

Engine Cooling

Cooling System

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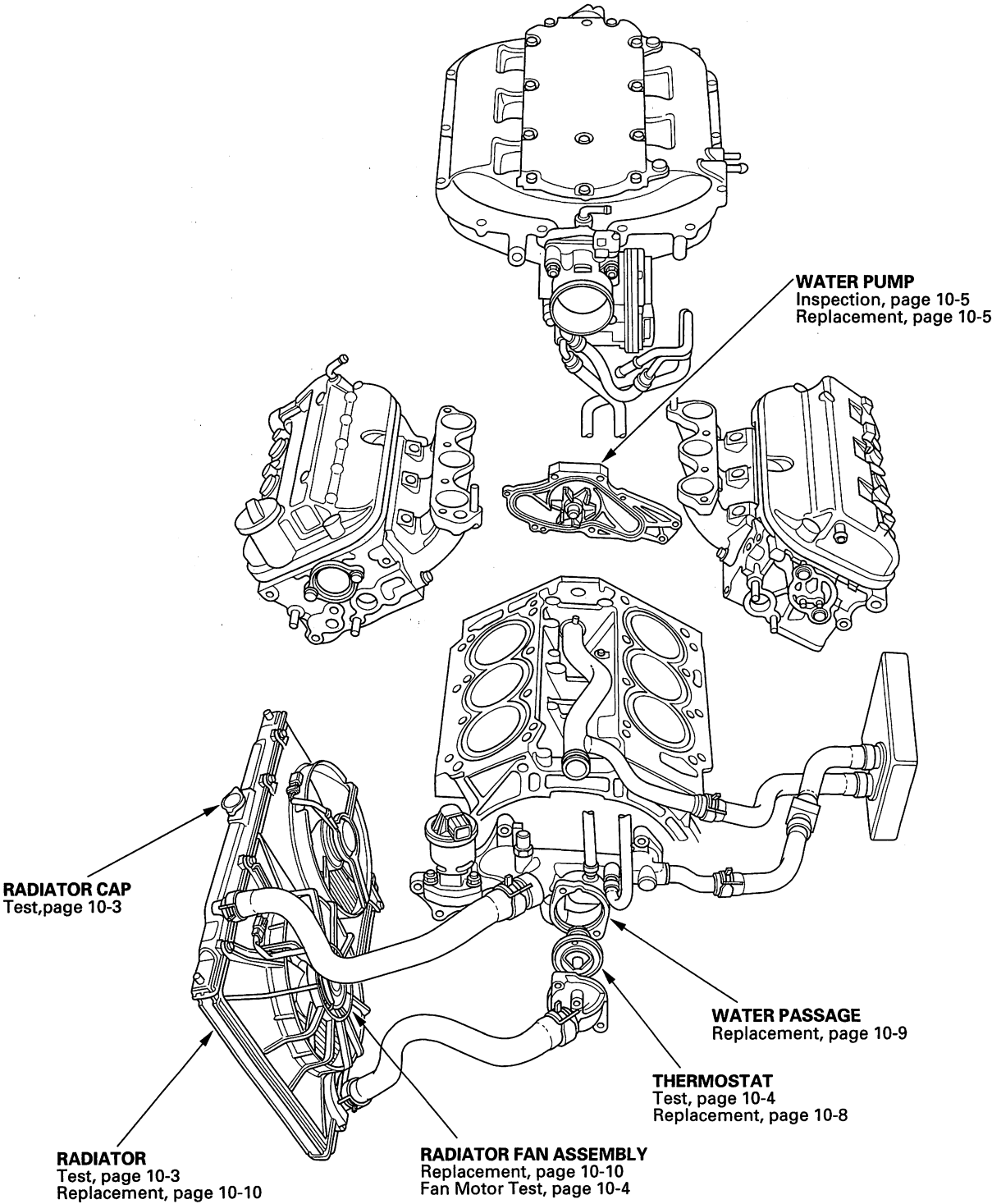
Fan Controls

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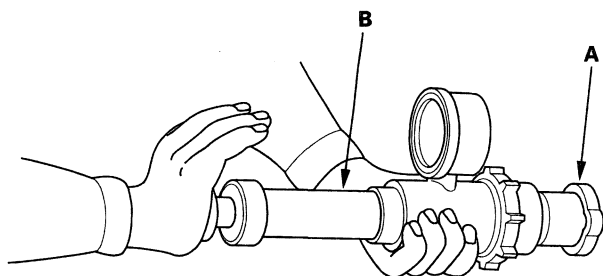
Component Location Index





Radiator Cap Test

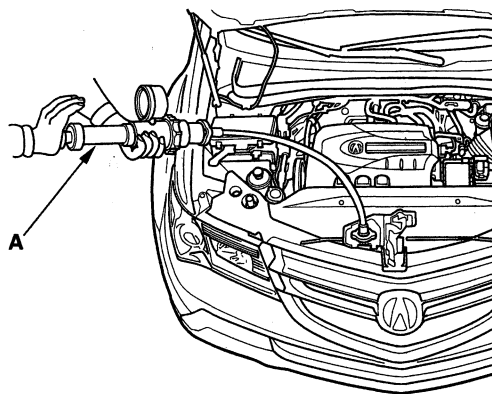
1. Remove the radiator cap (A). Wet its seal with engine coolant, then install it on a commercially available pressure tester (B).



2. Apply a pressure of 93—123 kPa (0.95—1.25 kgf/cm², 14—18 psi).
3. Check for a drop in pressure.
4. If the pressure drops, replace the cap.

