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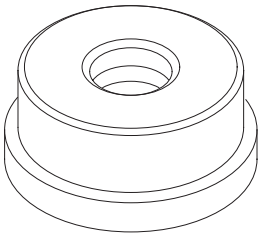
Special Tools

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



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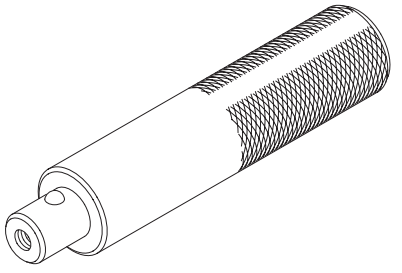

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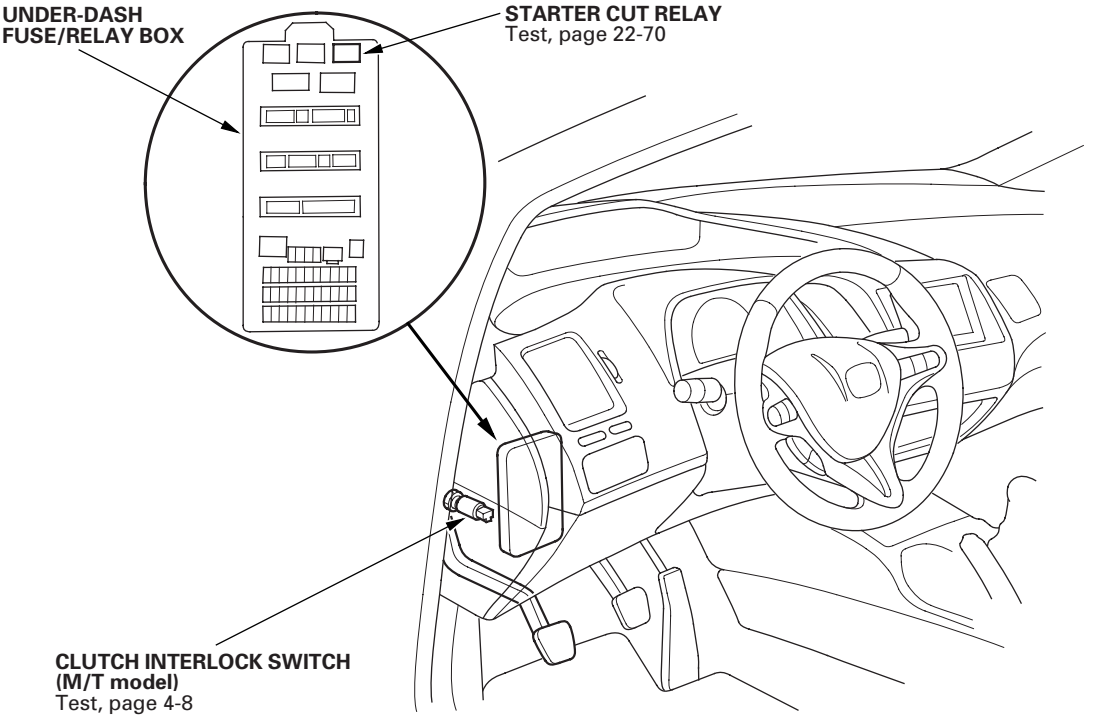
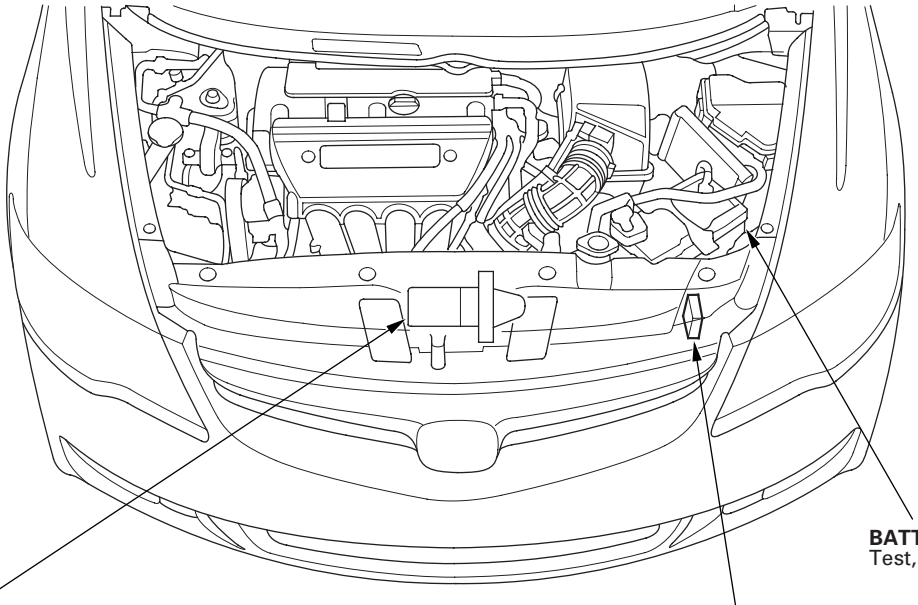
Component Location Index





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Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Engine does not start (does not crank)	1. Check for loose battery terminals or connections. 2. Test the battery for a low state of charge (see page 22-67). 3. Check the starter (see page 4-6). 4. Check the starter cut relay (see page 22-70). 5. Check the clutch interlock switch (M/T model) (see page 4-8). 6. Check the transmission range switch (A/T model) (see page 14-265). 7. Check the ignition switch or wire (see page 22-72).	Poor ground at G101 (A/T model) or G401 (M/T model)
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 22-325). 3. Check the fuel pressure (see page 11-325). 4. Check for a plugged or damaged fuel line (see page 11-326). 5. Check for a plugged fuel filter (see page 11-337). 6. Check the throttle body (see page 11-343). 7. Check for low engine compression (see page 6-7). 8. Check for a damage or broken cam chain (see page 6-21). 9. Do the engine control module (ECM)/powertrain control module (PCM) reset in the PGM-FI INSPECTION menu to cancel the ALL INJECTORS STOP with the Honda Diagnostic System (HDS).	• Empty fuel tank • 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 11-325). 3. Check for a plugged or damaged fuel line (see page 11-326). 4. Check for a plugged fuel filter (see page 11-337).	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 22-67). 3. Check the starter for binding (see page 4-13). 4. Check for excessive drag in the engine.	

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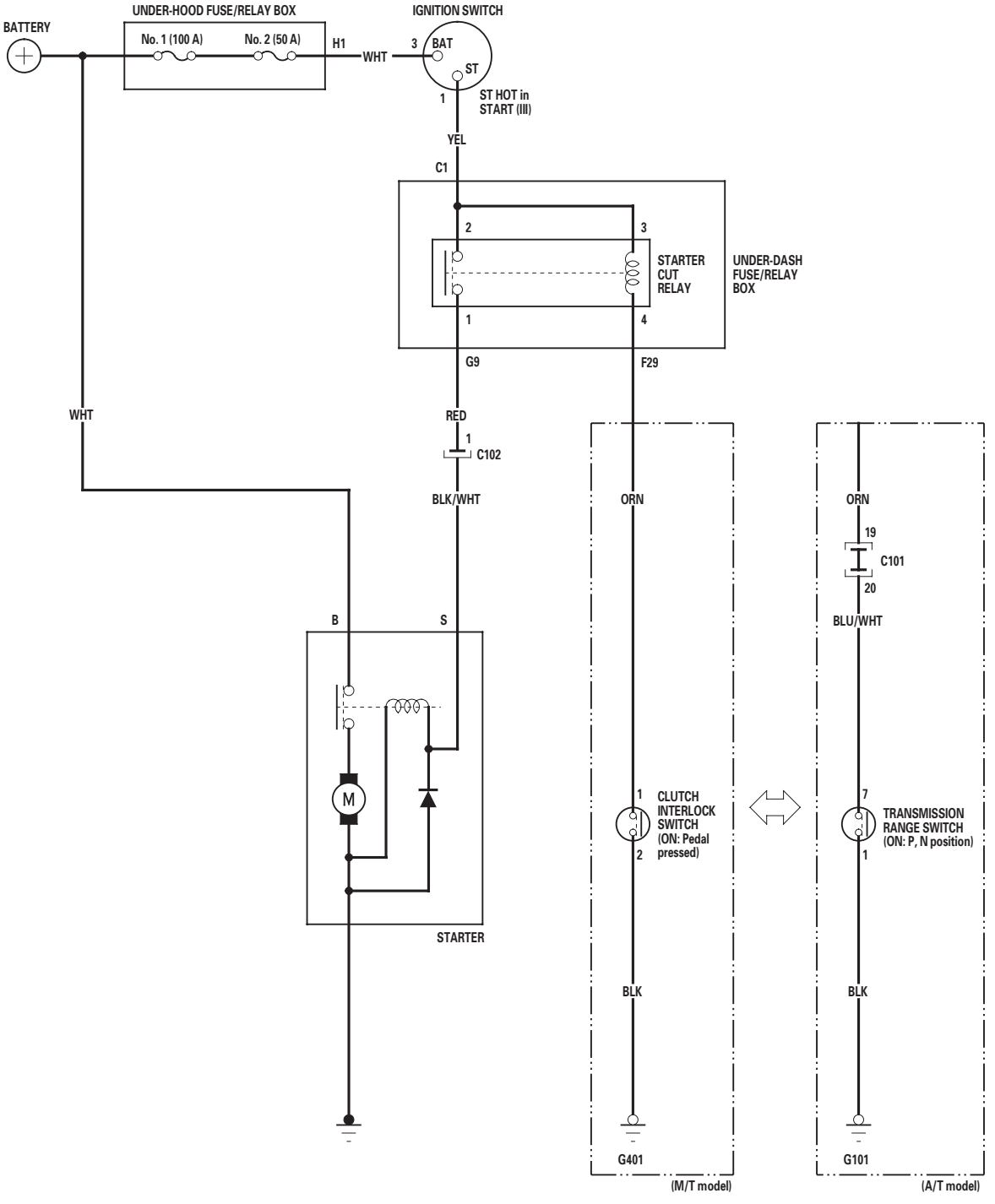
Circuit Diagram



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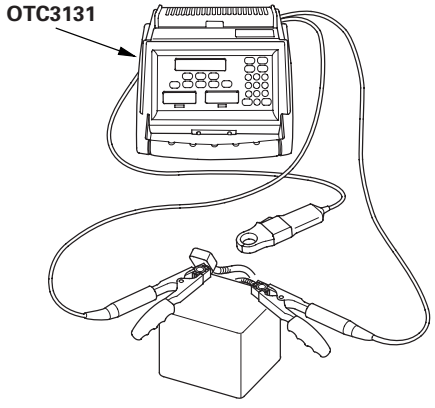
Starter System Circuit Troubleshooting

Special Tools Required
Alternator, Regulator, Battery & Starter tester OTC3131
Available through the Honda Canada Inc. Technical Tools Department; FAX # 866-398-8665/e-mail: ch_technicaltools@ch.honda.com

NOTE:
- Air temperature must be within 15—38 ℃ (59—100 ℉) during this procedure.
- After this 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. Connect the alternator, regulator, battery & starter tester (OTC3131) to the battery as shown.

   NOTE: The probe is not used for battery testing.



2. Do the BATTERY TEST.

   Does the display indicate GOOD or GOOD, LOW CHARGE?

   YES—The battery is OK. Go to step 3.

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

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

4. Turn the ignition switch to ON (II).

5. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-204).

6. Select ALL INJECTORS STOP in the PGM-FI INSPECTION menu with the HDS.

7. Set the parking brake, then with the shift lever in N or P (A/T model) or the clutch pedal pressed (M/T model), turn the ignition switch to START (III).

   Does the starter crank the engine normally?

   YES—The starting system is OK. Go to step 14.

   NO—Go to step 8.

8. Turn the ignition switch to LOCK (0).

9. 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 14.

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

   - If the starter does not crank the engine at all, go to step 10.
   - If the starter cranks the engine erratically or too slowly, go to step 12.
   - If the starter does not disengage from the flywheel ring gear (M/T model) or 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

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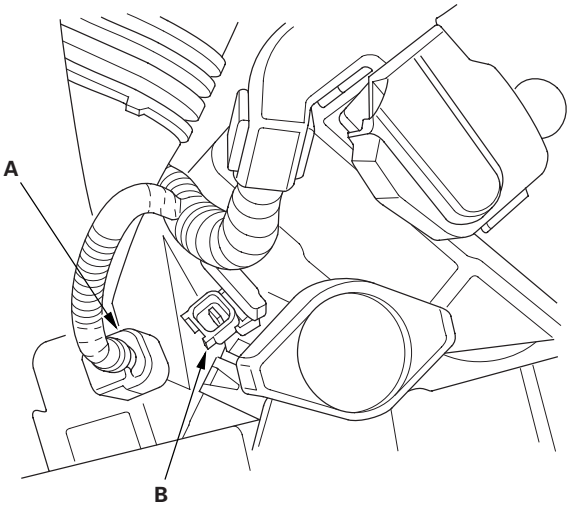
10. Make sure the shift lever is in N or P (A/T model) or neutral (M/T model), then disconnect the engine wire harness 1P connector (A). Connect a jumper wire from the battery positive terminal to the starter subharness 1P connector (B).



Does the starter crank the engine?

YES—Go to step 11.

NO—Check the starter subharness. If the wire is OK, remove the starter (see page 4-10), then repair or replace (see page 4-13) it as necessary. ■

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

NOTE: After the open circuit or high resistance in the circuit is found and repaired, go to step 14.

- Check for an open or short in the YEL wire and connectors between the driver's under-dash fuse/relay box and the ignition switch.
- Check for an open or short in the RED wire and connectors between the under-dash fuse/relay box and the engine wire harness 1P connector.
- Check for an open or short in the ORN wire and connectors between the under-dash fuse/relay box and the clutch interlock switch (M/T model).
- Check for an open or short in the ORN wire, BLU/WHT wire and connectors between the under-dash fuse/relay box and the transmission range switch (A/T model).
- Check for poor ground at G401 (M/T model) or G101 (A/T model).
- Check for a faulty ignition switch (see page 22-72).
- Check for a faulty clutch interlock switch (M/T model) (see page 4-8).
- Check for a faulty transmission range switch (A/T model) (see page 14-265).
- Check for a faulty starter cut relay (see page 22-70).

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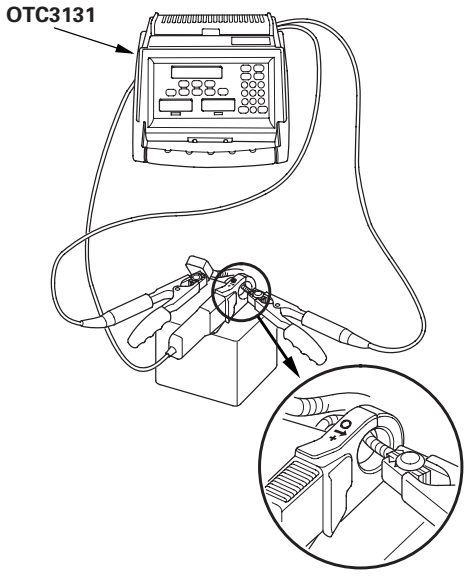
Starter System Circuit Troubleshooting (cont'd)

12. Do the STARTING TEST with the alternator, regulator battery & starter tester.

    NOTE: The probe is used for starter testing.



    Does the display indicate cranking voltage greater than or equal to 8.5 V and the current draw less than or equal to 380 A?

    YES—Go to step 13.

    NO—Replace the starter, or remove and disassemble it, 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

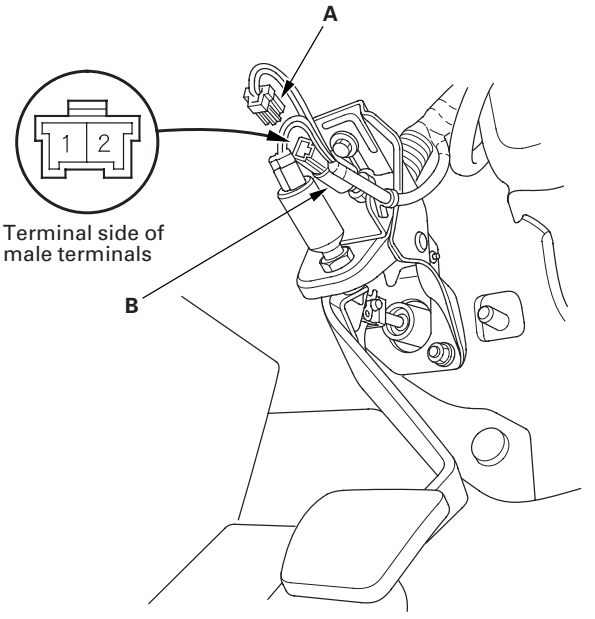
13. Remove the starter, and inspect its drive gear and the flywheel ring gear (M/T model) or the torque converter ring gear (A/T model) for damage. Replace any damaged parts.

