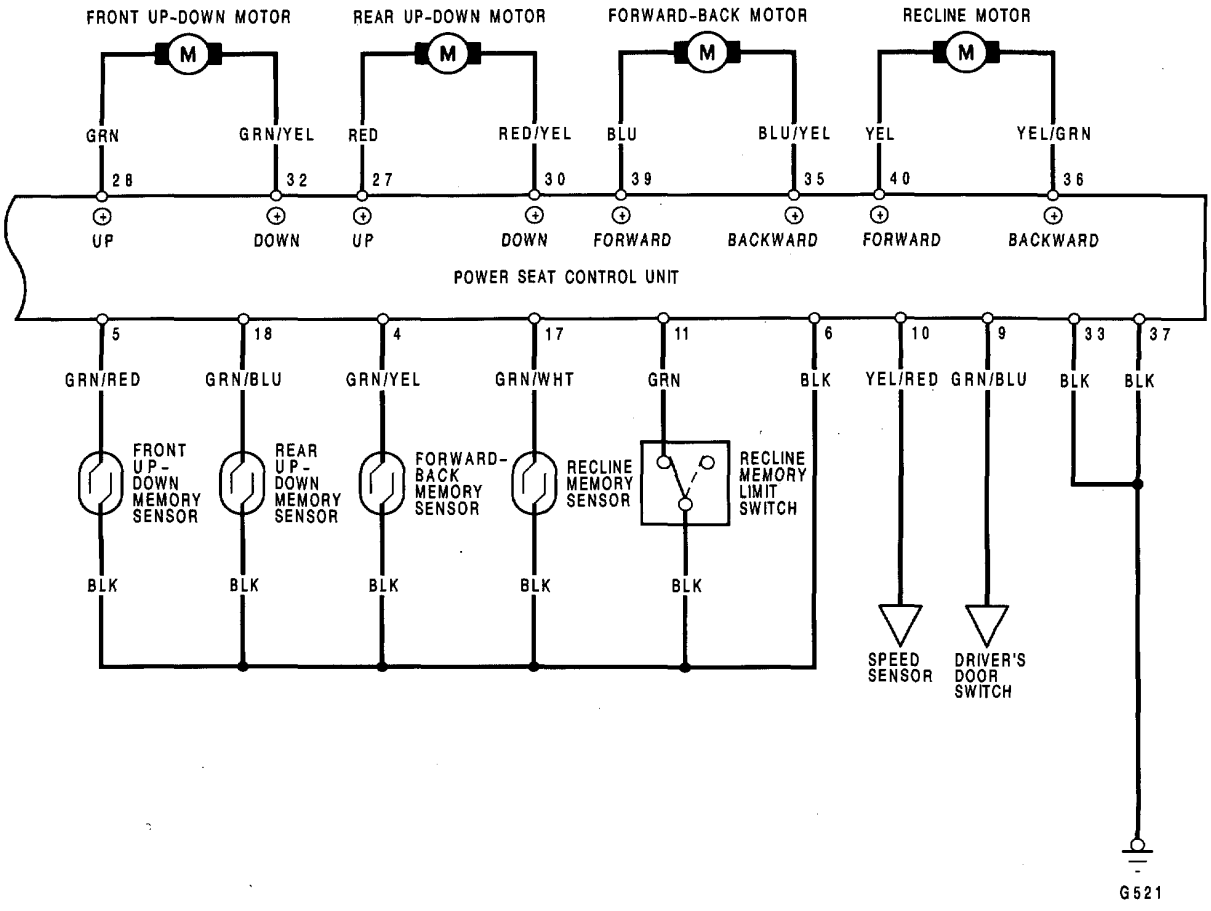
cardiagn.com

Power Driver's Seat

Circuit Diagram (RHD)



cardiagn.com



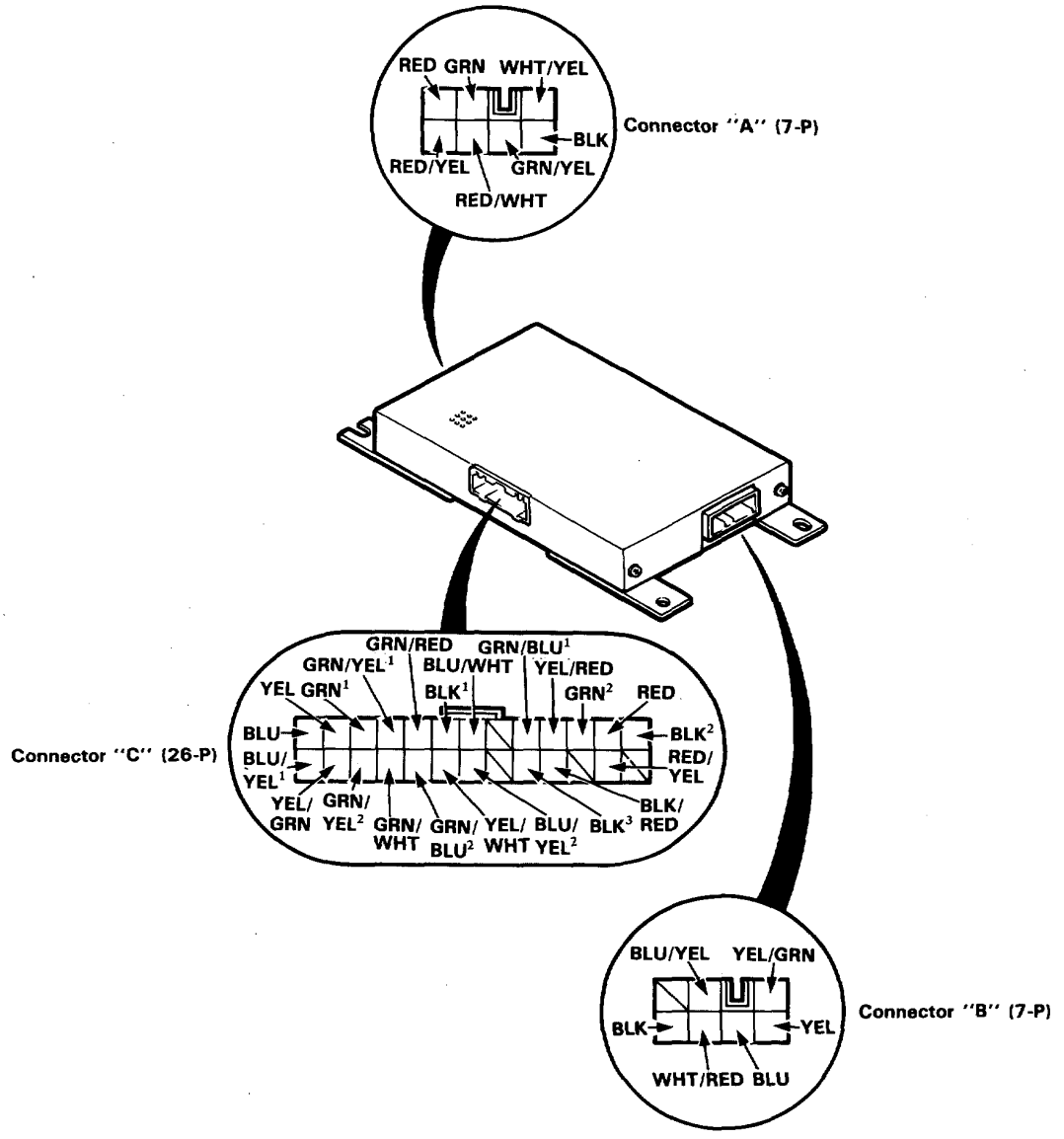
cardiagn.com

Power Driver's Seat

Power Seat Control Unit Input Test

NOTES:

- All views from the wire side.
- Several different wires have the same color. They have been given a number suffix to distinguish them (for example BLU/YEL[1] and BLU/YEL[2] are not the same).



cardiagn.com

Test	Connector	Wire	Test Condition	Desired Result	Possible Cause if Results not Obtained.
1	A	BLK	Check for continuity to ground.	Should be continuity.	Open between connector A and G251.
2	B	BLK	Check for continuity to ground.	Should be continuity.	Open between connector B and G251.
3	B	WHT/RED	Check for battery voltage.	Should be battery voltage.	Blown No. 58 (30A) fuse in the under-hood fuse/relay box, or open in the wire.
4	A	RED/WHT	Check for battery voltage.	Should be battery voltage.	Blown No. 55 (30A) fuse in the under-hood fuse/relay box, or open in the wire.
5	A	WHT/YEL	Check for battery voltage.	Should be battery voltage.	Blown No. 34 (50 A) fuse in the under-hood fuse/realy box, *1 (7.5 A) fuse in the under-dash fuse box, or an open in the wire.
6	C	BLK/RED	Check for battery voltage with ignition switch OFF and ON.	Should be battery voltage only with ignition switch ON.	Blown *2 (7.5 A) fuse in the under-dash fuse box, or open in the BLK/RED wire.
7	C	GRN/BLU[1]	Driver's door open: Check for continuity to ground.	Should be continuity to ground.	Open in wire, or fault in door switch.
			Driver's door closed: Check for continuity to ground.	Should be no continuity to ground.	Wire shorted to ground, or fault in door switch.

*1 { No. 15 (7.5 A): LHD
No. 10 (7.5 A): RHD

*2 { No. 20 (7.5 A): LHD
No. 19 (7.5 A): RHD

(cont'd)

cardiagn.com

Power Seat Control Unit Input Test (cont'd)

Test	Connector	Wire	Test Condition	Desired Result	Possible Cause if Results not Obtained.
8	C	YEL/RED	Ignition switch ON; use an analog voltmeter: Connect ⊕ probe to BLK/RED, and ⊖ probe to YEL/RED, then rotate the front wheels.	Voltmeter should indicate 0-12V-0-12V repeatedly.	Open or short in YEL/RED wire, or fault in speed sensor.
9	C	YEL/WHT	Memory switch in neutral position: Check for continuity between YEL/WHT and BLK[3] wires.	Should be no continuity.	Short in wiring, or fault in memory switch.
			Memory switch depressed: Check for continuity between YEL/WHT and BLK[3] wire terminals.	Should be continuity.	Open in wiring, or fault in memory switch.
10	C	BLU/WHT	Memory switch No. 1 position in neutral: Check for continuity between BLU/WHT and BLK[3] wire terminals.	Should be no continuity.	Short in wiring, or fault in memory.
			Memory switch No. 1 position depressed: Check for continuity between BLU/WHT and BLK[3] wire terminals.	Should be continuity.	Open in wiring, or fault in memory switch.

cardiagn.com

Test	Connector	Wire	Test Condition	Desired Result	*Possible Cause if* Results not Obtained.
11	C	BLU/YEL[2]	Memory switch No. 2 position in neutral: Check for continuity between BLU/YEL and BLK[3] wire terminals.	Should be no continuity.	Short in wiring, or fault in memory switch.
			Memory switch No. 2 position depressed: Check for continuity between BLU/YEL and BLK[3] wire terminals.	Should be continuity.	Open in wiring, or fault in memory switch.
12	C	GRN[1]	Front up-down switch in neutral: Check for continuity between GRN[1] and BLK[2] wire terminals.	Should be no continuity.	Short in wiring, or fault in memory switch.
			Front up-down switch pushed up: Check for continuity between GRN[1] and BLK[2] wire terminals.	Should be continuity.	Open in wiring, or fault in memory switch.
13	C	GRN/YEL[2]	Front up-down switch in neutral: Check for continuity between GRN/YEL and BLK[2] wire terminals.	Should be no continuity.	Short in wiring, or fault in memory switch.
			Front up-down switch pushed down: Check for continuity between GRN/YEL and BLK[2] wire terminals.	Should be continuity.	Open in wiring, or fault in memory switch.

(cont'd)

cardiagn.com

Power Seat Control Unit Input Test (cont'd)

Test	Connector	Wire	Test Condition	Desired Result	Possible Cause if Results not Obtained.
14	C	RED	Rear up-down switch in neutral: Check for continuity between RED and BLK[2] wire terminals.	Should be no continuity.	Short in wiring, or fault in memory switch.
			Rear up-down switch pushed up: Check for continuity between RED and BLK[2] wire terminals.	Should be continuity.	Open in wiring, or fault in memory switch.
15	C	RED/YEL	Rear up-down switch in neutral: Check for continuity between RED/YEL and BLK[2] wire terminals.	Should be no continuity.	Short in wiring, or fault in memory switch.
			Rear up-down switch pushed down: Check for continuity between RED/YEL and BLK[2] wire terminals.	Should be continuity.	Open in wiring, or fault in memory switch.
16	C	BLU	Forward-back switch in neutral: Check for continuity between BLU and BLK[2] wire terminals.	Should be no continuity.	Short in wiring, or fault in memory switch.
			Forward-back switch pushed forward: Check for continuity between BLU and BLK[2] wire terminals.	Should be continuity.	Open in wiring, or fault in memory switch.

cardiagn.com

Test	Connector	Wire	Test Condition	Desired Result	Possible Cause if Results not Obtained.
17	C	BLU/YEL[1]	Forward-back switch in neutral: Check for continuity between BLU/YEL and BLK[2] wire terminals.	Should be no continuity.	Short in wiring, or fault in memory switch.
			Forward-back switch pushed forward: Check for continuity between BLU/YEL and BLK[2] wire terminals.	Should be continuity.	Open in wiring, or fault in memory switch.
18	C	YEL	Recline switch in neutral: Check for continuity between YEL and BLK[2] wire terminals.	Should be no continuity.	Short in wiring, or fault in memory switch.
			Recline switch pushed forward: Check for continuity between YEL and BLK[2] wire terminals.	Should be continuity.	Open in wiring, or fault in memory switch.
19	C	YEL/GRN	Recline switch in neutral: Check for continuity between YEL/GRN and BLK[2] wire terminals.	Should be no continuity.	Short in wiring, or fault in memory switch.
			Recline switch pushed back: Check for continuity between YEL/GRN and BLK[2] wire terminals.	Shoud be continuity.	Open in wiring, or fault in memory switch.
20	C	GRN[2]	Refer to seat back picture on page 23-344, 345. Check for continuity between the GRN[2] and BLK[1] wire terminals.	When seat back is in range A, there should be continuity; when in range B, no continuity.	Open or short in wiring, or fault in recline limit switch.

(cont'd)

cardiagn.com

Power Seat Control Unit Input Test (cont'd)

Test	Connector	Wire	Test Condition	Desired Result	Possible Cause if Results not Obtained.
21	2-P connector at front up-down motor.	GRN/RED	All connectors connected; use an analog voltmeter. With the up-down motor running, backprobe the connector: ⊕ to GRN/RED, ⊖ to BLK.	Voltmeter should read 0-5V-0-5V repeatedly	Open or short in wiring, or fault in the sensor.
22	2-P connector at rear up-down motor.	GRN/BLU	All connectors connected; use an analog voltmeter. With the up-down motor running, backprobe the connector: ⊕ to GRN/BLU, ⊖ to BLK.	Voltmeter should read 0-5V-0-5V repeatedly	Open or short in wiring, or fault in the sensor.
23	2-P connector at forward-back motor.	GRN/YEL	All connectors connected; use an analog voltmeter. With the forwardback motor running, backprobe the connector: ⊕ to GRN/BLU, ⊖ to BLK.	Voltmeter should read 0-5V-0-5V repeatedly	Open or short in wiring, or fault in the sensor.
24	2-P connector at recline motor.	GRN/WHT	All connectors connected; use an analog voltmeter. With the recline motor running, backprobe the connector: ⊕ to GRN/WHT, ⊖ to BLK.	Voltmeter should read 0-5V-0-5V repeatedly	Open or short in wiring, or fault in the sensor.
25	A	GRN and GRN/YEL	Jumper GRN to RED/WHT, and GRN/YEL to BLK.	Front up-down motor should run.	Open or short in wiring, or fault in motor.
			Reverse jumper leads.	Motor should run the other way.	

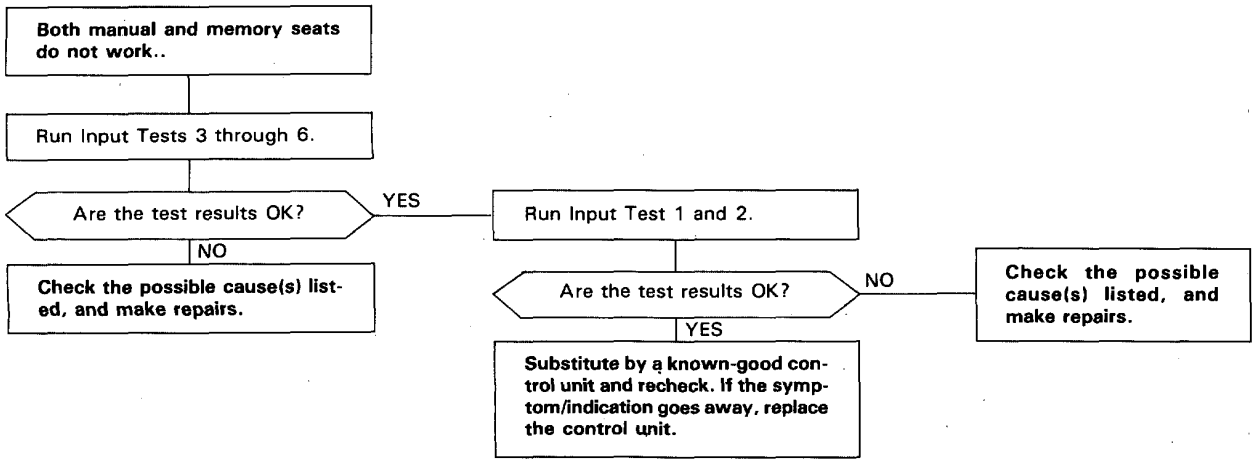
cardiagn.com

Test	Connector	Wire	Test Condition	Desired Result	Possible Cause if Results not Obtained.
26	A	RED and RED/YEL	Jumper RED to RED/WHT, and RED/YEL to BLK.	Rear up-down motor should run.	Open or short in wiring, or fault in motor.
			Reverse jumper leads.	Motor should run the other way.	
27	B	BLU and BLU/YEL	Jumper BLU to WHT/RED, and BLU/YEL[1] to BLK.	Forward-back motor should run.	Open or short in wiring, or fault in motor.
			Reverse jumper leads.	Motor should run the other way.	
28	B	YEL and YEL/GRN	Jumper YEL to WHT/RED, and YEL/GRN to BLK.	Recline motor should run.	Open or short in wiring, or fault in motor.
			Reverse jumper leads.	Motor should run the other way.	

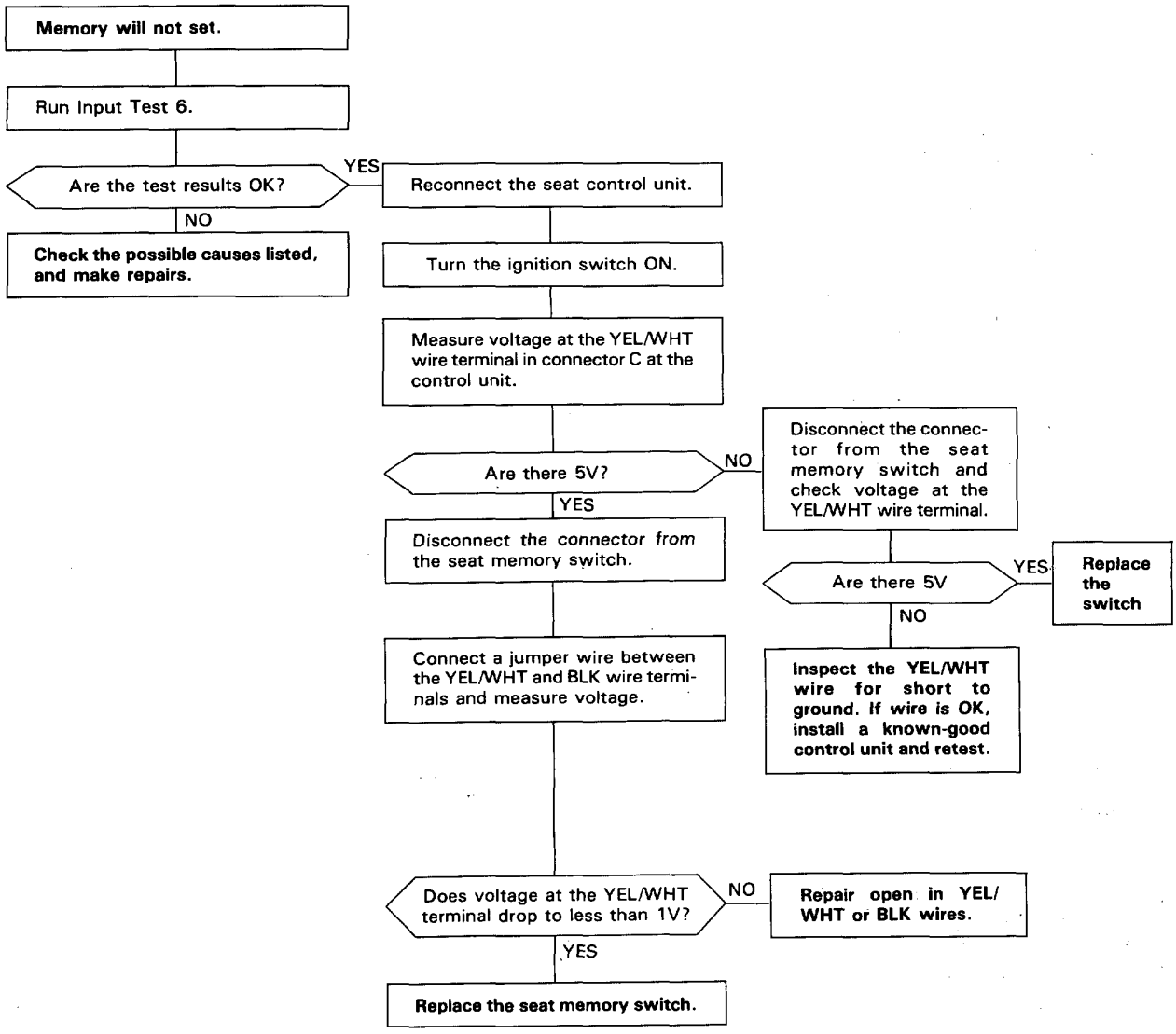
cardiagn.com

Power Driver's Seat

Troubleshooting Flowchart



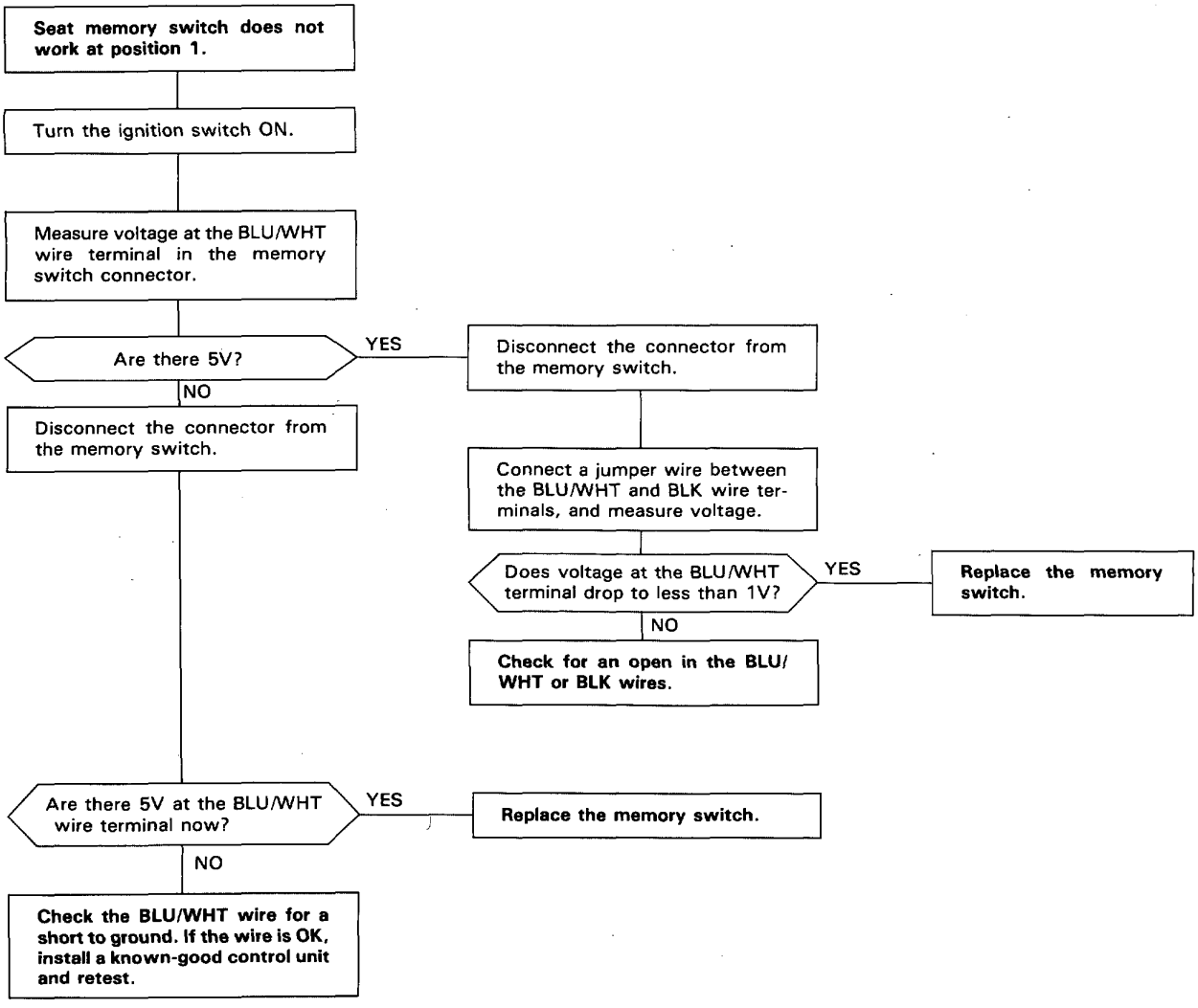
cardiagn.com



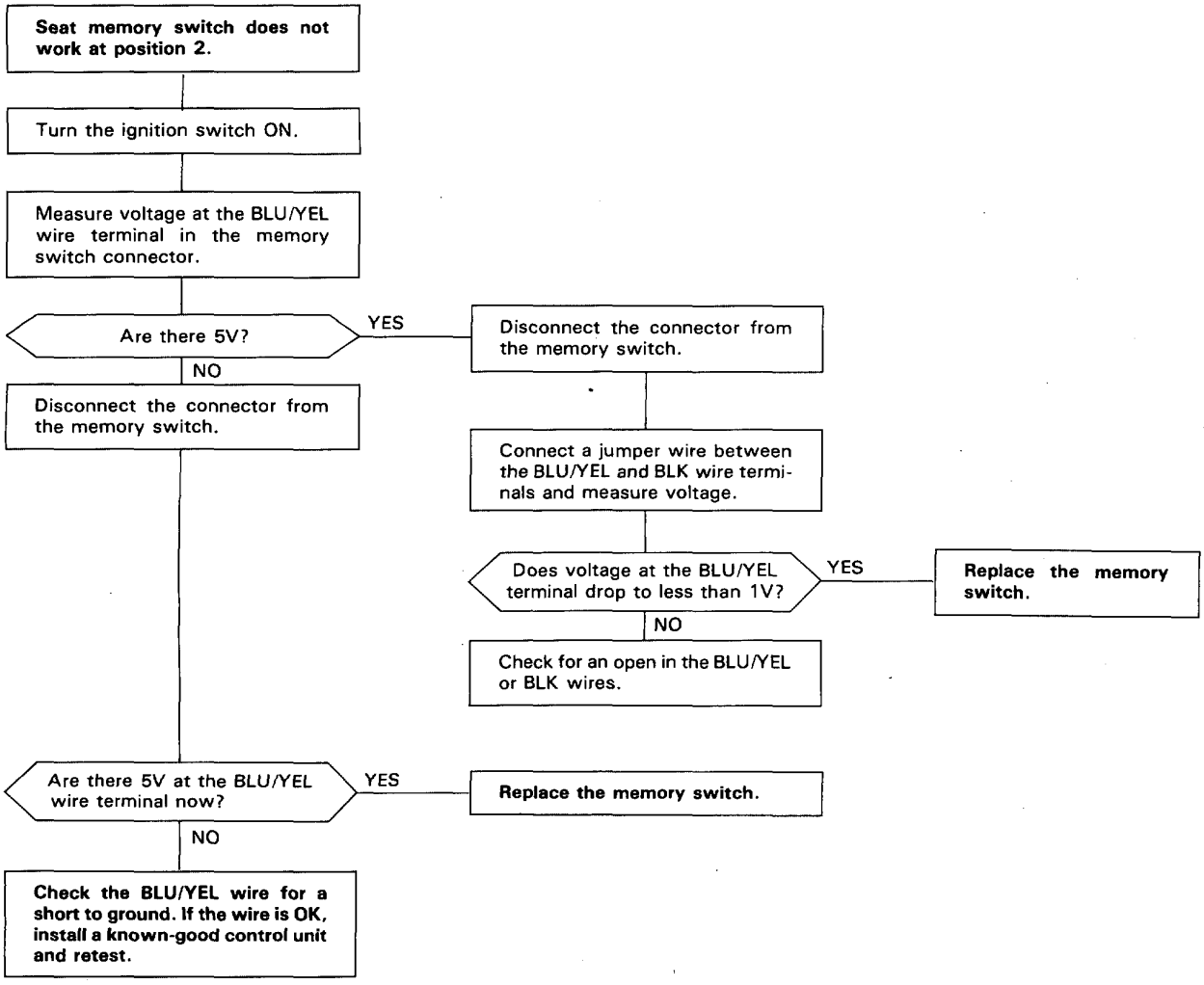
(cont'd)

cardiagn.com

Troubleshooting Flowchart (cont'd)



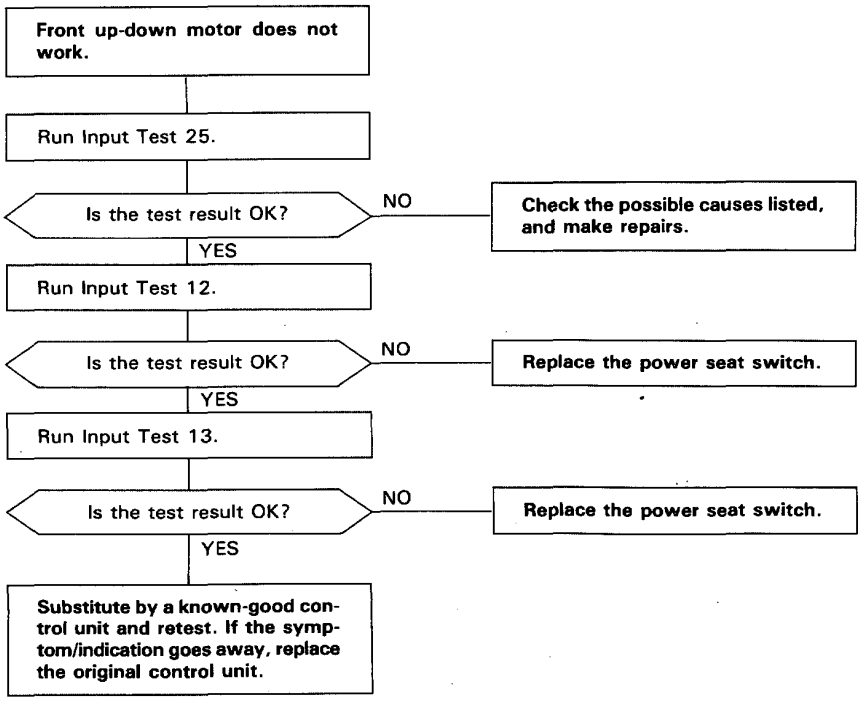
cardiagn.com



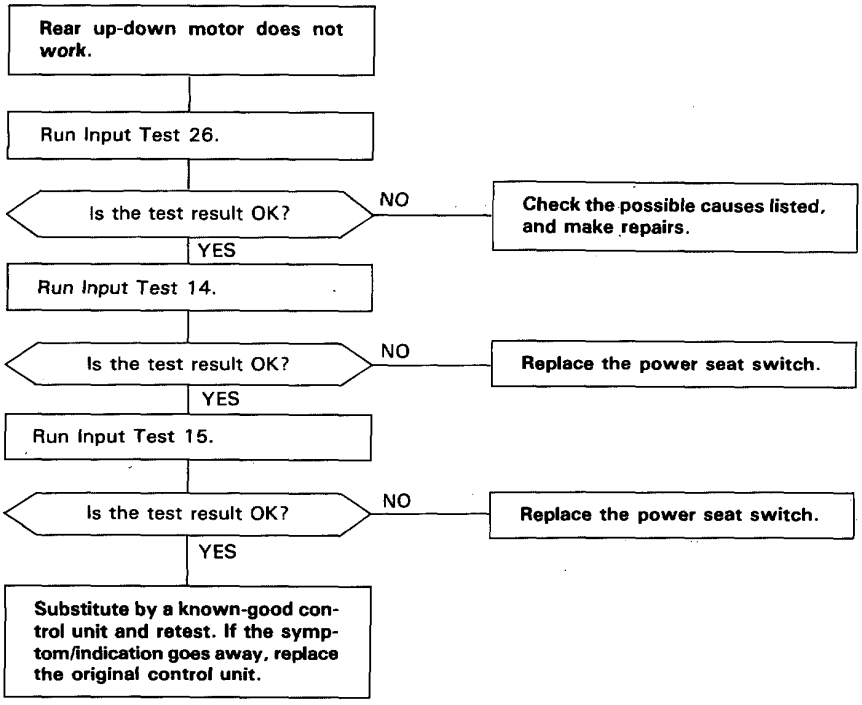
(cont'd)

cardiagn.com

Troubleshooting Flowchart (cont'd)



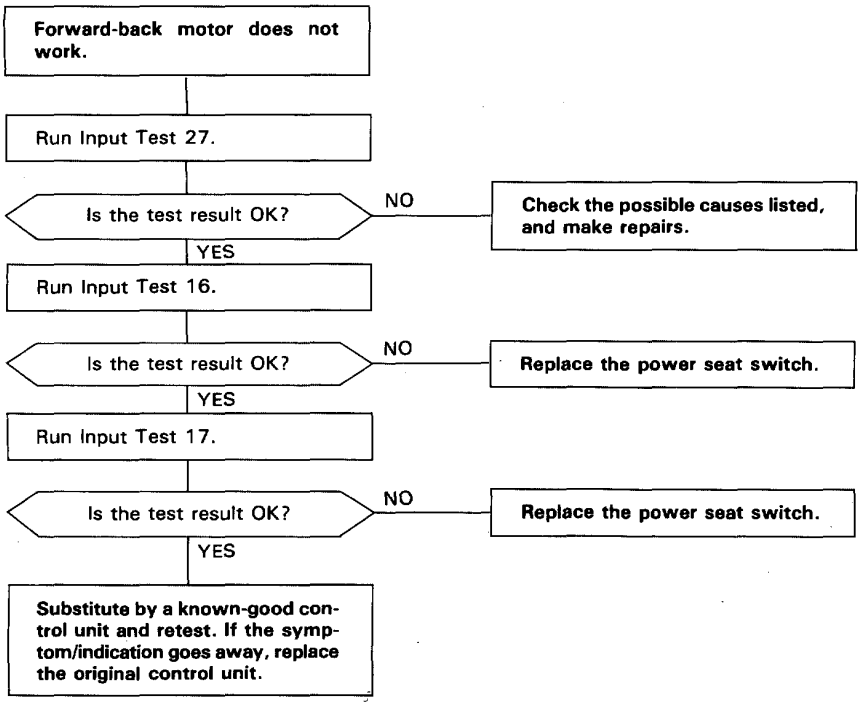
cardiagn.com



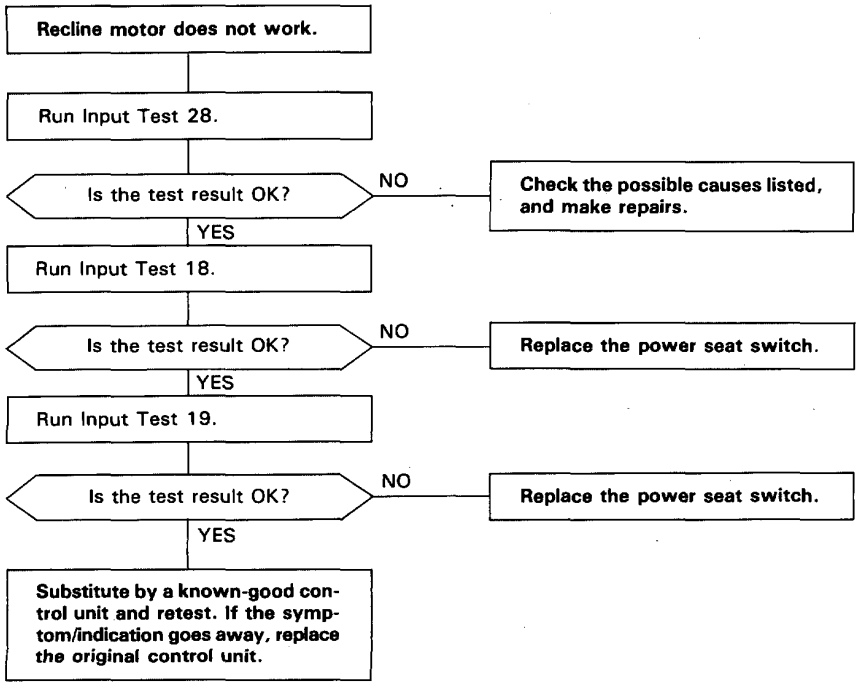
(cont'd)

cardiagn.com

Troubleshooting Flowchart (cont'd)



cardiagn.com



cardiagn.com

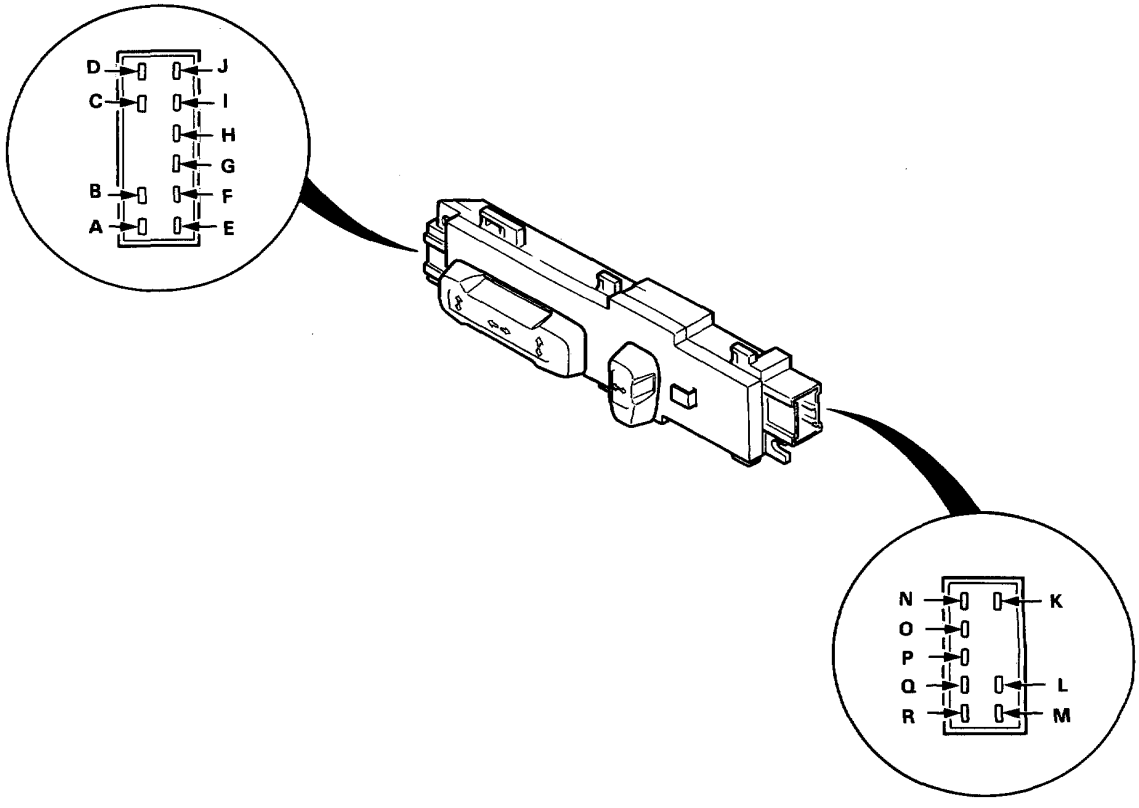
Power Driver's Seat

Power Seat Switch Test (LHD)

CAUTION: Be careful not to damage the seat, the interior trim or the body.

1. Remove the driver's seat, then remove the power seat switch.
2. Check for continuity between the terminals in each switch position according to the table.

Position \ Terminal		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
FORWARD-BACK	FORWARD		○							○									
	NEUTRAL		○	○				○	○										
	BACKWARD			○						○									
RECLINE	FORWARD				○						○								
	NEUTRAL	○			○								○	○					
	BACKWARD										○		○						
FRONT UP-DOWN	UP								○	○									
	NEUTRAL		○	○				○	○										
	DOWN							○		○									
REAR UP-DOWN	UP	○									○								
	NEUTRAL	○			○								○	○					
	DOWN										○			○					



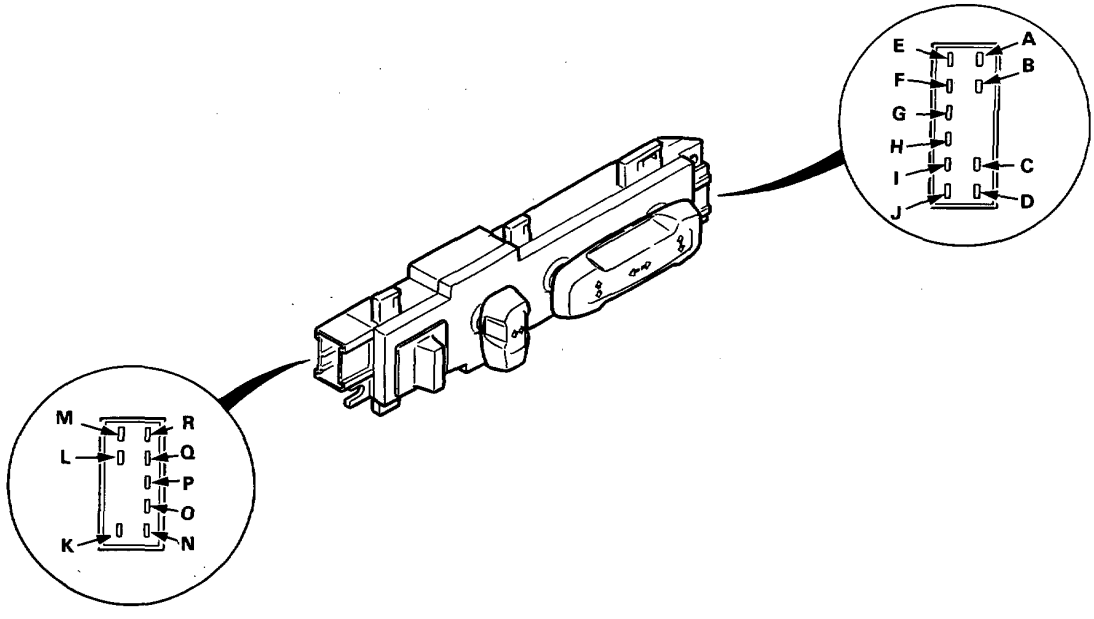
cardiagn.com

Power Seat Switch Test (RHD)

CAUTION: Be careful not to damage the seat, the interior trim or the body.

