

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

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

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Acura dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags, side airbags, and/or side curtain airbags.
- Do not bump or impact the SRS unit, front impact sensors, side impact sensors, or rear safing sensor, especially when the ignition switch is in ON (II)/the ON mode, for at least 3 minutes after the ignition switch is turned to LOCK (0), or after the engine start/stop button is pressed to select the OFF mode; otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, center console, dashboard, dashboard undercover, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.

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Engine Electrical

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System

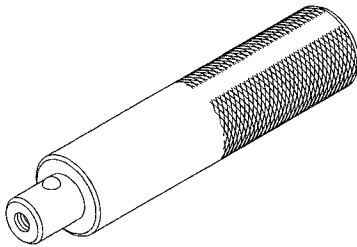
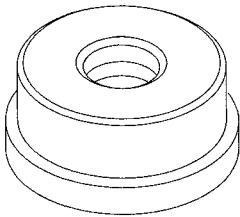
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Engine Electrical

Special Tools

Ref.No.	Tool Number	Description	Qty
①	07746-0010300	Bearing Driver Attachment, 42 x 47 mm	1
②	07749-0010000	Driver Handle, 15 x 135L	1

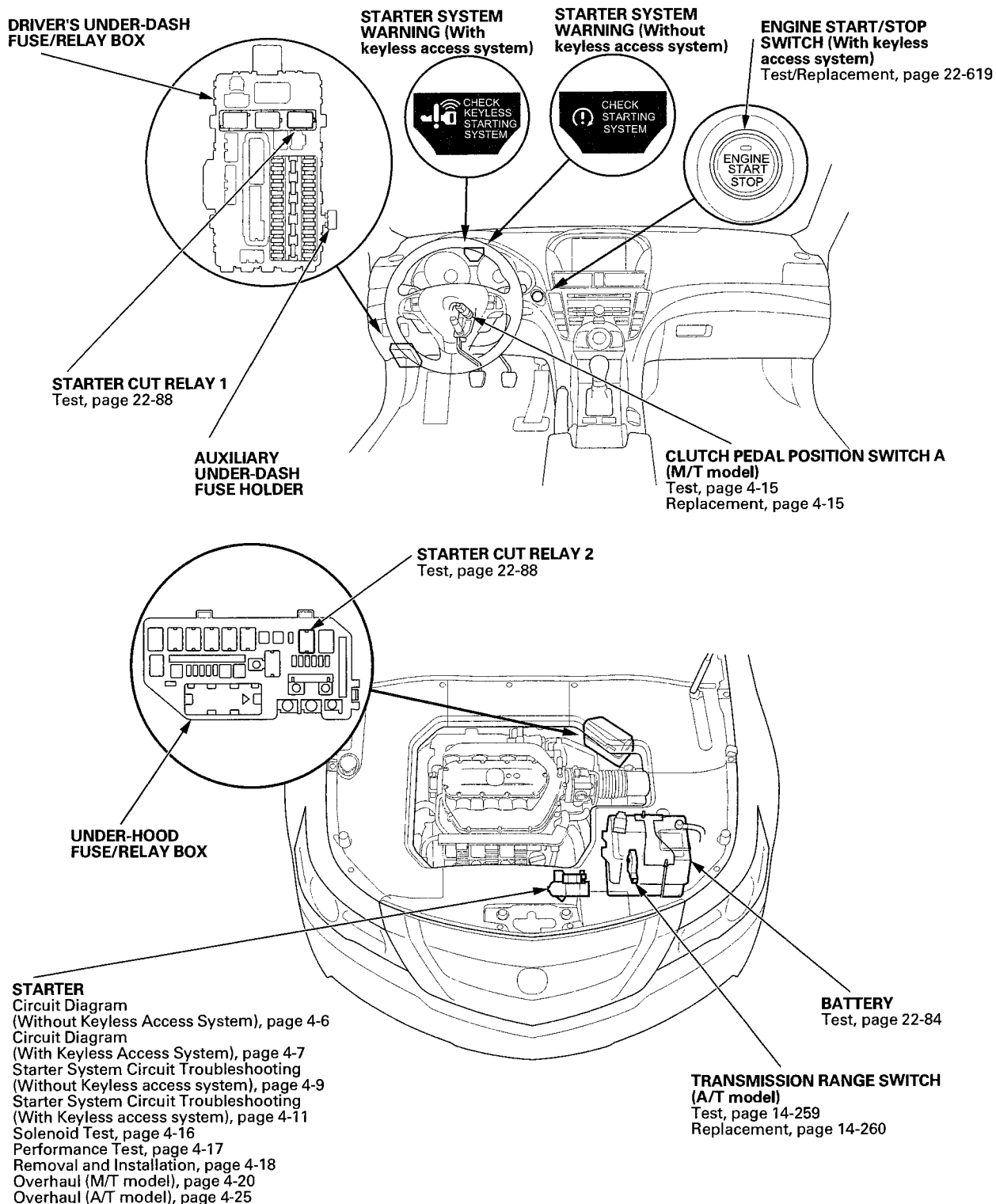


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Starting System



Component Location Index



Starting System

Symptom Troubleshooting Index

Without Keyless Access System

Symptom	Diagnostic procedure	Also check for
Engine does not crank	1. Check for PGM-FI DTCs (see page 11-3). 2. Check the PGM-FI main relays (see page 22-88). 3. Check for loose battery terminals or connections. 4. Test the battery for a low state of charge (see page 22-84). 5. Check the starter (see page 4-9). 6. Check the starter cut relay 1 and starter cut relay 2 (see page 22-88). 7. Check the transmission range switch (see page 14-259). 8. Check the ignition switch and its related circuits (see page 22-96).	Poor ground at G101
Engine cranks, but does not start	1. Check for PGM-FI DTCs (see page 11-3). 2. Check for IMMOBI status and function (see page 22-440). 3. Check the fuel pressure (see page 11-369). 4. Check for a plugged or damaged fuel line (see page 11-372). 5. Check for a plugged fuel filter. 6. Check the throttle body (see page 11-420). 7. Check for low engine compression: • J35Z6 engine (see page 6-7) • J37A4 engine (see page 6-69) 8. Check for a damaged or broken timing belt. 9. Do the powertrain control module (PCM) reset in the PGM-FI INSPECTION menu to cancel ALL INJECTORS STOP with the Honda Diagnostic System (HDS).	Weak or fouled spark plugs
Engine is hard to start	1. Check for PGM-FI DTCs (see page 11-3). 2. Check the fuel pressure (see page 11-369). 3. Check for a plugged or damaged fuel line (see page 11-372). 4. Check for a plugged fuel filter.	Weak or fouled spark plugs
Engine cranks slowly	1. Check for loose battery terminals or connections. 2. Test the battery for a low state of charge (see page 22-84). 3. Check the starter for binding (see page 4-25). 4. Check for excessive drag in the engine.	
Multi-information display warning CHECK STARTING SYSTEM	Check for PGM-FI DTCs (see page 11-3).	



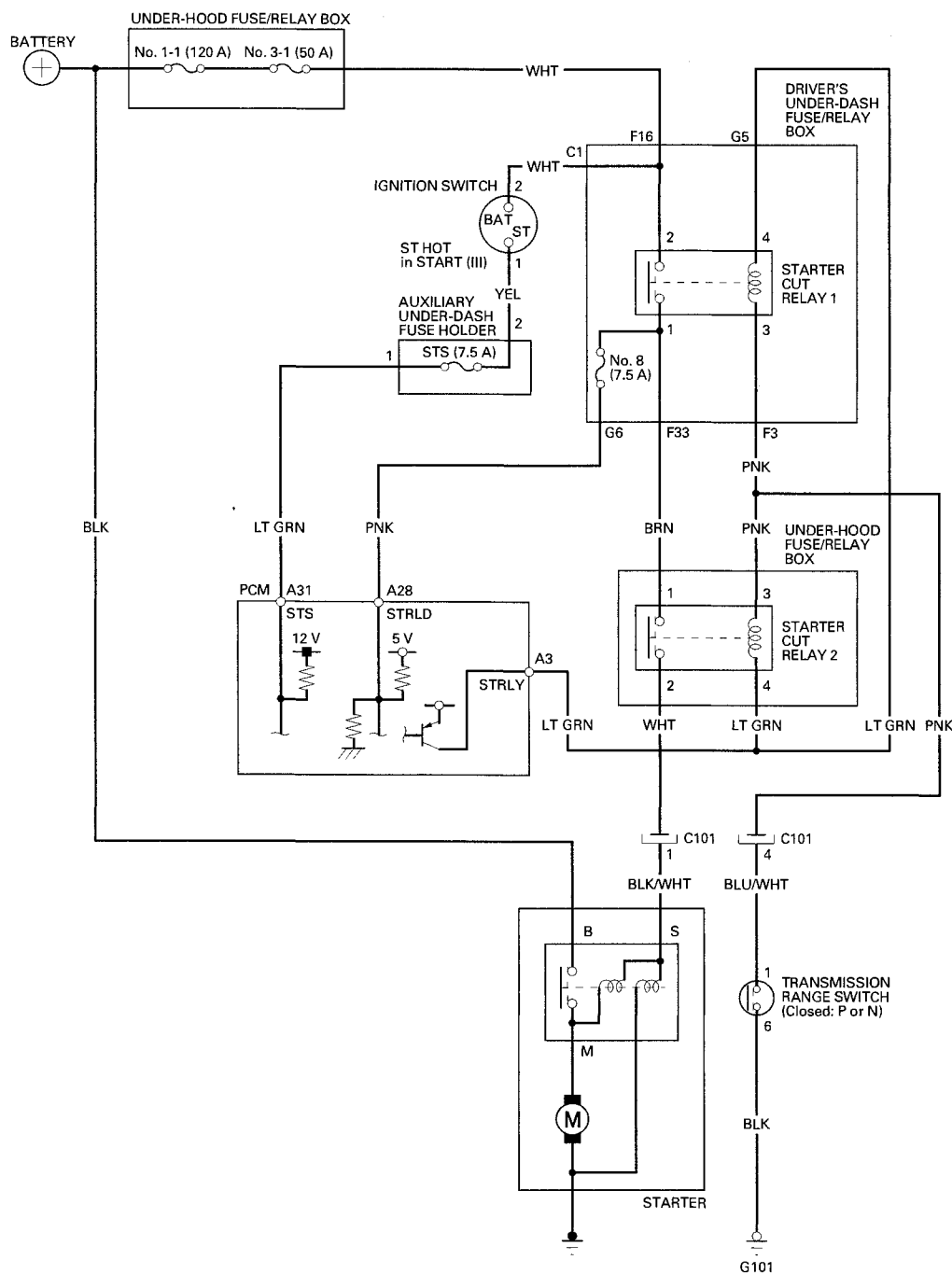
With Keyless Access System

Symptom	Diagnostic procedure	Also check for
Engine does not crank	1. Check for loose battery terminals or connections. 2. Test the battery for a low state of charge (see page 22-84). 3. Check for PGM-FI DTCs (see page 11-3). 4. Check for BODY DTCs (see page 22-3). 5. Check the PGM-FI main relays (see page 22-88). 6. Check for symptom troubleshooting: • Engine does not start with the remote or with the remote in the remote slot (see page 22-561). • Engine does not start with the remote (see page 22-579). • Engine does not start with the remote in the remote slot (see page 22-580). 7. Check the starter (see page 4-11). 8. Check the starter cut relay 1 and starter cut relay 2 (see page 22-88). 9. Check the +B cut relay (M/T model) (see page 22-88). 10. Check the brake pedal position switch (see page 22-240). 11. Check the transmission range switch (A/T model) (see page 14-259). 12. Check the clutch pedal position switch A (M/T model) (see page 4-15). 13. Check the engine start/stop switch and its related circuits (see page 22-619).	Poor ground at G101 (M/T model) or G101 (A/T model)
Engine cranks, but does not start	1. Check for PGM-FI DTCs (see page 11-3). 2. Check for keyless access system symptom troubleshooting information (see page 22-555). 3. Check the fuel pressure (see page 11-369). 4. Check for a plugged or damaged fuel line (see page 11-372). 5. Check for a plugged fuel filter. 6. Check the throttle body (see page 11-420). 7. Check for low engine compression: • J35Z6 engine (see page 6-7) • J37A4 engine (see page 6-69) 8. Check for a damaged or broken timing belt. 9. Do the engine control module (ECM)/powertrain control module (PCM) reset in the PGM-FI INSPECTION menu to cancel ALL INJECTORS STOP with the Honda Diagnostic System (HDS).	Weak or fouled spark plugs
Engine is hard to start	1. Check for PGM-FI DTCs (see page 11-3). 2. Check the fuel pressure (see page 11-369). 3. Check for a plugged or damaged fuel line (see page 11-372). 4. Check for a plugged fuel filter.	Weak or fouled spark plugs
Engine cranks slowly	1. Check for loose battery terminals or connections. 2. Test the battery for a low state of charge (see page 22-84). 3. Check the starter for binding (see page 4-25). 4. Check for excessive drag in the engine.	
Multi-information display warning CHECK KEYLESS STARTING SYSTEM	Check for PGM-FI DTCs (see page 11-3).	
Engine does not stop	1. Check for BODY DTCs (see page 22-3). 2. Check the engine start/stop switch (see page 22-619).	

Starting System

Circuit Diagram

Without Keyless Access System

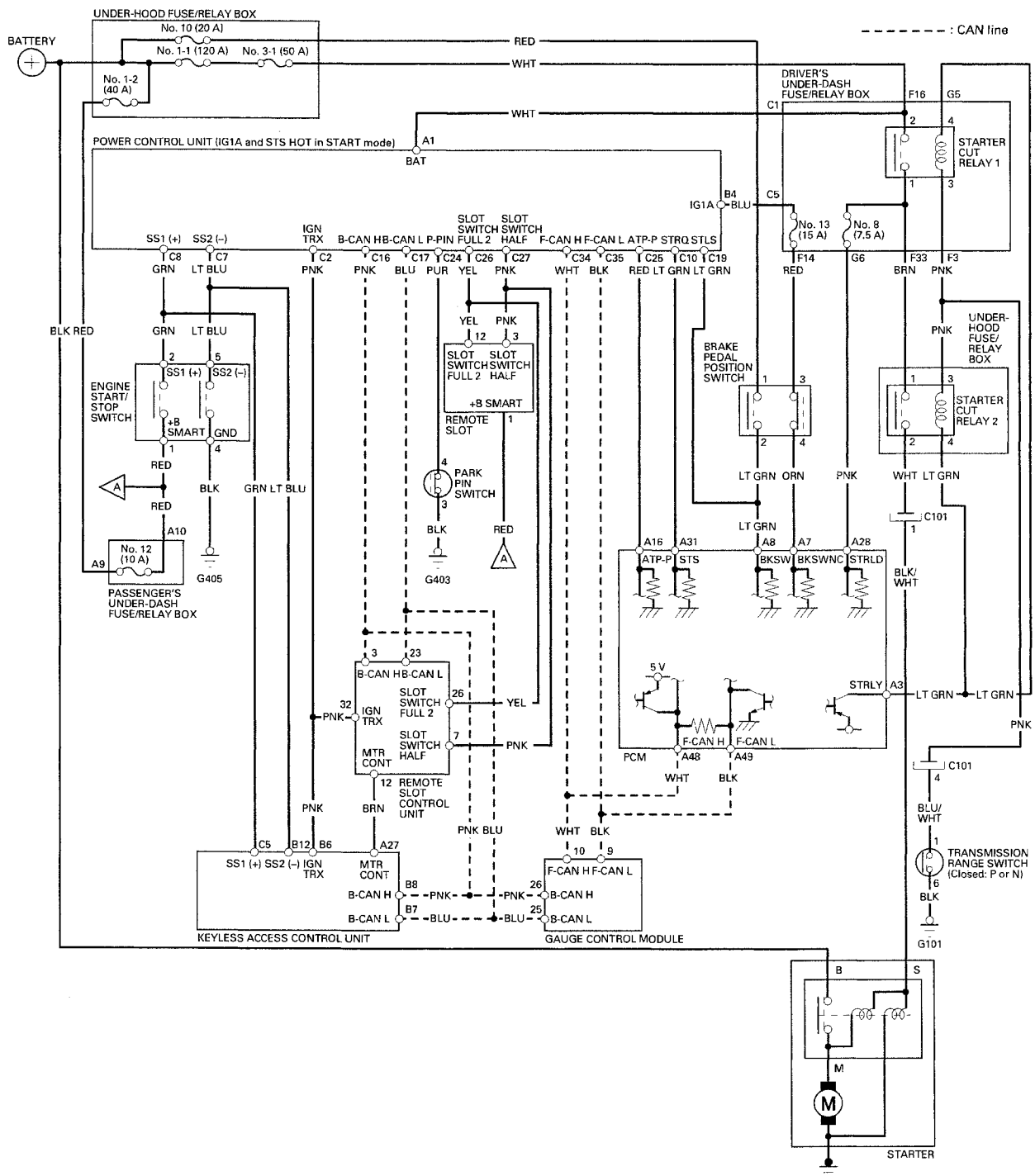




Starting System

Circuit Diagram (cont'd)

With Keyless Access System-A/T model





Starter System Circuit Troubleshooting

Special Tools Required

Alternator, Regulator, Battery, and Starter Tester OTC3131*

*Available through the Acura Tool and Equipment Program 888-424-6857

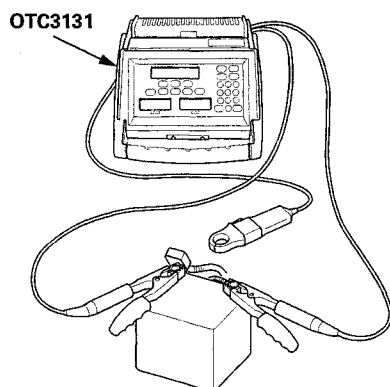
Without Keyless Access System

NOTE:

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

1. Remove the engine compartment covers (see page 20-186).
2. Connect the alternator, regulator, battery and starter tester (OTC3131) to the battery as shown.

NOTE: The probe is not used for battery testing.



3. Do the BATTERY TEST.

Does the display indicate GOOD or GOOD, LOW CHARGE?

YES—The battery is OK. Charge the battery if necessary, then go to step 4.

NO—If the display indicates BAD BATTERY, replace the battery, then retest. If the display indicates CHARGE & RETEST, charge the battery, then retest.

4. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
5. Turn the ignition switch to ON (II).
6. Make sure the HDS communicates with the vehicle and the PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-258).
7. Select ALL INJECTORS STOP in the PGM-FI INSPECTION menu with the HDS.
8. Set the parking brake, then with the shift lever in N or P, turn the ignition switch to START (III) to crank the engine.

NOTE: The auto-start function cranks the engine until it starts, or for 15 seconds if the engine does not start.

Does the starter crank the engine normally?

YES—The starting system is OK. Go to step 16.

NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).
10. Check the electrical connections at the battery, the negative battery cable to the body, the engine ground cables, and the starter for looseness and corrosion. Then try cranking the engine again.

Does the starter crank the engine normally?

YES—Repairing the loose connection corrected the problem. The starting system is OK. Go to step 16.

NO—Based on the following symptoms, take the appropriate action:■

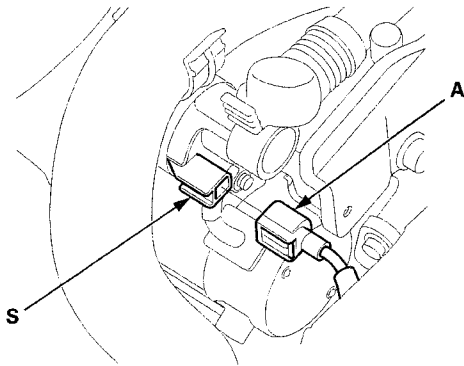
- If the starter does not crank the engine at all, go to step 11.
- If the starter cranks the engine erratically or too slowly, go to step 13.
- If the starter does not disengage from the torque converter ring gear when you release the key, replace the starter, or remove and disassemble it, and check for the following:
 - Starter solenoid and switch malfunction.
 - Dirty drive gear or damaged overrunning clutch.

(cont'd)

Starting System

Starter System Circuit Troubleshooting (cont'd)

11. Make sure the shift lever is in N or P, then disconnect the connector (A) from the starter S terminal. Connect a jumper wire from the battery positive terminal to the S terminal.



Does the starter crank the engine?

YES—Go to step 12.

NO—Remove the starter (see page 4-18), then repair or replace (see page 4-25) it as necessary. ■

12. Check the following items in the order listed until you find the problem in the circuit: ■

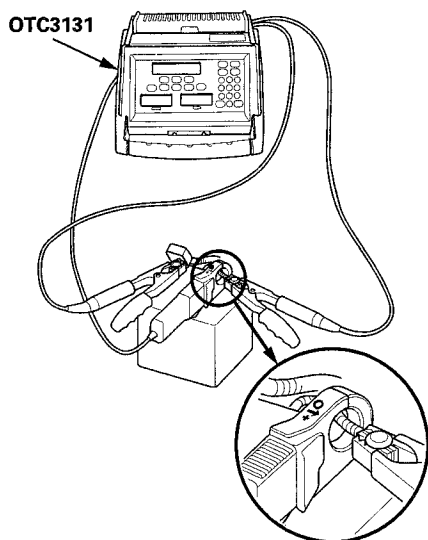
NOTE: After the problem in the circuit is found and repaired, go to step 16.

- A blown STS (7.5 A) fuse in the auxiliary under-dash fuse holder located below the driver's under-dash fuse/relay box.
- A blown No. 8 (7.5 A) fuse in the driver's under-dash fuse/relay box.
- Check for an open or short in the WHT wire and connectors between the starter cut relay 1, the ignition switch, and the under-hood fuse/relay box.
- Check for an open or short in the PNK wire and connectors between the starter cut relay 1 and the PCM.
- Check for an open or short in the BRN wire and connectors between the starter cut relay 1 and the starter cut relay 2.
- Check for an open or short in the WHT wire, BLK/WHT wire, and connectors between the starter cut relay 2 and the starter.
- Check for an open or short in the YEL wire, LT GRN wire, and connectors between the ignition switch and the PCM.
- Check for an open or short in the LT GRN wire and connectors between the PCM, the starter cut relay 1, and the starter cut relay 2.
- Check for an open or short in the PNK wire and connectors between the starter cut relay 1 and the starter cut relay 2.
- Check for an open or short in the PNK wire, BLU/WHT wire, and connectors between the starter cut relay 1, the starter cut relay 2, and the transmission range switch.
- Check for poor connections or loose terminals at the transmission range switch and body ground (G101).
- Check for a faulty ignition switch (see page 22-96).
- Check for a faulty transmission range switch (see page 14-259).
- Check for a faulty starter cut relay 1 and the starter cut relay 2 (see page 22-88).



