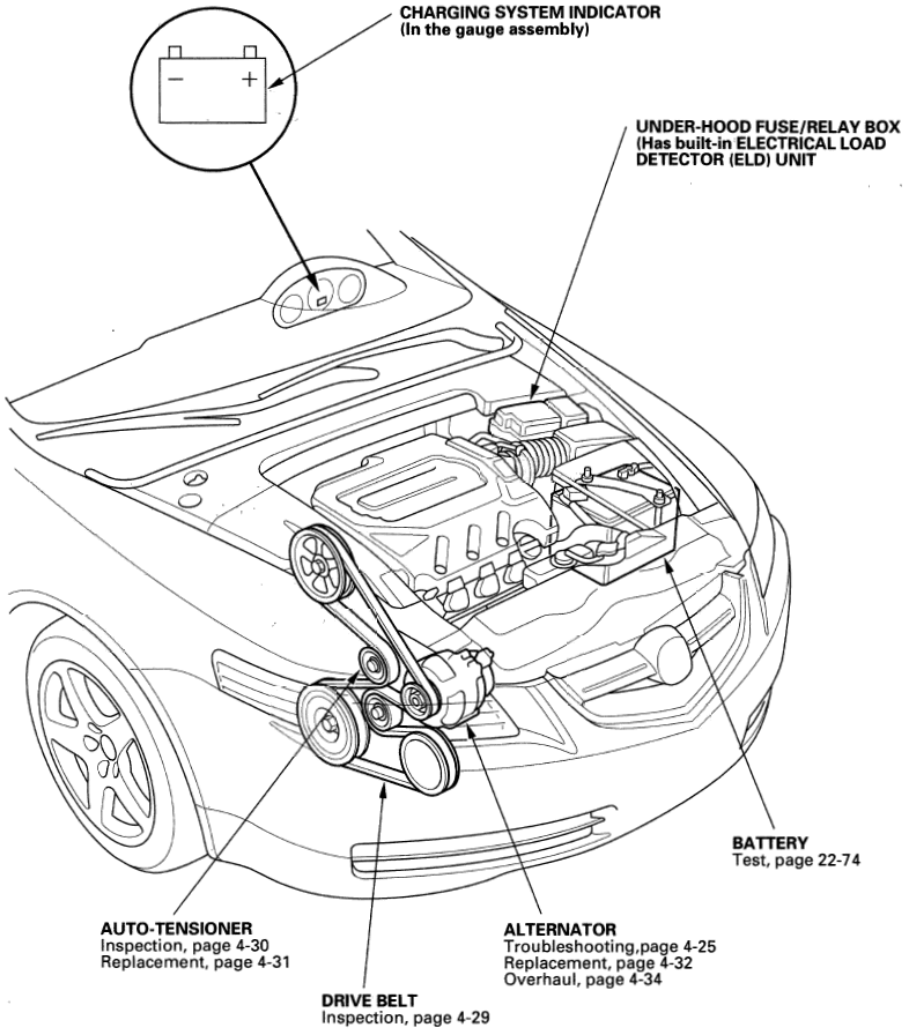
Charging System

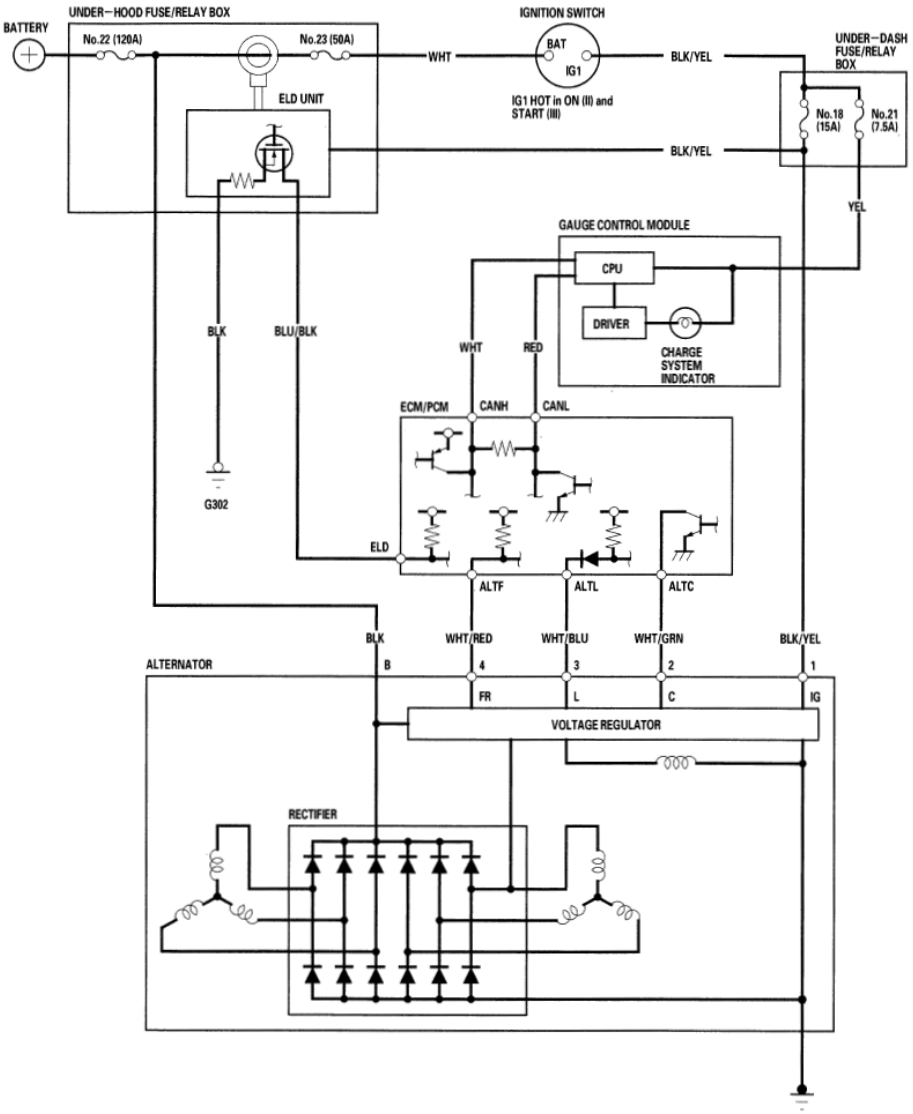
Component Location Index



Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Charging system indicator stays on	1. Troubleshoot the charging system indicator circuit (see page 4-25). 2. Check for a broken drive belt (see page 4-29). 3. Check the drive belt auto-tensioner (see page 4-30). 4. Test the alternator (see page 4-25).	
Battery discharged	1. Check for poor connection, open or shorted wire(s) in charging system. 2. Check for electrical current draw. 3. Check for a broken drive belt (see page 4-29). 4. Check the drive belt auto-tensioner (see page 4-30). 5. Test the alternator (see page 4-25). 6. Troubleshoot the alternator control system (see page 4-25). 7. Check for poor connection at battery terminal. 8. Test the battery (see page 22-74).	
Battery overcharged	1. Test the alternator (see page 4-25). 2. Troubleshoot the alternator control system (see page 4-25). 3. Test the battery (see page 22-74).	

Circuit Diagram



Charging Circuit Troubleshooting

If the charging system indicator does not come on or does not go off, or the battery is dead or low, test the following items in the order as listed:

- Battery (see page 22-74)
- Charging system indicator test
- Alternator and regulator circuit test
- Alternator control system test

Charging System Indicator Test

1. Turn the ignition switch ON (II).

   Does the charging system indicator come on?

   YES – Go to step 2.

   NO – Go to step 3.

2. Start the engine.

   Does the charging system indicator go off?

   YES – Charging system indicator circuit is OK. Go to the Alternator and Regulator Circuit Test.■

   NO – Go to step 3.

3. Troubleshoot the multiplex integrated control system (see page 22-108).

   Is the multiplex integrated control system OK?

   YES – Go to step 4.

   NO – Repair the multiplex integrated control system.■

4. Run the gauge control module self-diagnostic function (see page 22-262).

   Does the charge indicator flash?

   YES – Go to step 5.