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

Clutch Interlock Switch Test

M/T model

1. Disconnect the clutch interlock switch 2P connector (A).



2. Remove the clutch interlock switch (B).

3. Check for continuity between the terminals according to the table.

    - If the continuity is not as specified, replace the clutch interlock switch (see page 12-8).
    - If OK, install the clutch interlock switch, and adjust the pedal height (see page 12-8).

Terminal / Position	1	2
Clutch Interlock Switch (PRESSED)	○	○
Clutch Interlock Switch (RELEASED)		

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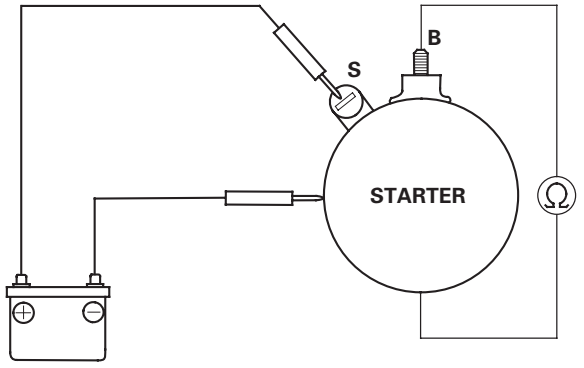
Starter Performance Test

1. Remove the starter (see page 4-10).

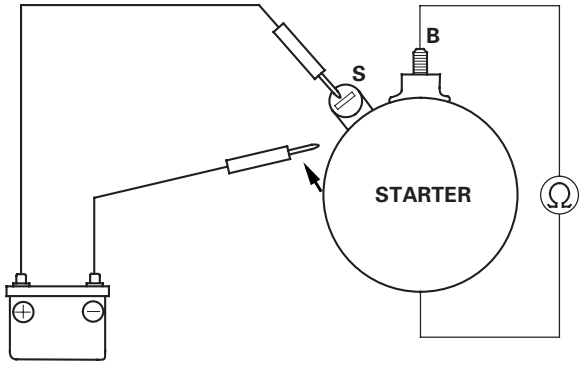
2. Make the connections for this test using the thickest (gauge) wire possible (preferably the same gauge as used on the vehicle).

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



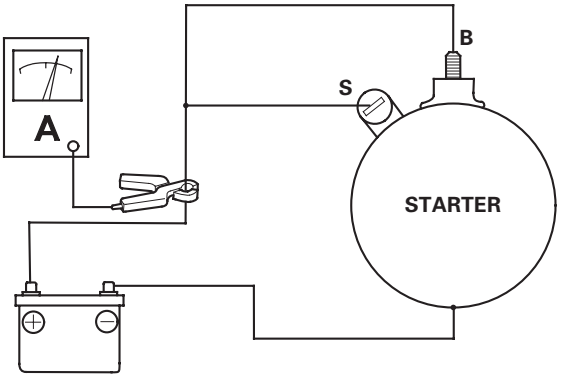
3. Connect the battery as shown, and check for continuity between the B terminal and the starter body. If there is continuity, it is working properly.

4. Disconnect the battery from the starter body, and check for continuity between the B terminal and the starter body. If there is no continuity, it is working properly.



5. Firmly clamp the starter in a vise.

6. Connect the starter to the battery as shown, and confirm that the motor runs.



7. 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 or less

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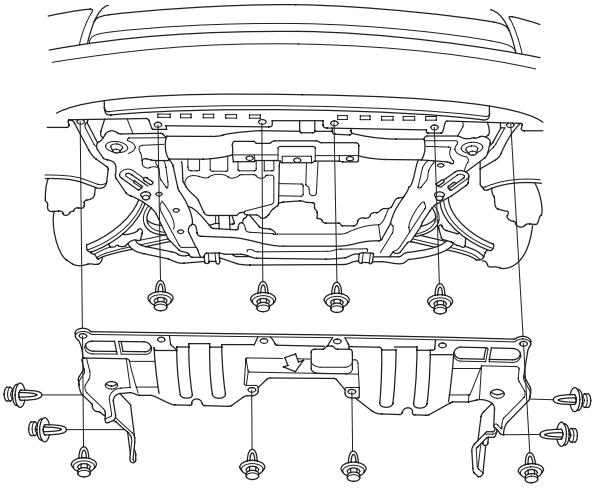
Starter Removal and Installation

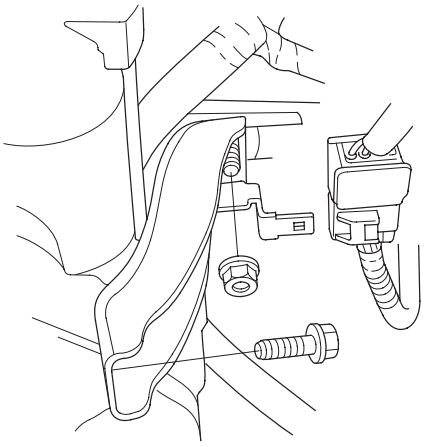
Removal

1. Do the battery terminal disconnection procedure (see page 22-68).
2. Remove the splash shield.

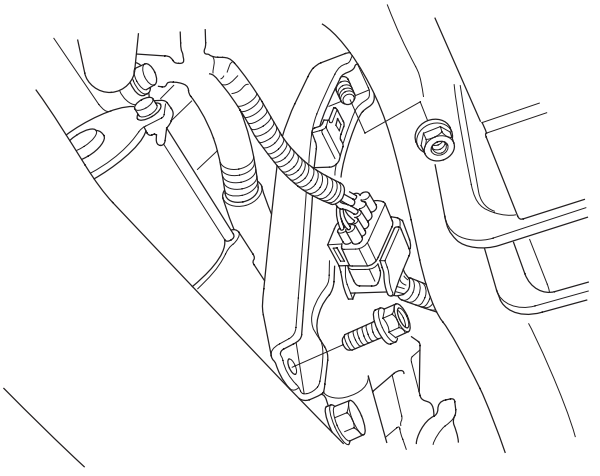


3. Remove the intake manifold bracket.

K20Z2 engine



K20Z3 engine



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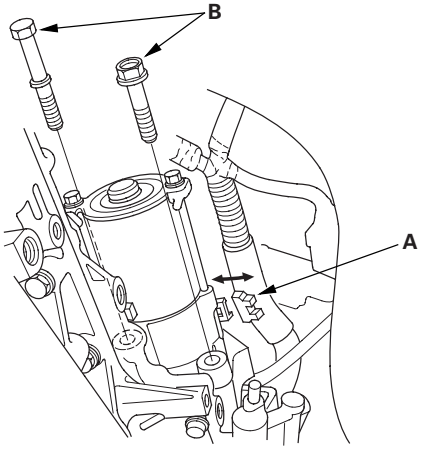
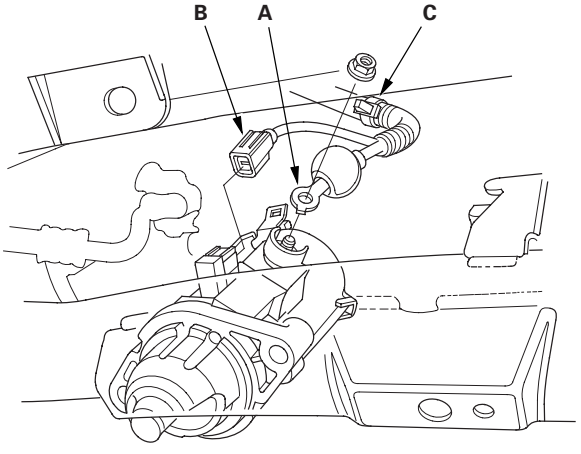
4. Remove the harness clamp (A), then the two bolts (B) securing the starter, then remove the starter from the engine.



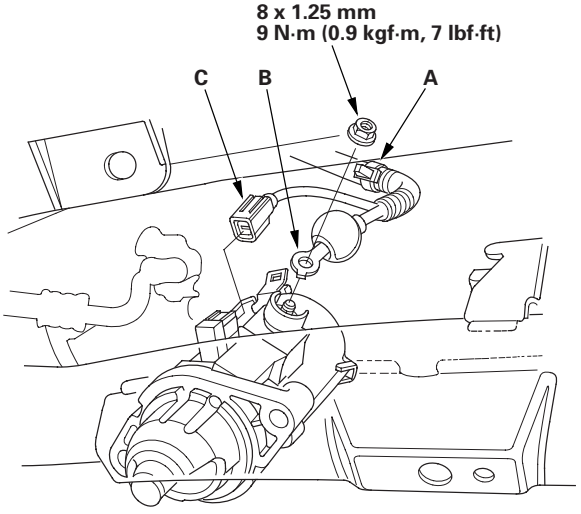
5. Disconnect the positive starter cable (A) and the S terminal connector (B).



6. Remove the harness clamp (C), then remove the starter.

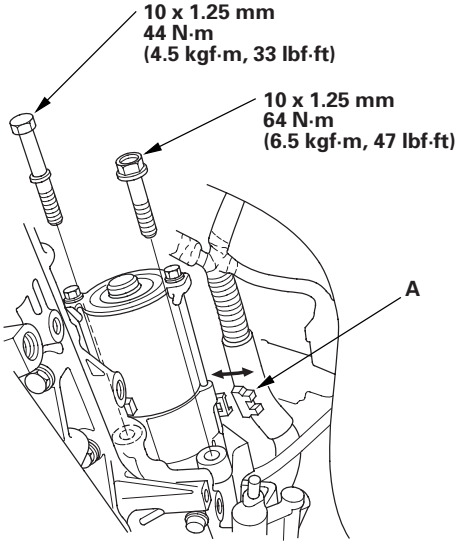
Installation

1. Install the harness clamp (A).



2. Connect the positive starter cable (B) and S terminal connector (C). Make sure the starter cable crimped side of the ring terminal faces away from the starter when you connect it.

3. Install the starter, and tighten the two bolts, then install the harness clamp (A).



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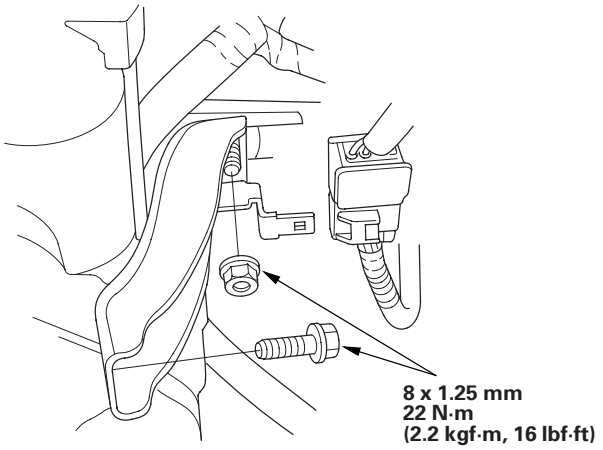
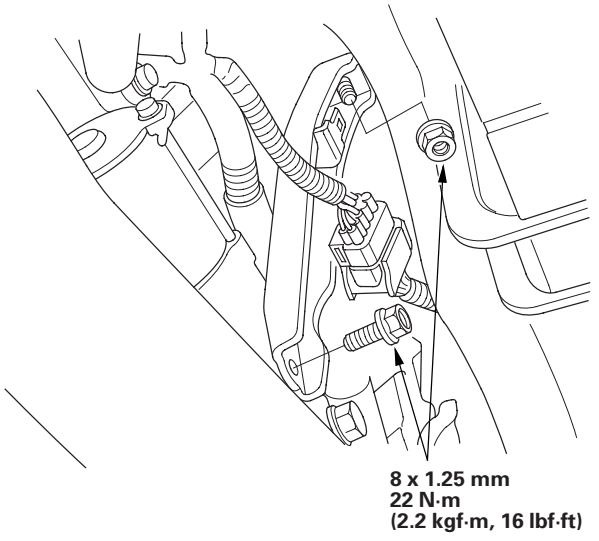
Starter Removal and Installation (cont'd)

4. Install the intake manifold bracket.

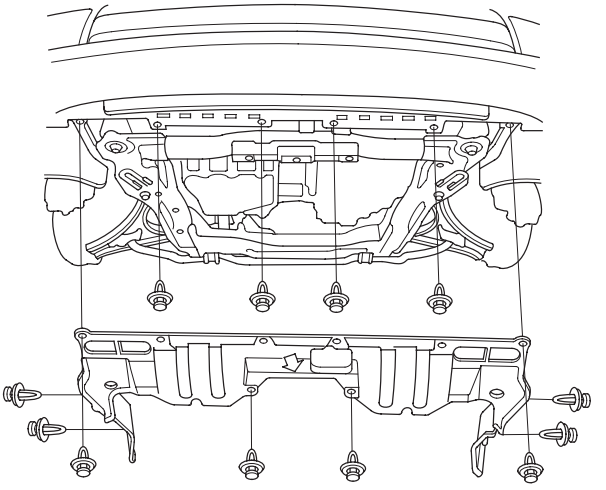
K20Z2 engine



K20Z3 engine



5. Install the splash shield.



6. Do the battery terminal reconnection procedure (see page 22-68).

7. Start the engine to make sure the starter works properly.

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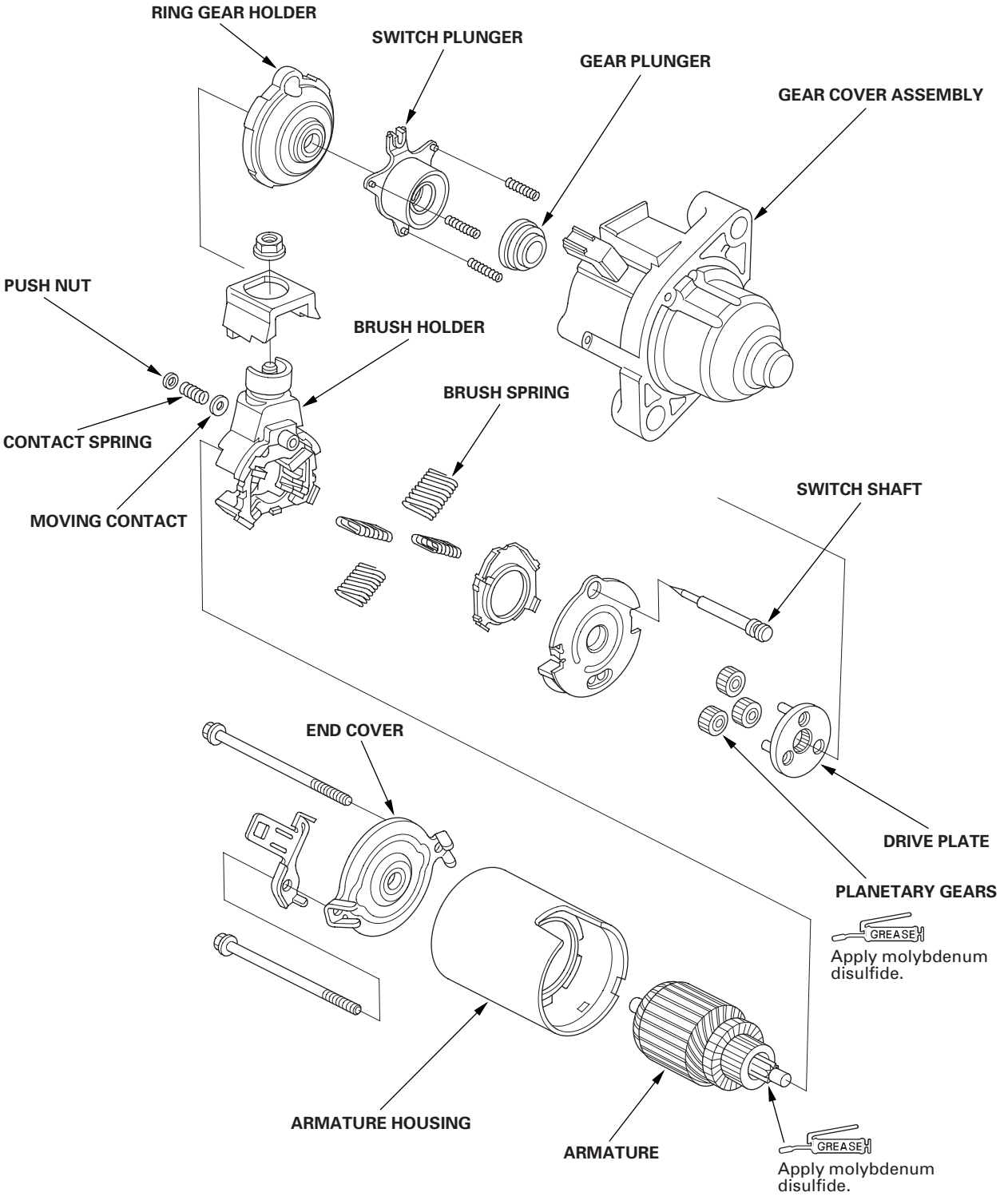
Starter Overhaul

Disassembly/Reassembly



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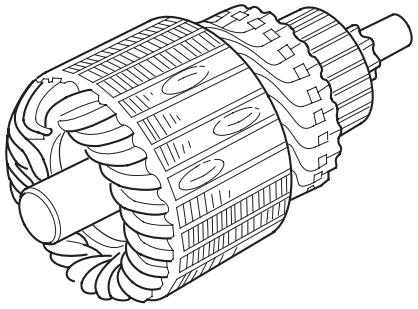
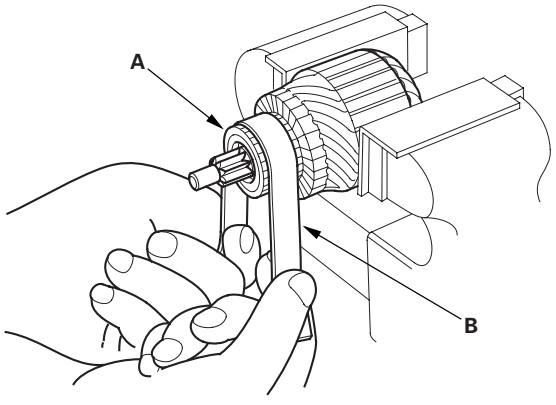
Starter Overhaul (cont'd)

Armature Inspection and Test

1. Remove the starter (see page 4-10).
2. Disassemble the starter as shown at the beginning of this procedure.
3. Inspect the armature for wear or damage from contact with the permanent magnet. If there is wear or damage, replace the armature.