13. Connect the alternator, regulator, battery and starter tester (OTC3131) to the battery.

NOTE: The probe is used for starter testing.



14. Do the STARTING TEST.

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

YES—Go to step 15.

NO—Replace the starter (see page 4-18), or remove and disassemble it (see page 4-25), and check for these problems: ■

- Drag in the starter armature
- Short in the armature winding
- Excessive drag in the engine
- Open circuit in starter armature commutator segments
- Excessively worn starter brushes
- Open circuit in the starter brushes
- Dirty or damaged helical splines or drive gear
- Faulty overrunning clutch

15. Remove the starter, and inspect its drive gear and the torque converter ring gear for damage. Replace any damaged parts.
16. Select PCM reset (see page 11-4) in the PGM-FI INSPECTION menu to cancel ALL INJECTORS STOP with the HDS.
17. Install the engine compartment covers (see page 20-186).

Special Tools Required

Alternator, Regulator, Battery, and Starter Tester OTC3131*

*Available through the Acura Tool and Equipment Program 888-424-6857

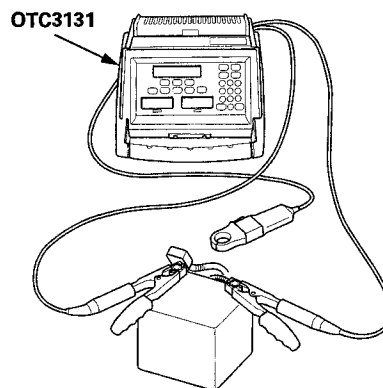
With Keyless Access System

NOTE:

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

1. Remove the engine compartment covers (see page 20-186).
2. Connect the alternator, regulator, battery and starter tester (OTC3131) to the battery as shown.

NOTE: The probe is not used for battery testing.



3. Do the BATTERY TEST.

Does the display indicate GOOD or GOOD, LOW CHARGE?

YES—The battery is OK. Charge the battery if necessary, then go to step 4.

NO—If the display indicates BAD BATTERY, replace the battery, then retest. If the display indicates CHARGE & RETEST, charge the battery, then retest.

(cont'd)

Starting System

Starter System Circuit Troubleshooting (cont'd)

4. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
5. Press the engine start/stop button to select the ON mode.
6. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-258).
7. Select ALL INJECTORS STOP in the PGM-FI INSPECTION menu with the HDS.
8. Set the parking brake, then with the clutch pedal pressed (M/T model) or the shifter in N or P (A/T model), and press the brake pedal and press the engine start/stop button to select the engine START mode to crank the engine.

NOTE: The auto-start function cranks the engine until it starts, or for 15 seconds if the engine does not start.

Does the starter crank the engine normally?

YES—The starting system is OK. Go to step 17.

NO—Go to step 9.

9. Press the engine start/stop button to select the OFF mode.
10. Check the electrical connections at the battery, the negative battery cable to the body, the engine ground cables, and the starter for looseness and corrosion, then try cranking the engine again.

Does the starter crank the engine normally?

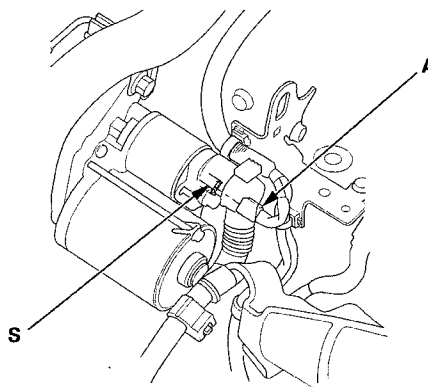
YES—Repairing the loose connection corrected the problem. The starting system is OK. Go to step 17.

NO—Based on the following symptoms, take the appropriate action:■

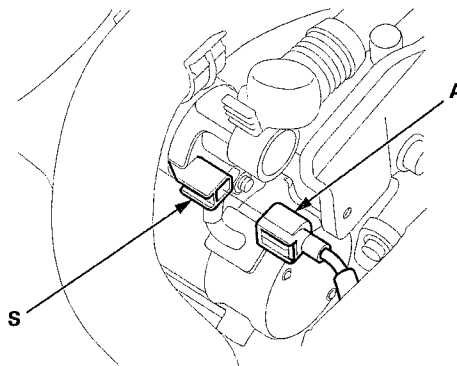
- If the starter does not crank the engine at all, go to step 11.
- If the starter cranks the engine erratically or too slowly, go to step 14.
- If the starter does not disengage from the flywheel ring gear (M/T model) or the torque converter ring gear (A/T model) when you release the key, replace the starter, or remove and disassemble it, and check for the following:
 - Starter solenoid and switch malfunction.
 - Dirty drive gear or damaged overrunning clutch.

11. Make sure the shift lever is in neutral (M/T model) or N or P (A/T model), then disconnect the connector (A) from the starter S terminal. Connect a jumper wire from the battery positive terminal to the S terminal.

M/T model



A/T model



Does the starter crank the engine?

YES—Go to step 12 (M/T model)/go to step 13 (A/T model).

NO—Remove the starter (see page 4-18), then repair or replace it as necessary.■

- M/T model (see page 4-20)
- A/T model (see page 4-25)



12. M/T model: Check the following items in the order listed until you find the problem in the circuit:■

NOTE: After the problem in the circuit is found and repaired, go to step 17.

- A blown No. 8 (7.5 A) fuse in the driver's under-dash fuse/relay box.
- Check for an open or short in the WHT wire and connectors between the starter cut relay 1, the power control unit, and the under-hood fuse/relay box.
- Check for an open or short in the PNK wire and connectors between the starter cut relay 1 and the ECM.
- Check for an open or short in the BRN wire and connectors between the starter cut relay 1 and the starter cut relay 2.
- Check for an open or short in the WHT wire, BLK/WHT wire, and connectors between the starter cut relay 2 and the starter.
- Check for an open or short in the LT GRN wire and connectors between the power control unit and the ECM.
- Check for an open or short in the LT GRN wire and connectors between the ECM, the starter cut relay 1.
- Check for an open or short in the PNK wire and connectors between the power control unit, the starter cut relay 2, the clutch pedal position switch A, and the ECM.
- Check for poor connections or loose terminals at the starter cut relay 1 and body ground (G301).
- Check for poor connections or loose terminals at the clutch pedal position switch A and body ground (G301).
- Check for an open or short in the LT GRN wire and connectors between the starter cut relay 1 and the +B cut relay.
- Check for an open or short in the GRY wire and connectors between the starter cut relay 2 and the +B cut relay.
- Check for a faulty clutch pedal position switch A (see page 4-15).
- Check for a faulty starter cut relay 1 and the starter cut relay 2 (see page 22-88).
- Check for faulty +B cut relay (see page 22-240).

13. A/T model: Check the following items in the order listed until you find the problem in the circuit:■

NOTE: After the problem in the circuit is found and repaired, go to step 17.

- A blown No. 8 (7.5 A) fuse and No. 13 (15 A) fuse in the driver's under-dash fuse/relay box.
- Check for an open or short in the WHT wire and connectors between the starter cut relay 1, the power control unit, and the under-hood fuse/relay box.
- Check for an open or short in the PNK wire and connectors between the starter cut relay 1 and the PCM.
- Check for an open or short in the BRN wire and connectors between the starter cut relay 1 and the starter cut relay 2.
- Check for an open or short in the WHT wire, BLK/WHT wire, and connectors between the starter cut relay 2 and the starter.
- Check for an open or short in the LT GRN wire and connectors between the power control unit and the PCM.
- Check for an open or short in the LT GRN wire and connectors between the PCM, the starter cut relay 1, and the starter cut relay 2.
- Check for an open or short in the PNK wire and connectors between the starter cut relay 1 and the starter cut relay 2.
- Check for an open or short in the PNK wire, BLU/WHT wire, and connectors between the starter cut relay 1, the starter cut relay 2, and the transmission range switch.
- Check for poor connections or loose terminals at the transmission range switch and body ground (G101).
- Check for an open or short in the LT GRN wire and connectors between the power control unit, the brake pedal position switch, and the PCM.
- Check for an open or short in the RED wire and connectors between the brake pedal position switch and the under-hood fuse/relay box.
- Check for a faulty transmission range switch (see page 14-259).
- Check for a faulty starter cut relay 1 and the starter cut relay 2. (see page 22-88)
- Check for faulty brake pedal position switch (see page 22-240).

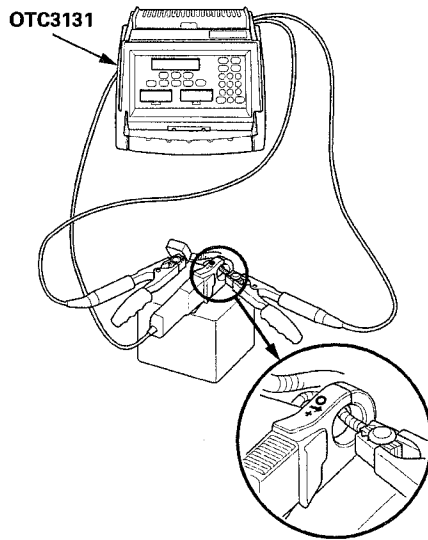
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Starting System

Starter System Circuit Troubleshooting (cont'd)

14. Connect the alternator, regulator, battery and starter tester (OTC3131) to the battery.

NOTE: The probe is used for starter testing.



15. Do the STARTING TEST.

Does the display indicate cranking voltage is greater than or equal to 8.5 V (M/T model)/8.0 V (A/T model) and is the current draw less than or equal to 380 A (M/T model)/375 A (A/T model)?

YES—Go to step 16.

NO—Replace the starter (see page 4-18), or remove and disassemble it:

- M/T model (see page 4-20)
- A/T model (see page 4-25)

and check for these problems:■

- Drag in the starter armature
- Short in the armature winding
- Excessive drag in the engine
- Open circuit in starter armature commutator segments
- Excessively worn starter brushes
- Open circuit in the starter brushes
- Dirty or damaged helical splines or drive gear
- Faulty overrunning clutch

16. Remove the starter, and inspect its drive gear and the flywheel ring gear (M/T model) the torque converter ring gear (A/T model) for damage. Replace any damaged parts.

17. Select ECM/PCM reset (see page 11-4) in the PGM-FI INSPECTION menu to cancel ALL INJECTORS STOP with the HDS.

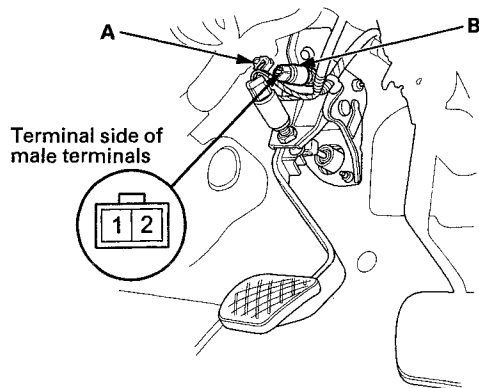
18. Install the engine compartment covers (see page 20-186).



Clutch Pedal Position Switch A Test

M/T model

1. Disconnect the clutch pedal position switch A connector (A).



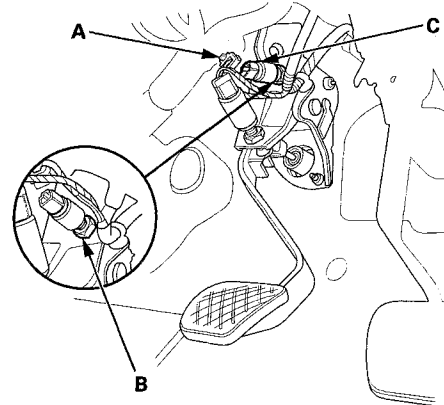
2. Remove the clutch pedal position switch A (B).
3. Check for continuity between the terminals according to the table.
 - If the continuity is not as specified, replace the clutch pedal position switch A (see page 4-15).
 - If OK, install the clutch pedal position switch A and adjust the pedal height (see page 12-6).

Terminal	1	2
Position		
Clutch Pedal Position Switch A (PRESSED)	○	○
Clutch Pedal Position Switch A (RELEASED)		

Clutch Pedal Position Switch A Replacement

M/T model

1. Disconnect the clutch pedal position switch A connector (A).



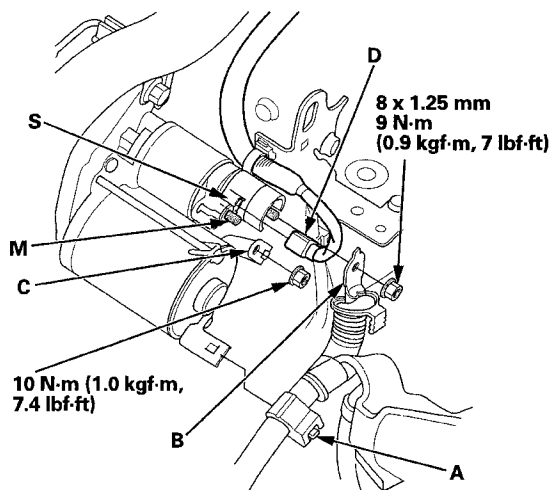
2. Loosen the locknut (B), then remove the clutch pedal position switch A (C).
3. Install the clutch pedal position switch A and adjust the pedal height (see page 12-6).

Starting System

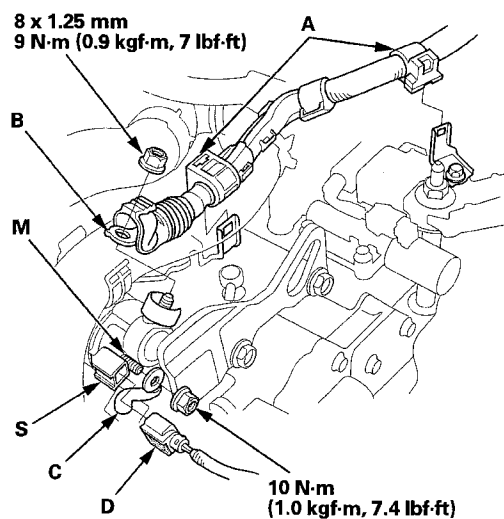
Starter Solenoid Test

1. Remove the engine compartment covers (see page 20-186).
2. Do the battery terminal disconnection procedure (see page 22-86).
3. Remove the air intake duct splash separator (see step 4 on page 5-3).
4. Remove the harness clamps (A), then disconnect the positive starter cable (B), the motor wire (C), and the S terminal connector (D).

M/T model



A/T model



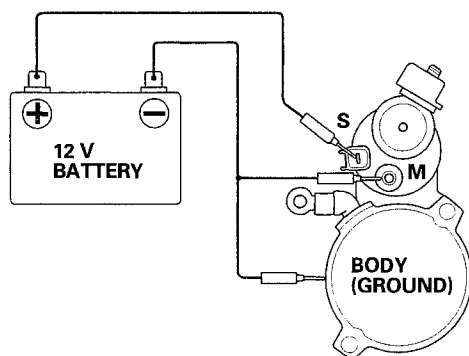
5. Check the hold-in coil for continuity between the S terminal and the armature housing (ground). There should be continuity.
 - If there is continuity, go to step 6.
 - If there is no continuity, replace the solenoid.
6. Check the pull-in coil for continuity between the S terminal and the M terminal. There should be continuity.
 - If there is continuity, the solenoid is OK.
 - If there is no continuity, replace the solenoid.
7. Install the wire and the connector in the reverse order of removal.
8. Do the battery terminal reconnection procedure (see page 22-86).
9. Install the engine compartment covers (see page 20-186).



Starter Performance Test

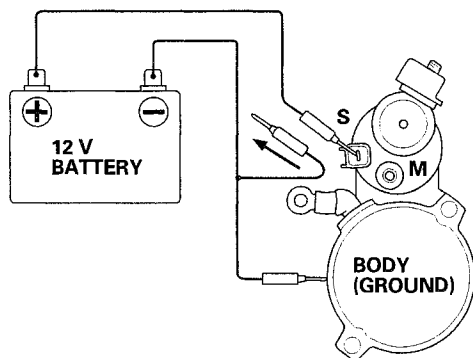
1. Remove the engine compartment covers (see page 20-186).
2. Remove the starter (see page 4-18).
3. Clamp the starter firmly in a vise.
4. Disconnect the motor wire from the M terminal.
5. Make the connections for this test using the thickest (gauge) wire possible (preferably the same gauge as used on the vehicle).

NOTE: To avoid damaging the starter, never leave the battery connected for more than 5 seconds.

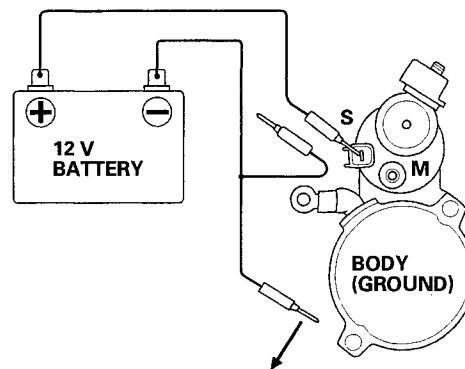


*: This illustration shows A/T model

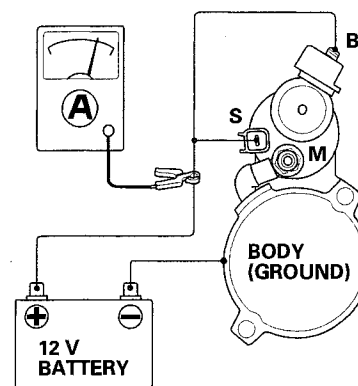
6. Connect the battery as shown. Make sure you disconnect the starter motor wire from the M terminal. If the starter pinion moves out, it is working properly.
7. Disconnect the battery from the M terminal. If the pinion does not retract, the hold-in coil of the solenoid is working properly.



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



9. Reconnect the motor wire to the M terminal.
10. Connect the starter to the battery as shown, and confirm that the motor runs.



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

Specification

Electric Current: 80 A (M/T model)/
90 A (A/T model) or less

12. Install the starter (see page 4-19).
13. Install the engine compartment covers (see page 20-186).

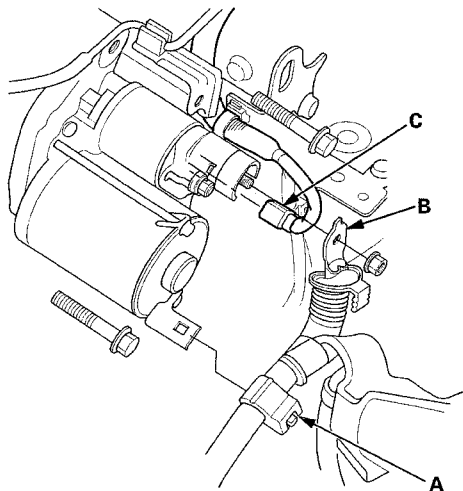
Starting System

Starter Removal and Installation

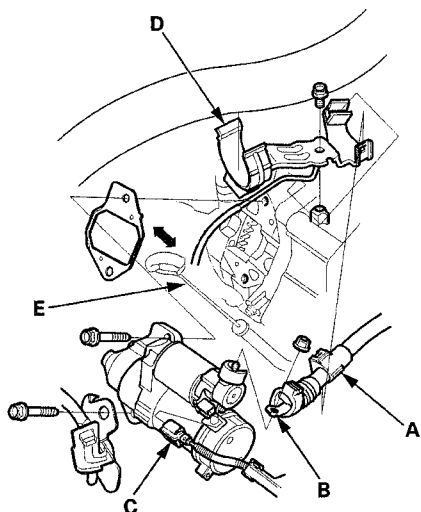
Removal

1. Remove the engine compartment covers (see page 20-186).
2. Do the battery removal procedure (see page 22-87).
3. Remove the battery base (see step 7 on page 5-3).
4. Remove the air intake duct splash separator (see step 4 on page 5-3).
5. Remove the harness clamp (A).
6. Disconnect the positive starter cable (B) and the S terminal connector (C).
7. A/T model: Remove the upper radiator hose bracket (D) and the dipstick (E).
8. Remove the two bolts holding the starter, then remove the starter.

M/T model



A/T model



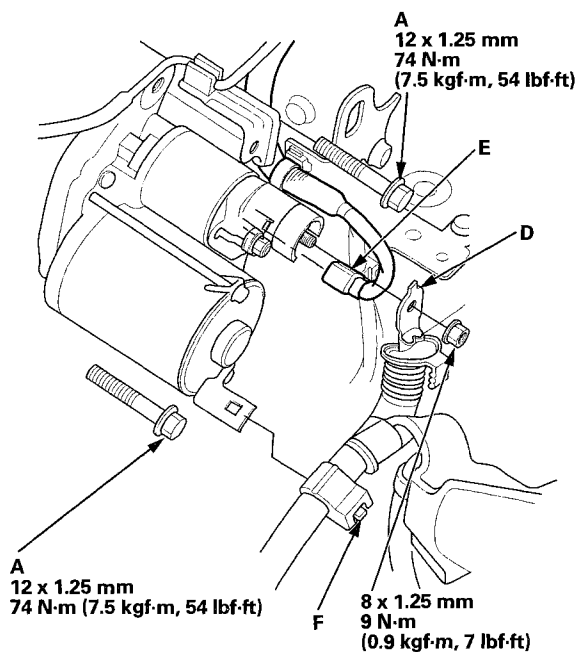


Installation

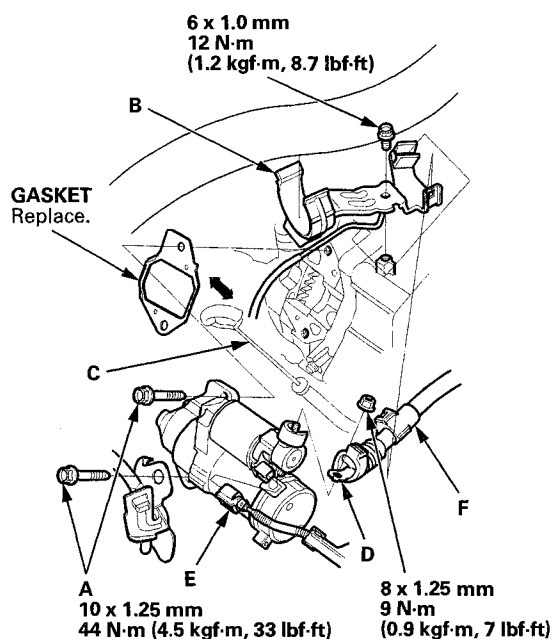
1. Install the starter, then tighten the mounting bolts (A).

NOTE: Always use a new gasket (A/T model).