1. Remove the driver's seat, then remove the power seat switch.
2. Check for continuity between the terminals in each switch position according to the table.

Position		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
FORWARD-BACK	FORWARD		○							○									
	NEUTRAL		○	○				○	○										
	BACKWARD			○						○									
RECLINE	FORWARD				○						○								
	NEUTRAL	○			○								○	○					
	BACKWARD										○		○						
FRONT UP-DOWN	UP							○		○									
	NEUTRAL		○	○				○	○										
	DOWN								○	○									
REAR UP-DOWN	UP										○			○					
	NEUTRAL	○			○								○	○					
	DOWN	○									○								
LUMBAR SUPPORT	FORWARD														○		○	○	○
	NEUTRAL																○	○	○
	DOWN														○		○	○	○



cardiagn.com

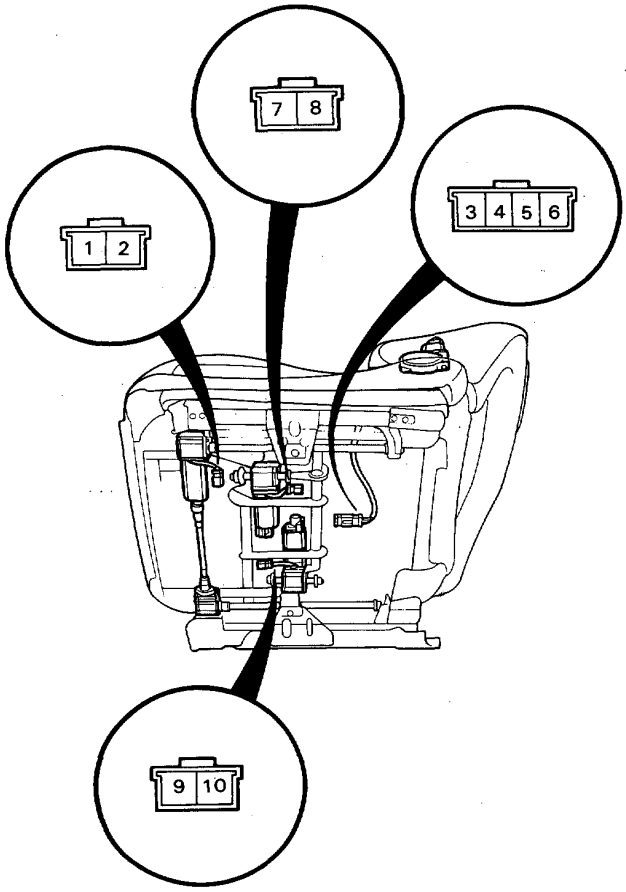
Power Driver's Seat

Motor Test (LHD)

CAUTION: Be careful not to damage the seats, the interior trim or the body.

1. Remove the driver's seat, then disconnect the connectors from each motor.

View from wire side



View from wire side

2. Test motor operation.

CAUTION: When a motor stops running, disconnect the battery immediately.

WHOLE SEAT FORWARD:	Connect battery power to the No. 1 terminal and ground to the No. 2 terminal.
WHOLE SEAT BACKWARD:	Connect battery power to the No. 2 terminal and ground to the No. 1 terminal.
SEAT BACK FORWARD:	Connect battery power to the No. 3 terminal and ground to the No. 4 terminal.
SEAT BACK RECLINE:	Connect battery power to the No. 4 terminal and ground to the No. 3 terminal.
SEAT BOTTOM FRONT UP:	Connect battery power to the No. 9 terminal and ground to the No. 10 terminal.
SEAT BOTTOM FRONT DOWN:	Connect battery power to the No. 10 terminal and ground to the No. 9 terminal.
SEAT BOTTOM REAR UP:	Connect battery power to the No. 8 terminal and ground to the No. 7 terminal.
SEAT BOTTOM REAR DOWN:	Connect battery positive to the No. 7 terminal and negative to the No. 8 terminal.

NOTE: When a motor does not run, reverse the connections. If the motor still does not run, replace it.

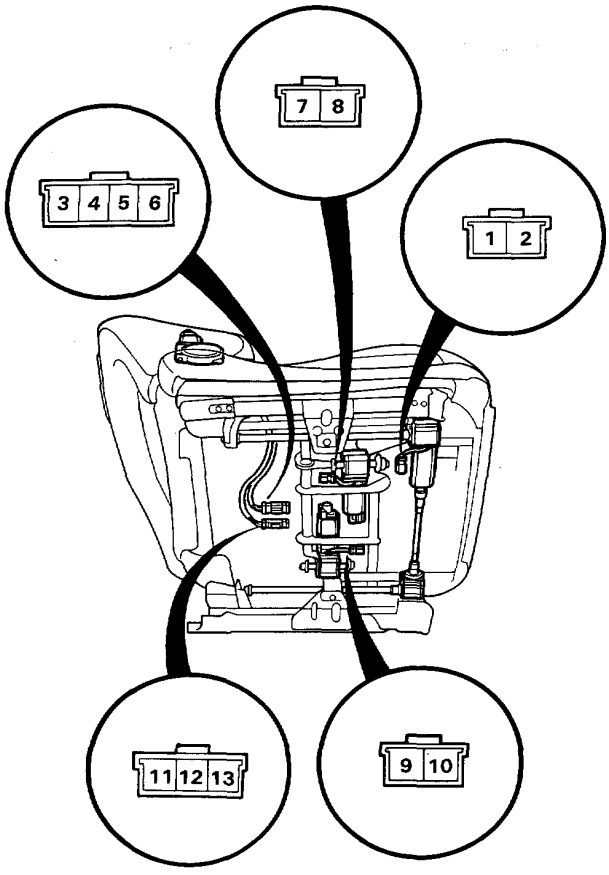
cardiagn.com

Motor Test (RHD)

CAUTION: Be careful not to damage the seats, the interior trim or the body.

1. Remove the driver's seat, then disconnect the connectors from each motor.

View from wire side



View from wire side

2. Test motor operation.

CAUTION: When a motor stops running, disconnect the battery immediately.

WHOLE SEAT FORWARD:	Connect battery power to the No. 2 terminal and ground to the No. 1 terminal.
WHOLE SEAT BACKWARD:	Connect battery power to the No. 1 terminal and ground to the No. 2 terminal.
SEAT BACK FORWARD:	Connect battery power to the No. 3 terminal and ground to the No. 4 terminal.
SEAT BACK RECLINE:	Connect battery power to the No. 4 terminal and ground to the No. 3 terminal.
SEAT BOTTOM FRONT UP:	Connect battery power to the No. 9 terminal and ground to the No. 10 terminal.
SEAT BOTTOM FRONT DOWN:	Connect battery power to the No. 10 terminal and ground to the No. 9 terminal.
SEAT BOTTOM REAR UP:	Connect battery power to the No. 8 terminal and ground to the No. 7 terminal.
SEAT BOTTOM REAR DOWN:	Connect battery power to the No. 7 terminal and ground to the No. 8 terminal.
LUMBAR SUPPORT FORWARD:	Connect battery power to the No. 11 terminal and ground to the No. 13 terminal.
LUMBAR SUPPORT BACKWARD:	Connect battery power to the No. 13 terminal and ground to the No. 11 terminal.

NOTE: When a motor does not run, reverse the connections. If the motor still does not run, replace it.

cardiagn.com

Power Driver's Seat

Memory Sensor Test (LHD)

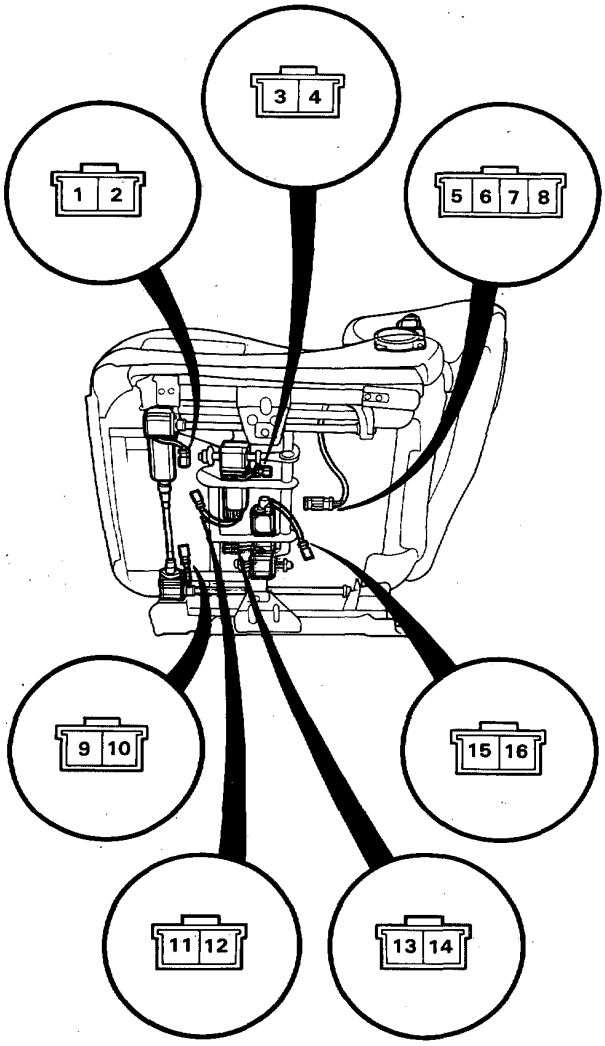
CAUTION: Be careful not to damage the seats, the interior trim or the body.

1. Remove the driver's seat, then disconnect the connectors from each memory sensor and each motor.
2. Connect the battery terminals and ohmmeter test leads to each terminal according to the table on the right.

   NOTE: When a battery is connected, motors will run.

   CAUTION: When a motor stops running, disconnect the battery immediately.

View from wire side



View from wire side

Sensor	Connect these terminals to Power and ground		Connect these terminals to ohmmeter	
Forward-back	1	2	9	10
Recline	5	6	7	8
Front up-down	13	14	15	16
Rear up-down	3	4	11	12

3. Check that the needle in the ohmmeter moves from left-to-right.

   NOTE: When a motor does not run, reverse the connections. If the motor still does not run, replace it.

cardiagn.com

Memory Sensor Test (RHD)

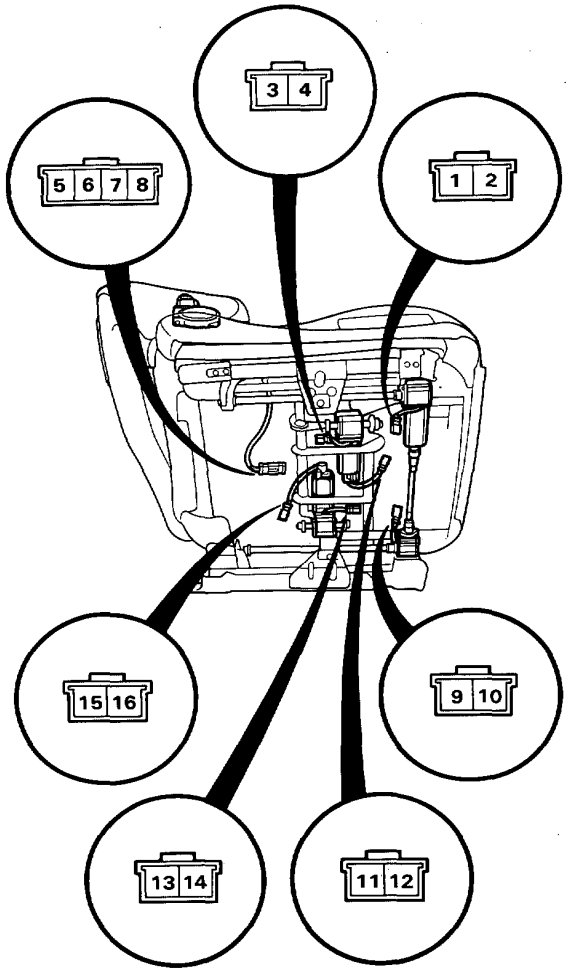
CAUTION: Be careful not to damage the seats, the interior trim or the body.

1. Remove the driver's seat, then disconnect the connectors from each memory sensor and each motor.
2. Connect the battery terminals and ohmmeter test leads to each terminal according to the table on the right.

   NOTE: When a battery is connected, motors will run.

   CAUTION: When a motor stops running, disconnect the battery immediately.

View from wire side



View from wire side

Sensor	Connect these terminals to Power and ground		Connect these terminals to ohmeter	
Forward-back	1	2	9	10
Recline	5	6	7	8
Front up-down	13	14	15	16
Rear up-down	3	4	11	12

3. Check that the needle in the ohmmeter moves from left-to-right.

   NOTE: When a motor does not run, reverse the connections. If the motor still does not run, replace it.

cardiagn.com

Power Driver's Seat

Recline Memory Limit Switch Test (LHD)

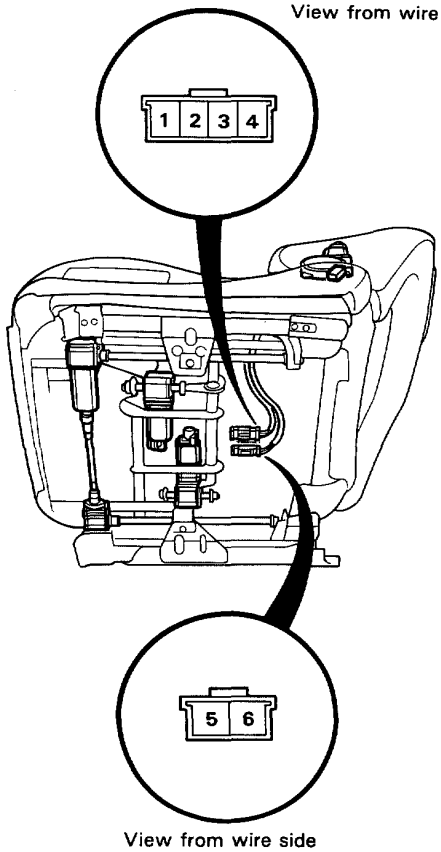
CAUTION: Be careful not to damage the seats, the interior trim or the body.

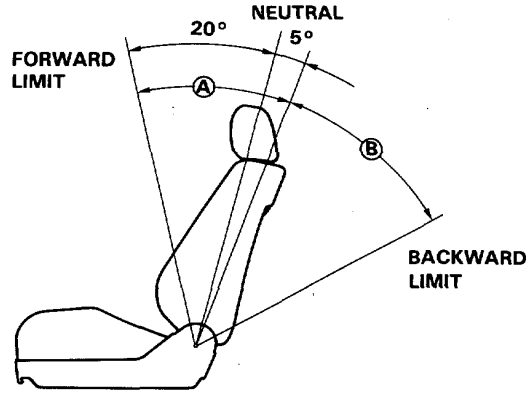
1. Remove the driver's seat, then disconnect the connector from the recline memory limit switch and recline motor.
2. Check for continuity between the terminals according to the table.

Terminal / Seat Back Angle	5	6
A area	○	○
B area		

NOTE: When a battery is connected to terminals (No. 1 and No. 2), the recline motor will run.

CAUTION: When a motor stops running, disconnect the battery immediately.





NOTE: When a motor does not run, reverse the connections. If the motor still does not run, replace it.

cardiagn.com

Recline Memory Limit Switch Test (RHD)

CAUTION: Be careful not to damage the seats, the interior trim or the body.

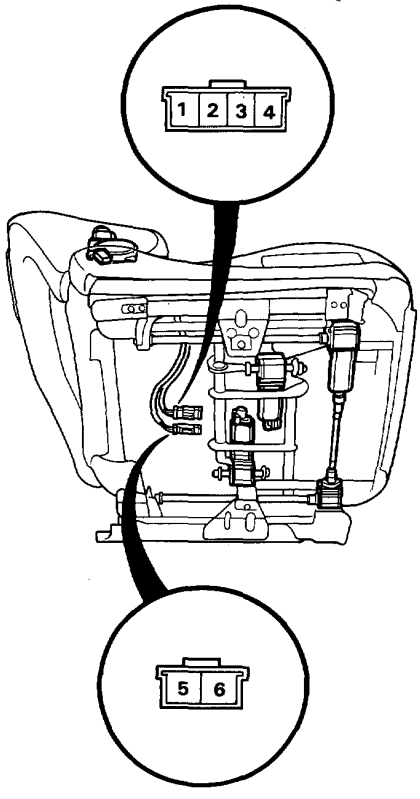
1. Remove the driver's seat, then disconnect the connector from the recline memory limit switch and recline motor.
2. Check for continuity between the terminals according to the table.

Terminal / Seat Back Angle	5	6
A area	○———	———○
B area		

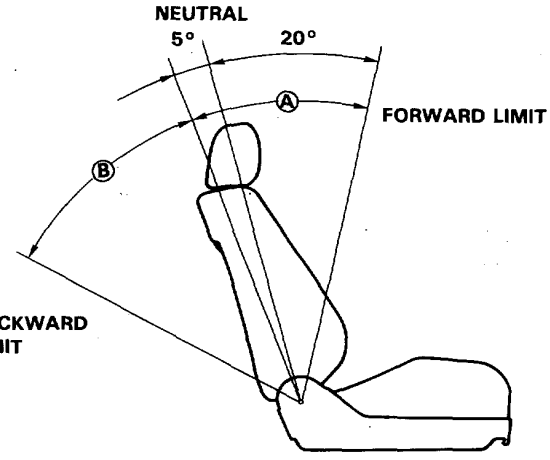
NOTE: When a battery is connected to terminals (No. 1 and No. 2), the recline motor will run.

CAUTION: When a motor stops running, disconnect the battery immediately.

View from wire side



View from wire side



NOTE: When a motor does not run, reverse the connections. If the motor still does not run, replace it.

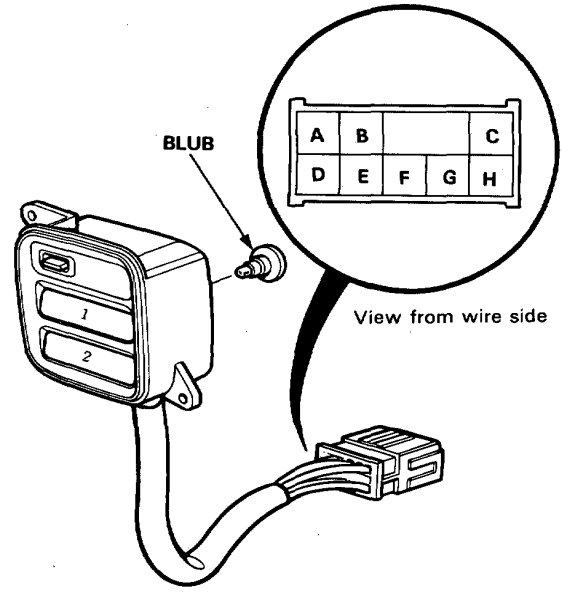
cardiagn.com

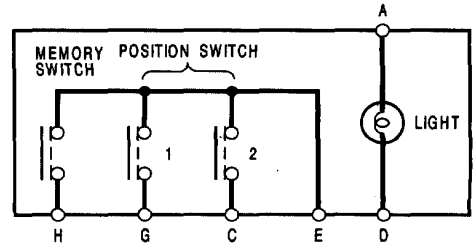
Power Driver's Seat

Memory Switch Test

1. Remove the driver's door trim panel, then disconnect the 8-P connector from the power seat memory switch.
2. Remove the memory switch, then check for continuity between the terminals in each switch position according to the table.

Position		Terminal A	B	C	D	E	F	G	H
MEMORY SWITCH	ON					○	—	—	○
	OFF								
POSITION SWITCH 1	ON					○	—	○	
	OFF								
POSITION SWITCH 2	ON			○	—	○			
	OFF								
ILLUMINATION		○	—	⊖	—	○			

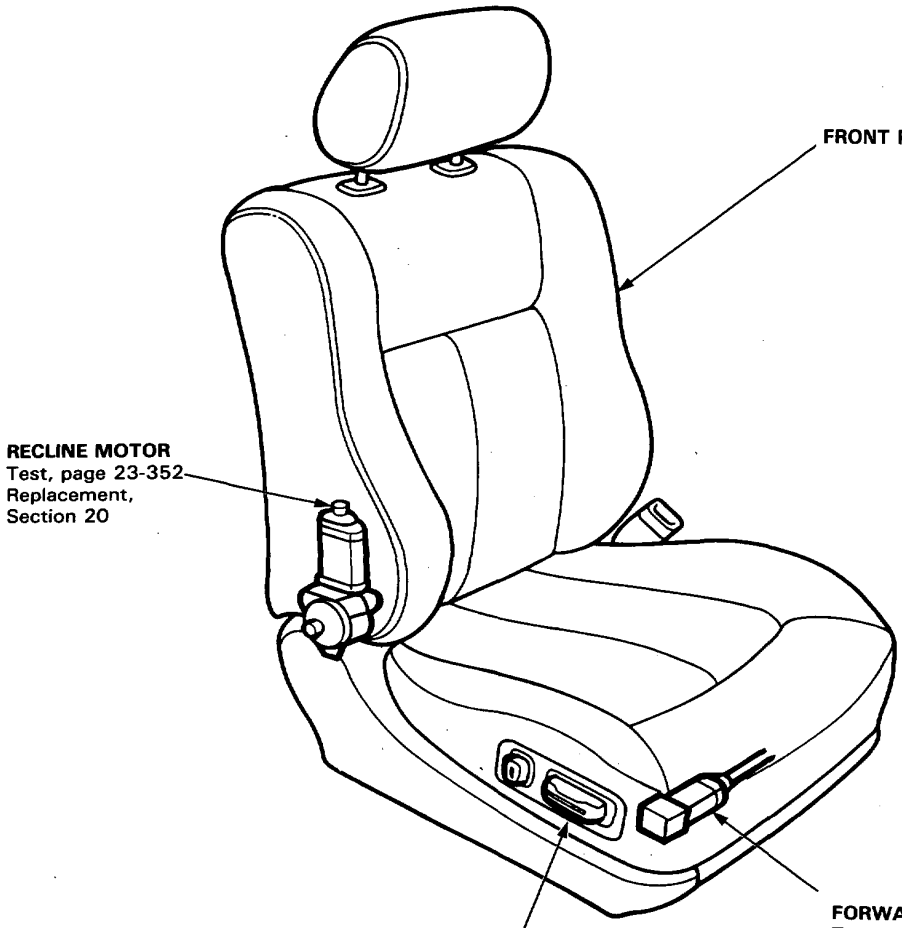




cardiagn.com

Power Front Passenger's Seat

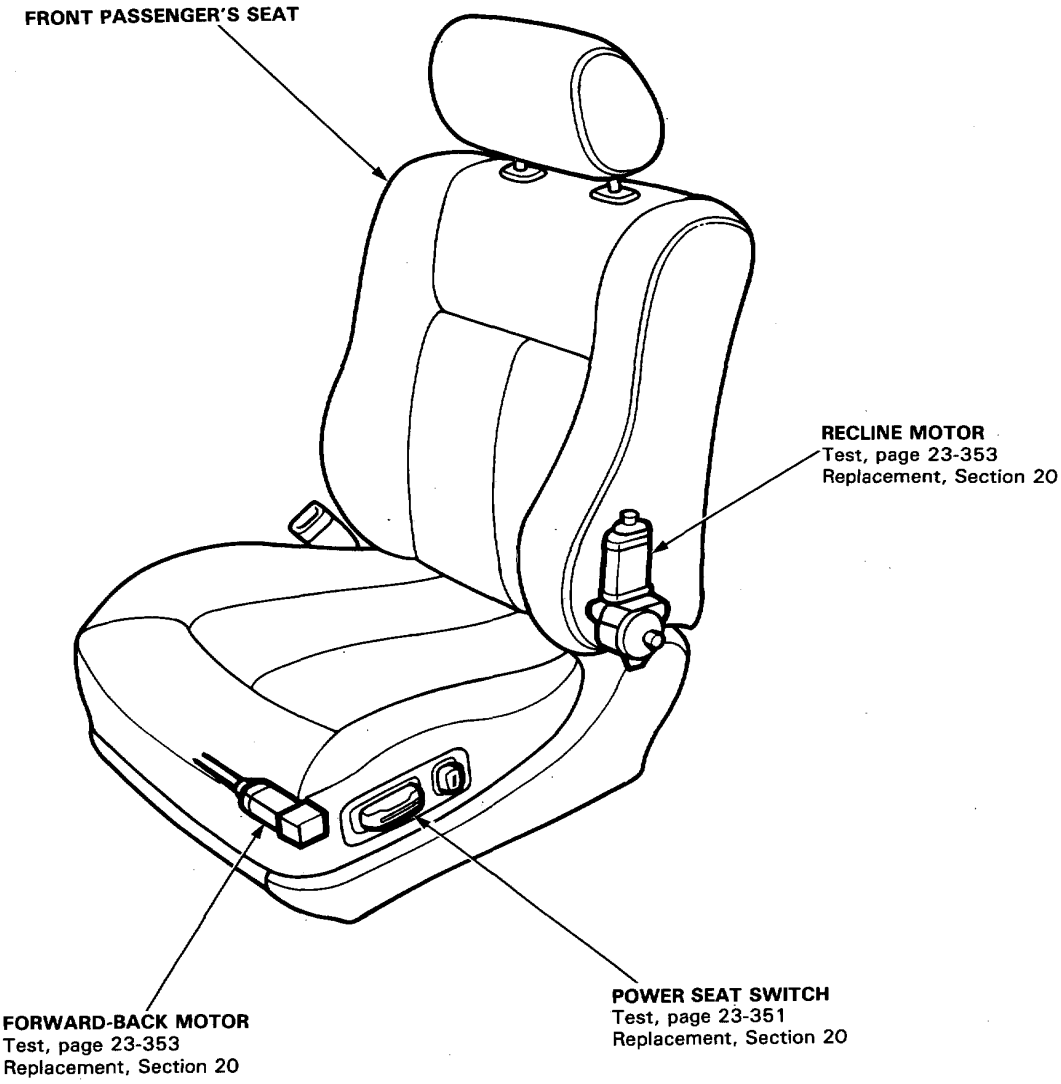
Component Location Index (LHD)



cardiagn.com

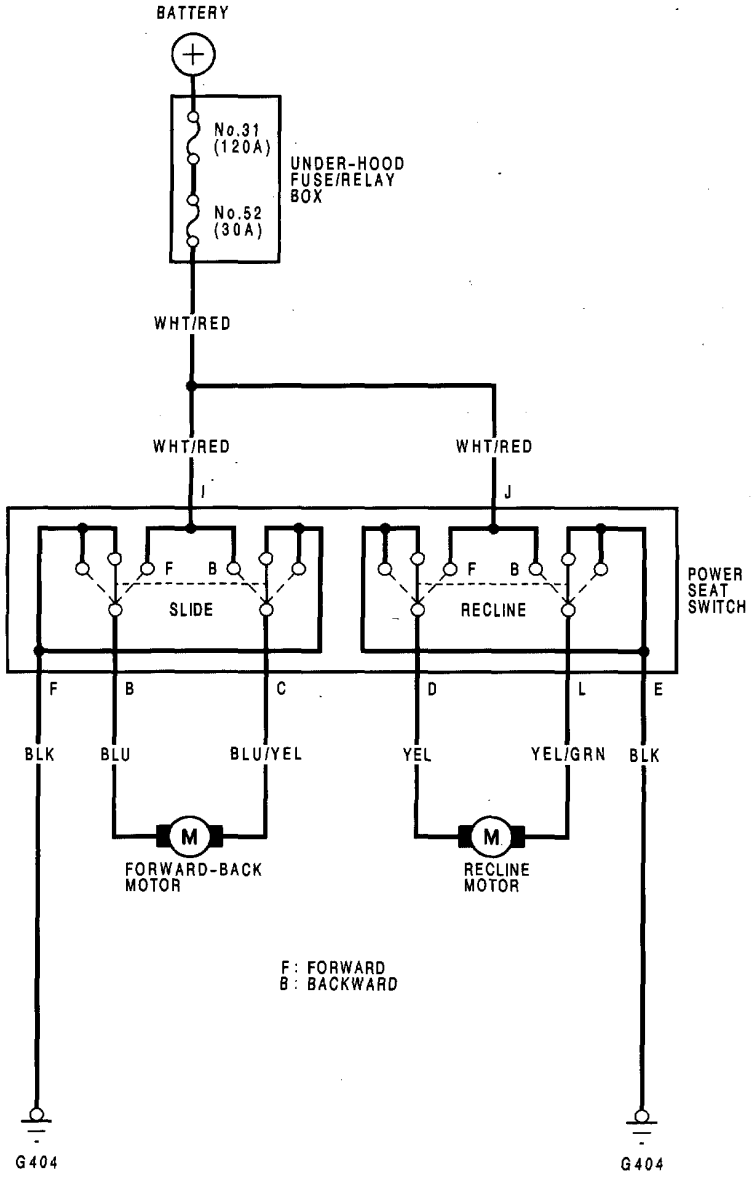
Power Front Passenger's Seat

Component Location Index (RHD)



cardiagn.com

Circuit Diagram



cardiagn.com

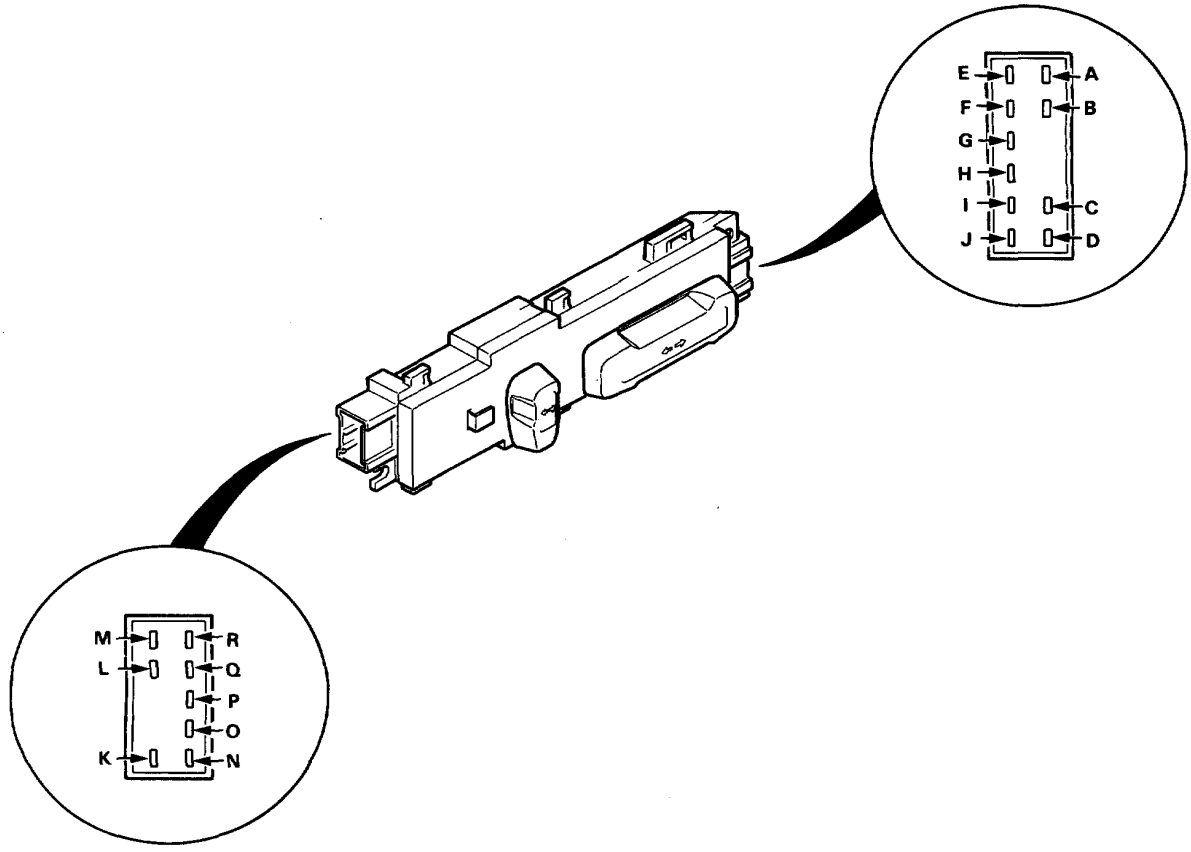
Power Front Passenger's Seat

Power Seat Switch Test (LHD)

CAUTION: Be careful not to damage the seat, the interior trim or the body.

1. Remove the front passenger's seat, then remove the power seat switch.
2. Check for continuity between the terminals in each switch position according to the table.

Position \ Terminal		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
FORWARD-BACK	FORWARD		○							○									
				○			○												
	NEUTRAL		○	○			○												
	BACKWARD			○						○									
			○				○												
RECLINE	FORWARD				○						○								
						○							○						
	NEUTRAL				○	○							○						
	BACKWARD										○		○						
					○	○													



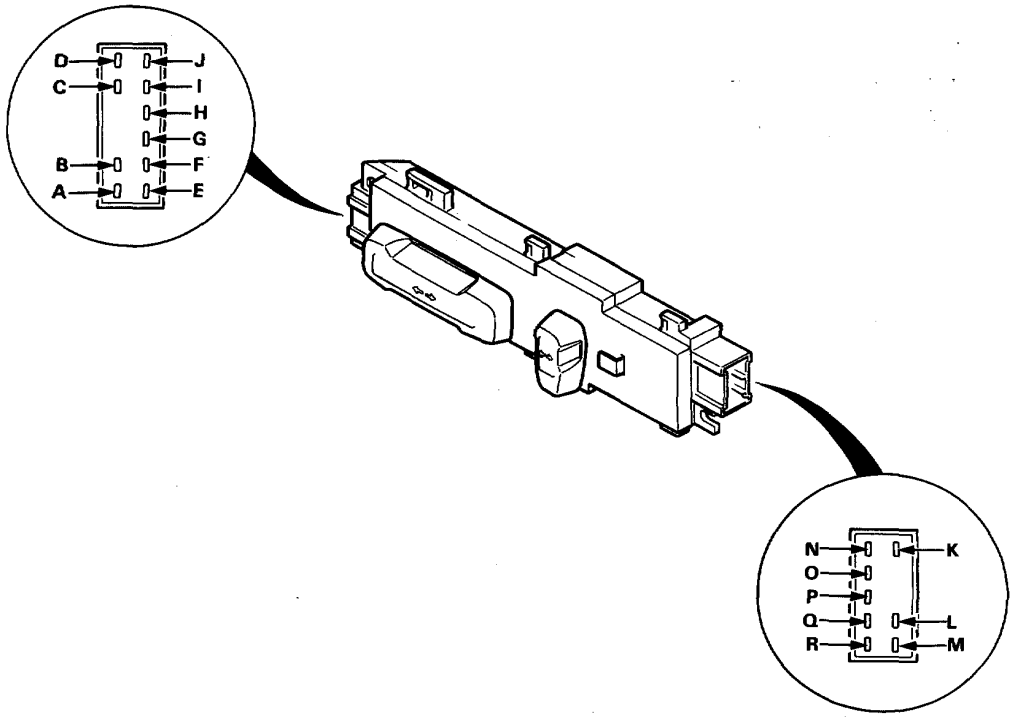
cardiagn.com

Power Seat Switch Test (RHD)

CAUTION: Be careful not to damage the seat, the interior trim or the body.

1. Remove the front passenger's seat, then remove the power seat switch.
2. Check for continuity between the terminals in each switch position according to the table.

Position \ Terminal		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
FORWARD-BACK	FORWARD		○	○			○			○									
	NEUTRAL		○	○			○												
	BACKWARD		○	○			○			○									
RECLINE	FORWARD				○	○				○	○		○						
	NEUTRAL				○	○							○						
	BACKWARD				○	○					○		○						



cardiagn.com

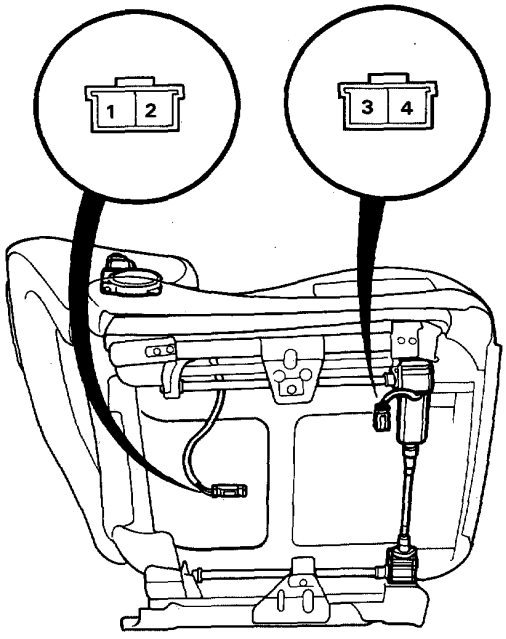
Power Front Passenger's Seat

Motor Test (LHD)

CAUTION: Be careful not to damage the seats, the interior trim or the body.

1. Remove the front passenger's seat, then disconnect the connectors from each motor.

View from wire side.



2. Test motor operation.

CAUTION: When a motor stops running, disconnect the battery immediately.

WHOLE SEAT FORWARD:	Connect battery power to the No. 4 terminal and ground to the No. 3 terminal.
WHOLE SEAT BACKWARD:	Connect battery power to the No. 3 terminal and ground to the No. 4 terminal.
SEAT BACK FORWARD:	Connect battery power to the No. 1 terminal and ground to the No. 2 terminal.
SEAT BACK RECLINE:	Connect battery power to the No. 2 terminal and ground to the No. 1 terminal.

NOTE: When a motor does not run, reverse the battery connections. If the motor still does not run, replace it.

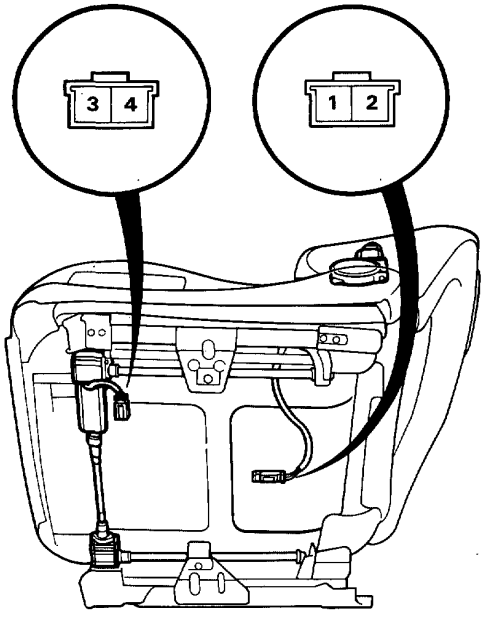
cardiagn.com

Motor Test (RHD)

CAUTION: Be careful not to damage the seats, the interior trim or the body.

1. Remove the front passenger's seat, then disconnect the connectors from each motor.

View from wire side.



2. Test motor operation.

CAUTION: When a motor stops running, disconnect the battery immediately.

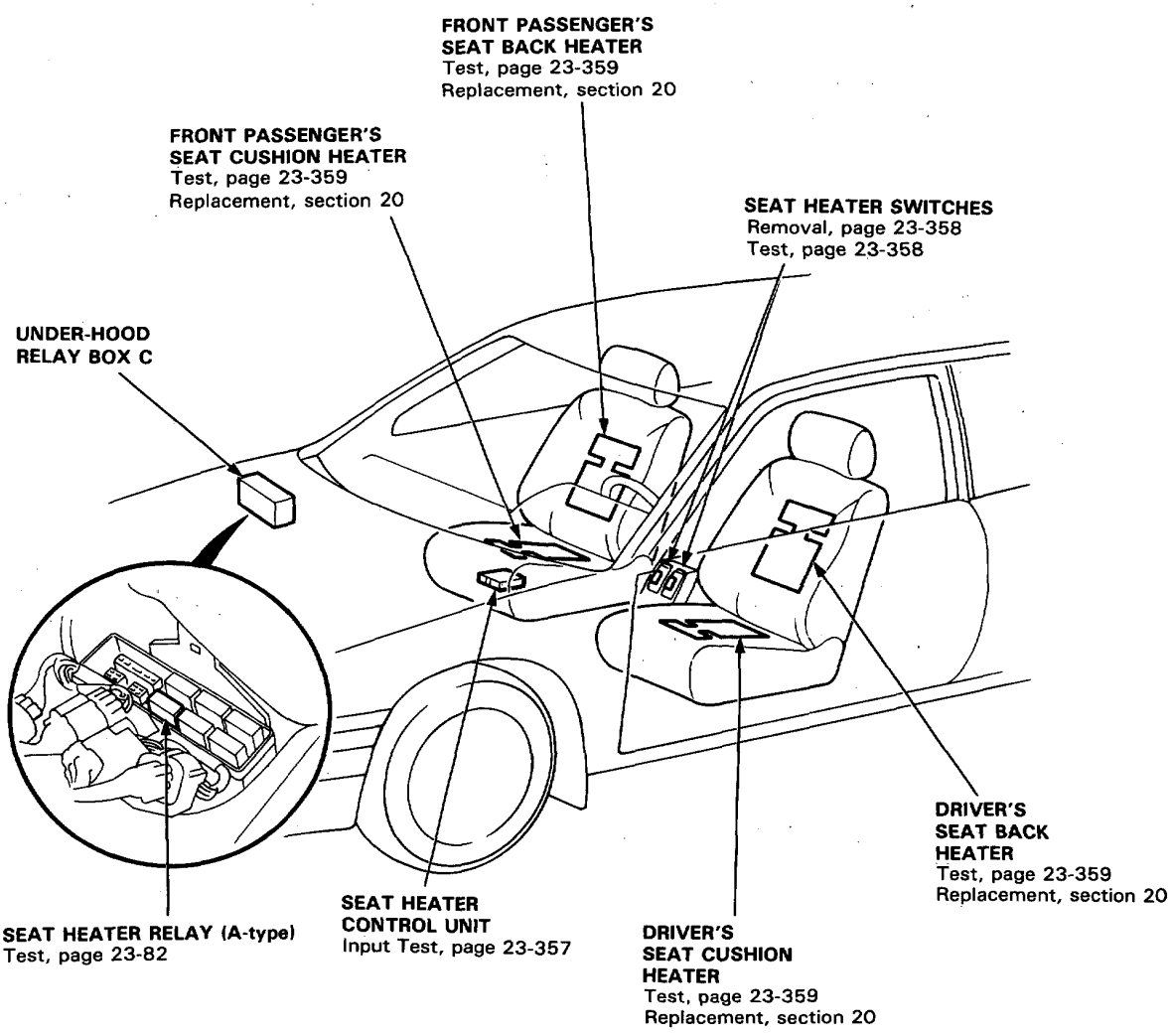
WHOLE SEAT FORWARD:	Connect battery power to the No. 3 terminal and ground to the No. 4 terminal.
WHOLE SEAT BACKWARD:	Connect battery power to the No. 4 terminal and ground to the No. 3 terminal.
SEAT BACK FORWARD:	Connect battery power to the No. 1 terminal and ground to the No. 2 terminal.
SEAT BACK RECLINE:	Connect battery power to the No. 2 terminal and ground to the No. 1 terminal.

