

Engine Cooling

Cooling System

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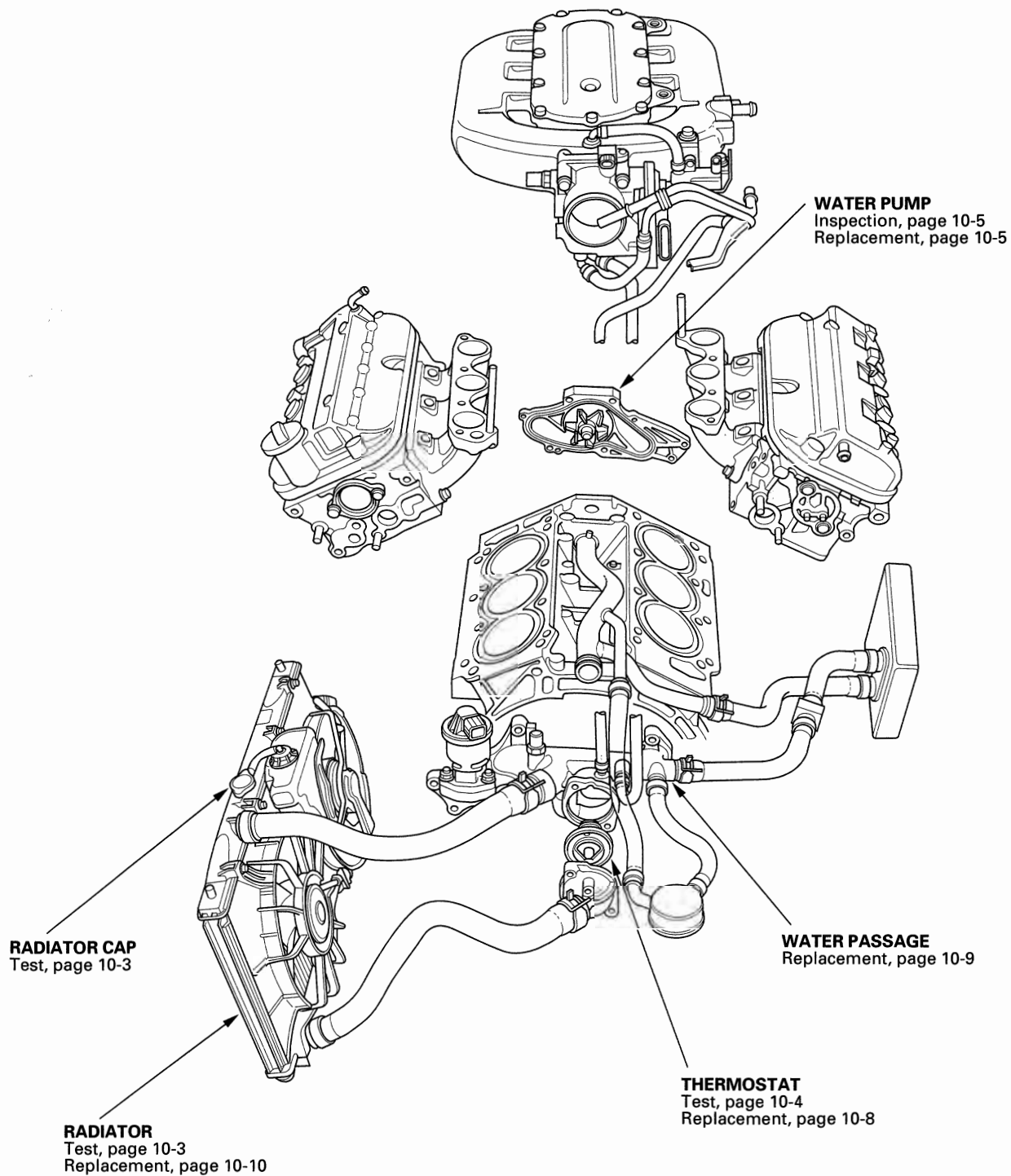
Fan Controls

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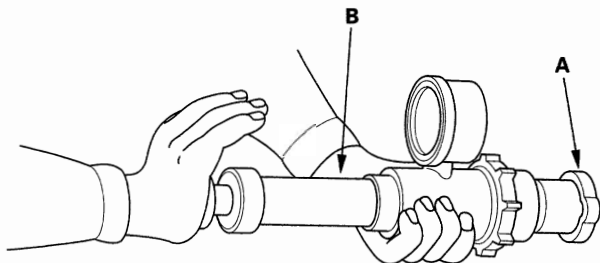
Component Location Index