M/T model



A/T model



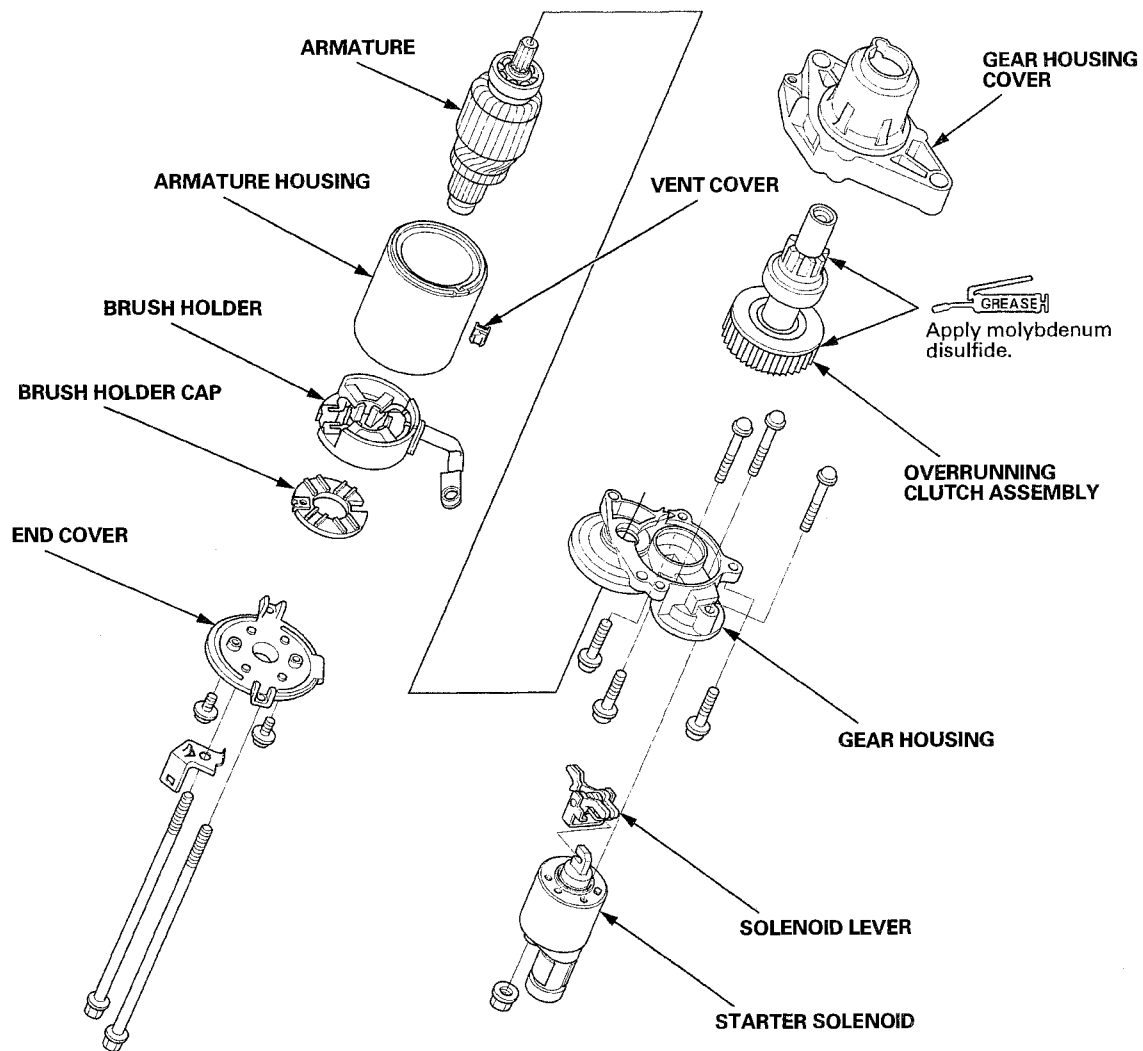
2. A/T model: Install the upper radiator hose bracket (B) and the dipstick (C).
3. Connect the positive starter cable (D) and the S terminal connector (E). Make sure the crimped side of the ring terminal faces away from the starter when you connect it.
4. Install the harness clamp (F).
5. Install the air intake duct splash separator (see step 69 on page 5-23).
6. Install the battery base (see step 65 on page 5-23).
7. Do the battery installation procedure (see page 22-87).
8. Start the engine to make sure the starter works properly.
9. Install the engine compartment covers (see page 20-186).

Starting System

Starter Overhaul

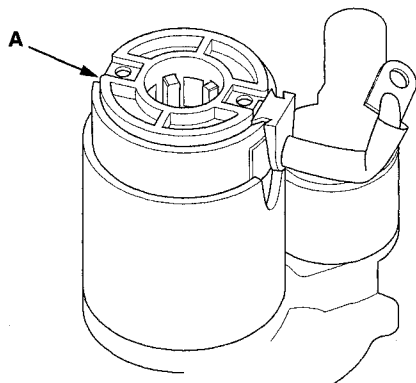
M/T model

Exploded View



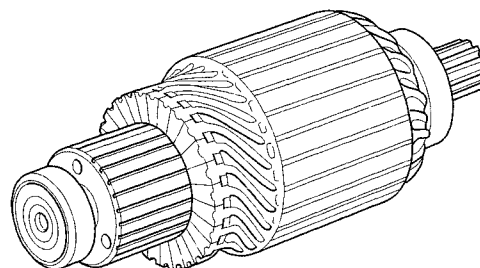
Brush Holder Removal

1. Remove the starter (see page 4-18).
2. Disconnect the motor wire from the M terminal (see page 4-16), and remove the end cover.
3. Remove the brush holder (A).

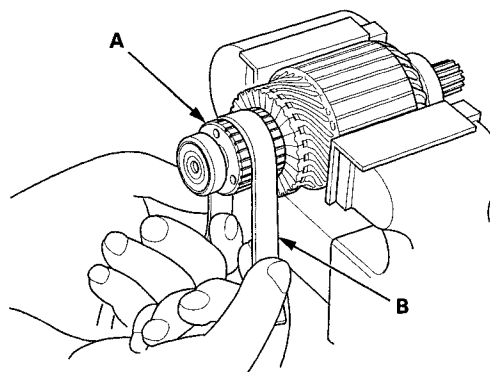


Armature Inspection and Test

4. Disassemble the starter as shown in the exploded view.
5. Inspect the armature for wear or damage from contact with the permanent magnet. If there is wear or damage, replace the armature.



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



(cont'd)

Starting System

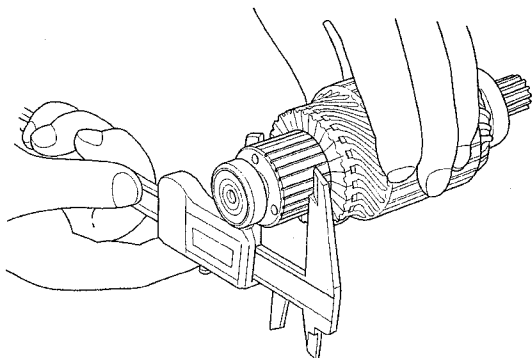
Starter Overhaul (cont'd)

7. Check the commutator diameter with a digital caliper or dial type caliper. If the diameter is below the service limit, replace the armature.

Commutator Diameter

Standard (New): 28.0—28.1 mm (1.102—1.106 in)

Service Limit: 27.5 mm (1.08 in)



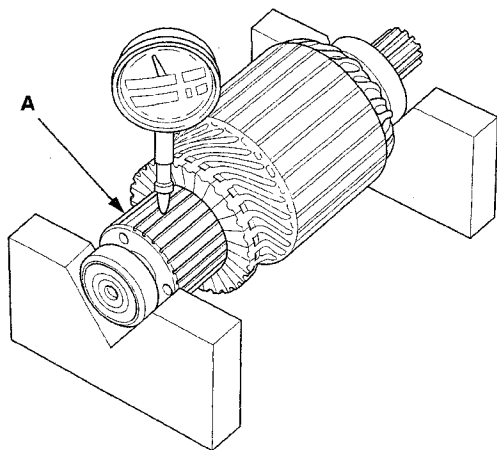
8. Measure the commutator (A) runout.

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

Commutator Runout

Standard (New): 0.02 mm (0.001 in) max.

Service Limit: 0.05 mm (0.002 in)

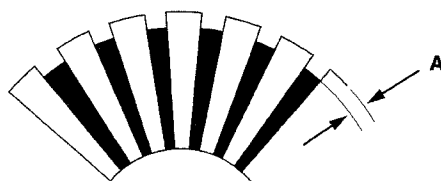


9. Use a digital caliper or dial type caliper to check the mica depth (A). If the mica depth is below the service limit, replace the armature.

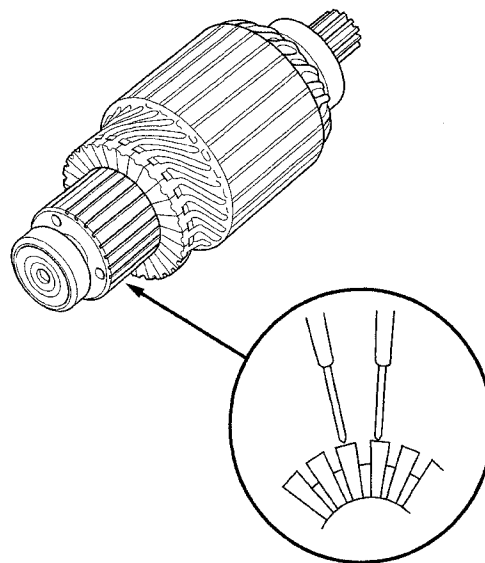
Commutator Mica Depth

Standard (New): 0.4—0.5 mm (0.016—0.020 in)

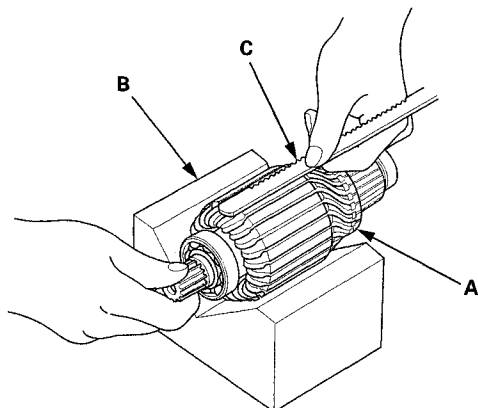
Service Limit: 0.15 mm (0.006 in)



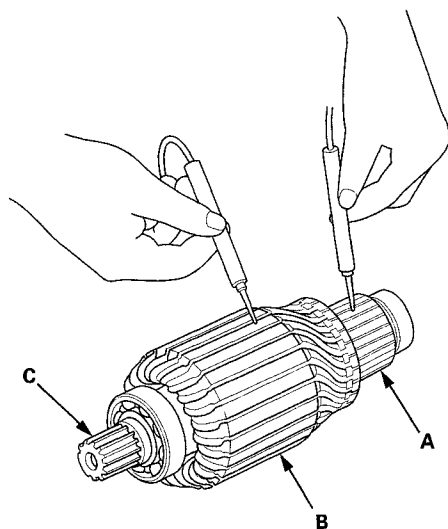
10. Use an ohmmeter to check for continuity between the segments of the commutator. If there is an open circuit between any segments, replace the armature.



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

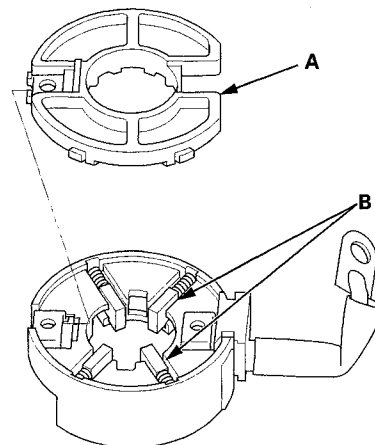


12. Use an ohmmeter to check for continuity between the commutator (A) and the armature coil core (B), and between the commutator and the armature shaft (C). If there is continuity, replace the armature.



Starter Brush Inspection

13. Remove the brush holder cap (A), then remove the brushes (B).

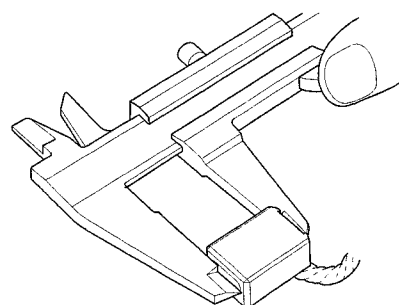


14. Measure the brush length. If it is not within the service limit, replace the brush holder assembly.

Brush Length

Standard (New): 15.8—16.2 mm (0.62—0.64 in)

Service Limit: 11.0 mm (0.43 in)



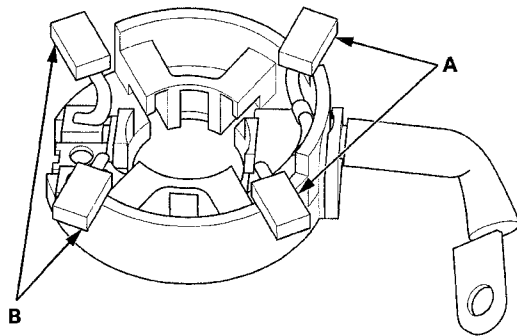
(cont'd)

Starting System

Starter Overhaul (cont'd)

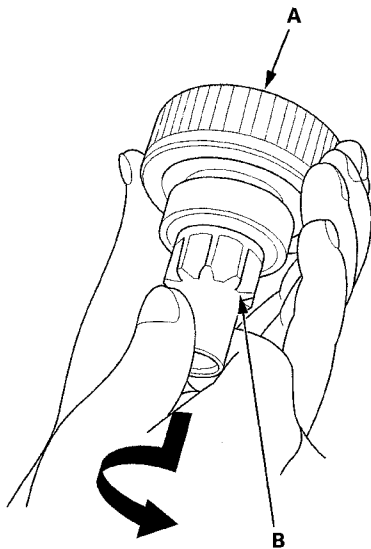
Starter Brush Holder Test

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



Overrunning Clutch Inspection

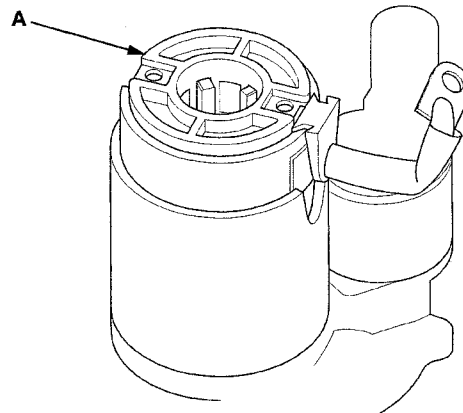
16. Slide the overrunning clutch along the shaft. Replace it if it does not slide smoothly.
17. Rotate the overrunning clutch (A) both ways. If it does not lock in either direction, or it locks in both directions, replace it.



18. If the starter drive gear (B) is worn or damaged, replace the overrunning clutch assembly; the gear is not available separately. Check the condition of the flywheel ring gear to see if the teeth are damaged.

Starter Reassembly

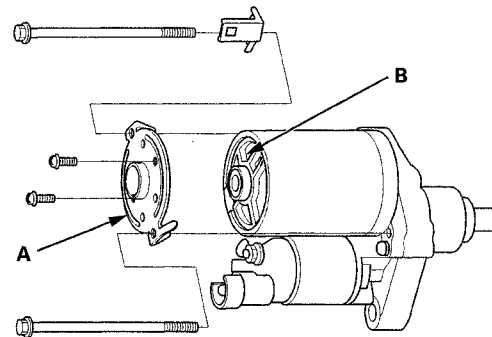
19. Install the armature in the housing.
20. Set the brushes with the brush spring in the brush holder (A).



21. Place the brush holder assembly on the armature, then move the brush holder down to the armature.

NOTE: Keep the brush holder on the armature so the brushes do not come out of the brush holder.

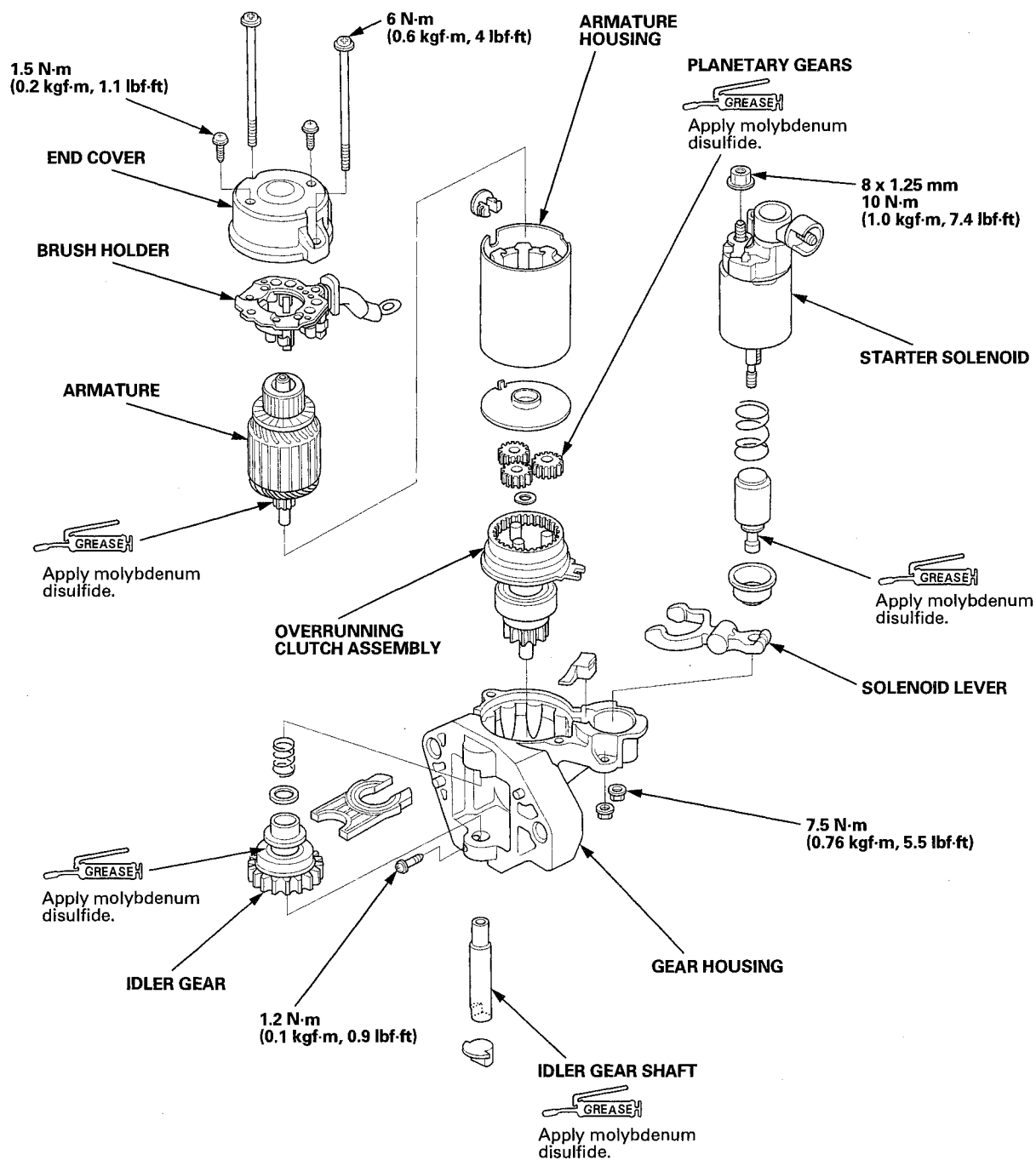
22. Install the end cover (A) to retain the brush holder (B).



23. Install the starter (see page 4-19).

A/T model

Exploded View



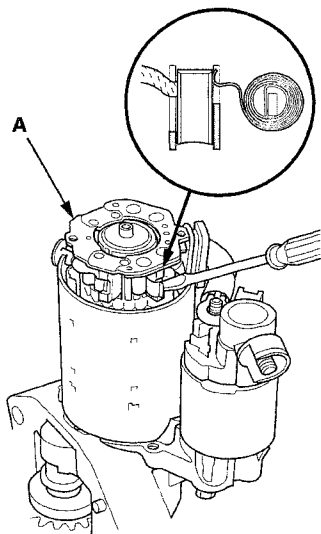
(cont'd)

Starting System

Starter Overhaul (cont'd)

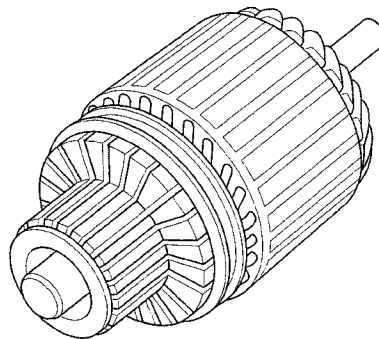
Brush Holder Removal

1. Remove the starter (see page 4-18).
2. Disconnect the motor wire from M terminal (see step 4 on page 4-16), and remove the end cover.
3. Pry back each brush spring with a screwdriver, then position the brush on the brush holder about halfway out of its holder. Release the spring to hold it in place.
4. Remove the brush holder assembly (A).

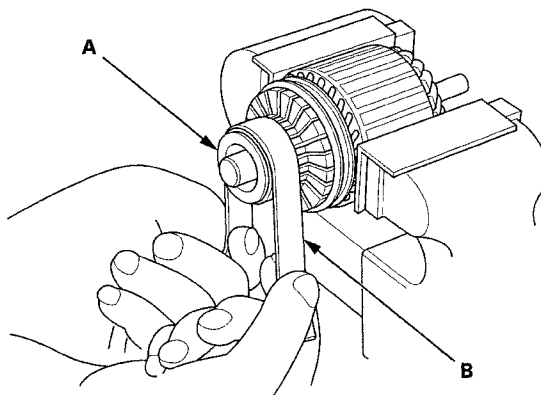


Armature Inspection and Test

5. Disassemble the starter as shown in the exploded view.
6. Inspect the armature for wear or damage from contact with the permanent magnet. If there is wear or damage, replace the armature.



7. Check the commutator (A) surface. If the surface is dirty or burnt, resurface it with an emery cloth or a lathe to the specifications in step 8, or recondition with #500 or #600 sandpaper (B).

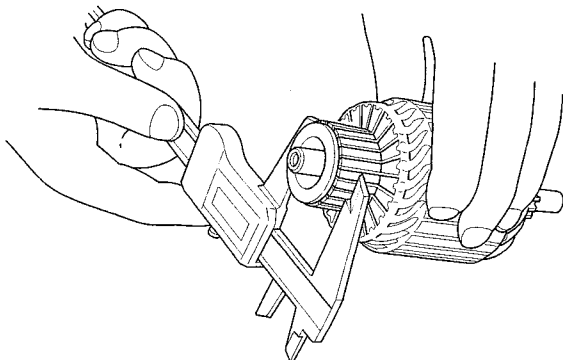


8. Check the commutator diameter with a digital caliper or dial type caliper. If the diameter is below the service limit, replace the armature.

