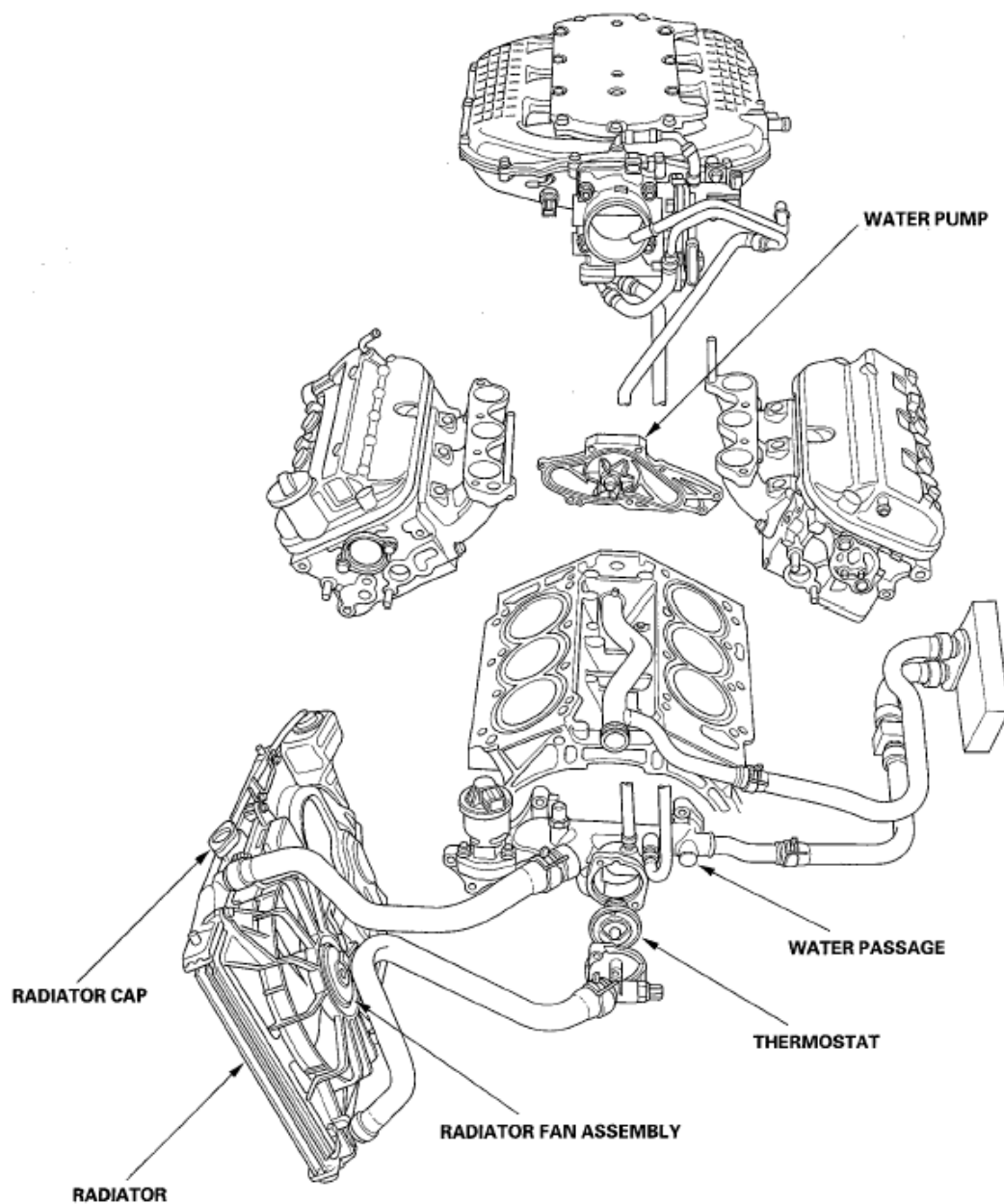


## 2005-08 ENGINE

### Cooling System - RL

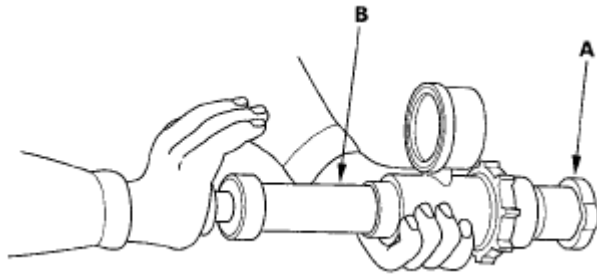
## COMPONENT LOCATION INDEX



**Fig. 1: Identifying Cooling System Components Location**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

## 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).

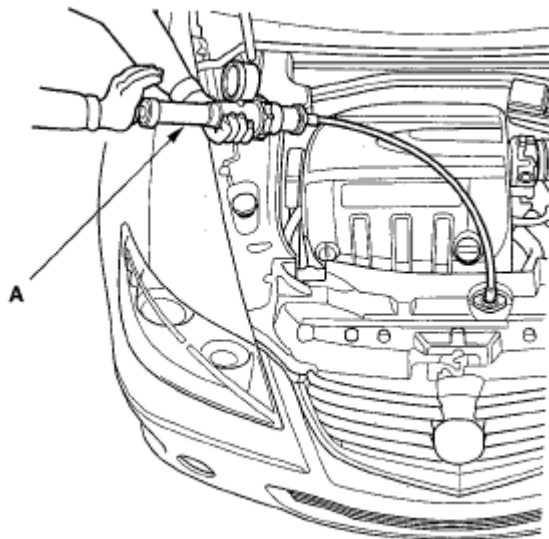
**Fig. 2: Testing Radiator Cap**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Apply a pressure of 93-123 kPa (0.95-1.25 kgf/cm<sup>2</sup> , 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/cm<sup>2</sup> , 14-18 psi).

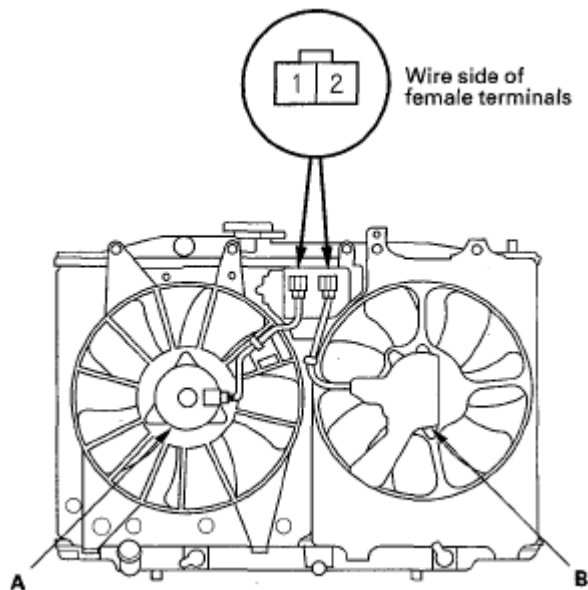
**Fig. 3: Testing Radiator For Engine Coolant Leaks**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

## FAN MOTOR TEST

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



**Fig. 4: Identifying Radiator Fan Motor, Condenser Fan Motor And 2P Connectors**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

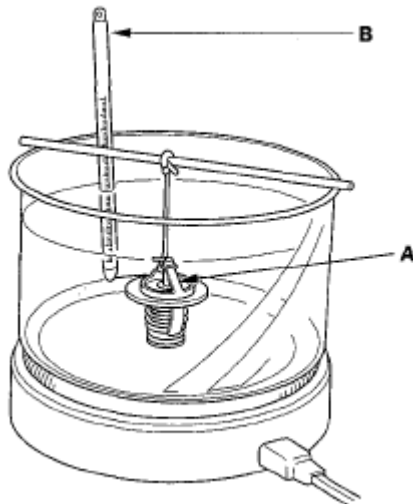
2. Test each motor by connecting battery power to terminal No. 1 and ground to terminal No. 2.
3. If either motor fails to run or does not run smoothly, replace it (see **RADIATOR AND FAN REPLACEMENT** ).

