

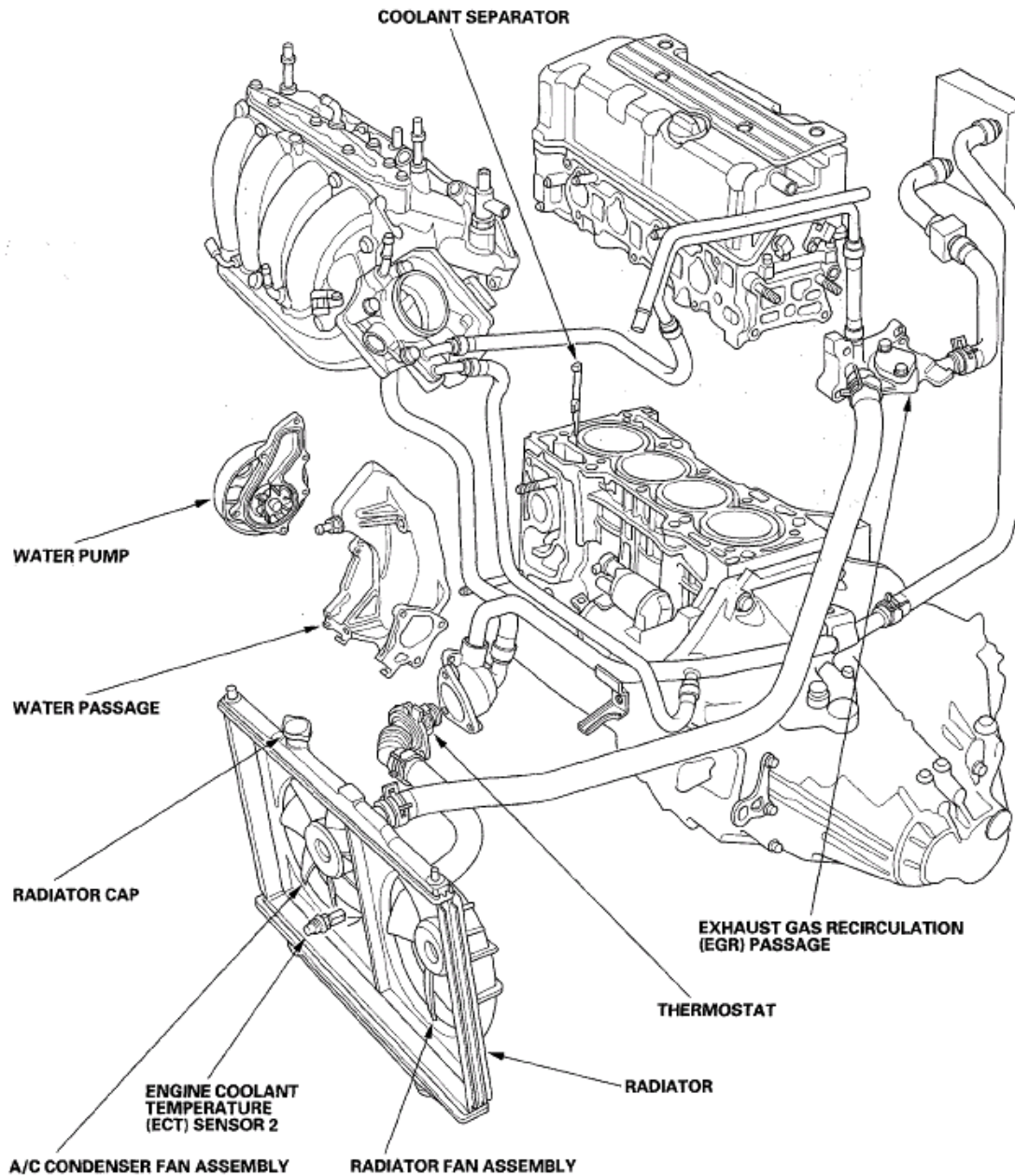
# 2007 Honda Element EX

2007-08 ENGINE Cooling System - Element

## 2007-08 ENGINE

### Cooling System - Element

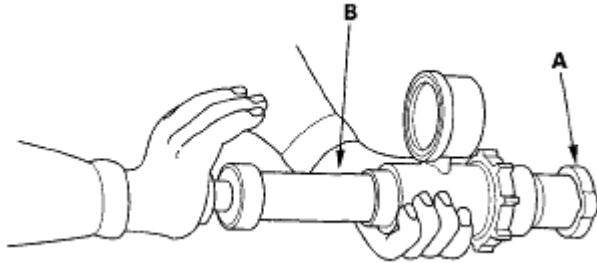
#### COMPONENT LOCATION INDEX



**Fig. 1: Identifying Cooling System Component 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 the pressure tester (B) (commercially available).