Commutator Diameter

Standard (New): 28.9—29.0 mm (1.138—1.142 in)

Service Limit: 28.0 mm (1.10 in)



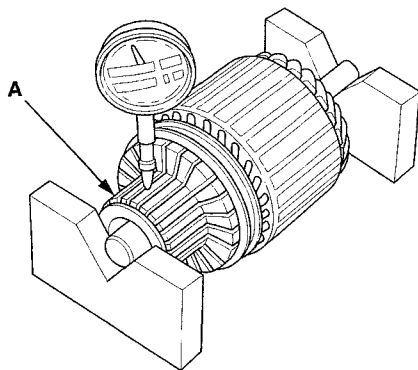
9. Measure the commutator (A) runout.

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

Commutator Runout

Standard (New): 0.02 mm (0.001 in) max.

Service Limit: 0.05 mm (0.002 in)

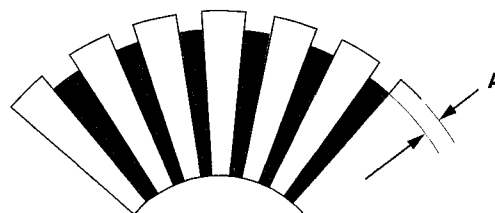


10. Use a digital caliper or dial type caliper to check the mica depth (A). If the mica depth is below the service limit, replace the armature.

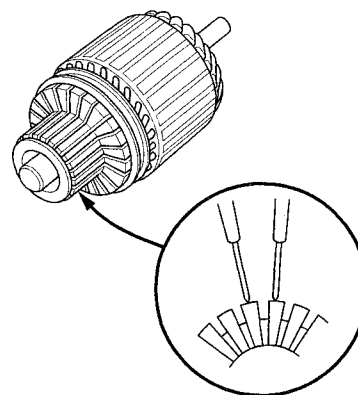
Commutator Mica Depth

Standard (New): 0.50—0.90 mm (0.020—0.035 in)

Service Limit: 0.20 mm (0.008 in)



11. Use an ohmmeter to check for continuity between the segments of the commutator. If there is an open circuit between any segments, replace the armature.

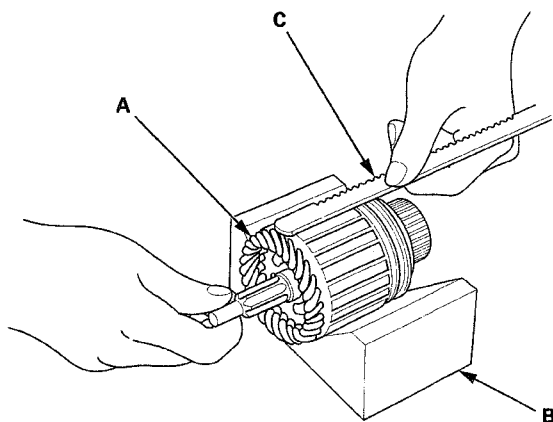


(cont'd)

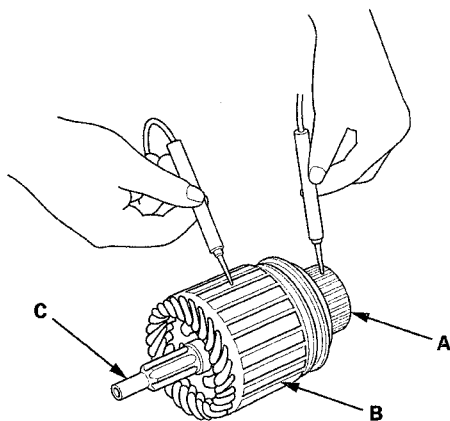
Starting System

Starter Overhaul (cont'd)

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



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



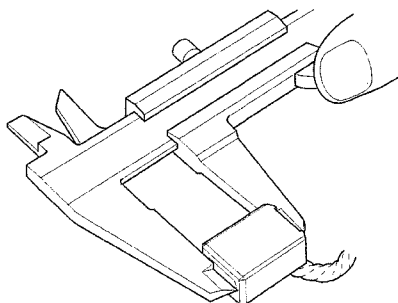
Starter Brush Inspection

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

Brush Length

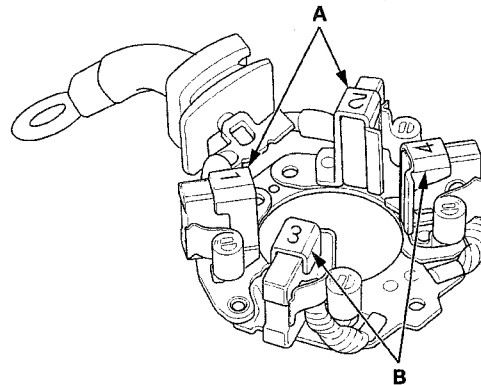
Standard (New): 15.0–16.0 mm (0.59–0.63 in)

Service Limit: 9.0 mm (0.35 in)



Starter Brush Holder Test

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

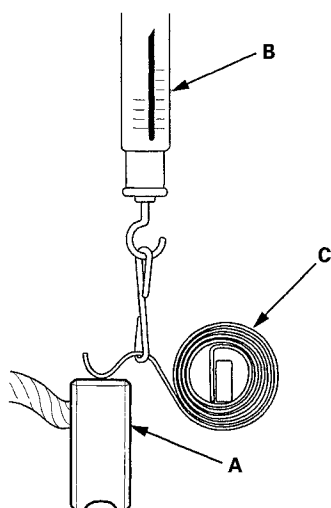


Brush Spring Inspection

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

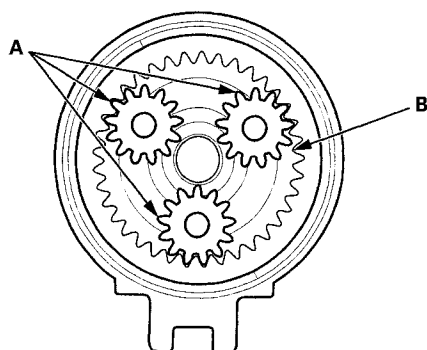
Spring Tension

Standard (New): 22.26—27.26 N (2.27—2.78 kgf, 5.00—6.13 lbf)



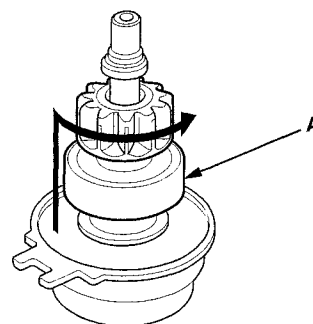
Planetary Gear Inspection

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

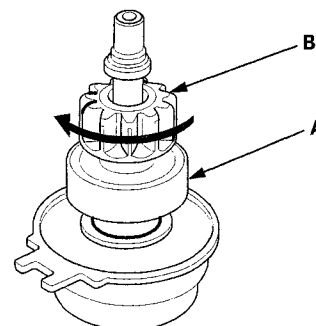


Overrunning Clutch Inspection

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



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



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

(cont'd)

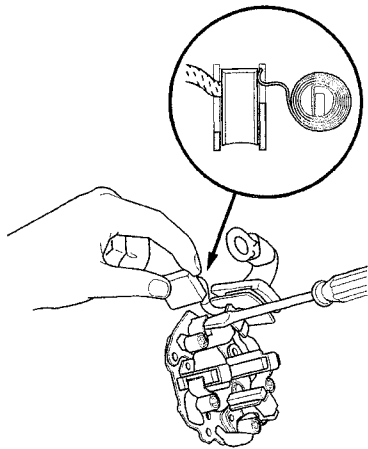
Starting System

Starter Overhaul (cont'd)

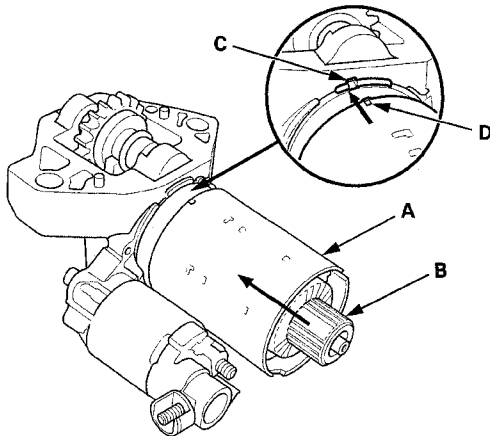
Starter Reassembly

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

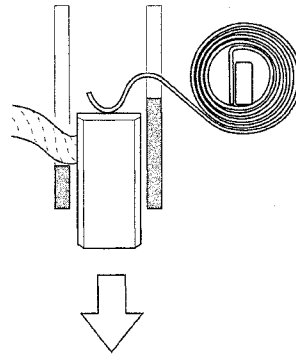
NOTE: To seat the new brushes. Slip a strip of #500 or #600 sandpaper, with the grit side up, between the commutator and the each brush, and smoothly turn the armature. The contact surface of the brushes will be sanded to the same contour as the commutator.



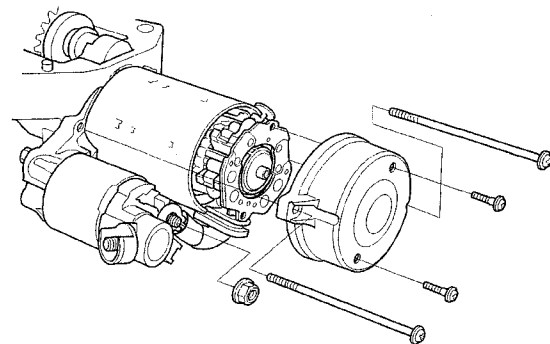
22. Install the armature housing (A) and the armature (B) by aligning the slotted point (C) to the projection (D).



23. Install the brush holder assembly. Next pry back each brush spring again, and push each brush down until it seats against the commutator, then release the spring against the end of the brush.



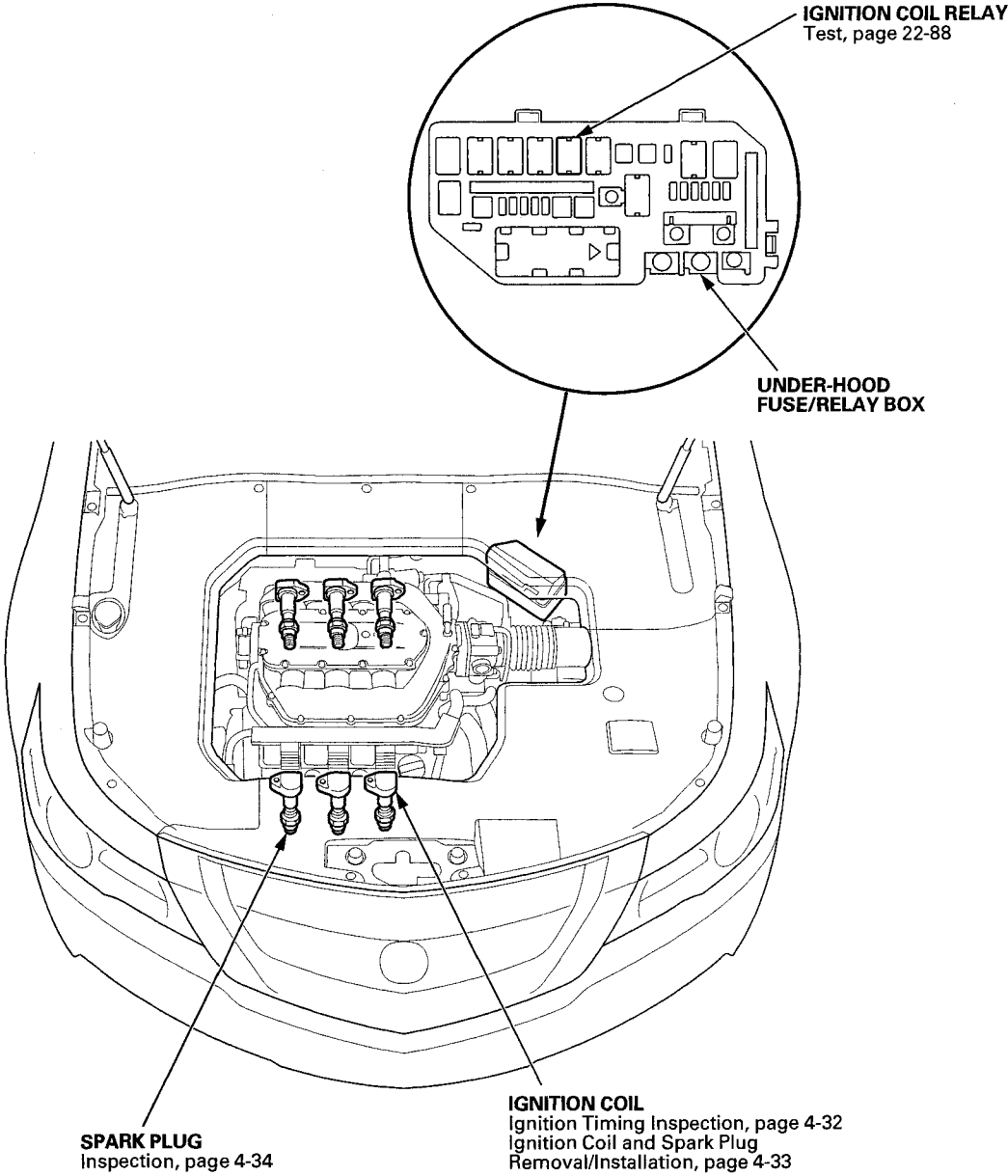
24. Install the end cover to retain the brush holder.



25. Install the starter (see page 4-19).



Component Location Index

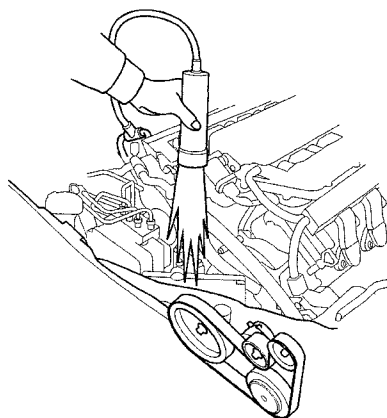


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Ignition System

Ignition Timing Inspection

1. Remove the engine compartment covers (see page 20-186).
2. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
3. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
4. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it does not communicate, troubleshoot the DLC circuit (see page 11-258).
5. Check for DTCs (see page 11-3). If a DTC is present, diagnose and repair the cause before continuing with this test.
6. Start the engine. Hold the engine speed at 3,000 rpm with no load (in neutral (M/T model) or N or P (A/T model)) until the radiator fan comes on, then let it idle.
7. Check the idle speed (see page 11-336).
8. Jump the SCS line with the HDS.
9. Connect the timing light to the No. 1 ignition coil harness.

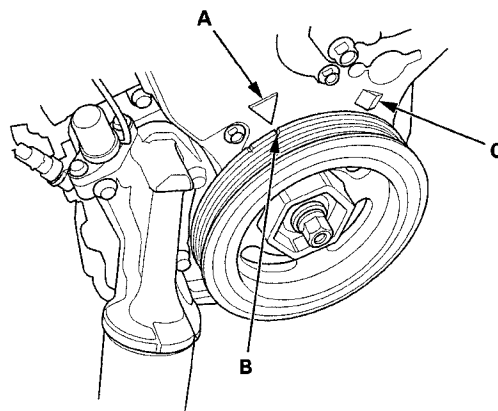


10. Aim the light toward the pointer (A) on the timing belt cover. Check the ignition timing under a no load condition (headlights, blower fan, rear window defogger, and air conditioner are turned off).

NOTE: The other pointer (C) is not used.

Ignition Timing

$10^{\circ} \pm 2^{\circ}$ BTDC (RED mark (B)) at idle in N or P



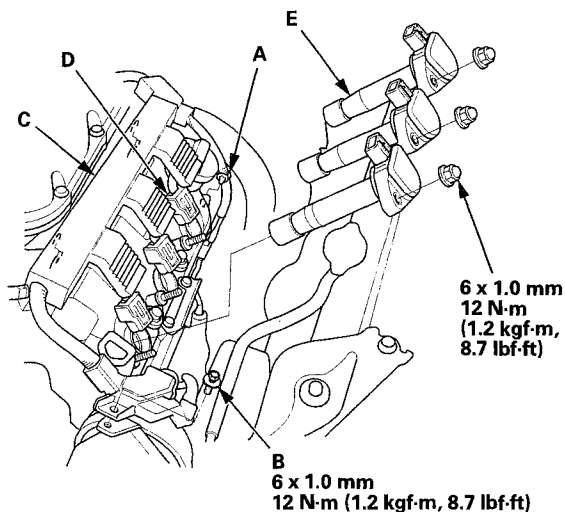
11. If the ignition timing differs from the specification, check the cam timing. If the cam timing is OK, update the ECM/PCM if it does not have the latest software (see page 11-281), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the system works properly, and the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-282).
12. Disconnect the HDS and the timing light.
13. Install the engine compartment covers (see page 20-186).



Ignition Coil and Spark Plug Removal/Installation

FRONT

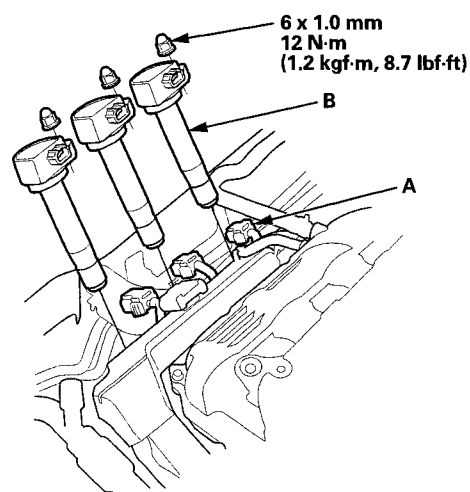
1. Remove the engine compartment covers (see page 20-186).
2. Remove the harness clamp (A) and the bolt (B), then remove the harness holder (C) from the bracket.



3. Disconnect the ignition coil connectors (D), then remove the front ignition coils (E).
4. Remove the spark plugs and inspect them (see page 4-34).
5. Apply a small amount of anti-seize compound to the plug threads, and screw the plugs into the cylinder head, finger tight. Torque them to 18 N·m (1.8 kgf·m, 13 lbf·ft).
6. Install the ignition coils in the reverse order of removal.

REAR

1. Remove the engine compartment covers (see page 20-186).
2. Remove the strut brace (see page 20-210).
3. Disconnect the ignition coil connectors (A), then remove the rear ignition coils (B).

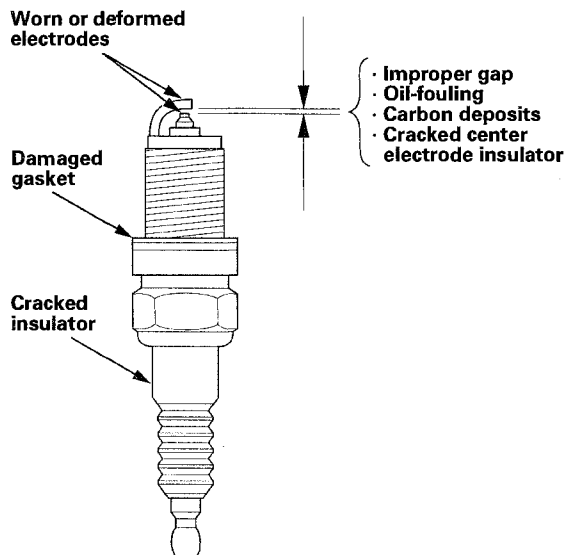


4. Remove the spark plugs and inspect them (see page 4-34).
5. Apply a small amount of anti-seize compound to the plug threads, and screw the plugs into the cylinder head, finger tight. Torque them to 18 N·m (1.8 kgf·m, 13 lbf·ft).
6. Install the ignition coils in the reverse order of removal.

Ignition System

Spark Plug Inspection

1. Remove the ignition coils (see page 4-33).
2. Remove the spark plugs, then inspect the electrodes and the ceramic insulator.
 - Burned or worn electrodes may be caused by these conditions:
 - Advanced ignition timing
 - Loose spark plug
 - Plug heat range too hot
 - Insufficient cooling
 - Fouled plugs may be caused by these conditions:
 - Retarded ignition timing
 - Oil in combustion chamber
 - Incorrect spark plug gap
 - Plug heat range too cold
 - Excessive idling/low speed running
 - Clogged air cleaner element
 - Deteriorated ignition coils



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

NOTE:

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

4. Replace the plug at the specified interval, or if the center electrode is rounded (A), or if the spark plug gap (B) is out of specification. Use only the spark plugs listed.

NOTE: Do not adjust the gap of iridium tip plugs.