Radiator Test

1. Wait until the engine is cool, then carefully remove the radiator cap, and fill the radiator with engine coolant to the top of the filler neck.
2. Attach a commercially available pressure tester (A) to the radiator, and apply a pressure of 93—123 kPa (0.95—1.25 kgf/cm², 14—18 psi).

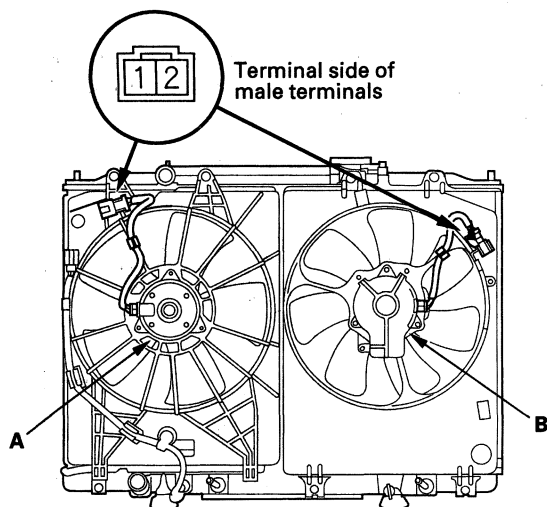


3. Inspect for engine coolant leaks and a drop in pressure.
4. Remove the tester, then reinstall the radiator cap.

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Fan Motor Test

1. Disconnect the 2P connectors from the radiator fan motor (A) and condenser fan motor (B).



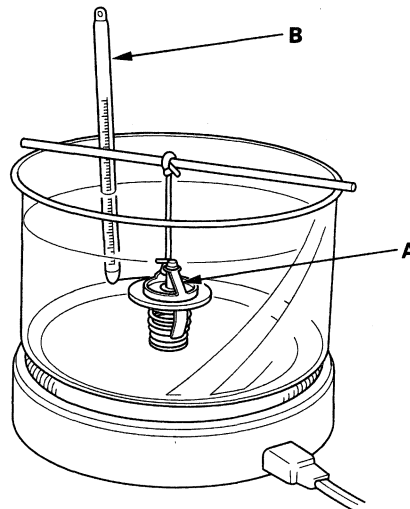
2. Test each motor by connecting battery power to No. 2 terminal and ground to No. 1 terminal.
3. If either motor fails to run or does not run smoothly, replace it (see page 10-10).

Thermostat Test

Replace the thermostat if it is in the stuck open position at room temperature.

To test a closed thermostat:

1. Suspend the thermostat (A) in a container of water. Do not let the thermometer (B) touch the bottom of the hot container.



2. Heat the water and check the temperature with a thermometer. Note the temperature at which the thermostat first opens, and at which it is fully open.
3. Measure the lift height of the thermostat when it is fully open.

Standard Thermostat

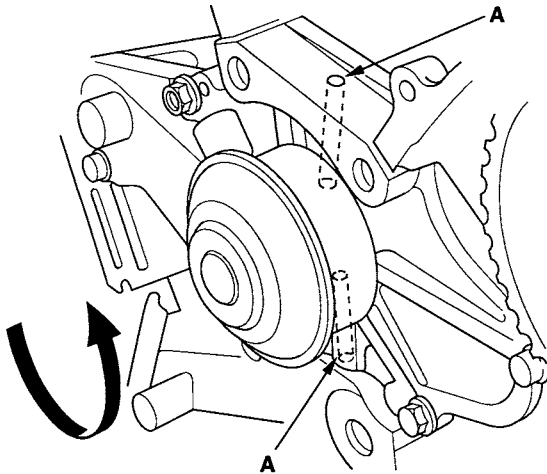
Lift Height: Above 10.0 mm (0.39 in.)
Starts Opening: 169–176 °F (76–80 °C)
Fully Open: 194 °F (90 °C)



Water Pump Inspection

1. Remove the timing belt (see page 6-13).
2. Turn the water pump pulley counterclockwise. Check that it turns freely. If it doesn't turn smoothly, replace the water pump (see page 10-5).

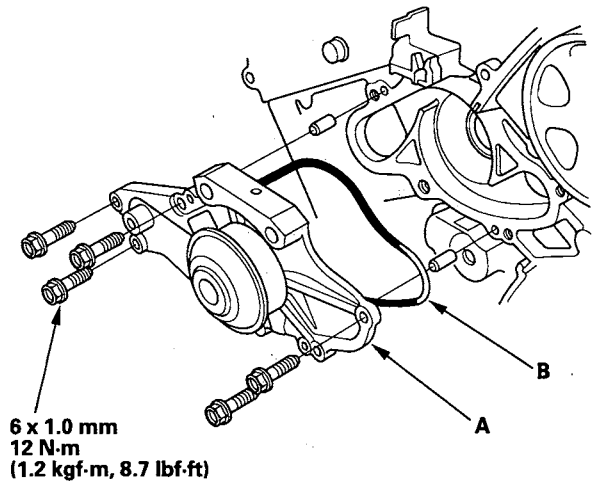
NOTE: When you check the water pump, you may see a small amount of "weeping" from the bleed holes (A). This is normal.



3. Install the timing belt (see page 6-16).

Water Pump Replacement

1. Drain the engine coolant (see page 10-6).
2. Remove the timing belt (see page 6-13).
3. Remove the timing belt adjuster (see page 6-24).
4. Remove the water pump (A) by removing the five bolts.