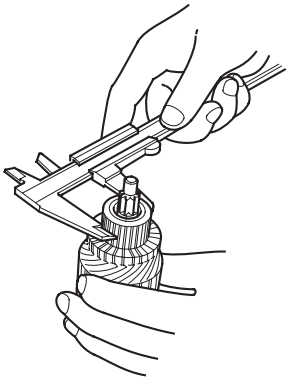


4. Check the commutator (A) surface. If the surface is dirty or burnt, resurface it with an emery cloth or a lathe to the specifications in step 5, or recondition with #500 or #600 sandpaper (B).



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

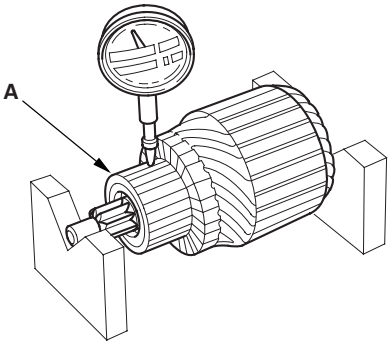
Commutator Diameter
Standard (New): 28.0—28.1 mm (1.102—1.106 in.)
Service Limit: 27.5 mm (1.083 in.)



6. Measure the commutator (A) runout.

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

Commutator Runout
Standard (New): 0.02 mm (0.0008 in.) max.
Service Limit: 0.05 mm (0.002 in.)



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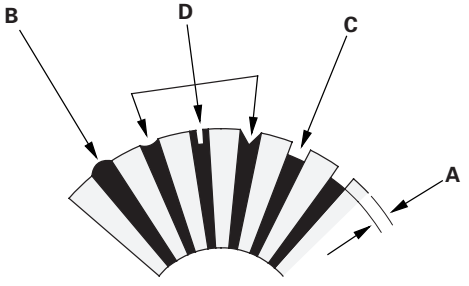
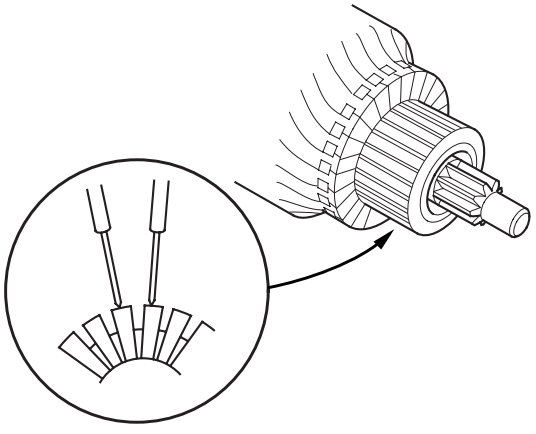
7. Check the mica depth (A). If the mica is too high (B), undercut the mica with a hacksaw blade to the proper depth. Cut away all the mica (C) between the commutator segments. The undercut should not be too shallow, too narrow, or V-shaped (D).

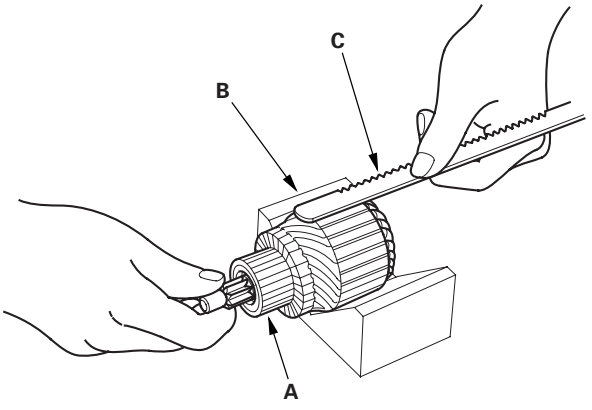
Commutator Mica Depth
Standard (New): 0.40—0.50 mm (0.016—0.020 in.)
Service Limit: 0.15 mm (0.006 in.)



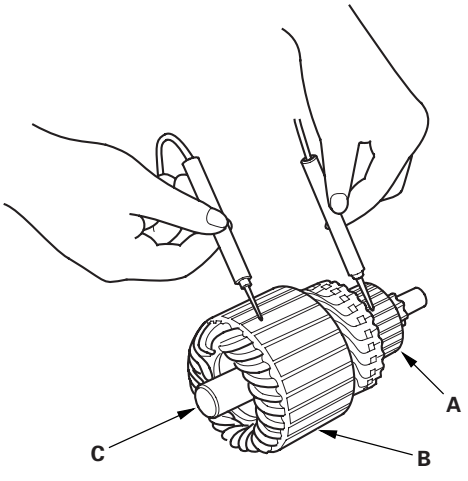
8. Use an ohmmeter to check for continuity between the segments of the commutator. If there is an open circuit between any of the segments, replace the armature.



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



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



(cont'd)

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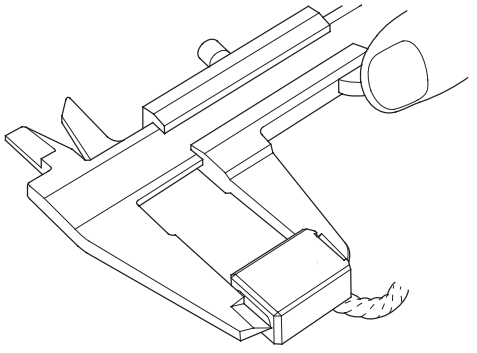
Starter Overhaul (cont'd)

Starter Brush Inspection

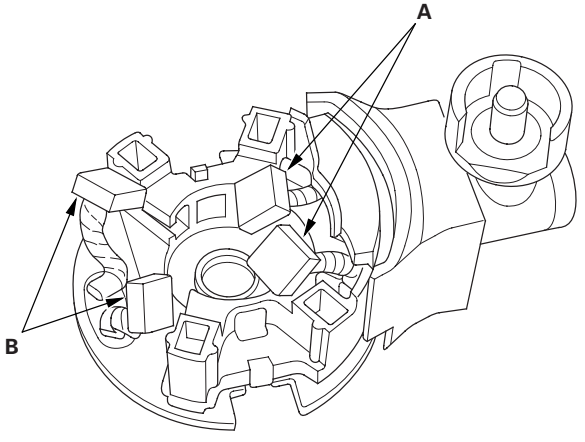
11. Measure the brush length. If it is shorter than the service limit, replace the brush holder assembly.

Brush Length
Standard (New): 11.1—11.5 mm (0.44—0.45 in.)
Service Limit: 4.3 mm (0.17 in.)



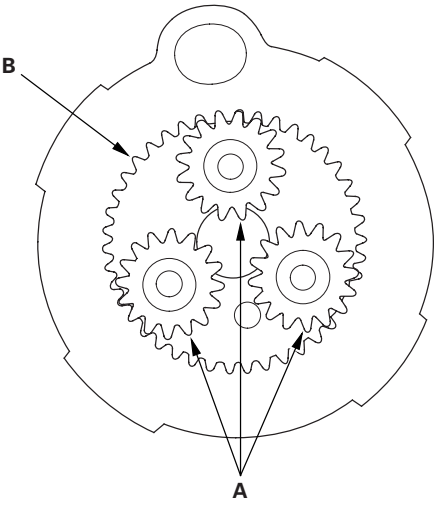
Starter Brush Holder Test

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



Planetary Gear Inspection

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



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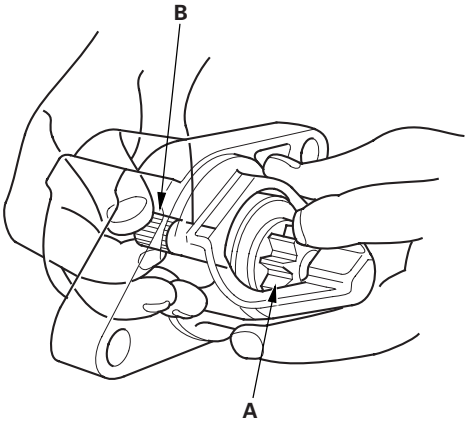
Overrunning Clutch Inspection

14. While holding the drive gear (A), turn the gear shaft (B) counterclockwise. Check that the drive gear comes out to the other end. If the drive gear does not move smoothly, replace the gear cover assembly.



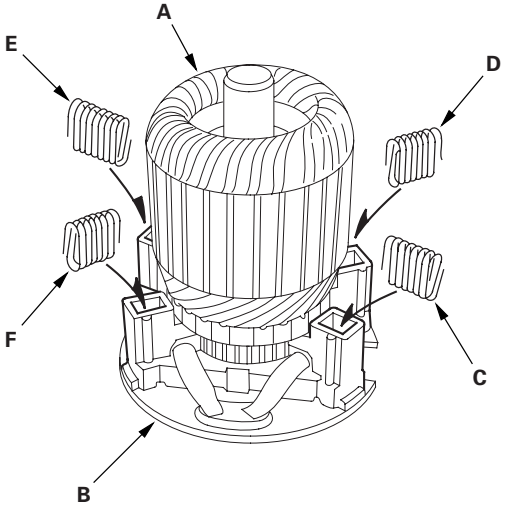
15. While holding the drive gear, turn the gear shaft clockwise. The gear shaft should turn freely. If the gear shaft does not turn freely, replace the gear cover assembly.

16. If the drive gear is worn or damaged, replace the overrunning clutch assembly; the gear is not available separately.
Check the condition of the flywheel ring gear (M/T model), or the torque converter ring gear (A/T model) to see if the starter drive gear teeth are damaged.

Starter Reassembly

17. Install the brush into the brush holder, and set the armature (A) in the brush holder (B).

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



18. While squeezing a spring (C), insert it in the hole on the brush holder, and push it until it bottoms. Repeat this for the other three springs (D, E, and F).

19. Install the armature and the brush holder assembly into the housing.

NOTE: Make sure the armature stays in the holder.

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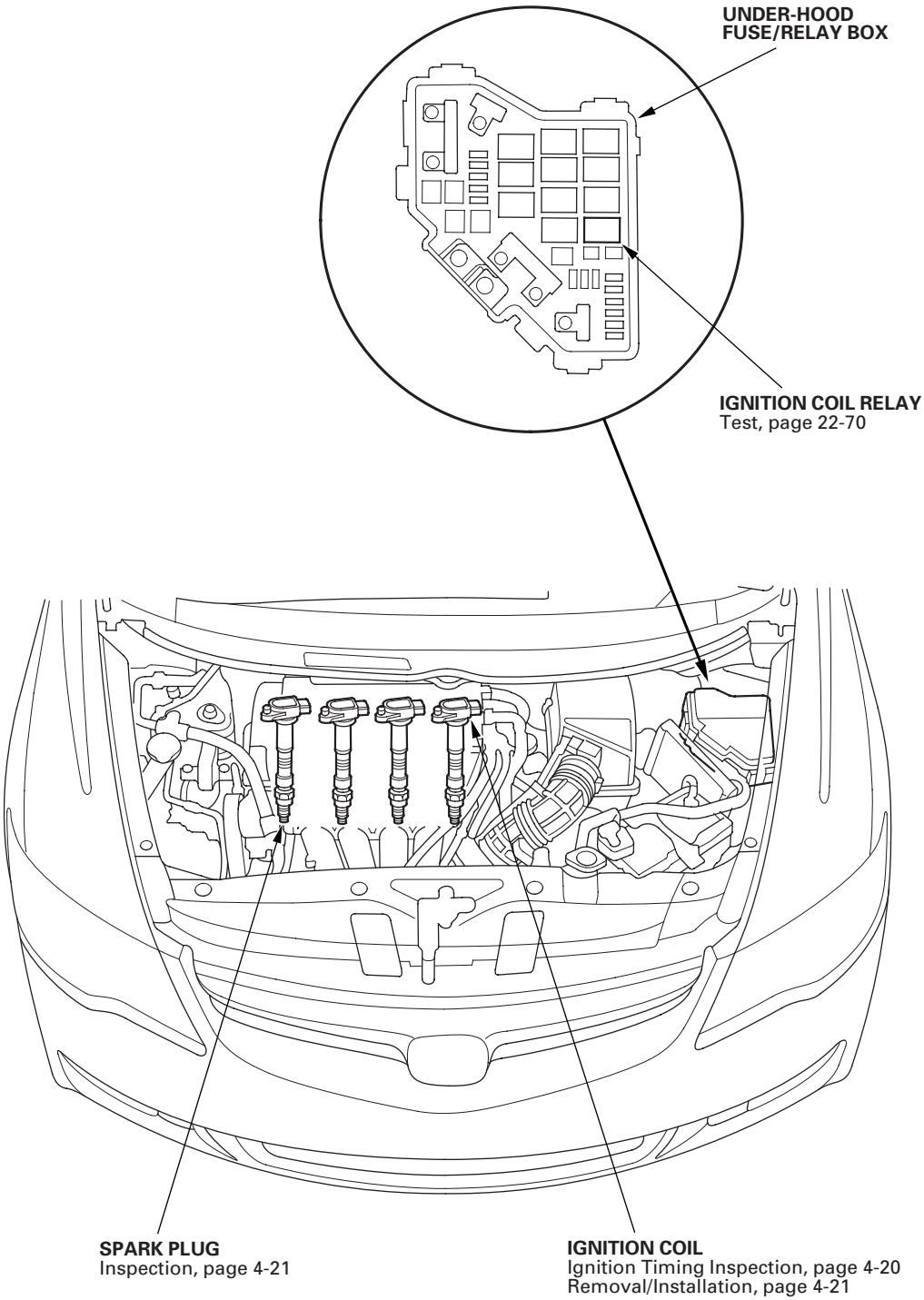
Component Location Index