## THERMOSTAT TEST

Replace the thermostat if it is stuck 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.



**Fig. 5: Checking Thermostat Operation**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Heat the water and check the temperature with a thermometer. Check the temperature when the thermostat first opens, then check the temperature when the thermostat 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.)

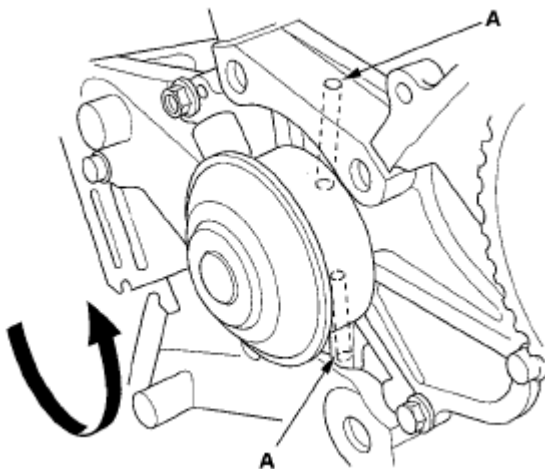
**Starts Opening:** 169-176°F (76-80°C)

**Fully Open:** 194°F (90°C)

## WATER PUMP INSPECTION

1. Remove the timing belt (see **TIMING BELT REMOVAL** ).
2. Turn the water pump counterclockwise, and make sure that it turns freely. If it doesn't, replace the water pump (see **WATER PUMP REPLACEMENT** ).

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

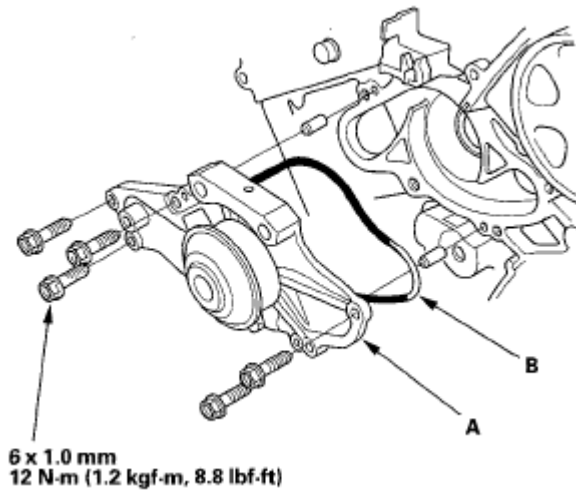


**Fig. 6: Turning Water Pump Counterclockwise And Checking It Turns Freely**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the timing belt (see **TIMING BELT INSTALLATION** ).

## WATER PUMP REPLACEMENT

1. Drain the engine coolant (see **COOLANT CHECK** ).
2. Remove the timing belt (see **TIMING BELT REMOVAL** ).
3. Remove the timing belt adjuster (see **TIMING BELT DRIVE PULLEY REPLACEMENT** ).
4. Remove the water pump (A) by removing the five bolts.

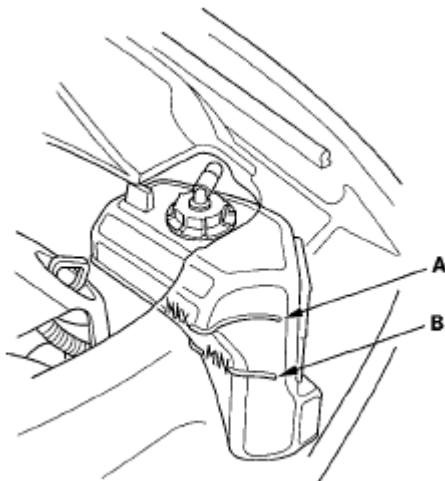


**Fig. 7: Identifying Water Pump With Torque Specifications**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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 **TIMING BELT DRIVE PULLEY REPLACEMENT** ).
9. Install the timing belt (see **TIMING BELT INSTALLATION** ).
10. Refill the radiator with engine coolant, then bleed the air from the cooling system (see step 8 ).