NOTE: When a motor does not run, reverse the battery connections. If the motor still does not run, replace it.

cardiagn.com

Seat Heaters

Component Location Index

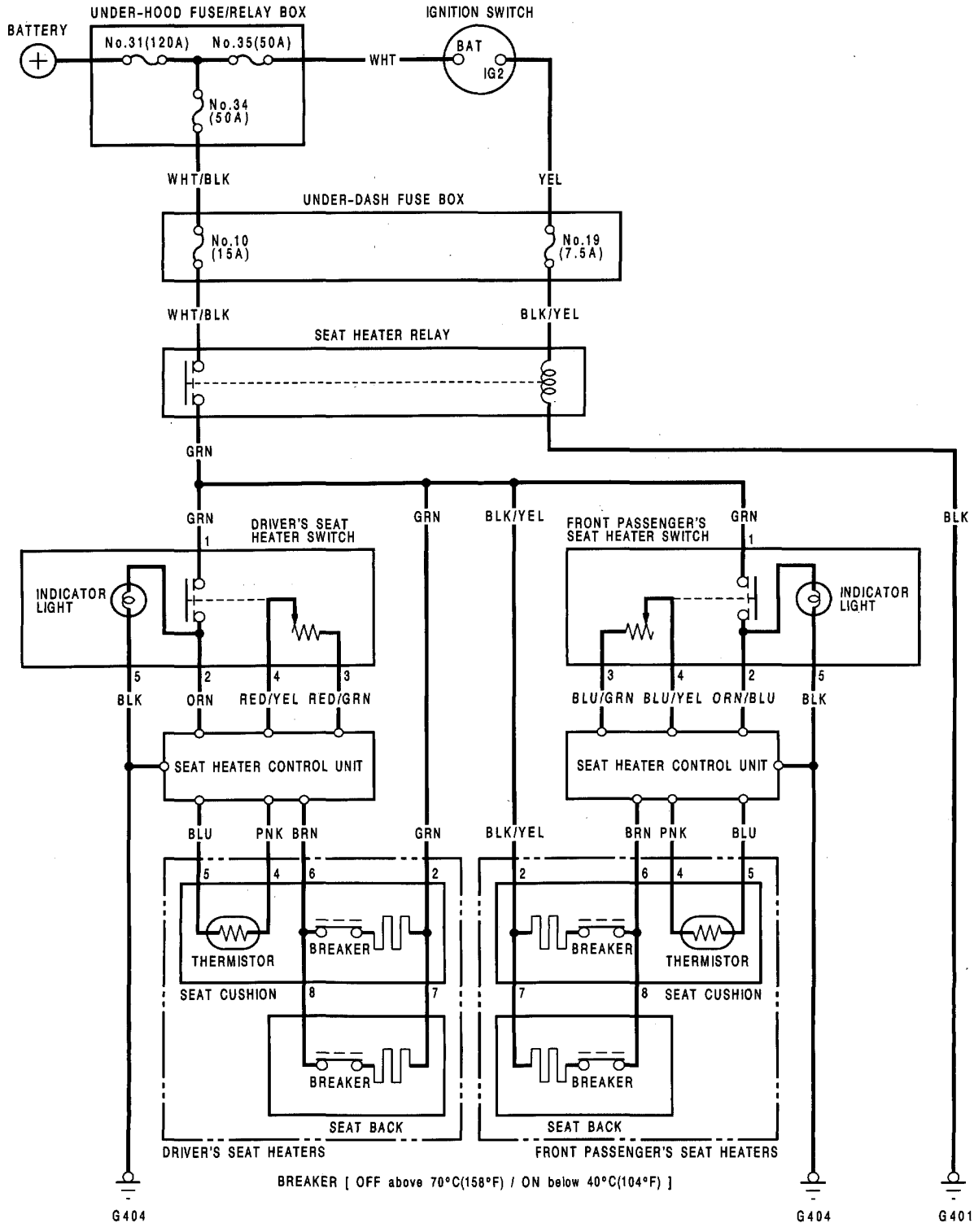


Description

Two heaters are provided in each front seat; one in the seat cushion and one in the seat back. Each heater allows any desired temperature between 29°C and 34°C (84°F and 93°F) by rotating the adjusting dial located on the center console. The heater in the seat cushion uses a temperature-dependent diode (thermistor) to measure differences in the seat temperatures. The use of the thermistor and transistors in the control unit combine to give accurate temperature control.

cardiagn.com

Circuit Diagram



cardiagn.com

Seat Heaters

Troubleshooting

NOTE: The numbers in the table show the troubleshooting sequence.

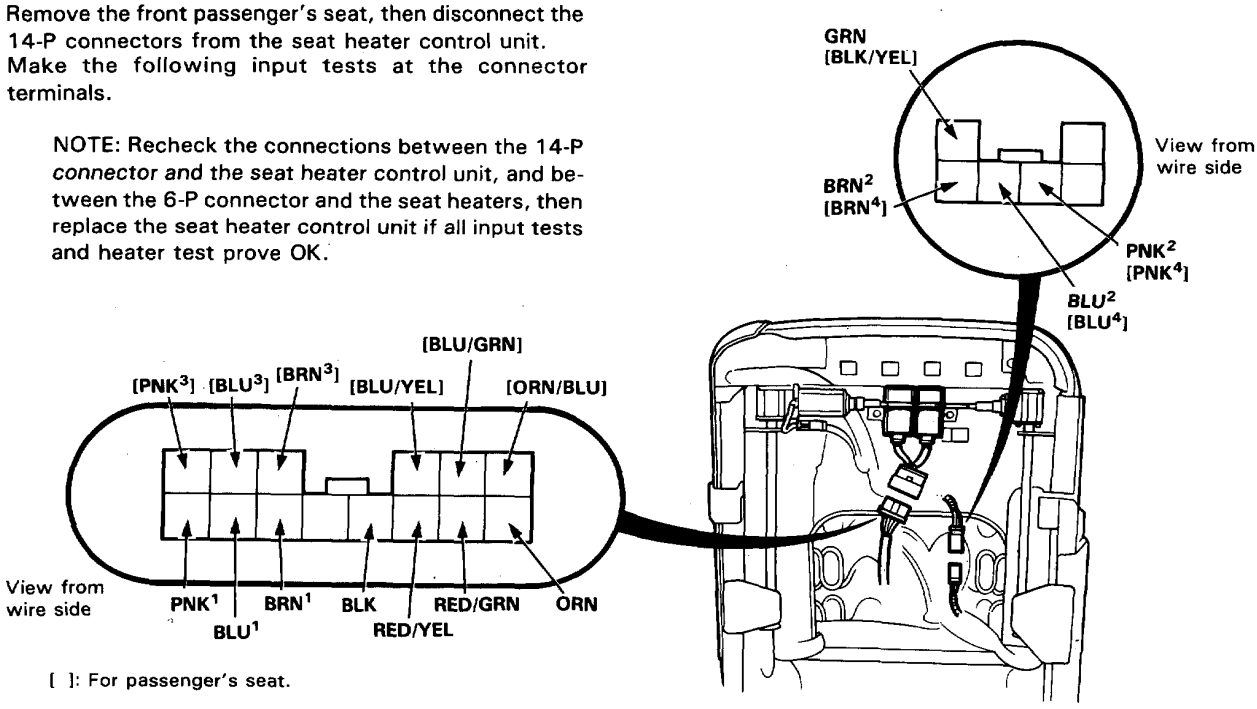
Symptom \ Item to be inspected		Blown No. 10 (15A) fuse (in the under-dash fuse box)	Blown No. 19 (7.5A) fuse (in the under-dash fuse box)	Blown indicator light bulb	Seat heater switch	Seat heater	Thermistor (in the seat cushion heater)	Seat heater relay input	Seat heater contol unit	Poor ground	Open circuit in wires or loose or disconnected terminals
Seat heaters operate, but indicator light does not go on.				1							
Seat heaters do not operate and indicator light does not go on.		1			3			2		G401 G404	WHT/BLK or BLK/YEL
Seat heaters do not operate, but indicator light goes on.	Driver's seat								1		GRN, BRN or ORN
	Front passenger's seat								1		BLK/YEL, BRN or ORN/BLU
Seat cushion heater or seat back heater does not operate, but indicator light goes on.						1					
Seat heater cannot be adjusted.	Driver's seat				1		2		3		RED/YEL, RED/GRN, BLU or PNK
	Front passenger's seat				1		2		3		BLU/YEL, BLU/GRN, BLU or PNK

cardiagn.com

Control Unit Input Test

Remove the front passenger's seat, then disconnect the 14-P connectors from the seat heater control unit. Make the following input tests at the connector terminals.

NOTE: Recheck the connections between the 14-P connector and the seat heater control unit, and between the 6-P connector and the seat heaters, then replace the seat heater control unit if all input tests and heater test prove OK.



[ ]: For passenger's seat.

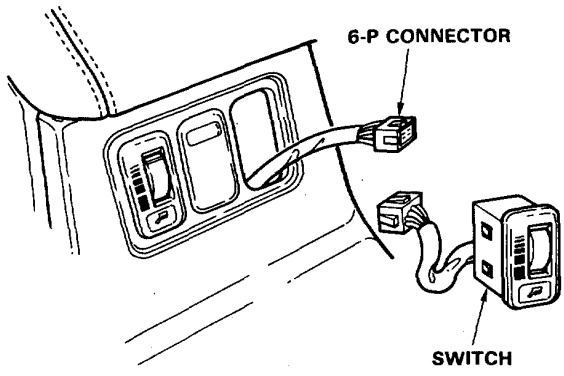
No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLK	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor ground (G404). • An open in the wire.
2	ORN [ORN/BLU]	Ignition switch ON and seat heater switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 10 (15A) fuse. • Blown No. 19 (7.5A) fuse. • Faulty seat heater relay. • Poor ground (G401). • Faulty seat heater (ON/OFF) switch. • An open in the wire.
3	RED/YEL and RED/GRN BLU/YEL and BLU/GRN	Adjusting dial rotated.	Check for resistance between the RED/YEL [BLU/YEL] and RED/GRN [BLU/GRN] terminals. Should vary from 10,000 to 0 ohms as the dial is rotated.	• Faulty seat heater (variable) switch. • An open in the wire.
4	PNK [PNK] • BLU [BLU] • BRN [BRN]	Under all conditions.	Check for continuity between the terminals. There should be continuity: • Between the PNK1 [PNK3] and PNK2 [PNK4] terminals. • Between the BLU1 [BLU3] and BLU2 [BLU4] terminals. • Between the BRN1 [BRN3] and BRN2 [BRN4] terminals.	• An open in the wire.
	Test the seat heaters (see page 23-316)			

cardiagn.com

Seat Heaters

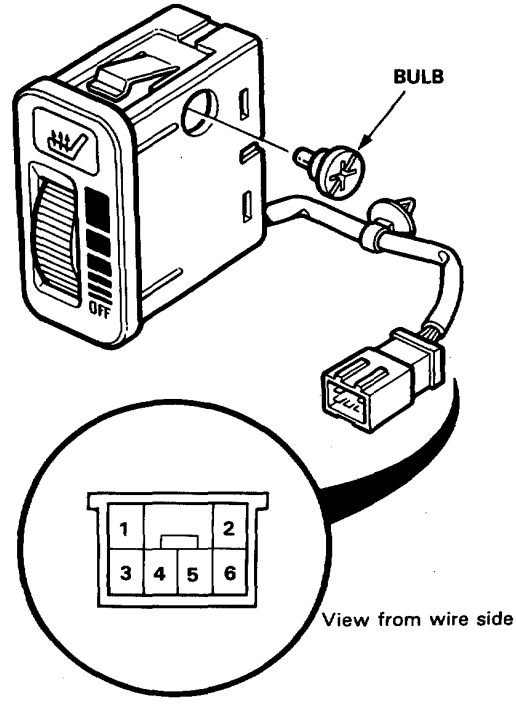
Switch Removal

1. Remove the center console (See section 20).
2. Disconnect the 6-P connector to remove the switch, then push the switch out of the console.

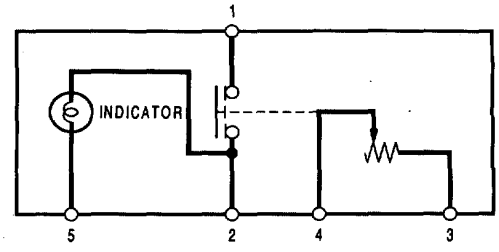


Switch Test

1. Remove the seat heater switch from the center console.
2. There should be continuity between the No. 1 and No. 2 terminals when the switch is ON. There should be no continuity when the switch is OFF.



3. Measure resistance between the No. 3 and No. 4 terminals while rotating the adjusting dial. Resistance should vary from 10,000 to 0 ohms as the dial is rotated.

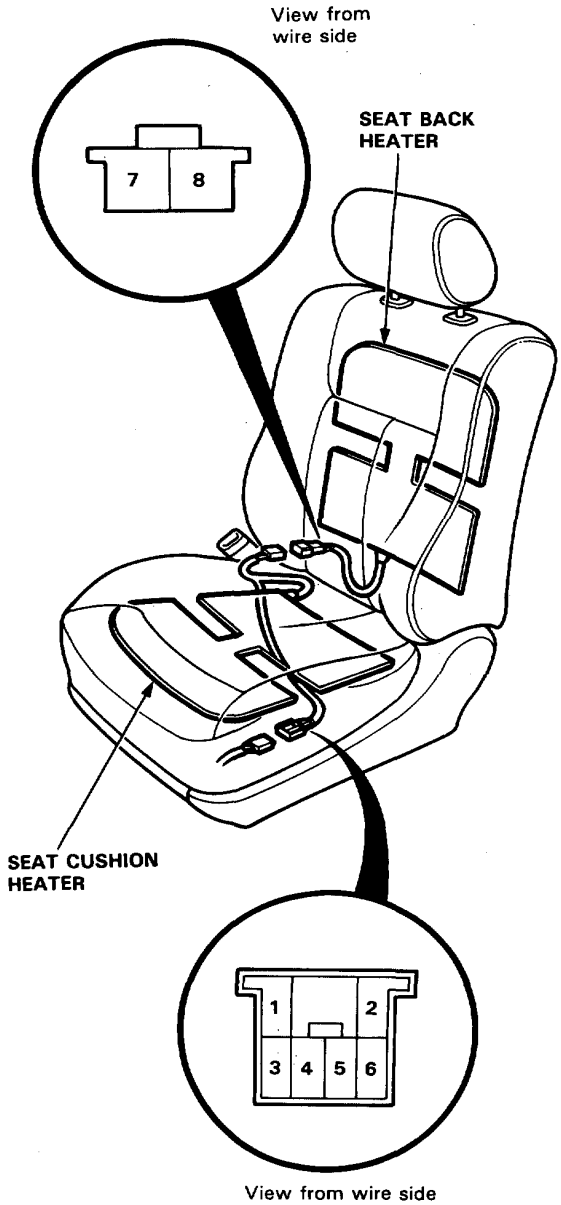


cardiagn.com

Heater test

1. Remove the front seats, then disconnect the 6-P connector from the seat cushion heater, and the 2-P connector from the seat back heater.

   NOTE: Left front seat shown, right front seat similar.



2. Check for continuity between the No. 2 and No. 6 terminals, and between the No. 7 and No. 8 terminals. ($RX10^3$ scale)
   There should be continuity.

3. Using an ohmmeter ($RX10^3$ scale), measure resistance between the No. 4 and No. 5 terminals. Replace the seat cushion heater if the resistance is not within specifications.

   NOTE: Resistance will vary with the thermistor temperature; specifications are at 25°C (77°F) or more.

   Thermistor Resistance: 8 kΩ or less.

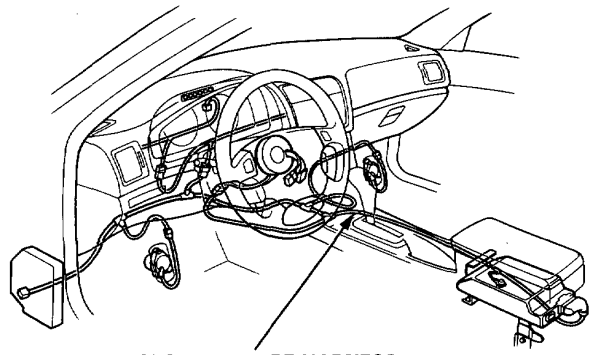
cardiagn.com

Component Location Index

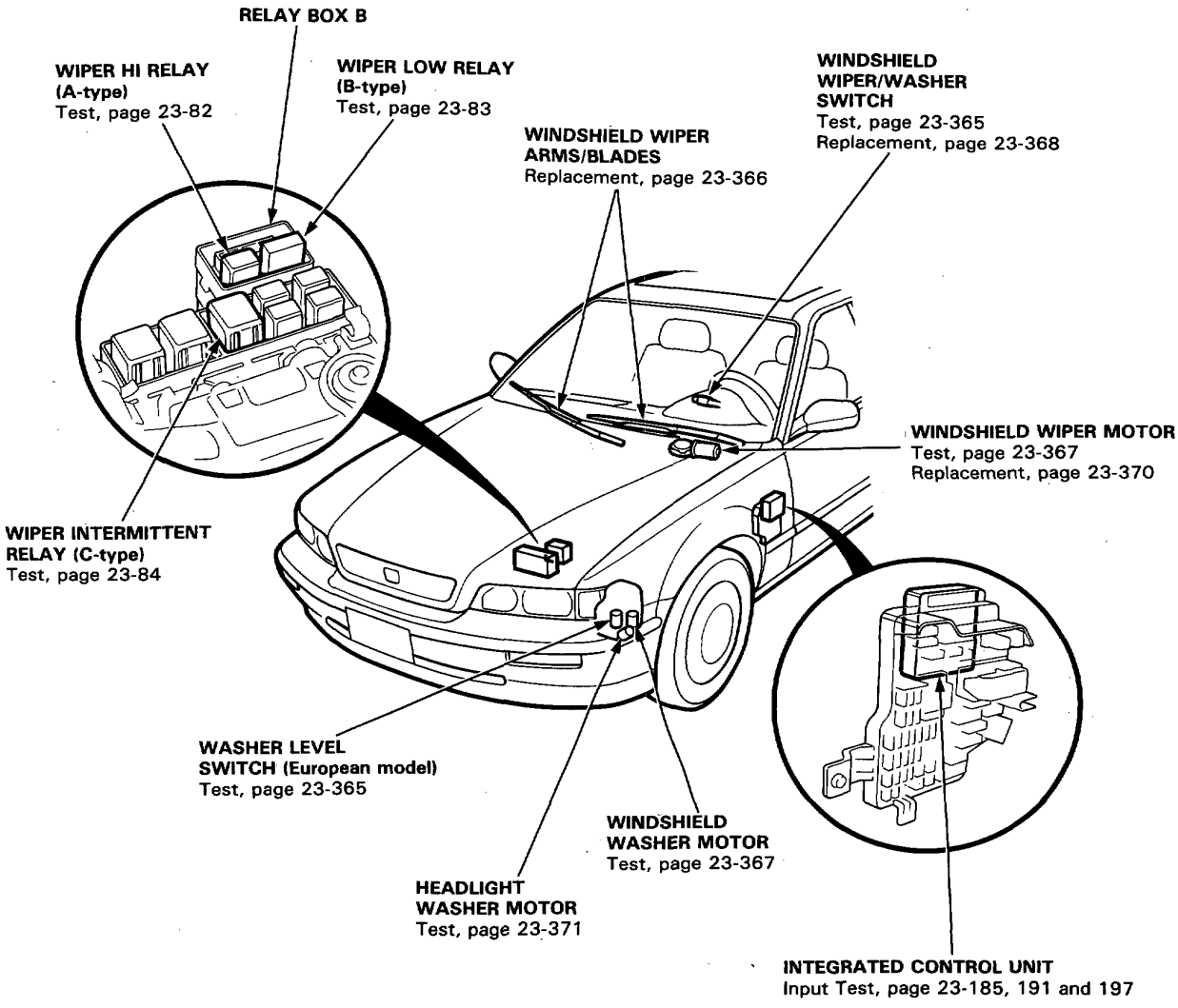
CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

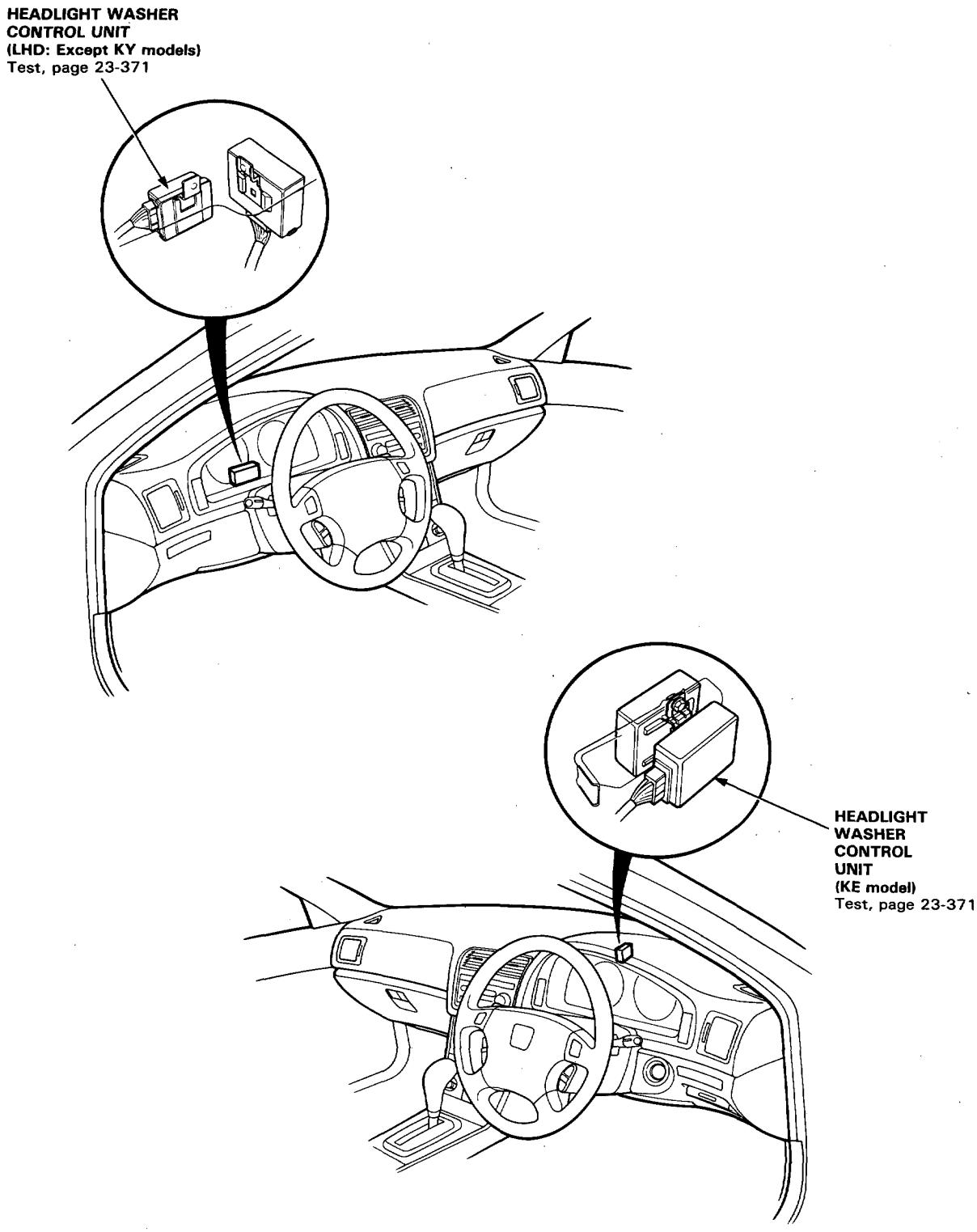
NOTE: RHD type is symmetrical to LHD type.



SRS MAIN WIRE HARNESS

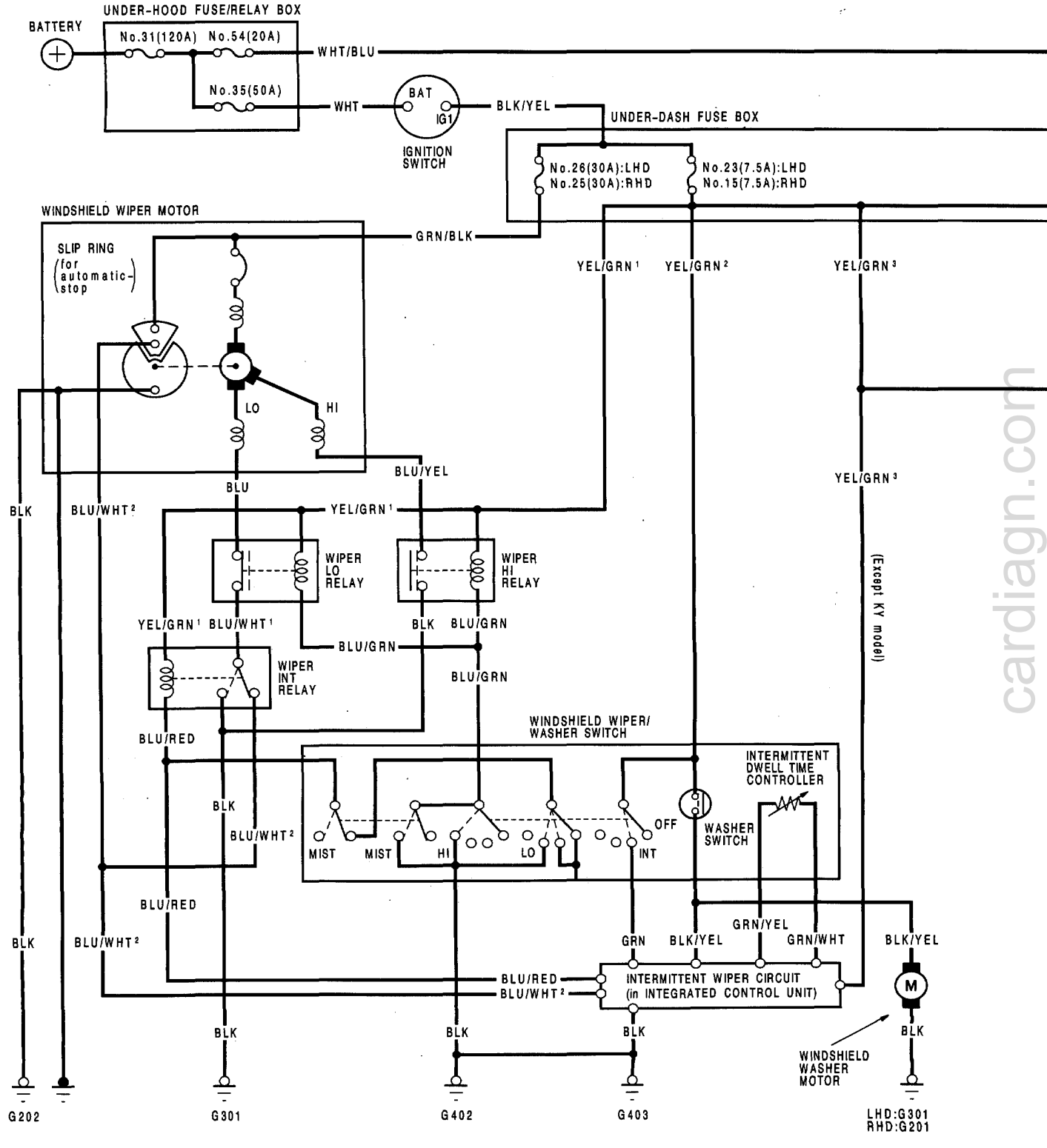


cardiagn.com

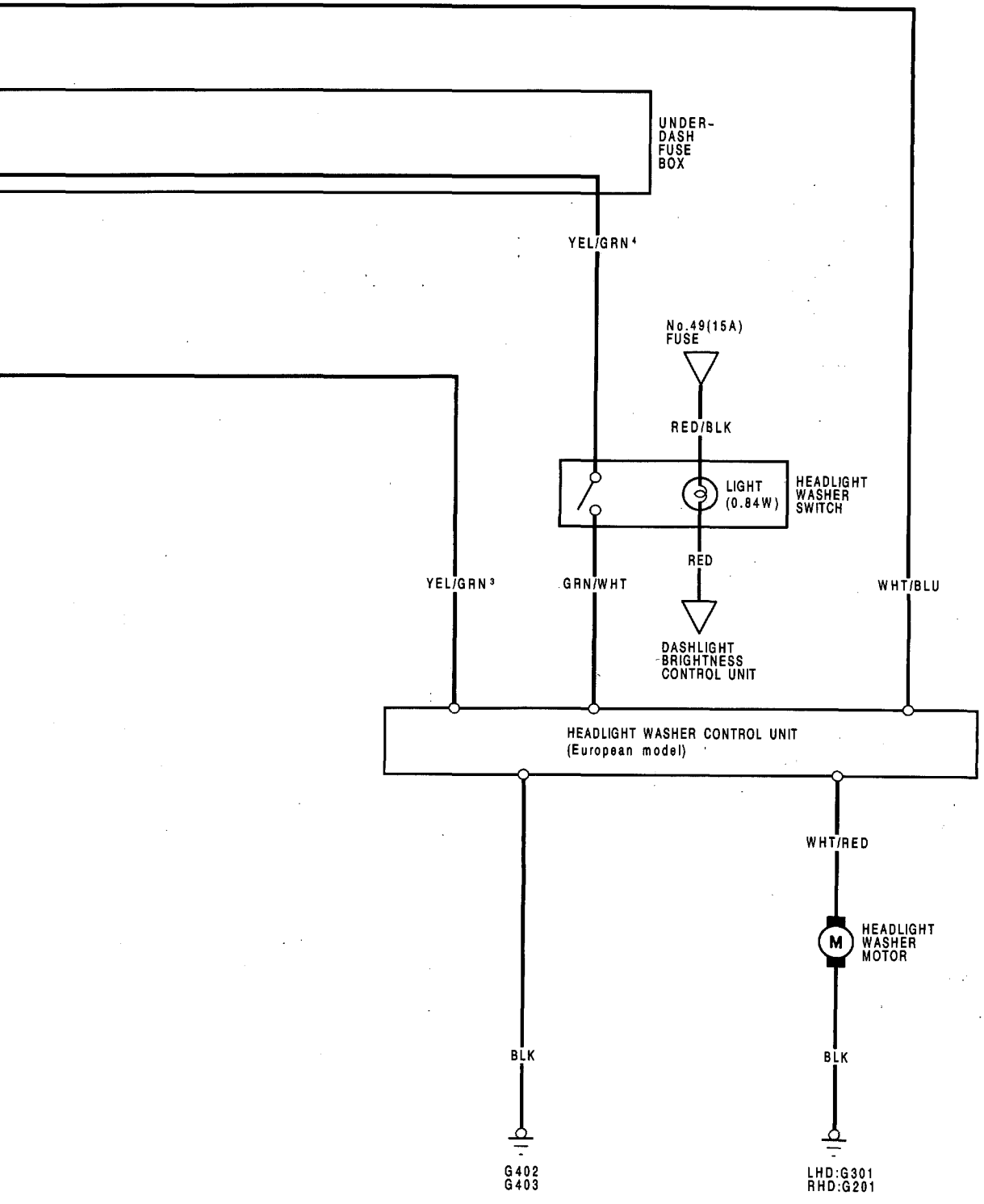


cardiagn.com

Circuit Diagram



cardiagn.com



cardiagn.com

Troubleshooting

NOTE: The numbers in the table show the troubleshooting sequence.

Symptom	Item to be inspected	Blown *1 (30 A) fuse (in the under-dash fuse box)	Blown No. 54 (20 A) fuse (in the under-hood fuse/relay box)	Blown *2 (7.5 A) fuse (in the under-dash fuse box)	Wiper switch	Mist switch	Wiper motor assembly	Washer switch	Washer motor	Intermittent wiper relay	Wiper low relay	Wiper high relay	Intermittent wiper circuit (in the integrated control unit)	Combined operation with wiper/ washer (in the integrated control unit)	Insufficient washer fluid in reservoir	Disconnected blocked washer hose or clogged outlet	Disconnected wiper linkages	Intermittent dwell time controller	Headlight washer control unit	Poor ground	Open circuit in wires or loose or disconnected terminals
Wipers do not operate	In all positions	1			4		2										3			G202	GRN/BLK
	In INT				1		4			2	3		5							G202 G301 G401 G402 G403	YEL/GRN[2] GRN BLU/WHT[2]
	In LO				1		4			2	3		5							G401 G402 G403	YEL/GRN[1] BLU/RED BLU BLU/WHT[1]
	In HI				1		3					2								G301 G401 G402 G403	BLU/GRN YEL
	In MIST					1						2								G301 G401 G402 G403	BLU/GRN YEL
Blades do not return to park position when wipers are turned OFF.					2		1			3	4										BLU/WHT[2]
Erratic intermittent cycle or wipers do not operate intermittently.										1			3					2			BLU/RED, GRN/YEL or GRN/WHT
Little or no windshield washer fluid is pumped.				2				5	4						1	3				G301 [G201]	BLK/YEL
Wipers do not operate simultaneously with windshield washer.														1							BLU/RED
Little or no headlight washer fluid is pumped.			2					5	4						1	3			6		WHT/RED

*1 { No. 26 (30 A): LHD
No. 25 (30 A): RHD

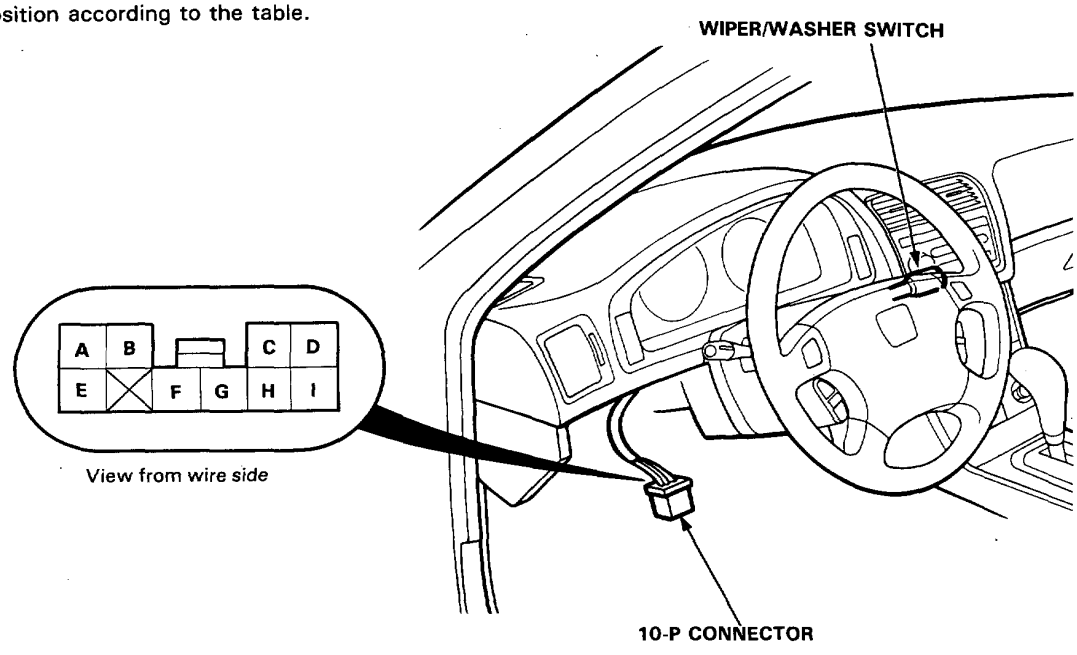
*2 { No. 23 (7.5 A): LHD
No. 15 (7.5 A): RHD

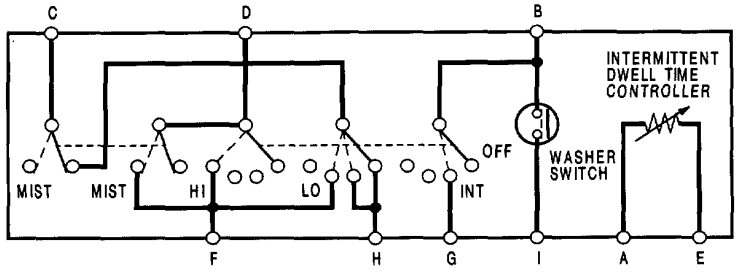
[ ]: RHD

cardiagn.com

Wiper/Washer Switch Test

1. Remove the dashboard lower panel (See section 20).
2. Disconnect the 10-P connector from the floor wire harness.
3. Check for continuity between the terminals in each switch position according to the table.





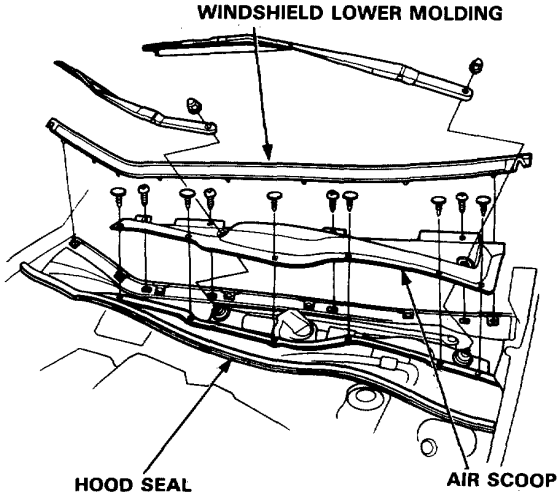
Position \ Terminal	A	B		C	D	E	F	G	H	I
INT		○						○		
LO				○			○			
HI					○		○			
Mist switch "ON"					○		○			
Washer switch "ON"		○								○
Intermittent controller turned	○		~ 0-30KΩ			○				

cardiagn.com

Windshield Wiper Motor Test

1. Open the hood and remove the cap nuts and the wiper arms.
   NOTE: Carefully remove the wiper arms so that they do not touch the hood.

2. Remove the windshield lower molding, hood seal and air scoop by prying off the trim clips and removing the screws.

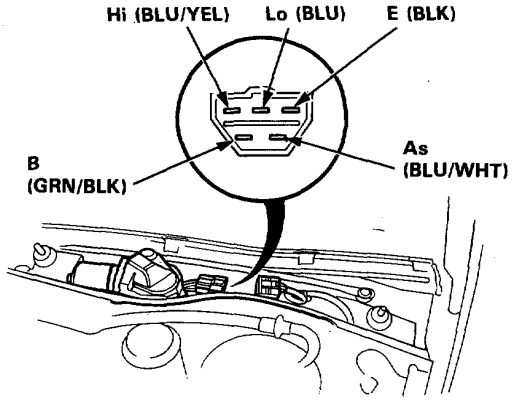


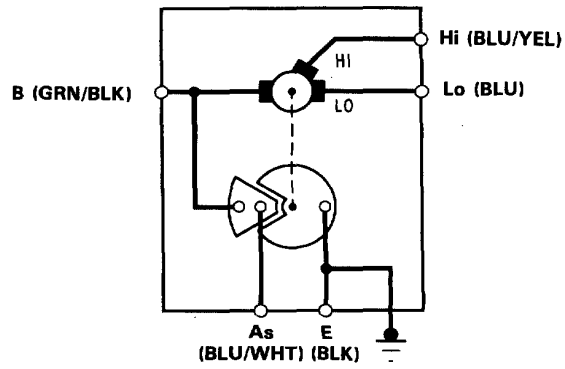
3. Disconnect the 5-P connector from the wiper motor assembly.

4. Test motor operation:

   LOW SPEED: Connect battery power to the B (GRN/BLK) terminal and ground to the Lo (BLU) terminal.
   HIGH SPEED: Connect battery power to the B (GRN/BLK) terminal and ground to the Hi (BLU/YEL) terminal.

5. If the motor fails to run smoothly, replace it.





6. Reconnect the 5-P connector to the wiper motor assembly.

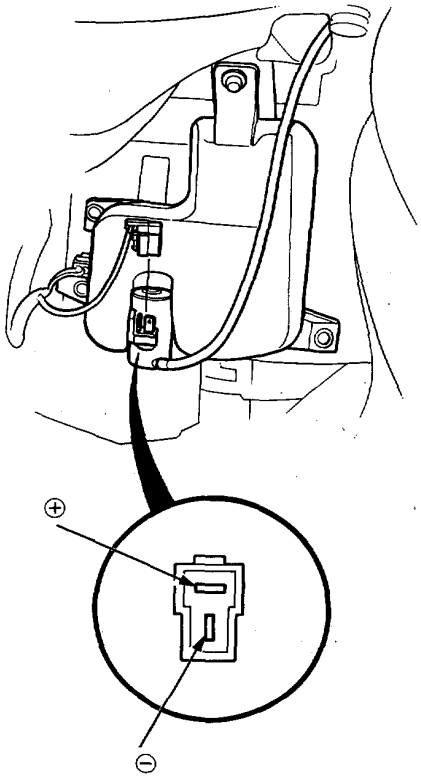
7. Connect an analog voltmeter, between the As (BLU/WHT) and the E (BLK) terminals. Run the motor by turning the wiper switch ON (Lo or Hi position).

   Voltmeter should indicate 0 V to more than 4 V alternately.

cardiagn.com

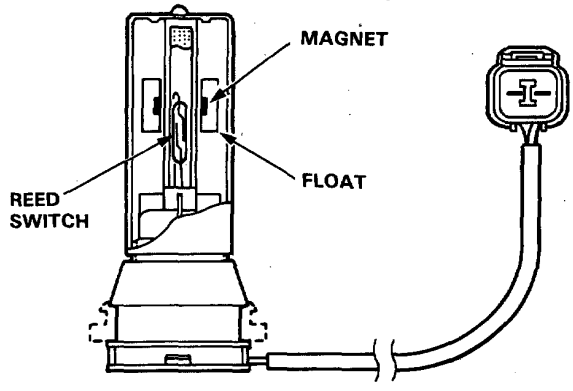
Washer Motor Test

1. Remove the inner fender.
2. Disconnect the 2-P connector from the washer motor.
3. Test the washer motor operation by connecting battery power to the ⊕ terminal and grounding to the ⊖ terminal.
   - If the motor 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 pump outlet in the motor.



Washer Level Switch Test (European model)

1. Remove the inner fender.
2. Disconnect the 2-P connector, then pull the switch out of the reservoir.
3. Check that the float moves up and down freely. Replace the switch if the float does not move freely.
4. Check for continuity between the terminals with the float up and down.
   There should be continuity with the float down, and no continuity with the float up.
   Replace the switch if necessary.

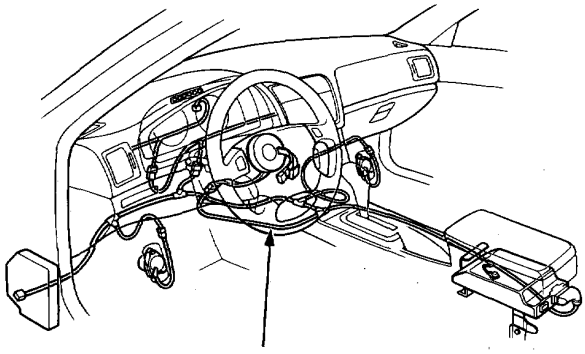


cardiagn.com

Wiper/Washer Switch Replacement

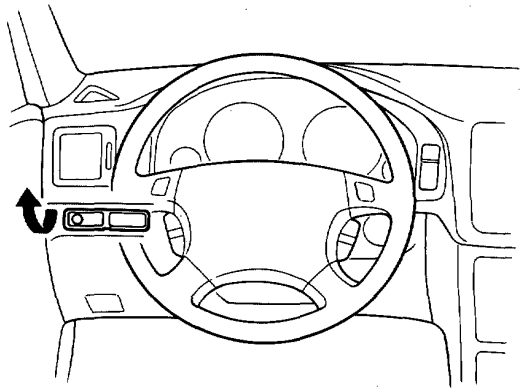
CAUTION:

- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

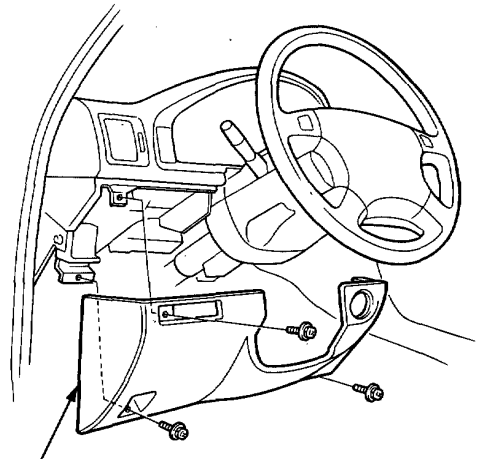


SRS MAIN WIRE HARNESS

1. Carefully pry the switches out of the dashboard lower panel.



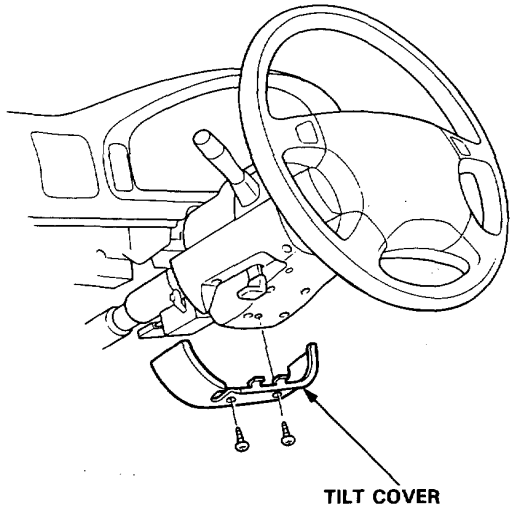
2. Disconnect the connectors, then remove the switches.
3. Remove the dashboard lower panel.