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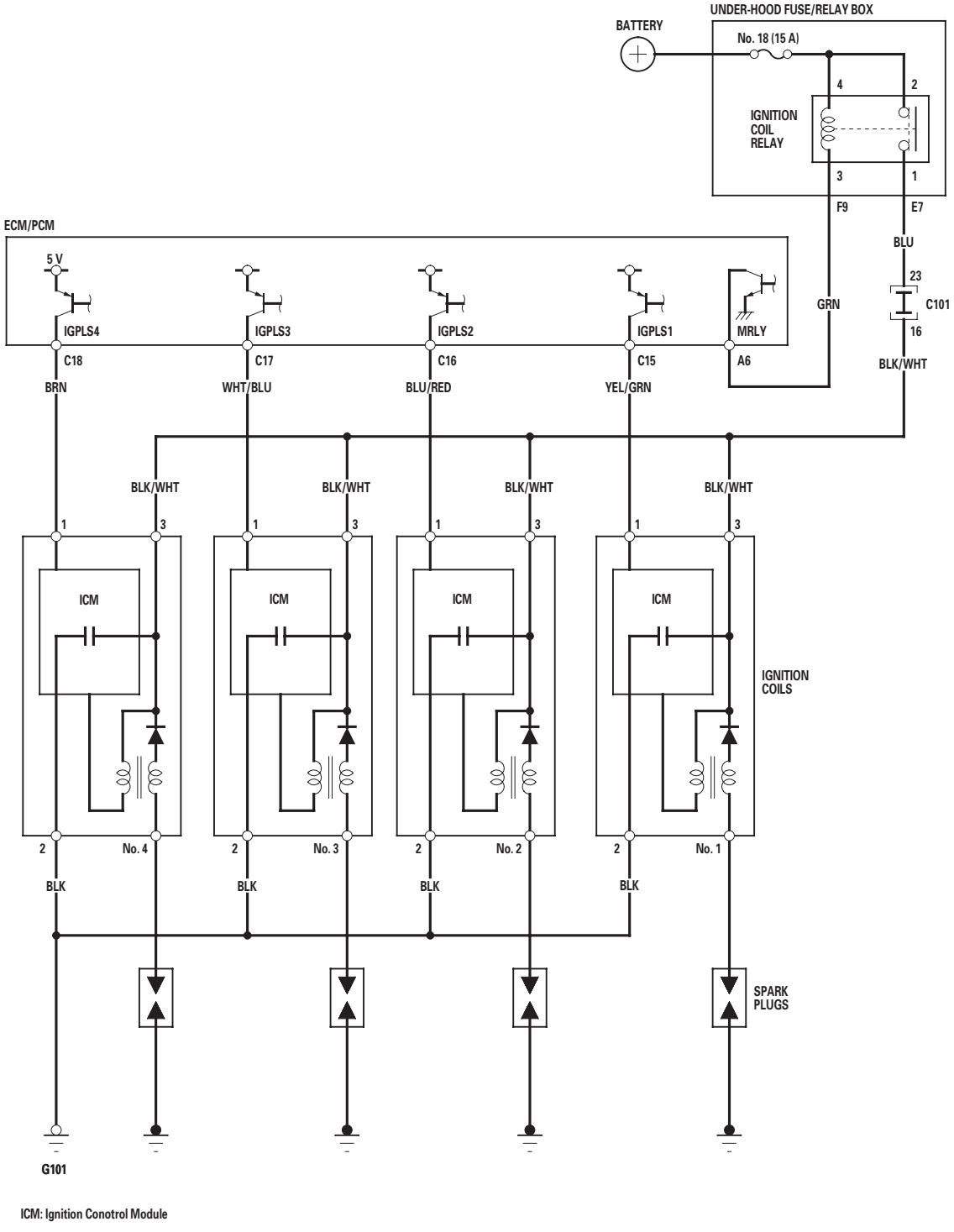
Circuit Diagram



ICM: Ignition Conotrol Module

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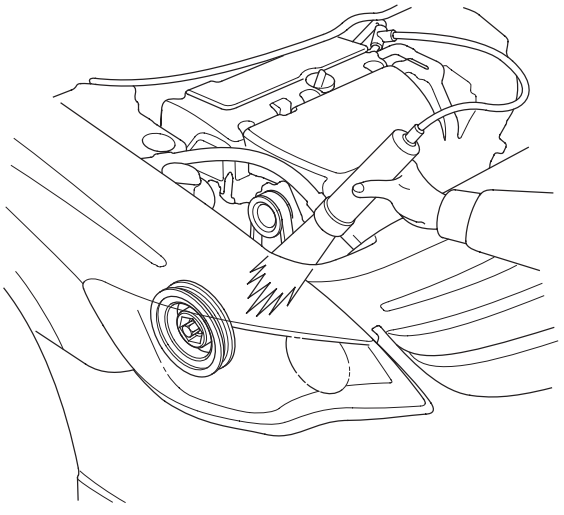
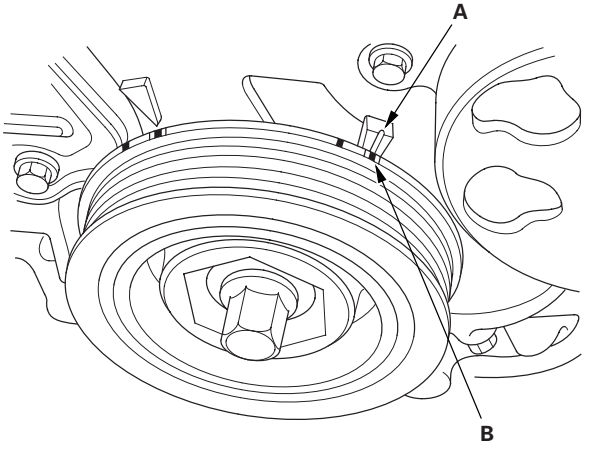
Ignition Timing Inspection

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
2. Turn the ignition switch to ON (II).
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 11-204).
4. Check for DTCs (see page 11-3). If a DTC is present, diagnose and repair the cause before continuing with this test.
5. 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.
6. Check the idle speed (see page 11-309).
7. Jump the SCS line with the HDS.
8. Connect the timing light to the service loop (white tape).



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

Ignition Timing
M/T model: 8 °±2 °BTDC (RED mark (B)) at idle in neutral
A/T model: 8 °±2 °BTDC (RED mark (B)) at idle in N or P



10. 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 11-227), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the system work properly, and the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-228).
11. Disconnect the HDS and the timing light.

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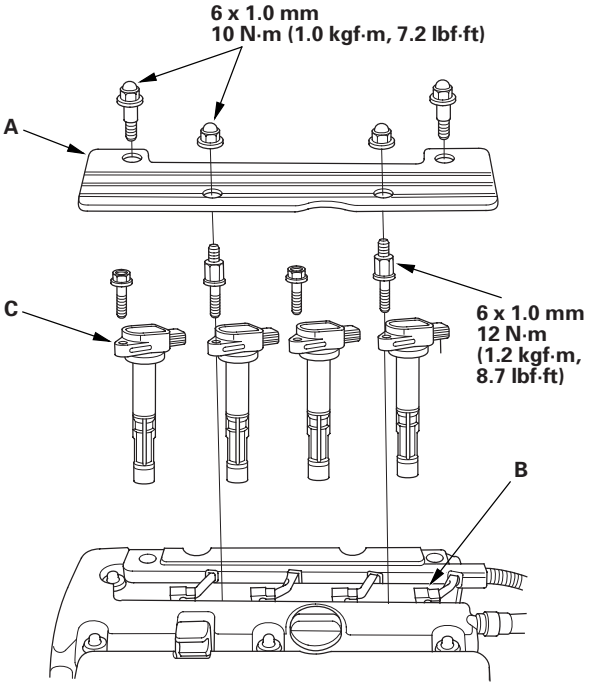
Ignition Coil Removal/Installation

1. Remove the ignition coil cover (A).



2. Disconnect the ignition coil connectors (B), then remove the ignition coils (C).

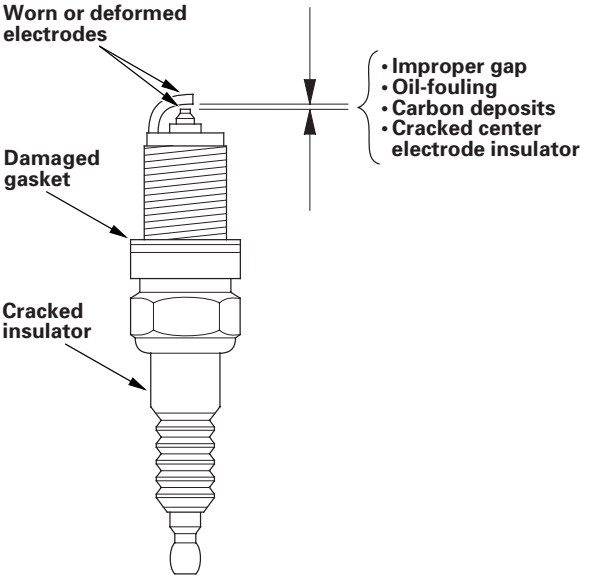
3. Install the ignition coils in the reverse order of removal.

Spark Plug Inspection

1. 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



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

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

(cont'd)

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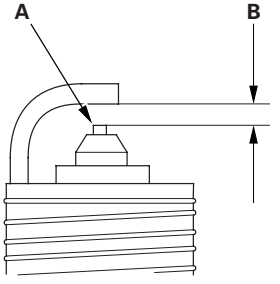
Spark Plug Inspection (cont'd)

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

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

   Spark Plugs
   K20Z2 engine
   DENSO: SKJ20DR-M11
   K20Z3 engine
   DENSO: SK22PR-M11S
   Electrode Gap
   Standard(New): 1.0—1.1 mm (0.039—0.043 in.)



4. 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).

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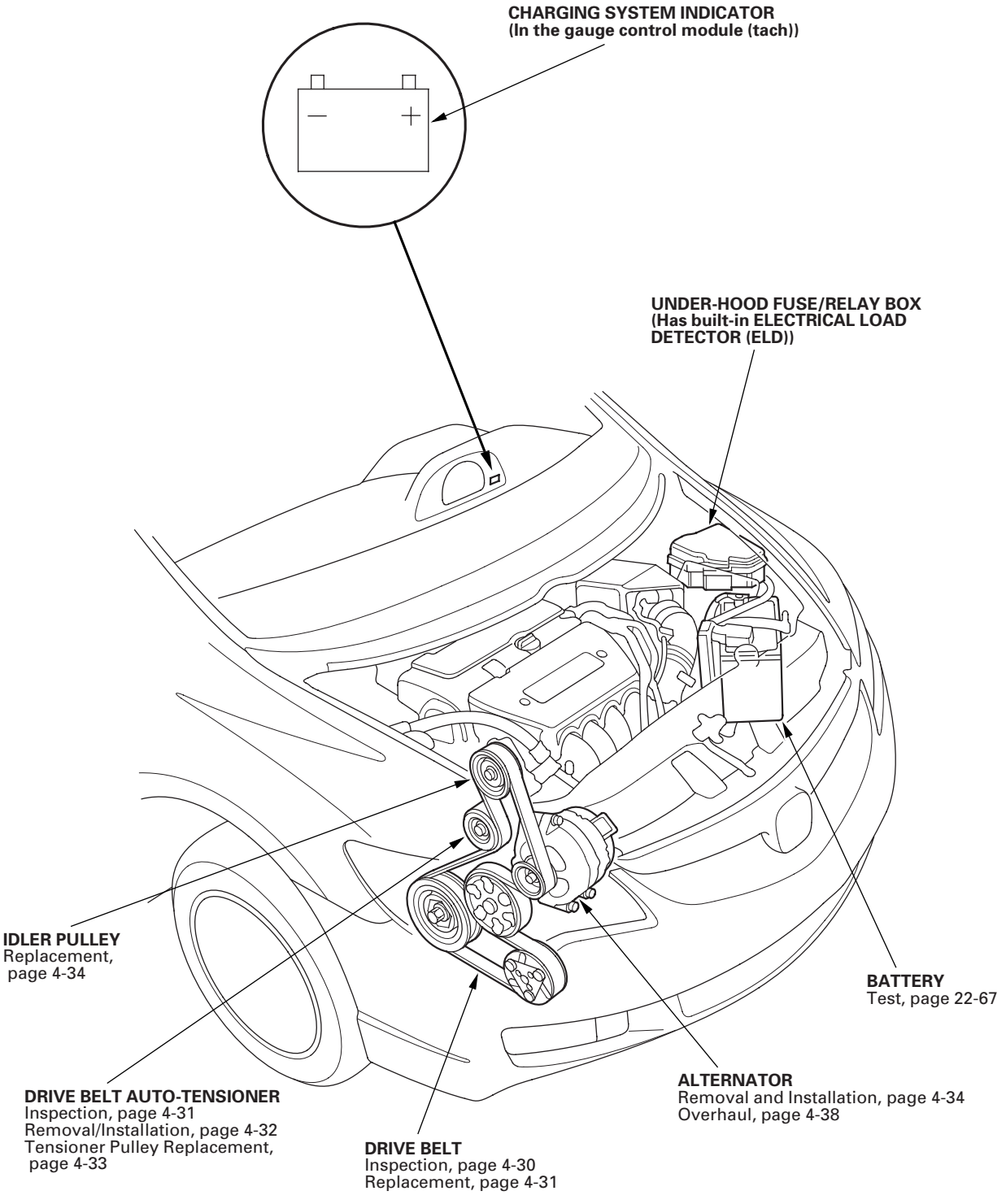
Component Location Index



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Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Charging system indicator does not come on with the ignition switch in ON (II)	Troubleshoot the charging system indicator circuit (see page 4-26).	
Charging system indicator stays on	1. Troubleshoot the charging system indicator circuit (see page 4-26). 2. Check for a broken drive belt (see page 4-30). 3. Check the drive belt auto-tensioner (see page 4-31). 4. Check for PGM-FI DTCs (see page 11-3).	
Battery discharged	1. Check for a poor connection at the battery terminal. 2. Check for a broken drive belt (see page 4-30). 3. Test the battery (see page 22-67). 4. Troubleshoot the alternator and regulator circuit (see page 4-28). 5. Check the drive belt auto-tensioner (see page 4-31). 6. Check for excessive parasitic electrical current draw with the ignition switch to LOCK (0), and the key removed. The multiplex control unit may take up to 10 minutes to turn off (sleep mode) for same models.	
Battery overcharged	1. Test the battery (see page 22-67). 2. Troubleshoot the alternator and regulator circuit (see page 4-28).	

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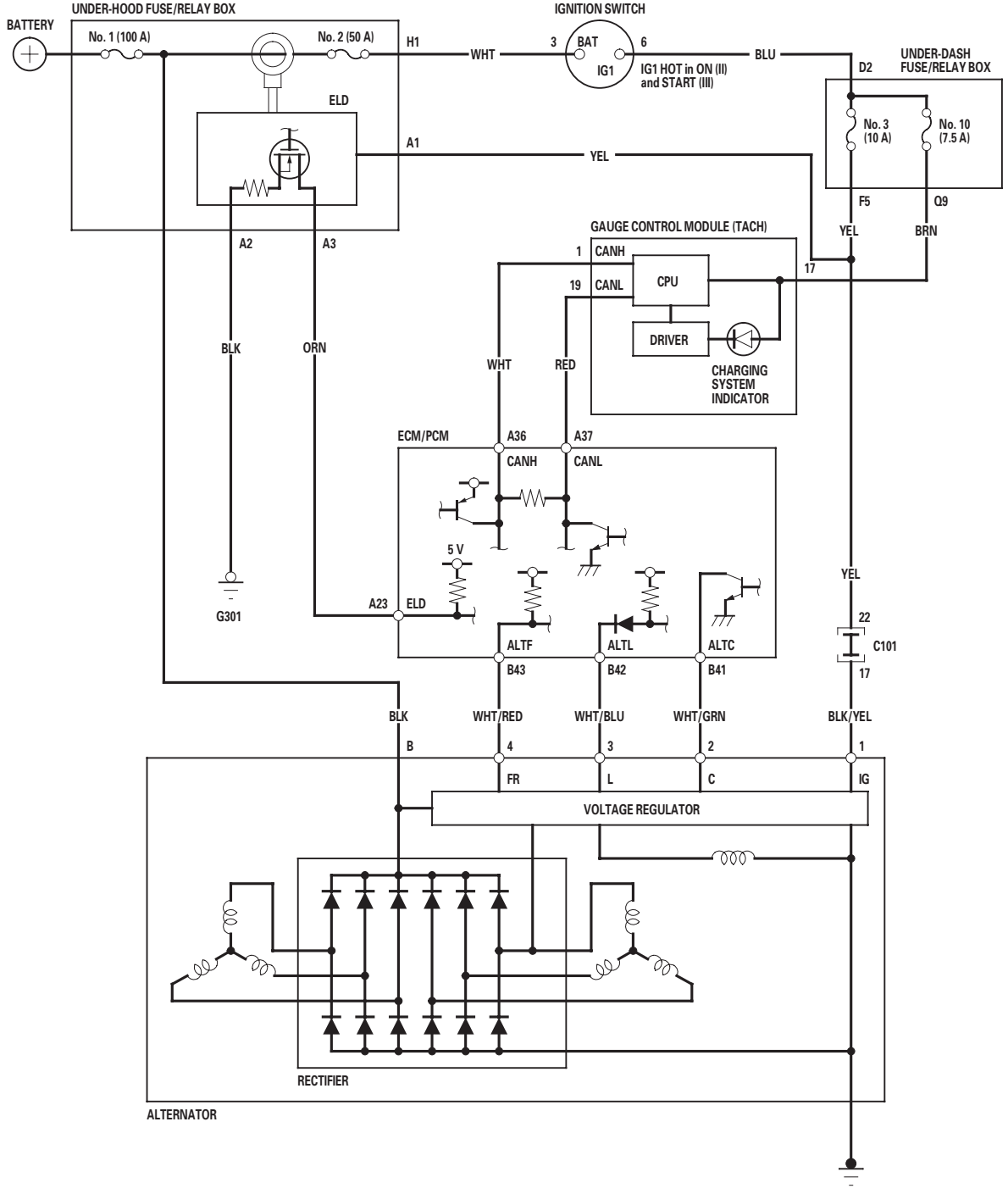
Circuit Diagram



Charging System Indicator Circuit Troubleshooting

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

1. Turn the ignition switch to ON (II).

   Does the charging system indicator come on?