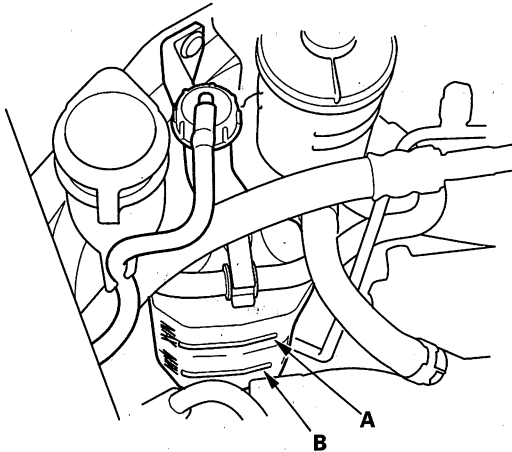


5. Inspect and clean the O-ring groove and the mating surface of the engine block.
6. Install the water pump with a new O-ring (B) in the reverse order of removal.
7. Clean up any spilled engine coolant.
8. Install the timing belt adjuster (see page 6-24).
9. Install the timing belt (see page 6-16).
10. Refill the radiator with engine coolant, then bleed the air from the cooling system (see step 10 on page 10-7).

Cooling System

Coolant Check

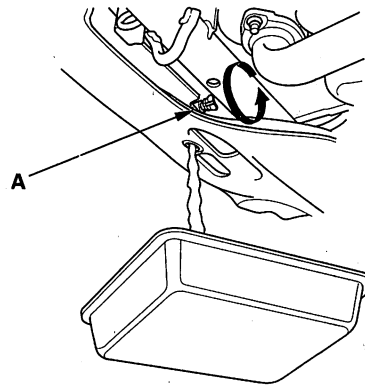
1. Look at the coolant level in the coolant reservoir. Make sure it is between the MAX mark (A) and MIN mark (B).



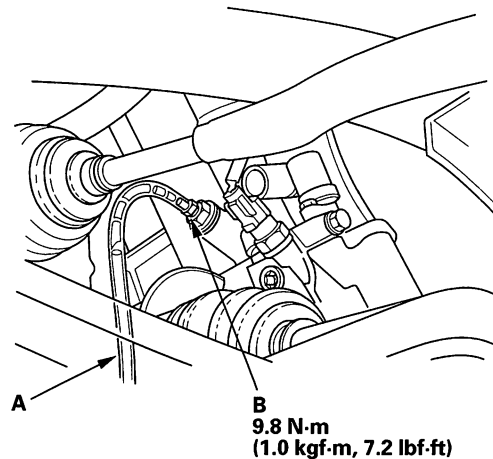
2. If the coolant level in the coolant reservoir is at or below the MIN mark, add coolant to bring it between the MIN and MAX marks, then inspect the cooling system for leaks.

Coolant Replacement

1. Start the engine. Set the heater temperature control dial to maximum heat, then turn off the ignition switch. Make sure the engine and radiator are cool to the touch.
2. Remove the radiator cap.
3. Remove the splash shield (see step 31 on page 5-5).
4. Loosen the drain plug (A), and drain the coolant.



5. Install a rubber hose (A) on the drain bolt (B) located at the rear of the engine block, then loosen the drain bolt.

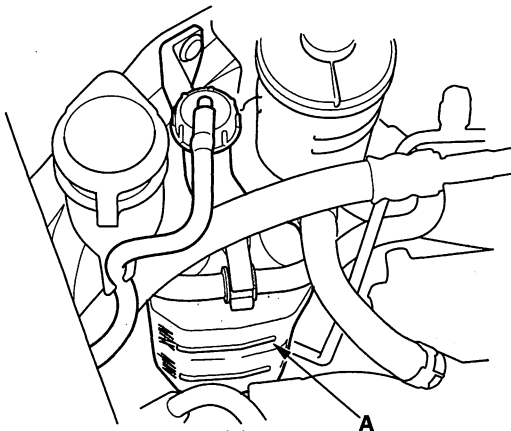


6. When the coolant stops draining, tighten the drain bolt. Remove the rubber hose.
7. Tighten the radiator drain plug securely.
8. Install the splash shield (see step 33 on page 5-17).



9. Remove, drain, and reinstall the coolant reservoir.

10. Fill the coolant reservoir to the MAX mark (A) with Acura Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001).



11. Pour Acura Long Life Antifreeze/Coolant Type 2 into the radiator up to the base of the filler neck.

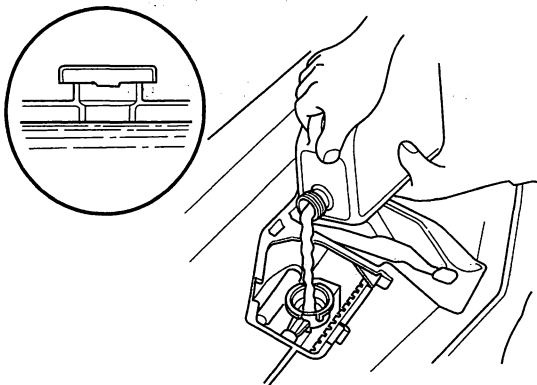
NOTE:

- Always use Acura Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001). Using a non-Acura coolant can result in corrosion, causing the cooling system to malfunction or fail.
- Acura Long Life Antifreeze/Coolant Type 2 is a mixture of 50 % antifreeze and 50 % water. Do not add water.

Engine Coolant Capacities (Including the coolant reservoir capacity of 0.7 L (0.19 US gal)):

At Coolant Change: 7.3 L (1.93 US gal)

After Engine Overhaul: 9.2 L (2.43 US gal)



12. Loosely install the radiator cap.

13. Start the engine, and let it run until it warms up (the radiator fan comes on at least twice).

14. If the maintenance minder required to replace the engine coolant, reset the maintenance minder (see page 3-6), and this procedure is complete. If the maintenance minder did not require to replace the engine coolant, go to step 13.