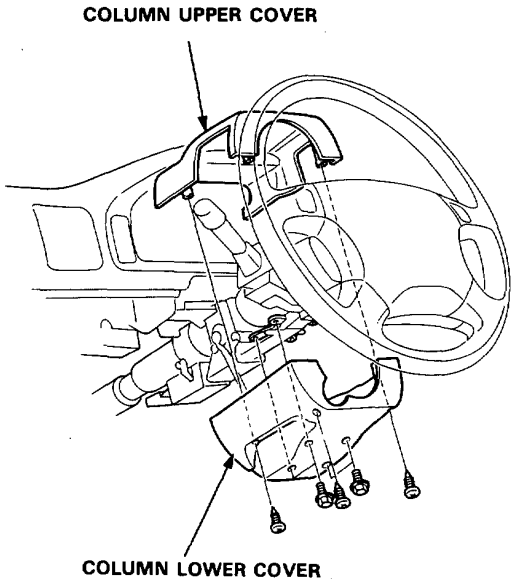
DASHBOARD LOWER PANEL

cardiagn.com

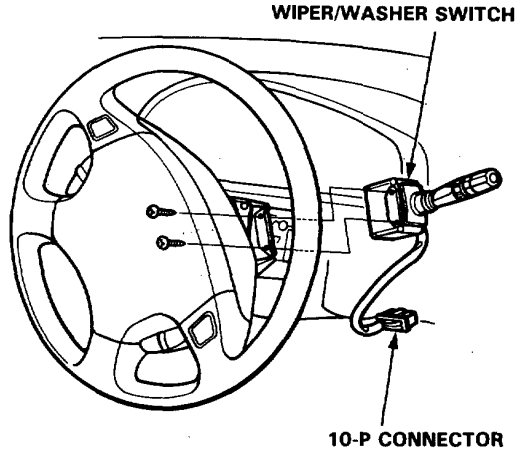
4. Remove the tilt cover.



5. Remove the steering column upper and lower covers.



6. Disconnect the 10-P connector, then remove the wiper/washer switch.



cardiagn.com

Windshield Wiper Motor Replacement

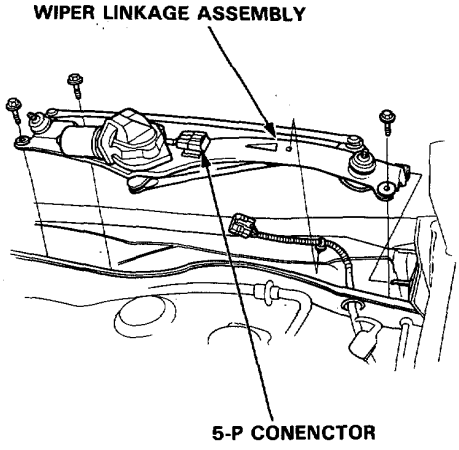
1. Open the hood and remove the cap nuts and the wiper arms.

   NOTE: Carefully remove the wiper arms so that they do not touch the hood.

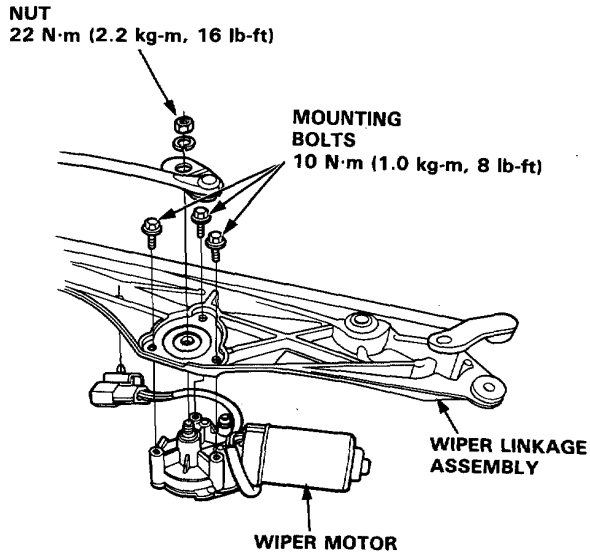
2. Remove the windshield lower molding, hood seal and air scoop by prying off the trim clips and removing the screws (See page 23-366).

3. Disconnect the 5-P connector from the wiper motor, then remove the wiper harness from the wiper linkage.

4. Remove the wiper linkage assembly by removing the 3 mounting bolts.



5. Remove the 3 mounting bolts and 1 nut from the wiper linkage to remove the wiper motor.



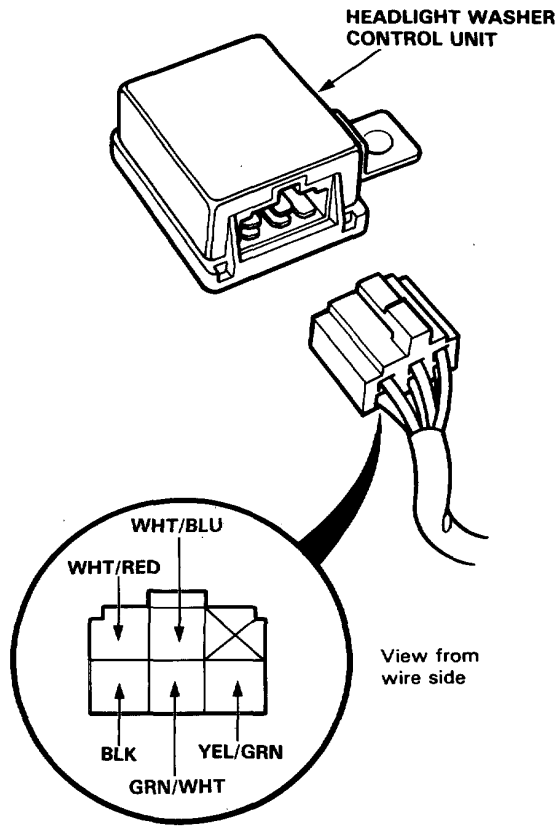
6. Install the wiper motor in the reverse order of removal.

cardiagn.com

Headlight Washer Control Unit Test

Remove the glove box lower panel and glove box (LHD).
Remove the bulkhead panels (KE model).
Disconnect the 6-P connector from control unit.
Make the following input tests at the harness pins.
If all tests prove OK, yet the headlight washer still fails to work, replace the control unit.

NOTE: Before testing, check the No. 54 (20 A) fuse in the main relay box and No. 23: LHD or No. 15: RHD (7.5 A) fuse in the dash fuse box.



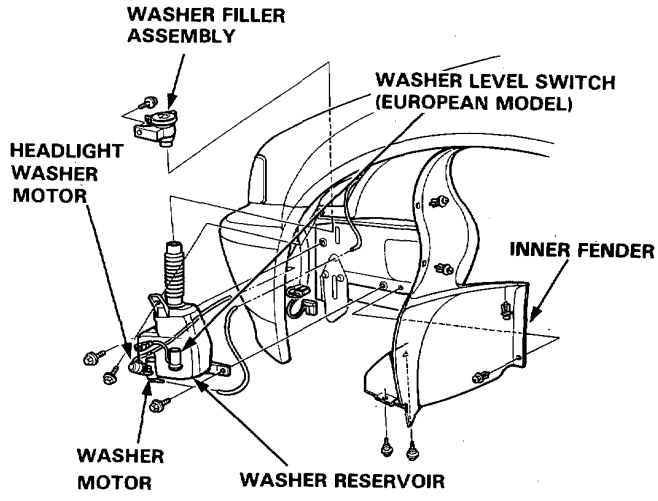
No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLK	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor ground (G402, G403). • An open in the wire.
2	WHT/BLU	Under all conditions.	Check for voltage to ground: should be battery voltage.	• Blown No. 54 (20 A) fuse. • An open in the wire.
3	GRN/WHT	Ignition switch and headlight washer switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 23 or No. 15 (7.5 A) fuse. • Faulty headlight washer switch. • An open in the wire.
4	WHT/RED	Connect the LT GRN terminal to the WHT/RED terminal with jumper wire.	Check pump operation: Pump should run.	• Faulty headlight washer pump. • An open in the wire. • Poor ground (G301 or G201).
5	YEL/GRN	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 23: LHD or No. 15: RHD (7.5 A) fuse. • An open in the wire.

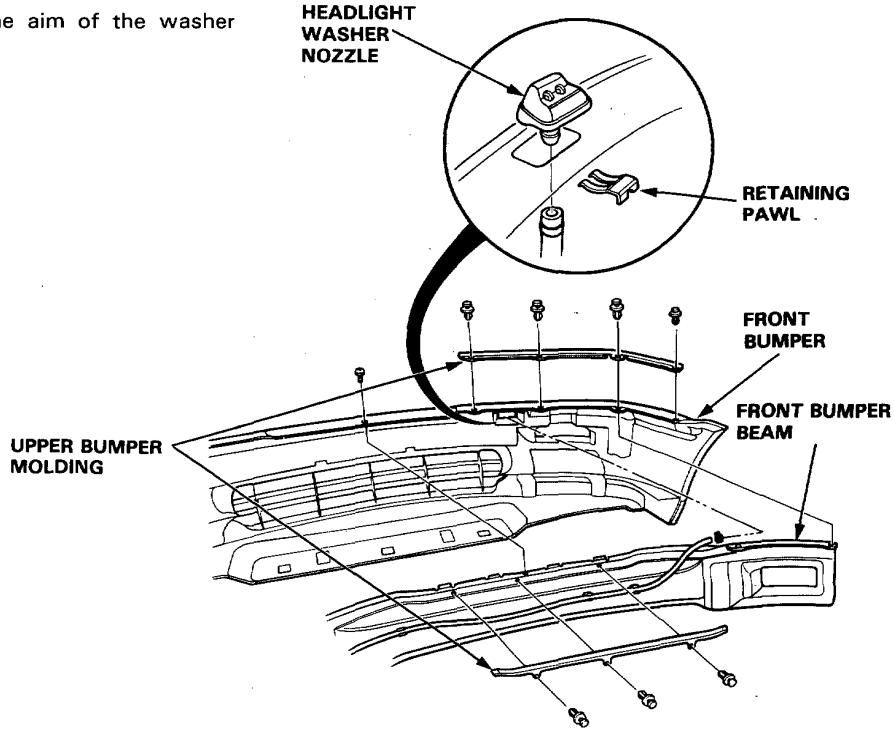
cardiagn.com

Washer Replacement

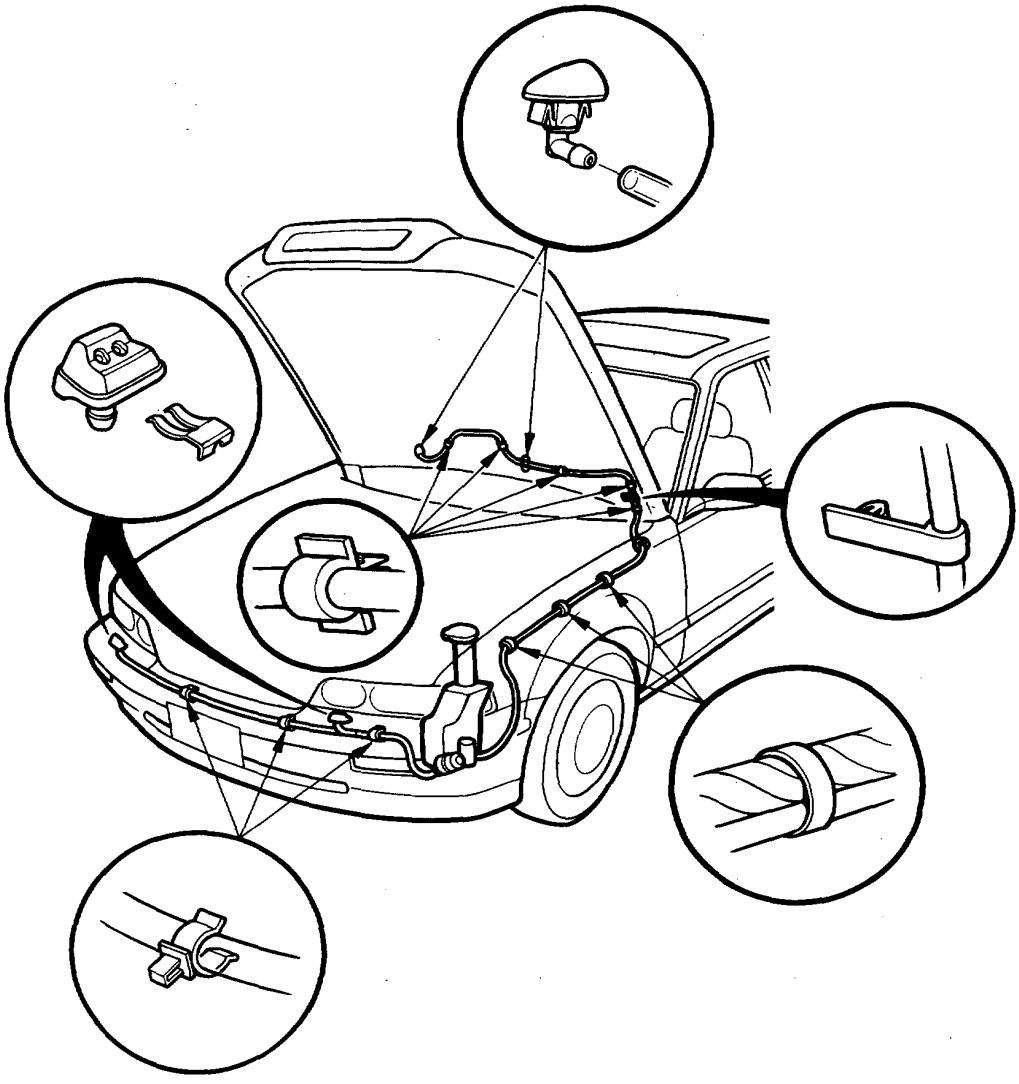
1. Remove the washer filler assembly.
2. Remove the inner fender.
3. Disconnect the hose and the 2-P connectors from the windshield washer motor, headlight washer motor and washer level sensor (EUROPEAN MODEL).
4. Remove the washer reservoir by removing the 3 mounting bolts.
5. Remove the windshield washer moter, headlight washer motor and washer level switch from the washer reservoir.
6. Remove the windshield washer nozzles and washer hose.
7. Remove the front bumper, then the upper bumper molding and front bumper beam.
8. Remove the headlight washer nozzle by releasing the retaining pawl and pushing them out from the inside of the bumper.

NOTE:
- Clamp the hose at the front harness.
- Take care not to pinch hoses during reinstallation.
- Install the grommets firmly.
- After installation, adjust the aim of the washer nozzles.





cardiagn.com



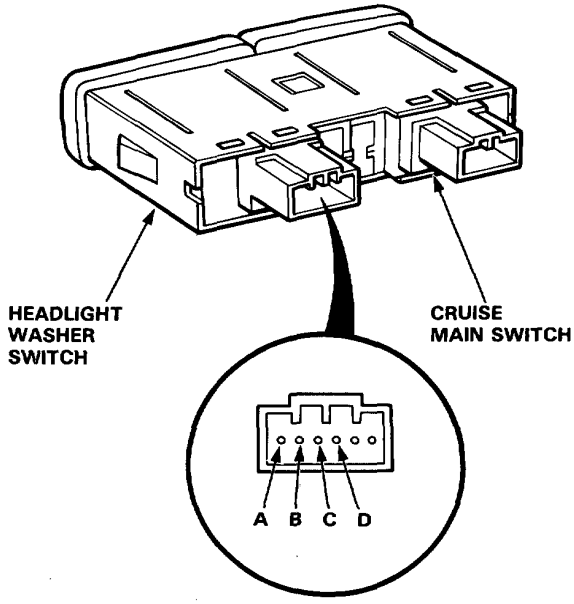
cardiagn.com

Headlight Washer Switch Test

1. Pry out the switch from the floor console, then disconnect the 6-P connector from the switch.
2. Check for continuity between the terminals according to the table.

   NOTE: Be careful not to damage the switch or the instrument panel when prying out the switch.

Terminal / Position	C	D	A		B
OFF					
ON	●	●	●	●	●

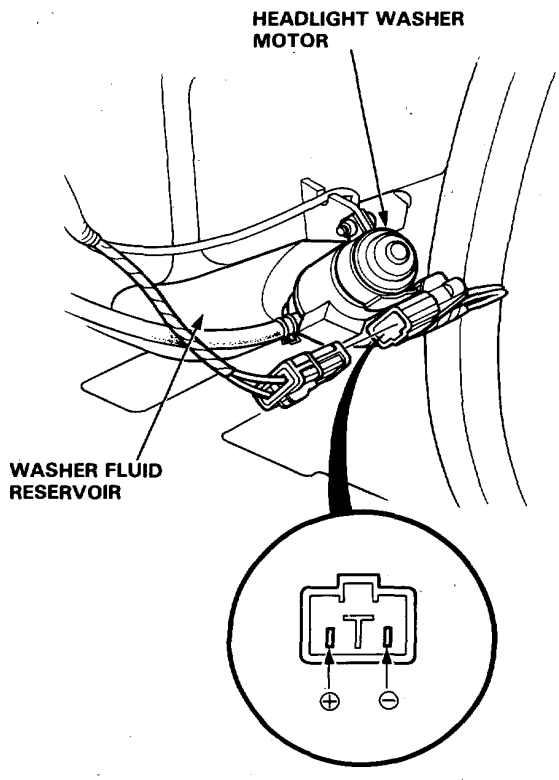


cardiagn.com

Headlight Washer Motor Test

1. Remove the front bumper and disconnect the 2-P connector from the washer motor.

2. Test washer motor operation by connecting battery positive to the ⊕ terminal and negative to the ⊖ terminal.

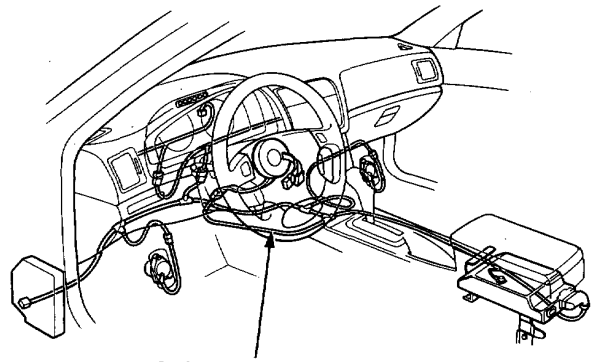


cardiagn.com

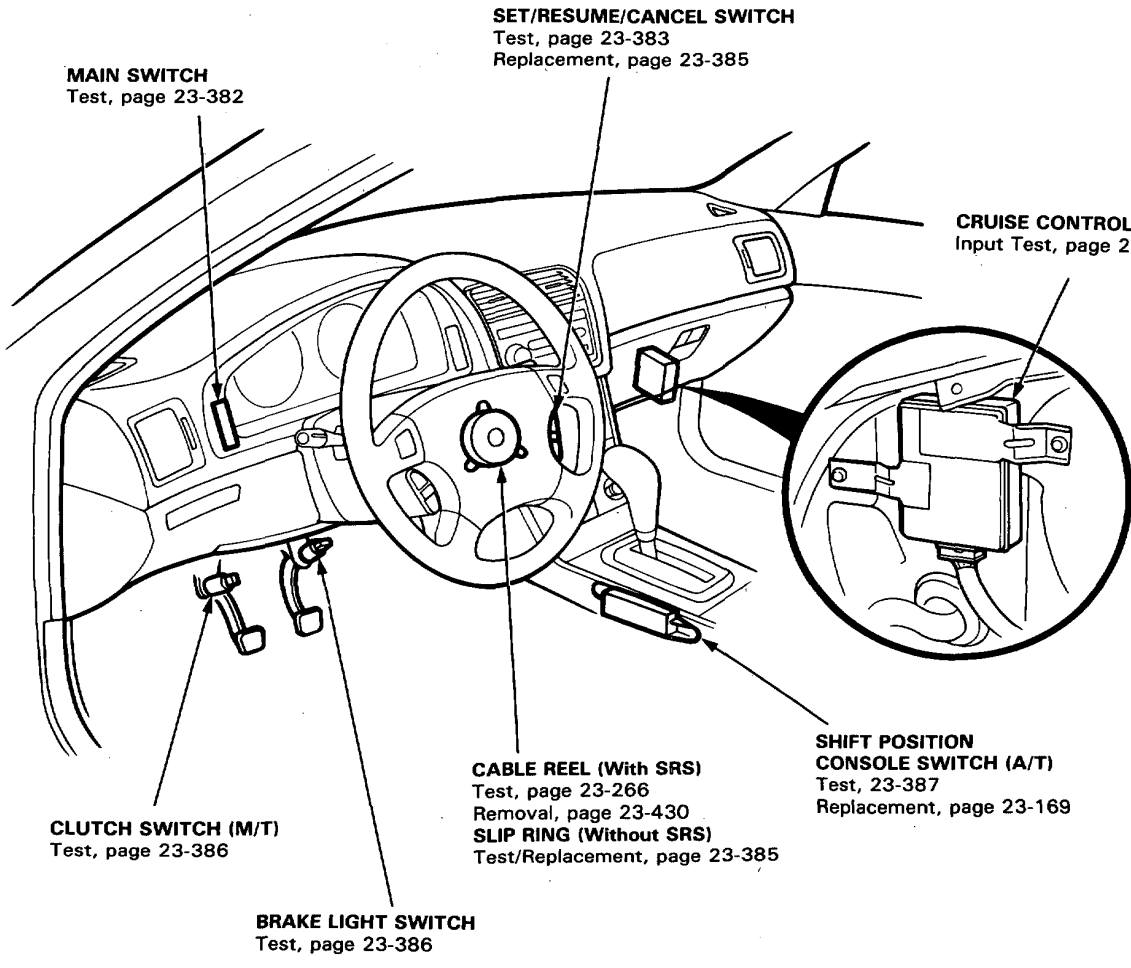
Component Location Index

CAUTION:

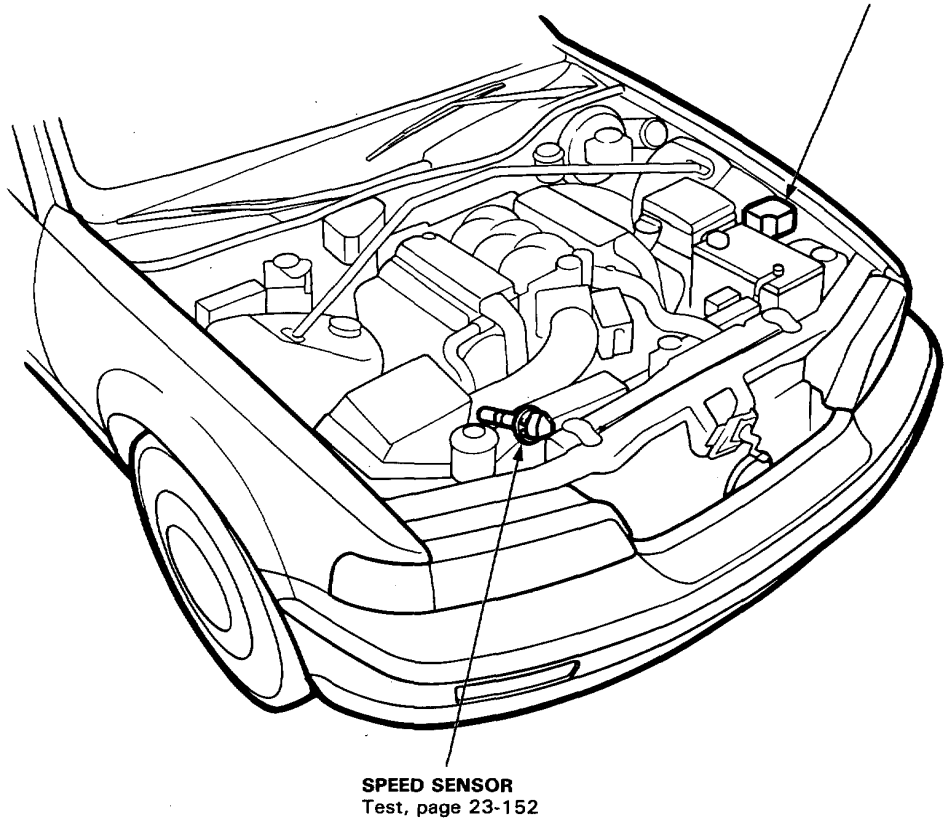
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connectors on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**



SRS MAIN WIRE HARNESS



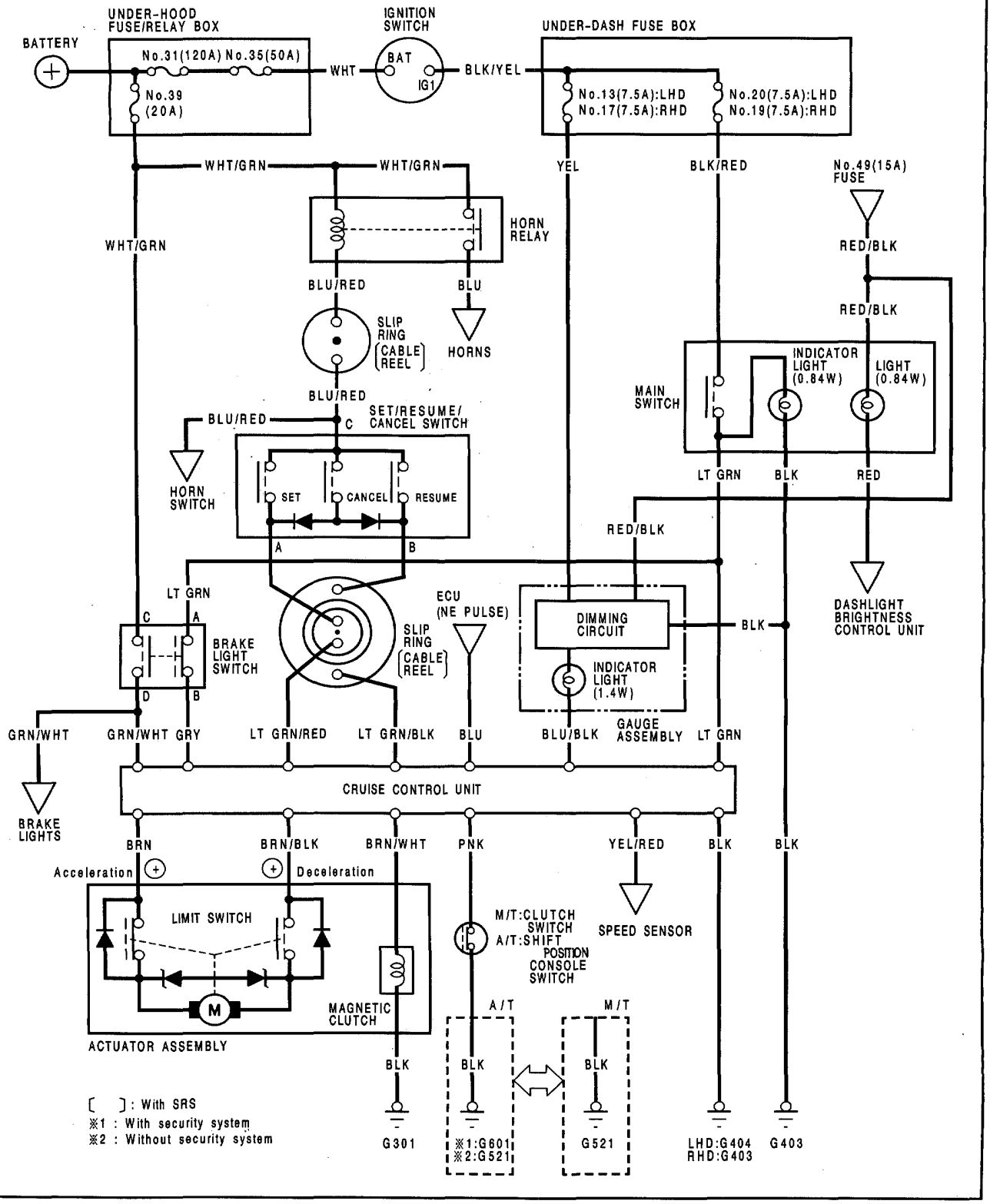
cardiagn.com



cardiagn.com

Cruise Control

Circuit Diagram



cardiagn.com

Troubleshooting

NOTE:

- The numbers in the table show the troubleshooting sequence.
- Before troubleshooting.
  - Check the No. 20: LHD or No. 19: RHD (7.5A) fuse in the under-dash fuse box, and the No. 35 (50A), No. 39 (20A) fuses in the under-hood fuse/relay box.
  - Check that the horns sound.
  - Check the tachometer for proper operation.

Items to be inspected. / Symptom	Main switch	SET/RESUME switch	Brake light switch/adjustment	Clutch switch/adjustment (M/T)	Shift lever position switch (A/T)	ECU (NE PULSE)	Dimming circuit in gauges	Actuator and cable deflection	Control unit	Poor ground	Open circuit in wires or loose or disconnected terminals
Cruise control can't be set.	2	3	4	5					1	G301 G403 G404 G521 G601	BLU/RED, LT GRN/RED, BLU, YEL, BLK/RED, LT GRN, GRY, BRN, BRN/BLK, BRN/WHT, PNK or YEL/RED
Cruise control can be set, but indicator light does not go on.							2		1	G402 G403	YEL or BLU/BLK
Cruise speed noticeably higher or lower than what was set.						1		2	3		
Excessive overshooting and/or undershooting when trying to set speed.						2		1	3		
Steady speed not held even on a flat road with cruise control set.						1		2	3		
Car does not decelerate or accelerate accordingly when SET or RESUME button is pushed.		1							2		LT GRN/BLK LT GRN/RED
Set speed not cancelled when clutch pedal is pushed (M/T).				1					2		
Set speed not cancelled when shift lever is moved to N (A/T).					1				2		
Set speed not cancelled when brake pedal is pushed.			1						2		
Set speed not cancelled when main switch is pushed OFF.	1								2		
Set speed not resumed when RESUME button is pushed (with main switch on, but set speed temporarily cancelled).		1							2		

cardiagn.com

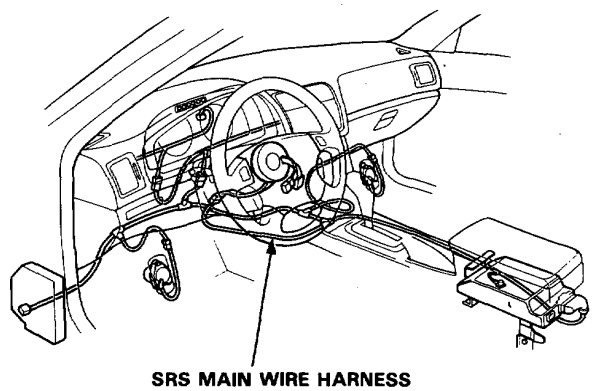
Control Unit Input Test

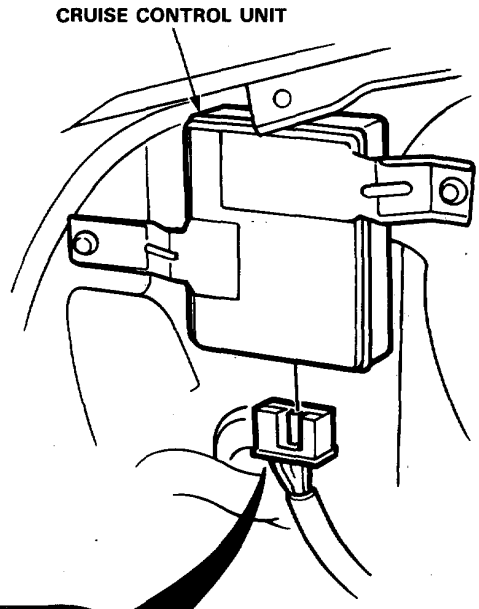
CAUTION:

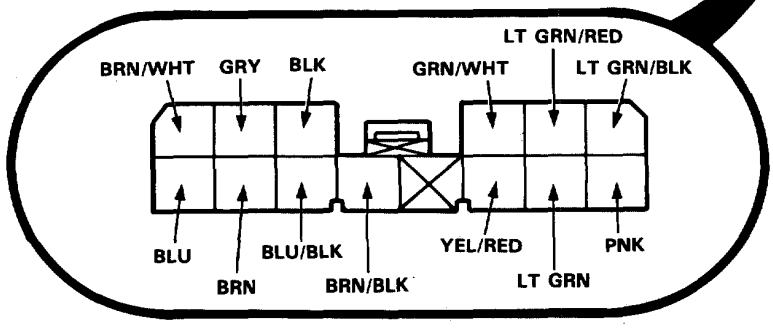
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting the SRS wire harness, install the short connectors on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

Remove the glove box, then disconnect the 14-P connector from the control unit. Make the following tests at connector terminals:

NOTE: Recheck the connections between the 14-P connector and the control unit, then replace the control unit if all input tests prove OK.







View from wire side

cardiagn.com

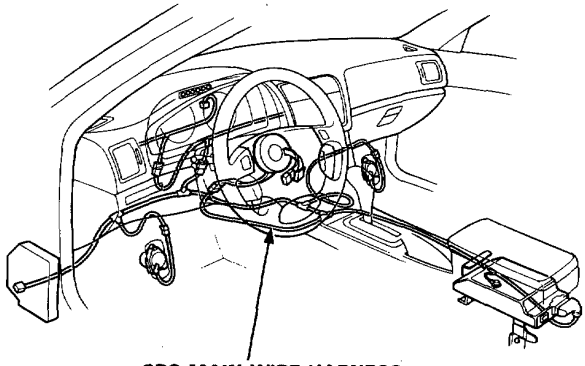
No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLK	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor ground G404 ([G402, G403]). • An open in the wire.
2	LT GRN	Ignition switch ON and main switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. 20 (7.5A) [No. 19 (7.5A)] fuse. • Faulty main switch. • An open in the LT GRN or YEL wire.
3	LT GRN/BLK	RESUME button pushed.	Ground each terminal: Horns should sound as the switch is pushed.	• Blown No. 39 (20A) fuse. • Faulty SET/RESUME switch. • Faulty cable reel. • An open in the WHT/GRN, BLU/RED, LT GRN/BLK or LT GRN/RED wire.
4	LT GRN/RED	SET button pushed.		
5	PNK	M/T: Clutch pedal pushed. A/T: Shift lever in 2, D[3] or D[4].	Check for continuity to ground: should be continuity.	• Faulty or misadjusted clutch switch (M/T). • Faulty shift position console switch (A/T). • Poor ground (G521 or G601). • An open in the wire.
6	BLU	Start the engine.	Check for voltage to ground: should be battery voltage.	• Faulty ignition system or PGM-FI ECU. • An open in the wire.
7	YEL/RED	Ignition switch ON and main switch ON. Raise the front of the car rotate one wheel slowly.	Check for voltage between the LT GRN ⊕ and YEL/RED ⊖ terminals: should be 0—5—0—5 V repeatedly.	• Faulty speed sensor. • An open in the wire.
8	GRY	Ignition switch ON, main switch ON and brake pedal pushed, then released.	Check for voltage to ground: should be 0 V with the pedal pushed and battery voltage with the pedal released.	• Faulty brake light switch. • An open in the GRY or LT GRN wire.
9	GRN/WHT	Brake pedal pushed, then relelased.	Check for voltage to ground: should be battery voltage with the pedal pushed, and 0 V with the pedal released.	• Faulty brake light switch. • An open in the wire.
10	BLU/BLK	Ignition switch ON.	Attach to ground: Indicator light in the gauge assembly comes on.	• Blown bulb. • Blown No. 20 (7.5A) [No. 19 (7.5A)] fuse. • Faulty dimming circuit in the gauge assembly. • An open in the wire.
11	BRN	Connect battery power to the BRN terminal and ground to the BRN/BLK terminal.	Check the operation of the actuator motor: should be able to hear motor.	• Faulty actuator. • An open in the wire
12	BRN/BLK			
13	BRN/WHT	Connect battery power to the BRN/WHT terminal.	Check the operation of the magnetic clutch: clutch should click and output link should be locked.	• Faulty actuator. • An open in the wire. • Poor ground (G301).

[ ]: RHD

cardiagn.com

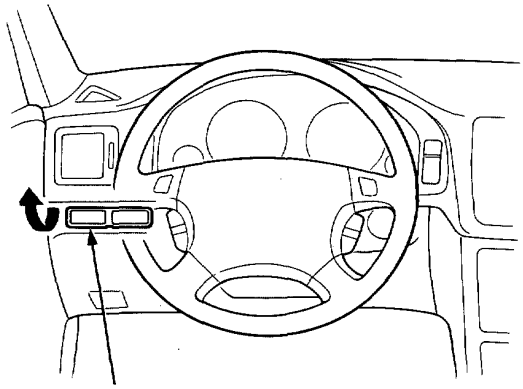
Main Switch Test

CAUTION:
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **When disconnecting SRS wire harness, install the short connectors on the airbag then disconnect the wire harness (See page 23-412).**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**



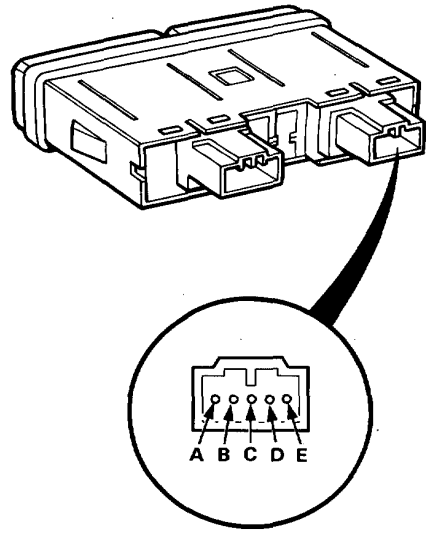
SRS MAIN WIRE HARNESS

1. Remove the instrument panel, then remove the cruise main switch from it.

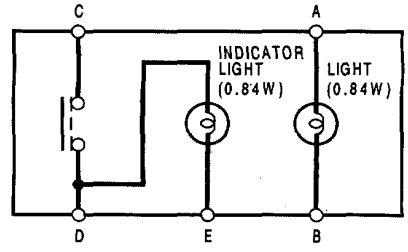


SWITCHES

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



Terminal / Position	C	D		E	A		B
OFF		○	○	○	○	○	○
ON	○	○	○	○	○	○	○



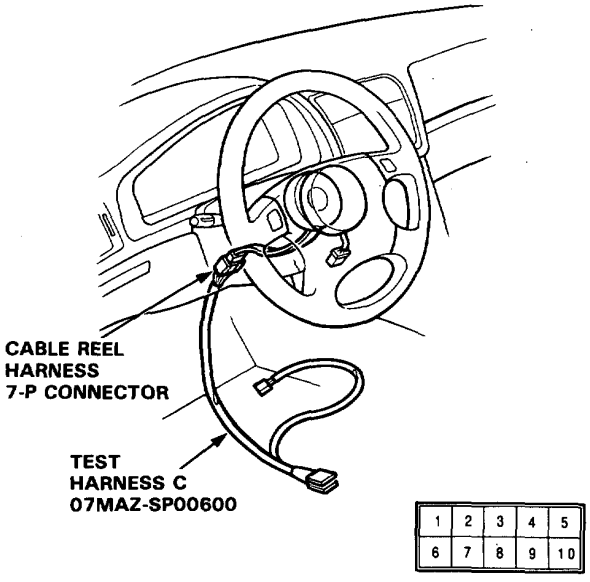
cardiagn.com

SET/RESUME/CANCEL Switch Test

With SRS:

CAUTION: Disconnect both the negative and positive battery cables install the red short connectors on the airbag (See page 23-412).

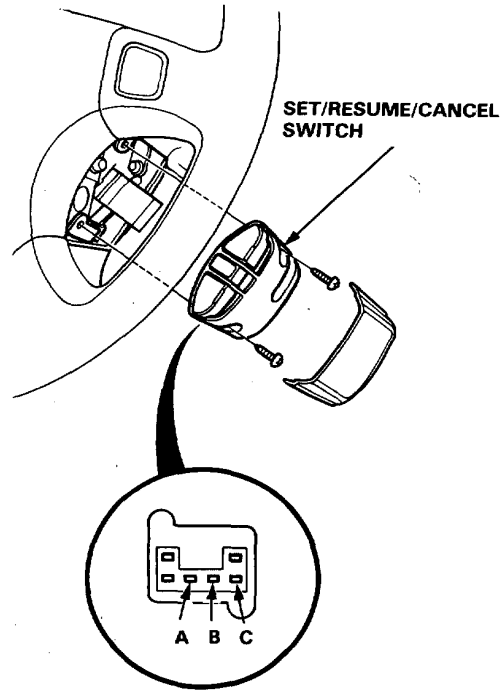
1. Disconnect the cable reel harness and main harness 7-P connector, and connect Test Harness C only to the cable reel harness side 7-P connector.



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

Terminal / Position	3 (BLU/RED)		2 (LT GRN/RED)	1 (LT GRN/BLK)
SET (ON)	○		○	
RESUME (ON)	○			○
CANCEL (ON)	○	▷	○	
		▷		○

3. Remove the cover from the SET/RESUME/CANCEL switch, then remove the SET/RESUME/CANCEL switch by removing the 2 screws.