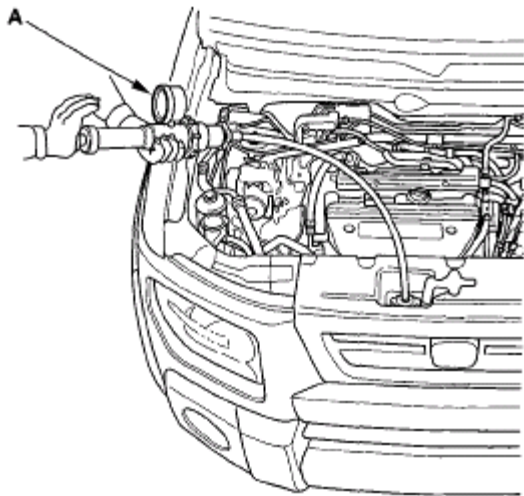
**Fig. 2: Removing Radiator Cap**

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 the pressure tester (commercially available) (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: Attaching Pressure Tester To Radiator**

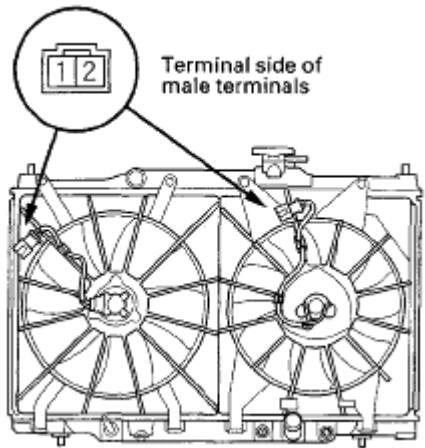
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

5. Check for engine oil in the coolant and/or coolant in the engine oil.

## FAN MOTOR TEST

1. Disconnect the 2P connectors from the radiator fan motor and condenser fan motor.



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

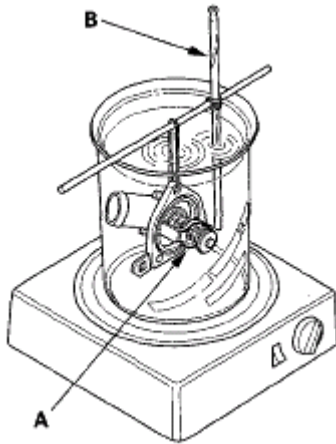
2. Test the motor by connecting battery power to terminal No. 2 and ground to terminal No. 1.
3. If the motor fails to run or does not run smoothly, replace it.

## 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.



**Fig. 5: Placing Thermostat In Water**

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, and when it is fully open.
3. Measure the lift height of the thermostat when it is fully open.

#### **Standard Thermostat**

**Lift Height: Above 8.0 mm (0.31 in.)**

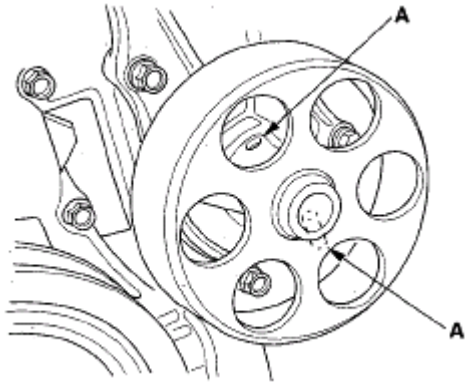
**Starts Opening: 169-176°F (76-80°C)**

**Fully Open: 194°F (90°C)**

## **WATER PUMP INSPECTION**

1. Remove the drive belt (see **DRIVE BELT INSPECTION** ).
2. Turn the water pump pulley counterclockwise. Check that it turns freely. If it doesn't turn smoothly, 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.

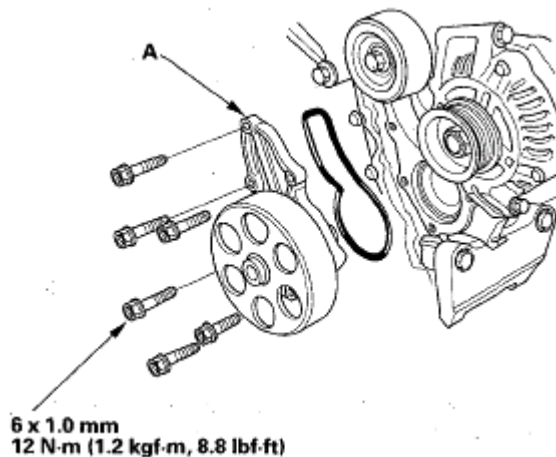


**Fig. 6: Identifying Bleed Holes**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the drive belt (see [DRIVE BELT REPLACEMENT](#) ).

## WATER PUMP REPLACEMENT

1. Remove the drive belt (see [DRIVE BELT REPLACEMENT](#) ).
2. Drain the engine coolant (see [COOLANT CHECK](#) ).
3. Remove the crankshaft pulley (see [CRANKSHAFT PULLEY REMOVAL AND INSTALLATION](#) ).
4. Remove the six bolts securing the water pump, then remove the water pump (A).



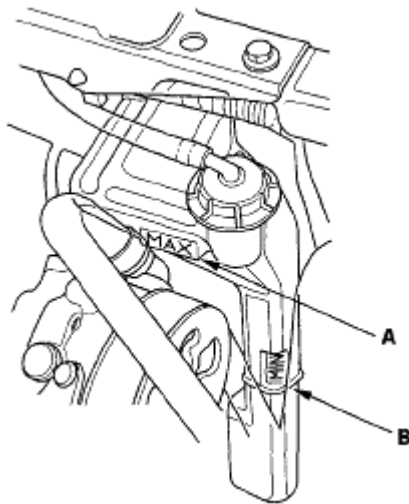
**Fig. 7: Identifying Water Pump Bolts With Torque Specification**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Inspect and clean the O-ring groove and mating surface with the water passage.
6. Install the water pump with new O-rings in the reverse order of removal.
7. Clean up any spilled engine coolant.
8. Install the crankshaft pulley (see [INSTALLATION](#) ).

9. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 10 on **Coolant Replacement** ).

## **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).

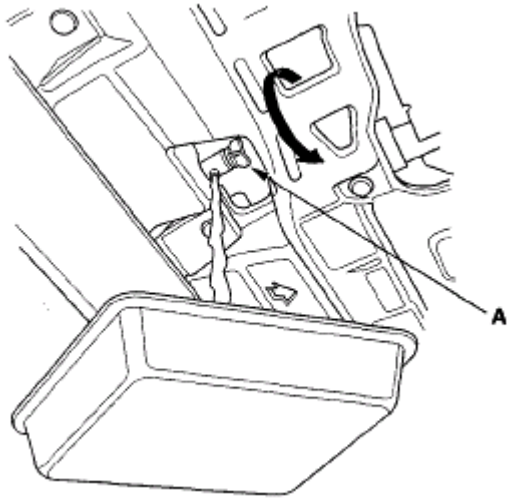


**Fig. 8: Identifying Coolant Level In MAX Mark And MIN Mark**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

## **COOLANT REPLACEMENT**

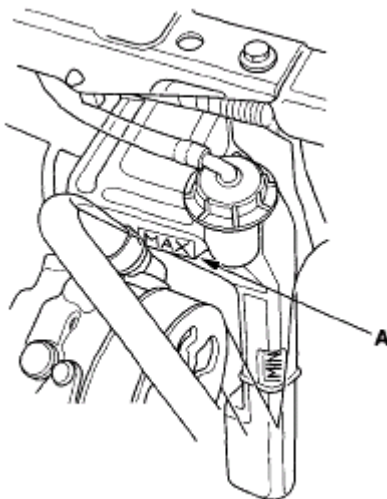
1. Start the engine. Set the heater temperature control dial to maximum heat, then turn the ignition switch OFF. Make sure the engine and radiator are cool to the touch.
2. Remove the radiator cap.
3. Loosen the drain plug (A), and drain the coolant.



**Fig. 9: Identifying Drain Plug**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. After the coolant has drained, torque the radiator drain plug.
5. Remove, drain, and reinstall the coolant reservoir.
6. Fill the coolant reservoir to the MAX mark (A) with Honda Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001).



**Fig. 10: Identifying Coolant Reservoir To MAX Mark**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

**NOTE:**

- Always use Honda Long Life Antifreeze/Coolant Type 2. Using a non-Honda coolant can result in corrosion, causing the cooling system to malfunction or fail.



- **Honda 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 0.6 L (0.16 US gal))**

**At Coolant Change:**

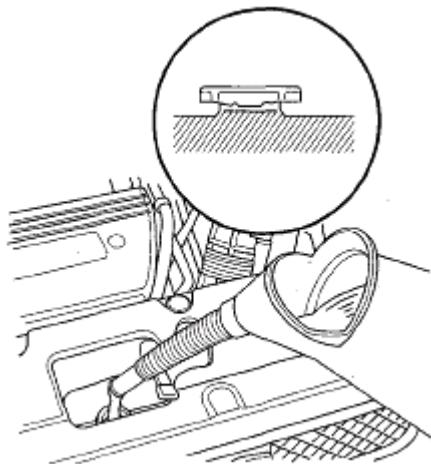
**M/T: 5.2 L (1.37 US gal)**

**A/T: 5.1 L (1.35 US gal)**

**After Engine Overhaul:**

**M/T: 7.3 L (1.93 US gal)**

**A/T: 7.2 L (1.90 US gal)**



**Fig. 11: Filling Coolant**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

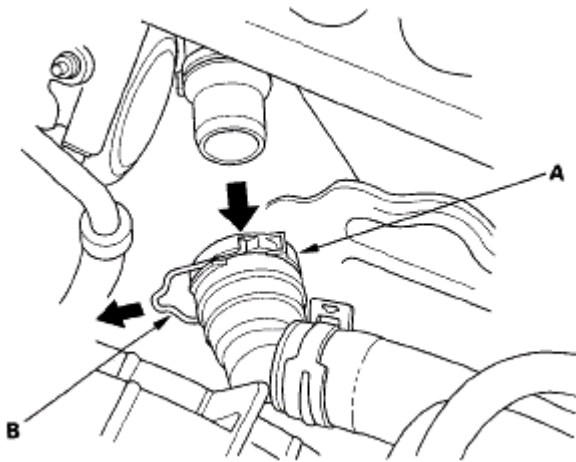
8. Install the radiator cap loosely.
9. Start the engine, and let it run until it warms up (the radiator fan comes on at least twice).
10. Turn off the engine. Check the level in the radiator and add Honda Long Life Antifreeze/Coolant Type 2 if needed.
11. If the maintenance minder required engine coolant replacement, reset the maintenance minder (see **RESETTING THE MAINTENANCE INFORMATION DISPLAY** ), and this procedure is complete. If the maintenance minder did not require engine coolant replacement, go to step 12.
12. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on **HOW TO USE THE HDS (HONDA DIAGNOSTIC SYSTEM)** ).
13. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit (see **DLC CIRCUIT TROUBLESHOOTING** ).