   NO – Replace the gauge control module (see page 22-265).■

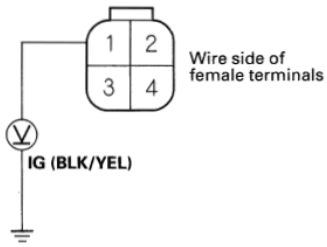
5. Turn the ignition switch OFF.

6. Disconnect the alternator 4P connector.

7. Turn the ignition switch ON (II).

8. Measure the voltage between alternator 4P connector terminal No. 1 and body ground.

ALTERNATOR 4P CONNECTOR



Is there battery voltage?

YES – Go to step 9.

NO – Check for a blown No. 18 (15A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the alternator and under-dash fuse/relay box.■

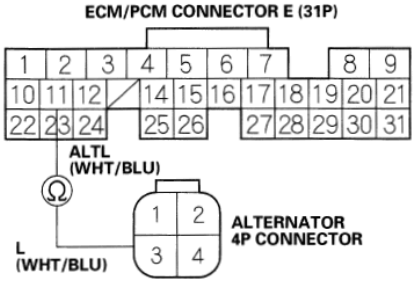
9. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC). Turn the ignition switch ON (II), and jump the SCS line with the HDS, then turn the ignition switch OFF.

   NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.

10. Disconnect ECM/PCM connector E (31P).

Charging Circuit Troubleshooting (cont'd)

11. Check for continuity between ECM/PCM connector terminal E11 and alternator 4P connector terminal No. 3.

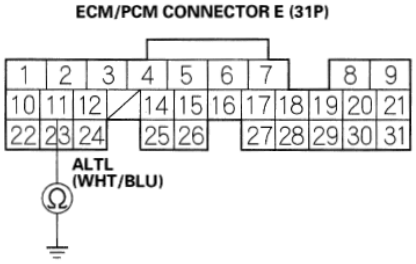


Is there continuity?

YES — Go to step 12.

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

12. Check for continuity between ECM/PCM connector terminal E11 and body ground.



Is there continuity?

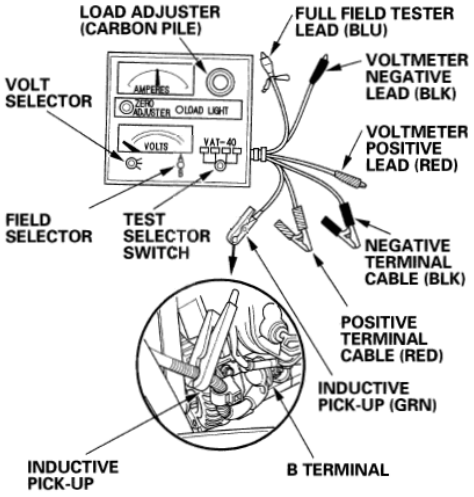
YES — Repair a short in the wire between the alternator and the ECM/PCM. ■

NO — Go to the Alternator and Regulator Circuit Test. ■

Alternator and Regulator Circuit Test

1. Be sure the battery connections are good, and that the battery is sufficiently charged (see page 22-74).

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



3. Shift to Park or Neutral, and start the engine. Hold the engine at 3,000 rpm, with no load until the radiator fan comes on, then let it idle.

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

Is the voltage over 15.1 V?

YES — Replace the alternator (see page 4-32) or rear housing assembly (see page 4-34). ■

NO — Go to step 5.

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

6. Make sure all accessories are turned off. Turn the selector switch to position 2 (charging).

7. Remove the inductive pick-up, and zero the ammeter.

8. Place the inductive pick-up over the B terminal wire of the alternator so that the arrow points away from the alternator.

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

   Is the voltage less than 13.5 V?

   YES – Go to Alternator Control System Test. ■

   NO – Go to step 10.

10. Apply a load with the VAT-40 until the battery voltage drops to between 12 – 13.5 V.

    Is the amperage 87.5A or more?

    YES – The charging system is OK. ■

    NOTE: If the charge system indicator is still on, replace the alternator (see page 4-32).