   YES—Go to step 2.

   NO—Go to step 14.

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

   Does the charging system indicator go off?

   YES—Charging system indicator circuit is OK. Go to the alternator and regulator circuit troubleshooting (see page 4-28). ■

   NO—Go to step 3.

3. Do the gauge control module self-diagnostic function procedure (see page 22-241).

   Does the charging system indicator flash?

   YES—Go to step 4.

   NO—Replace the gauge control module (tach) (see page 22-277). ■

4. Turn the ignition switch to LOCK (0).

5. Disconnect the alternator 4P connector.

6. Turn the ignition switch to ON (II).

   Does the charging system indicator go off?

   YES—Replace the alternator (see page 4-34), or repair the alternator (see page 4-38). ■

   NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).

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

9. Turn the ignition switch to ON (II).

10. 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 11-204).

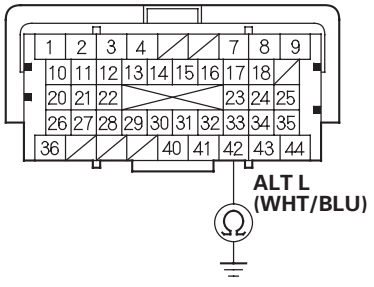
11. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).

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

12. Disconnect ECM/PCM connector B (44P).

13. Check for continuity between ECM/PCM connector terminal B42 and body ground.

ECM/PCM CONNECTOR B (44P)



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 B42. ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-227), 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 11-228). ■

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14. Do the gauge control module self-diagnostic function procedure (see page 22-241).

    Does the charging system indicator flash?

    YES—Go to step 15.

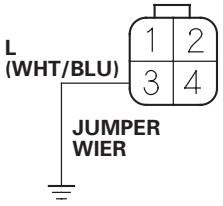
    NO—Replace the gauge control module (tach) (see page 22-277). ■

15. Turn the ignition switch to LOCK (0).

16. Disconnect the alternator 4P connector.

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

ALTERNATOR 4P CONNECTOR



Wire side of female terminals

18. Turn the ignition switch to ON (II).

    Does the charging system indicator come on?

    YES—Replace the alternator (see page 4-34), or repair the alternator (see page 4-38). ■

    NO—Disconnect the jumper wire, then go to step 19.

19. Turn the ignition switch to LOCK (0).

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

21. Turn the ignition switch to ON (II).

22. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-204).

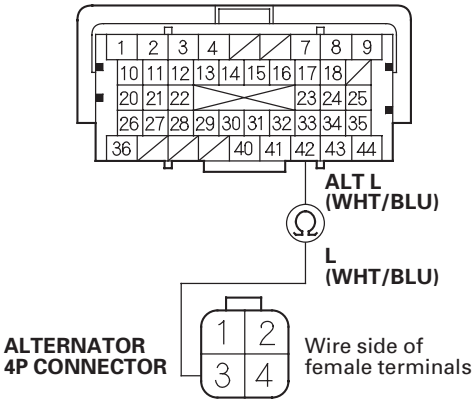
23. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).

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

24. Disconnect ECM/PCM connector B (44P).

25. Check for continuity between ECM/PCM connector terminal B42 and alternator 4P connector terminal No. 3.

ECM/PCM CONNECTOR B (44P)
Terminal side of female terminals



Is there continuity?

YES—Update the ECM/PCM if it does not have the latest software (see page 11-227), 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 11-228). ■

NO—Repair open in the wire between alternator 4P connector terminal No. 3 and ECM/PCM connector terminal B42. ■

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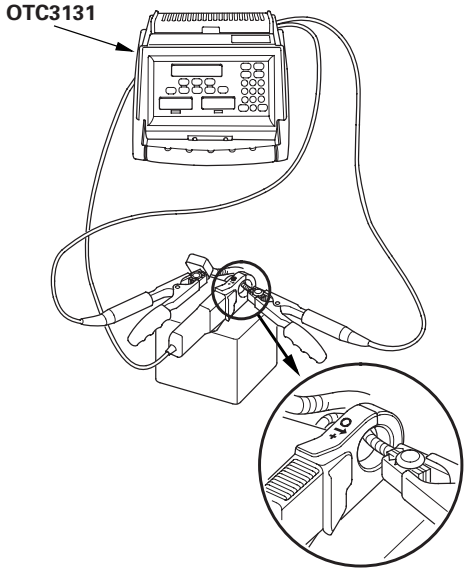
Alternator and Regulator Circuit Troubleshooting

Special Tools Required
Alternator, Regulator, Battery & Starter tester OTC3131
Available through the Honda Canada Inc. Technical Tools Department; FAX # 866-398-8665/e-mail: ch_technicaltools@ch.honda.com

1. Make sure the battery connections are good and the battery is sufficiently charged.

2. Connect the alternator, regulator, battery & starter tester (OTC3131) to the battery as shown.



3. 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.

4. Do the CHARGING SYSTEM TEST.

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

   YES—Go to step 5.

   NO—If the voltage is less than 13.5 V, go to alternator control circuit troubleshooting (see page 4-29). If the voltage is over 15.1 V and amperage is less than 87.5 A, replace the alternator (see page 4-34) or repair the alternator (see page 4-38).

5. 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 4-34) or repair the alternator (see page 4-38), then retest.

   NOTE: If the display indicates N/A, the diode pattern could not be diagnosed. Repeat the test again. If test is complete, use multimeter to perform further pinpoint testing, then retest.

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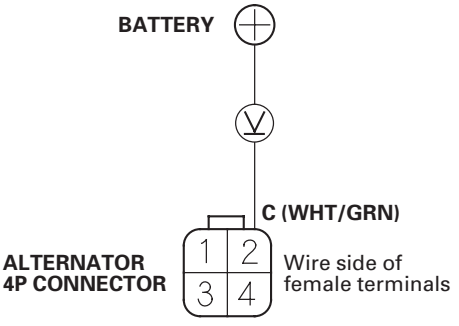
Alternator Control Circuit Troubleshooting

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
2. Turn the ignition switch to ON (II).
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 11-204).
4. Check for DTCs (see page 11-3). If a DTC is present, diagnose and repair the cause before continuing with this test.
5. Disconnect the alternator 4P connector.
6. Start the engine, and turn on the headlights to high beam.
7. Measure the voltage between alternator 4P connector terminal No. 2 and the positive terminal of the battery.



Is there 1 V or less?

YES—Go to step 11.

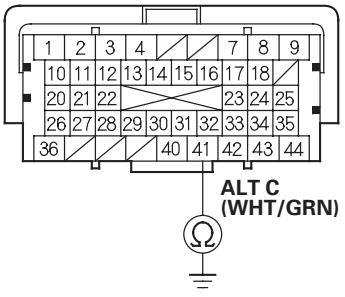
NO—Go to step 8.

8. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).

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

9. Disconnect ECM/PCM connector B (44P).
10. Check for continuity between ECM/PCM connector terminal B41 and body ground.

ECM/PCM CONNECTOR B (44P)



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 B41. ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-227), 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 11-228). ■

11. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).

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

12. Disconnect ECM/PCM connector B (44P).

(cont'd)

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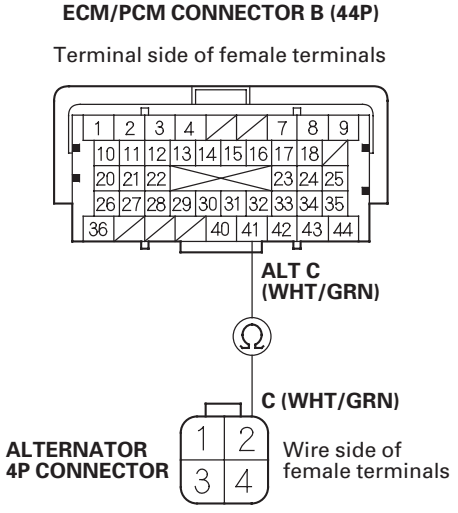
Alternator Control Circuit Troubleshooting (cont'd)

13. Check for continuity between ECM/PCM connector terminal B41 and alternator 4P connector terminal No. 2.



Is there continuity?

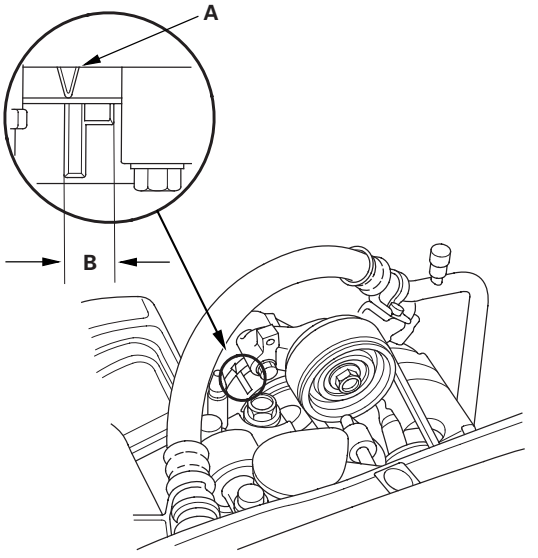
YES—Replace the alternator (see page 4-34), or repair the alternator (see page 4-38). ■

NO—Repair open in the wire between alternator 4P connector terminal No. 2 and ECM/PCM connector terminal B41. ■

Drive Belt Inspection

1. Inspect the belt for cracks or damage. If the belt is cracked or damaged, replace it (see page 4-31).

2. Check 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 4-31).



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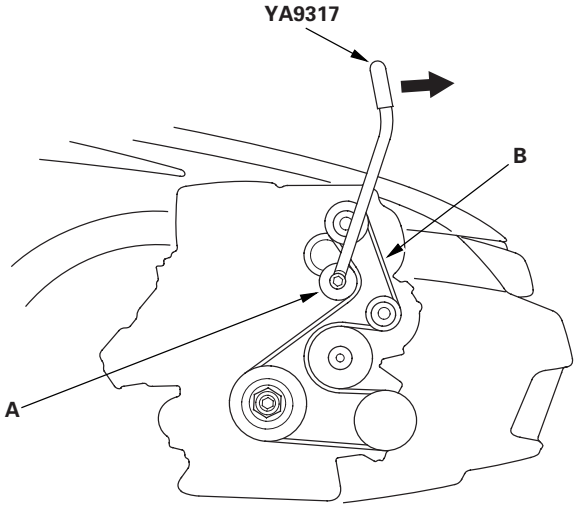
Drive Belt Replacement

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

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



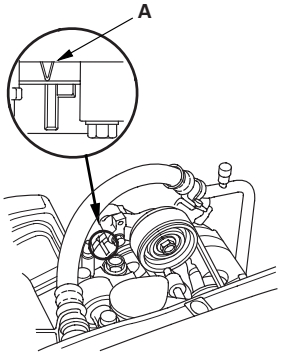
2. Install the new drive belt in the reverse order of removal.

Drive Belt Auto-tensioner Inspection

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

1. Turn the ignition switch to ON (II), and make sure the A/C switch is OFF, then turn the ignition switch to LOCK (0).

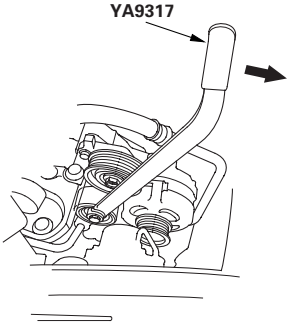
2. Check the position of the auto-tensioner indicator's pointer (A). Start the engine then check the position again with the engine idling. If the position of the indicator moves or fluctuates very much, replace the auto-tensioner (see page 4-32).



3. Check for abnormal noise from the tensioner pulley. If you hear abnormal noise, replace the tensioner pulley (see page 4-33).

4. Remove the drive belt (see page 4-31).

5. Move the auto-tensioner within its limit using the belt tension release tool in the direction shown. Check that the tensioner moves smoothly and without any abnormal noise. If the tensioner does not move smoothly, or you hear abnormal noise, replace the auto-tensioner (see page 4-32).



(cont'd)

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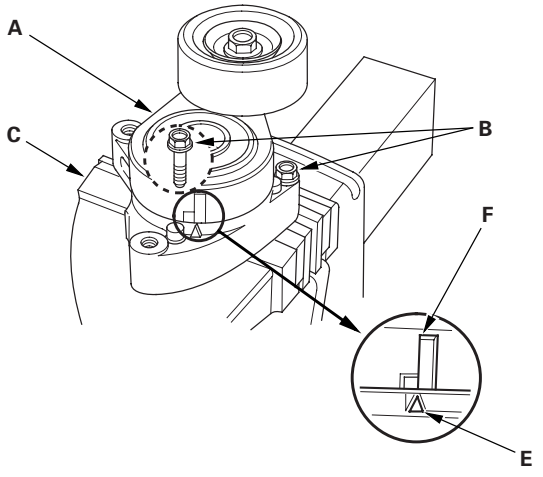
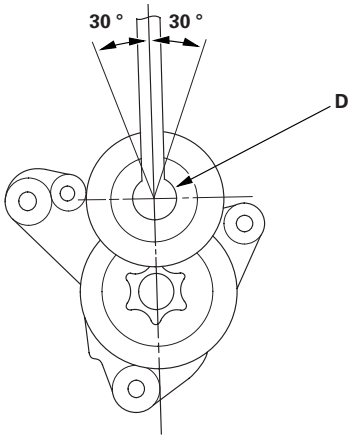
Drive Belt Auto-tensioner Inspection (cont'd)

6. Remove the auto-tensioner (see page 4-32).

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





8. Set the torque wrench (D) on the pulley bolt, and align it as shown.

9. Align the indicator's pointer (E) on the tensioner base with center mark (F) on the tensioner arm by using the torque wrench, and measure the torque. If the torque value is out of specification, replace the auto-tensioner.

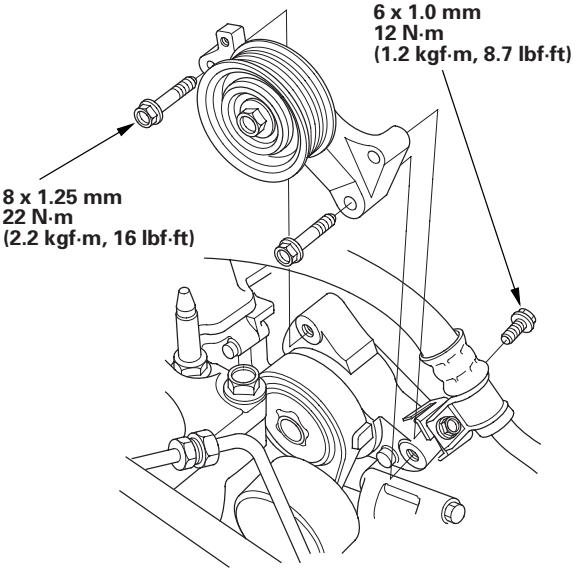
   NOTE: If the indicator exceeds the center mark, recheck the torque.