J35Z6 engine

Spark Plug

NGK: ILZKR7B11

Electrode Gap

Standard (New): 1.0–1.1 mm (0.039–0.043 in)

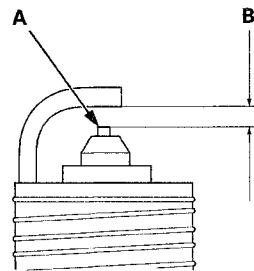
J37A4 engine

Spark Plug

DENSO: SXU22HCR11S

Electrode Gap

Standard (New): 1.0–1.1 mm (0.039–0.043 in)

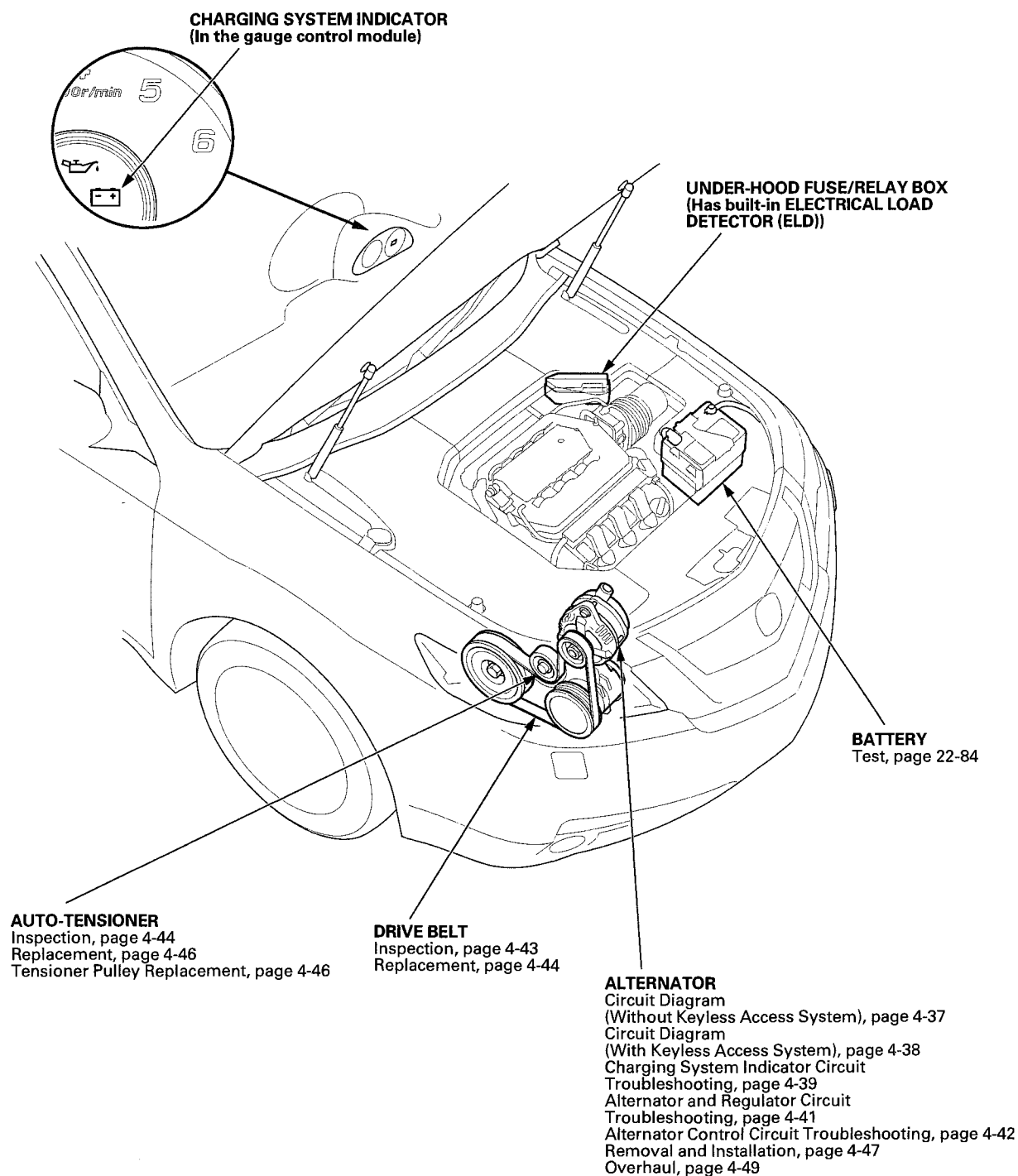


5. Apply a small amount of anti-seize compound to the plug threads, and screw the plugs into the cylinder head, finger-tight. Torque them to 18 N·m (1.8 kgf·m, 13 lbf·ft).

Charging System



Component Location Index



Charging System

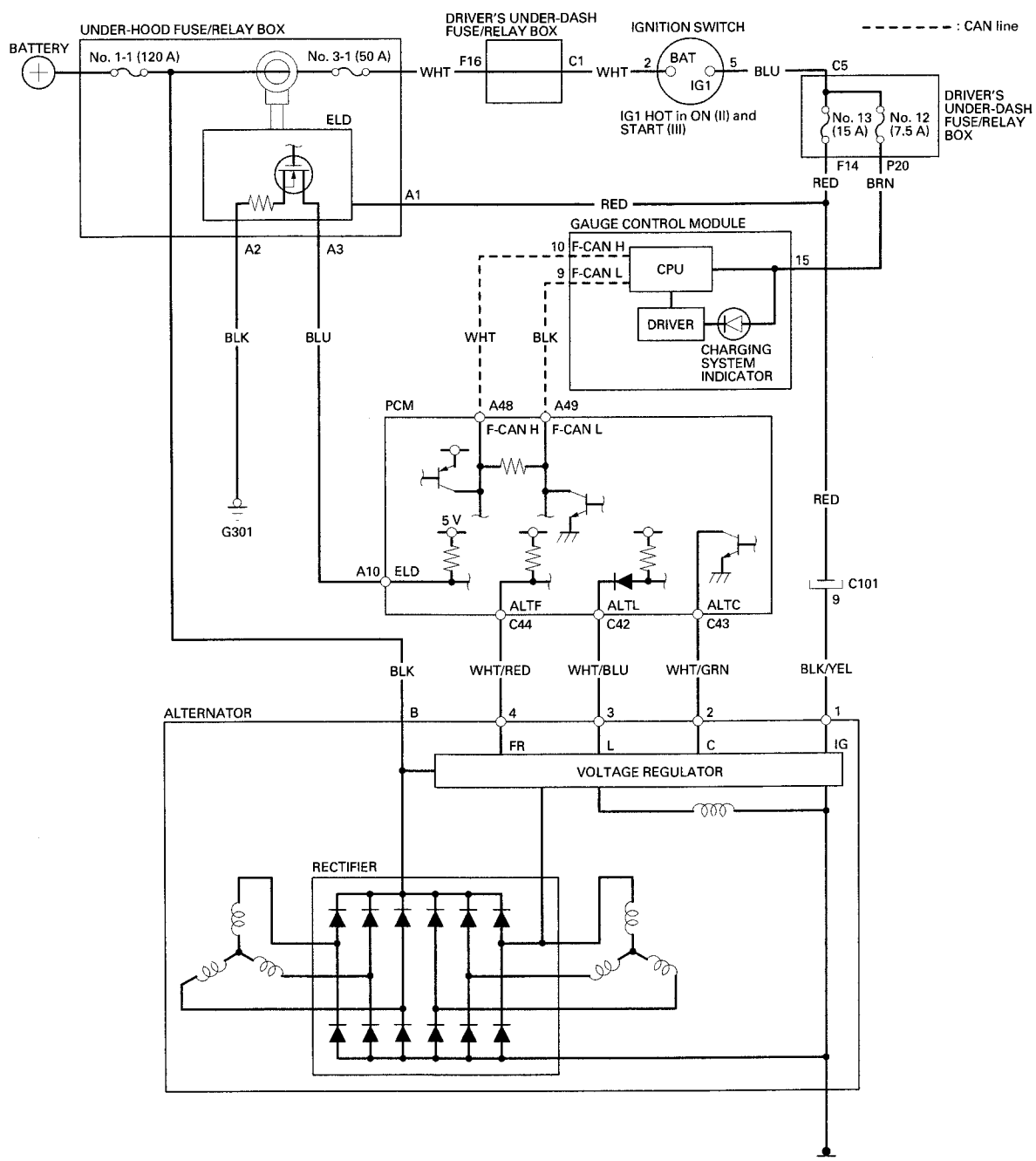
Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Charging system indicator does not come on with the ignition switch in ON (II), or the vehicle ignition in the ON mode	Troubleshoot the charging system indicator circuit (see page 4-39).	
Charging system indicator stays on	1. Troubleshoot the charging system indicator circuit (see page 4-39). 2. Check for a broken drive belt (see page 4-43). 3. Check the drive belt auto-tensioner (see page 4-44). 4. Check for PGM-FI DTCs.	
Battery discharged	1. Check for a poor connection at the battery terminal. 2. Test the battery (see page 22-84). 3. Troubleshoot the alternator and regulator circuit (see page 4-41). 4. Check for a broken drive belt (see page 4-43). 5. Check the drive belt auto-tensioner (see page 4-44). 6. Check for excessive parasitic electrical current draw with the ignition switch in LOCK (0), or the vehicle ignition in the OFF mode, and the key removed. The multiplex control units may take up to 10 minutes to turn off (sleep mode) for some models.	
Battery overcharged	1. Test the battery (see page 22-84). 2. Troubleshoot the alternator and regulator circuit (see page 4-41).	



Circuit Diagram

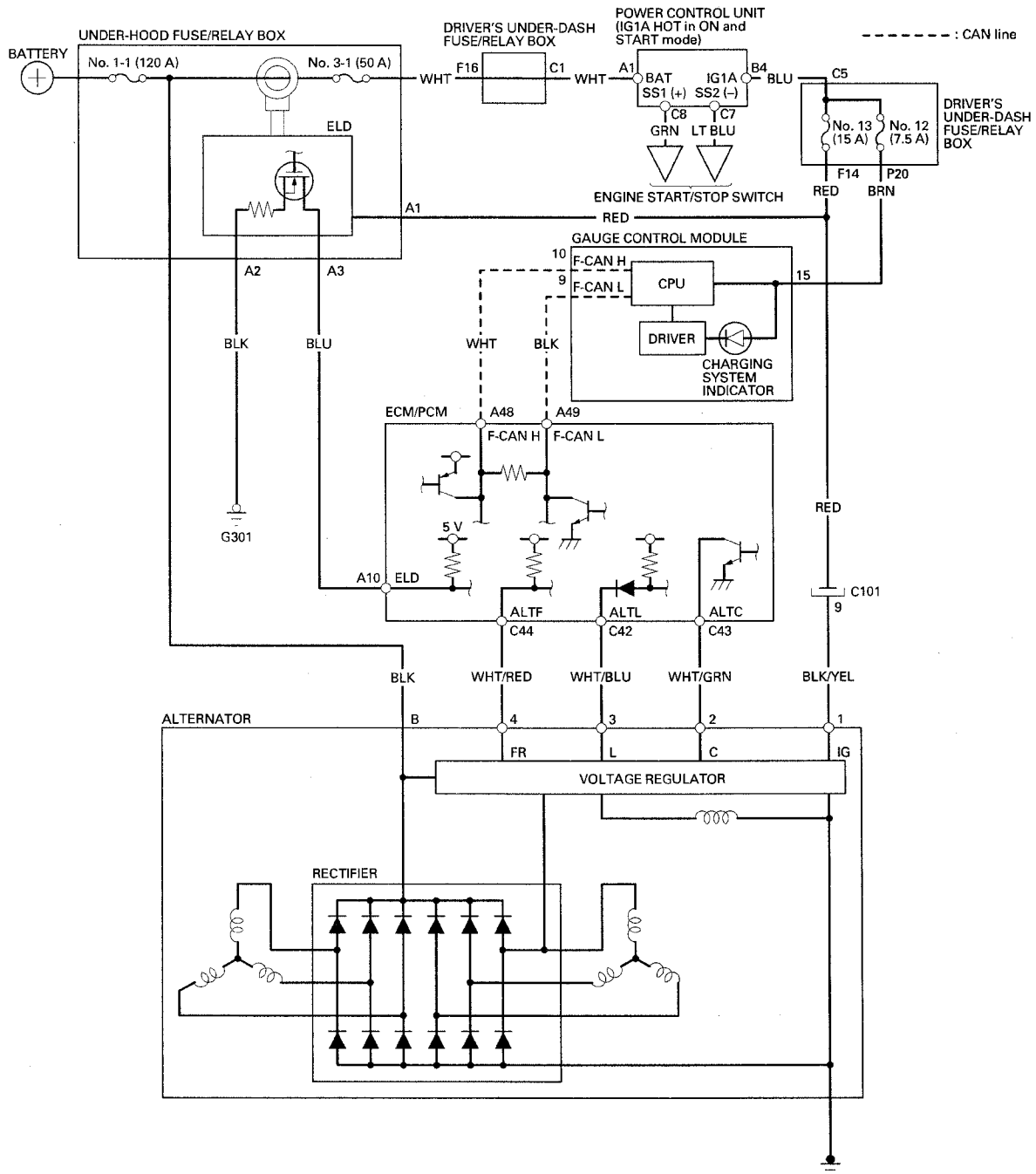
Without Keyless Access System



Charging System

Circuit Diagram (cont'd)

With Keyless Access System



cardiagn.com



Charging System Indicator Circuit Troubleshooting

NOTE: Check for stored DTCs in the PGM-FI before troubleshooting the charging system indicator.

1. Remove the engine compartment covers (see page 20-186).
2. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.

Does the charging system indicator come on?

YES—Go to step 3.

NO—Go to step 15.

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

Does the charging system indicator go off?

YES—Charging system indicator circuit is OK. Go to the alternator and regulator circuit troubleshooting (see page 4-41). ■

NO—Go to step 4.

4. Do the gauge control module self-diagnostic function procedure (see page 22-342).

Does the charging system indicator flash?

YES—Go to step 5.

NO—Replace the gauge control module (see page 22-367). ■

5. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
6. Disconnect the alternator 4P connector.
7. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.

Does the charging system indicator go off?

YES—Replace the alternator (see page 4-47) or repair the alternator (see page 4-49). ■

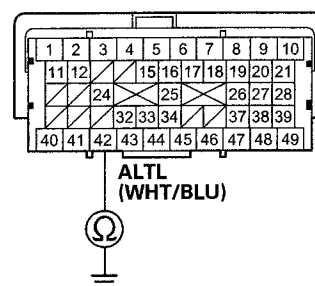
NO—Go to step 8.

8. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
9. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
10. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
11. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it does not communicate, troubleshoot the DLC circuit (see page 11-258).
12. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.

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

13. Disconnect ECM/PCM connector C (49P).
14. Check for continuity between ECM/PCM connector terminal C42 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between alternator 4P connector terminal No. 3 and ECM/PCM connector terminal C42. ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-281), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-282). ■

(cont'd)

Charging System

Charging System Indicator Circuit Troubleshooting (cont'd)

15. Do the gauge control module self-diagnostic function procedure (see page 22-342).

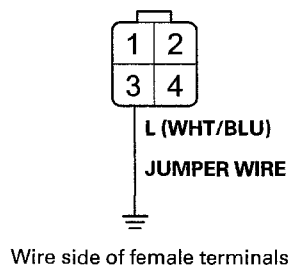
Does the charging system indicator flash?

YES—Go to step 16.

NO—Replace the gauge control module (see page 22-367). ■

16. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
17. Disconnect the alternator 4P connector.
18. Connect alternator 4P connector terminal No. 3 and body ground with a jumper wire.

ALTERNATOR 4P CONNECTOR



19. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.

Does the charging system indicator come on?

YES—Replace the alternator (see page 4-47) or repair the alternator (see page 4-49). ■

NO—Disconnect the jumper wire, then go to step 20.

20. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
21. Connect the HDS to the DLC (see step 2 on page 11-3).

22. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.

23. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-258).

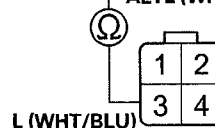
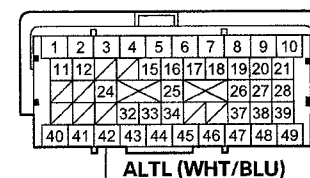
24. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.

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

25. Disconnect ECM/PCM connector C (49P).

26. Check for continuity between ECM/PCM connector terminal C42 and alternator 4P connector terminal No. 3.

ECM/PCM CONNECTOR C (49P)
Terminal side of female terminals



ALTERNATOR 4P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Update the ECM/PCM if it does not have the latest software (see page 11-281), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-282). ■

NO—Repair open in the wire between alternator 4P connector terminal No. 3 and ECM/PCM connector terminal C42. ■

27. Install the engine compartment covers (see page 20-186).



Alternator and Regulator Circuit Troubleshooting

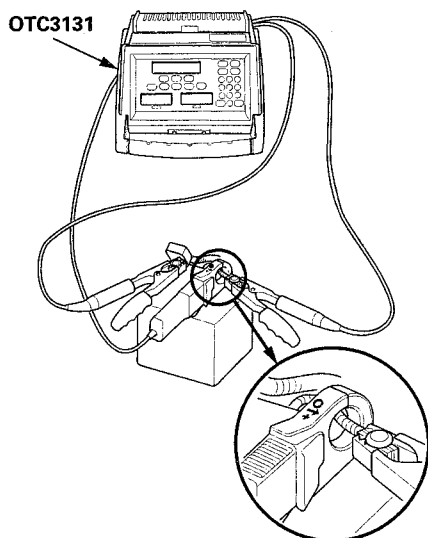
Special Tools Required

Alternator, Regulator, Battery, and Starter Tester OTC3131*

*Available through the Acura Tool and Equipment Program 888-424-6857

1. Remove the engine compartment covers (see page 20-186).
2. Make sure the battery connections are good, and the battery is sufficiently charged.
3. Connect the alternator, regulator, battery and starter tester (OTC3131) to the battery as shown.

NOTE: The probe is used for alternator testing.



4. Start the engine. Hold the engine speed at 3,000 rpm with no load (in N or P (A/T model) or neutral (M/T model)) until the radiator fan comes on, then let it idle.

5. Do the CHARGING SYSTEM TEST.

Does the display indicate the voltage is within 13.5–15.1 V and the amperage is 87.5 A or more?

YES—Go to step 6.

NO—If the voltage is less than 13.5 V, go to alternator control circuit troubleshooting (see page 4-42). If the voltage is over 15.1 V and amperage is less than 87.5 A, replace the alternator (see page 4-47) or repair the alternator (see page 4-49).

6. Check the diode condition on the display.

Does the display indicate GOOD?

YES—The diode is OK. Troubleshooting is complete. ■

NO—If the display indicates BAD, replace the alternator (see page 4-47) or repair the alternator (see page 4-49), then retest. ■

NOTE: If the display indicates N/A, the diode pattern could not be diagnosed. Repeat the test again. If N/A appears repeatedly, replace the alternator.

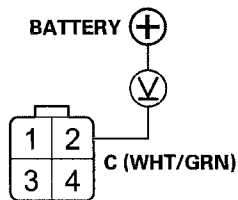
7. Install the engine compartment covers (see page 20-186).

Charging System

Alternator Control Circuit Troubleshooting

NOTE: Do this troubleshooting if, in step 6 of the alternator and regulator circuit troubleshooting (see page 4-41), the battery voltage is less than 13.5 V.

1. Remove the engine compartment covers (see page 20-186).
2. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
3. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
4. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it does not communicate, troubleshoot the DLC circuit (see page 11-258).
5. Check for DTCs (see page 11-3). If a DTC is present, diagnose and repair the cause before continuing with this test.
6. Disconnect the alternator 4P connector.
7. Start the engine, and turn on the headlights to high beam.
8. Measure the voltage between alternator 4P connector terminal No. 2 and the positive terminal of the battery.



ALTERNATOR 4P CONNECTOR

Wire side of female terminals

Is there less than 1 V?

YES—Go to step 12.

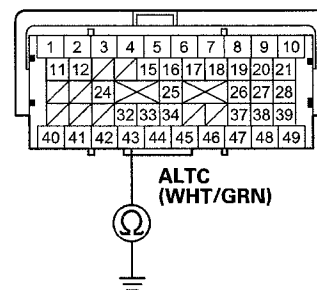
NO—Go to step 9.

9. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.

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

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

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between alternator 4P connector terminal No. 2 and ECM/PCM connector terminal C43. ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-281), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-282). ■

12. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.

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

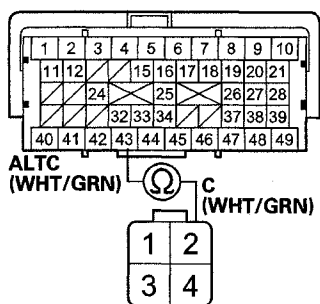
13. Disconnect ECM/PCM connector C (49P).



Drive Belt Inspection

14. Check for loose terminals and connectors, then check for continuity between ECM/PCM connector terminal C43 and alternator 4P connector terminal No. 2.

ECM/PCM CONNECTOR C (49P)
Terminal side of female terminals



ALTERNATOR 4P CONNECTOR
Wire side of female terminals

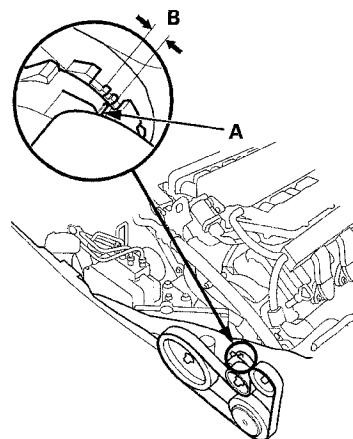
Is there continuity?

YES—Replace the alternator (see page 4-47), or repair the alternator (see page 4-49). ■

NO—Repair open in the wire between alternator 4P connector terminal No. 2 and ECM/PCM connector terminal C43. ■

15. Install the engine compartment covers (see page 20-186).

1. Remove the engine compartment covers (see page 20-186).
2. Inspect the belt for cracks or damage. If the belt is cracked or damaged, replace it (see page 4-44).
3. Check that the position of the auto-tensioner indicator (A) is within the standard range (B) as shown. If it is out of the standard range, replace the drive belt (see page 4-44).



4. Install the engine compartment covers (see page 20-186).

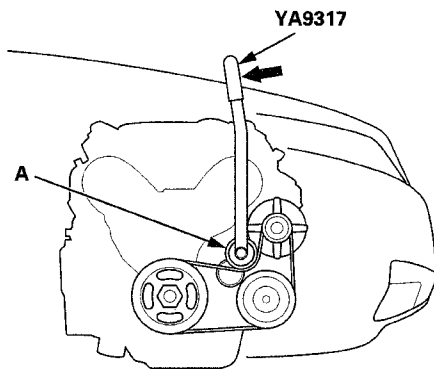
Charging System

Drive Belt Replacement

Special Tools Required

Belt Tension Release Tool Snap-on YA9317 or equivalent

1. Remove the engine compartment covers (see page 20-186).
2. Move the auto-tensioner (A) using the belt tension release tool in the direction of the rotation arrow to relieve tension from the drive belt, then remove the drive belt.



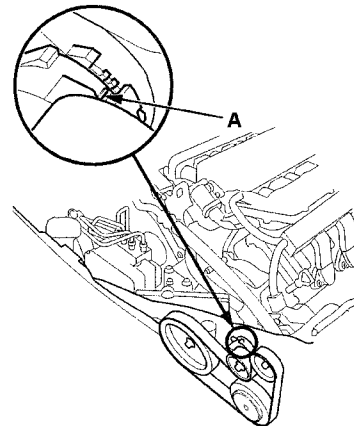
3. Install the new belt in the reverse order of removal.

Drive Belt Auto-tensioner Inspection

Special Tools Required

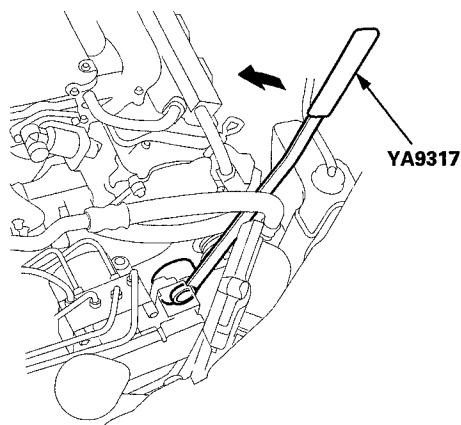
Belt Tension Release Tool Snap-on YA9317 or equivalent

1. Remove the engine compartment covers (see page 20-186).
2. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode, and make sure to turn the A/C switch OFF, then turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
3. Check the position of the auto-tensioner indicator (A). Start the engine, then check the position again with the engine idling. If the position of the indicator moves or fluctuates a lot, replace the auto-tensioner (see page 4-46).