14. Turn the ignition switch ON (II).
15. Select BODY ELECTRICAL with the HDS.
16. Select ADJUSTMENT in the GAUGE MENU with the HDS.
17. Select RESET in the MAINTENANCE MINDER with the HDS.
18. Select MAINTENANCE SUB ITEM 5 RESET with the HDS.
19. Turn off the engine. Check the level in the radiator, and add Honda Long Life Antifreeze/Coolant Type 2, if needed.
20. Put the radiator cap on tightly, then run the engine again, and check for leaks.
21. Clean up any spilled engine coolant.
22. Reset the multi-information display (see **RESETTING THE MAINTENANCE INFORMATION DISPLAY** ).

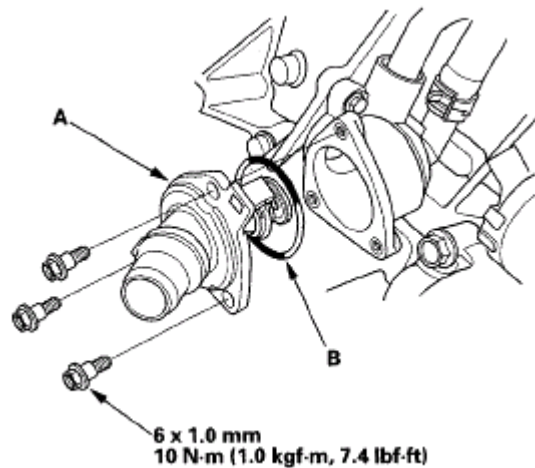
## THERMOSTAT REPLACEMENT

1. Drain the engine coolant (see **Coolant Replacement** ).
2. Clean any dirt off the quick connector (A), thermostat cover, and lower radiator hose.



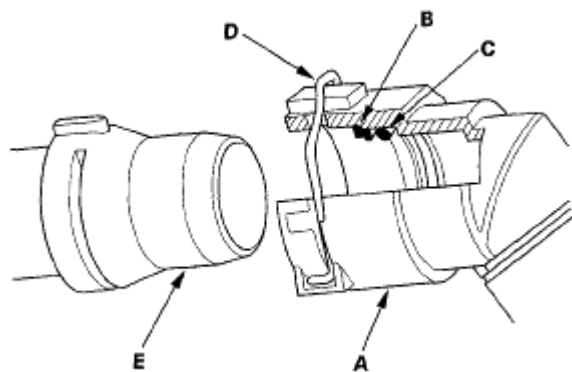
**Fig. 12: Identifying Quick Connector, Thermostat Cover, And Lower Radiator Hose**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Pull out lock (B) by hand, then wiggle the quick connector loose, and remove it from the thermostat cover. Do not use any tools to remove the quick connector.
4. Remove the thermostat (A).



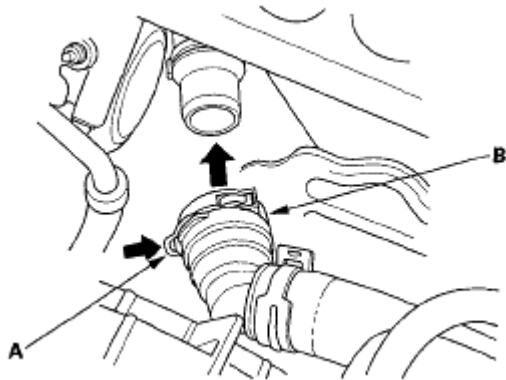
**Fig. 13: Identifying Thermostat With Torque Specification**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install the thermostat with a new O-ring (B).
6. Check the quick connector (A) and set ring (B) for cracks or damage. If the connector and/or set ring are cracked or damaged, replace the connector.



**Fig. 14: Identifying Quick Connector And Set Ring**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Make sure the set ring is in place inside the quick connector. If the set ring is off the connector, replace the quick connector.
8. Replace the O-ring (C) in the quick connector.
9. Check the lock (D). If the lock is damaged or deformed, replace it. When installing the new lock to the connector, push it straight down along the groove.
10. Clean the connecting surface of the thermostat cover (E), then apply clean engine coolant around the connecting surface.
11. Push the lock (A) down, then push the quick connector (B) onto the thermostat cover until you hear it click.



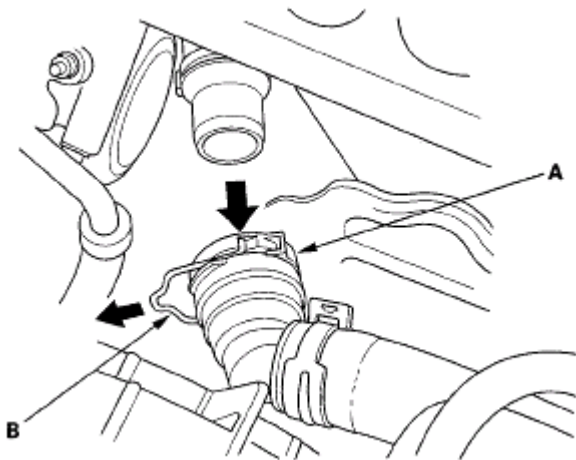
**Fig. 15: Identifying Quick Connector**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 10 on **Coolant Replacement**).