   Auto-tensioner Spring Torque:
   32.5—39.7 N·m (3.31—4.05 kgf·m, 23.9—29.3 lbf·ft)

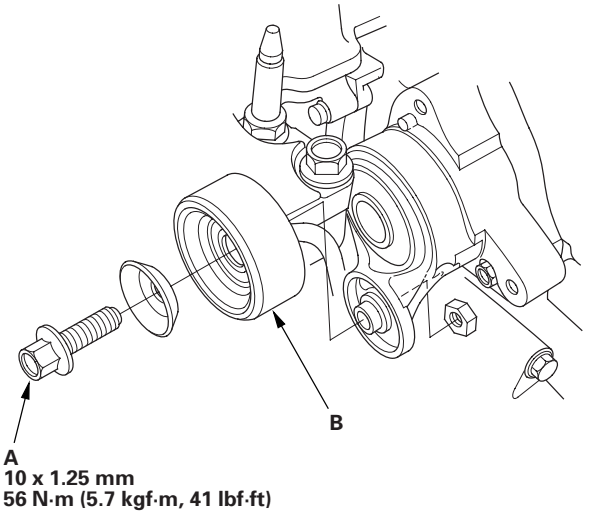
Drive Belt Auto-tensioner Removal/ Installation

1. Remove the drive belt (see page 4-31).

2. Remove the idler pulley base.



3. Remove the pulley bolt (A), then remove the tensioner pulley (B).



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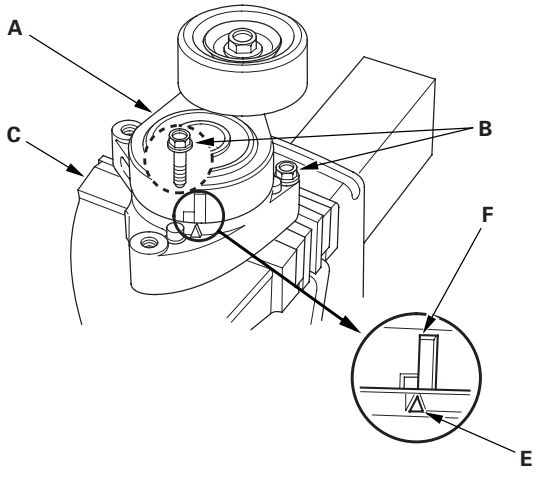
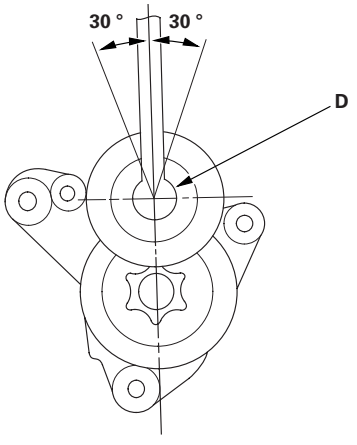
Drive Belt Auto-tensioner Inspection (cont'd)

6. Remove the auto-tensioner (see page 4-32).

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





8. Set the torque wrench (D) on the pulley bolt, and align it as shown.

9. Align the indicator's pointer (E) on the tensioner base with center mark (F) on the tensioner arm by using the torque wrench, and measure the torque. If the torque value is out of specification, replace the auto-tensioner.

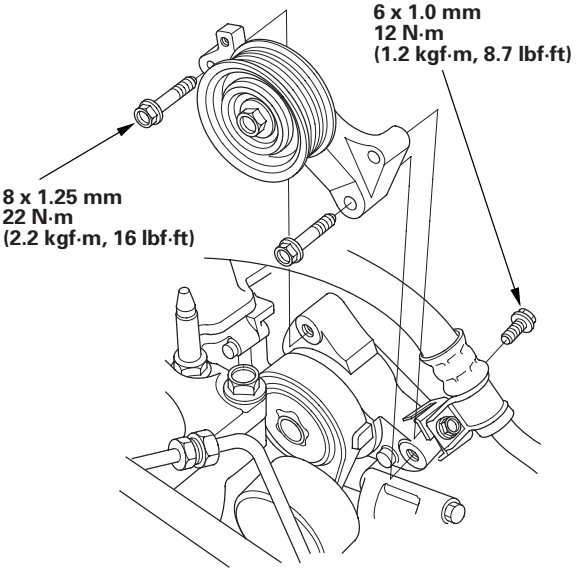
   NOTE: If the indicator exceeds the center mark, recheck the torque.

   Auto-tensioner Spring Torque:
   32.5—39.7 N·m (3.31—4.05 kgf·m, 23.9—29.3 lbf·ft)

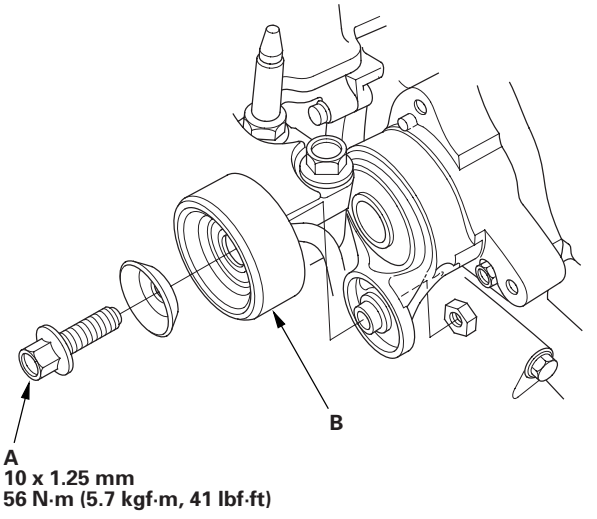
Drive Belt Auto-tensioner Removal/ Installation

1. Remove the drive belt (see page 4-31).

2. Remove the idler pulley base.



3. Remove the pulley bolt (A), then remove the tensioner pulley (B).



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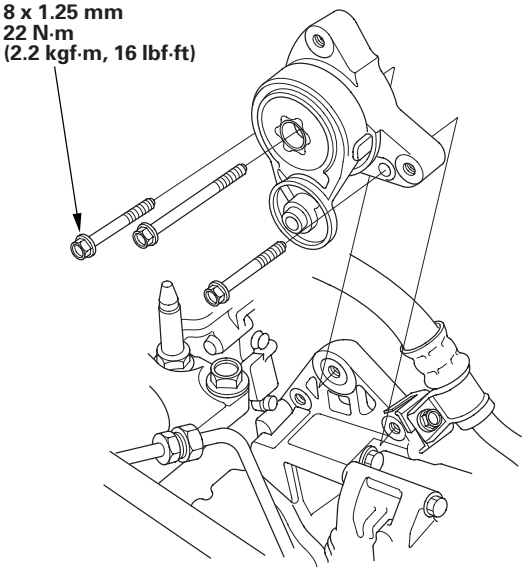
4. Remove the auto-tensioner.

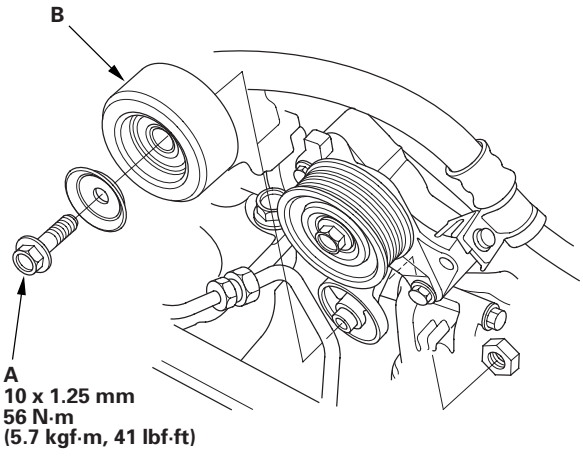


5. Install the auto-tensioner in the reverse order of removal.

Tensioner Pulley Replacement

1. Remove the drive belt (see page 4-31).

2. Remove the pulley bolt (A), then remove the tensioner pulley (B).



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

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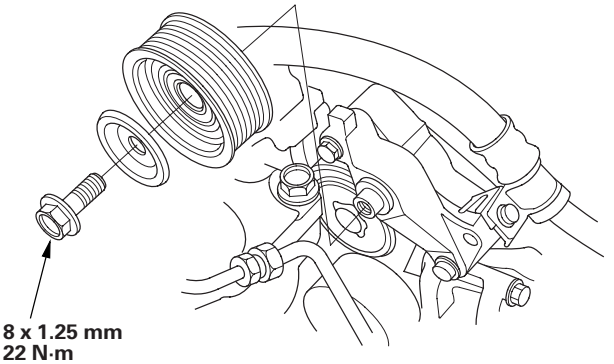
Idler Pulley Replacement

1. Remove the drive belt (see page 4-31).
2. Remove the idler pulley.

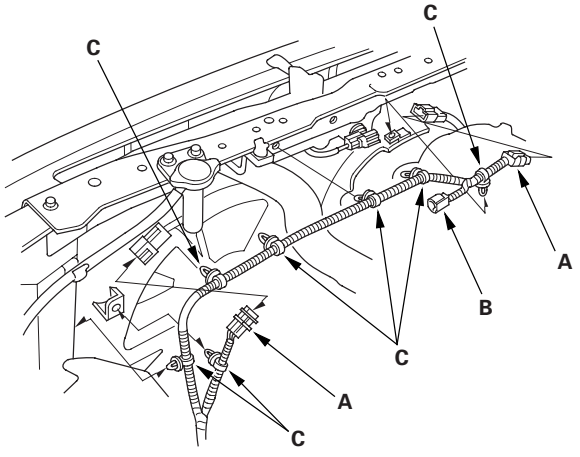


3. Install the idler pulley in the reverse order of removal.

Alternator Removal and Installation

Removal

1. Do the battery terminal disconnection procedure (see page 22-68).
2. Remove the drive belt (see page 4-31).
3. Remove the front grille cover (see page 20-163).
4. Disconnect the fan motor connectors (A) and the hood switch connector (B), then remove the harness clamps (C).



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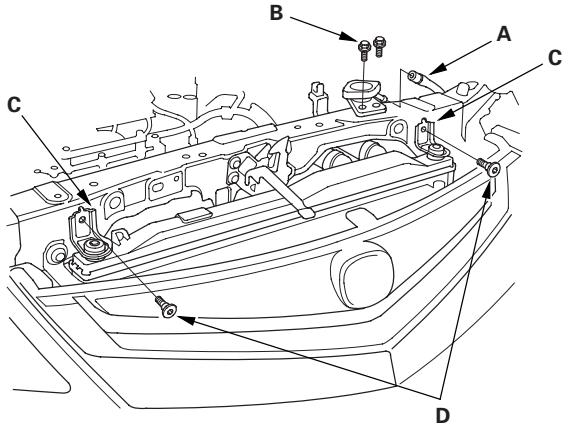
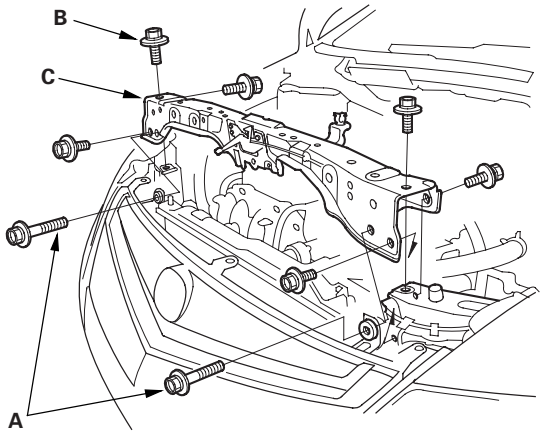
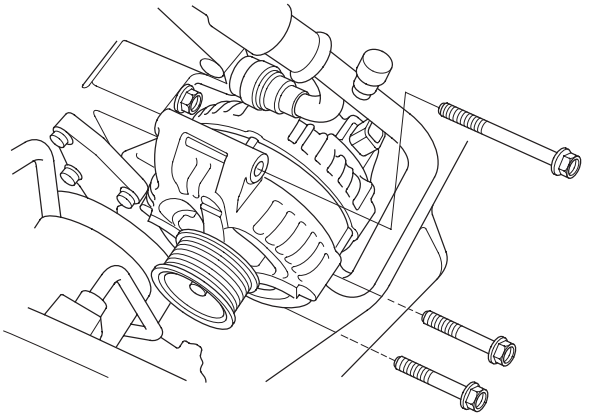
5. Disconnect the reservoir hose (A), and remove the radiator cap base mounting bolts (B), the radiator upper brackets (C) and the bolts (D).



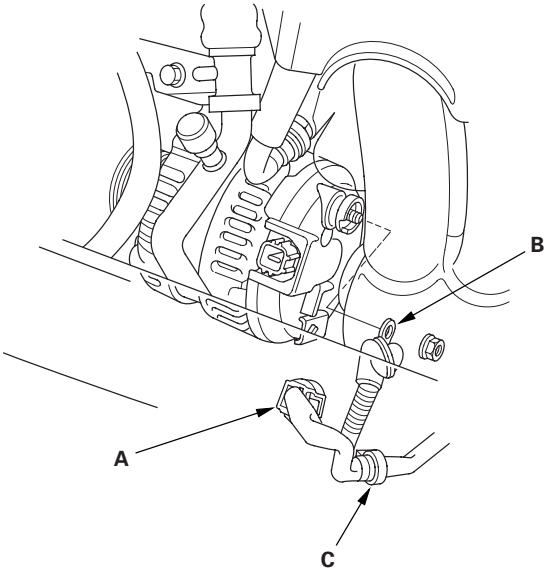
6. Remove the A/C condenser bracket mounting bolts (A) and the bulkhead mounting bolts (B), then remove the bulkhead (C).



7. Remove the three bolts securing the alternator.



8. Disconnect the alternator connector (A), and the positive alternator cable (B) and remove the harness clamp (C), then remove the alternator.



(cont'd)

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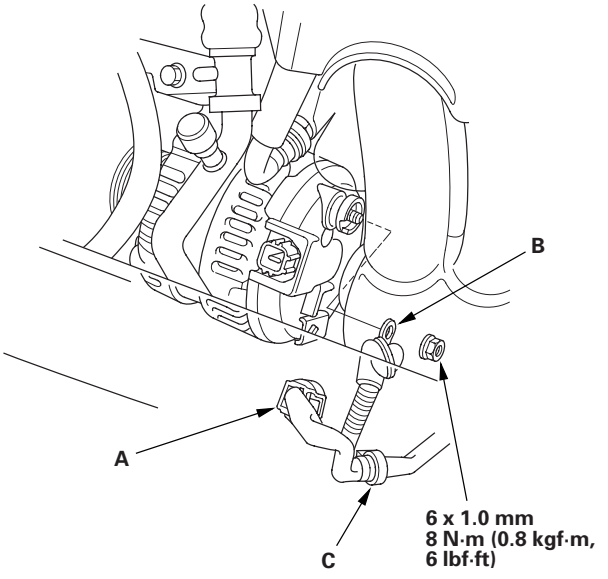
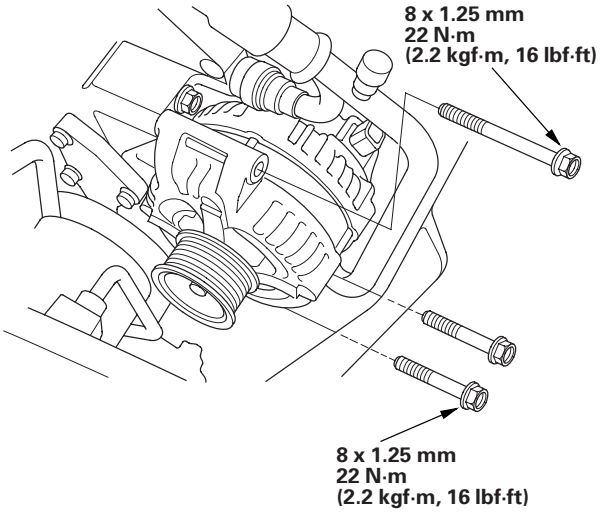
Alternator Removal and Installation (cont'd)

Installation

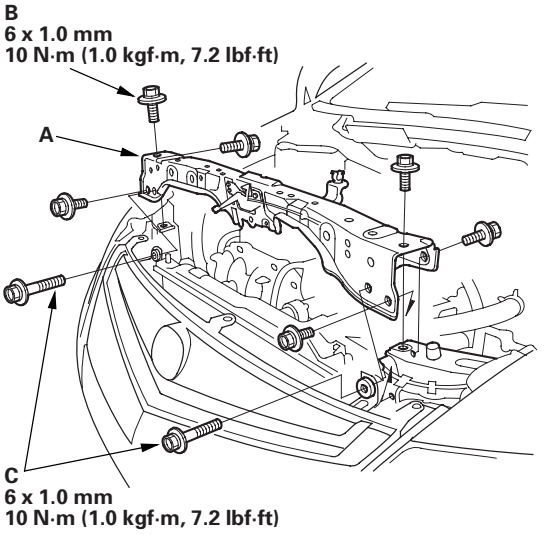
1. Install the alternator, then connect the alternator connector (A) and the positive alternator cable (B) and install the harness clamp (C). Make sure the crimped side of the ring terminal faces away from the alternator when you connect it.