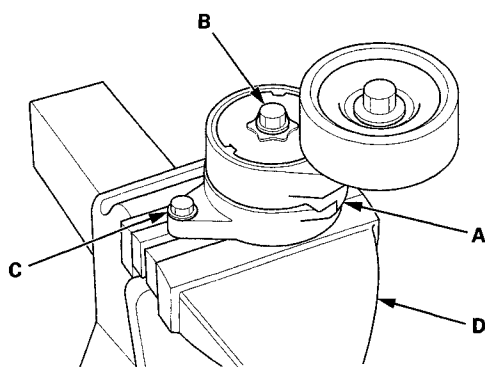


4. Check for abnormal noise from the tensioner pulley. If you hear any abnormal noise, replace the auto-tensioner pulley (see page 4-46).
5. Remove the drive belt (see page 4-44).

6. Move the auto-tensioner within its limit using the belt tension release tool in the direction of the rotation arrow. Check that the tensioner moves smoothly and without any abnormal noise. If the tensioner does not move smoothly, or you hear abnormal noises, replace the auto-tensioner (see page 4-46).

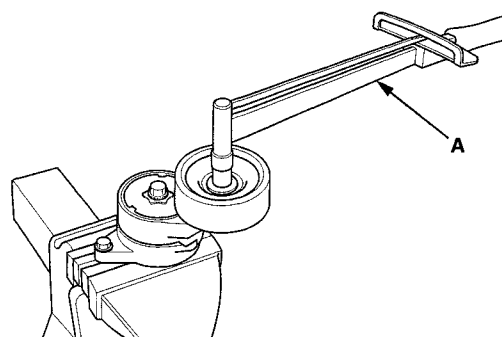


7. Remove the auto-tensioner (see page 4-46).
8. Clamp the auto-tensioner (A) by using a 10 mm bolt (B), a 8 mm bolt (C), and a vise (D) as shown. Do not clamp the auto-tensioner itself.



9. Attach a torque wrench (A) to the pulley bolt. Measure the torque when the tensioner is turned counterclockwise and begins to move. If the torque is less than the specified value, replace the auto-tensioner (see page 4-46).

Auto-tensioner Spring Torque
32.8 N·m (3.34 kgf·m, 24.2 lbf·ft)

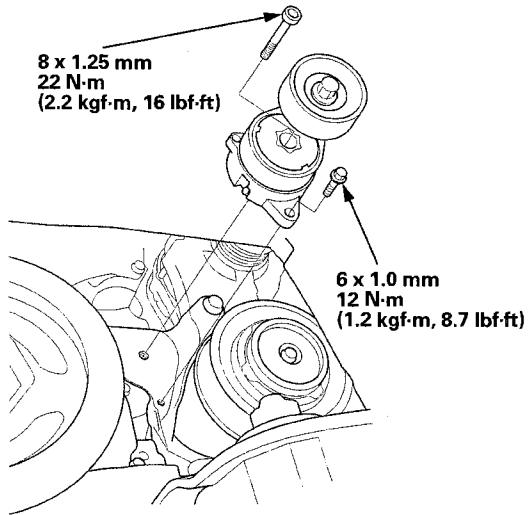


10. Install the auto-tensioner in the reverse order of removal.

Charging System

Drive Belt Auto-tensioner Replacement

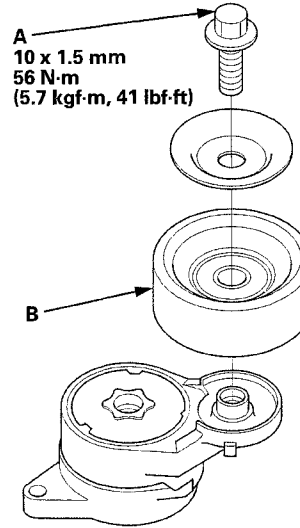
1. Remove the drive belt (see page 4-44).
2. Remove the splash shield (see page 20-205).
3. Remove the auto-tensioner.



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

Tensioner Pulley Replacement

1. Remove the auto-tensioner (see page 4-46).
2. Remove the pulley bolt (A) (left-hand threads), and remove the tensioner pulley (B).



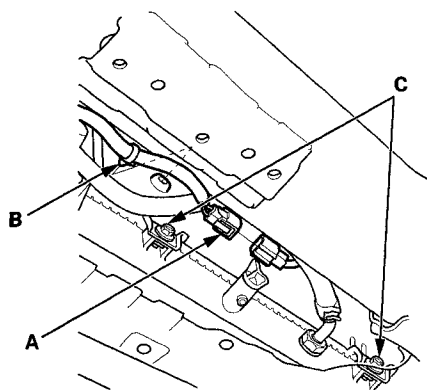
3. Install the tensioner pulley in the reverse order of removal.



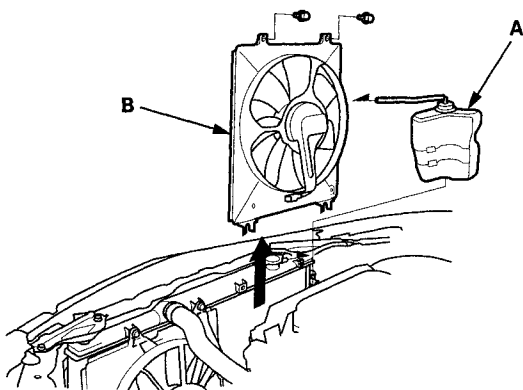
Alternator Removal and Installation

Removal

1. Remove the engine compartment covers (see page 20-186).
2. Do the battery terminal disconnection procedure (see page 22-86).
3. Raise the vehicle on the lift.
4. Remove the splash shield (see page 20-205).
5. Disconnect the A/C condenser fan motor connector (A) and remove the harness clamp (B).

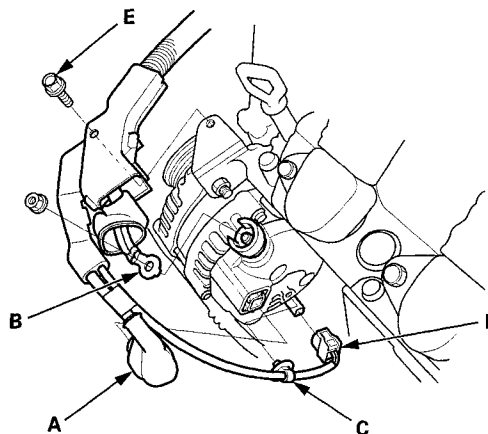


6. Loosen the A/C condenser fan shroud mounting bolts (C).
7. Lower the vehicle on the lift.
8. Remove the coolant reservoir (A), then remove the A/C condenser fan shroud assembly (B).

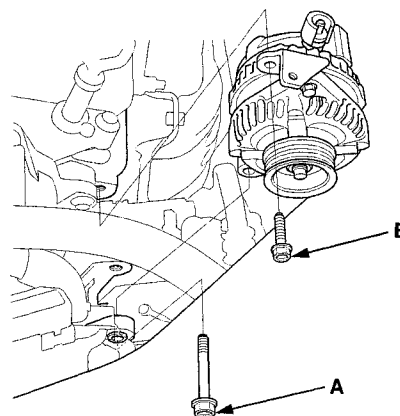


9. Remove the drive belt (see page 4-44).

10. Disconnect the alternator connector (A) and the positive alternator cable (B) from the alternator.



11. Remove the harness clamp (C) from the alternator and disconnect the A/C compressor clutch connector (D) from the A/C compressor.
12. Remove the bolt (E) securing the harness holder.
13. Remove the mounting bolt (A) and the alternator bracket mounting bolt (B), then remove the alternator.



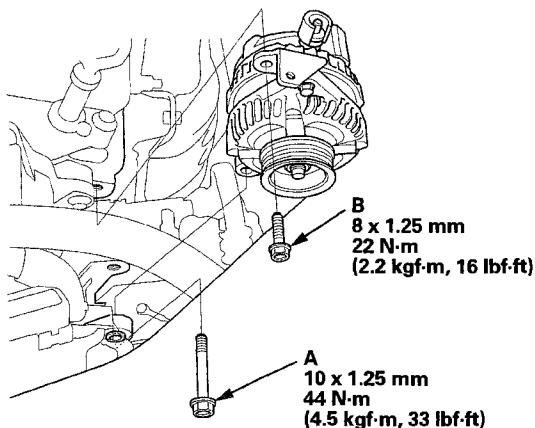
(cont'd)

Charging System

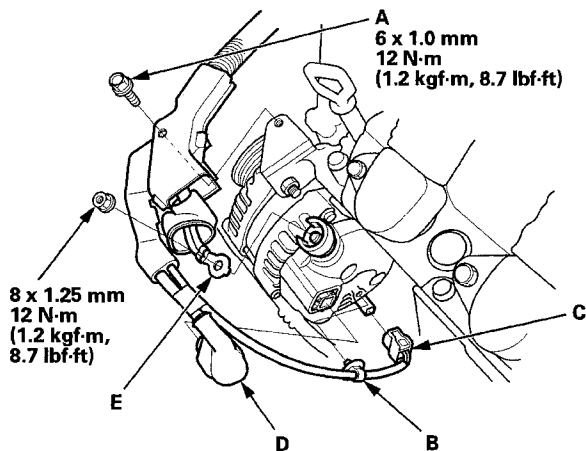
Alternator Removal and Installation (cont'd)

Installation

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

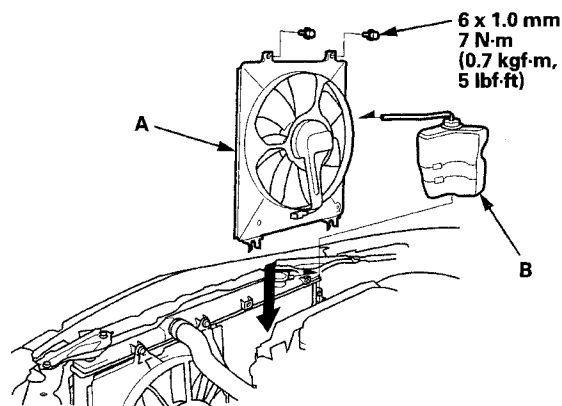


2. Install the bolt (A) securing the harness holder.

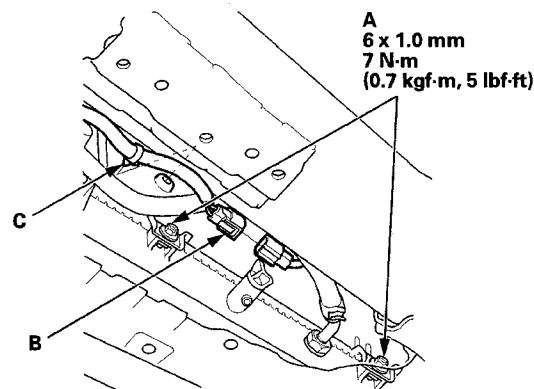


3. Install the harness clamp (B) to the alternator and connect the A/C compressor clutch connector (C) to the A/C compressor.
4. Connect the alternator connector (D) and the positive alternator cable (E) to the alternator. Make sure the crimped side of the ring terminal faces away from the alternator when you connect it.
5. Install the drive belt (see page 4-44).

6. Install the A/C condenser fan shroud assembly (A), then install the coolant reservoir (B).



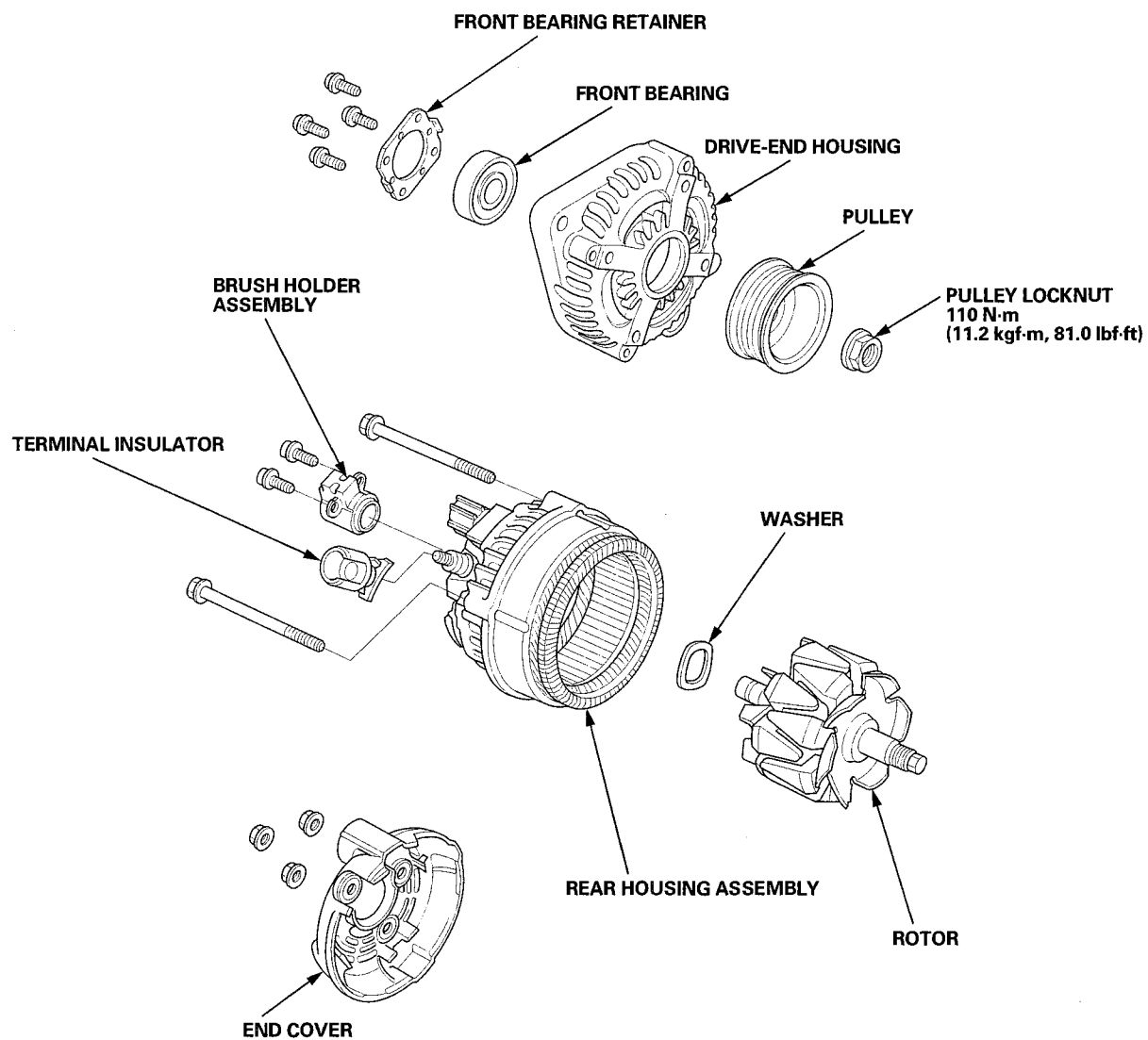
7. Raise the vehicle on the lift.
8. Tighten the A/C condenser fan shroud mounting bolts (A).



9. Connect the A/C condenser fan motor connector (B) and install the harness clamp (C).
10. Install the splash shield (see page 20-205).
11. Lower the vehicle on the lift.
12. Do the battery terminal reconnection procedure (see page 22-86).
13. Install the engine compartment covers (see page 20-186).

Alternator Overhaul

Exploded View



(cont'd)

Charging System

Alternator Overhaul (cont'd)

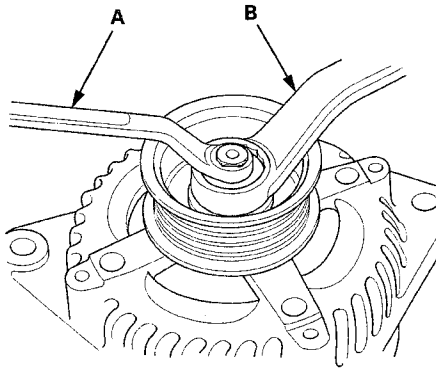
Special Tools Required

- Driver Handle, 15 x 135L 07749-0010000
- Bearing Driver Attachment, 42 x 47 mm 07746-0010300

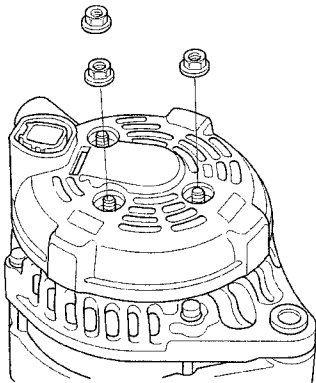
NOTE: Refer to the Exploded View as needed during this procedure.

Alternator Disassembly

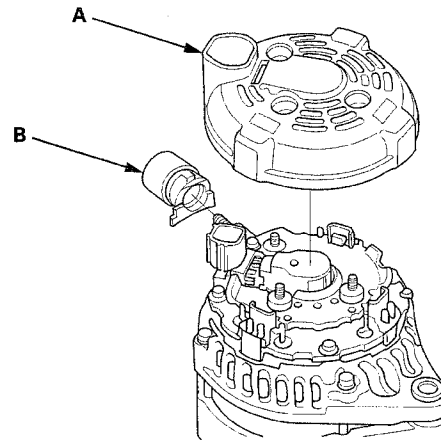
1. Test the alternator and regulator before you remove them (see page 4-41).
2. Remove the alternator (see page 4-47).
3. If the front bearing needs replacing, remove the pulley locknut with a 10 mm wrench (A) and a 22 mm wrench (B). If necessary, use an impact wrench.



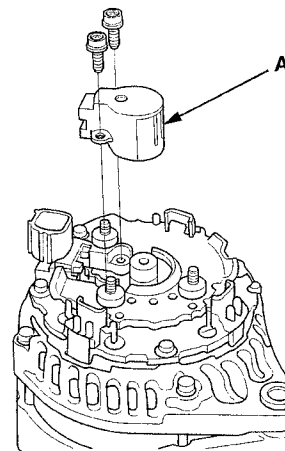
4. Remove the three flange nuts.



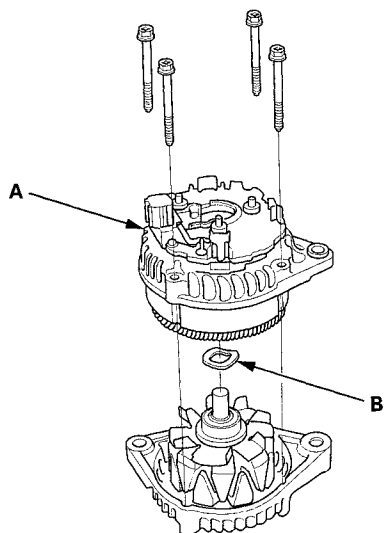
5. Remove the end cover (A) and the terminal insulator (B).



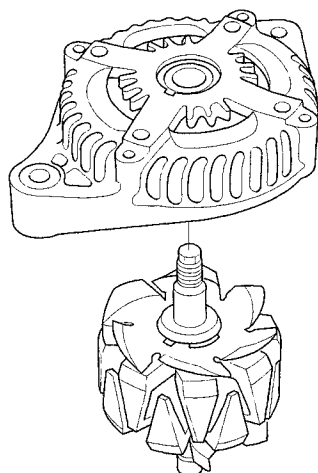
6. Remove the brush holder assembly (A).



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



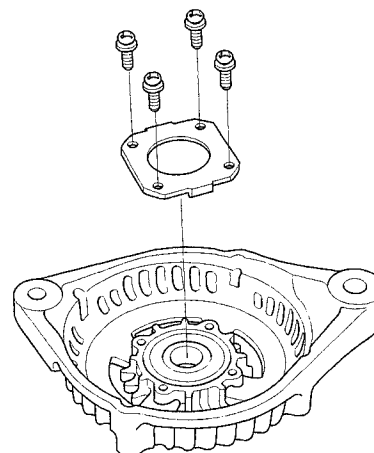
8. If you are not replacing the front bearing, go to step 13. Remove the rotor from the drive-end housing.



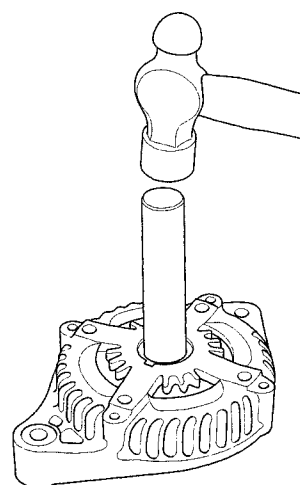
9. Inspect the rotor shaft for scoring, and inspect the bearing journal surface in the drive-end housing for seizure marks.

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

10. Remove the front bearing retainer.



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

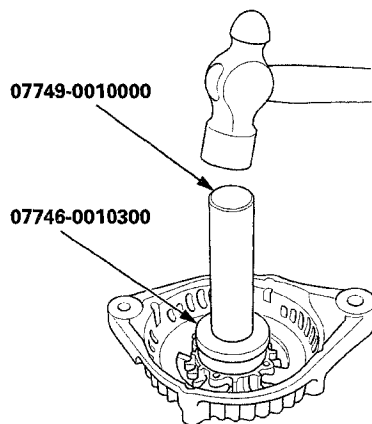


(cont'd)

Charging System

Alternator Overhaul (cont'd)

12. Install a new front bearing in the drive-end housing with a hammer, the driver handle, 15 x 135L, and the bearing driver attachment, 42 x 47 mm.



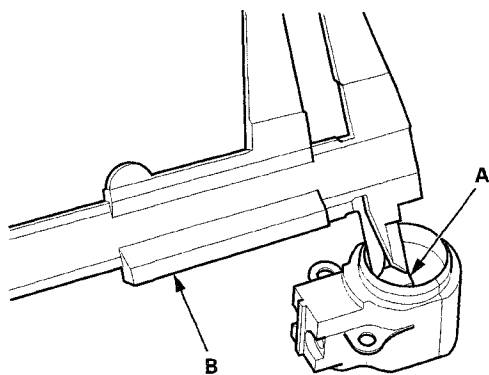
Alternator Brush Inspection

13. Measure the length of both brushes (A) with a vernier caliper (B).
- If either brush is shorter than the service limit, replace the brush holder assembly.
 - If the brush length is OK, go to step 14.