Radiator Cap Test

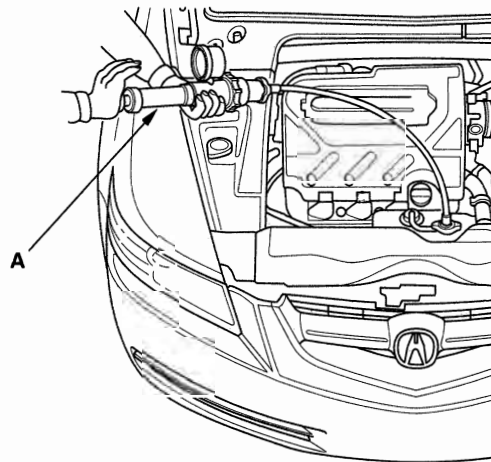
1. Remove the radiator cap (A), wet its seal with engine coolant, then install it on a commercially available pressure tester (B).



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).

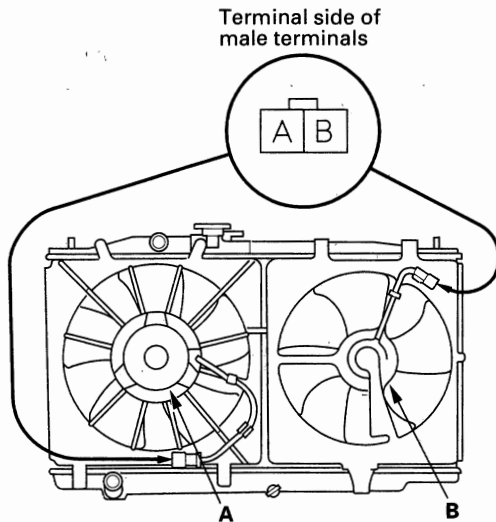


3. Inspect for engine coolant leaks and a drop in pressure.
4. Remove the tester, then reinstall the radiator cap.

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Fan Motor Test

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



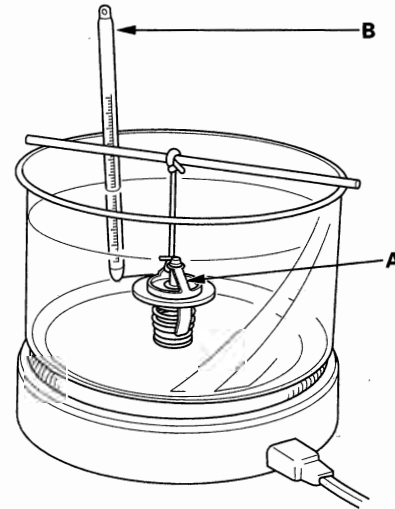
2. Test each motor by connecting battery power to the B terminal and ground to the A terminal.
3. If either motor fails to run or does not run smoothly, replace it (see page 10-10).

Thermostat Test

Replace the thermostat if it is open 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. Check 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.

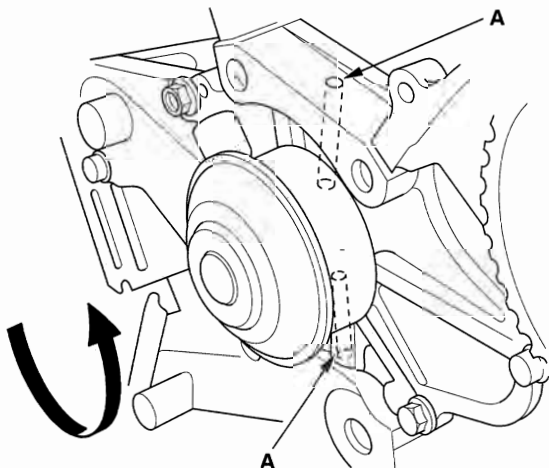
Standard Thermostat

Lift height: above 10.0 mm (0.39 in.)
Starts opening: 169 – 176°F (76 – 80°C)
Fully open: 194°F (90°C)



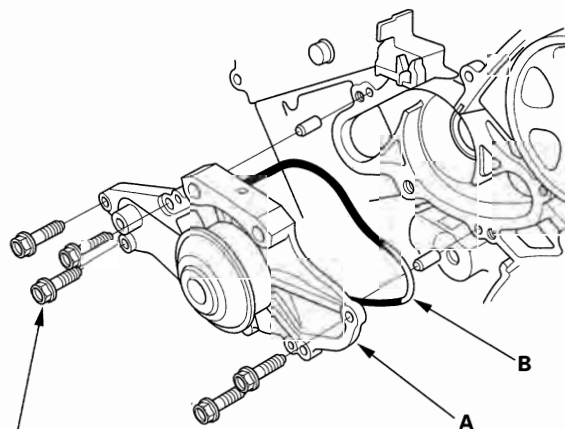
Water Pump Inspection

1. Remove the timing belt (see page 6-14).
2. Turn the water pump pulley counterclockwise. Check that it turns freely.
3. Check for signs of seal leakage. A small amount of "weeping" from the bleed holes (A) is normal.