    NO – Repair or replace the alternator (see page 4-34). ■

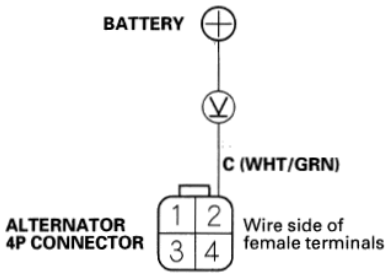
Alternator Control System Test

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC), and check for DTC's. If a DTC is present, diagnose and repair the cause before continuing with this test.

2. Disconnect the alternator 4P connector from the alternator.

3. Start the engine, and turn the headlights ON to high beam.

4. Measure 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 5.

   NO – Go to step 8.

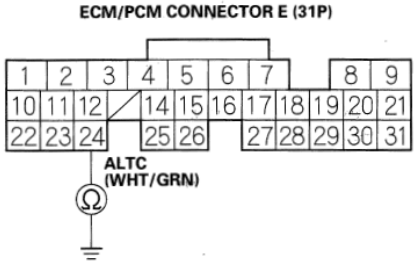
5. Jump the SCS line with the HDS, then turn the ignition switch OFF.

   NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.

6. Disconnect ECM/PCM connector E (31P).

Charging Circuit Troubleshooting (cont'd)

7. Check for continuity between ECM/PCM connector terminal E24 and body ground.



Is there continuity?

YES – Repair short in the wire between the alternator and ECM/PCM. ■

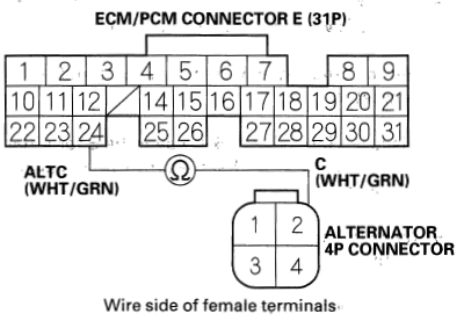
NO – Update the ECM/PCM if it does not have the latest software (see page 11-6), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-171). ■

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

   NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.

9. Disconnect ECM/PCM connector E (31P).

10. Check for continuity between ECM/PCM connector terminal E24 and alternator 4P connector terminal No. 2.



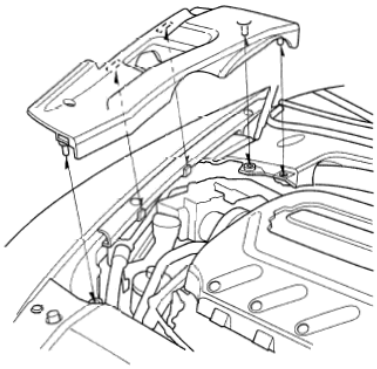
Is there continuity?

YES – Replace or repair the alternator (see page 4-32). ■

NO – Repair an open in the wire between the alternator and ECM/PCM. ■

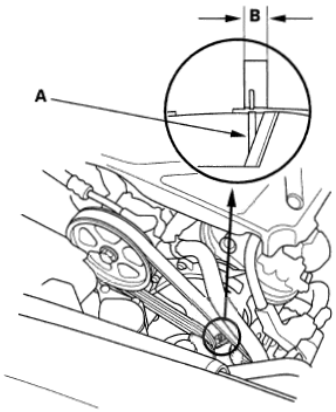
Drive Belt Inspection

1. Remove the right side engine compartment cover.



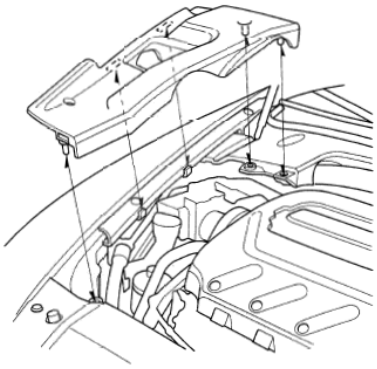
2. Inspect the belt for cracks or damage. If the belt is cracked or damaged, replace it.

3. Check that the auto-tensioner indicator (A) is within the standard range (B) as shown. If it is out of the standard range, replace the drive belt (see page 4-29).