## WATER PASSAGE REPLACEMENT

1. Drain the engine coolant (see **Coolant Replacement**).
2. Clean any dirt off the quick connector (A), thermostat cover, and lower radiator hose.

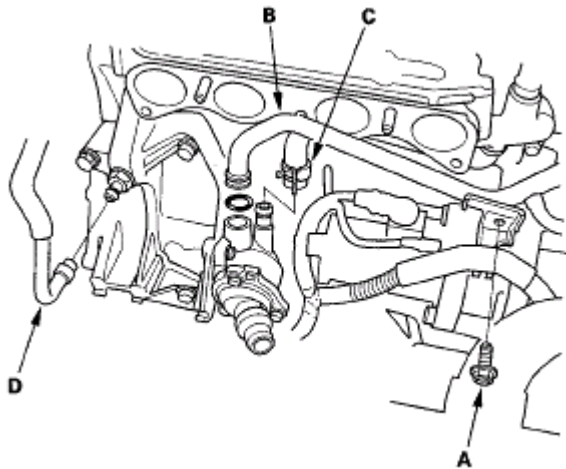


**Fig. 16: Identifying Quick Connector**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

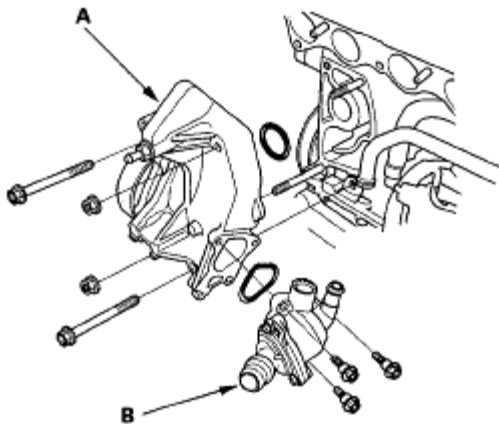
3. Pull out the lock (B) by hand, then wiggle the quick connector loose, and remove it from the thermostat cover. Do not use any tools to remove the quick connector.
4. Remove the alternator (see **ALTERNATOR REMOVAL AND INSTALLATION**).
5. Remove the splash shield (see step 26 on **ENGINE REMOVAL**).
6. Remove the A/C compressor without disconnecting the A/C hoses (see step 50 on **ENGINE REMOVAL**).

7. Remove the intake manifold (see **REMOVAL** ).
8. Remove a bolt (A) securing the connecting pipe. B C



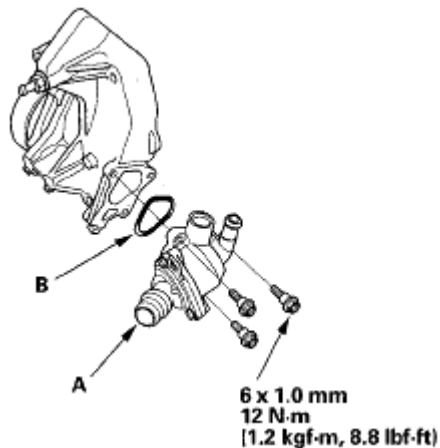
**Fig. 17: Identifying Connecting Pipe, Water Bypass, Positive Crankcase And Bolt**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Remove the connecting pipe (B), water bypass hose (C), and positive crankcase ventilation (PCV) hose (D).
10. Remove the water passage (A). A



**Fig. 18: Identifying Water Passage And Thermostat Housing**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Remove the thermostat housing (B).
12. Remove the water pump (see **WATER PUMP REPLACEMENT** ).
13. Install the water pump (see **WATER PUMP REPLACEMENT** ).
14. Install the thermostat housing (A) with a new O-ring (B).

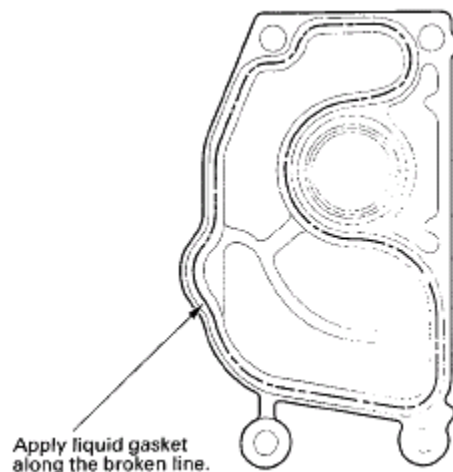


**Fig. 19: Identifying Thermostat Housing And O-Ring With Torque Specification**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

15. Clean and dry the water passage mating surfaces.
16. Apply liquid gasket, P/N 08717-0004, 08718-0001, 08718-0003, or 08718-0009, evenly to the engine block mating surface of the water passage. Install the component within 5 minutes of applying the liquid gasket.

**NOTE:**

- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.