2. Tighten the three bolts securing the alternator.

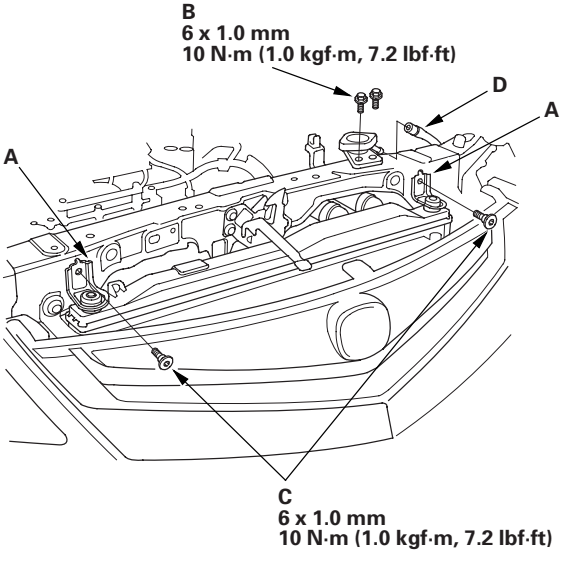


3. Install the bulkhead (A), then install the bulkhead mounting bolts (B) and the A/C condenser bracket mounting bolts (C).



4. Apply body paint to the bulkhead mounting bolts.

5. Install the radiator upper brackets (A), the radiator cap base mounting bolts (B), and the bolts (C), and connect the reservoir hose (D).



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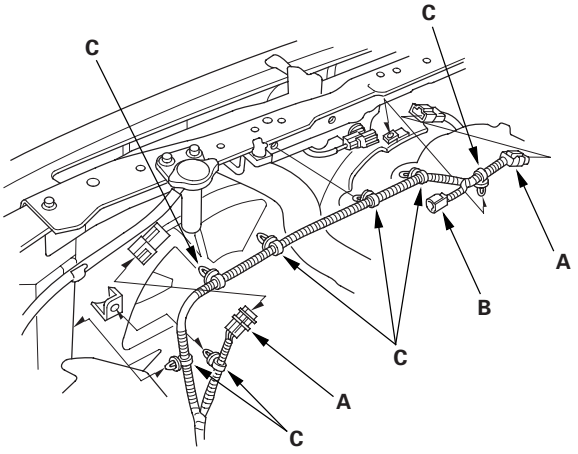
6. Connect the fan motor connectors (A) and the hood switch connector (B), then install the harness clamps (C).



7. Install the front grille cover (see page 20-163).

8. Install the drive belt (see page 4-31).

9. Do the battery terminal reconnecting procedure (see page 22-68).

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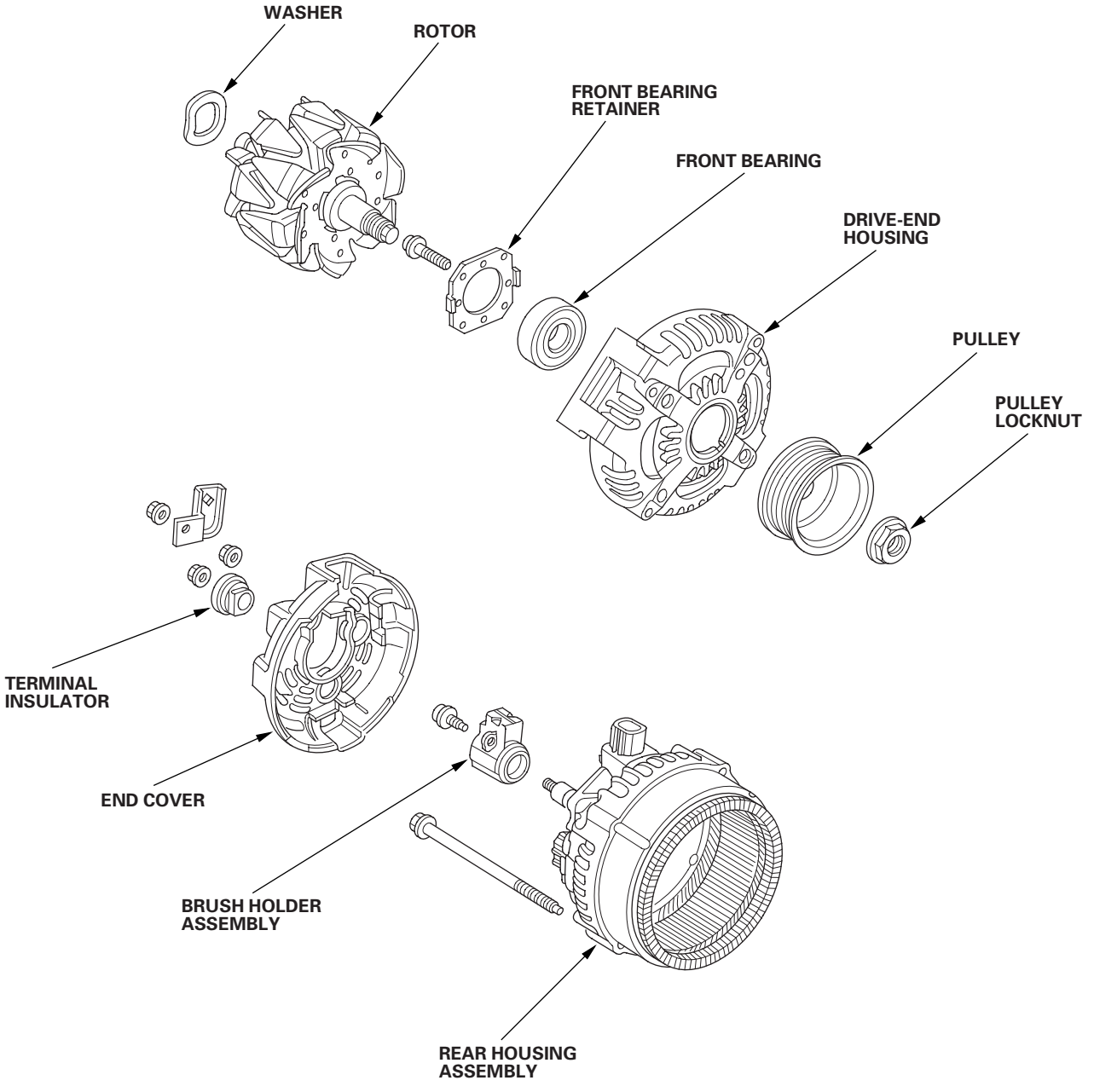
Alternator Overhaul

Exploded View



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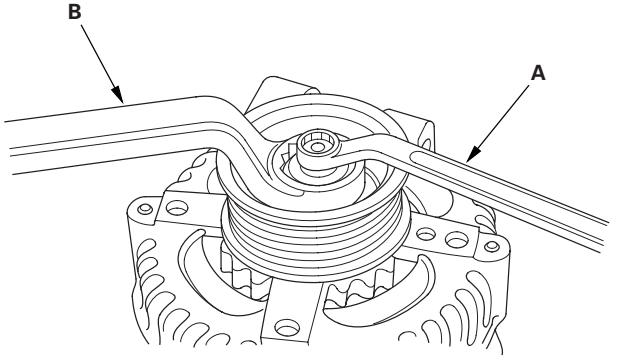
Special Tools Required
- Driver 07749-0010000
- Attachment, 42 x 47 mm 07746-0010300

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

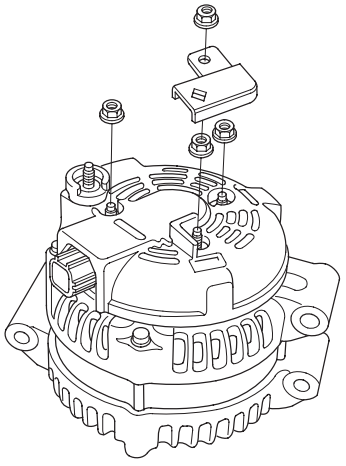
1. Test the alternator and regulator before you remove them (see page 4-28).

2. Remove the alternator (see page 4-34).

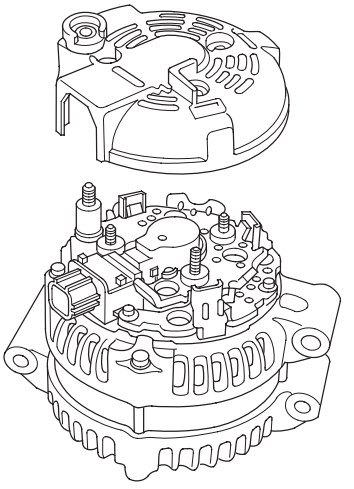
3. If the front bearing needs replacing, remove the pulley locknut with a 10 mm wrench (A) and a 22 mm wrench (B). If necessary, use an impact wrench.



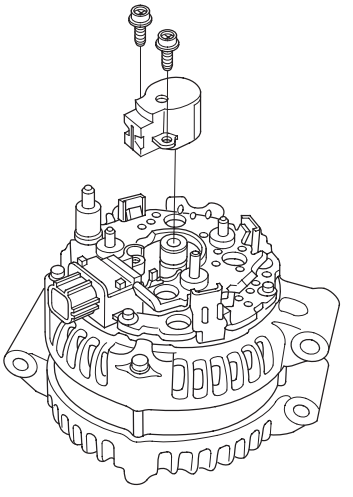
4. Remove the harness stay and the three flange nuts from the alternator.



5. Remove the end cover.



6. Remove the brush holder assembly.



(cont'd)

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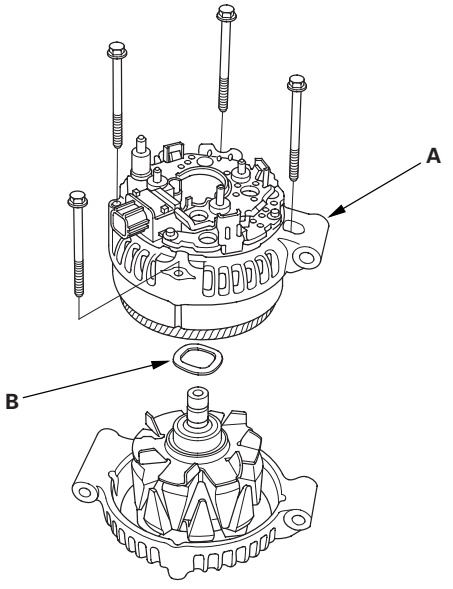
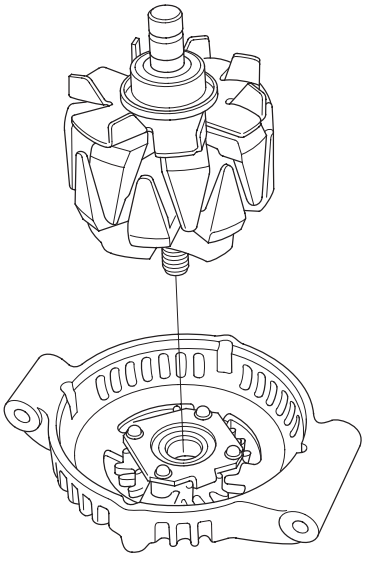
Alternator Overhaul (cont'd)

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



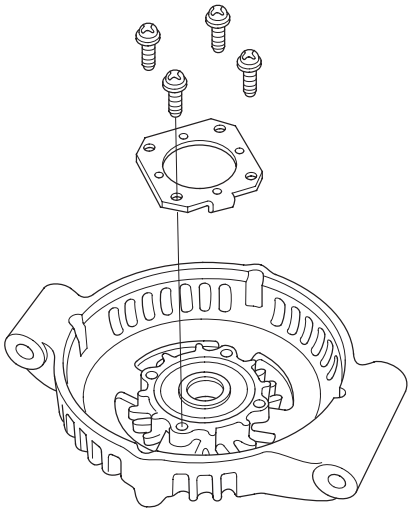
8. If you are not replacing the front bearing, go to step 13. Remove the rotor from the drive-end housing.



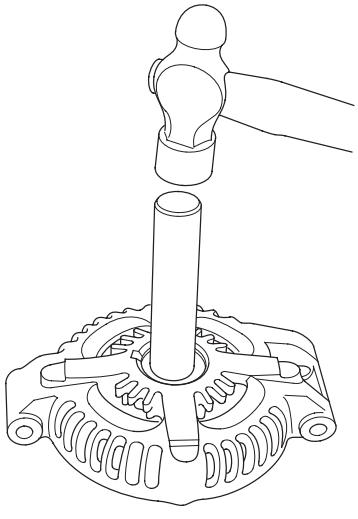
9. Inspect the rotor shaft for scoring, and inspect the bearing journal surface in the drive-end housing for seizure marks.

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

10. Remove the front bearing retainer.



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



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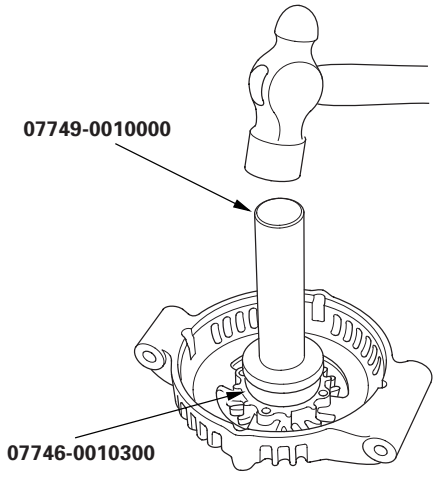
12. Install a new front bearing in the drive-end housing with a hammer, the driver, and the attachment, 42 x 47 mm.

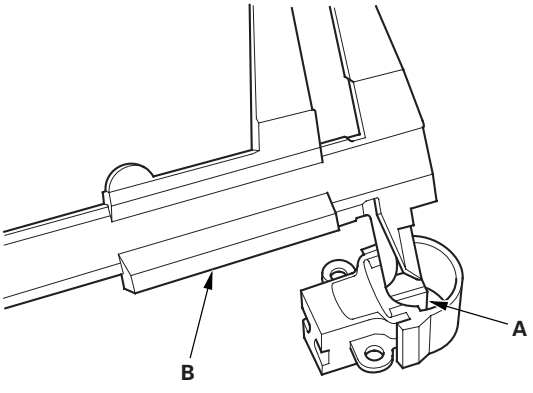


Alternator Brush Inspection

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 brush length is OK, go to step 14.

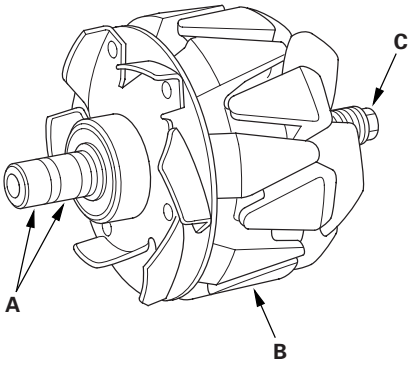
Alternator Brush Length
Standard (New): 10.5 mm (0.41 in.)
Service Limit: 1.5 mm (0.06 in.)



Rotor Slip Ring Test

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

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



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

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

(cont'd)

Alternator Overhaul (cont'd)

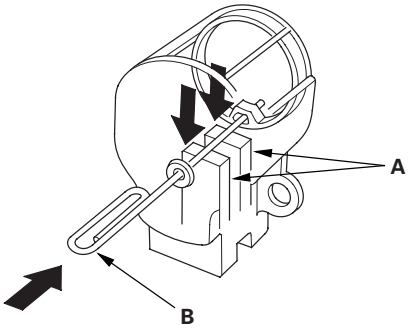
Alternator Reassembly

16. If you removed the pulley, put the rotor in the drive-end housing, then tighten its locknut to 110 N·m (11.2 kgf·m, 81.0 lbf·ft).

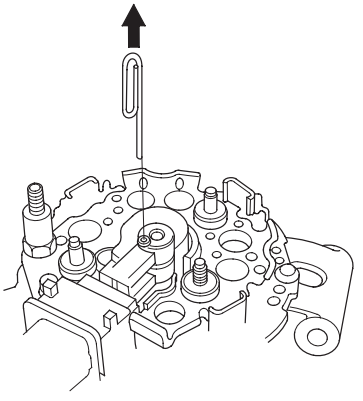
17. Remove any grease or any oil from the slip rings.