Water Pump Replacement

1. Drain the engine coolant (see page 10-6).
2. Remove the timing belt (see page 6-14).
3. Remove the timing belt adjuster (see page 6-26).
4. Remove the water pump (A) by removing the five bolts.



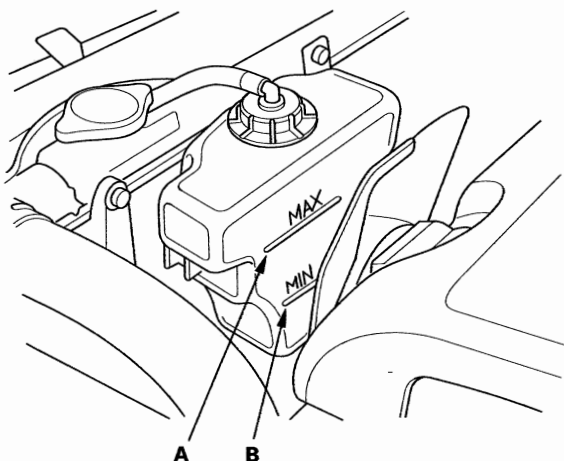
6 x 1.0 mm
12 N·m (1.2 kgf·m, 8.7 lbf·ft)

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 6-26).
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 8 on page 10-7).

Cooling System

Coolant Check

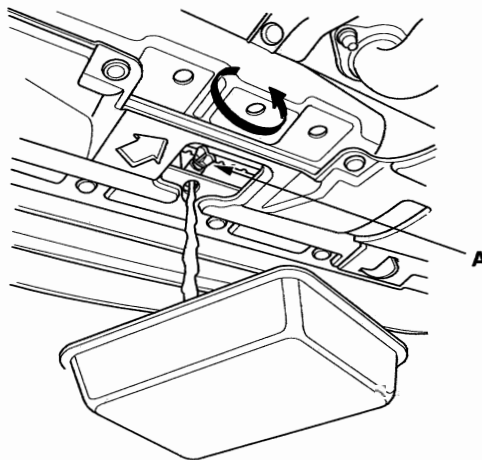
1. Look at the coolant level in the coolant reservoir. Make sure it is between the MAX mark (A) and MIN mark (B).



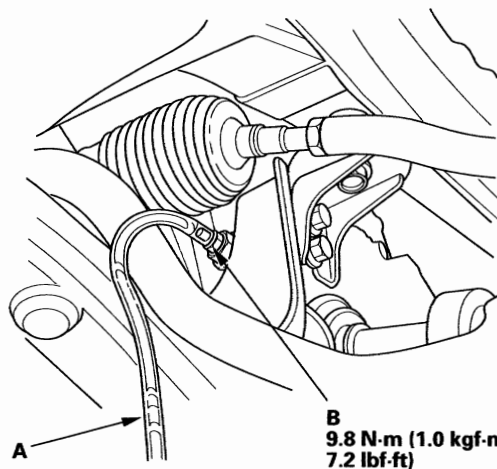
2. If the coolant level in the coolant reservoir is at or below the MIN mark, add coolant to bring it between the MIN and MAX marks, then inspect the cooling system for leaks.

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. Loosen the drain plug (A), and drain the coolant.



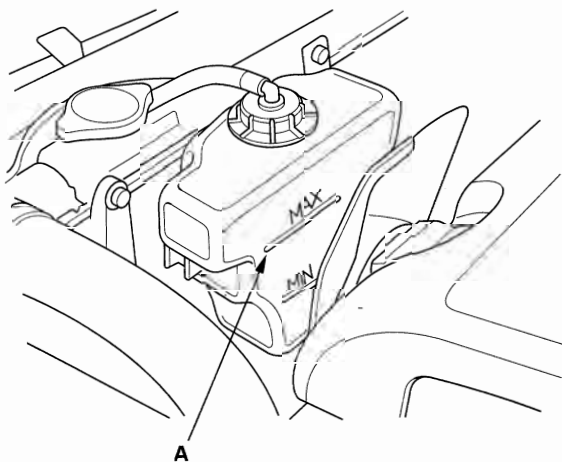
4. Install a rubber hose (A) on the drain bolt (B) located at the rear of the cylinder block, then loosen the drain bolt.



5. When the coolant stops draining, tighten the drain bolt.
6. Tighten the radiator drain plug securely.



7. Remove, drain, and reinstall the reserve tank.
8. Fill the reserve tank to MAX mark (A) with Honda All Season Antifreeze/Coolant Type 2 (P/N OL999-9001).