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

16. Turn the ignition switch ON (II).

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

18. Select BODY ELECTRICAL with the HDS.

19. Select ADJUSTMENT in the GAUGES MENU with the HDS.

20. Select RESET in the MAINTENANCE MINDER with the HDS.

21. Select MAINTENANCE SUB ITEM 5 RESET with the HDS.

22. Turn off the engine. Check the level in the radiator, and add Acura Long Life Antifreeze/Coolant Type 2, if needed.

23. Put the radiator cap on tightly, then run the engine again, and check for leaks.

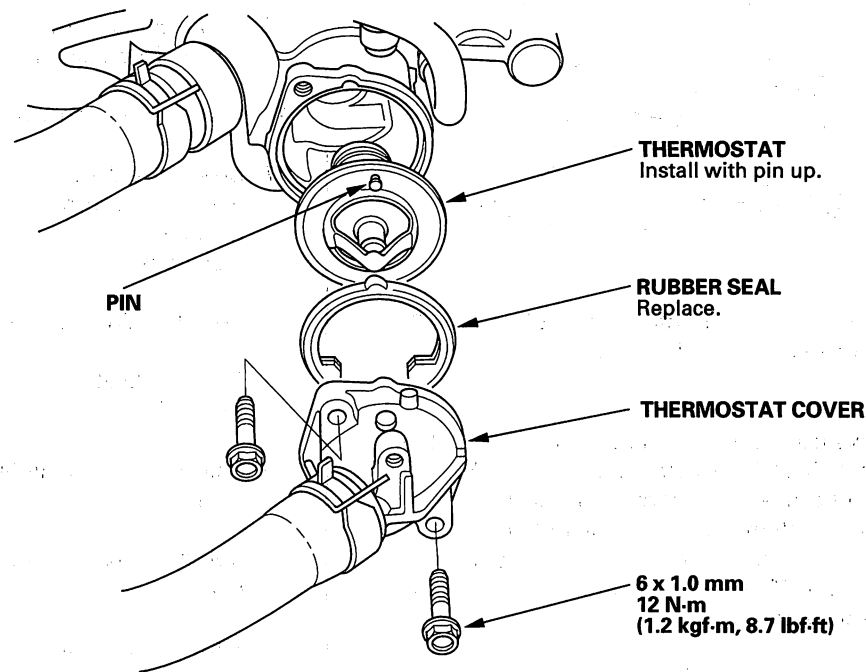
24. Clean up any spilled engine coolant.

25. Reset the multi-information display (see page 3-6).

Cooling System

Thermostat Replacement

1. Make sure you have the anti-theft codes for the audio system and navigation system (if equipped). Make sure the ignition switch is OFF.
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.
3. Remove the air intake duct (see step 9 on page 5-2).
4. Drain the engine coolant (see page 10-6).
5. Remove the thermostat cover, then remove the thermostat.

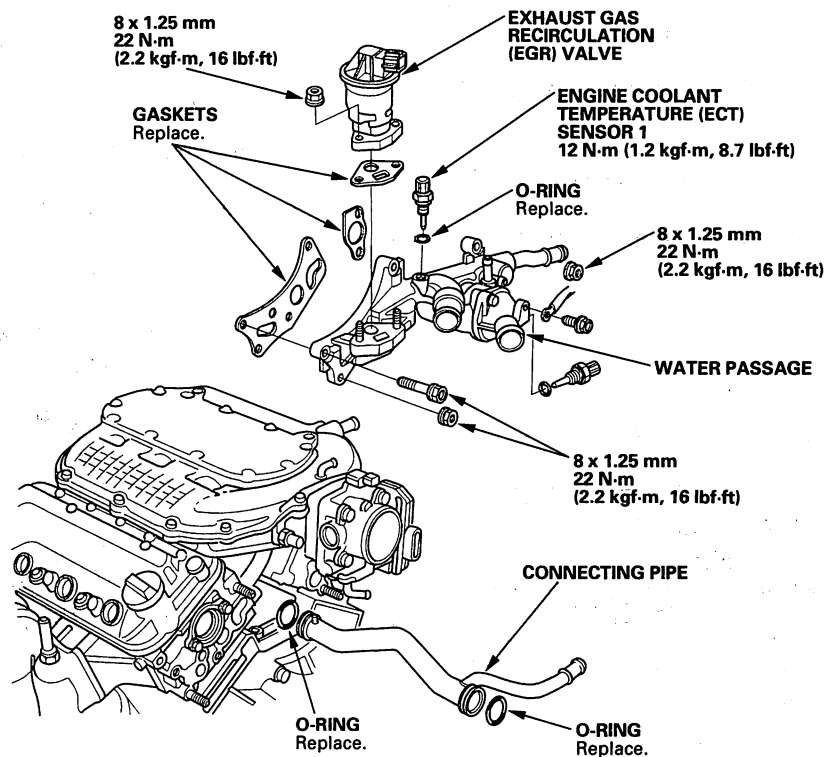


6. Install the new thermostat with a new rubber seal in the reverse order of removal.
7. Install the battery. Clean the battery posts and cable terminals with sandpaper, then assemble them and apply grease to prevent corrosion.
8. Refill the radiator with engine coolant, then bleed air from the cooling system (see step 10 on page 10-7).
9. Clean up any spilled engine coolant.
10. Do the steering column position memorization (see page 17-28).
11. Enter the anti-theft codes for the audio system and the navigation system (if equipped).
12. Set the clock.



Water Passage Replacement

1. Make sure you have the anti-theft codes for the audio system and navigation system (if equipped). Make sure the ignition switch is OFF.
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.
3. Remove the air intake duct (see step 9 on page 5-2).
4. Drain the engine coolant (see page 10-6).
5. Remove the upper radiator hose, lower radiator hose, heater hoses, and water bypass hoses from the water passage. Disconnect engine coolant temperature (ECT) sensor 1 connector and the exhaust gas recirculation (EGR) valve connector.
6. Remove the water passage.