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

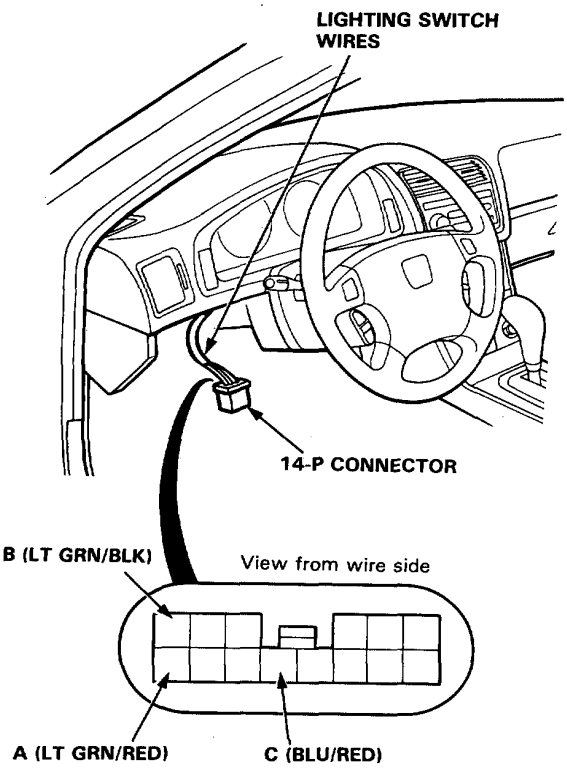
Terminal / Position	C		B	A
SET (ON)	○		○	
RESUME (ON)	○			○
CANCEL (ON)	○	▷	○	
		▷		○

cardiagn.com

SET/RESUME/CANCEL Switch Test

Without SRS:

1. Remove the dashboard lower panel and disconnect the 14-P connector from the main wire harness.

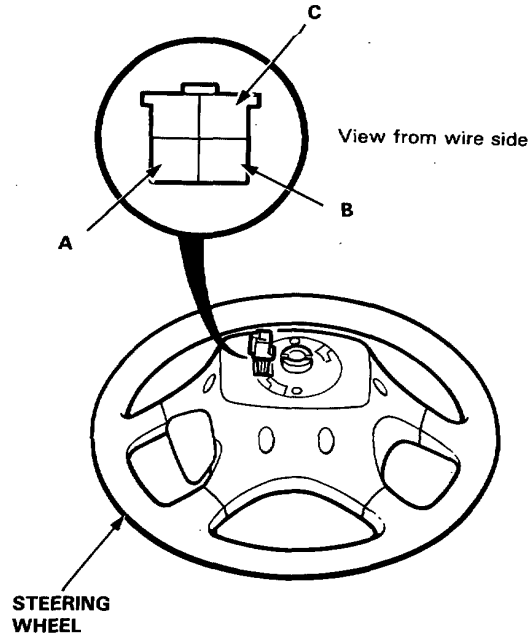


2. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position	C		B	A
SET (ON)	○		○	
RESUME (ON)	○			○
CANCEL (ON)	○	▷	○	
		▷		○

- If all of the continuity check is OK, the SET/RESUME/CANCEL switch is OK.
- If there is no continuity, remove the steering wheel, then turn it over and go to step 3.

3. Repeat step 2, but this time tests at the 4-P connector of the steering wheel.

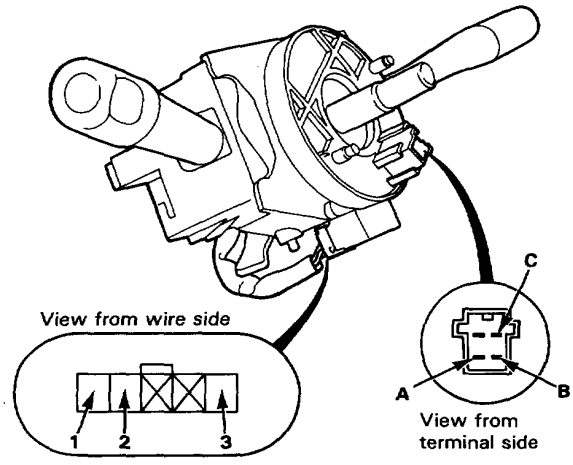


- If there is no continuity, replace the switch.
- If all of the continuity check is OK, remove the steering column lower cover and disconnect the 4-P connector from the slip ring, then check for open in the lighting switch wires (BLU/RED, LT GRN/BLK and LT GRN/RED).
  If the wires are OK, check the slip ring.

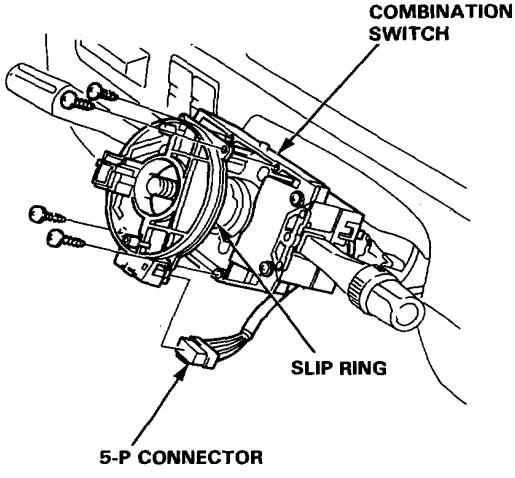
cardiagn.com

Slip Ring Test/Replacement (Without SRS)

1. Remove the steering column upper and lower covers.
2. There should be continuity between the No. 1 and C terminals, the No. 2 and B terminals, and the No. 3 and C terminals, as you turn the slip ring.

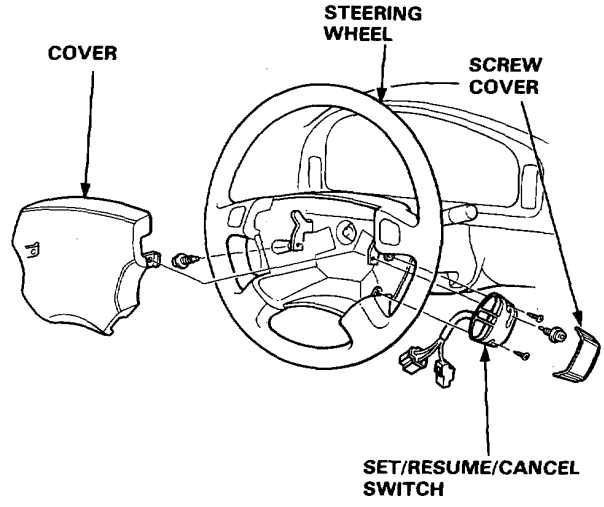


3. If necessary, remove the 4 screws and disconnect the 5-P connector to remove the slip ring from the combination switch. Replace the slip ring.



SET/RESUME/CANCEL Switch Replacement (Without SRS)

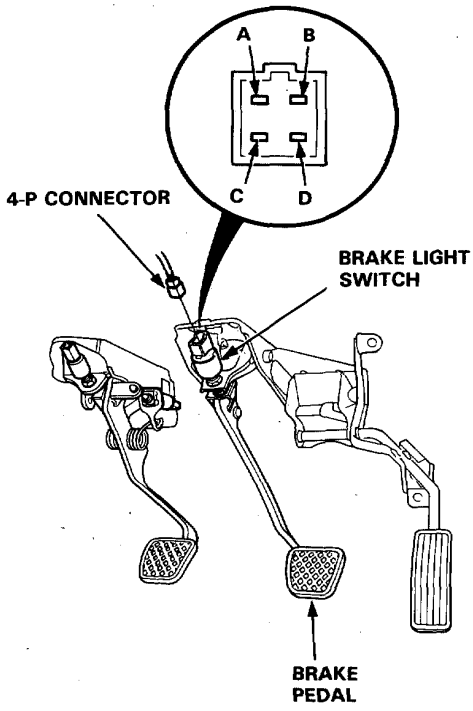
1. Remove the steering wheel.
2. Remove the screw cover, the 2 screws and the SET/RESUME/CANCEL switch from the steering wheel.



cardiagn.com

Brake Light Switch Test

1. Disconnect the 4-P connector from the switch.



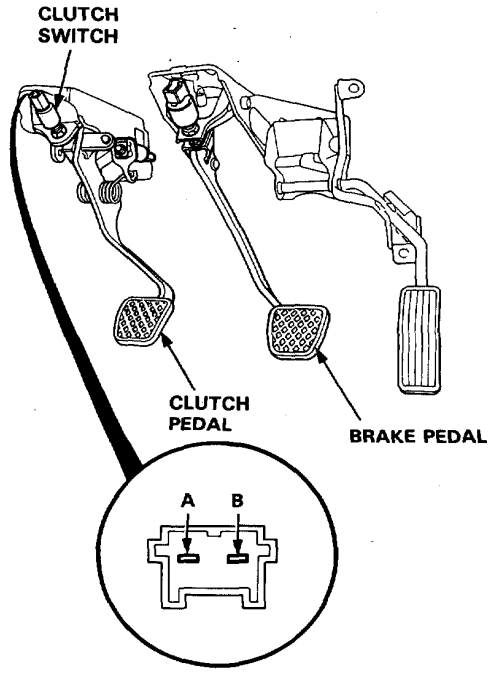
2. Check for continuity between the terminals according to the table.

Terminal / Brake pedal	A	B	C	D
RELEASED	○			○
PUSHED		○	○	

3. If necessary, replace the switch or adjust pedal height (See section 12).

Clutch Switch Test

1. Disconnect the 2-P connector from the switch.



2. Check for continuity between the terminals according to the table.

Terminal / Clutch pedal	A	B
RELEASED	○	○
PUSHED		

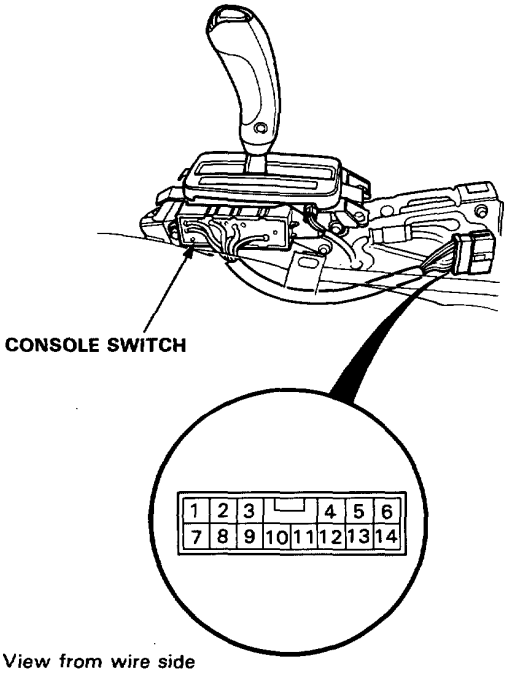
3. If necessary, replace the switch or adjust pedal height (See section 12).

cardiagn.com

Shift Position Console Switch Test

1. Remove the front console, then disconnect the 14-P connector from the console switch.
2. Check for continuity between the terminals in each switch position according to the table.

   NOTE:
   - Move the lever back and forth without touching the push button at each position, and check for continuity within the range of free play of the shift lever.
   - If there is no continuity within the range of free play, adjust the position of the console switch sole switch (See page 23-168).



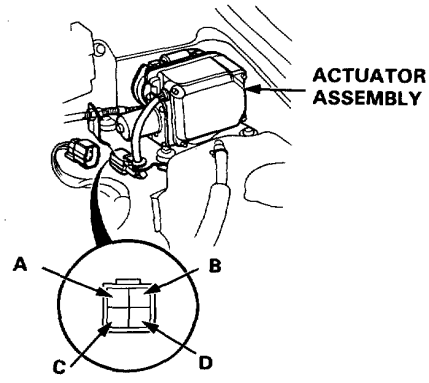
View from wire side

Shift Position Switch (for cruise control)

Position \ Terminal	5	9
1		
2	○——	——○
D_3	○——	——○
D_4	○——	——○
N		
R		
P		

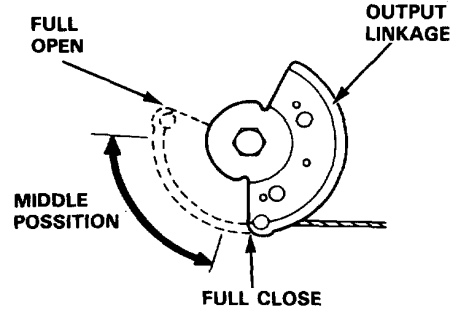
Actuator Assembly Test

1. Disconnect 4-P connector from the actuator.
2. Check that the output linkage moves smoothly.
3. Connect battery power to the D terminal and ground to the A terminal.
4. Check for a clicking sound from the magnetic clutch and that the output linkage is locked.
   You should be able to hear the motor.
5. If the output linkage is not locked, replace the actuator assembly.



6. Check the operation of the actuator motor in each output linkage position according to the table.
   You should be able to hear the motor.

Connect to battery power	Connect to ground	Output linkage position		
⊕	⊖	FULL CLOSE	MIDDLE POSITION	FULL OPEN
C Terminal	B Terminal	The motor operates	The motor operates	The motor stops
B Terminal	C Terminal	The motor stops	The motor operates	The motor operates



cardiagn.com

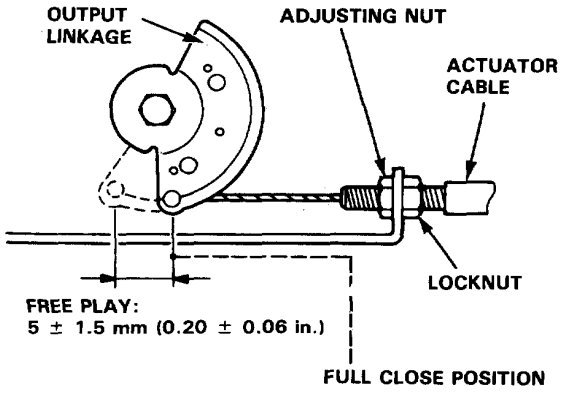
Cruise Control

Actuator Cable Adjustment

1. Check that the actuator cable operates smoothly with no binding or sticking.

2. Start the engine and warm it up to normal operating temperature (the cooling fan comes on twice).

3. Measure the amount of movement of the output linkage until the engine speed starts to increase. At first, the output linkage should be located at the fully closed position. Free play should be 5 ± 1.5 mm (0.20 ± 0.06 in.)



4. If the free play is not within specs, loosen the locknut and turn the adjusting nut as required.

   NOTE: If necessary, check the throttle control system (Section 11), then recheck the output linkage free play.

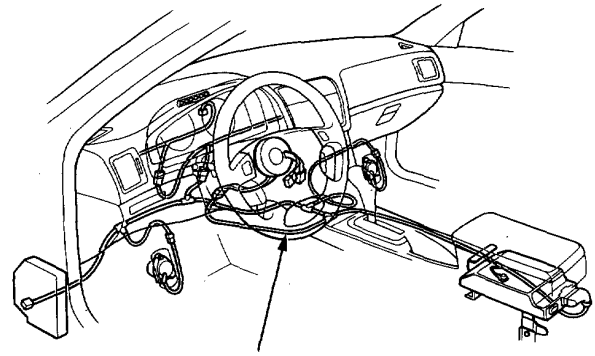
5. Retighten the locknut and recheck the free play.

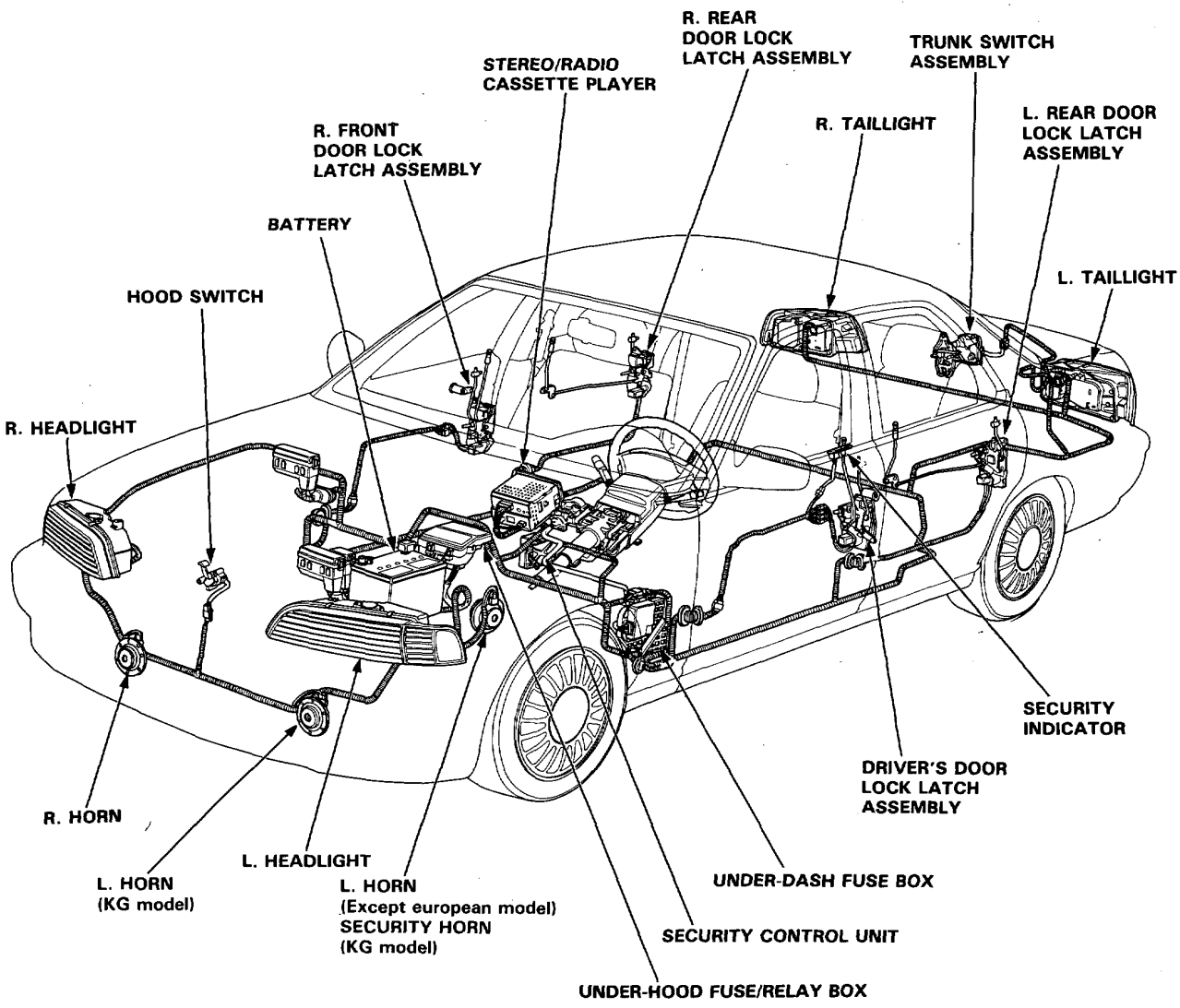
cardiagn.com

Wiring Location

CAUTION:
- All SRS electrical wiring harnesses are covered with yellow outer insulation.
- When disconnecting the SRS wire harness, install the short connector on the airbag then disconnect the wire harness (See page 23-412).
- Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.

NOTE: LHD type is shown. RHD type is similar.



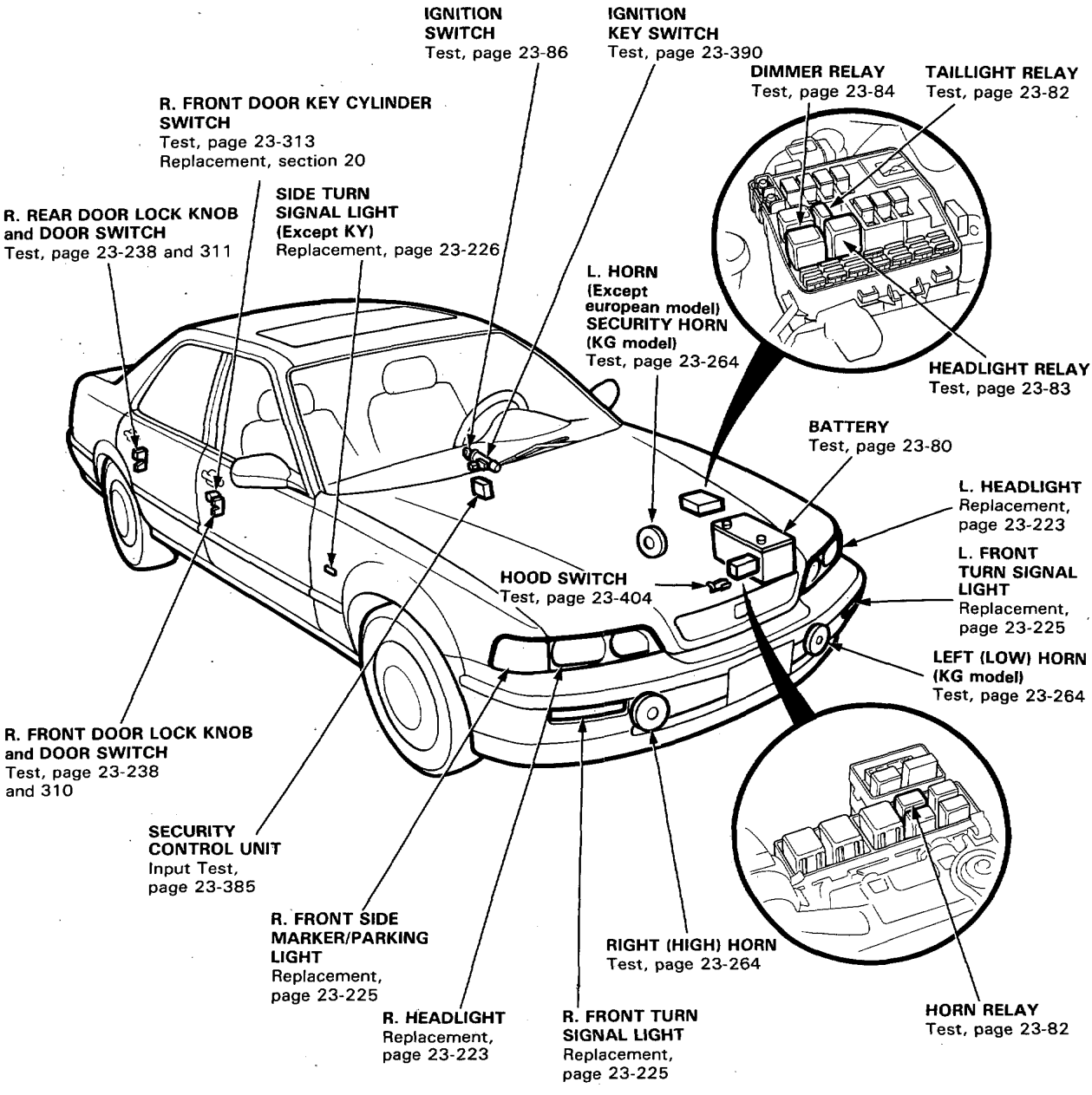


cardiagn.com

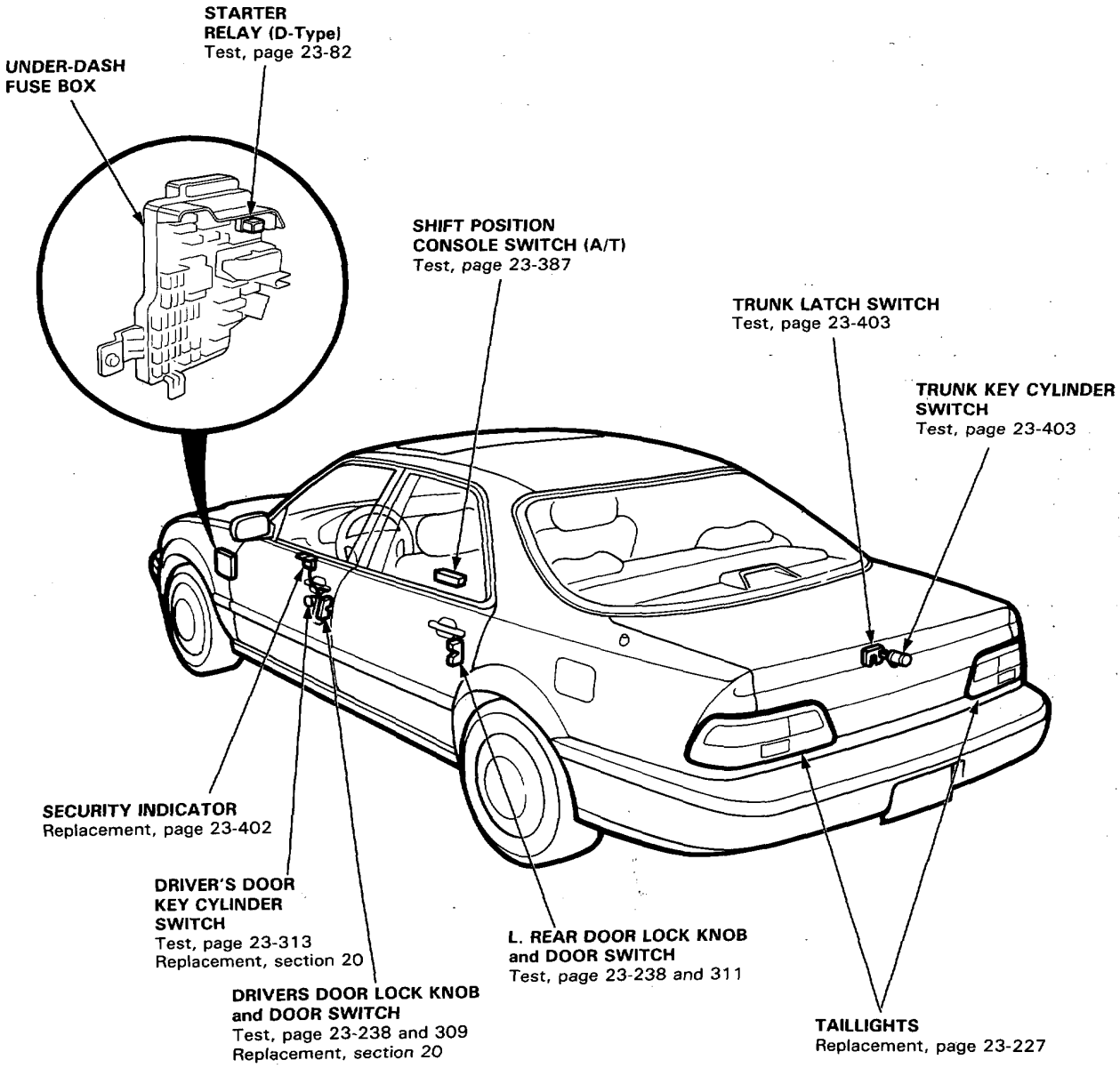
Security Alarm System

Component Location Index

NOTE:
- LHD type is shown. RHD type is similar.
- Security indicator of RHD, located on the dashboard lower panel.



cardiagn.com



cardiagn.com

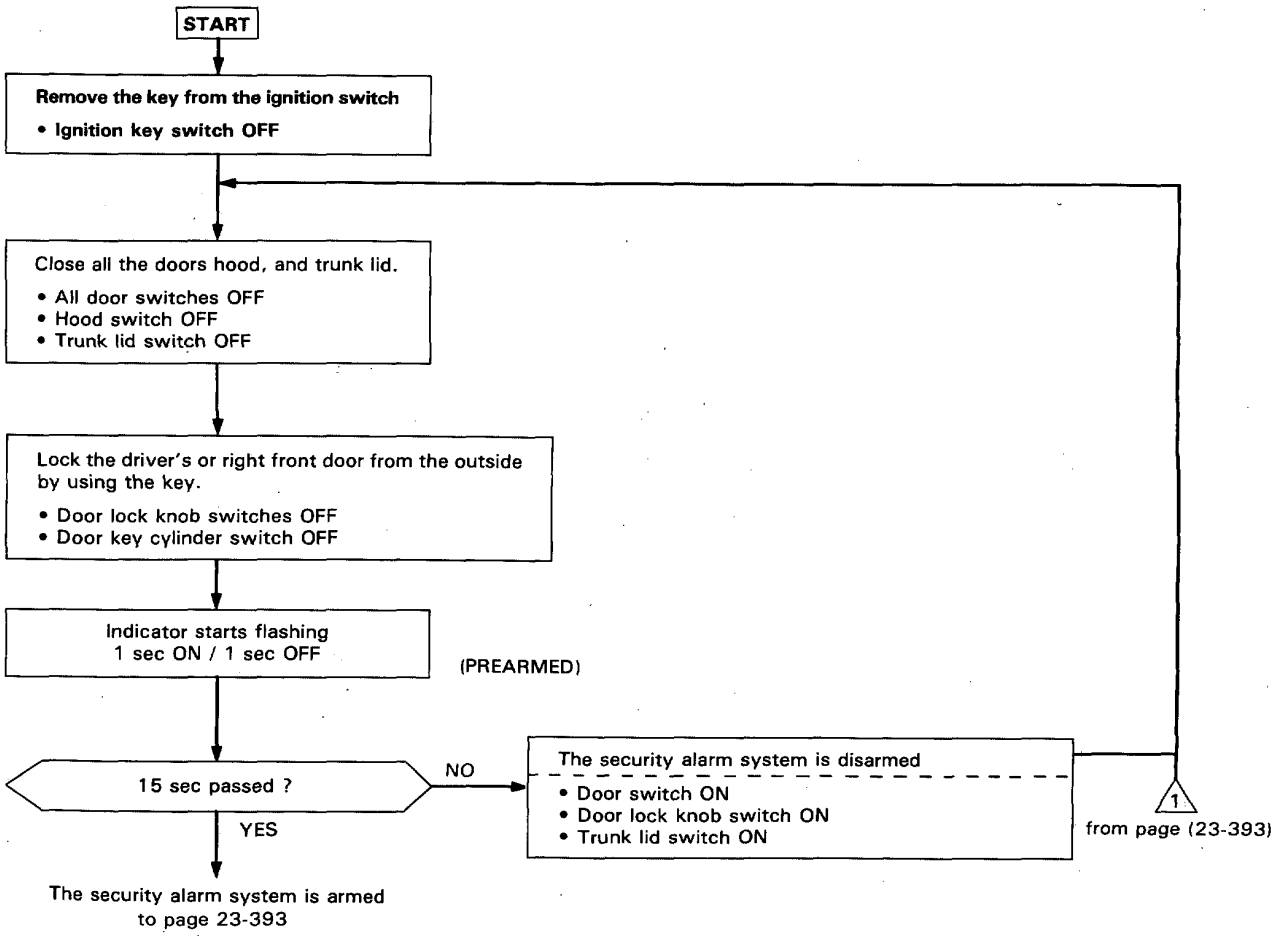
Security Alarm System

Description

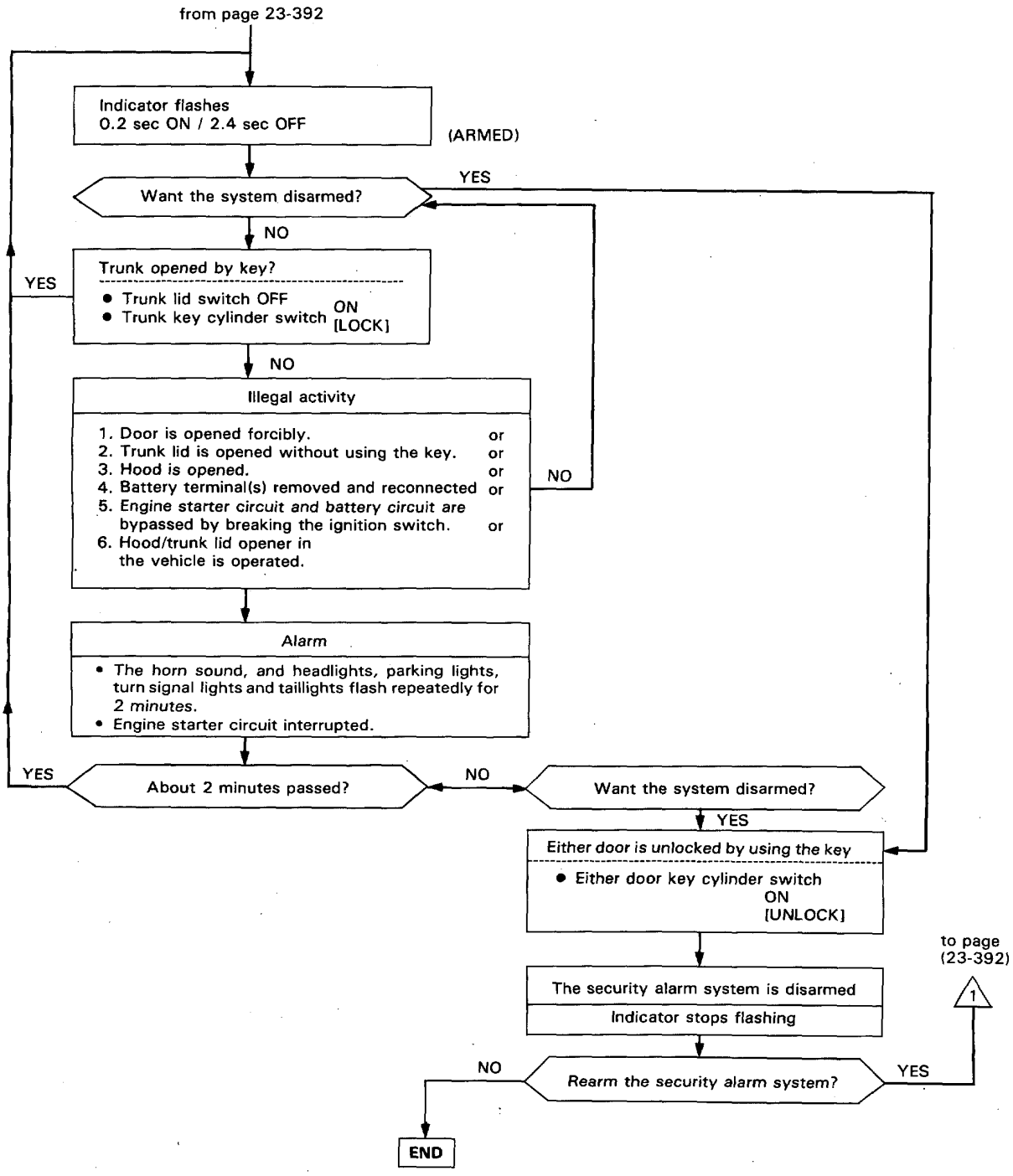
This system is activated automatically 15 seconds after everything has been closed and locked. The security alarm system indicator light located on the driver's side door trim panel (LHD) or dashboard lower panel (RHD) will flash after the doors are properly locked.
If any of the following conditions occur, the horns will sound, the headlights will flash, parking lights and taillights will flash (KQ, KT and KY models) or the horn will sound, turn signal lights will flash (KG model) for about 2 minutes, or until the system is disarmed by unlocking either door from the outside keylock with the key.

① Door is opened forcibly.
② Trunk lid is opened without using the key.
③ Hood is opened.
④ Battery terminal(s) are removed and reconnected.
⑤ Engine starter circuit and battery circuit are bypassed by breaking the ignition switch.
⑥ Hood/trunk lid opener in the vehicle is operated.

Flowchart of the security alarm system operation:



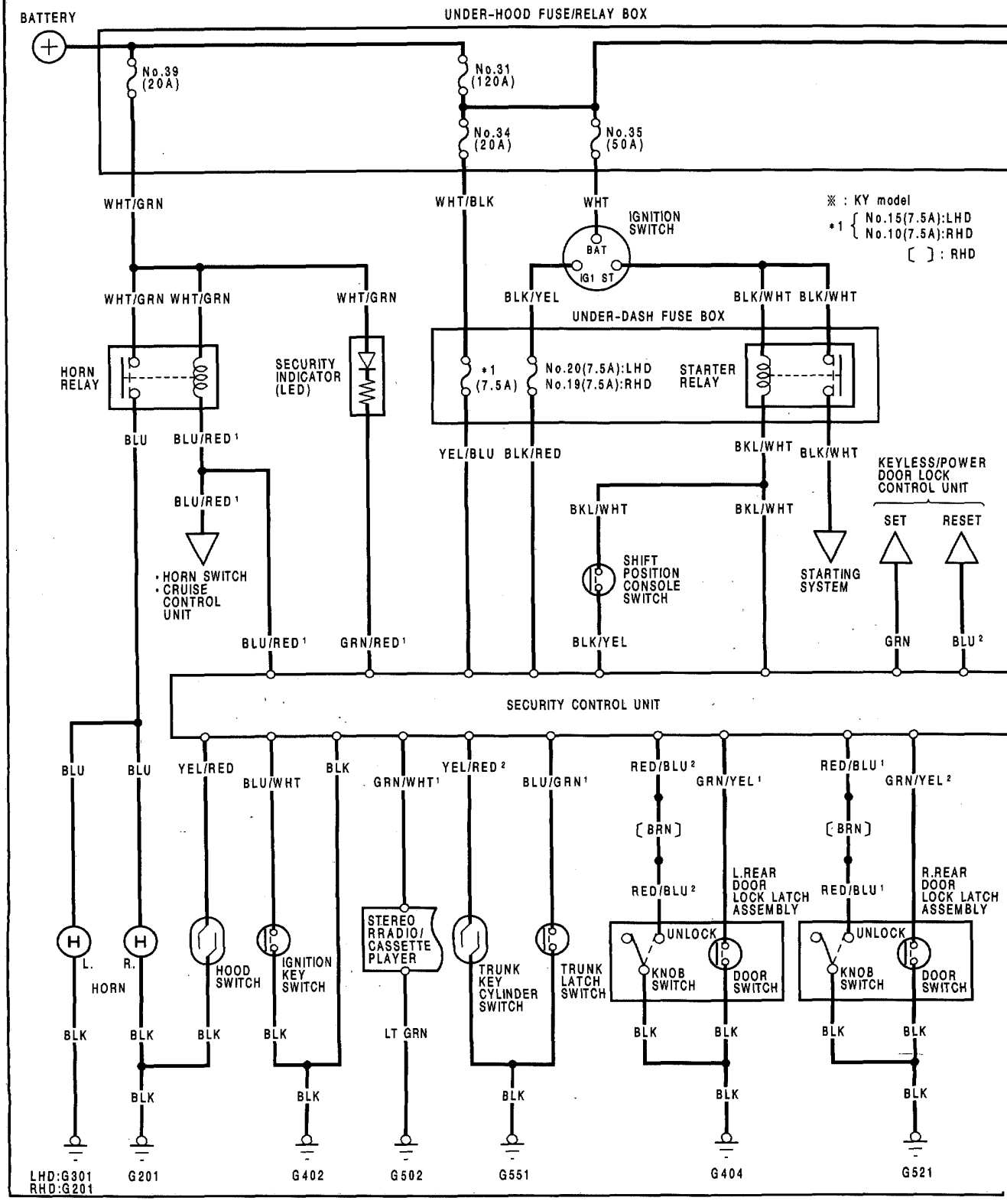
cardiagn.com



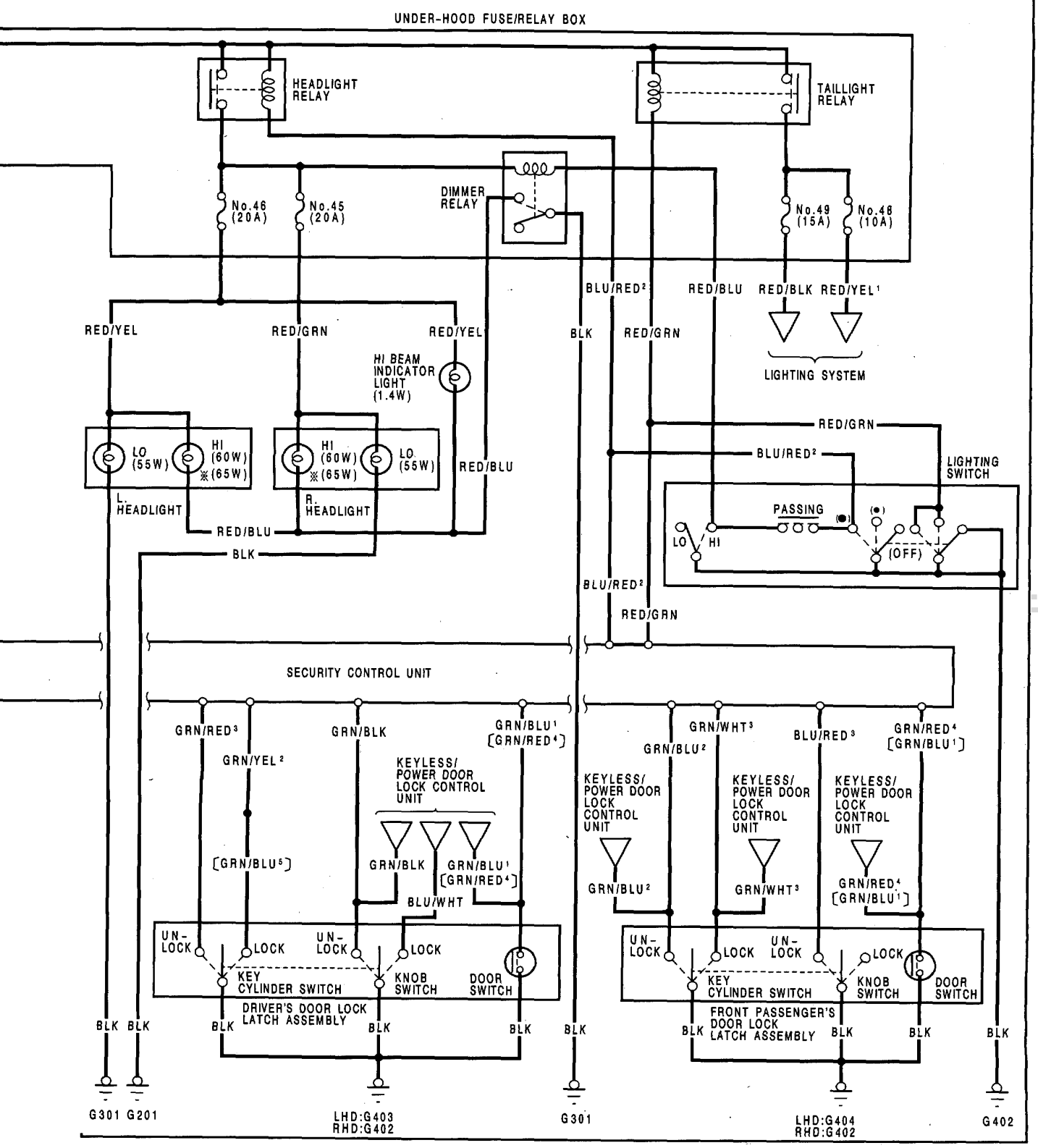
cardiagn.com

Security Alarm System

Circuit Diagram (KQ. KT and KY models)



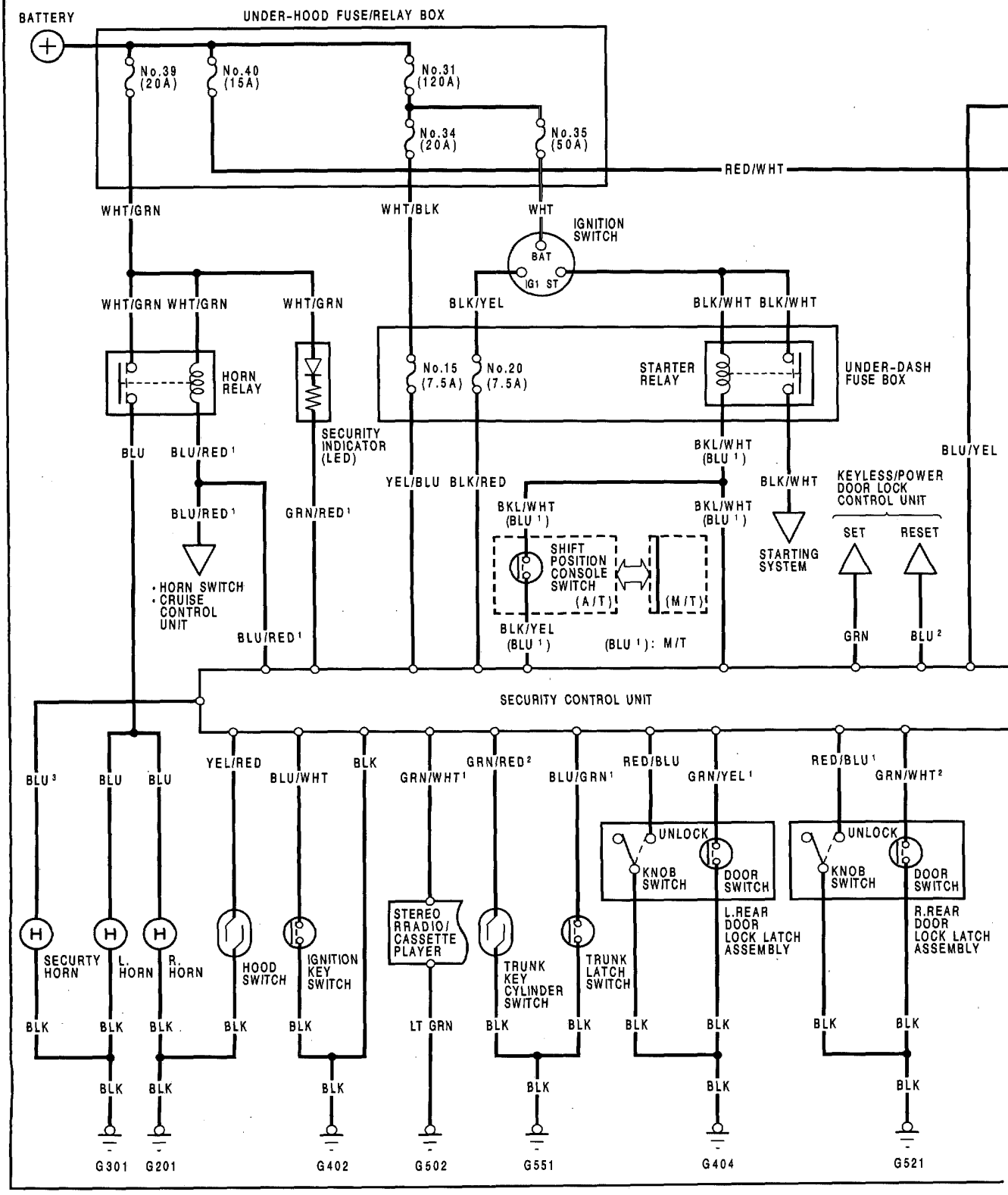
cardiagn.com



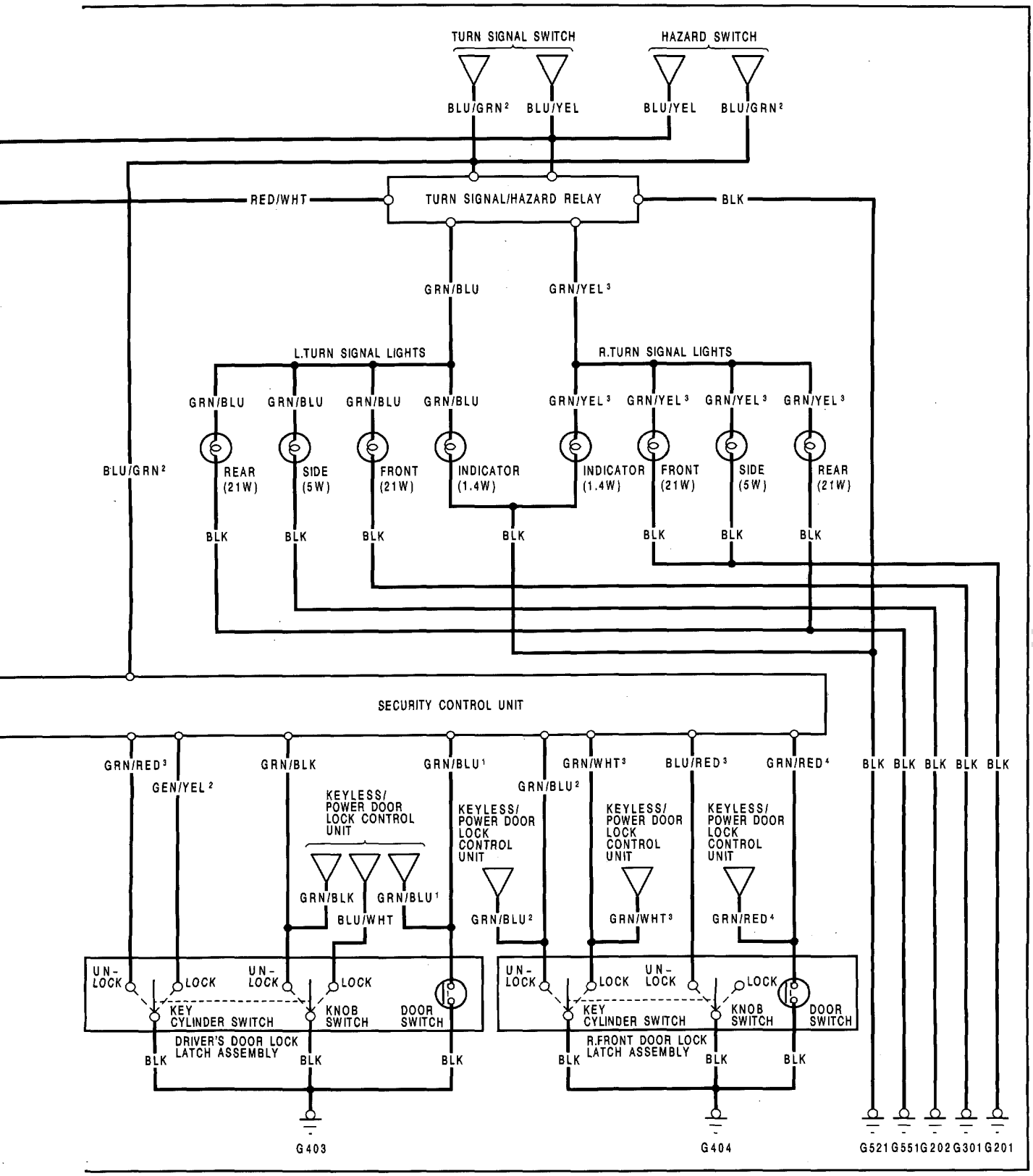
cardiagn.com

Security Alarm System

Circuit Diagram (KG model)



cardiagn.com



cardiagn.com

Security Alarm System

Troubleshooting

NOTE: The numbers in the table show the troubleshooting sequence.