9. Pour Honda All Season Antifreeze/Coolant Type 2 into the radiator up to the base of the filler neck.

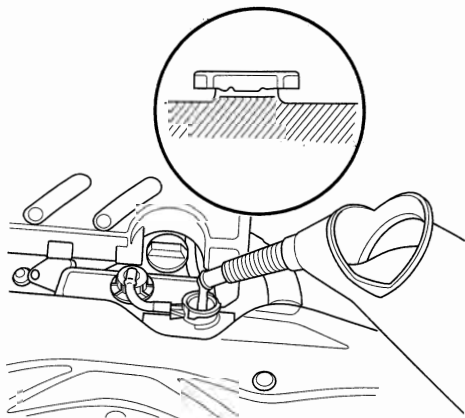
NOTE:

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

Engine Coolant Refill Capacity (including the reserve tank capacity of 0.6 0 (0.6 US qt)):

M/T: 6.3 0 (6.7 US qt)

A/T: 6.4 0 (6.8 US qt)

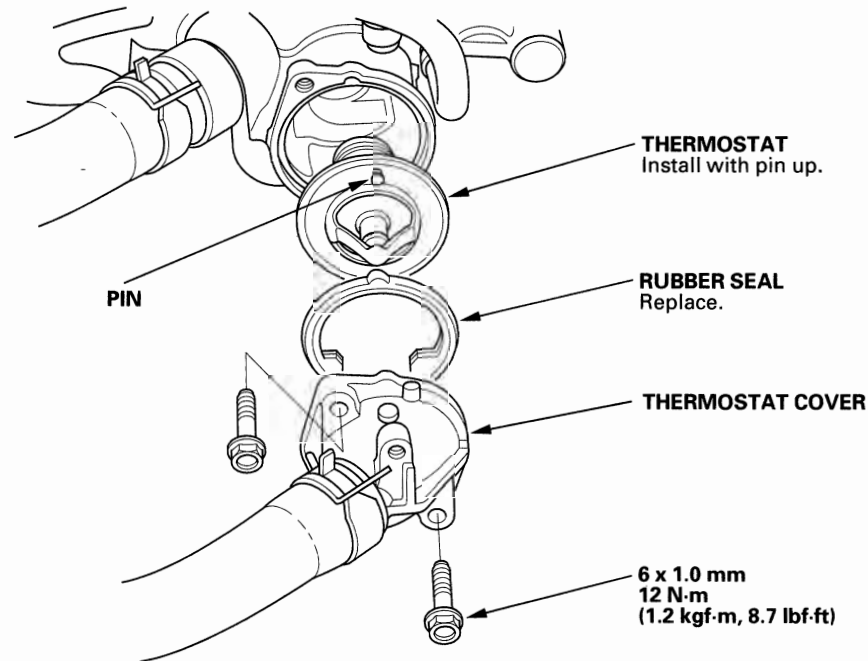


10. Install the radiator cap loosely.
11. Start the engine and let it run until it warms up (the radiator fan comes on at least twice).
12. Turn off the engine. Check the level in the radiator and add Honda All Season Antifreeze/Coolant Type 2, if needed.
13. Put the radiator cap on tightly, then run the engine again, and check for leaks.
14. Clean up any spilled engine coolant.

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Thermostat Replacement

1. Make sure you have the anti-theft codes for the radio and 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 first, then the positive cable.
3. Remove the battery.
4. Drain the engine coolant (see page 10-6).
5. Remove the thermostat cover, then remove the thermostat.