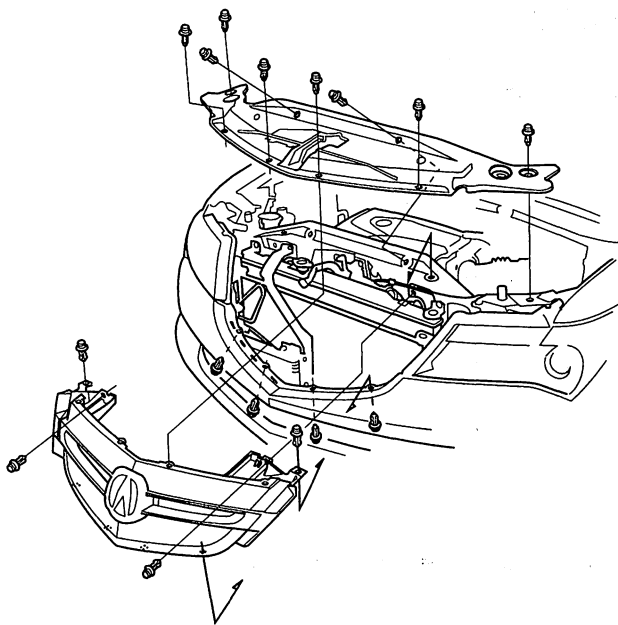
7. Install the water passage in the reverse order of removal.
8. Install the battery. Clean the battery posts and cable terminals with sandpaper, then assemble them and apply grease to prevent corrosion.
9. Refill the radiator with engine coolant, then bleed air from the cooling system (see step 10 on page 10-7).
10. Clean up any spilled engine coolant.
11. Do the steering column position memorization (see page 17-28).
12. Enter the anti-theft codes for the audio system and navigation system (if equipped).
13. Set the clock.

Cooling System

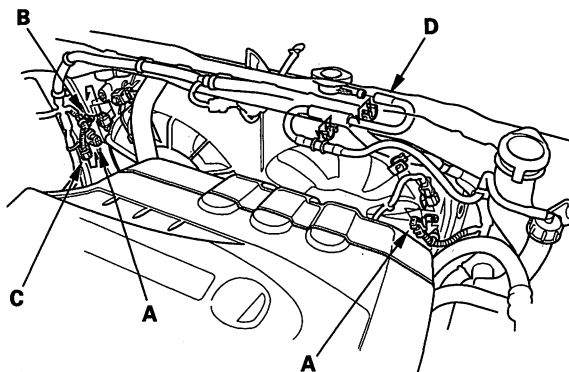
Radiator and Fan Replacement

NOTE:

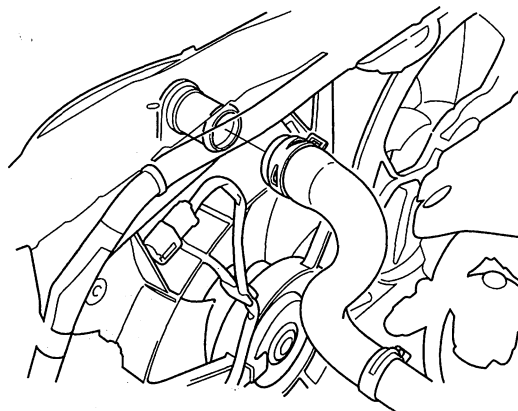
- Use fender covers to avoid damaging painted surfaces.
 - To avoid damaging the wire and terminals, unplug the wiring connectors carefully while holding the connector portion.
 - Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact any other wiring or hoses, or interfere with any other parts.
1. Make sure you have the anti-theft codes for the audio system and navigation system (if equipped). Make sure the ignition switch is OFF.
 2. Disconnect the negative cable from the battery first, then disconnect the positive cable.
 3. Remove the battery and battery base (see step 12 on page 5-3).
 4. Remove the air cleaner assembly (see page 11-363).
 5. Remove the front grille cover, then remove the front grille.



6. Disconnect the fan motor connectors (A), harness clamp (B), engine coolant temperature (ECT) sensor 2 subharness connector (C) and coolant reservoir hose (D).