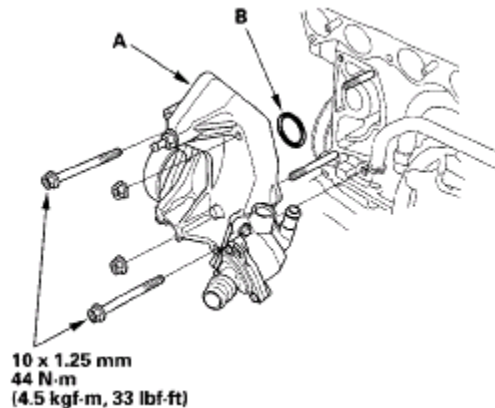


**Fig. 20: Identifying Engine Block Mating Surface Liquid Gasket Area**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

17. Install the water passage (A) with a new O-ring (B).

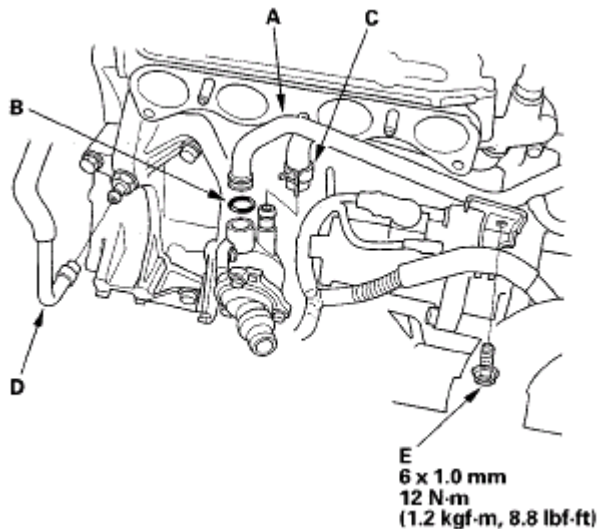
**NOTE:**

- Wait at least 30 minutes before filling the engine with coolant.
- Do not run the engine for at least 3 hours after installing the water passage.



**Fig. 21: Identifying Water Passage And O-Ring With Torque Specification**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

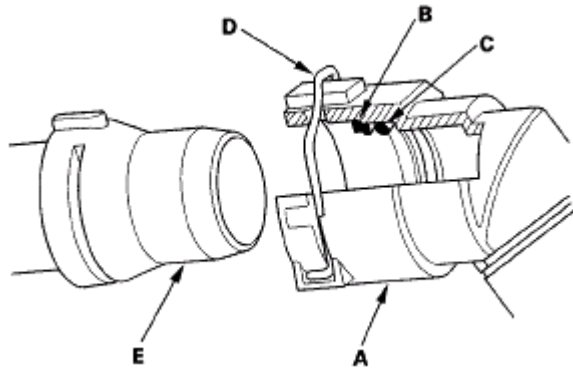
18. Install the connecting pipe (A) with a new O-ring (B).



**Fig. 22: Identifying Connecting Pipe And O-Ring With Torque Specification**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

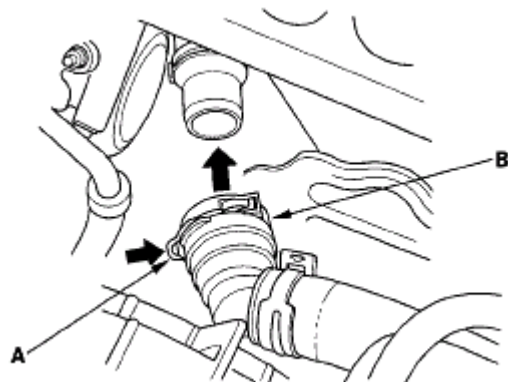
19. Install the water bypass hose (C) and PCV hose (D), then torque a bolt (E) securing the connecting pipe.
20. Install the intake manifold (see **INSTALLATION**).
21. Install the A/C compressor (see step 11 on **ENGINE INSTALLATION**).
22. Install the splash shield (see step 24 on **ENGINE INSTALLATION**).

23. Install the alternator (see **INSTALLATION** ).
24. Check the quick connector (A) and set ring (B) for cracks or damage. If the connector and/or set ring are cracked or damaged, replace the connector.



**Fig. 23: Checking Quick Connector And Set Ring**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

25. Make sure the set ring is in place inside the quick connector. If the set ring is off the connector, replace the quick connector.
26. Replace the O-ring (C) in the quick connector.
27. Check the lock (D). If the lock is damaged or deformed, replace it. When installing the new lock on the connector, push it straight down along the groove.
28. Clean the connecting surface of the thermostat cover (E), then apply clean engine coolant around the connecting surface.
29. Push the lock (A) down, then push the quick connector (B) onto the thermostat cover until you here it click.



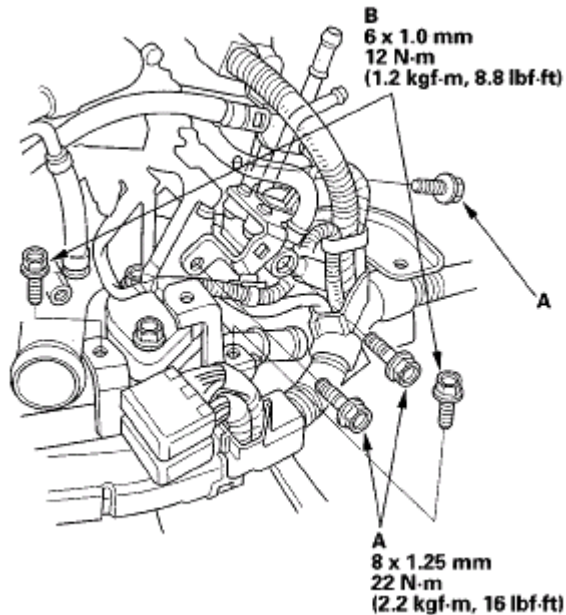
**Fig. 24: Pushing Quick Connector Onto Thermostat Cover**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

30. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 10 on **Coolant Replacement** ).