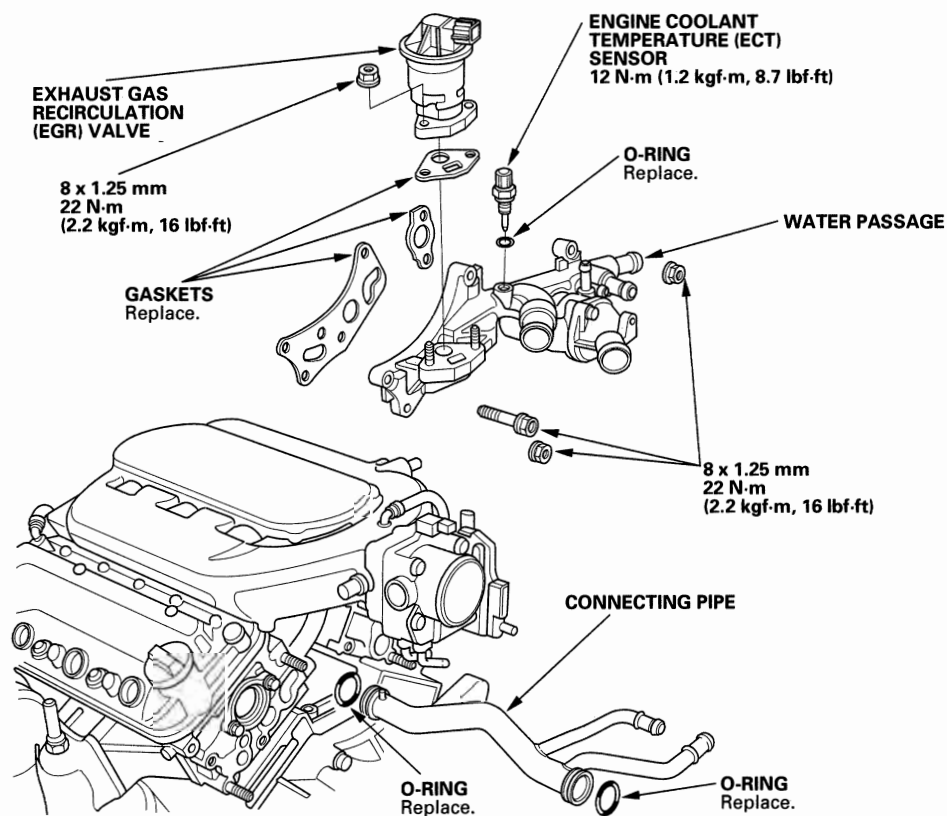


6. Install the thermostat with a new rubber seal.
7. Install the battery. Clean the battery posts and cable terminals with sandpaper, then assemble them and apply grease to prevent corrosion.
8. Refill the radiator with engine coolant, then bleed air from the cooling system (see step 8 on page 10-7).
9. Clean up any spilled engine coolant.
10. Enter the anti-theft codes for the radio and the navigation system, then enter the customer's XM radio channel presets.
11. Set the clock.



Water Passage Replacement

1. Make sure you have the anti-theft codes for the radio and 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 first, then the positive cable. Remove the battery.
3. Drain the engine coolant (see page 10-6).
4. Remove the vacuum hoses, breather pipe, and the intake air duct.
5. Remove the upper radiator hose, lower radiator hose, heater hoses, and water bypass hoses from the water passage. Remove the water passage.