Symptom \ Item to be inspected		in the under-hood fuse/ relay box: Blown *1 (7.5A) fuse	in the under-hood fuse/ relay box: Blown *2 (7.5A) fuse	in the under-dash fuse box: Blown No. 39 (20A) fuse	Faulty indicator light (LED)	Horn circuit	Starting system	Turn signal/hazard system	A/T: Shift position console switch M/T: Clutch interlock switch	Lighting system	Door key switch	Ignition key switch	Trunk key switch	Trunk latch switch	Hood switch	Door switch	Control unit input	Poor ground	Open circuit in wires, loose or disconnected terminals
Security alarm can't be set (and indicator light does not flash).		1	2	3	4							5						G301 G302	YEL/BLU, YEL, WHT/GRN, GRN/RED or BLU/WHT
Starting system does not operate.							1		2								3	G301 G302	BLK/WHT, BLK/GRN (BLU) or BLK/YEL (BLU): M/T
Security alarm can be set, but alarm does not operate when the trunk, hood or either door is unlocked without the key.	Horn alarm			1		2											3		WHT/GRN, BLU, or BLU/RED
	*3 Headlight alarm									1							2		BLU/RED[2] or RED/GRN
	*4 Hazard light alarm							1									2		RED/WHT, BLU/YEL, or BLU/GRN[2]
	Both alarms																1		
Alarm not cancelled when the door is opened with the key.											1						2	G301 G302 G304	GRN/RED[2], GRN/BLU[2], GRN/BLK or BLU/RED[3]
Alarm not cancelled when the key is inserted in the ignition switch.			1									2					3		BLK/RED or BLU/WHT
Alarm not cancelled when the trunk lid is opened with the key.													1	2			3	G501	GRN/RED[1] or BLU/GRN
Alarm does not operate when the hood is opened.															1		2	G301	YEL/RED
Alarm does not operate when the door is opened.																1	2	G301 G302 G304 G251	GRN/BLU, GRN/RED, GRN/YEL or GRN/WHT

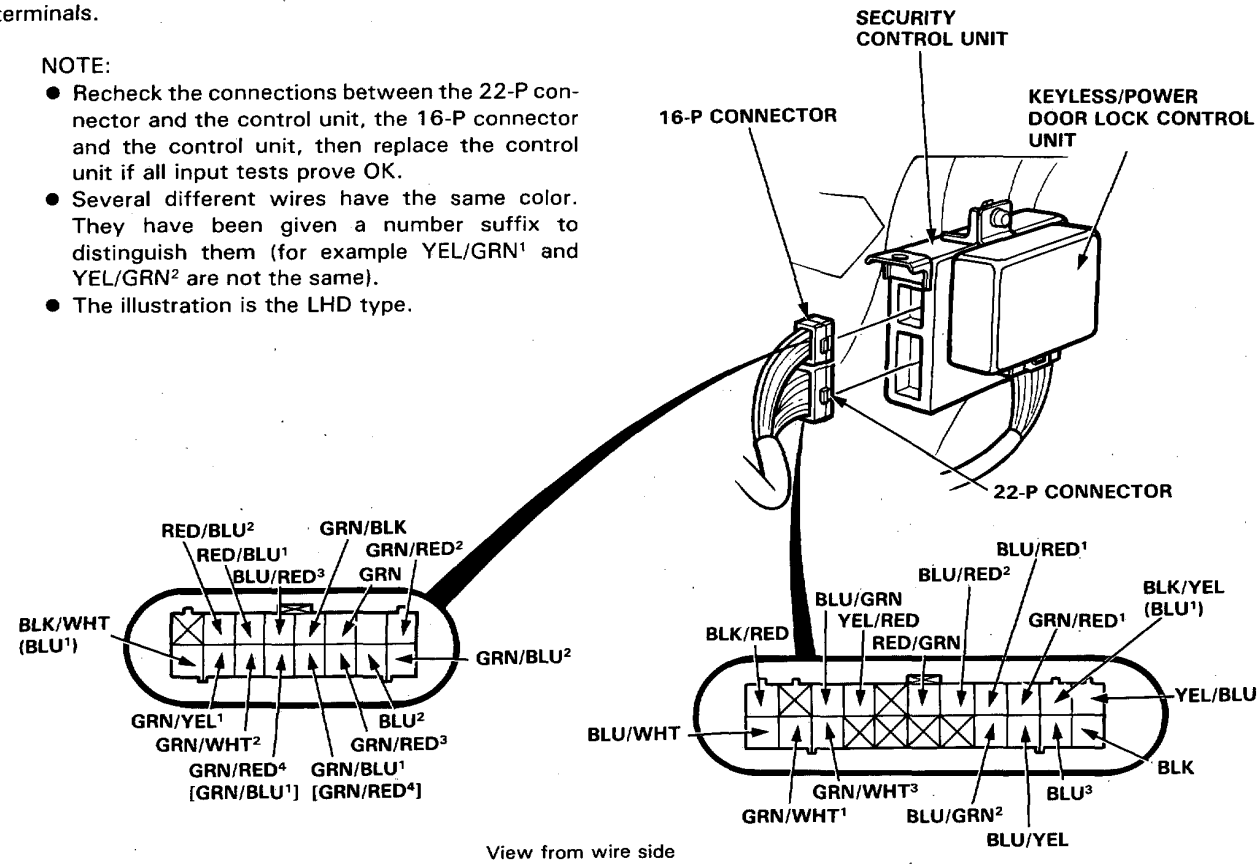
*1 { No. 15 (7.5A): LHD / No. 10 (7.5A): RHD
*2 { No. 20 (7.5A): LHD / No. 19 (7.5A): RHD
*3: KQ. KT and KY models
*4: KG model

cardiagn.com

Control Unit Input Test

Remove the dashboard lower panel.
Disconnect the 22-P and 16-P connectors from the control unit.
Make the following input tests at the connector terminals.

NOTE:
- Recheck the connections between the 22-P connector and the control unit, the 16-P connector and the control unit, then replace the control unit if all input tests prove OK.
- Several different wires have the same color. They have been given a number suffix to distinguish them (for example YEL/GRN[1] and YEL/GRN[2] are not the same).
- The illustration is the LHD type.



View from wire side

No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
1	BLK	Under all conditions.	Check for continuity to ground: should be continuity.	• Poor ground (G402). • An open in the wire.
2	YEL/BLU	Under all conditions.	Check for voltage to ground: should be battery voltage.	• Blown No. *1 (7.5A) fuse. • An open in the wire.
3	GRN/RED[1]	Under all conditions.	Connect to ground: security indicator should come on.	• Blown No. 39 (20A) fuse. • Faulty security indicator. • An open in the wire.
4	BLK/RED	Ignition switch ON.	Check for voltage to ground: should be battery voltage.	• Blown No. *2 (7.5A) fuse. • An open in the wire.
5	BLU/WHT (BLU[1])	Ignition switch at START.	Check for voltage to ground: should be battery voltage.	• Faulty starter relay. • An open in the wire.

(BLU[1]): M/T
[ ]: RHD

(cont'd)

cardiagn.com

Security Alarm System

Control/Unit Input Test (cont'd)

No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
6	BLK/YEL (BLU[1])	Ignition switch at START and; (A/T): shift position in "P".	Connect to ground: Starter should crank the engine.	• Blown No. 39 (50A) fuse. • Faulty starting system. • Faulty starter relay. • Faulty shift position switch (A/T). • An open in the wire.
7	BLU/RED[1]	Under all conditions.	Connect to ground: Left and right horns should sound.	• Blown No. 45 (20A) fuse. • Faulty horn relay. • Either horn faulty. • Poor ground (g152, G153). • An open in the wire.
8	*1 BLU[3]	Connect the battery voltage to the BLU[3] terminal.	Security horn should sound as the battery is connected.	• Faulty security horn. • Poor ground (G301). • An open in the wire.
9	*2 BLU/RED[2]	Under all conditions.	Connect to ground: headlights should come on.	• Faulty lighting relay. • Faulty lighting system. • An open in the wire.
10	*2 RED/GRN	Under all conditions.	Connect to ground: Taillights should come on.	• Faulty taillight relay. • Faulty taillight system. • An open in the wire.
11	*1 BLU/YEL	Connect the battery voltage to the BLU/YEL terminal.	R. Turn signal lights should come on as the battery is connected.	• Faulty turn signal/hazard relay system. • Poor ground (G201, G202, G301, G521, or G551). • An open in the wire.
12	*1 BLU/GRN[2]	Connect the battery voltage to the BLU/GRN[2] terminal.	L. Turn signal lights should come on as the battery is connected.	

Reconnect the 22-P and 16-P connectors to the control unit.

No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
13	YEL/RED	Hood open.	Check for voltage to ground: should be 1 V or less.	• Faulty hood switch. Misadjusted hood switch. • Poor ground (G201). • An open in the wire.
		Hood closed.	Check for voltage to ground: should be 5 V or more.	
14	BLU/WHT	Ignition key is inserted into the ignition switch.	Check for voltage to ground: should be 1 V or less.	• Faulty ignition key switch. • Poor ground (G402). • An open in the wire.
		Ignition key is removed from the ignition switch.	Check for voltage to ground: should be 5 V or more.	
15	GRN/WHT[1]	Under all conditions.	Check for voltage to ground: should be 1 V or less.	• Poor ground (G502). • An open in the wire.
16	GRN/RED[2]	Trunk key in UNLOCK.	Check for voltage to ground: should be 1 V or less.	• Faulty trunk key. • Poor ground (G551). • An open in the wire.
17	BLU/GRN[1]	Trunk lid open.	Check for voltage to ground: should be 1 V or less.	• Faulty trunk latch switch. Misadjusted trunk latch switch. • Poor ground (G551). • An open in the wire.
		Trunk lid closed.	Check for voltage to ground: should be 5 V or more.	
18	GRN/BLU[1] [GRN/RED[4]]	Driver's door opened.	Check for voltage to ground: when the door is opened, there should be 1 V or less, and when the door is closed, there should be 5 V or more.	• Faulty driver's door or right front door switches. • Poor ground (LHD: G403, G404 or RHD: G402). • An open in the wire.
		Driver's door closed.		
19	GRN/RED[4] [GRN/BLU[1]]	R. Front door opened.		
		R. front door closed.		

cardiagn.com

No.	Wire	Test condition	Test: desired result	Possible cause (if result is not obtained)
20	GRN/YEL[1]	L. Rear door opened.	Check for voltage to ground: when the door is opened, there should be 1 V or less, and when the door is closed, there should be 5 V or more.	• Faulty left rear door or right rear door switches. • Poor ground (G404, G521). • An open in the wire.
		L. Rear door closed.		
21	GRN/WHT[2]	R. Rear door opened.		
		R. Rear door closed.		
22	GRN/RED[3]	Driver's door key in UNLOCK.	Check for voltage to ground: should be 1 V or less.	• Faulty driver's door or right front door key switches. • Poor ground (LHD: G403, G404 or RHD: G402). • An open in the wire.
23	GRN/BLU[2]	R. Front door key in UNLOCK.		
24	GRN/YEL[2]	Driver's door key in LOCK.	Check for voltage to ground: should be 1 V or less, as the door keylock is turned in LOCK.	• Faulty driver'd door or right front door key switches. • Poor ground (LHD: G403, G404 or RHD: G402). • An open in the wire.
25	GRN/WHT[3]	R. front door key in LOCK.		
26	GRN/BLK	Driver's door lock knob in UNLOCK	Check for voltage to ground: should be 1 V or less.	• Faulty driver's door lock knob switch (built in the actuator). • Poor ground (LHD: G403 or RHD: G402). • An open in the wire.
27	BLU/RED[3]	R. Front door lock knob in UNLOCK.	Check for voltage to ground: should be 1 V or less.	• Faulty right front door lock knob switch (built in the actuator). • Poor ground (G304). • An open in the wire.
28	RED/BLU	L. Rear door lock knob in UNLOCK.	Check for voltage to ground: should be 1 V or less.	• Faulty right rear door lock knob switch (built in the actuator). • Poor ground G404). • An open in the wire.
29	RED/BLU[1]	R. Rear door lock knob in UNLOCK.	Check for voltage to ground: should be 1 V or less.	• Faulty right rear door lock knob switch (built in the actuator). • Poor ground (G521). • An open in the wire.
30	GRN • BLU	Remove the ignition key. Close the all door, hood and trunk lid. All door lock knob in lock.	Connect the GRN terminal to ground: security indicator starts flashing. While the security indicator is flashing, connect the BLU terminal to ground: security indicator should goes off. *3	• Faulty keyless/power door lock control unit (See page 23-308). • An open in the wire.

*1: KG model
*2: KQ, KT and KY models
*3: When the security indicator does not operate, substitute a known-good security control unit and recheck. If the security indicator operate, replace the original security control unit.

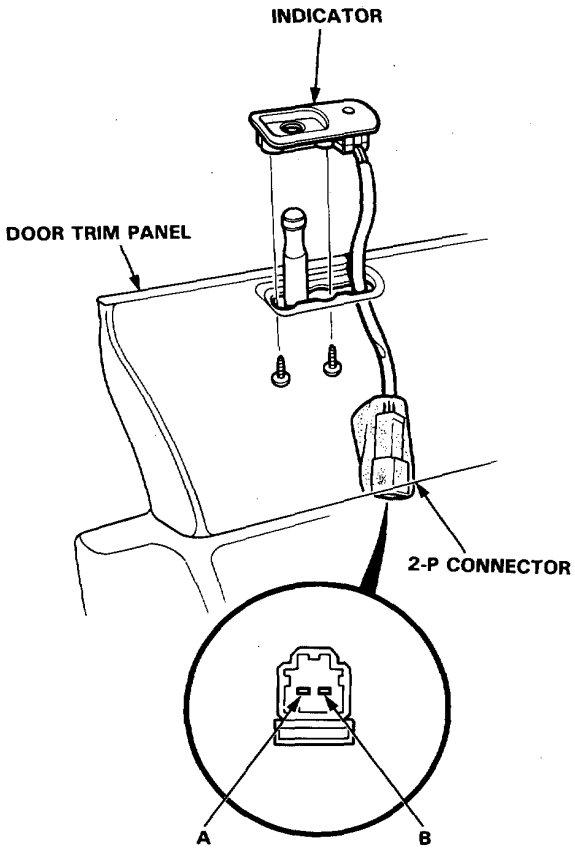
cardiagn.com

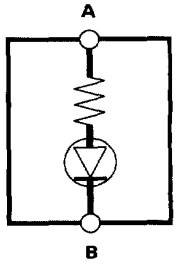
Security Alarm System

Indicator Replacement

LHD:

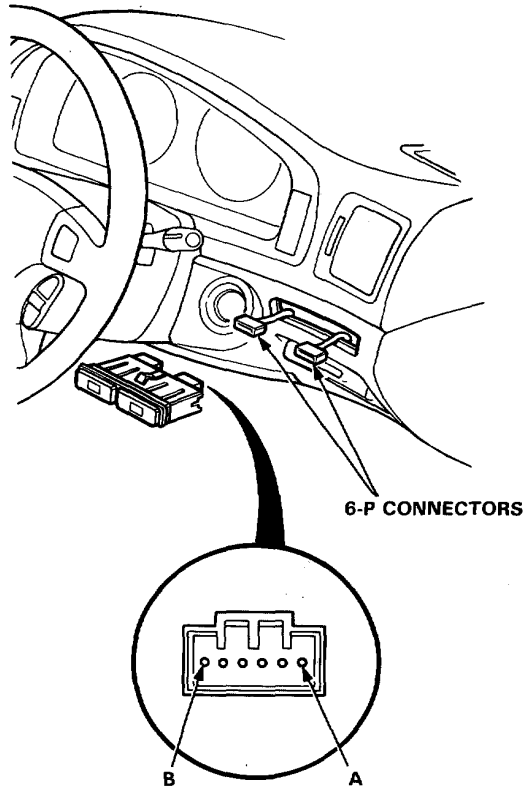
1. Remove the door trim panel (See section 20).
2. Remove the 2 screws from the indicator.
3. Remove the indicator from the door trim panel.

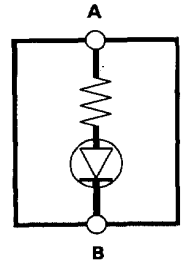




RHD:

1. Pry off the cruise main switch/security indicator from the dash board lower panel. And disconnect the 6-P connectors.



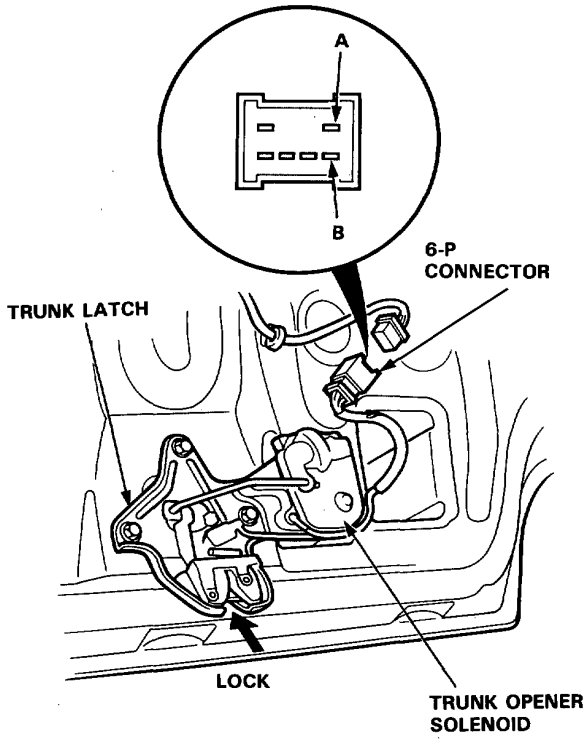


cardiagn.com

Trunk Latch Switch Test

1. Open the trunk lid and remove the trunk rear trim panel.
2. Disconnect the 6-P connector from the trunk latch.
3. There should be continuity between the A and B terminals with the trunk lid opened.

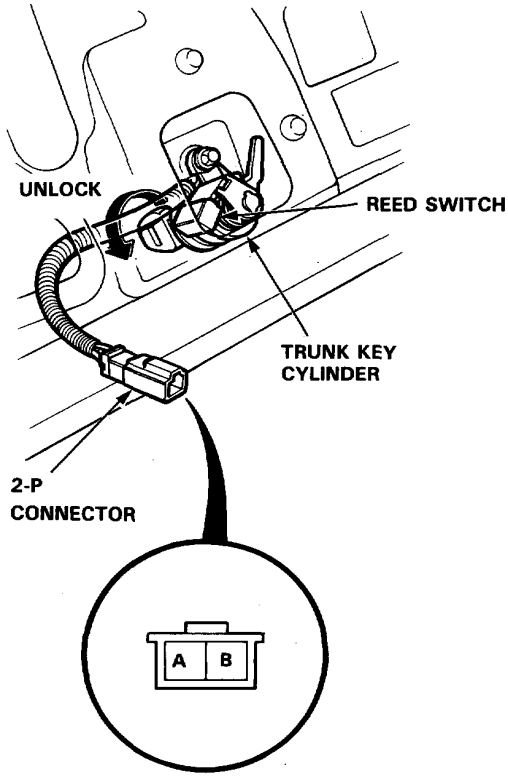
View from terminal side.



4. There should be no continuity with the trunk latch in LOCK (trunk lid closed) position.

Trunk Key Cylinder Switch Test

1. Open the trunk lid and remove the trunk rear trim panel.
2. Disconnect the 2-P connector from the trunk key cylinder switch.
3. There should be continuity between the A and B terminals when the trunk keylock is turned to UNLOCK with the key.
   There should be no continuity when the keylock is released.



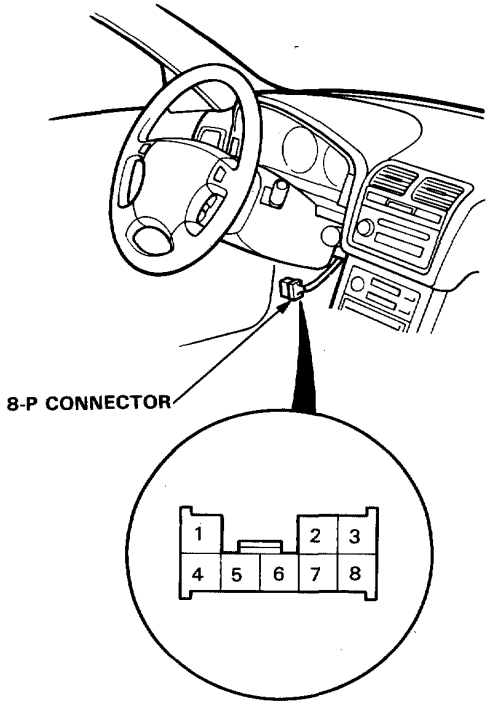
View from wire side.

cardiagn.com

Security Alarm System

Ignition Key Switch Test

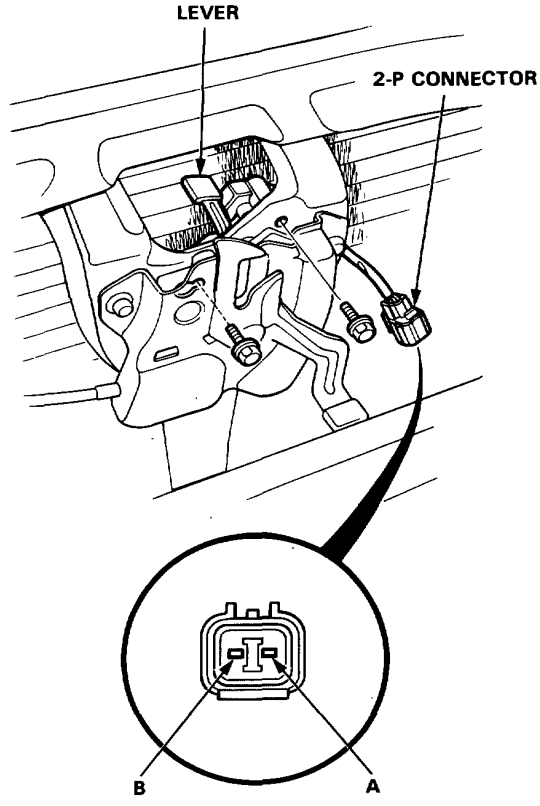
1. Remove the dashboard lower panel.
2. Disconnect the 8-P connector from the main wire harness.
3. There should be continuity between the No. 2 and No. 7 terminal when the ignition key is inserted into the ignition key cylinder.
   There should be no continuity when the ignition key is removed.



View from wire side

Hood Switch Test/Replacement

1. Open the hood.
2. Disconnect the 2-P connector from the hood switch.
3. There should be continuity between the A and B terminals with the lever released (hood opened).
   There should be no continuity with the lever pushed down (hood closed).



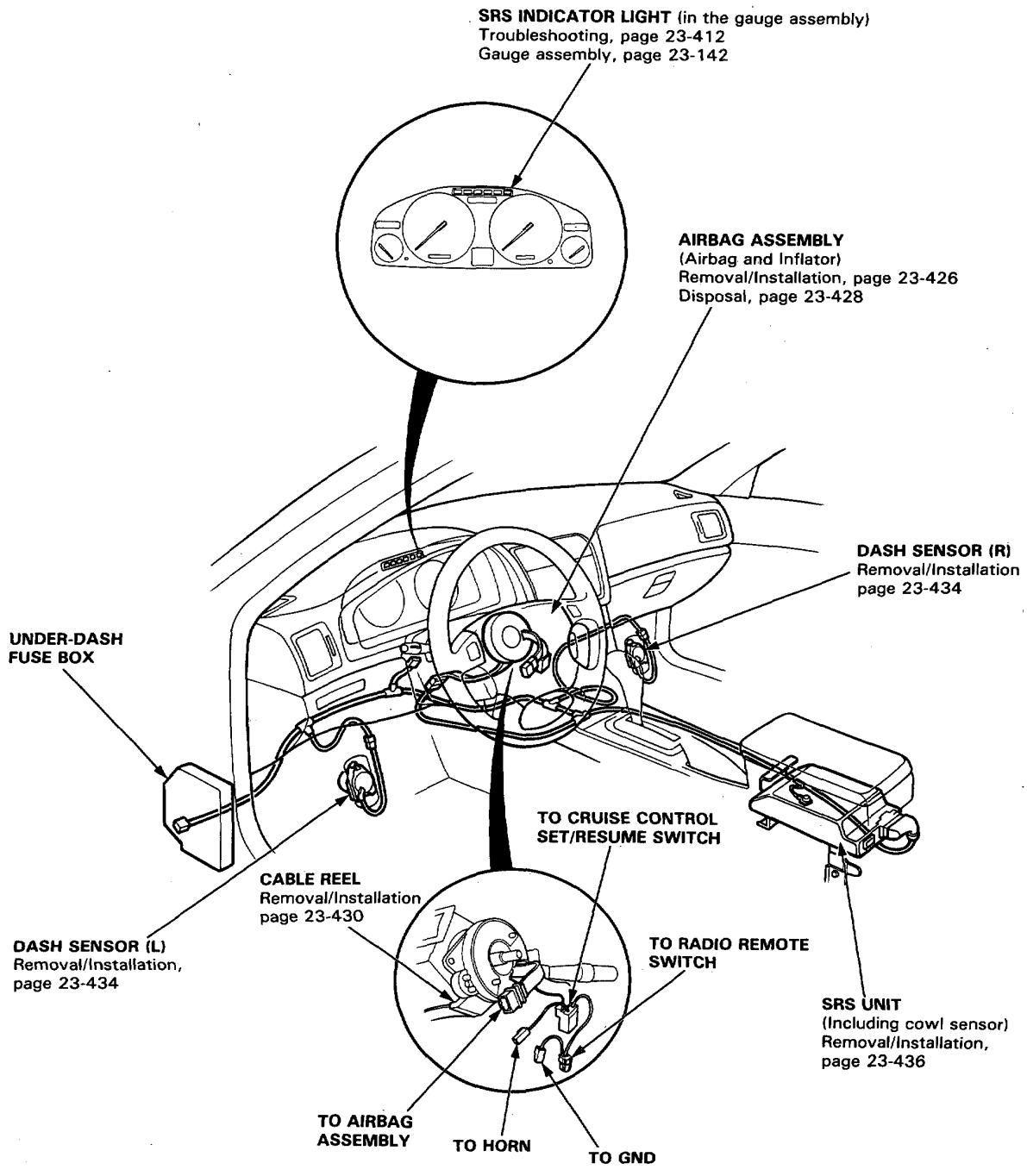
cardiagn.com

Supplemental Restraint System (SRS)

Component Location Index 23-406
Description 23-408
Circuit Diagram 23-409
Wiring Locations 23-410
Troubleshooting 23-412
Airbag Assembly
  Removal 23-426
  Installation 23-427
  Disposal 23-428
Cable Reel
  Removal 23-430
  Installation 23-432
Dash Sensor
  Removal 23-434
  Installation 23-435
SRS Unit
  Removal 23-436
  Installation 23-437

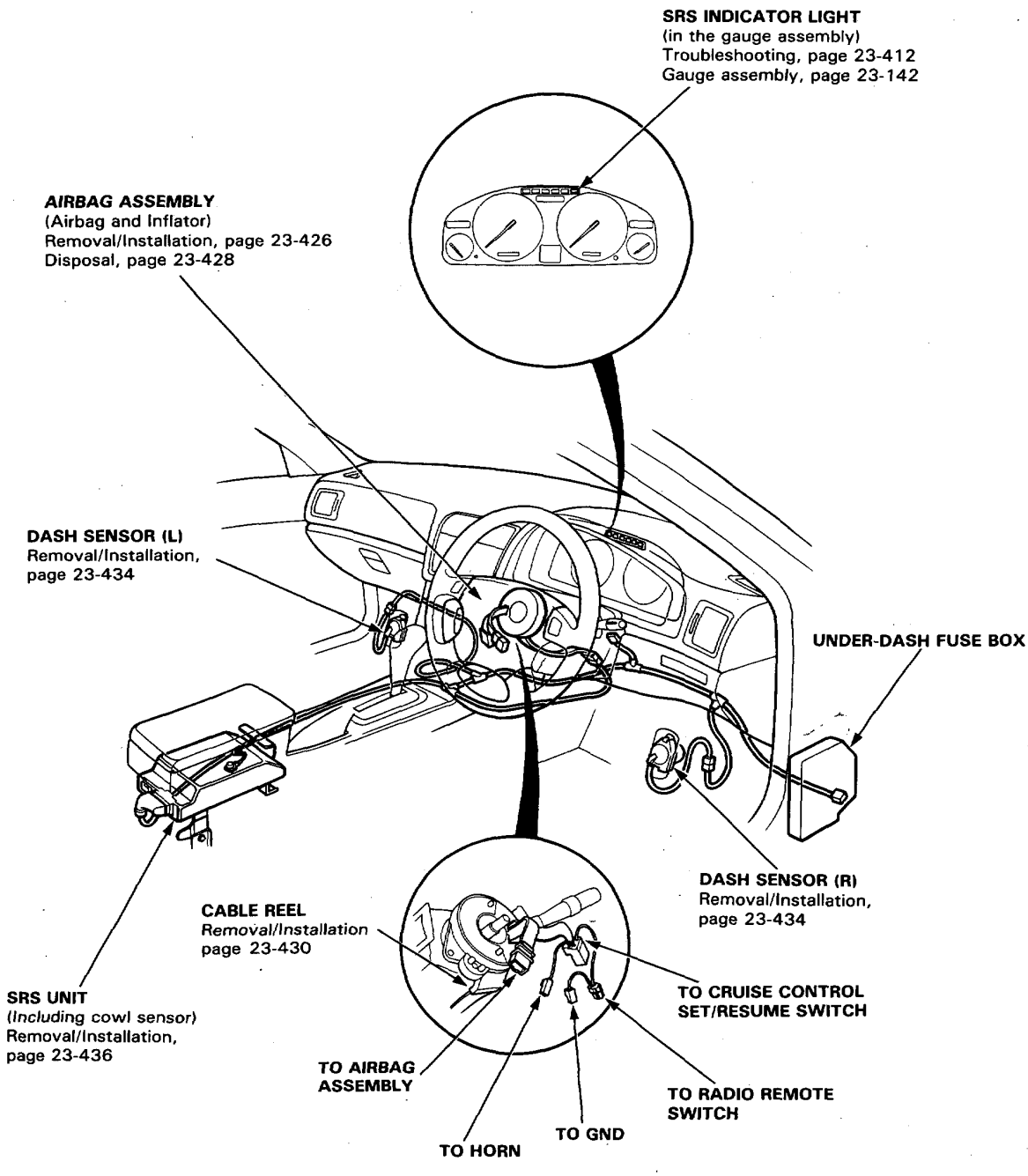
cardiagn.com

Component Location Index (LHD)



cardiagn.com

Component Location Index (RHD)



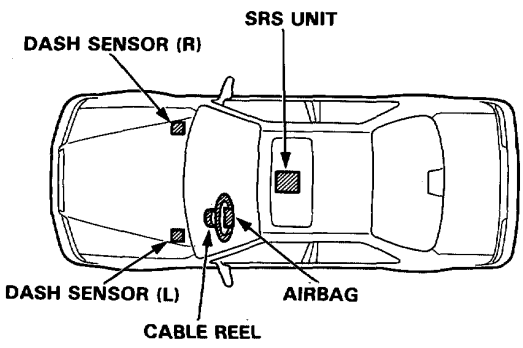
cardiagn.com

Supplemental Restraint System (SRS)

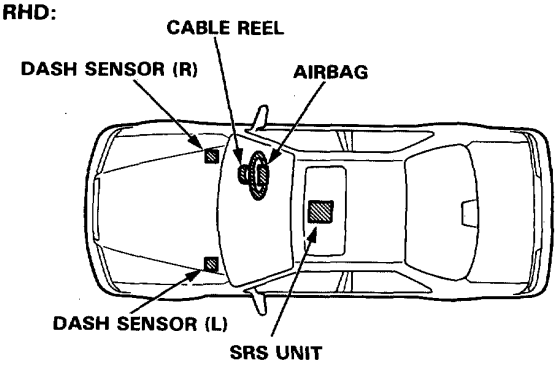
Description

The SRS is a safety device which, when used in conjunction with the seat belt, is designed to protect the driver by operating only when the car receives a frontal impact exceeding a certain set limit.
The system is composed of left and right dash sensors, the SRS unit (includes cowl sensor), the cable reel and airbag assembly.

LHD:



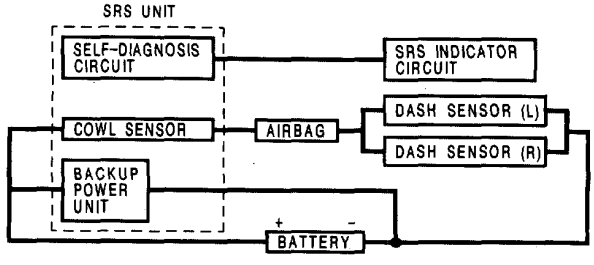
RHD:



Operation
As shown in the diagram below, the left and right dash sensors are connected in parallel. The parallel sets of sensors are connected in series by the airbag inflator circuit and the car battery. In addition, a backup power unit is connected in parallel with the car battery. The back-up power unit and the cowl sensor are located inside the SRS unit.

The SRS operational sequence is as follows:
(1) Cowl sensor activates and one or both dash sensors activate.
(2) Electrical energy is supplied to the airbag inflator by the battery, or the back-up power unit if the battery voltage is too low.
(3) Airbag deployment.

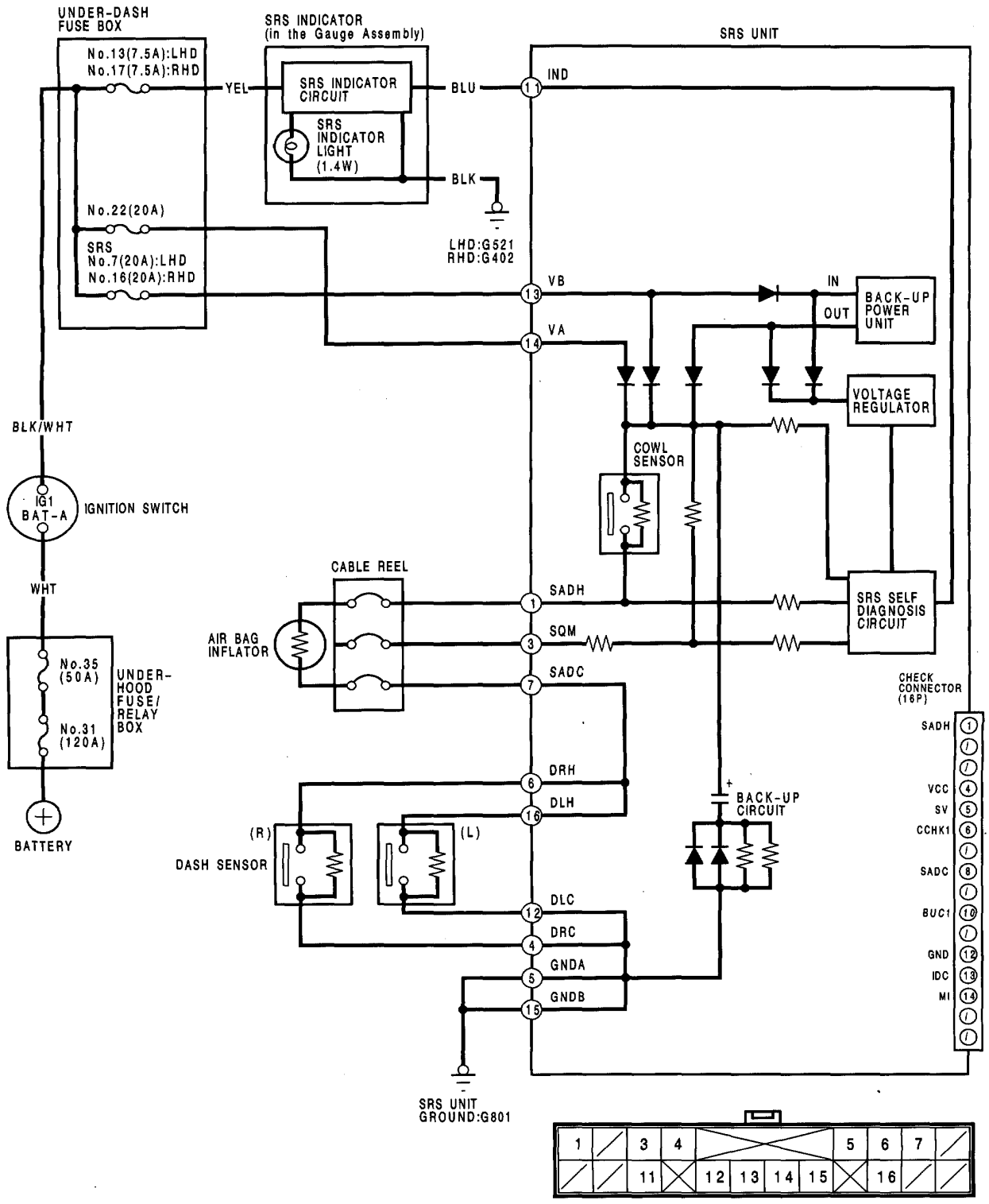
At least the cowl and one dash sensor must be activated simultaneously for at least 0.015 seconds in order for the airbag to be deployed.