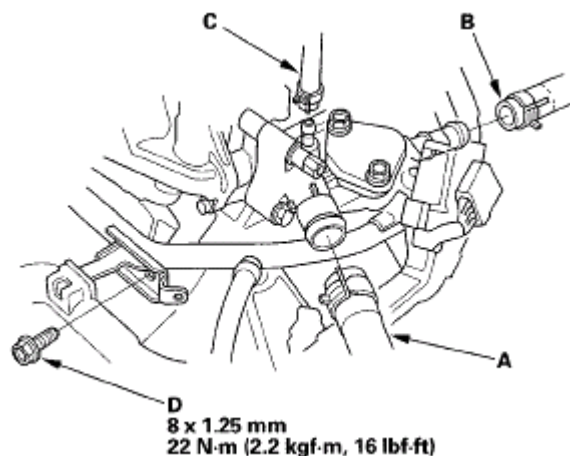
## EGR PASSAGE REPLACEMENT

1. Drain the engine coolant (see [Coolant Replacement](#) ).
2. Remove the three bolts (A) securing the evaporative emission (EVAP) canister purge valve bracket and remove the two bolts (B) securing the harness bracket.



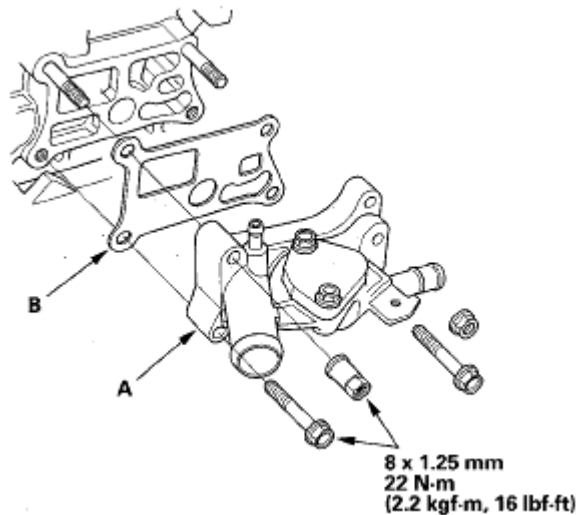
**Fig. 25: Identifying EGR Passage Bolts With Torque Specifications**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Remove the upper radiator hose (A), heater hose (B), water bypass hose (C), and connecting pipe mounting bolt (D).



**Fig. 26: Identifying Upper Radiator Hose, Heater Hose, Bypass Hose And Connecting Pipe Mounting Bolt With Torque Specification**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Remove the exhaust gas recirculation (EGR) passage (A).

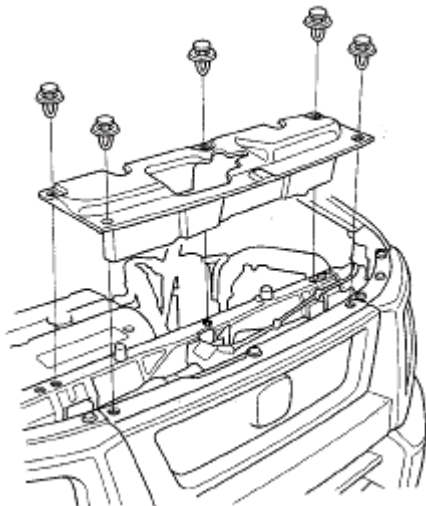


**Fig. 27: Identifying Exhaust Gas Recirculation (EGR) Passage With Torque Specification**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install the EGR passage with a new gasket (B).
6. Install the other parts in the reverse order of removal.
7. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 10 on Coolant Replacement ).

## RADIATOR AND FAN REPLACEMENT

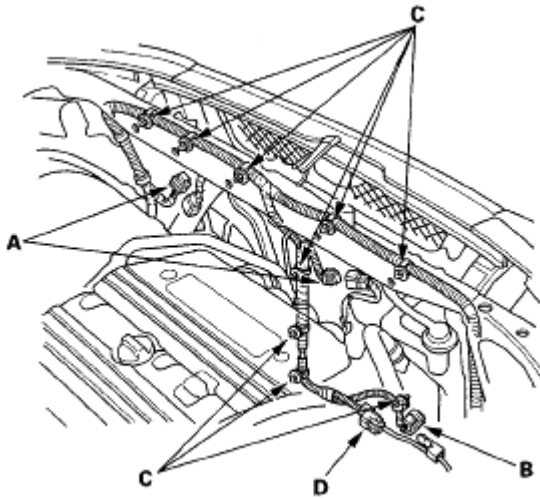
1. Drain the engine coolant (see Coolant Replacement ).
2. Remove the front grille cover.