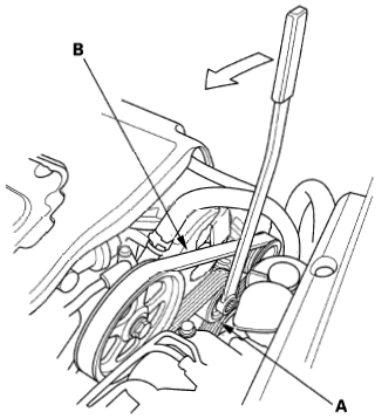


Drive Belt Replacement

1. Remove the right side engine compartment cover.



2. Move the auto-tensioner (A) to relieve tension from the drive belt (B), then remove the drive belt.

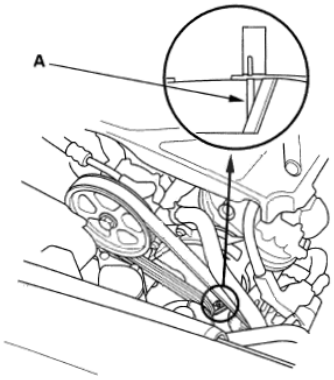


3. Install the new belt in the reverse order of removal.

Drive Belt Auto-tensioner Inspection

1. Remove the right side engine compartment cover (see step 1 on page 4-29).

2. Check the position of the auto-tensioner indicator's pointer (A), start the engine, then check the position of the pointer again. If the position changes, replace the auto-tensioner.



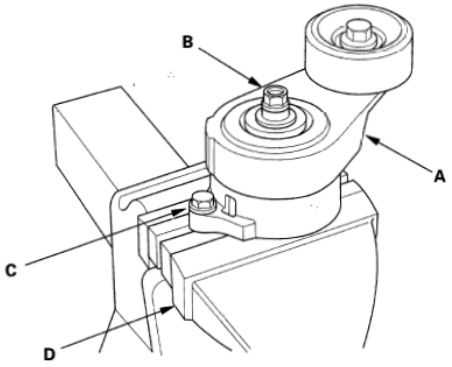
3. Check for abnormal noise from the tensioner pulley. If you hear abnormal noise, replace the auto-tensioner pulley (see page 4-31).

4. Remove the drive belt (see page 4-29).

5. Move the auto-tensioner within its limit with the wrench in the direction shown. Check that the tensioner moves smoothly and without any abnormal noise. If the tensioner does not move smoothly or there is abnormal noise, replace the auto-tensioner (see page 4-31).

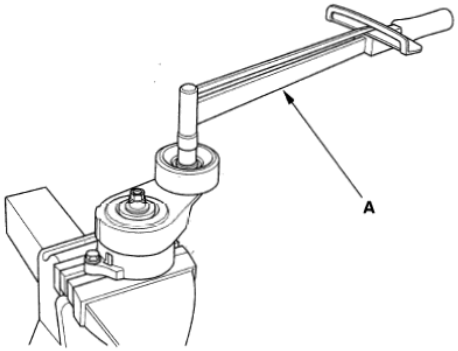
6. Remove the auto-tensioner (see page 4-31).

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



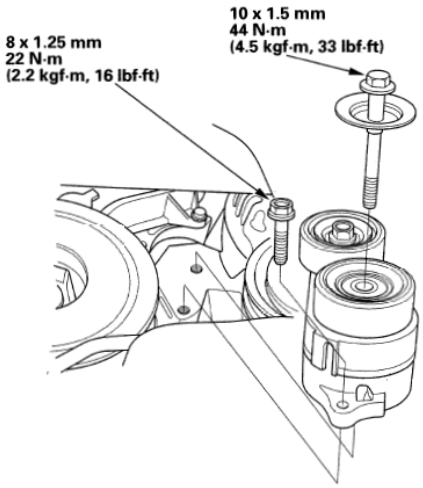
8. Attach a torque wrench (A) to the pulley bolt. measure the torque when the tensioner is turned counterclockwise. If the torque is less than the specified value, replace the auto-tensioner (see page 4-31).