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 4-36) and the drive belt (see page 4-31).

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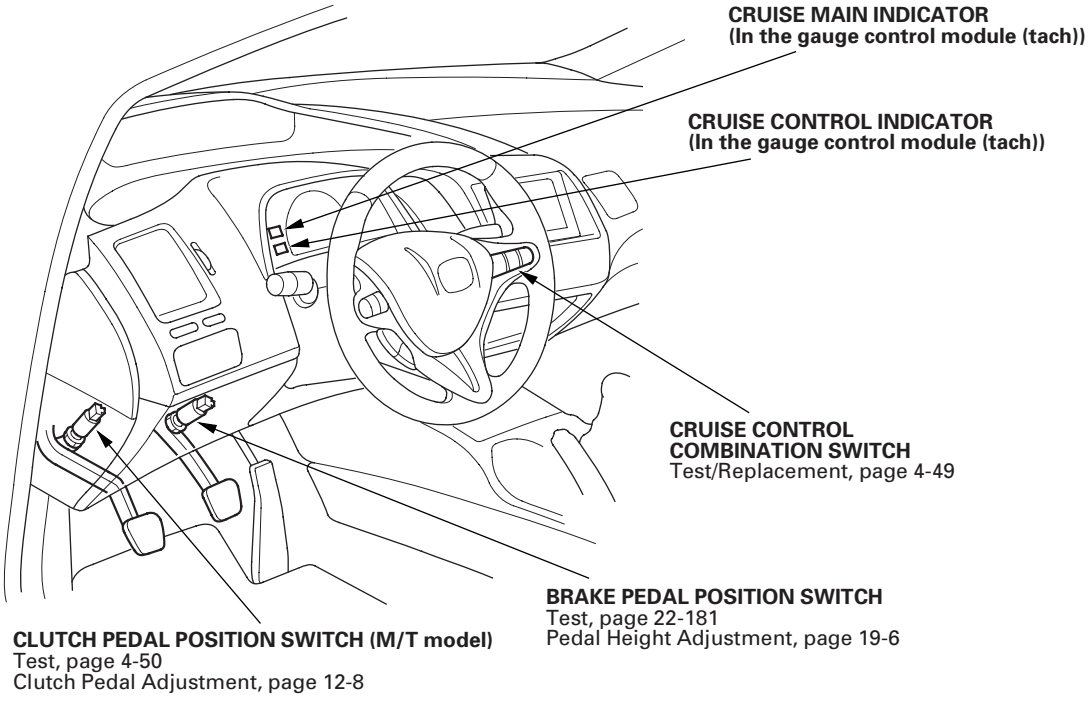
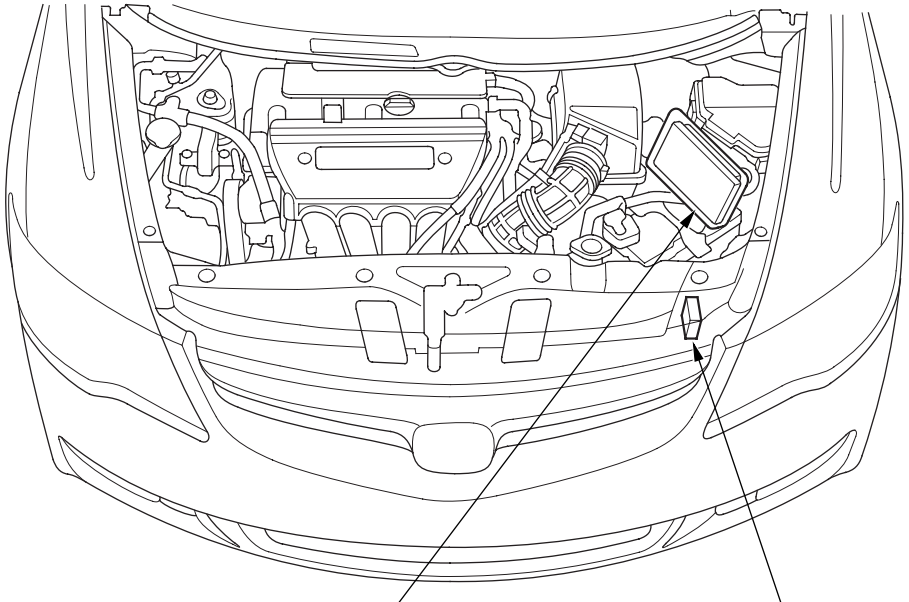
Component Location Index





Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Cruise control cannot be set	1. Check for PGM-FI DTCs (see page 11-3). 2. Check the No. 3 (10 A) fuse in the under-dash fuse/relay box. 3. Do the cruise control combination switch test (see page 4-49). 4. Do the cruise control input test (see page 4-47).	Poor ground G101 (A/T model) or G401 (M/T model)
Cruise control can be set, but the cruise main indicator does not come on	1. Check for PGM-FI DTCs (see page 11-3). 2. Do the gauge control module self-diagnostic function procedure (see page 22-241). 3. Do the cruise control input test (see page 4-47). Test the cruise control main switch signal input.	Faulty gauge control module (tach)
Cruise control can be set, but the cruise control indicator does not come on	1. Check for PGM-FI DTCs (see page 11-3). 2. Do the gauge control module self-diagnostic function procedure (see page 22-241). 3. Do the cruise control input test (see page 4-47). Test the cruise control indicator signal input.	Faulty gauge control module (tach)
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 4-49). 3. Do the cruise control input test (see page 4-47). Test the cruise control resume/accel switch signal input.	Open circuit, loose or disconnected terminal: ORN
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 22-181). 3. Do the cruise control input test (see page 4-47). Test the brake pedal position switch signal input.	• Short to power on the BRN 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 test (see page 4-50). 3. Do the cruise control input test (see page 4-47). Test the clutch pedal position switch signal input.	• Short to ground in the LT BLU wire • Faulty clutch pedal position switch
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 4-49). 3. Do the cruise control input test (see page 4-47). Test the cruise control main switch signal input.	Short to power 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 4-49). 3. Do the cruise control input test (see page 4-47). Test the cruise control cancel switch signal input.	Open circuit, loose or disconnected terminals: LT GRN or ORN

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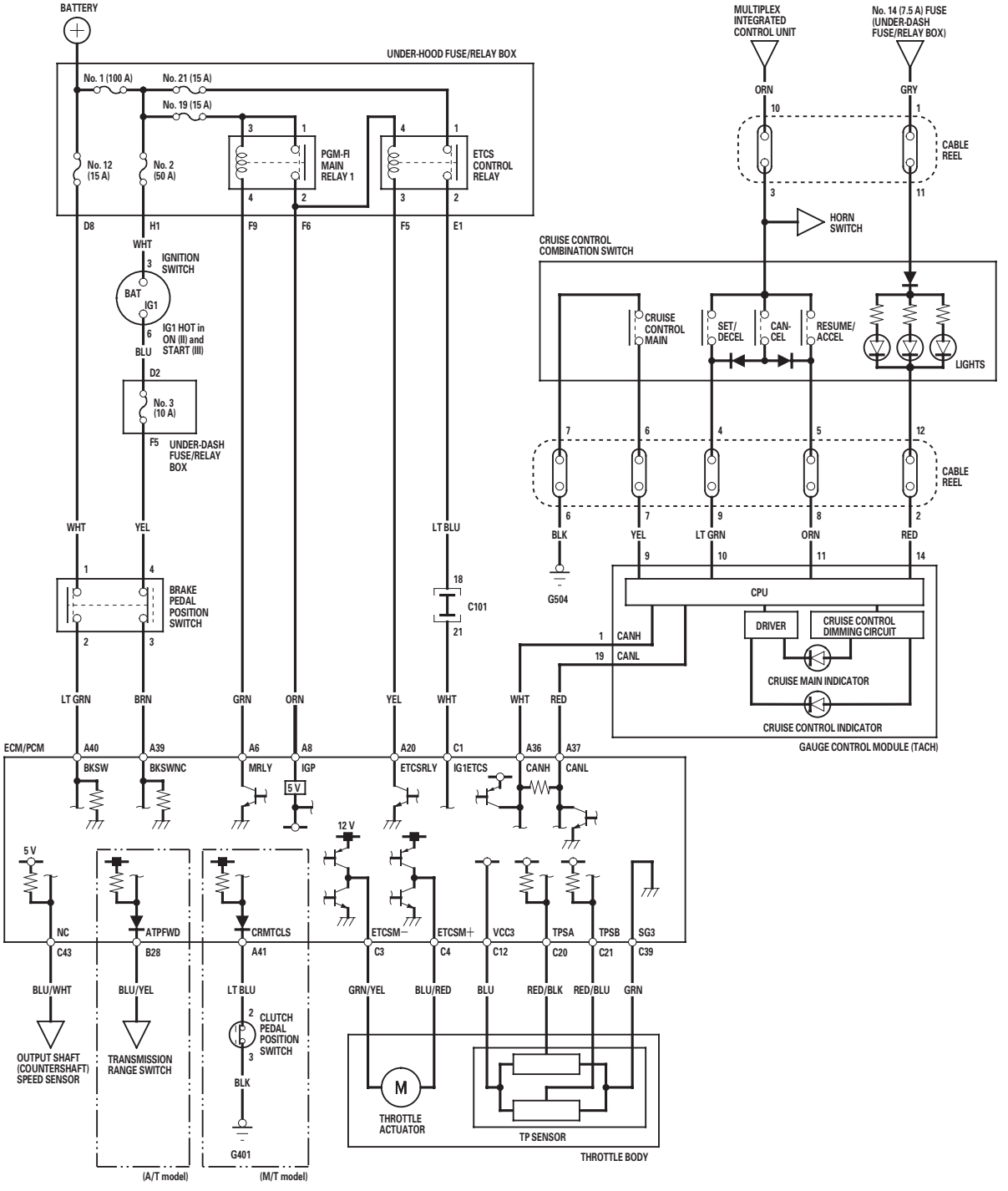
Symptom	Diagnostic procedure	Also check for
Set speed does not resume when the resume/accel button is pressed (with the cruise control main button pressed on, and set speed temporarily canceled by pressing the brake pedal)	1. Check for PGM-FI DTCs (see page 11-3). 2. Check the brake pedal position switch adjustment (see page 19-6). 3. Do the cruise control combination switch test (see page 4-49). 4. Do the cruise control input test (see page 4-47). Test the cruise control resume/accel switch signal input. Test the brake pedal position switch signal input.	• Open circuit, loose or disconnected terminal: ORN • Faulty brake pedal position switch
Set speed does not resume when the resume/accel button is pressed (with the cruise control main button pressed 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 adjustment (see page 12-8). 3. Do the cruise control combination switch test (see page 4-49). 4. Do the cruise control input test (see page 4-47). Test the cruise control resume/accel switch signal input. Test the clutch pedal position switch signal input.	• Open circuit, loose or disconnected terminal: ORN • Faulty clutch pedal position switch
With the ignition switch in ON (II), and the lighting switch turned on, the cruise control combination switch illumination does not come on	Check the cruise control combination switch (see page 4-49).	

Circuit Diagram



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Cruise Control Input Test

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

1. Connect the HDS to the data link connector (DLC) (see step 2 on page 11-3).
2. Turn the ignition switch to ON (II).
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 11-204).
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. 3 (10 A) fuse in the 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 between the ECM/PCM and the brake pedal position switch
Clutch pedal position switch 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 • An open in the wire between the ECM and the clutch pedal position switch • A wire shorted to ground between the ECM and the clutch pedal position switch • Poor ground G401
Transmission range switch signal (A/T model)	Shift lever in D and S	SHIFT/CLUTCH SW should indicate ON in P, R, and N, and OFF 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 switch 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 • Faulty gauge control module (tach) • An open in the wire between the gauge control module (tach) and the cruise control combination switch • A wire shorted to ground between the gauge control module (tach) and the cruise control combination switch • Poor ground G504

(cont'd)

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Cruise Control Input Test (cont'd)

Signal to be tested	Test condition	Parameter: Desired result	Possible cause if result is not obtained
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 • Faulty gauge control module (tach) • An open in the wire between the gauge control module (tach) and the cruise control combination switch • A wire shorted to ground between the gauge control module (tach) and the cruise control combination switch
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 • Faulty gauge control module (tach) • An open in the wire between the gauge control module (tach) and the cruise control combination switch • A wire shorted to ground between the gauge control module (tach) 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 • Faulty gauge control module (tach) • An open in the wire between the gauge control module (tach) and the cruise control combination switch • A wire shorted to ground between the gauge control module (tach) and the cruise control combination switch
Cruise control indicator signal	Start the engine, press the cruise control main button on, and drive the vehicle to speeds over 40 km/h (25 mph). Set and cancel the cruise control.	CRUISE INDICATOR should indicate ON when the cruise control is set and OFF when the cruise control is canceled.	• Faulty ECM/PCM • Cruise control was not set at the test by other malfunction • Faulty gauge control module (tach)

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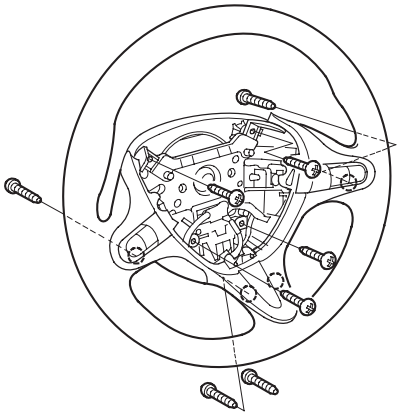
Cruise Control Combination Switch Test/Replacement

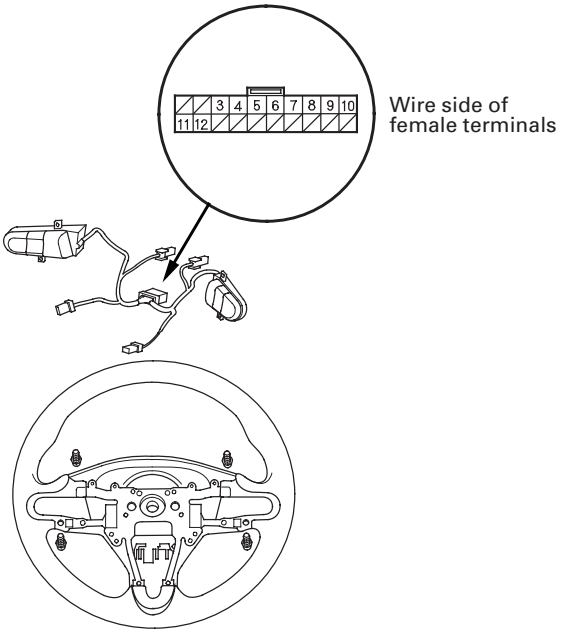
SRS components are located in this area. Review the SRS component locations (see page 24-11), and precautions and procedures (see page 24-13), before doing repairs or service.

1. Remove the driver's airbag (see page 24-188).

2. Remove the steering wheel trim.



3. Remove the cruise control combination switch.



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

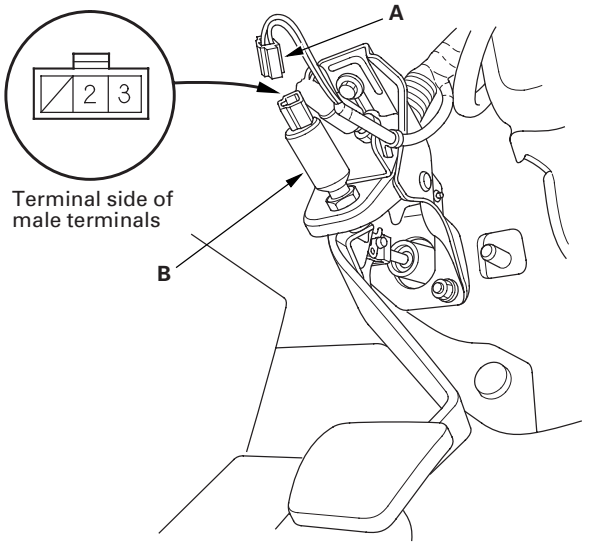
   - If there is continuity, and it matches the table, but the cruise control combination switch failure occurred on the cruise control input test, check and repair the wire harness on the switch circuit.
   - If there is no continuity in one or more positions, replace the cruise control combination switch.

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

Clutch Pedal Position Switch Test

M/T model

1. Disconnect the clutch pedal position switch 3P connector (A).



2. Remove the clutch pedal position switch (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 (see page 12-8).
   - If OK, install the clutch pedal position switch, and adjust the pedal height (see page 12-8).

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

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