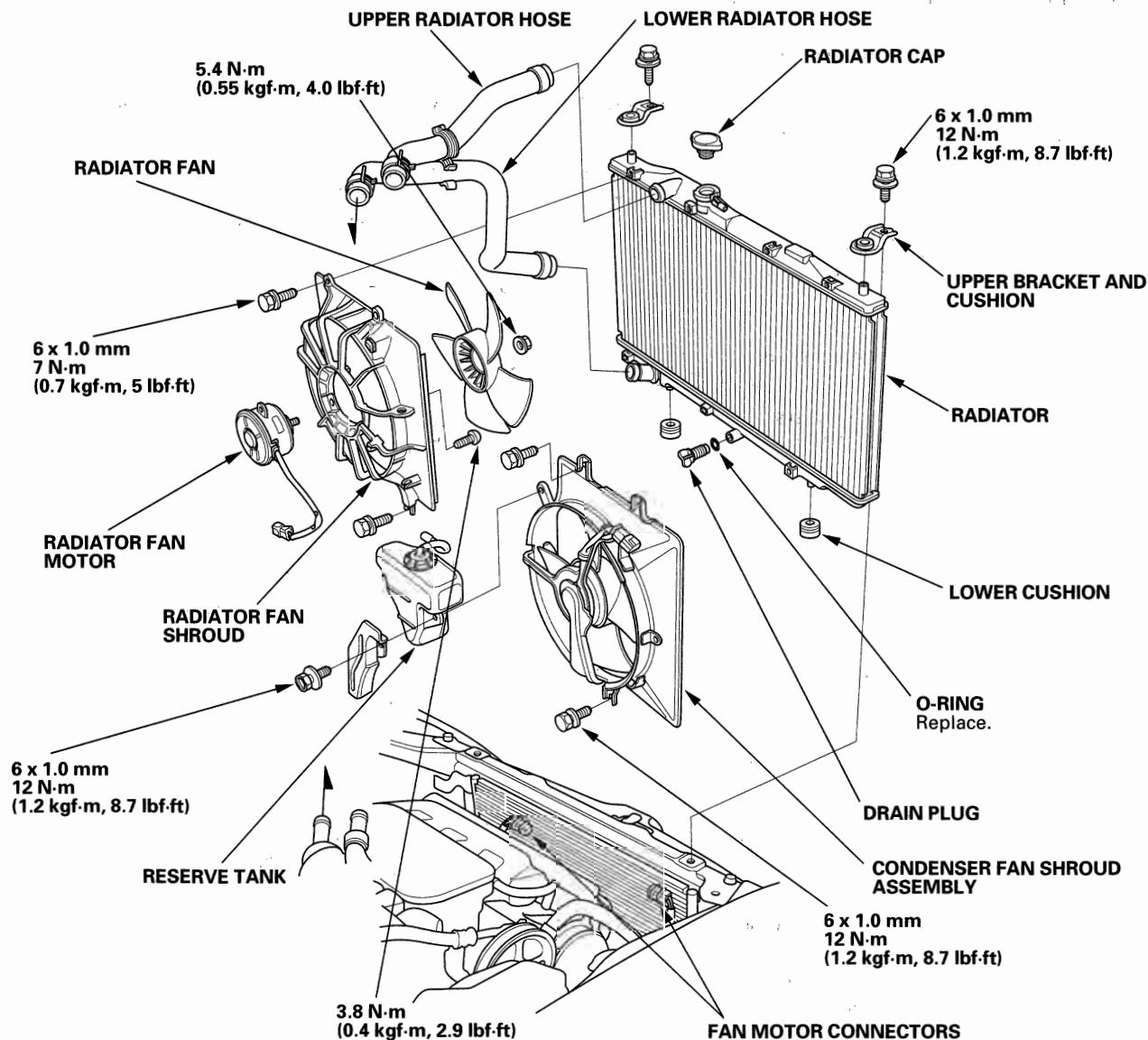


6. Install the water passage in the reverse order of removal.
7. Install the battery. Clean the battery posts and cable terminals with sandpaper, then assemble them and apply grease to prevent corrosion.
8. Refill the radiator with engine coolant, then bleed air from the cooling system (see step 8 on page 10-7).
9. Clean up any spilled engine coolant.