## 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).

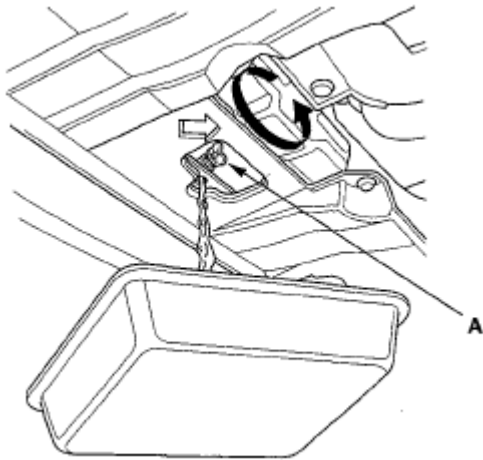


**Fig. 8: Identifying Coolant Reservoir Coolant Level Marks**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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.

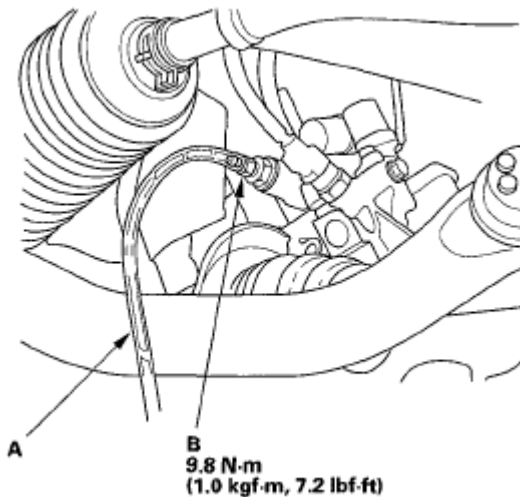
## COOLANT REPLACEMENT

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.



**Fig. 9: Loosening Radiator Coolant Drain Plug**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

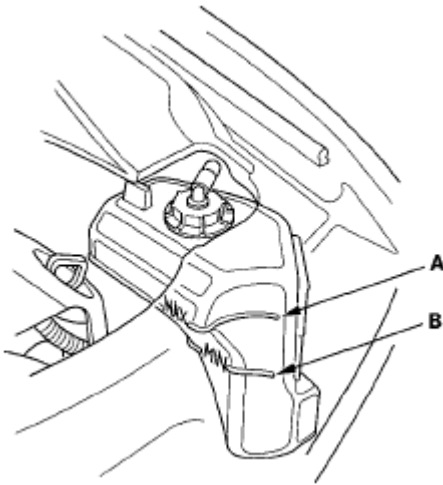
4. Install a rubber hose (A) on the drain bolt (B) located at the rear of the cylinder block, then loosen the drain bolt.



**Fig. 10: Draining Coolant At Rear Of Cylinder Block With Torque Specifications**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. When the coolant stops draining, tighten the drain bolt. Remove the rubber hose.
6. Tighten the radiator drain plug securely.
7. Remove the coolant reservoir and drain the coolant, then reinstall the coolant reservoir.
8. Fill the coolant reservoir to the MAX mark (A) with Acura Long Life Antifreeze/Coolant Type 2 (P/N

OL999-9011A).



**Fig. 11: Identifying Coolant Reservoir Coolant Level Marks**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

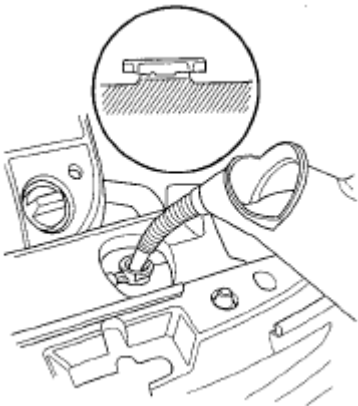
**NOTE:**

- Always use Acura Long Life Antifreeze/Coolant Type 2 (P/N OL999-9011A). 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 reserve tank capacity of 0.58 L (0.153 US gal)):**

**After Coolant Change: 6.0 L (1.59 US gal)**

**After Engine Overhaul: 8.6 L (2.27 US gal)**



**Fig. 12: Pouring Acura Long Life Antifreeze/Coolant Type 2 Into Radiator**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Install the radiator cap loosely.