50.5 N·m (5.15 kgf·m, 37.2 lbf·ft)



Drive Belt Auto-tensioner Replacement

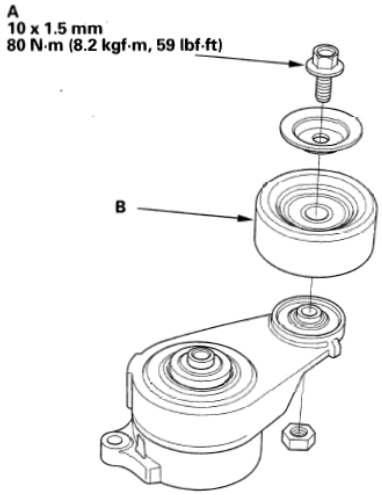
1. Remove the drive belt (see page 4-29).
2. Remove the splash shield.
3. Remove the auto-tensioner.



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

Tensioner Pulley Replacement

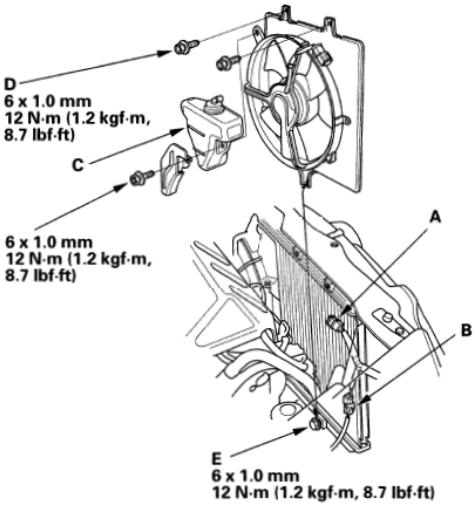
1. Remove the auto-tensioner (see page 4-31).
2. Remove the pulley bolt (A) (left-hand threads), and remove the tensioner pulley (B).



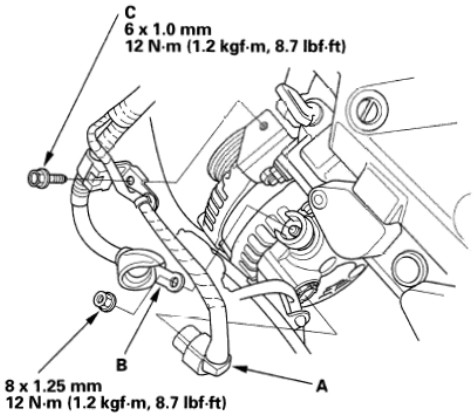
3. Install the tensioner pulley in the reverse order of removal.

Alternator Replacement

1. Make sure you have the anti-theft code for the radio, and the navigation system, then write down the XM radio channel presets. Make sure the ignition switch is OFF.
2. Disconnect the negative cable from the battery, then disconnect the positive cable.
3. Disconnect the fan motor connector (A) and compressor clutch connector (B), then remove the reserve tank (C).

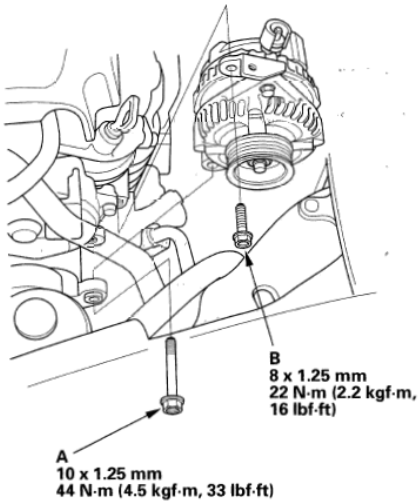


4. Remove the two bolts (D), and loosen bolt (E), then remove the condenser fan shroud.
5. Remove the drive belt (see page 4-29).
6. Disconnect the alternator connector (A) and BLK wire (B) from the alternator.