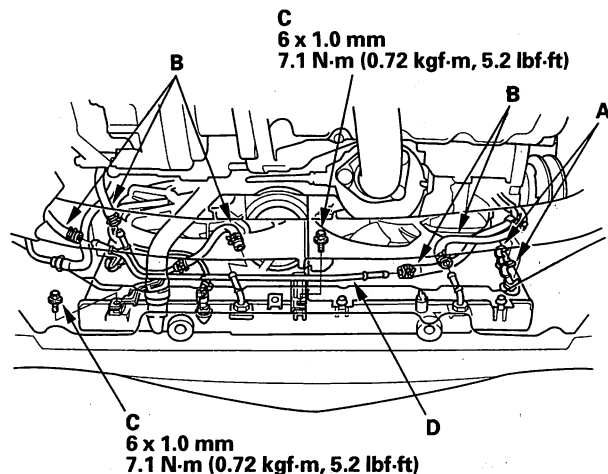


7. Drain the engine coolant (see page 10-6).
8. Remove the upper radiator hose.

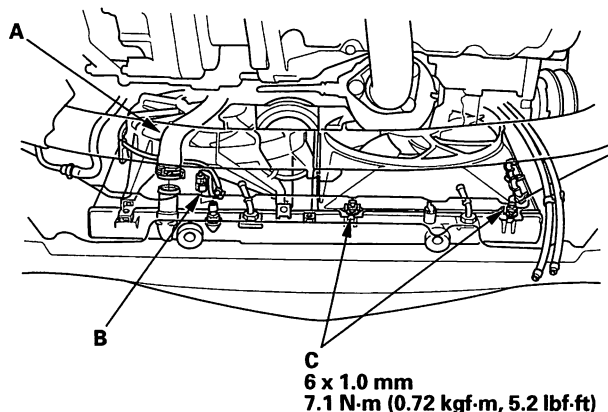




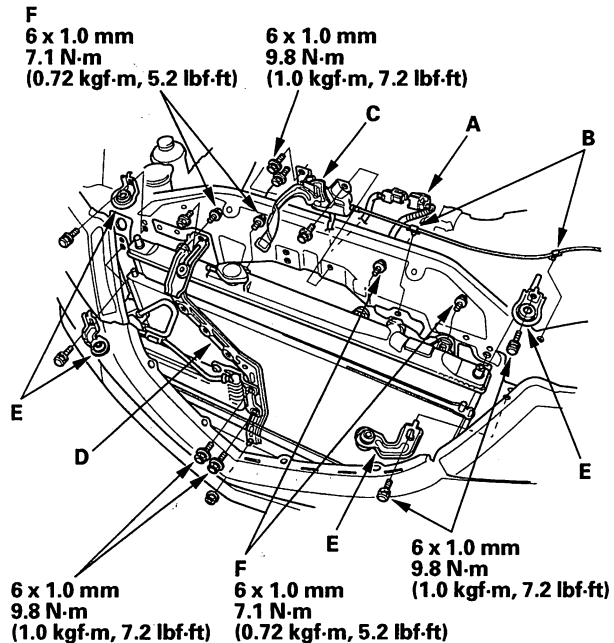
9. Disconnect the hose clamps (A) and remove the ATF cooler hoses (B), then plug the line and hoses.



10. Remove the ATF cooler pipe mount bolts (C), then remove the ATF cooler pipe (D).
11. Remove the lower radiator hose (A) and disconnect the ECT sensor 2 connector (B) and loosen the two bolts (C).



12. Disconnect the hood latch switch connector (A), clamps (B), then remove the hood latch (C).



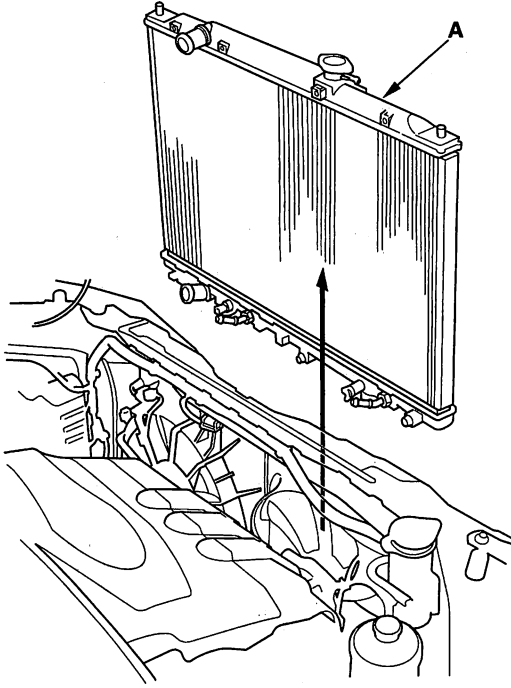
13. Remove the bulkhead bracket (D), and radiator and A/C condenser mount upper bracket/cushion (E), then remove the fan shroud mount bolts (F).

(cont'd)

Cooling System

Radiator and Fan Replacement (cont'd)