**Fig. 28: Identifying Front Grille Cover**

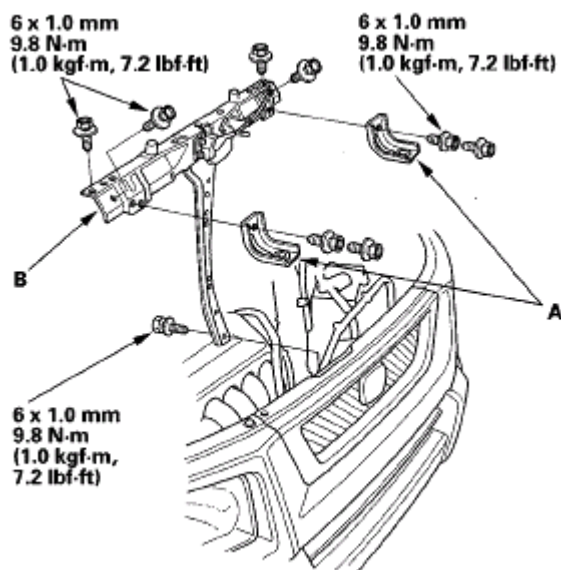
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Disconnect the fan motor connectors (A) and engine coolant temperature (ECT) sensor 2 connector (B), then remove the harness clamps (C) and A/C compressor clutch connector (D).

**Fig. 29: Identifying Fan Motor Connectors And Engine Coolant Temperature (ECT)**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

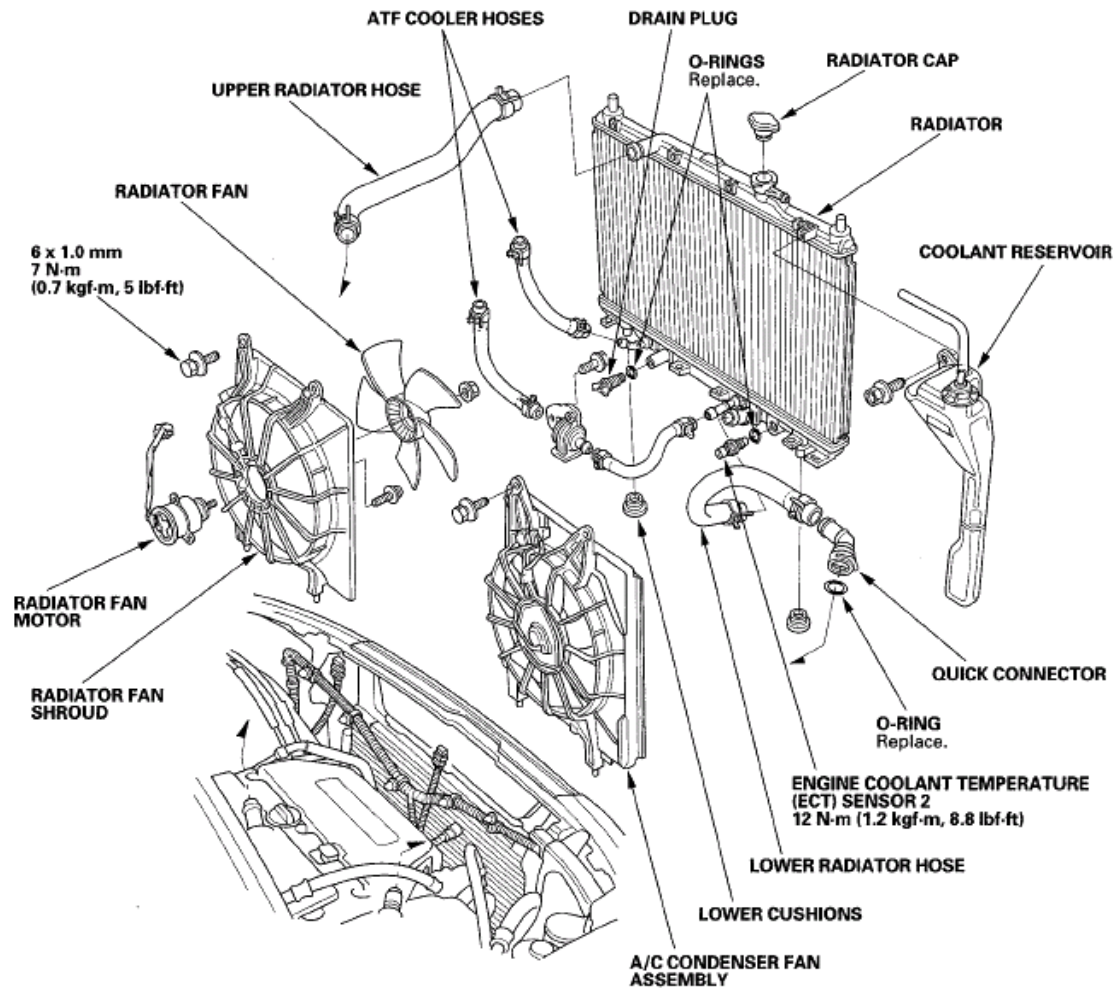
4. Remove the upper brackets and cushions (A), then remove the bulkhead (B).

**Fig. 30: Identifying Upper Brackets, Cushions And Bulkhead With Torque Specifications**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. A/T model: Remove the automatic transmission fluid (ATF) cooler hoses (see **ATF COOLER HOSE**)

**REPLACEMENT** ).



**Fig. 31: Identifying Radiator And Fan Components With Torque Specifications**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Remove the upper radiator hose and lower radiator hose from the radiator, then pull up the radiator.
7. 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. Install the bulkhead in the reverse order of removal. Apply touch-up paint to the bulkhead mounting bolts.
10. Fill the radiator with engine coolant, and bleed the air from the cooling system with the heater valve open (see step 10 on **Coolant Replacement** ).