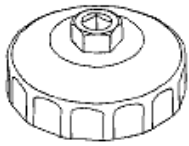
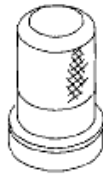


**2007-08 ENGINE****Engine Lubrication - TL****SPECIAL TOOLS**

| Ref. No. | Tool Number   | Description            | Qty |
|----------|---------------|------------------------|-----|
| ①        | 07AAA-PLCA100 | Oil Filter Wrench      | 1   |
| ②        | 070AD-RCAA100 | Oil Seal Driver, 64 mm | 1   |



①

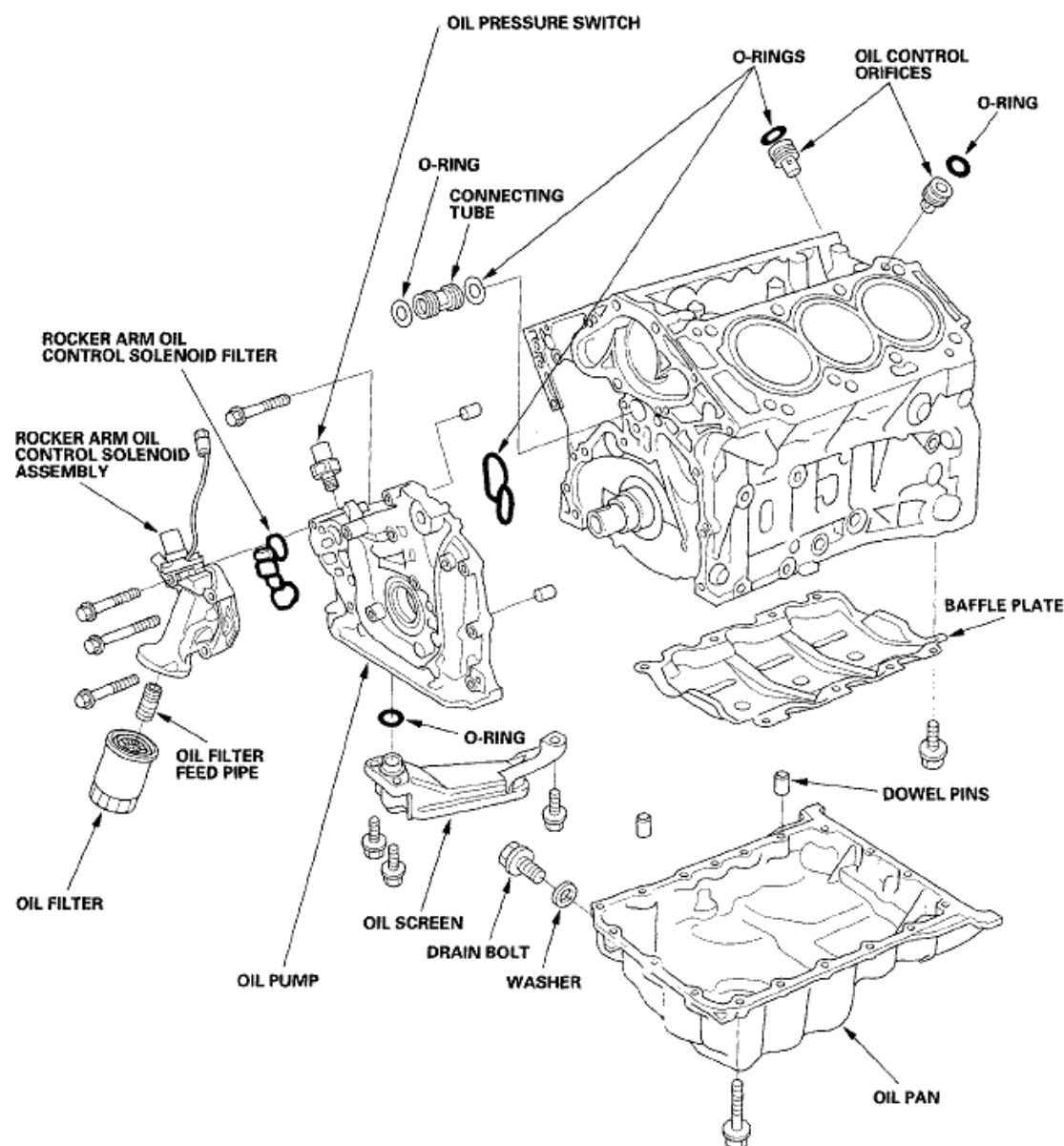


②

**Fig. 1: Identifying Special Tools**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

**COMPONENT LOCATION INDEX**



**Fig. 2: Identifying Engine Lubrication Component Location**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

## SYMPTOM TROUBLESHOOTING INDEX

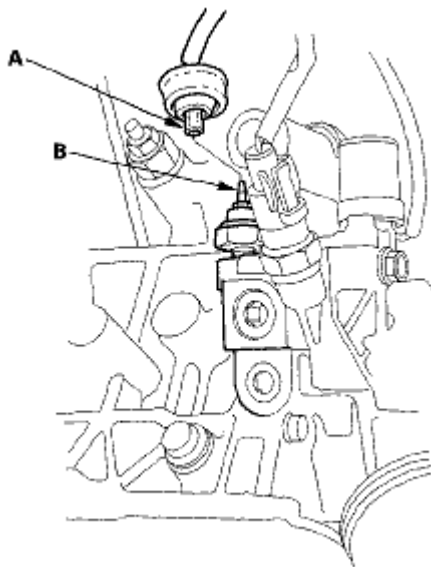
### SYMPTOM TROUBLESHOOTING CHART

| Symptom                          | Diagnostic procedure                                                                                                                                                                                                                                                                                                                                                | Also check for |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Excessive engine oil consumption | <ol style="list-style-type: none"> <li>1. Make sure the engine oil filler cap, oil drain bolt, and oil filler are tight.</li> <li>2. Check for oil leaks.</li> <li>3. Check for worn valve guide(s) (see <b><u>VALVE STEM-TO-GUIDE CLEARANCE INSPECTION</u></b> ) or worn valve stem seal(s) (see <b><u>VALVE, SPRING, AND VALVE SEAL REMOVAL</u></b> ).</li> </ol> |                |

|                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                       |