Self-diagnosis system
A self-diagnosis circuit is built into the SRS unit; when the ignition switch is turned ON, the SRS indicator light comes on and goes out after about 6 seconds if the system is operating normally. If the light does not light, or does not go out after 6 seconds, or if it comes on while dirving, this indicates an abnormality in the system. It must be inspected and repaired as soon as possible.

cardiagn.com

Circuit Diagram



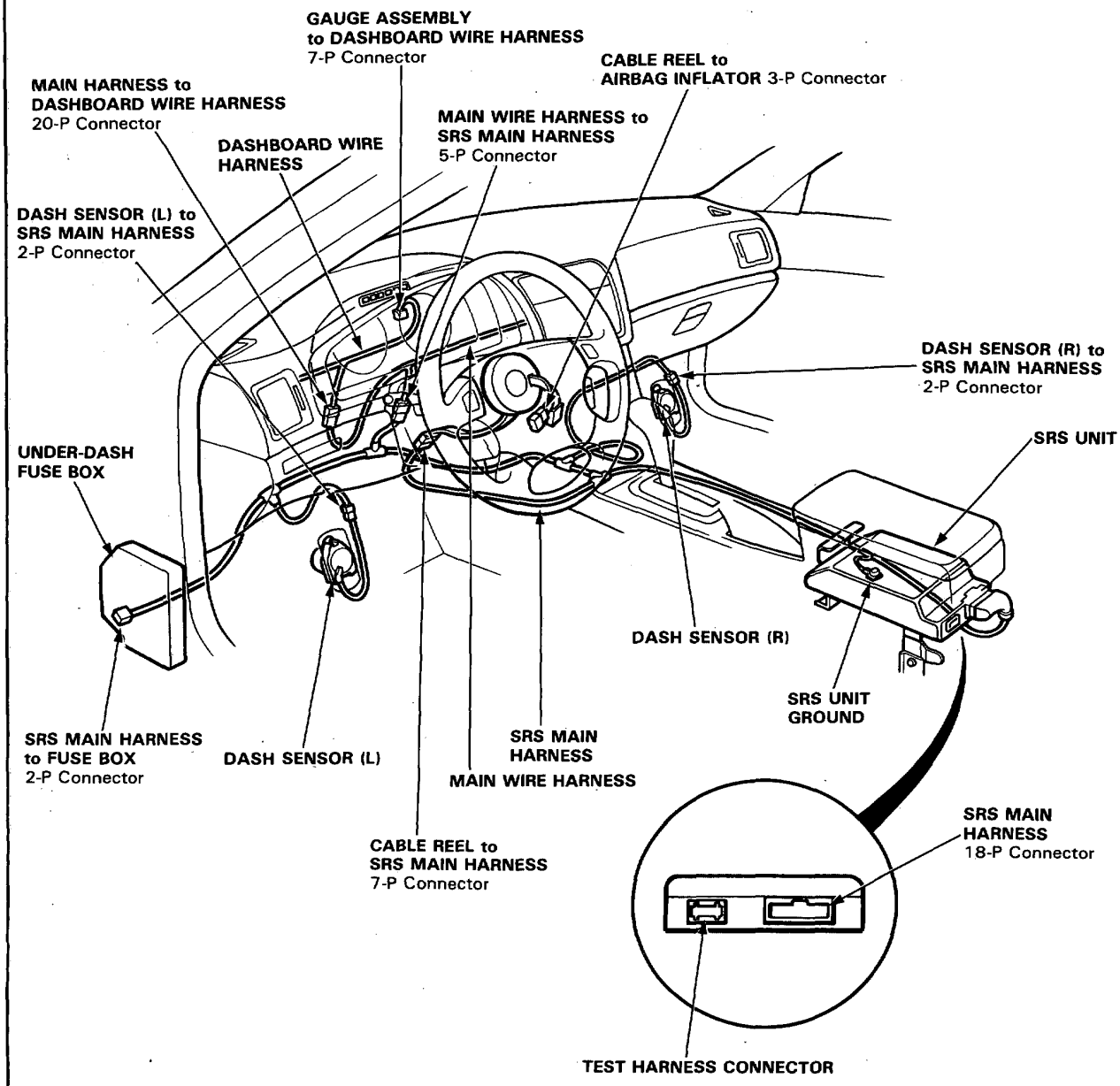
cardiagn.com

Supplemental Restraint System (SRS)

Wiring Locations (LHD)

CAUTION:

- **Make sure all SRS ground locations are clean and grounds are securely attached.**
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**

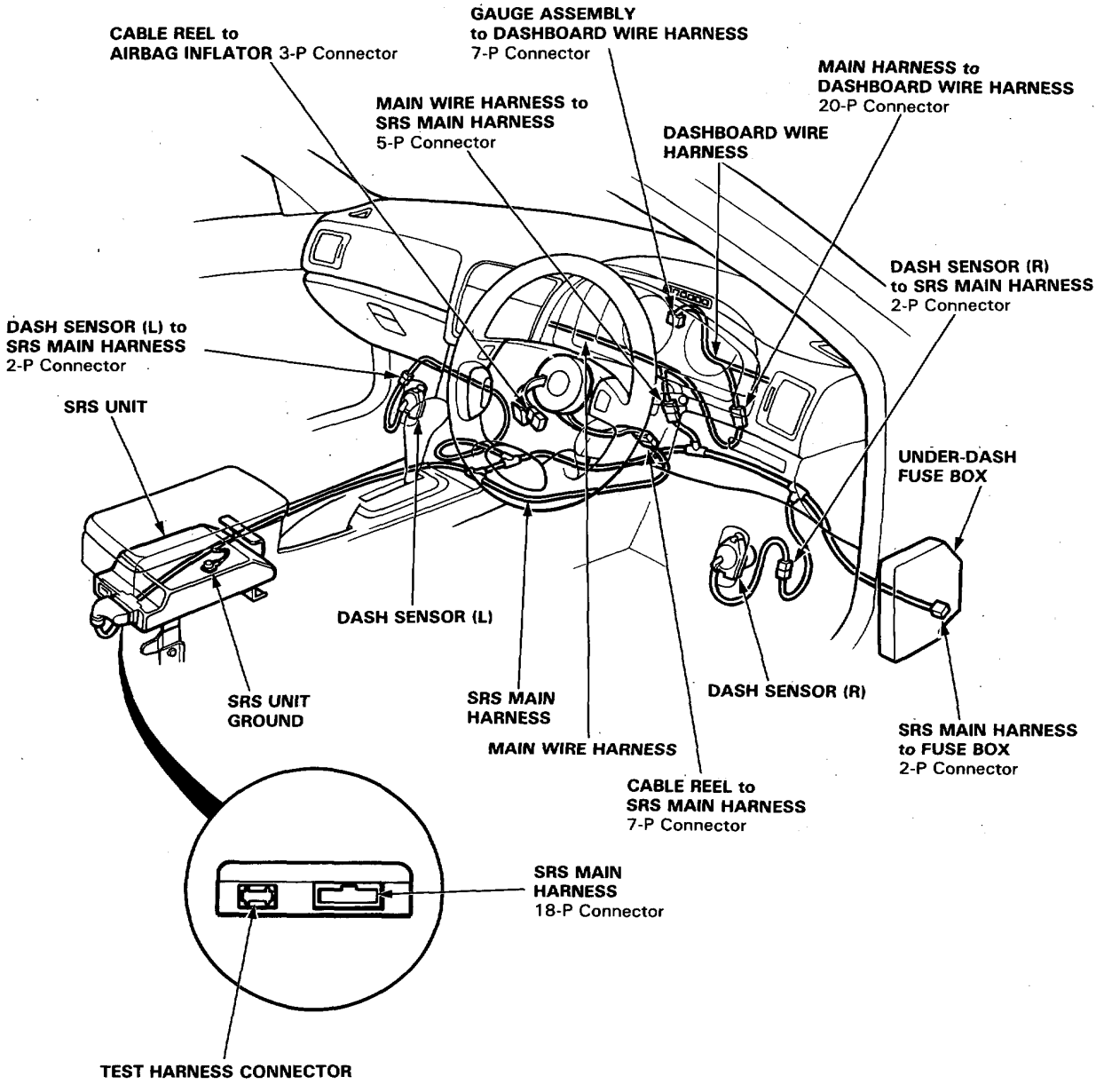


cardiagn.com

Wiring Locations (RHD)

CAUTION:

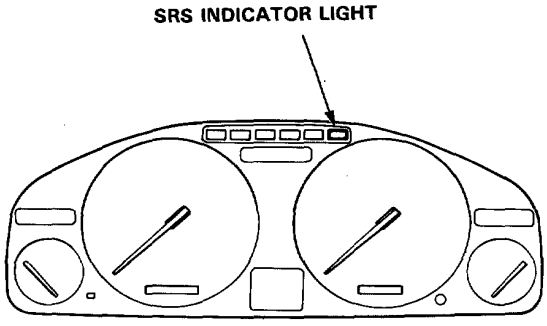
- **Make sure all SRS ground locations are clean and grounds are securely attached.**
- **All SRS electrical wiring harnesses are covered with yellow outer insulation.**
- **Replace the entire affected SRS harness assembly if there is an open circuit or damage to the wiring.**



cardiagn.com

Troubleshooting

Self-diagnosis Function
The SRS unit includes a self-diagnosis function. If there is a failure in the sensors, SRS unit, inflator, or their circuits, the SRS light in the instrument panel goes ON.



As a system check the SRS light also comes on when the ignition is first turned to the II position. If the light goes off after approximately 6 seconds the system is OK.

If the SRS light remains on (or fails to come on in the system check mode) one of the SRS components (or the wiring/connectors in-between) is faulty.

Troubleshooting precautions

- **Always use the test harness. Do not use test probes directly on component connector terminal or wires; you may damage them or the control unit.**
- **When attaching any of the test harnesses, push the connectors straight-in until they are secure; do not bend the connector pins.**
- **Always keep short connector on the airbag connector when the harness is disconnected.**

SRS Indicator Light Troubleshooting

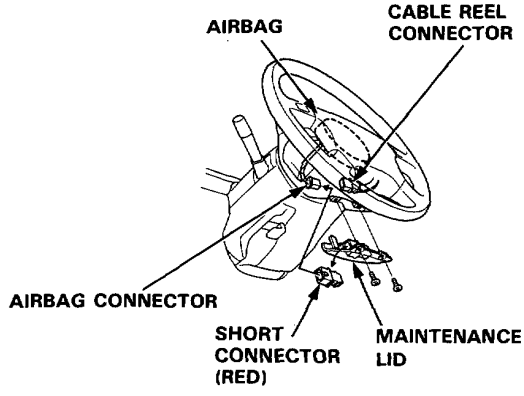
Possible conditions:

1. SRS light does not come on at all — see page 23-414.
2. SRS light stays on continuously—see page 23-418.
3. SRS light comes on in combination with a failure of another electrical system (brake indicator, engine check light etc.). Check for damage/corrosion at the dash fuse box.

NOTE:

- Before starting the applicable troubleshooting, check the condition of all SRS connectors and ground points.
- If the fault is not found after completing the applicable troubleshooting, substitute a known-good SRS unit and check whether the light indication goes away.

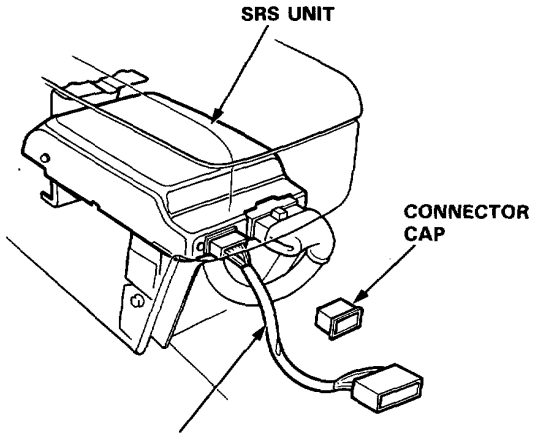
CAUTION: Disconnect both the negative and positive battery cables. Connect short connector to the airbag connector.



cardiagn.com

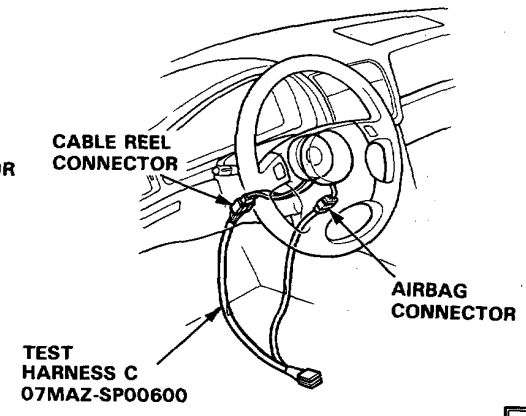
Test Harnesses and Attachment Points

Test Harness A



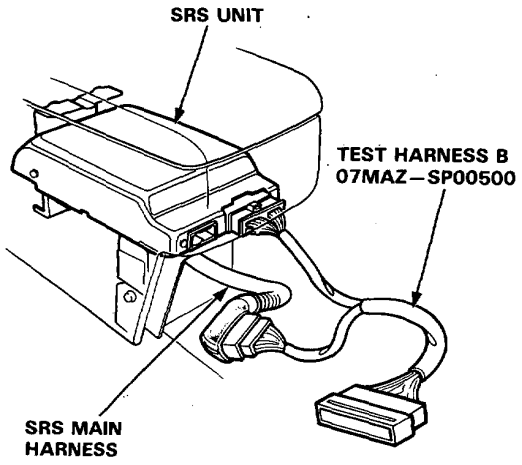
1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

Test Harness C

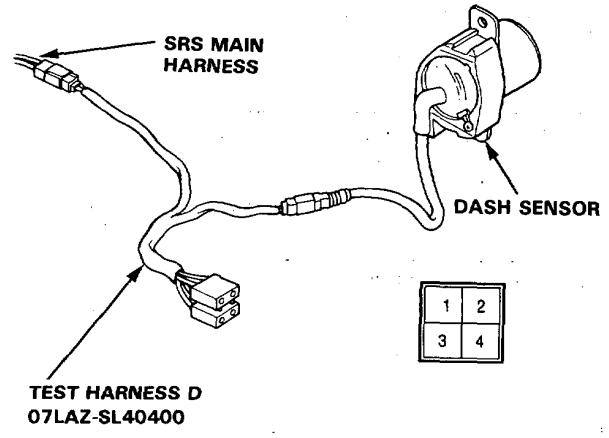


1	2	3	4	5
6	7	8	9	10

Test Harness B



Test Harness D



1	2
3	4

A-SIDE (SRS UNIT SIDE)

A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

B-SIDE (WIRE HARNESS SIDE)

cardiagn.com

Troubleshooting

The SRS Indicator Does Not Light

CAUTION:
- **Use only a digital circuit tester to check the system.**

Disconnect the battery negative cable and then disconnect the positive cable.
Install the short connector on air-bag (see page 23-412).

Connect the battery positive cable and then connect the negative cable.

Turn the ignition switch ON.

Are any other indicator lights (ALB etc.) ON (in the dash panel)?

NO → Inpsect No. 13: LHD or No. 17: RHD fuse

Is No. 13: LHD or No. 17: RHD OK?

NO → **Replace fuse.**

YES → **Repair open in dashboard wire harness between the No. 13: LHD or No. 17: RHD fuse and gauge assembly.**

YES

Turn the ignition switch OFF

Disconnect the SRS main harness 18-P connector from the SRS unit.

Turn the ignition switch ON.

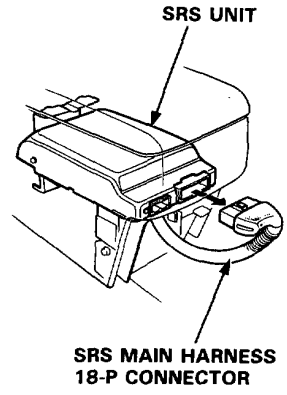
Does the SRS indicator light come on?

YES → **The SRS unit is faulty.**

NO

Turn the ignition switch OFF

(To page 23-415)



cardiagn.com

(From page 23-414)

Disconnect the dashboard wire harness 20-P connector from the main wire harness.

Turn the ignition switch ON.

Is SRS indicator light ON? YES → The SRS main harness or the car main wire harness is faulty.

NO

Turn the ignition switch OFF.

Remove the gauge assembly then inspect the SRS indicator light bulb.

Is the SRS indicator light bulb OK? NO → Replace the indicator light bulb.

YES

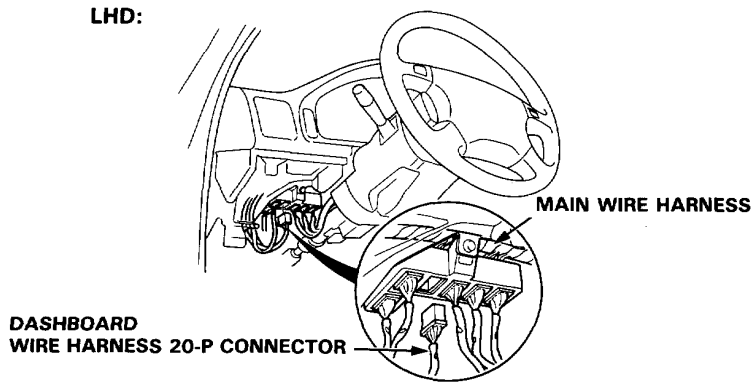
Connect a voltmeter between the No. 2 terminal of the 7-P connector and body ground.

Turn the ignition switch ON.

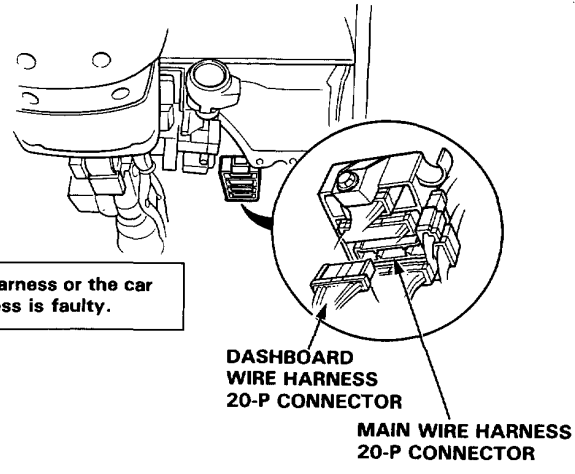
Measure the voltage between the No. 2 terminal and body ground.

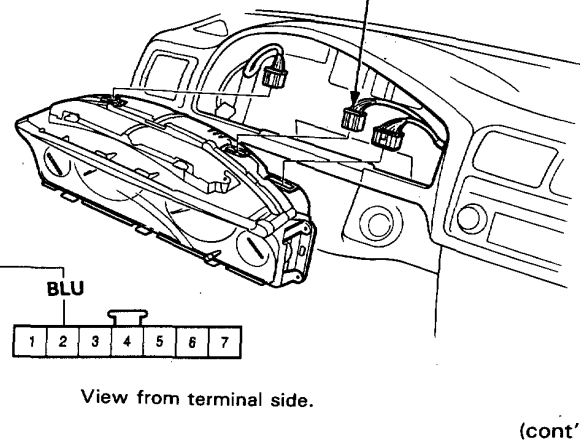
(To page 23-416)

LHD:



RHD:





View from terminal side.

(cont'd)

cardiagn.com

Troubleshooting (cont'd)

(From page 23-415)

Is there less than 8.5V with ignition switch ON?

NO → **Repaire short in No. 2 terminal (BLU wire) of the dashboard wire harness.**

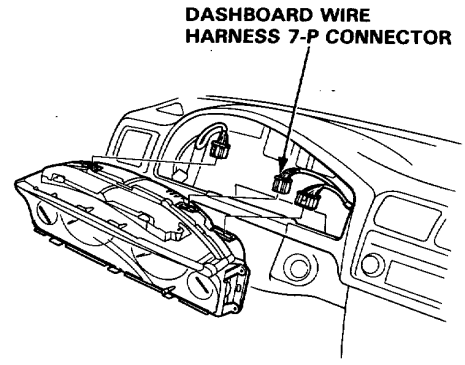
YES

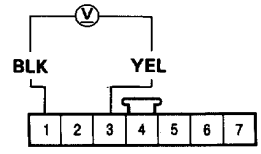
Turn the ignition switch OFF.

Connect the voltmeter between the No. 3 terminal (+) and the No. 1 terminal (−) of the dashboard wire harness 7-P connector.

Turn the ignition switch ON.

Measure the voltage between the No. 3 terminal and the No. 1 terminal.





View from terminal side

Is there battery voltage?

NO → Check for continuity between the No. 1 terminal and body ground.

YES

Turn the ignition switch OFF.

(To page 23-417)

Does continuity exist?

NO → **Repair open in the No. 1 terminal (BLK wire) between the gauge assembly and body ground or look for a poor ground [G521: LHD, G402: RHD].**

YES → **Repair open in the No. 3 terminal (YEL wire) of the dashboard wire harness.**

cardiagn.com

(From page 23-416)

Reconnect each connector to the gauge assembly and SRS unit then connect Test Harness A to the SRS unit.

Measure the voltage between the No. 13 terminal and body ground for 6 seconds after ignition is first turned on.

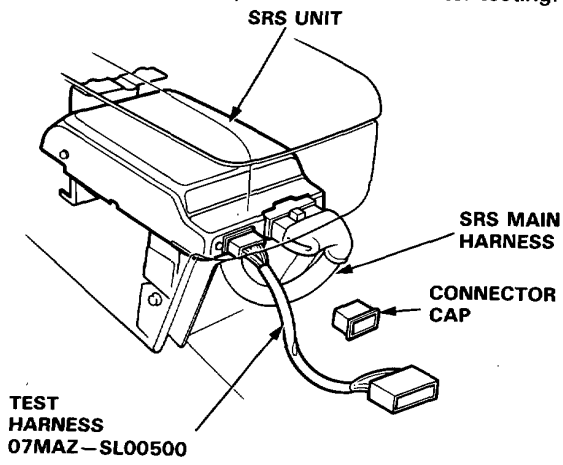
Is there more than 8.5 V?

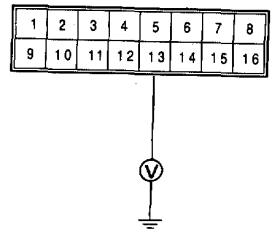
NO → **SRS indicator unit is faulty.**

YES

SRS unit is faulty.

NOTE: Make sure you reinstall the cap in the SRS unit after testing.





(cont'd)

cardiagn.com

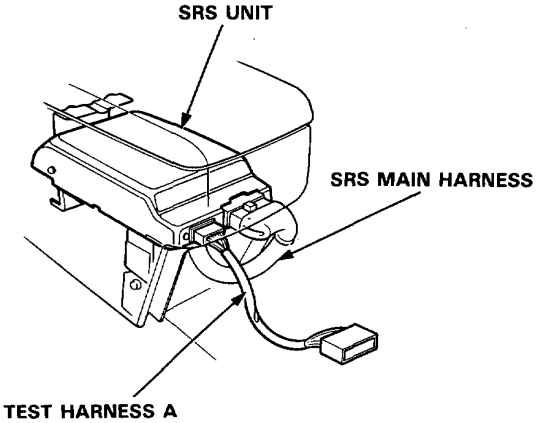
Troubleshooting (cont'd)

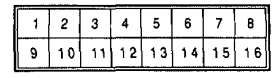
SRS Indicator Light Stays On Continuously

1. Make a photocopy of this page.
2. Connect test harness A to the SRS unit as shown.
3. Turn the ignition switch ON.
   - Voltages in the chart assume the car's "battery voltage" is about 12 volts. Less than 12 volts will result in different or possibly false readings.
   - Do not disconnect the airbag(s) from the circuit when checking SRS unit voltages.
4. Record your voltage readings, for each terminal, in the row of blank boxes across the top of the chart.
5. Compare each reading with the voltage ranges listed in the column below it. If the reading is within a range, circle that range.
   - If you circled all the Failure Mode ranges across any row, check the car for the Probable Failure Mode listed at the end of that row. (Refer to the letter for that Mode on the following pages.).
   - If you did not circle all the ranges across any row, replace the SRS control unit with a known-good unit, and re-test.

— If all your voltage readings are now Normal, replace the SRS control unit.

— If your voltage readings are still not Normal, but they don't fit within a complete row of Failure Mode ranges, check the condition of the terminals in each of the SRS connectors shown in the system diagram on page 23-409.





Test Connector Terminal	1 SADH	—	—	4 VCC	5 SV	6 CCHK1	—	8 SADC	—	10 BUC1	—	12 GND	13 IDC	14 MI	—	—	Probable Failure Mode
Normal Voltage	5.0 ~7.5	—	—	4.0 ~5.5	10.0 ~14.0	9.0 ~14.0	—	5.0 ~7.5	—	0 ~2.0	—	0 ~2.0	8.5 ~13.0	9.0 ~14.0	—	—	
Your Voltage Reading		—	—				—		—		—				—	—	
Failure Mode Voltage	0 ~2.0	—	—	4.0 ~5.5	10.0 ~14.0	9.0 ~14.0	—	0 ~2.0	—	0 ~2.0	—	0 ~2.0	2.0 ~8.5	9.0 ~14.0	—	—	B Open in cowl sensor or short in dash sensor.
	10.0 ~15.0	—	—	4.0 ~5.5	10.0 ~14.0	9.0 ~14.0	—	10.0 ~15.0	—	0 ~2.0	—	0 ~2.0	2.0 ~8.5	9.0 ~14.0	—	—	C Short in cowl sensor or open in dash sensor.
	6.5 ~10.0	—	—	4.0 ~5.5	10.0 ~14.0	9.0 ~14.0	—	6.5 ~10.0	—	0 ~2.0	—	0 ~2.0	2.0 ~8.5	9.0 ~14.0	—	—	D Open in one dash sensor.
	10.0 ~15.0	—	—	4.0 ~5.5	10.0 ~14.0	9.0 ~14.0	—	10.0 ~15.0	—	0 ~2.0	—	0 ~2.0	2.0 ~8.5	9.0 ~14.0	—	—	F Open in airbag inflator or cable reel.
	5.0 ~7.5	—	—	0 ~2.0	0 ~2.0	9.0 ~14.0	—	5.0 ~7.5	—	0 ~2.0	—	0 ~2.0	2.0 ~8.5	9.0 ~14.0	—	—	J Blown SRS fuse *1 or open in the wire.
	5.0 ~7.5	—	—	4.0 ~5.5	10.0 ~14.0	9.0 ~14.0	—	5.0 ~7.5	—	0 ~2.0	—	0 ~2.0	0~2.0 (8.5 ~13.0)	9.0 ~14.0	—	—	K Short (or open) in SRS indicator wire harness.
	7.0 ~16.0	—	—	7.0 ~16.0	7.0 ~16.0	7.0 ~16.0	—	7.0 ~16.0	—	7.0 ~16.0	—	7.0 ~16.0	2.0 ~8.5	7.0 ~16.0	—	—	L Poor ground at SRS unit or unit mounting bolts.

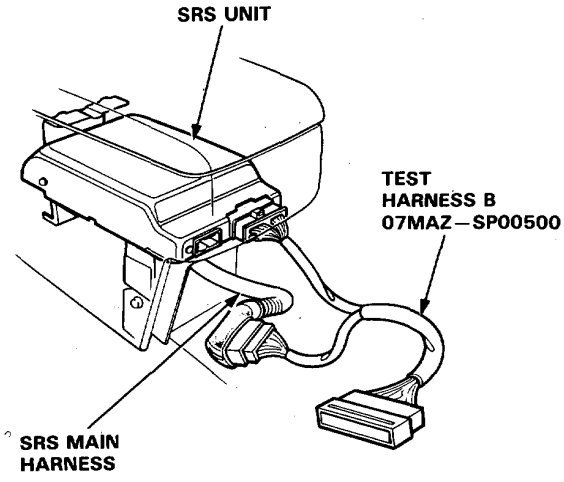
*1 No. 7 (20A): LHD
No. 16 (20A): RHD

cardiagn.com

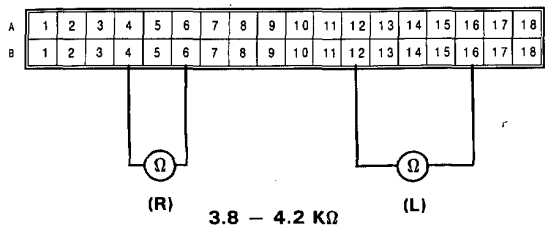
Mode B: *Open in cowl sensor, or short in dash sensor.*

CAUTION: Disconnect the battery negative cable and then disconnect the positive cable. Install the short connector on airbag (See page 23-412).

1. Connect the Test Harness B between the SRS unit and SRS main harness 18-P conector.

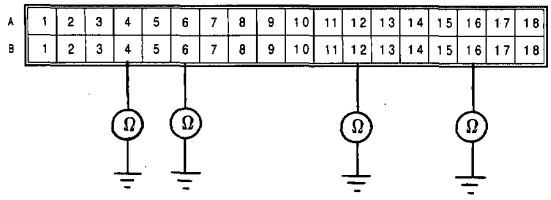


2. Reconnect the battery cables then check the resistance between the left dash sensor terminals B12 and B16, and between the right dash sensor terminals B4 and B6.



- If resistance is more than 3.8–4.2 KΩ for either sensor, go to step 3.
- If resistance is less than 3.8–4.2 KΩ for either sensor, go to step 4.

3. Check continuity between body ground and each terminal of both dash sensors.



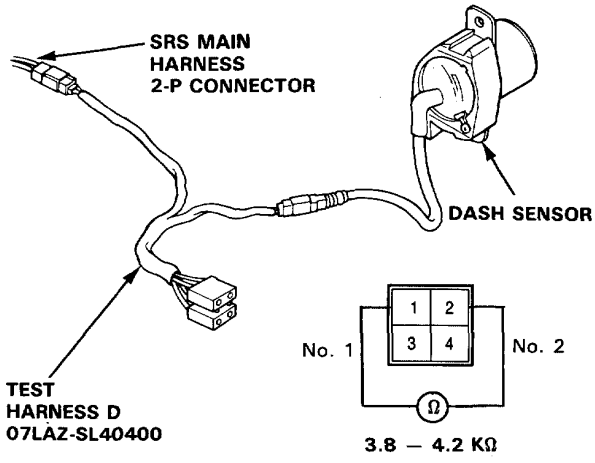
- If there is continuity at any of the terminals, go to step 5.
- If there is no continuity the SRS unit is faulty. Substitute a known-good SRS unit and recheck the voltages according to the chart on page 23-418.

(cont'd)

cardiagn.com

Troubleshooting (cont'd)

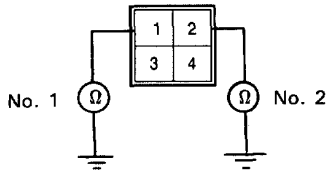
4. Connect Test Harness D between the dash sensor and SRS main harness 2-P connector. Check the resistance between the No. 1 terminal and No. 2 terminal.



NOTE: The left and right sensors cannot be checked at the same time.

- If resistance is more than 3.8 – 4.2 KΩ, replace the SRS main wire harness and recheck the voltages according to the chart on page 23-418.
- If resistance is less than 3.8 – 4.2 KΩ the respective dash sensor is faulty. Replace the dash sensor and recheck the voltages according to the chart on page 23-418.

5. Connect Test Harness D between the dash sensor and SRS main harness 2-P connector.
Check continuity between the No. 1 terminal and body ground, and between the No. 2 terminal and body ground.

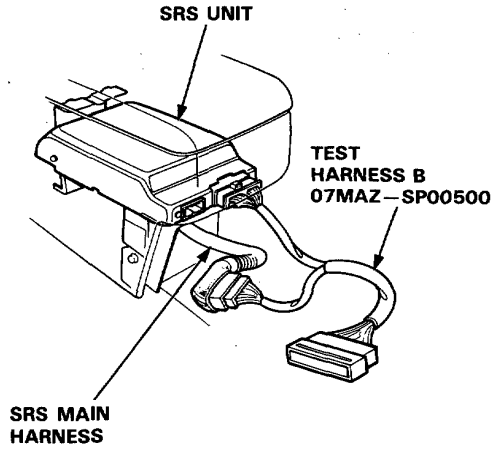


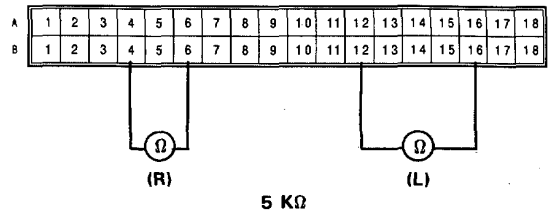
- If there is continuity, the dash sensor is faulty. Replace it and recheck the voltages according to the chart on page 23-418.
- If there is no continuity, replace the SRS main wire harness and recheck the voltages according to the chart on page 23-418.

Mode C: Short in cowl sensor, or open in dash sensor.
Mode D: Open in one dash sensor.

CAUTION: Disconnect the battery negative cable and then disconnect the positive cable.
Install the short connector on airbag.

1. Connect Test Harness B between the SRS unit and SRS main harness 18-P connector.
Check the resistance between the left dash sensor terminals B12 and B16, and between the right dash sensor terminals B4 and B6.

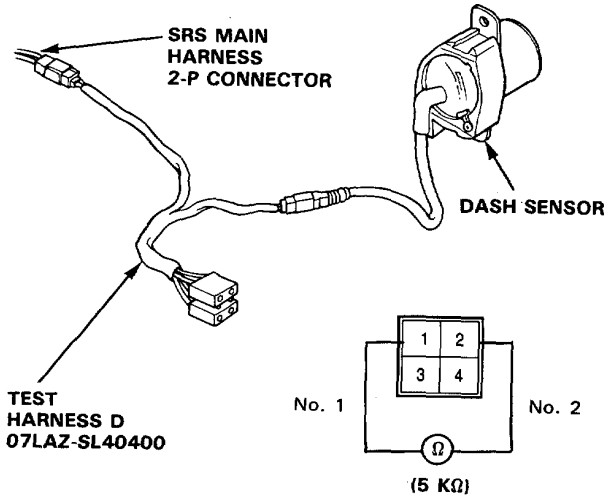




- If resistance is more than 5 KΩ, go to step 2.
- If resistance is less than 5 KΩ, the SRS unit is faulty. Substitute a known-good SRS unit and recheck the voltages according to the chart on page 23-418.

cardiagn.com

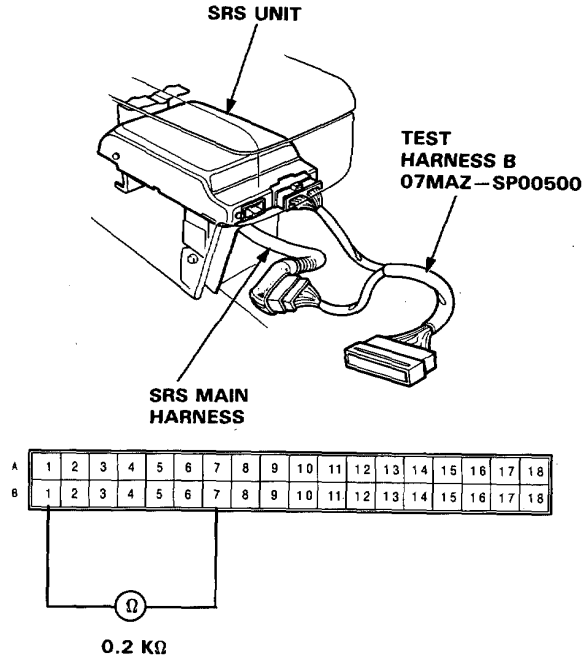
2. Connect Test Harness D between the dash sensor and SRS main harness 2-P connector.
Check the resistance between the No. 1 terminal and No. 2 terminal.



- If resistance is more than 5 KΩ, the dash sensor is faulty. Replace and recheck the voltages according to the chart on page 23-418.
- If resistance is less than 5 kΩ, the SRS main harness is faulty. Replace the SRS main harness and recheck the voltages according to the chart on page 23-418.

Mode F: Open in airbag inflator or cable reel.

1. Disconnect the battery negative cable and then disconnect the positive cable.
2. Connect Test Harness B between the SRS unit and SRS main harness's 18-P connector.
Measure the resistance between the B1 and the B7 terminals.



- If resistance is more than 0.2 KΩ, go to step 3.
- If resistance is less than 0.2 KΩ, the SRS unit is faulty. Substitute a known-good SRS unit and recheck the voltages according to the chart on page 23-418.

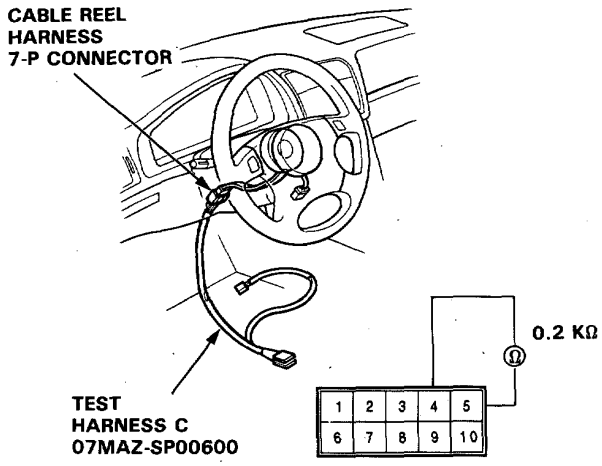
3. Disconnect the cable reel harness and main harness 7-P connector from the SRS main harness, then connect the SRS test harness C only to the cable reel harness side of the 7-P connector.

(cont'd)

cardiagn.com

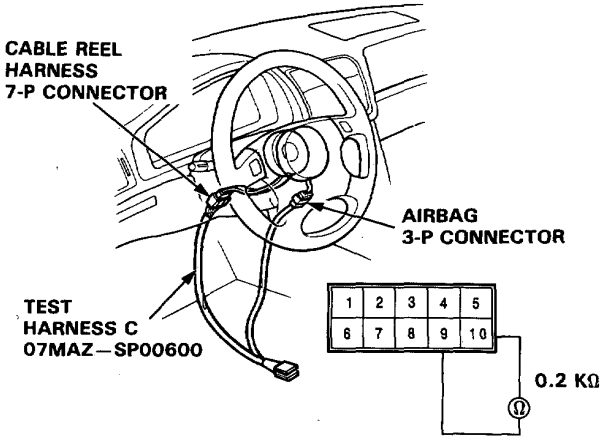
Troubleshooting (cont'd)

4. Measure the resistance between the No. 4 terminal and the No. 5 terminal.



- If resistance is more than 0.2 kΩ, go to step 5.
- If resistance is less than 0.2 kΩ, the SRS main harness is faulty. Replace the SRS main harness and recheck the voltages according to the chart on page 23-418.

5. Disconnect the airbag 3-P connector from the cable reel harness, then connect the Test Harness C to the airbag 3-P connector. Meassure the resistance between the No. 9 terminal and No. 10 terminal.



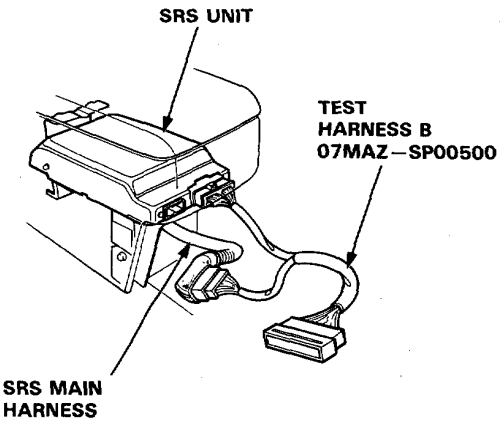
- If resistance is more than 0.2 kΩ, the inflator is faulty. Replace the airbag assembly and recheck the voltage according to the chart on page 23-418.
- If resistance is less than 0.2 kΩ, the cable reel is faulty. Replace the cable reel and recheck the voltages according to the chart on page 23-418.

Mode J: Blown SRS No. 7: LHD, No. 16: RHD (20A) fuse, or open in the wire.

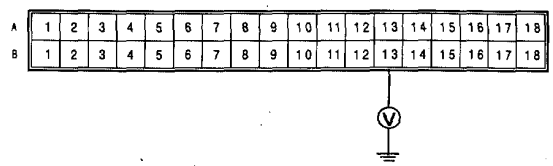
1. Check the SRS No. 7: LHD, No. 16: RHD (20A) fuse in the dash fuse box. If it's OK, read the following CAUTION, then go on to step 2.
   If it's blown, replace it with a new 20A fuse, then turn the ignition switch ON:
   - If fuse doesn't blow, go on to step 2.
   - If the fuse blows, troubleshoot as necessary to find the short.

   CAUTION: Disconnect the battery negative cable, then the positive cable.

2. Connect Test Harness B between the SRS unit and SRS main harness 18-P connector.



3. Measure the voltage between the B13 terminal and body ground with the ignition switch ON.



- If there is battery voltage, the SRS unit is faulty. Replace and recheck the voltages according to the chart on page 23-418.
- If less than battery voltage, the main harness is faulty. Replace the SRS main harness and recheck the voltages according to the chart on page 23-418.

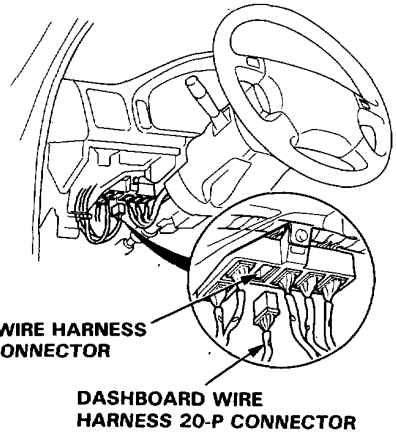
cardiagn.com

Mode K: Short or open in SRS indicator wire harness

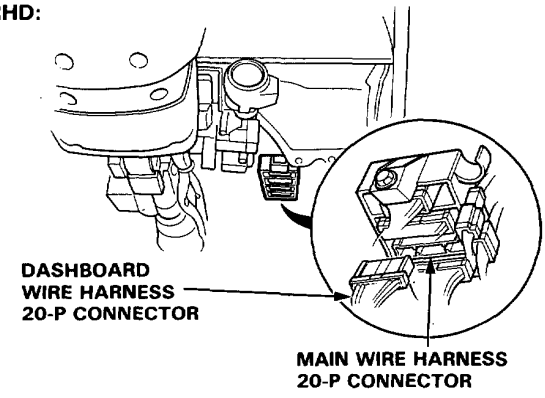
CAUTION: Disconnect the battery negative cable and then disconnect the positive cable.
Install the short connector on airbag. (See page 23-412).

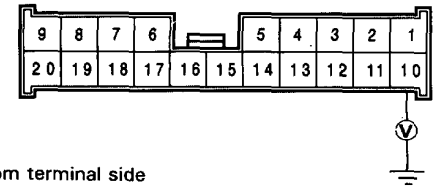
1. Reconnect the battery positive cable and negative cable.
2. Disconnect the dashboard wire harness 20-P connector from the main wire harness.
3. Measure the voltage between the No. 10 terminal and body ground on the main harness side of the 20-P connector, with the ignition switch ON.

LHD:



RHD:

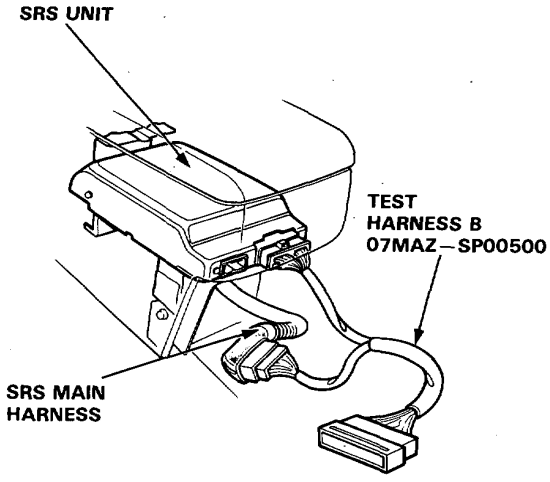


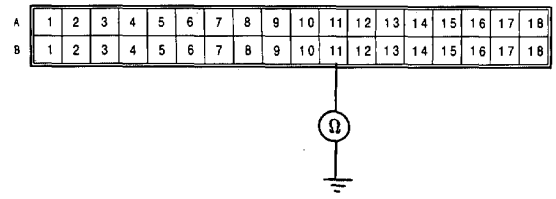


View from terminal side

- If voltage is more than 8.5 V, go to step 6.
- If voltage is less than 8.5 V, go to step 4.