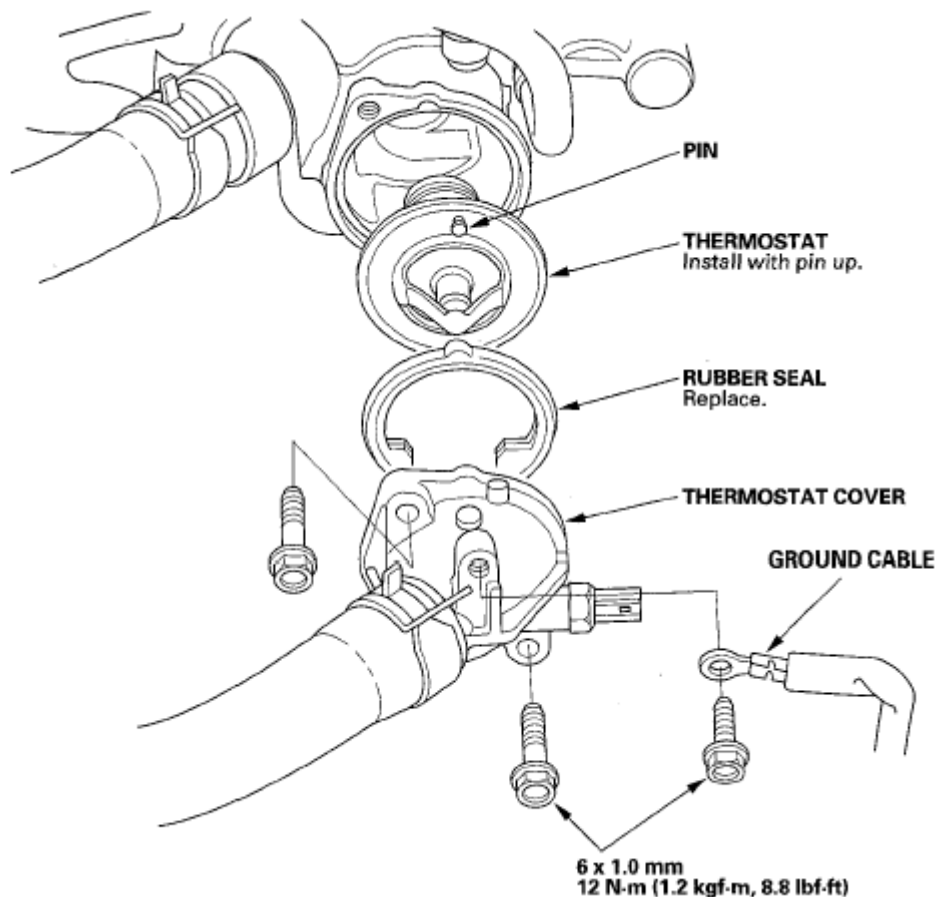
11. Start the engine and let it run until it warms up (the radiator fan comes on at least twice).
12. Turn off the engine. Check the level in the radiator and add Acura Long Life Antifreeze/Coolant Type 2, if needed.

**NOTE:** Removing the radiator cap while the engine is hot can cause the coolant to spray out. Always let the engine and radiator cool before removing the cap.

13. Put the radiator cap on tightly, then run the engine again and check for leaks.
14. Clean up any spilled engine coolant.

## THERMOSTAT REPLACEMENT

1. Make sure you have the anti-theft codes for the audio system and navigation system. Make sure the ignition switch is OFF.
2. Disconnect the negative cable from the battery, then the positive cable. Remove the battery.
3. Drain the engine coolant (see **COOLANT CHECK** ).
4. Remove the ground cable and thermostat cover, then remove the thermostat.