10. Enter the anti-theft codes for the radio and the navigation system, then enter the customer's XM radio channel presets.
11. Set the clock.

Cooling System

Radiator and Fan Replacement

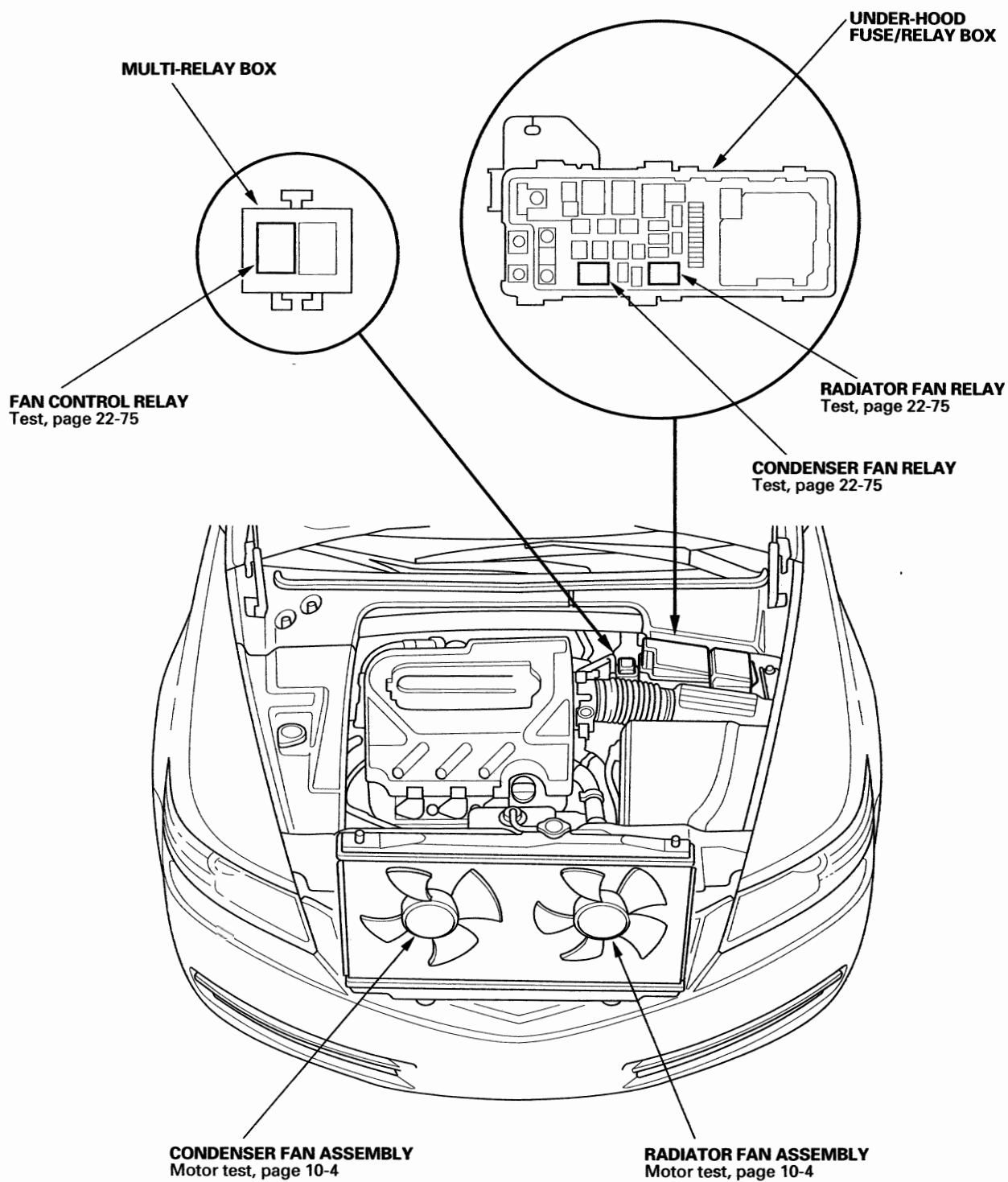
1. Drain engine coolant (see page 10-6).
2. Remove the front bulkhead cover (see page 20-130).
3. Remove the upper radiator hose and lower radiator hose from the radiator.