Alternator Brush Length

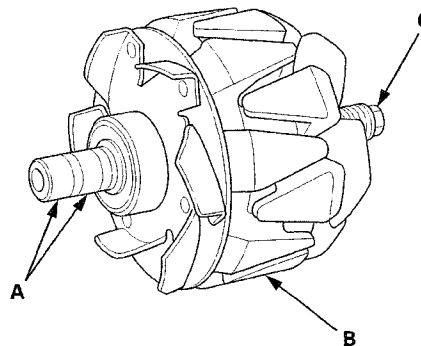
Standard (New): 10.5 mm (0.41 in)

Service Limit: 1.5 mm (0.06 in)



Rotor Slip Ring Test

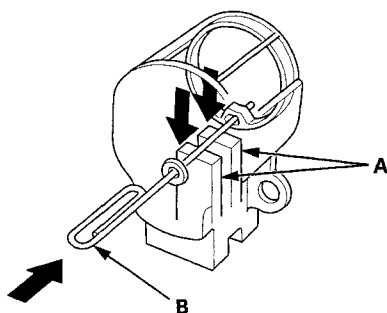
14. Check for continuity between the slip rings (A).
- If there is continuity, go to step 15.
 - If there is no continuity, replace the rotor assembly.



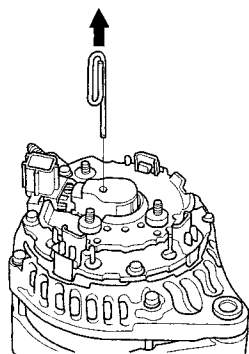
15. Check for continuity between each slip ring and the rotor (B) and the rotor shaft (C).
- If there is no continuity, go to step 16.
 - If there is continuity, replace the rotor assembly.

Alternator Reassembly

16. If you removed the pulley, put the rotor in the drive-end housing, then torque its locknut to 110 N·m (11.2 kgf·m, 81.0 lbf·ft).
17. Remove any grease or any oil from the slip rings.
18. Put the rear housing assembly and the drive-end housing/rotor assembly together, tighten the four through bolts.
19. Push the brushes (A) in, then insert a pin or drill bit (B) (about 1.6 mm (0.06 in) diameter) to hold them there.



20. Install the brush holder assembly, and pull out the pin or drill bit.



21. Install the end cover.
22. After assembling the alternator, turn the pulley by hand to make sure the rotor turns smoothly and without noise.
23. Install the alternator (see page 4-48) and the drive belt (see page 4-44).

Cruise Control

Component Location Index

CLUTCH PEDAL POSITION SWITCH B (M/T model)

Test, page 4-61

Replacement, page 4-62

Clutch Pedal Adjustment, page 12-6

BRAKE PEDAL POSITION SWITCH

Test, page 22-240

Pedal Height Adjustment, page 19-6

CRUISE MAIN INDICATOR (In the gauge control module)

CRUISE CONTROL INDICATOR (In the gauge control module)

CRUISE CONTROL COMBINATION SWITCH

Circuit Diagram (Without Keyless Access System), page 4-57

Circuit Diagram (With Keyless Access System), page 4-58

Test/Replacement, page 4-61

ENGINE CONTROL MODULE (ECM)/ POWERTRAIN CONTROL MODULE (PCM)

Cruise Control Input Test, page 4-59

TRANSMISSION RANGE SWITCH (A/T model)

Test, page 14-259

Replacement, page 14-260



Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Cruise control cannot be set	1. Check the No. 10 (20 A) fuse in the under-hood fuse/relay box, and the No. 13 (15 A) fuse in the driver's under-dash fuse/relay box. 2. Check for PGM-FI DTCs (see page 11-3). 3. Do the cruise control combination switch test (see page 4-61). 4. Do the cruise control input test (see page 4-59).	Poor ground G101 (A/T model) or G301 (M/T model)
Cruise control can be set, but the cruise main indicator does not come on	1. Do the gauge control module self-diagnostic function procedure (see page 22-342). 2. Check for PGM-FI DTCs (see page 11-3). 3. Do the cruise control input test (see page 4-59). Test the cruise control main switch signal input.	Faulty gauge control module
Cruise control can be set, but the cruise control indicator does not come on	1. Do the gauge control module self-diagnostic function procedure (see page 22-342). 2. Check for PGM-FI DTCs (see page 11-3). 3. Do the cruise control input test (see page 4-59). Test the cruise control indicator signal input.	Faulty gauge control module
Vehicle does not accelerate accordingly when the resume/accel button is pressed	1. Check for PGM-FI DTCs (see page 11-3). 2. Do the cruise control combination switch test (see page 4-61). 3. Do the cruise control input test (see page 4-59). Test the resume/accel switch signal input.	Open circuit, loose or disconnected terminals: ORN, GRY wire
Set speed does not cancel when the brake pedal is pressed	1. Check for PGM-FI DTCs (see page 11-3). 2. Do the brake pedal position switch test (see page 22-240). 3. Do the cruise control input test (see page 4-59). Test the brake pedal position switch signal input.	• Short to power on the ORN wire • Faulty brake pedal position switch
Set speed does not cancel (engine rpm stays high) when the clutch pedal is pressed (M/T model)	1. Check for PGM-FI DTCs (see page 11-3). 2. Do the clutch pedal position switch B test (see page 4-61). 3. Do the cruise control input test (see page 4-59). Test the clutch pedal position switch B signal input.	Short to ground on the BRN wire
Set speed does not cancel when the cruise control main button is pressed	1. Check for PGM-FI DTCs (see page 11-3). 2. Do the cruise control combination switch test (see page 4-61). 3. Do the cruise control input test (see page 4-59). Test the cruise control main switch signal input.	Short to ground on the YEL wire
Set speed does not cancel when the cancel button is pressed	1. Check for PGM-FI DTCs (see page 11-3). 2. Do the cruise control combination switch test (see page 4-61). 3. Do the cruise control input test (see page 4-59). Test the cancel switch signal input.	Open circuit, loose or disconnected terminals: LT GRN or ORN, GRY wire
Set speed does not resume when the resume/accel button is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the brake pedal)	1. Check for PGM-FI DTCs (see page 11-3). 2. Check the brake pedal position switch adjustment (see page 19-6). 3. Do the cruise control combination switch test (see page 4-61). 4. Do the cruise control input test (see page 4-59). Test the resume/accel switch signal input. Test the brake pedal position switch signal input.	• Open circuit, loose or disconnected terminals: ORN, GRY wire • Faulty brake pedal position switch

(cont'd)

Cruise Control

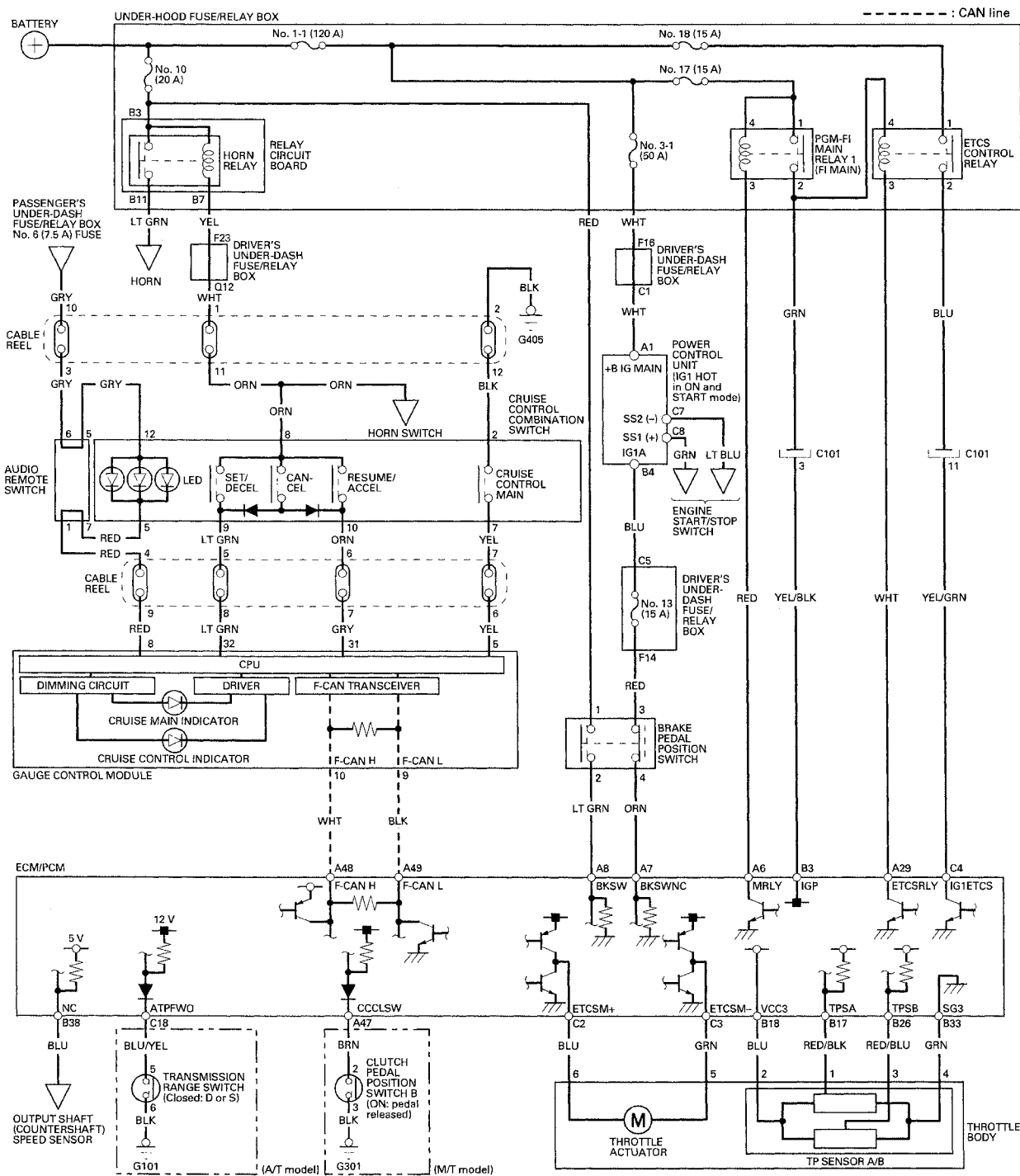
Symptom Troubleshooting Index (cont'd)

Symptom	Diagnostic procedure	Also check for
Set speed does not resume when the resume/accel button is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the clutch pedal) (M/T model)	1. Check for PGM-FI DTCs (see page 11-3). 2. Check the clutch pedal position switch B adjustment (see page 12-6). 3. Do the cruise control combination switch test (see page 4-61). 4. Do the cruise control input test (see page 4-59). Test the resume/accel switch signal input. Test the clutch pedal position switch B signal input.	• Open circuit loose or disconnected terminal: LT BLU, GRY wire • Faulty clutch pedal position switch B
With the ignition switch in ON (II), or the vehicle ignition in the ON mode, and the lighting switch turned on, the cruise control combination switch illumination does not come on	Do the cruise control combination switch test (see page 4-61).	

Cruise Control

Circuit Diagram (cont'd)

With Keyless Access System





Cruise Control Input Test

NOTE: Always make sure that you have the latest Honda Diagnostic System (HDS) software.

1. Connect the Honda HDS to the data link connector (DLC) (see step 2 on page 11-3).
2. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.
3. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it does not communicate, troubleshoot the DLC circuit (see page 11-258).
4. Go to PGM-FI, and check for DTCs (see page 11-3).
5. Do the following tests while monitoring parameters in the PGM-FI DATA LIST with the HDS.

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

Signal to be tested	Test condition	Parameter: Desired result	Possible cause if result is not obtained
Brake pedal position switch signal	Brake pedal pressed, then released	CRUISE BRAKE SW should indicate OFF when the brake pedal is pressed and ON when the brake pedal is released.	• Faulty brake pedal position switch • Blown No. 13 (15 A) fuse in the driver's under-dash fuse/relay box • An open in the wire between the ECM/PCM and the brake pedal position switch • A wire shorted to ground or power between the ECM/PCM and the brake pedal position switch
Clutch pedal position switch B signal (M/T model)	Clutch pedal pressed, then released	SHIFT/CLUTCH SW should indicate ON when the clutch pedal is pressed and OFF when the clutch pedal is released.	• Faulty clutch pedal position switch B • An open in the wire between the ECM and the clutch pedal position switch B • A wire shorted to ground between the ECM and the clutch pedal position switch B • Poor ground G301
Transmission range switch signal (A/T model)	Shift lever in D and S	SHIFT/CLUTCH SW should indicate OFF in P, R, and N and ON in D and S.	• Faulty transmission range switch • An open in the wire between the PCM and the transmission range switch • A wire shorted to ground between the PCM and the transmission range switch • Poor ground G101
Cruise control main switch signal	Cruise control main button pressed and released	CRUISE MASTER (MAIN) SW should indicate ON when the cruise control main button is pressed and OFF when the cruise control main button is released.	• Faulty cruise control combination switch • An open in the wire between the gauge control module and the cruise control combination switch • A wire shorted to ground between the gauge control module and the cruise control combination switch • An open in the wire between the cruise control combination switch and the ground G405
Set switch signal	Set/decel button pressed and released	CRUISE SET SW should indicate ON when the set/decel button is pressed and OFF when the set/decel button is released.	• Faulty cruise control combination switch • An open in the wire between the gauge control module and the cruise control combination switch • A wire shorted to ground between the gauge control module and the cruise control combination switch

(cont'd)

Cruise Control

Cruise Control Input Test (cont'd)

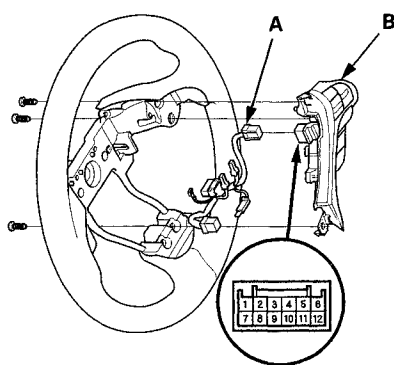
Signal to be tested	Test condition	Parameter: Desired result	Possible cause if result is not obtained
Resume switch signal	Resume/accel button pressed and released	CRUISE RESUME SW should indicate ON when the resume/accel button is pressed and OFF when the resume/accel button is released.	- Faulty cruise control combination switch - An open in the wire between the gauge control module and the cruise control combination switch - A wire shorted to ground between the gauge control module and the cruise control combination switch
Cancel switch signal	Cancel button pressed and released	CRUISE CANCEL SW should indicate ON when the cancel button is pressed and OFF when the cancel button is released.	- Faulty cruise control combination switch - An open in the wire between the gauge control module and the cruise control combination switch - A wire shorted to ground between the gauge control module and the cruise control combination switch
Cruise control indicator signal	Start the engine, press the cruise control main button on and drive the vehicle above 25 mph (40 km/h) with the cruise control set and cancel the cruise control	CRUISE INDICATOR should indicate ON when the cruise control is set and OFF when the cruise control is cancelled.	- Faulty gauge control module - Faulty cruise control combination switch - An open in the wire between the gauge control module and the cruise control combination switch - A wire shorted to ground between the gauge control module and the cruise control combination switch



Cruise Control Combination Switch Test/Replacement

There are SRS components located in this area. Review the SRS component locations (see page 24-11), and the precautions and procedures (see page 24-13), in the SRS before doing repairs or service.

1. Remove the steering wheel (see page 17-6).
2. Remove the steering wheel rear cover (see page 17-6).
3. Disconnect the cable real subharness connector (A), then remove the steering wheel trim/cruise control combination switch (B).



Terminal side of male terminals

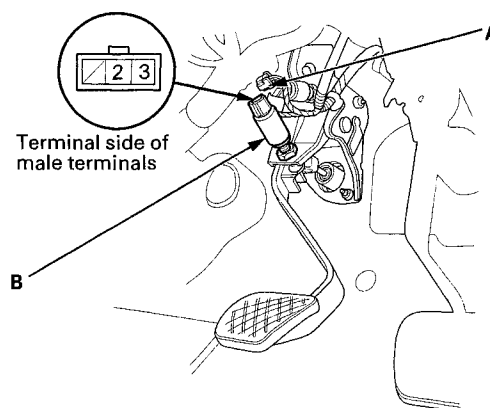
4. Check for continuity between the terminals in each switch position according to the table.
 - If there is continuity, and it matches the table, but the cruise control combination switch failure occurred on the cruise control input test, check and repair the wire harness on the switch circuit.
 - If there is no continuity in one or both positions, replace the steering wheel trim/cruise control combination switch.

Terminal	2	5	7	8	9	10	12
Position							
Cruise control main (ON)	○	○					
Cruise control main (OFF)							
Set/decel (PRESSED)				○	○		
Resume/accl (PRESSED)				○	○	○	
Cancel (PRESSED)				○	○	○	
Light (ON)	○	○	○	○	○	○	○

Clutch Pedal Position Switch B Test

M/T model

1. Disconnect the clutch pedal position switch B connector (A).



2. Remove the clutch pedal position switch B (B).
3. Check for continuity between the terminals according to the table.
 - If the continuity is not as specified, replace the clutch pedal position switch B (see page 4-62).
 - If OK, install the clutch pedal position switch B and adjust the pedal height (see page 12-6).

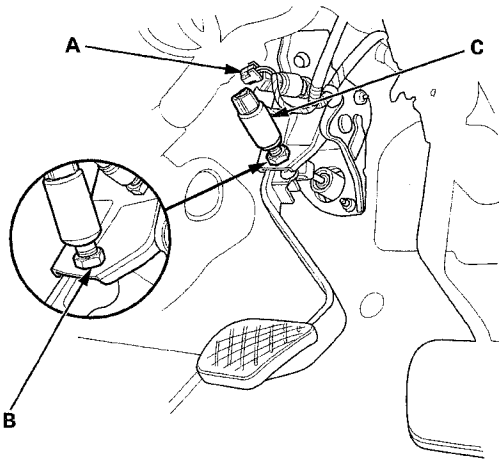
Terminal	1	2	3
Position			
Clutch Pedal Position Switch B (PRESSED)		○	○
Clutch Pedal Position Switch B (RELEASED)			

Cruise Control

Clutch Pedal Position Switch B Replacement

M/T model

1. Disconnect the clutch pedal position switch B connector (A).

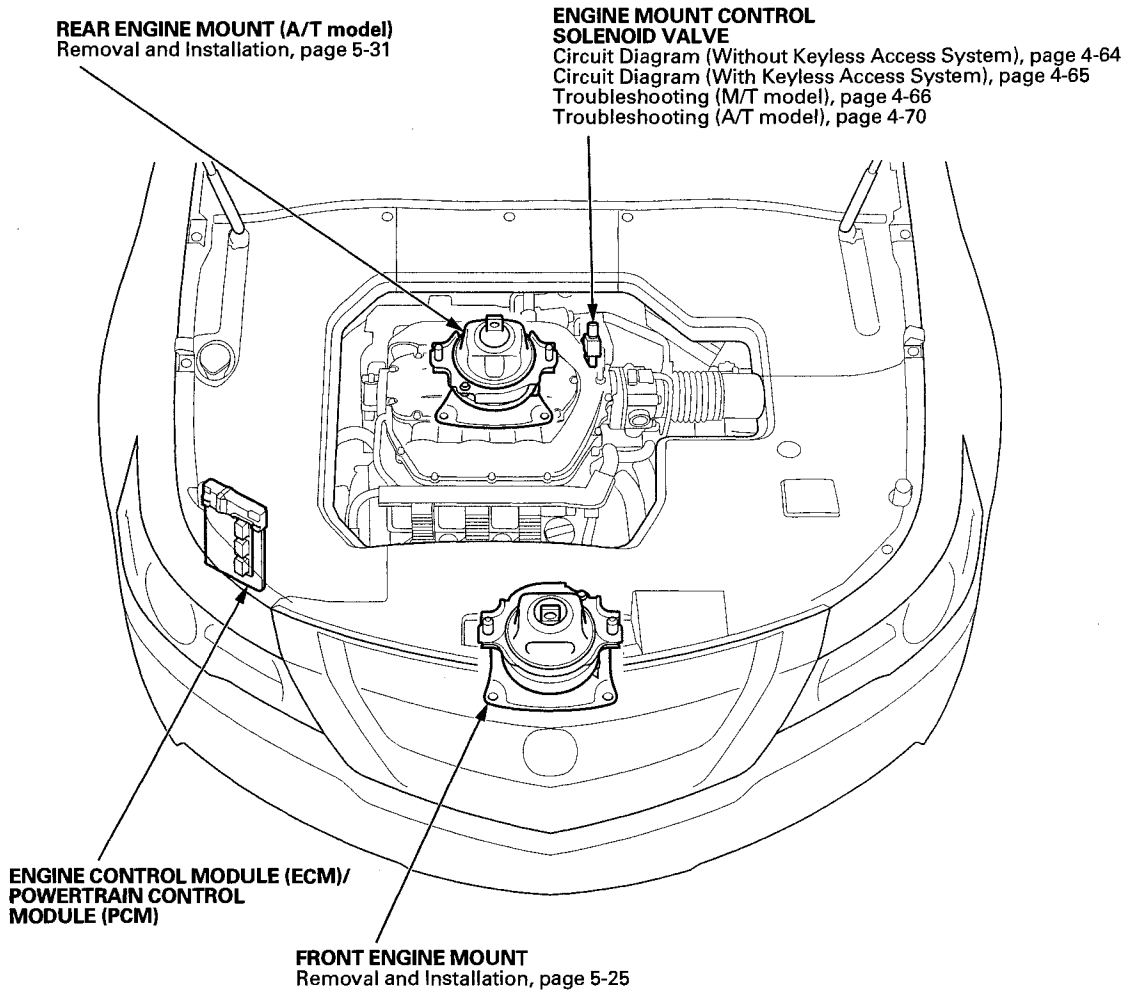


2. Loosen the locknut (B), then remove the clutch pedal position switch B (C).
3. Install the clutch pedal position switch B, and adjust the pedal height (see page 12-6).