7. Remove the bolt (C) securing the harness bracket.

8. Remove the mounting bolt (A) and alternator bracket mounting bolt (B), then remove the alternator.



9. Install the alternator and drive belt in the reverse order of removal.

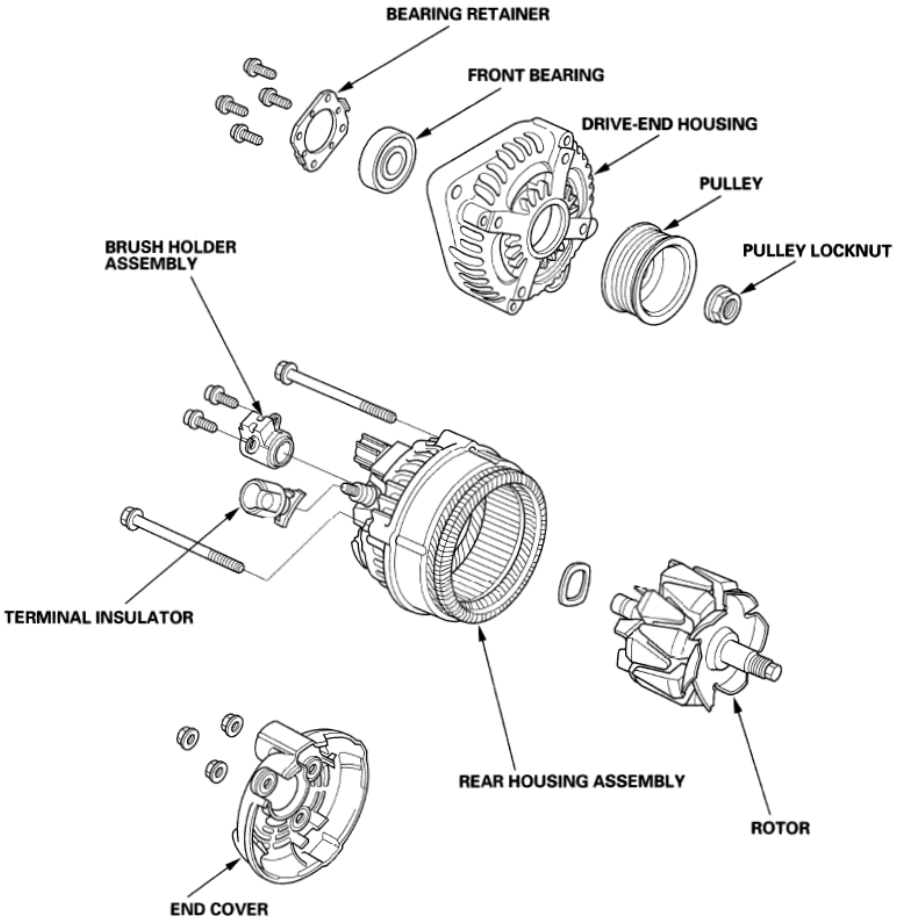
10. Connect the battery positive cable and negative cable to the battery.

11. Enter the anti-theft codes for the radio and the navigation system, then enter the customer's XM radio channel presets.

12. Set the clock.

Alternator Overhaul

Exploded View



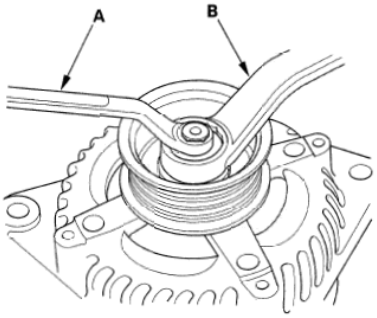
Special Tools Required
- Handle driver 07749-0010000
- Attachment, 42 x 47 mm 07746-0010300

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

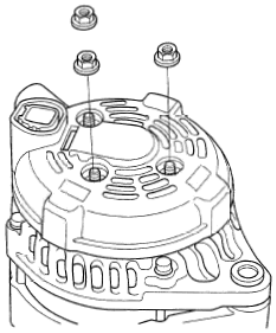
1. Test the alternator and regulator before you remove them (see page 4-25).

2. Remove the alternator (see page 4-32).

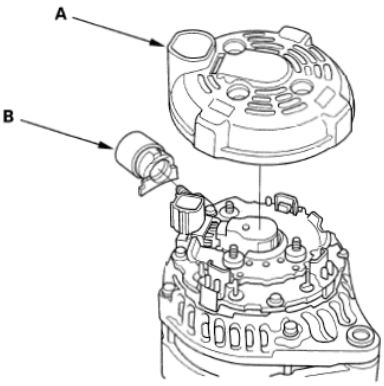
3. If the front bearing needs replacing, remove the pulley locknut with a 10 mm wrench (A) and a 22 mm wrench (B). If necessary, use an impact wrench.