14. Displace the fan shrouds to the engine side, then pull up the radiator assembly (A).

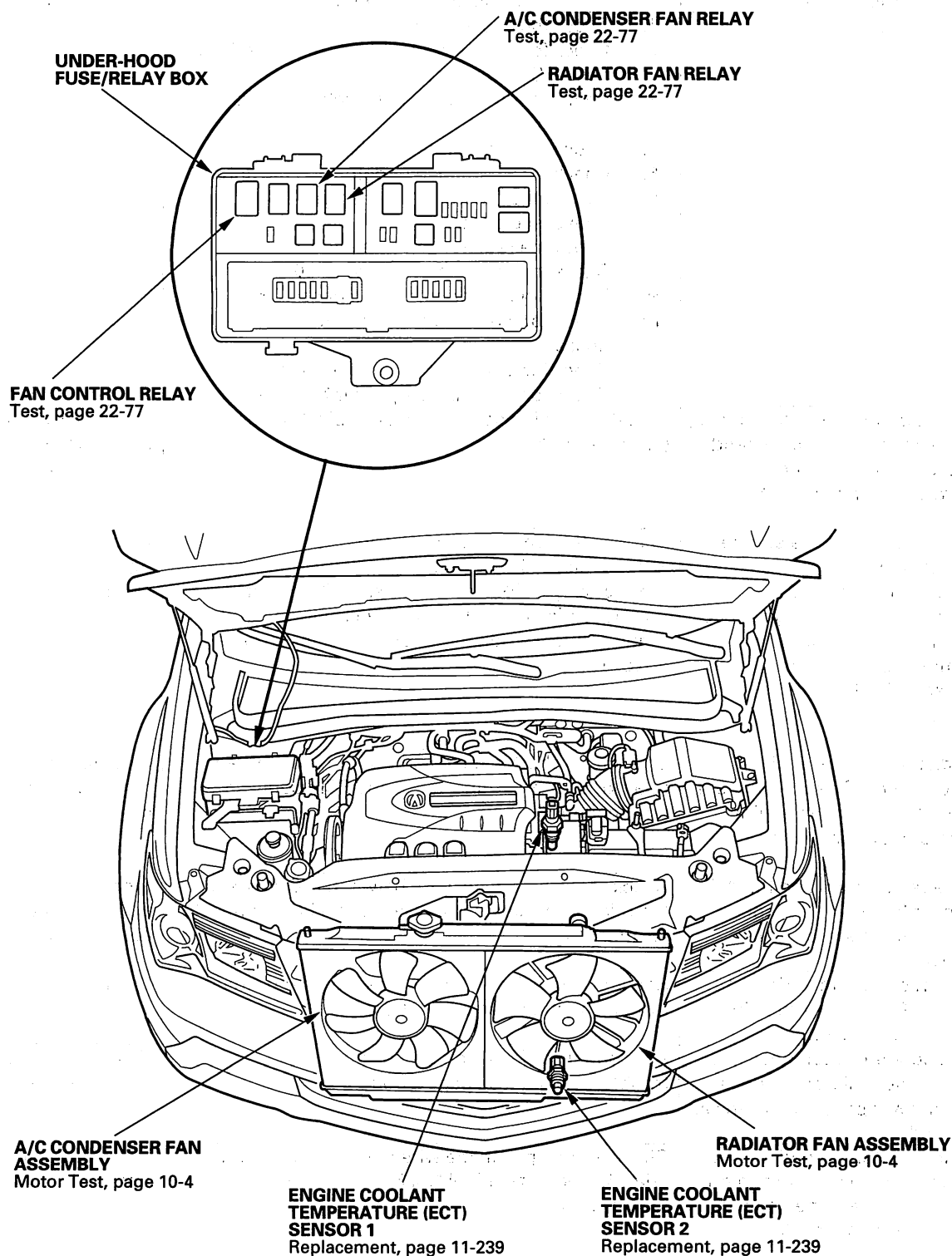


15. Remove the fan shroud assembly.
16. Install the radiator and fans in the reverse order of removal.
17. Install the bulkhead bracket in the reverse order of removal. Apply body paint to the bulkhead bracket mounting bolts.
18. Set the upper and lower cushions securely.
19. Fill the radiator with engine coolant and bleed the air from the system (see step 10 on page 10-7).
20. Fill the transmission with ATF (see page 14-266).
21. Adjust the engine hood latch (see page 20-194).
22. Install the battery. Clean the battery posts and cable terminals with sandpaper, then assemble them and apply grease to prevent corrosion.
23. Do the steering column position memorization (see page 17-28).
24. Enter the anti-theft codes for the audio system and navigation system (if equipped).
25. Set the clock.