4. Connect Test Harness B between the SRS unit and SRS main harness 18-P connector.
Check for continuity between the B11 terminal and body ground.





- If there is continuity, the SRS main harness (or main wire harness) is shorted. Replace the SRS main harness (or repair the BLU wire in the main wire harness) and recheck the voltages according to the chart on page 23-418.
- If there is no continuity, go to step 5.

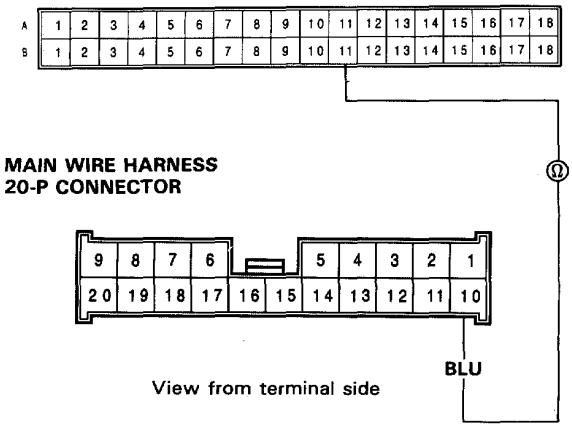
(cont'd)

cardiagn.com

Troubleshooting (cont'd)

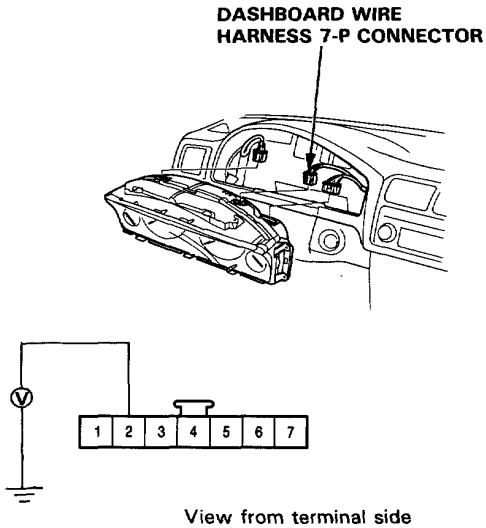
5. Check for continuity between the B11 terminal of Test Harness B and the No. 10 terminal of the main wire harness 20-P connector.

TEST HARNESS B



- If there is continuity, the SRS unit is faulty. Replace it and recheck the voltages according to the chart on page 23-418.
- If these is no continuity, the SRS main harness (or the car main wire harness) is open. Replace the SRS main harness (or repair the BLU wire in the car main wire harness) and recheck the voltages according to the chart on page 23-418.

6. Connect the instrument wire harness 20-P connector to the main wire harness, and connect the SRS main harness 18-P connector to the SRS unit. Disconnect the dashboard wire harness 7-P connector from the gauge assembly, and measure the voltage between the No. 2 terminal and body ground with ignition switch ON.



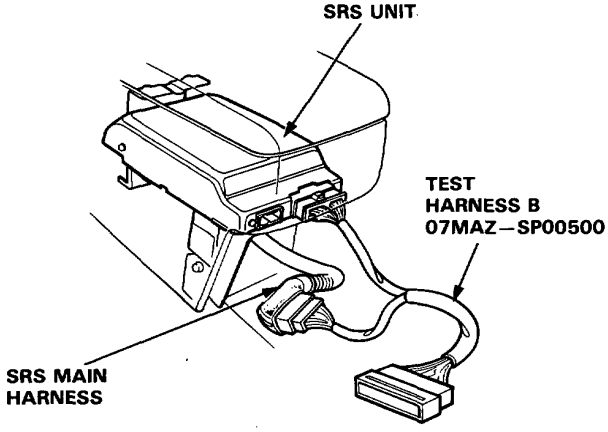
- If voltage is more than 8.5 V, the SRS indicator circuit is faulty (in the gauge assembly). Replace the gauge assembly and recheck the voltages according to the chart on page 23-418.
- If voltage is less than 8.5 V, the dashboard wire harness is faulty. Repaire the open or short in the BLU wire of the dashboard wire harness and recheck the voltages according to the chart on page 23-418.

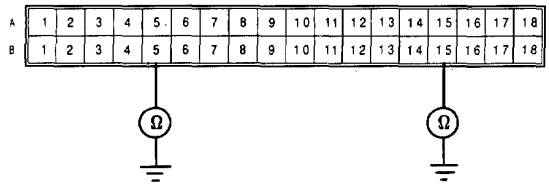
cardiagn.com

Mode L: Poor ground at SRS unit or unit mounting bolts.

CAUTION: Disconnect the battery negative cable and then disconnect the positive cable. Install the short connector on airbag. (See page 23-412).

1. Connect Test Harness B between the SRS unit and SRS main harness 18-P connector.
2. Check for continuity between the B5, B15 terminals and body ground.





- If there is continuity, the SRS unit is faulty. *Replace it and recheck the voltages according to* the chart on page 23-418.
- If there is no continuity, the SRS unit ground, the control unit component grounds or the SRS main *harness is faulty. Check the grounds (check the* control unit ground wire and mounting bolts) and, if necessary, replace the SRS main harness. Recheck the voltages according to the chart on page 23-418.

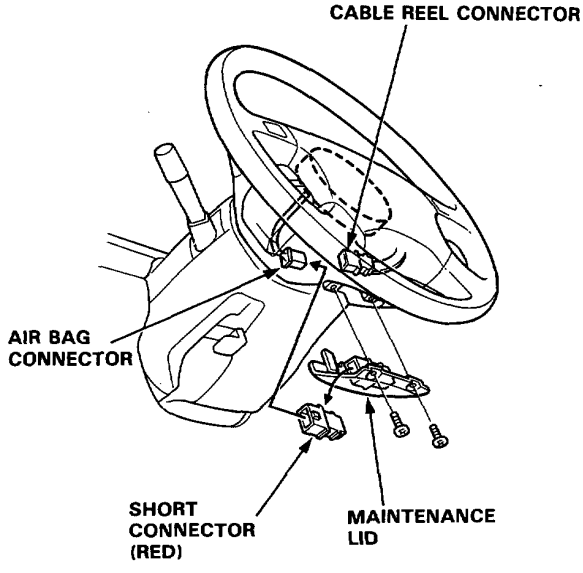
cardiagn.com

Airbag Assembly Removal

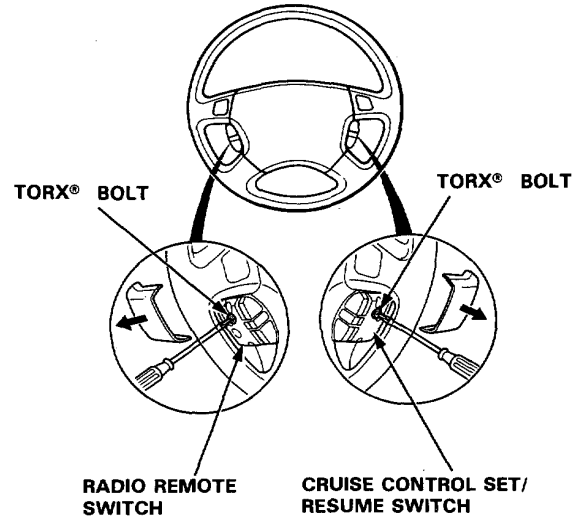
⚠ WARNING **Store a removed airbag assembly with the pad surface up, if the airbag is improperly stored face down, accidental deployment could propel the unit with enough force to cause serious injury.**

CAUTION:
- **Do not install used SRS parts from another car. When repairing on SRS, use only new parts.**
- **Carefully inspect the airbag assembly before installing it. Do not install an airbag assembly that shows signs of being dropped or improperly handled, such as dents, cracks or deformation.**
- **Always keep the short connector on the airbag connector when the harness is disconnected.**
- **Do not disassemble or tamper with the airbag assembly.**

1. Disconnect the battery negative cable, then disconnect the positive cable.
2. Remove the maintenance lid below the airbag, then remove the short connector from the lid.
3. Disconnect the connector between the airbag and cable reel.
4. Install the short connector on the airbag.



5. Remove the 2 TORX® bolts using a TORX® T30 bit, then remove the airbag assembly.

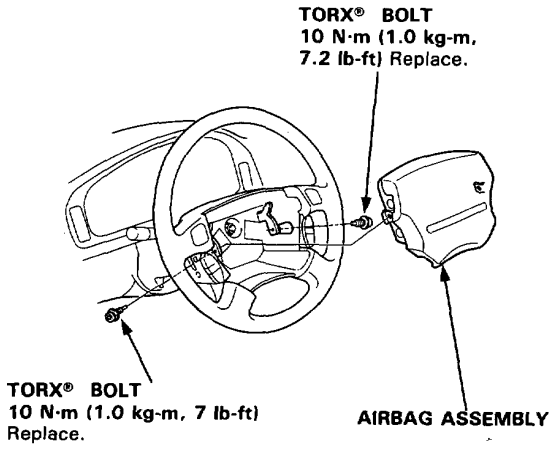


cardiagn.com

Airbag Assembly Installation

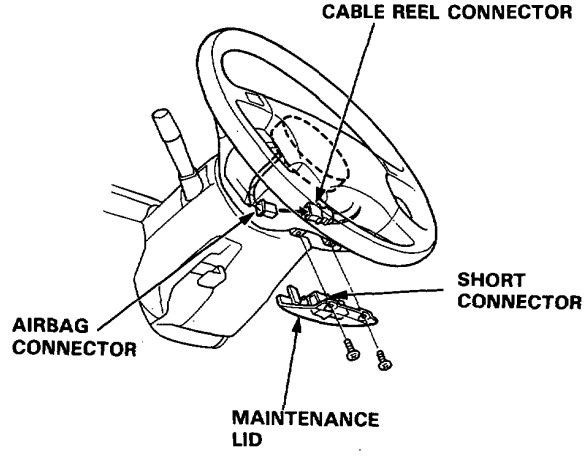
CAUTION:
- **Be sure to install the SRS wiring so that it is not pinched or interfering with other car parts.**
- **Be sure the battery cables are disconnected.**

1. Place the airbag assembly in the steering wheel, and secure it with new TORX® bolts.



2. Remove the short connector from the airbag connector, then connect the airbag connector and cable reel connector.

3. Attach the short connector to lid, then reinstall the lid on the steering wheel.



4. Reconnect the battery positive cable, then the negative cable.

5. After installing the airbag assembly, confirm proper system operation:
   - Turn the ignition to II: the instrument panel SRS indicator light should go on for about 6 seconds and then go off.
   - Confirm operation of horn buttons.
   - Confirm operation of cruise control set/resume switch.

cardiagn.com

Airbag Disposal

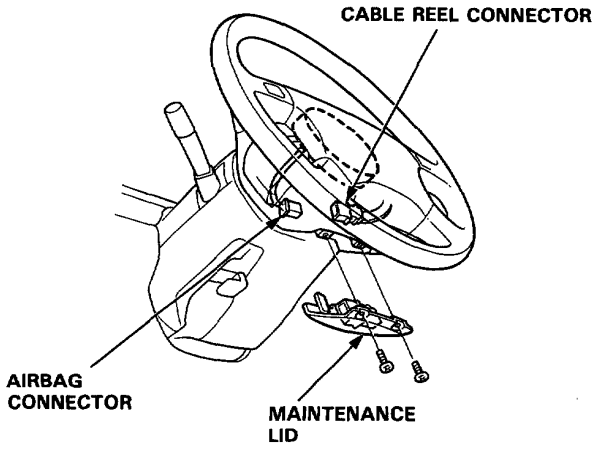
Before scrapping any airbag (including one in a whole car to be scrapped), the airbag must be deployed. If the car is still within the warranty period, before deploying the airbag, the Honda Motor District Service Manager must give approval and/or special instructions.
Only after an airbag is already deployed (as the result of vehicle collision, for example), can the normal scrapping procedure be done.
If the airbag appear intact (not deployed) it should be treated with extreme caution.
Follow the procedure, described below.

Deploying the Airbag: In-Car

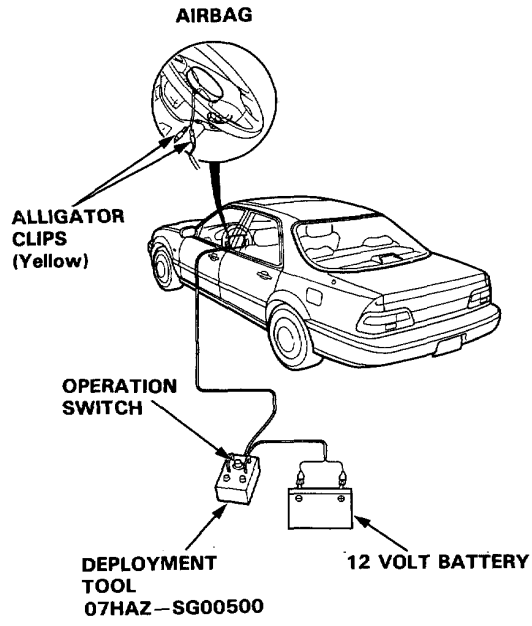
NOTE: If an SRS car is to be entirely scrapped, its airbag should be deployed while still in the car. An airbag should not be considered a salvageable part and should never be installed in another car.

⚠ WARNING Confirm that the airbag assembly is securely mounted; otherwise.
Severe personal injury could result during deployment.

1. Disconnect both the negative cable and positive cable from the battery.
2. Confirm that the special tool is functioning properly by following the check procedure on the label of the tool set box, or on page 23-429
3. Remove the maintenance lid, then disconnect the connector between the airbag and cable reel.



4. Cut off the airbag connector, *then* strip the wire ends and connect the special tool alligator clips to them. Place the special tool approximately thirty feet away from the airbag.



cardiagn.com

5. Connect a 12 volt battery to the tool:
   - If the green light on the tool goes on, the airbag igniter circuit is defective and cannot deploy the bag. Go to Damaged Airbag Special Procedure.
   - If the red light on the tool goes on, the airbag is ready to be deployed.

6. Push the tool's deployment switch. The airbag should deploy (deployment is both highly audible and visible — a loud noise and rapid inflation of the bag, followed by slow deflation).

   - If deployment happens and the green light on the tool goes on, continue with this procedure.
   - If the airbag doesn't deploy, yet the green light goes ON, its igniter is defective, go to Damaged Airbag Special Procedure.

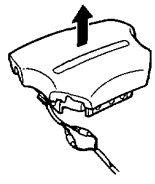
   ⚠ WARNING During deployment, the airbag assembly can become hot enough to burn you. Wait thirty minutes after deployment before touching the assembly.

7. Dispose of the complete airbag assembly. No part of it can be reused.

Deploying the Airbag: Out-of-car.

NOTE: If an intact airbag assembly has been removed from a scrapped car or has been found defective or damaged during transit, storage or service, it should be deployed as follows:

⚠ WARNING *Position the airbag assembly face up,* outdoors on flat ground at least thirty feet from any obstacles or people.



1. Confirm that the special tool is functioning properly by following the check procedure on this page or on the tool box label.
2. Remove the short connector from the airbag connector.
3. Follow steps 4, 5, 6 and 7 of the in-car deployment procedure.

Damaged Airbag Special Procedure.

⚠ WARNING If an airbag cannot be deployed, it should not be treated as normal scrap; it should still be considered a potentially explosive device that can cause serious injury.

1. If installed in a car, follow the removal procedure on page 23-360.
2. In all cases, make sure a short connector is properly installed on the airbag connector.
3. Package the airbag assembly in exactly the same packaging that the new replacement part came in.
4. Mark the outside of the box "DAMAGED AIRBAG-NOT DEPLOYED" so it does not get confused with your parts stock.
5. Contact your Honda Motor District Service Manager for how and where to return it for disposal.

Deployment Tool: Check Procedure.

1. Connect the yellow clips to both switch protector handles on the tool; connect the tool to a battery.
2. Push the operation switch: green means tool is OK; red means tool is faulty.
3. Disconnect the battery and the yellow clips.

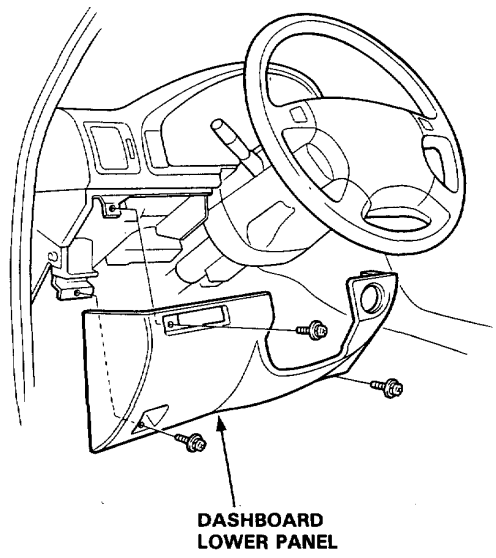
cardiagn.com

Cable Reel Removal

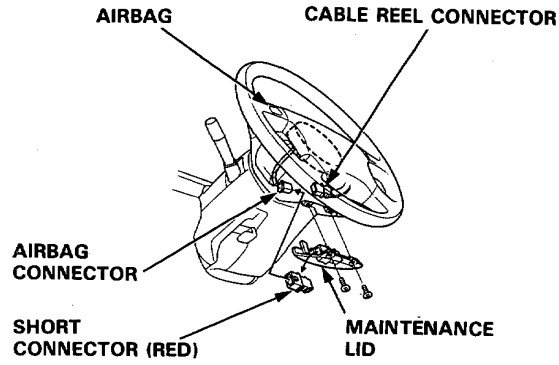
⚠ WARNING Store a removed airbag assembly with the pad surface up. If the airbag is improperly stored face down, accidental deployment could propel the unit with enough force to cause serious injury.

CAUTION:
- **Carefully inspect the airbag assembly before installing it. Do not install an airbag assembly that shows signs of being dropped or improperly handled, such as dents, cracks or deformation.**
- **Always keep the short connector on the airbag connector when the harness is disconnected.**
- **Do not disassemble or tamper with the airbag assembly.**

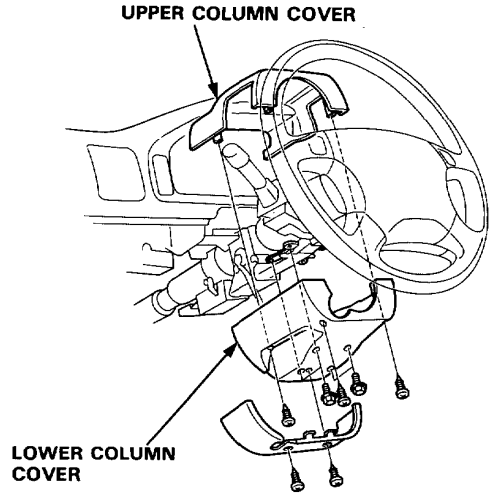
1. Disconnect the battery negative cable, then disconnect the positive cable.
2. Make sure the wheels are aligned straight ahead.
3. Remove the dashboard lower panel.



4. Install the short connector on airbag.



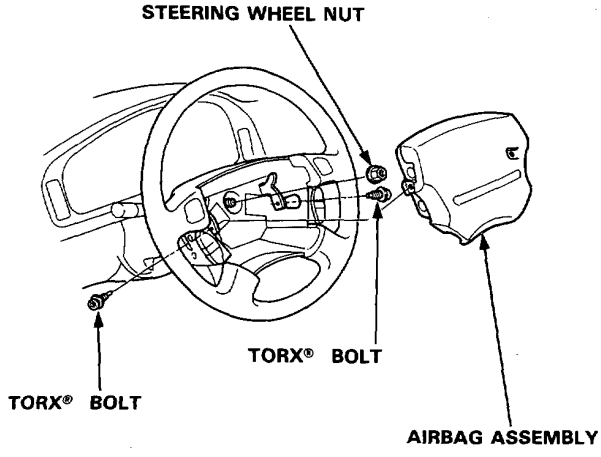
5. Remove the upper and lower column covers.



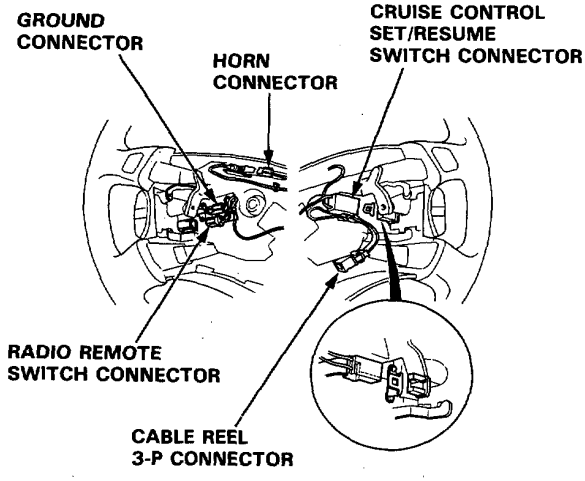
cardiagn.com

6. Disconnect the connector between the cable reel and main harness.

7. Remove the airbag assembly from the steering wheel, then remove the steering wheel nut.

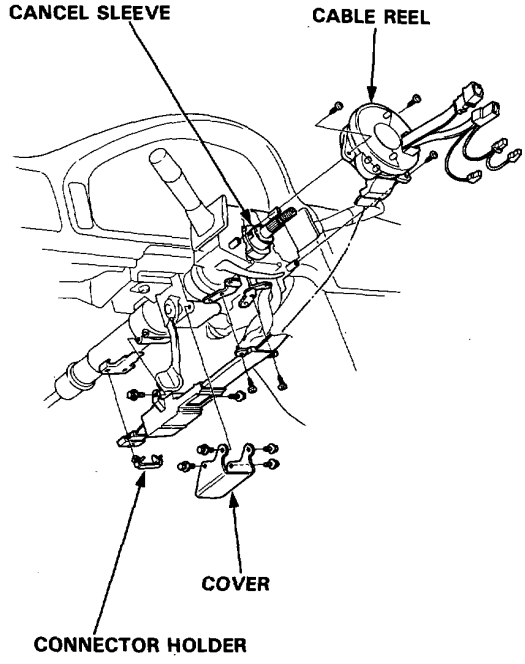


8. Disconnect the connectors from the horn, radio remote switch, ground and cruise control set/resume switches, then remove the cable reel 3-P connector from its clips.



9. Remove the steering wheel from the column.

10. Remove the 4 bolts and remove the cover under the steering column.



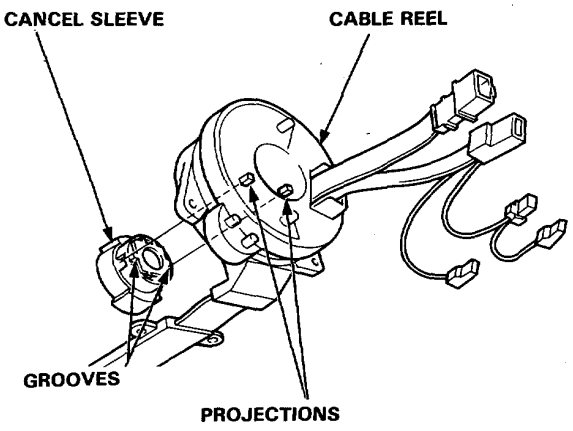
11. Remove the cable reel and cancel sleeve.

cardiagn.com

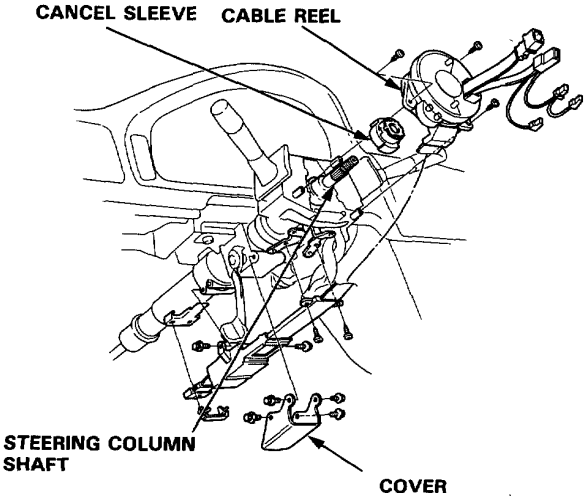
Cable Reel Installation

CAUTION:
- **Before installing the steering wheel, the front wheels should be aligned straight forward.**
- **Be sure to install the harness wires so that they are not pinched or interfering with other car parts.**
- **After reassembly, confirm that the wheels are still straight ahead and that steering wheel spoke angle is correct. If minor spoke angle adjustment is necessary do so only by adjustment of the tie rods, not by removing and repositioning the steering wheel.**

1. Align the cancel sleeve grooves with the cable reel projections.

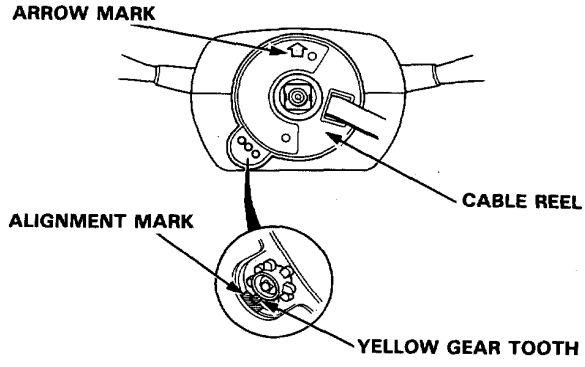


2. Carefully install the cable reel and the cancel sleeve on the steering column shaft. Reinstall the cover.

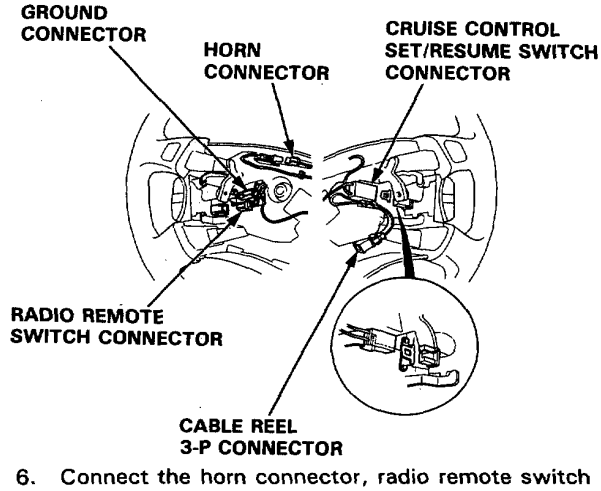


3. Install the steering column upper and lower covers.

4. Center the cable reel.
   Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise (approximately two turns) until:
   - **The yellow gear tooth lines up with the mark on the cover.**
   - **The arrow on the cable reel label points straight up.**



5. Install the steering wheel and attach the cruise control connector and cable reel connector to their clips.

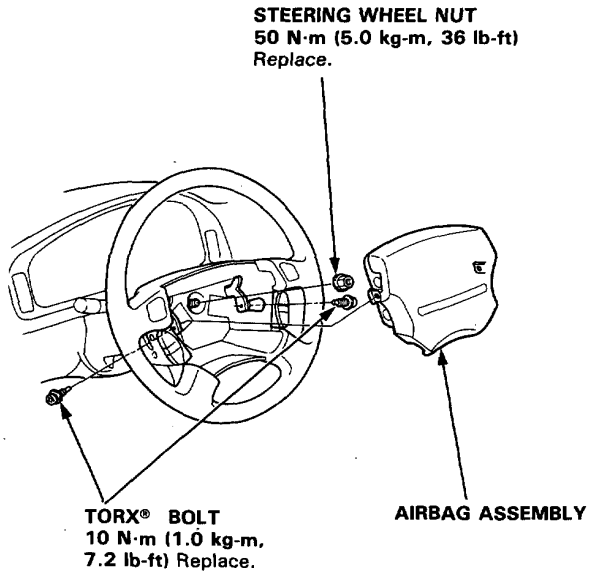


6. Connect the horn connector, radio remote switch connector and ground connector.

cardiagn.com

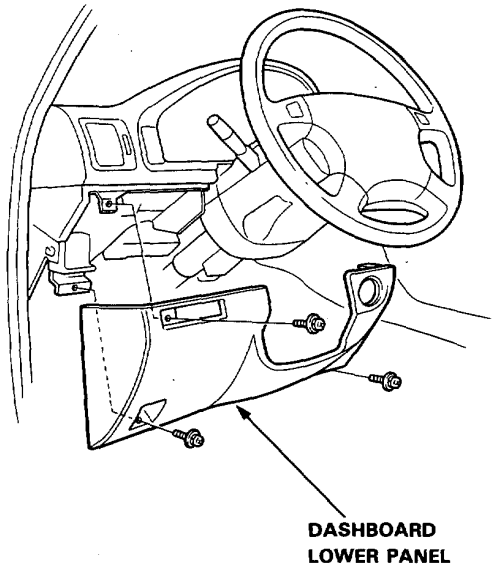
7. Install the steering wheel nut.

8. Install the airbag assembly.



9. Connect the cable reel harness 7-P connector to the SRS main harness, then attach the connector holder to the steering column.

10. Install the dashboard lower panel.

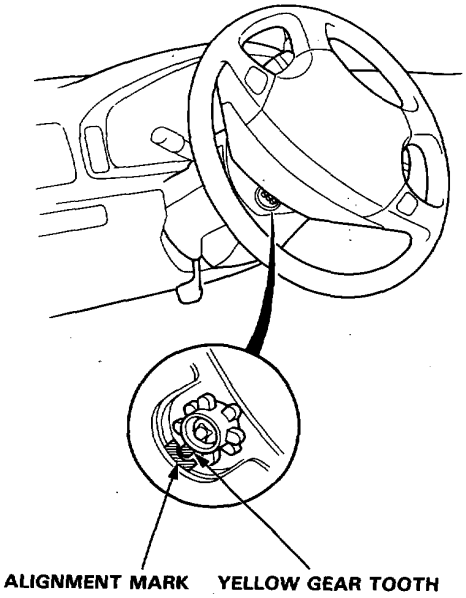


11. Disconnect the short connector from the airbag, then connect the cable reel connector to the airbag connector.

NOTE: Attach the short connector to lid, then install the lid.

12. Reconnect the battery positive cable, then the negative cable.

13. After installing the cable reel, confirm proper system operation:
- Turn the ignition to II; the instrument panel SRS light should go on for about 6 seconds and then go off.
- Confirm operation of horn buttons.
- Confirm operation of the headlight and wiper switches.
- Confirm operation of cruise control set/resume switch.
- Rotate the steering wheel counterclockwise to make sure the yellow gear tooth lines up with the slot on the cover.



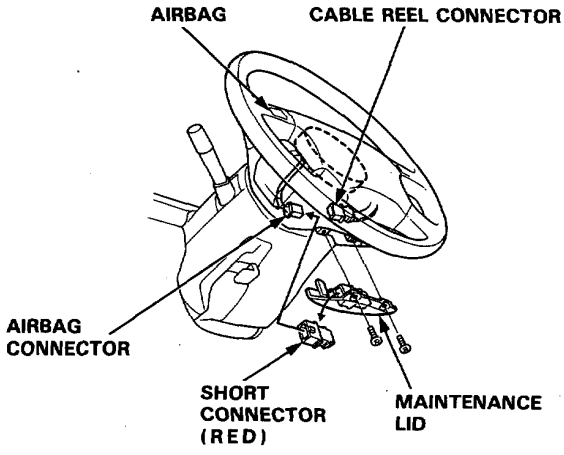
cardiagn.com

Dash Sensor Removal

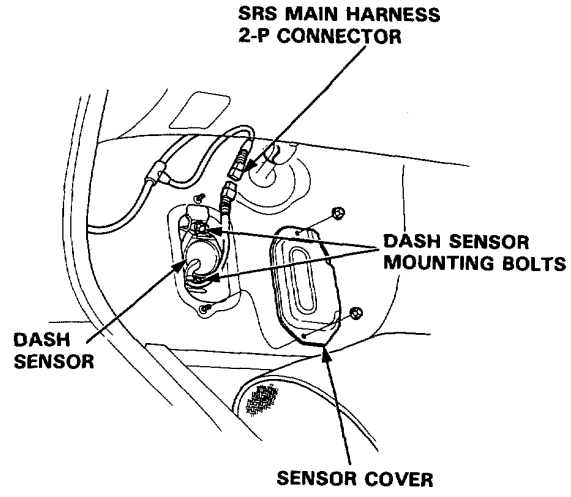
CAUTION:
- **Do not damage the sensor wiring.**
- **Do not install used SRS parts from another car. When repairing: use only new SRS parts.**
- **Carefully inspect the front sensors for signs of being dropped or improperly handled, such as dents, cracks or deformation.**

NOTE: LHD type is shown. RHD type is symmetrical to LHD type.

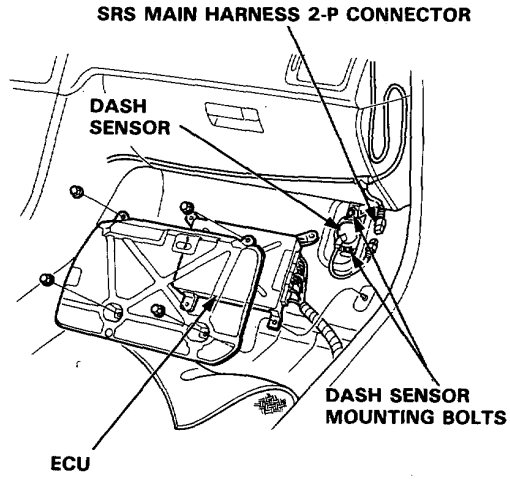
1. Disconnect the battery negative cable, then disconnect the positive cable.
2. Install the short connector on airbag (See page 23-412).



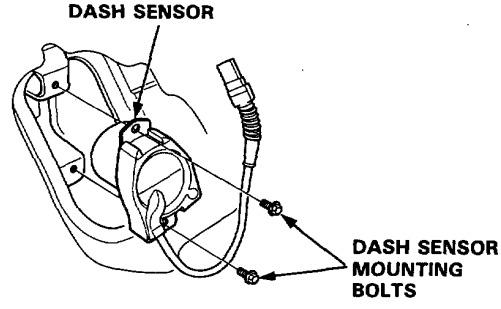
3. Remove the footrest and left door sill molding, then pull the carpet back, and remove the sensor cover.



4. Remove the door sill molding and pull back the carpet. Remove the ECU.



5. Remove the 2 mounting bolts, then remove the dash sensor.



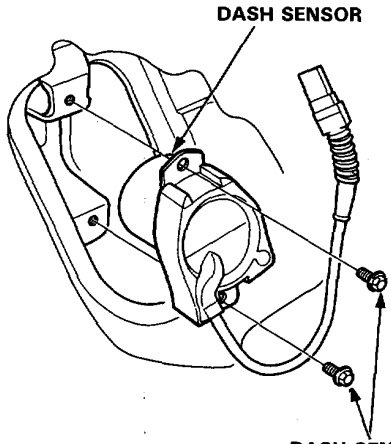
cardiagn.com

Dash Sensor Installation

CAUTION:

- **Be sure to install the harness wires so that they are not pinched or interfering with other car parts.**
- **Replace a sensor if it is dented, cracked or deformed.**
- **For the SRS to function properly, the right and left sensors must be installed on the proper sides.**

1. Be sure the battery cables are disconnected.
2. Install the sensor securely.



DASH SENSOR MOUNTING BOLTS
8 mm x 1.25
22 N·m (2.2 kg-m, 16 lb-ft)
Replace.

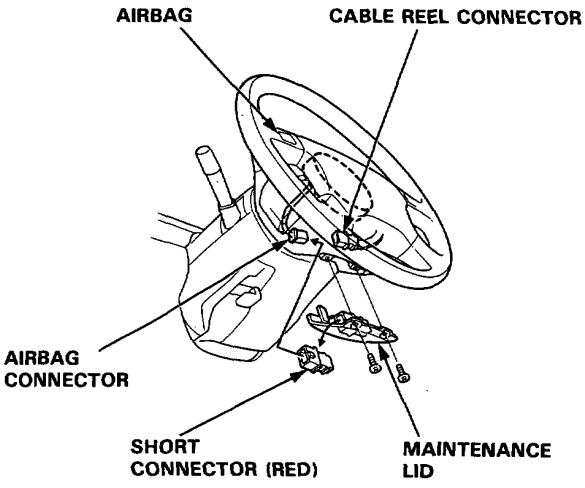
3. Reinstall the sensor cover, carpet, molding, footrest and ECU.
4. Remove the short connector from the airbag connector and connect the cable reel and airbag harness.
5. Reconnect the battery positive cable, then the negative cable.
6. After installing the dash sensor, confirm proper system operation.
   - Turn on the ignition to II: the instrument panel SRS indicator light should go on for about 6 seconds and then go off.

cardiagn.com

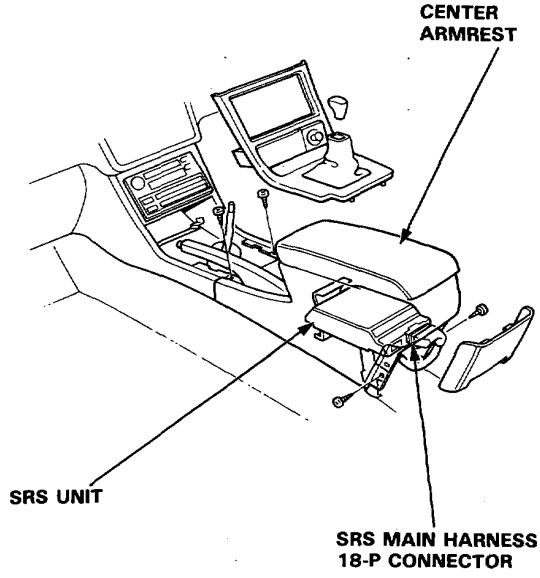
SRS Unit Removal

CAUTION:
- **Always keep the short connector on the airbag connector when the harness is disconnected.**
- **Do not damage the SRS unit terminal or connectors.**
- **Do not disassemble the SRS unit; it has no serviceable parts.**
- **Store the SRS unit in a clean, dry area.**
- **Do not use any SRS unit which has been subjected to water damage or shows signs of being dropped or improperly handled, such as dents, cracks or deformation.**

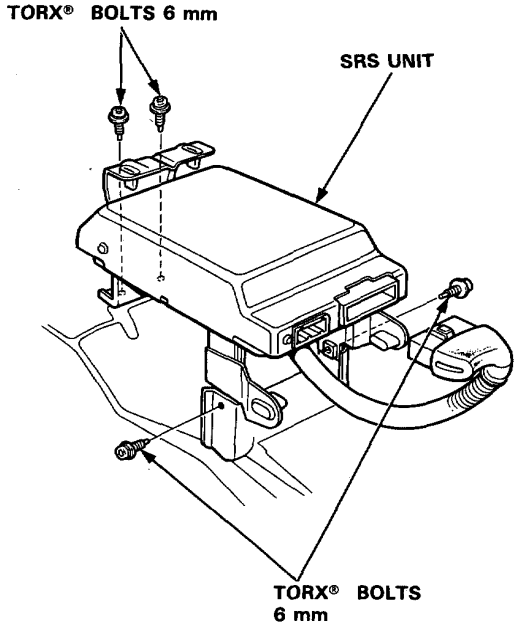
1. Disconnect the battery negative cable, then disconnect the positive cable.
2. Install the short connector on airbag. (See page 23-412).



3. Remove the center armrest, then disconnect the SRS main harness 18-P connector from the SRS unit.



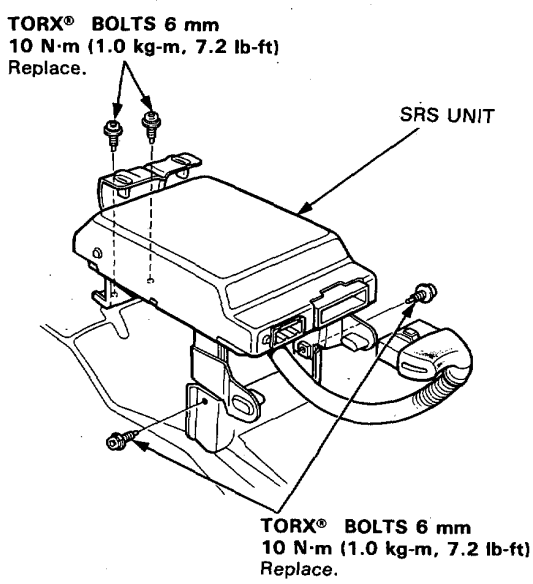
4. Remove the 4 SRS unit mounting bolts, then remove the SRS unit.



cardiagn.com

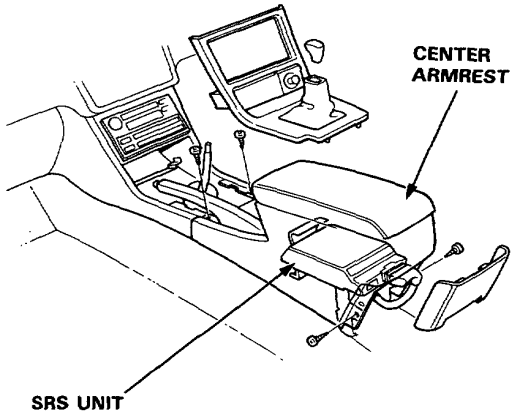
CAUTION: Be sure to install the SRS wiring so that it is not pinched or interfering with other car parts.

1. Install the SRS unit.



2. Connect the SRS main harness 18-P connector to the SRS unit; push it into position until it clicks.

3. Install the center armrest.



4. Remove the short connector from the airbag connector, then reconnect the cable reel connector to the airbag connector.

   NOTE: Attach the short connector to lid, then install the lid.

5. Reconnect the battery positive cable, then the negative cable.

6. After installing the SRS unit assembly, confirm proper system operation.

   - Turn the ignition to II: the instrument panel SRS indicator light should go on for about 6 seconds and then go off.

cardiagn.com

Wiring Diagrams

Index

Air Conditioner 22
Anti-lock Brake System 20
Automatic Transmission Control System .. 19
Battery 1
Blower Controls 22
Charging System 1
Cigarette Lighter 10
Clock 7
Cruise Control 14
Defogger, Rear Window 15
Fuel Injection System 18
Gauges 2, 3
Headlight Adjuster 11
Heater Control 22
Horns 10
Ignition Switch 1
Ignition System 1
Indicator
- Brake Warning 3
- Lights-on Reminder 7
- Low Fuel Indicator 3
- Oil Pressure Warning 3
- Safety Indicator 4
- Seat Belt Reminder 7
- Shift Lever Position Indicator 4
- Washer Fluid Level Indicator 2

Integrated Control Unit 6, 7
Lights, Exterior
- Back-up Lights 10
- Brake lights 5
- Front Side Marker Lights 7
- Hazard Lights 10
- Headlights 7, 8
- License Plate Lights 9
- Parking Light 9
- Rear Fog Light 8
- Rear Side Marker Lights 9
- Taillights 9
- Turn Signal Lights 10

Lights, Interior
- Ashtray Lights 10
- Coin Box Light 9
- Courtesy Lights 6
- Dashlight Brightness Control 9
- Dome Lights 6
- Entry Light Timer 6
- Foot Lights 6
- Glove Box Light 9
- Ignition Key Light 6
- Trunk Light 5
- Vanity Mirror Lights 9

Lighting System 8
Locks, Keyless/Power door 12
Mirrors, Power 13
Oil Level Warning System 4
Opener, Trunk 12
Radiator and Condenser Fan Controls 2
Seats, Heater 17
Seat, Power 16, 17
Security Alarm System 21
Speed Alarm System 4
Starting System 1
Stereo Sound System 11
Sunroof 14
Supplemental Restraint System (SRS) 17
Turn Signal/Hazard
- Flasher System 10

Washer, Headlight 15
Washer, Windshield 15
Windows, Power 13
Wipers, Windshield 15

Fuel Injected System Diagram
Fuel Injected System Connectors

cardiagn.com