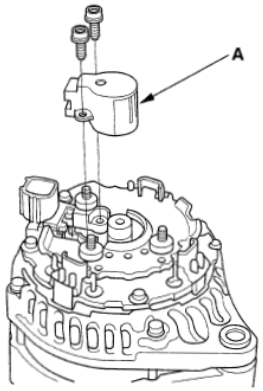
4. Remove the three flange nuts.



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

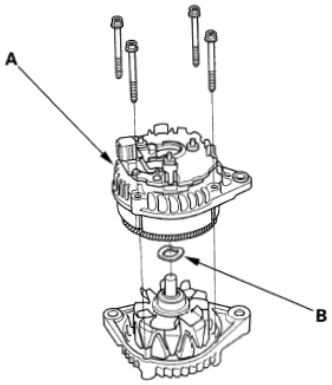


6. Remove the brush holder (A).

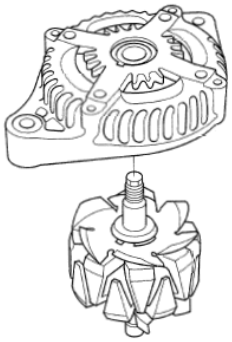


Alternator Overhaul (cont'd)

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



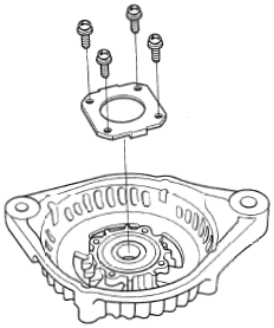
8. If you are not replacing the front bearing, go to step 13. Remove the rotor from the drive end housing.



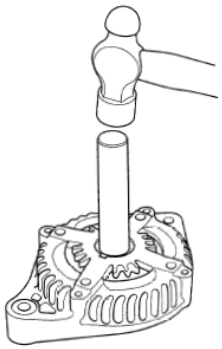
9. Inspect the rotor shaft for scoring, and inspect the bearing journal surface in the drive end housing for seizure marks.

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

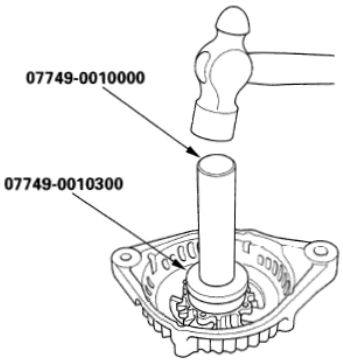
10. Remove the front bearing retainer plate.



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



12. With a hammer and special tools, install a new front bearing in the drive end housing.

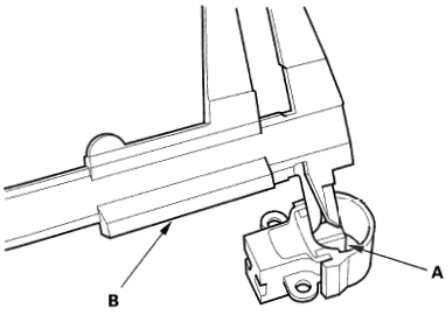


Alternator Brush Inspection

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

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

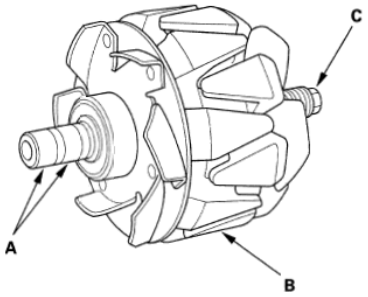
Alternator Brush Length
Standard (New): 10.5 mm (0.41 in.)
Service Limit: 1.5 mm (0.06 in.)



Rotor Slip Ring Test

14. Check that there is 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 that there is no continuity between each slip ring and the rotor (B) and the rotor shaft (C).

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

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

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