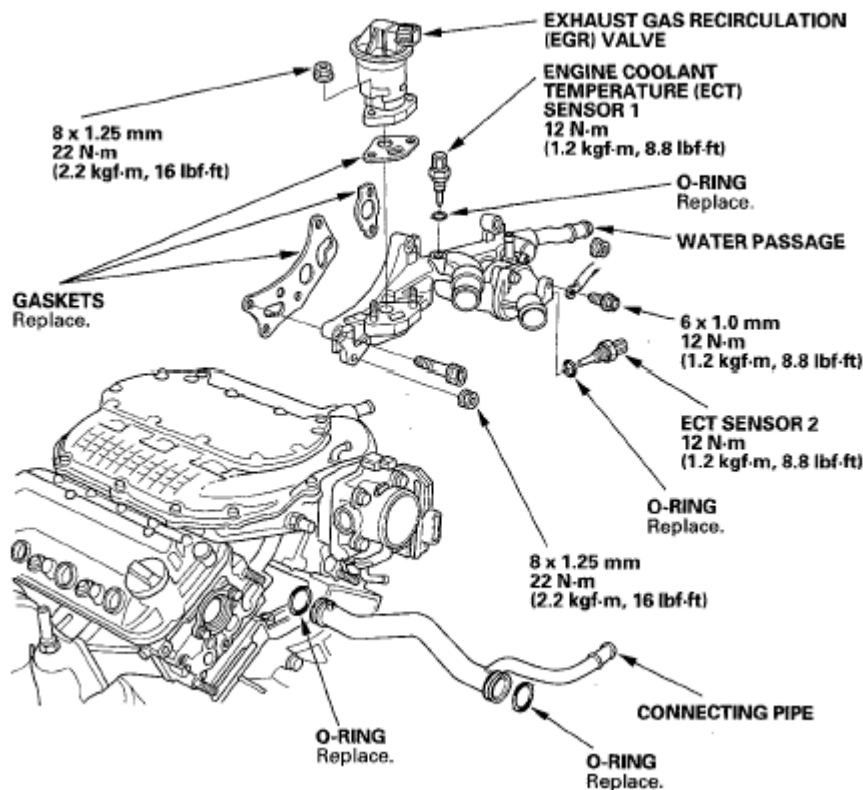
**Fig. 13: Identifying Thermostat Components And Ground Cable With Torque Specifications**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.



5. Install the thermostat with a new rubber seal and with the pin on the top side.
6. Install the battery. Clean the battery posts and cable terminals then assemble them and apply grease to prevent corrosion.
7. Refill the radiator with engine coolant, then bleed air from the cooling system (see step 8 ).
8. Clean up any spilled engine coolant.
9. Do the steering column position memorization procedure (see **STEERING COLUMN POSITION MEMORIZATION** ).
10. Enter the anti-theft codes for the audio system and the navigation system.

## WATER PASSAGE REPLACEMENT

1. Make sure you have the anti-theft codes for the audio system and navigation system. Make sure the ignition switch is OFF.
2. Disconnect the negative cable from the battery, then the positive cable. Remove the battery.
3. Drain the engine coolant (see **COOLANT CHECK** ).
4. Remove the air cleaner (see **AIR CLEANER REMOVAL/INSTALLATION** ).
5. Remove the two bolts securing the harness holder and the two bolts securing the vacuum line, then remove the harness clamp (see step 18 under **CYLINDER HEAD REMOVAL** ).
6. Disconnect the upper radiator hose, lower radiator hose, heater hoses, and water bypass hoses from the water passage. Remove the water passage.