Fan Controls

Component Location Index



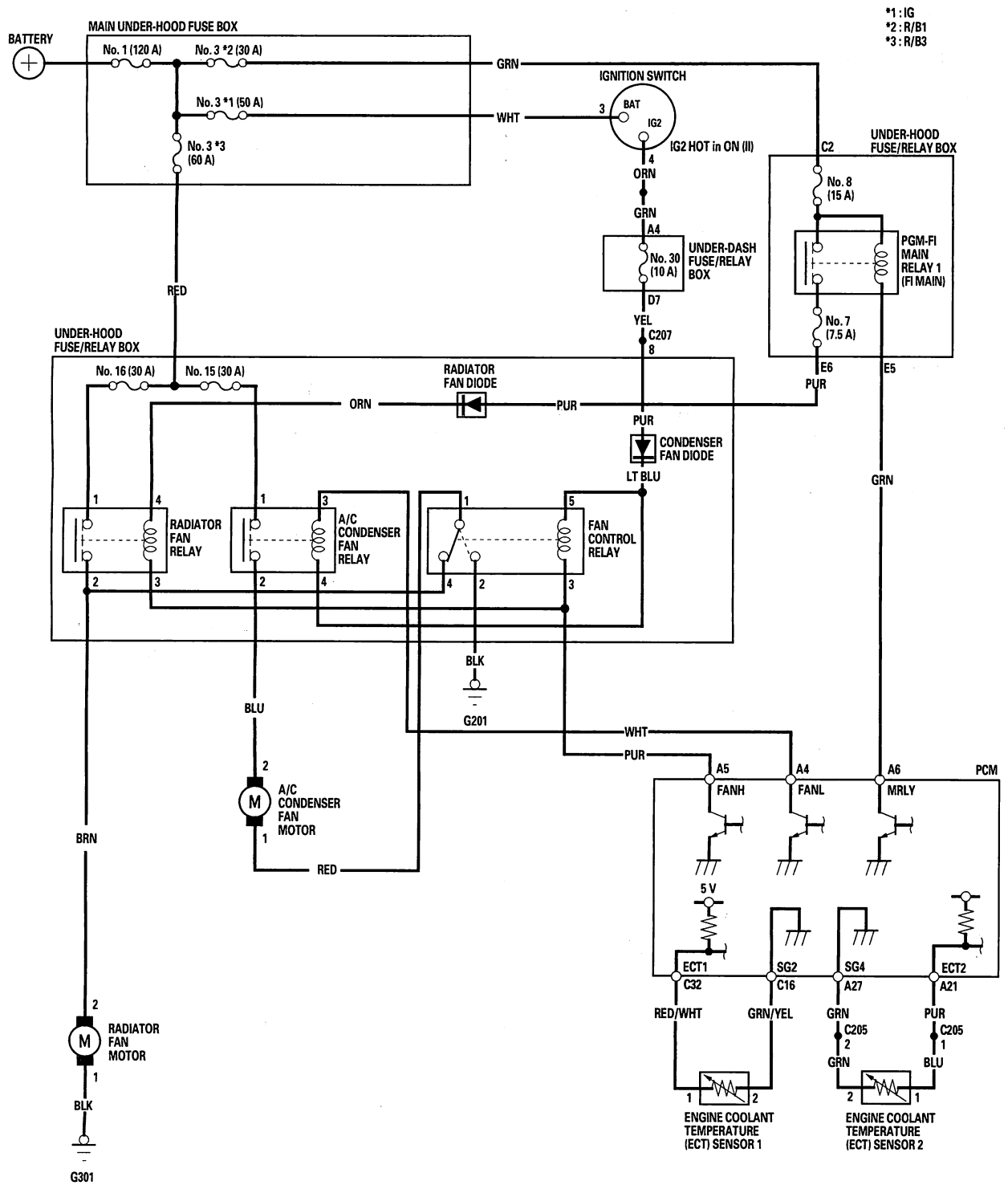
Fan Controls

Symptom Troubleshooting Index

Symptom	Diagnostic Procedure	Also check for
Engine overheats	1. Check the coolant level. 2. Check for engine coolant leaks (from gaskets, hoses, O-rings, etc.). 3. Check for dirt, leaves, or insects on the radiator and condenser. 4. Check for deteriorated coolant. 5. Check for a damaged or deformed fan shroud. 6. Inspect the fan motors (see page 10-4) or fan relays (see page 22-77). 7. Check the radiator cap (see page 10-3). 8. Check the thermostat (see page 10-4). 9. Inspect the water pump (see page 10-5). 10. Check for clogged or deteriorated radiator hoses. 11. Check for a clogged heater core or hoses. 12. Check for a damaged cylinder head gasket.	
The radiator fan runs at low speed, but it does not run at high speed when the engine coolant temperature is above 206 °F (97 °C)	Radiator fan high speed circuit troubleshooting (see page 10-16).	Cleanliness and tightness of all connectors
With the A/C off and the engine coolant temperature at 206 °F (97 °C) or below, the A/C condenser fan runs at high speed and the radiator fan does not run. When the engine coolant temperature is above 206 °F (97 °C), both fans run at high speed	Remove the fan control relay, and test. • If the relay is faulty, replace it. • If the relay is OK, check for a short in the wire between fan control relay 5P socket terminal No. 1 and condenser fan motor 2P connector terminal No. 1.	Cleanliness and tightness of all connectors
The radiator fan runs at high speed with the ignition switch ON (II), the A/C off, and the engine coolant temperature below 204 °F (95 °C)	Check for a short in the wire between radiator fan relay 4P socket terminal No. 3 and PCM connector terminal A5.	Cleanliness and tightness of all connectors
Both the radiator fan and the A/C condenser fan run at low speed with the ignition switch ON (II) and the A/C off	Check for a short in the wire between A/C condenser fan relay 4P socket terminal No. 3 and PCM connector terminal A4.	Cleanliness and tightness of all connectors
Both the radiator fan and the A/C condenser fan do not run at low speed with the A/C on	Radiator and A/C condenser fans low speed circuit troubleshooting (see page 21-94).	Cleanliness and tightness of all connectors
The A/C condenser fan does not run at all. The radiator fan does not run at low speed, but it runs at high speed	A/C condenser fans high speed circuit troubleshooting (see page 21-98).	Cleanliness and tightness of all connectors
Both the radiator fan and the A/C condenser fan do not run at high speed when the engine coolant temperature is above 206 °F (97 °C)	Check for an open in the wire between radiator fan relay 4P socket terminal No. 3 and PCM connector terminal A5.	Cleanliness and tightness of all connectors



Circuit Diagram



Fan Controls

Radiator Fan High Speed Circuit Troubleshooting

1. Check the No. 7 (7.5 A), No. 8 (15 A) and No. 16 (30 A) fuse in the under-hood fuse/relay box.

Are the fuses OK?

YES—Go to step 2.

NO—Replace the fuse(s) and recheck. ■

2. Remove the radiator fan relay from the under-hood fuse/relay box and test it (see page 22-77).

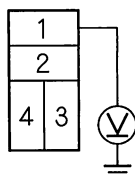
Is the relay OK?

YES—Go to step 3.

NO—Replace the radiator fan relay. ■

3. Measure the voltage between radiator fan relay 4P socket terminal No. 1 and body ground.

RADIATOR FAN RELAY 4P SOCKET



Terminal side of female terminals

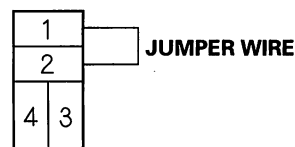
Is there battery voltage?

YES—Go to step 4.

NO—Repair open in the RED wire between radiator fan relay 4P socket terminal No. 1 and the No. 3 fuse in the main under-hood fuse box. ■

4. Connect radiator fan relay 4P socket terminals No. 1 and No. 2 with a jumper wire.

RADIATOR FAN RELAY 4P SOCKET



Terminal side of female terminals

Does the radiator fan run at high speed?

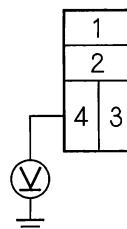
YES—Go to step 5.

NO—Repair open in the BRN wire between radiator fan relay 4P socket terminal No. 2 and radiator fan motor 2P connector terminal No. 2. ■

5. Turn the ignition switch ON (II).

6. Measure the voltage between radiator fan relay 4P socket terminal No. 4 and body ground.

RADIATOR FAN RELAY 4P SOCKET



Terminal side of female terminals

Is there battery voltage?

YES—Repair open in the PUR wire between radiator fan relay 4P socket terminal No. 3 and the powertrain control module (PCM) (A5). ■

NO—Repair open in the PUR wire between radiator fan relay 4P socket terminal No. 4 and the under-hood fuse/relay box. ■