4. Disconnect the fan motor connectors.
5. Remove the upper bracket cushions, then pull up the radiator.
6. Remove the fan shroud assemblies and other parts from the radiator.
7. Install the radiator in the reverse order of removal. Make sure the upper and lower cushions are set securely.
8. Fill the radiator with engine coolant, then bleed air from the cooling system (see step 8 on page 10-7).



Component Location Index



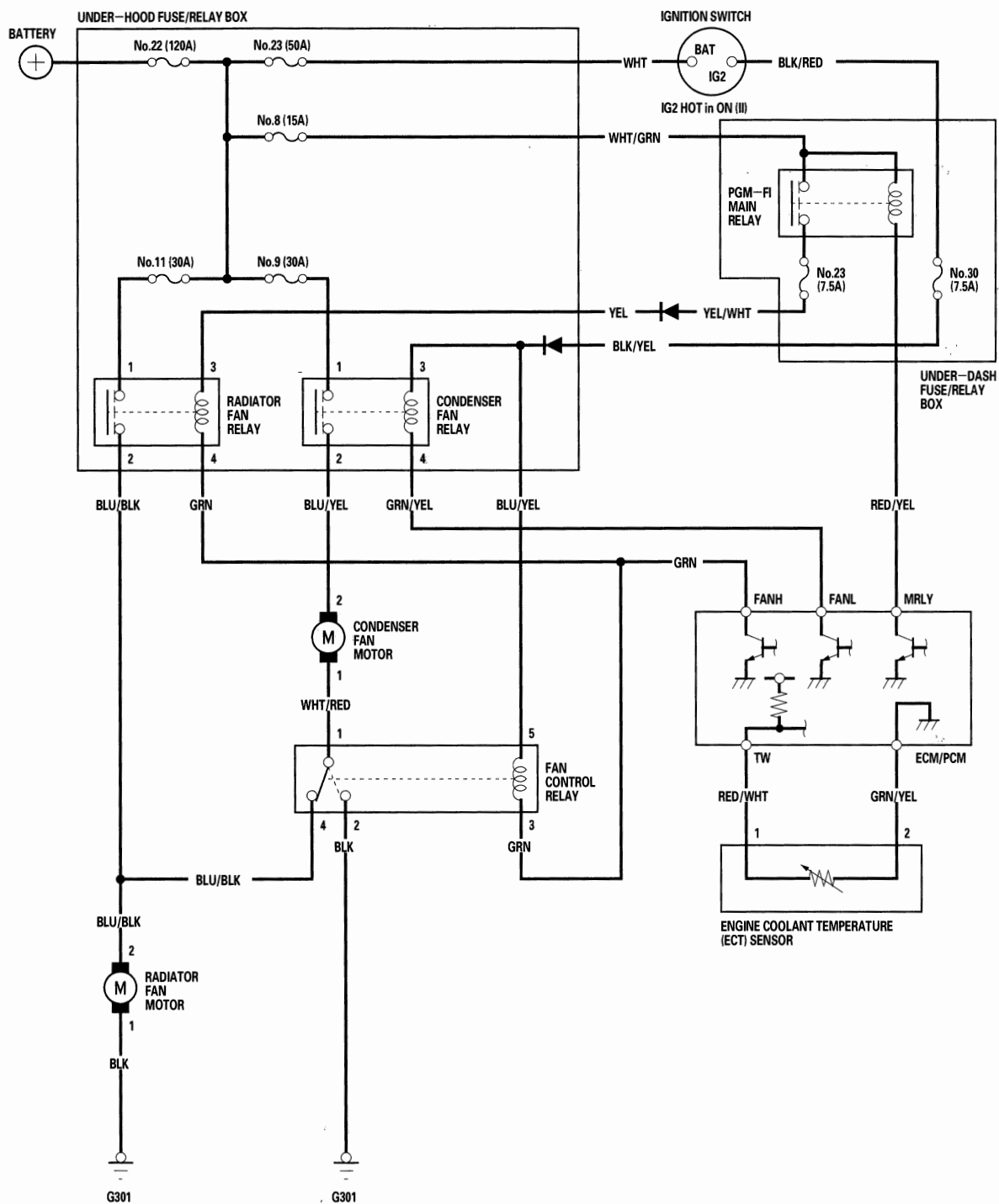
Fan Controls

Symptom Troubleshooting Index

| Symptom | Diagnostic Procedure | Also check for |
|---|--|----------------|
| Engine overheats | <ol style="list-style-type: none"> 1. Inspect the water pump (see page 10-5). 2. Check the thermostat (see page 10-4). 3. Check for any engine coolant leakage (from gaskets, hoses, O-rings, etc.). 4. Check for dirt, leaves, or insects on radiator and condenser. 5. Check for a damaged or deformed fan shroud. 6. Check for a plugged or deteriorated radiator hoses. 7. Check the radiator cap (see page 10-3). 8. Inspect the fan motors (see page 10-4) or fan relays (see page 22-75). 9. Check for plugged heater core or hoses. 10. Check the coolant level. 11. Check for deteriorated coolant. 12. Check for a damaged cylinder head gasket. | |
| Radiator fan runs at low speed, but 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 10-14). | |
| With the A/C OFF and the engine coolant temperature at 206°F (97°C) or below, the condenser fan runs at high speed and the radiator fan does not run. When the coolant temperature is above 206°F (97°C), both fans run at high speed | Remove the fan control relay, and test. <ul style="list-style-type: none"> • If the relay is faulty, replace it. • If the relay is OK, repair a short in the wire between fan control relay 5P socket terminal No. 1 and condenser fan motor 2P connector terminal No. 1. | |
| Radiator fan and condenser fan run at high speed with the ignition switch ON (II), the A/C OFF, and engine coolant temperature below 204°F (95°C) | Repair a short in the wire between radiator fan relay 4P socket terminal No. 4 and ECM/PCM connector terminal A7. | |
| Radiator fan and condenser fan run at low speed with the ignition switch ON (II) and the A/C OFF | Repair a short in the wire between condenser fan relay 4P socket terminal No. 4 and ECM/PCM connector terminal A6. | |
| Radiator fan and condenser fan do not run at low speed with the A/C ON | Radiator and condenser fans low speed circuit troubleshooting (see page 21-52). | |
| Condenser fan does not run at all. Radiator fan does not run at low speed, but runs at high speed | Condenser fans high speed circuit troubleshooting (see page 21-56). | |
| Both condenser fan and radiator fan do not run at high speed when the engine coolant temperature is above 206°F (97°C) | Repair an open in the wire between radiator fan relay 4P socket terminal No. 4 and ECM/PCM connector terminal A7. | |



Circuit Diagram



Fan Controls

Radiator Fan High Speed Circuit Troubleshooting

1. Remove the radiator fan relay from the under-hood fuse/relay box and test it (see page 22-75).

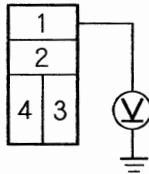
Is the relay OK?

YES—Go to step 2.

NO—Replace the radiator fan relay. ■

2. Turn the ignition switch ON (II).
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

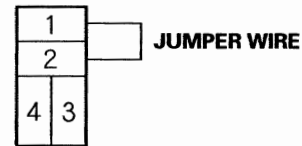
Is there battery voltage?

YES—Go to step 4.

NO—Replace the under-hood fuse/relay 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

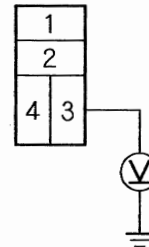
Does the radiator fan run at high speed?

YES—Go to step 5.

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

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

RADIATOR FAN RELAY 4P SOCKET



Terminal side of female terminals

Is there battery voltage?

YES—Repair an open in the wire between radiator fan relay 4P socket terminal No. 4 and the engine control module (ECM)/powertrain control module (PCM). ■

NO—Repair an open in the wire between radiator fan relay 4P socket terminal No. 3 and the under-dash fuse/relay box. ■