Engine Mount Control System



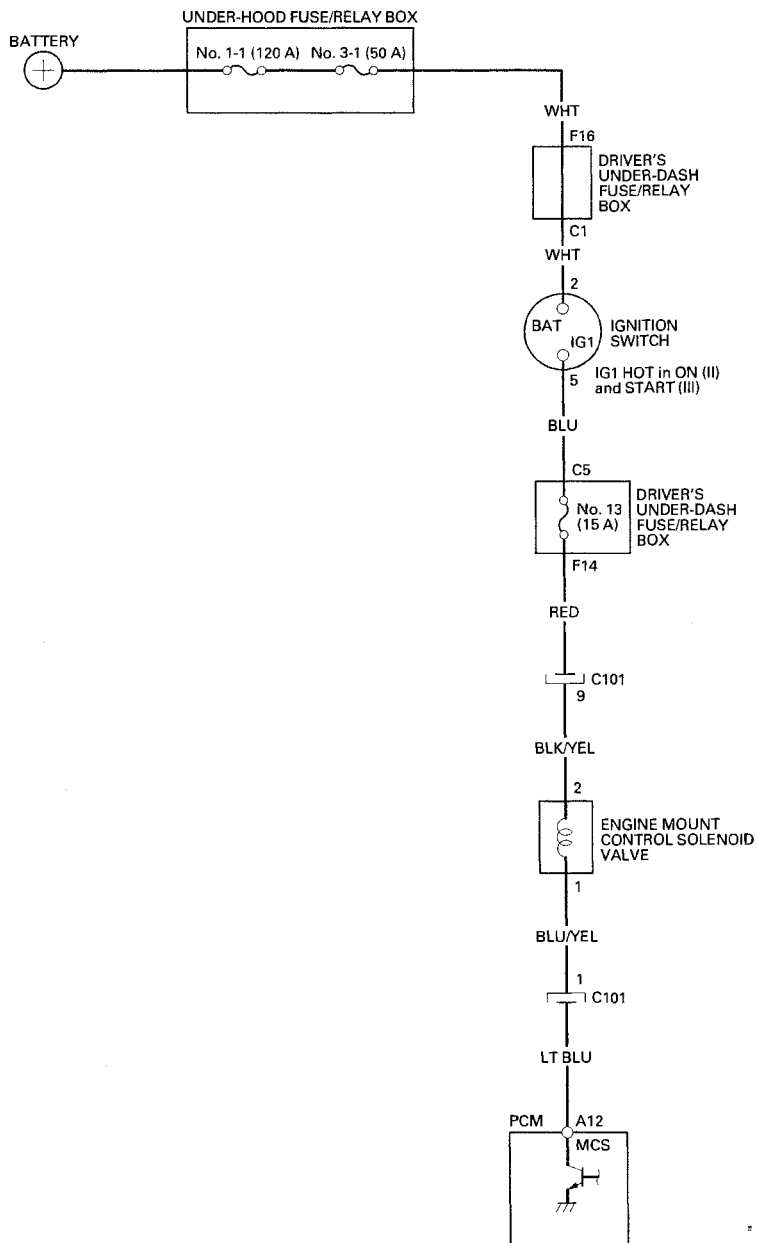
Component Location Index



Engine Mount Control System

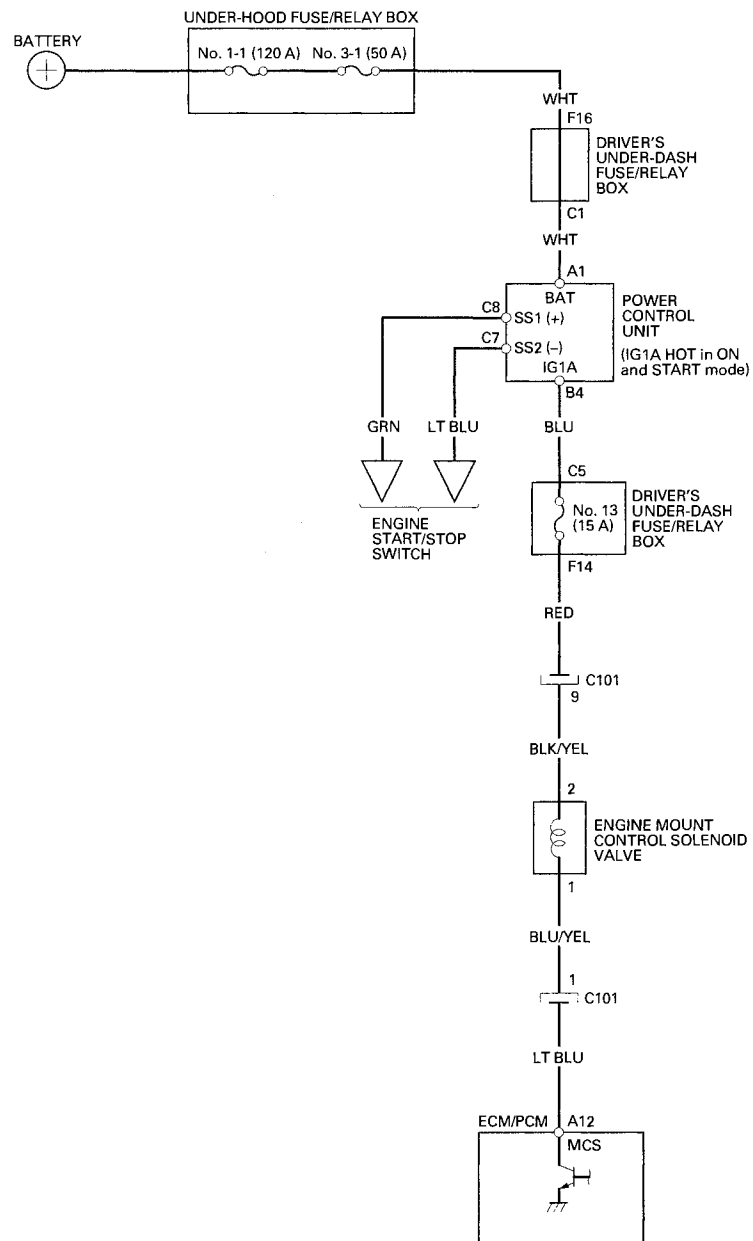
Circuit Diagram

Without Keyless Access System





With Keyless Access System



Engine Mount Control System

Troubleshooting

Special Tools Required

Vacuum Pump/Gauge, 0—30 In.Hg, Snap-on YA4000A or equivalent, commercially available

M/T model

NOTE:

- Check the vacuum hoses and lines for damage and proper connections before troubleshooting.
- The rubber mount should have dimples in it. This is normal. If the internal bladder ruptures, the rubber mount looks like it is bulging, replace it (see page 5-25).

Follow this procedure if the engine vibrates excessively when idling.

1. Remove the engine compartment cover (see page 20-186).
2. Start the engine, and let it idle.
3. Raise the engine speed from idling to 2,000 rpm.
4. Check the MOUNT CTRL SOL in the PGM-FI DATA LIST with the Honda Diagnostic System (HDS).

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

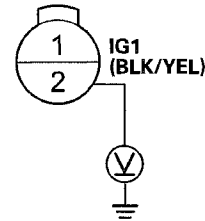
YES—Go to step 5.

NO—Update the engine control module (ECM) if it does not have the latest software (see page 11-281), or substitute a known-good ECM (see page 11-7), then recheck. If the engine mount control system works properly, and the ECM was updated, the troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-282). ■

5. Press the engine start/stop button to select the OFF mode.
6. Disconnect the engine mount control solenoid valve 2P connector from the engine mount control solenoid valve.
7. Press the engine start/stop button to select the ON mode.

8. Measure the voltage between engine mount control solenoid valve 2P connector terminal No. 2 and body ground.

ENGINE MOUNT CONTROL
SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 9.

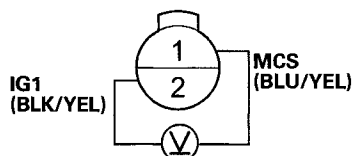
NO—Repair open in the wire between engine mount control solenoid valve 2P connector terminal No. 2 and No. 13 (15 A) fuse in the driver's under-dash fuse/relay box. ■

9. Start the engine, and let it idle.



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

**ENGINE MOUNT CONTROL
SOLENOID VALVE 2P CONNECTOR**



Wire side of female terminals

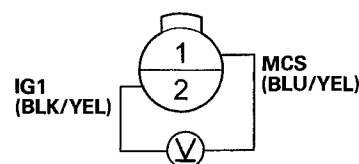
Is there battery voltage?

YES—Go to step 11.

NO—Repair open in the wire between ECM connector terminal A12 and engine mount control solenoid valve 2P connector terminal No. 1. If the wire is OK, update the ECM if it does not have the latest software (see page 11-281), or substitute a known-good ECM (see page 11-7), and recheck. If the engine mount control system works properly, and the ECM was updated, the troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-282). ■

11. Raise the engine speed above 2,000 rpm.
12. Measure the voltage between engine mount control solenoid valve 2P connector terminals No. 1 and No. 2.

**ENGINE MOUNT CONTROL
SOLENOID VALVE 2P CONNECTOR**



Wire side of female terminals

Is there battery voltage?

YES—Repair short to body ground in the wire between ECM connector terminal A12 and engine mount control solenoid valve 2P connector terminal No.1. If the wire is OK, update the ECM if it does not have the latest software (see page 11-281), or substitute a known-good ECM (see page 11-7), and recheck. If the engine mount control system works properly, and the ECM was updated, the troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-282). ■

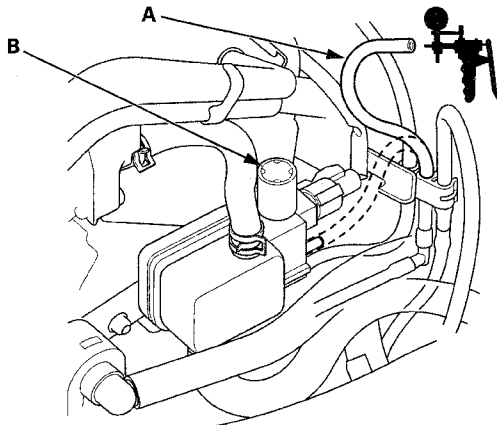
NO—Press the engine start/stop button to select the OFF mode, then go to step 13.

(cont'd)

Engine Mount Control System

Troubleshooting (cont'd)

13. Disconnect the vacuum hose (A) from the engine mount control solenoid valve (B), and connect a vacuum pump/gauge, 0–30 in.Hg, to the vacuum hose. Apply about 20 in Hg of vacuum, and wait for 20 seconds.

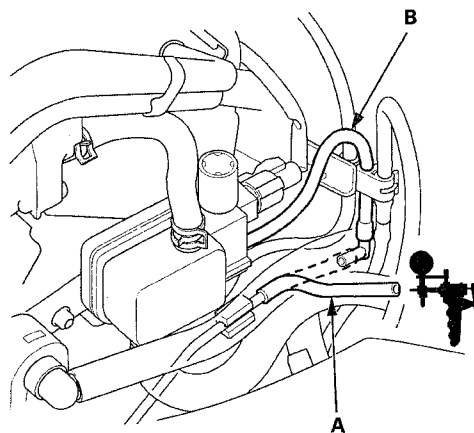


Does the engine mount hold vacuum?

YES—Reconnect the vacuum hose, then go to step 15.

NO—Reconnect the vacuum hose, then go to step 14.

14. Disconnect the vacuum hose (A) from the two way valve, and connect a vacuum pump/gauge to the hose. Apply about 20 in Hg vacuum, and wait 20 seconds.

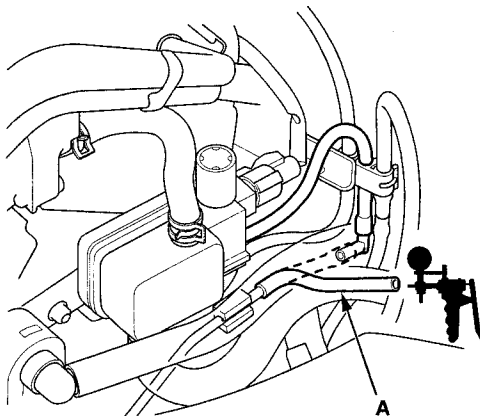


Does the engine mount hold vacuum?

YES—Repair the vacuum hose (B) between the engine mount control solenoid valve and the two way valve. ■

NO—The vacuum hose or the front engine mount has a vacuum leak. Repair as needed. ■

15. Disconnect the vacuum hose (A) from the two way valve, then connect the vacuum pump/gauge to the vacuum hose.



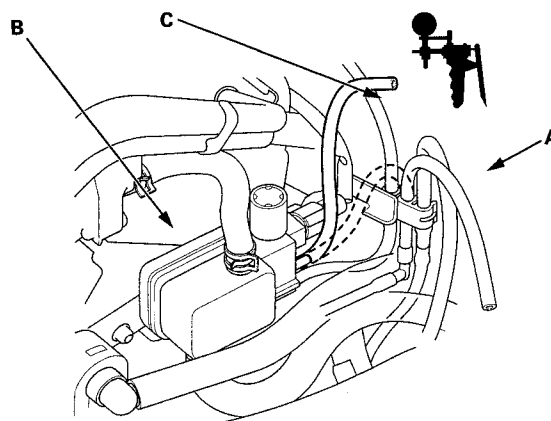
16. Start the engine and let it idle, then apply vacuum to the mount.

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

YES—Reconnect the vacuum hose to the two way valve, then go to step 17.

NO—Replace the front engine mount (see page 5-25). ■

17. Disconnect the vacuum hose (A) from the engine mount control solenoid valve (B), then connect a vacuum pump/gauge to the engine mount control solenoid valve.



Is there manifold vacuum at idle, and a decrease in manifold vacuum when you raise the engine speed above 2,000 rpm?

YES—The system is OK. ■

NO—Repair the vacuum hose (C) between the intake manifold and the engine mount control solenoid valve. If the vacuum hose is OK, replace the engine mount control solenoid valve. ■

Engine Mount Control System

Troubleshooting (cont'd)

Special Tools Required

Vacuum Pump/Gauge, 0–30 In.Hg, Snap-on YA4000A or equivalent, commercially available

A/T model

NOTE:

- Check the vacuum hoses and lines for damage and proper connections before troubleshooting.
- The rubber mount should have dimples in it. This is normal. If the internal bladder ruptures, the rubber mount looks like it is bulging, replace it:
 - Front engine mount (see page 5-25)
 - Rear engine mount (see page 5-31)

Follow this procedure if the engine vibrates excessively when idling.

1. Remove the engine compartment covers (see page 20-186).
2. Start the engine, and let it idle.
3. Raise the engine speed from idling to 2,000 rpm.
4. Check the MOUNT CTRL SOL in the PGM-FI DATA LIST with the Honda Diagnostic System (HDS).

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

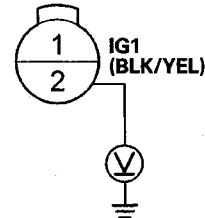
YES—Go to step 5.

NO—Update the powertrain control module (PCM) if it does not have the latest software (see page 11-281), or substitute a known-good PCM (see page 11-7), then recheck. If the engine mount control system works properly, and the PCM was updated, the troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-282). ■

5. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.
6. Disconnect the engine mount control solenoid valve 2P connector from the engine mount control solenoid valve.
7. Turn the ignition switch to ON (II), or press the engine start/stop button to select the ON mode.

8. Measure the voltage between engine mount control solenoid valve 2P connector terminal No. 2 and body ground.

ENGINE MOUNT CONTROL
SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 9.

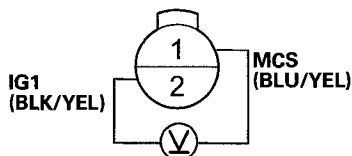
NO—Repair open in the wire between engine mount control solenoid valve 2P connector terminal No. 2 and No. 13 (15 A) fuse in the driver's under-dash fuse/relay box. ■

9. Start the engine, and let it idle.



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

**ENGINE MOUNT CONTROL
SOLENOID VALVE 2P CONNECTOR**



Wire side of female terminals

Is there battery voltage?

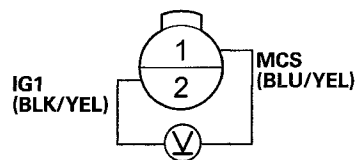
YES—Go to step 11.

NO—Repair open in the wire between PCM terminal A12 and engine mount control solenoid valve 2P connector terminal No. 1. If the wire is OK, update the PCM if it does not have the latest software (see page 11-281), or substitute a known-good PCM (see page 11-7), and recheck. If the engine mount control system works properly, and the PCM was updated, the troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-282). ■

11. Raise the engine speed above 2,000 rpm.

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

**ENGINE MOUNT CONTROL
SOLENOID VALVE 2P CONNECTOR**



Wire side of female terminals

Is there battery voltage?

YES—Repair short to body ground in the wire between PCM terminal A12 and the engine mount control solenoid valve 2P connector terminal No. 1. If the wire is OK, update the PCM if it does not have the latest software (see page 11-281), or substitute a known-good PCM (see page 11-7), and recheck. If the engine mount control system works properly, and the PCM was updated, the troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-282). ■

NO—Reconnect the engine mount control solenoid valve 2P connector, then go to step 13.

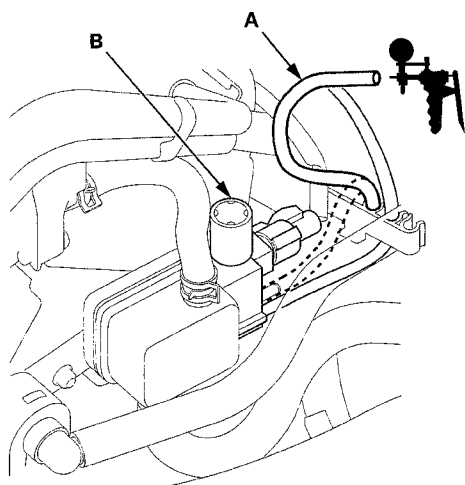
13. Turn the ignition switch to LOCK (0), or press the engine start/stop button to select the OFF mode.

(cont'd)

Engine Mount Control System

Troubleshooting (cont'd)

14. Disconnect the vacuum hose (A) from the engine mount control solenoid valve (B), and connect a vacuum pump/gauge, 0–30 in.Hg, to the vacuum hose. Apply about 20 in Hg of vacuum, and wait for 20 seconds.

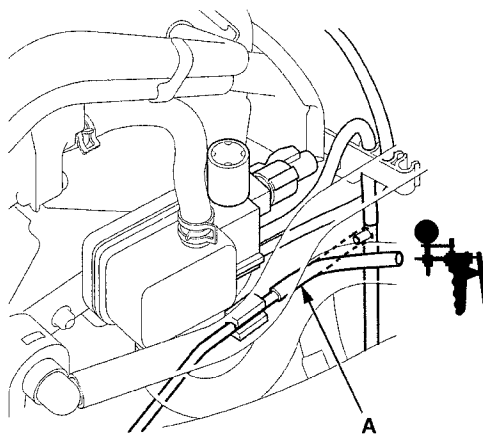


Do both engine mounts hold vacuum?

YES—Reconnect the vacuum hose, then go to step 17.

NO—Reconnect the vacuum hose, then go to step 15.

15. Disconnect the vacuum hose (A) from the three way valve, and connect a vacuum pump/gauge to the vacuum hose. Apply about 20 in Hg of vacuum, and wait for 20 seconds.



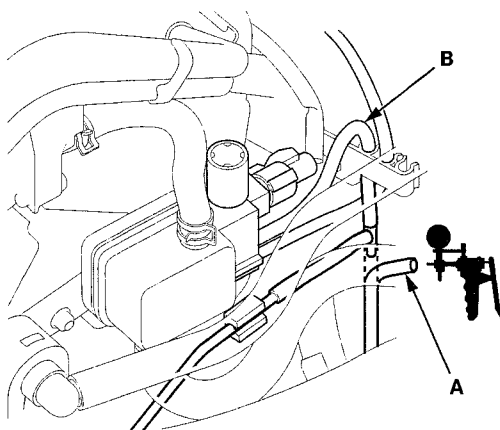
Does the front engine mount hold vacuum?

YES—Go to step 16.

NO—The vacuum hose or the front engine mount has a vacuum leak. Repair as needed. ■



16. Disconnect the vacuum hose (A) from the three way valve, and connect a vacuum pump/gauge to the hose. Apply about 20 in Hg of vacuum, and wait for 20 seconds.

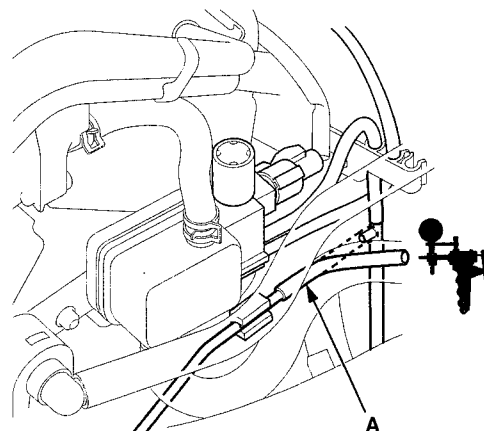


Does the rear engine mount hold vacuum?

YES—Repair the vacuum hose (B) between the engine mount control solenoid valve and the three way valve. ■

NO—The vacuum hose or the rear engine mount has a vacuum leak. Repair as needed. ■

17. Disconnect the vacuum hose (A) from the three way valve. Block the open port, then connect the vacuum pump/gauge to the vacuum hose.



18. Start the engine and let it idle, then apply vacuum to the mount.

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

YES—Reconnect the vacuum hose to the three way valve, then go to step 19.

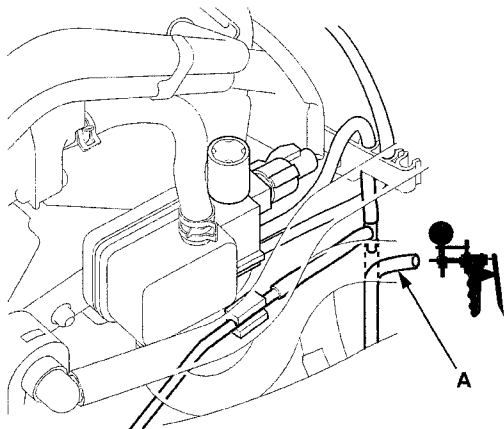
NO—Replace the front engine mount (see page 5-25). ■

(cont'd)

Engine Mount Control System

Troubleshooting (cont'd)

19. Disconnect the vacuum hose (A) from the three way valve. Block the open port, then connect the vacuum pump/gauge to the vacuum hose.

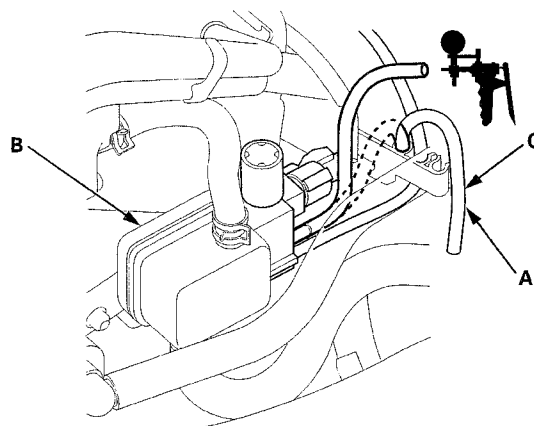


Is there a noticeable change in idle smoothness with and without vacuum applied?

YES—Reconnect the vacuum hose to the three way valve, then go to step 20.

NO—Replace the rear engine mount (see page 5-31).■

20. Disconnect the vacuum hose (A) from the engine mount control solenoid valve, then connect a vacuum pump/gauge to the engine mount control solenoid valve.



Is there manifold vacuum at idle, and a decrease in manifold vacuum when you raise the engine speed above 2,000 rpm?

YES—The system is OK.■

NO—Repair the vacuum hose (C) between the intake manifold and the engine mount control solenoid. If the vacuum hose is OK, replace the engine mount control solenoid valve.■