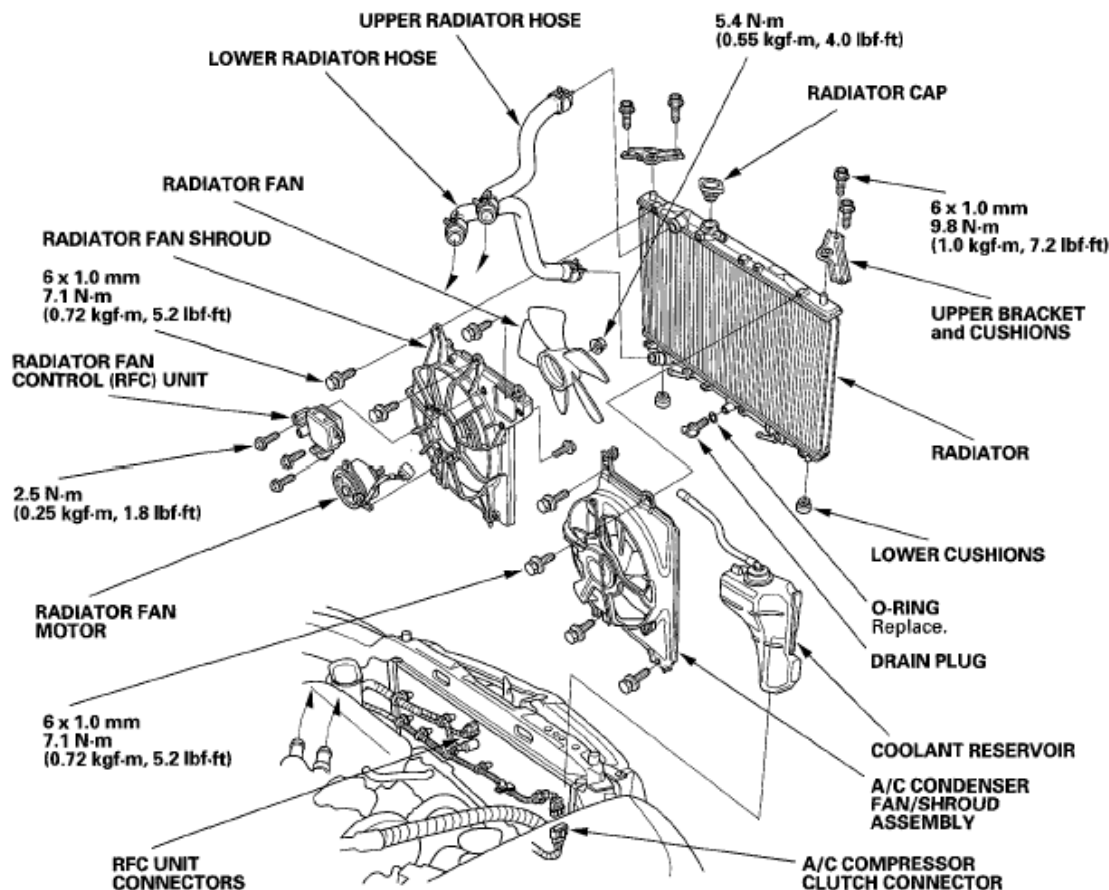
**Fig. 14: Identifying EGR Valve, ECT Sensors, Water Passage, Connecting Pipe And Gaskets With Torque Specifications**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Install the water passage in the reverse order of removal.
8. Install the battery. Clean the battery posts and cable terminals, 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 8 ).
10. Clean up any spilled engine coolant.
11. Do the steering column position memorization procedure (see **STEERING COLUMN POSITION MEMORIZATION** ).
12. Enter the anti-theft codes for the audio system and the navigation system.

## RADIATOR AND FAN REPLACEMENT

1. Drain the engine coolant (see **COOLANT CHECK** ).
2. Remove the right upper fender trim, battery trim, left upper fender trim, then remove the upper grille cover (see step 1 under **RFC UNIT REPLACEMENT** ). Remove the splash shield (see step 33 under **ENGINE REMOVAL** ).
3. Remove the air cleaner (see **AIR CLEANER REMOVAL/INSTALLATION** ).
4. Remove the automatic transmission fluid (ATF) cooler hoses from the radiator (see **ATF COOLER HOSE REPLACEMENT** ). Remove the upper radiator hose and lower radiator hose from the radiator.



**Fig. 15: Identifying Radiator And Fan Components With Torque Specification**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

<b>2007 Acura RL</b>
2005-08 ENGINE Cooling System - RL

5. Disconnect the RFC unit connectors. Remove the harness clamps and A/C compressor clutch connector.
6. Remove the upper bracket cushions, then pull up the radiator.
7. Disconnect the fan motor connectors, then remove the fan shroud assemblies and other parts from the radiator.
8. Install the radiator in the reverse order of removal. Make sure the upper and lower cushions are set securely.
9. Fill the radiator with engine coolant, then bleed air from the cooling system (see step 8 ).