|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                                                              | <ol style="list-style-type: none"> <li>4. Check for damaged or worn piston ring(s) (see <b><u>PISTON RING REPLACEMENT</u></b> ).</li> <li>5. Check for damaged or worn engine internal parts (cylinder wall, pistons, etc.) (see <b><u>BLOCK AND PISTON INSPECTION</u></b> ).</li> </ol>                                                                                                                                                                                                                                                                                     |                                                                                       |
| Low oil pressure indicator does not come on with the ignition switch ON (II) | <ol style="list-style-type: none"> <li>1. Do the gauge control module self-diagnostic function (see <b><u>SELF-DIAGNOSTIC FUNCTION</u></b> ).</li> <li>2. Test the oil pressure switch (see <b><u>OIL PRESSURE SWITCH TEST</u></b> ).</li> </ol>                                                                                                                                                                                                                                                                                                                             | An open in the wire between the gauge control module and the oil pressure switch      |
| Low oil pressure indicator stays on                                          | <ol style="list-style-type: none"> <li>1. Check the engine oil level.</li> <li>2. Do the gauge control module self-diagnostic function (see <b><u>SELF-DIAGNOSTIC FUNCTION</u></b> ).</li> <li>3. Test the oil pressure switch (see <b><u>OIL PRESSURE SWITCH TEST</u></b> ).</li> <li>4. Check the engine oil pressure (see <b><u>OIL PRESSURE TEST</u></b> ).</li> <li>5. Check the oil filter for clogging.</li> <li>6. Check the oil screen for clogging.</li> <li>7. Check the relief valve.</li> <li>8. Check the oil pump (see <b><u>INSPECTION</u></b> ).</li> </ol> | A wire shorted to ground between the gauge control module and the oil pressure switch |

## OIL PRESSURE SWITCH TEST

1. Disconnect the oil pressure switch connector (A).

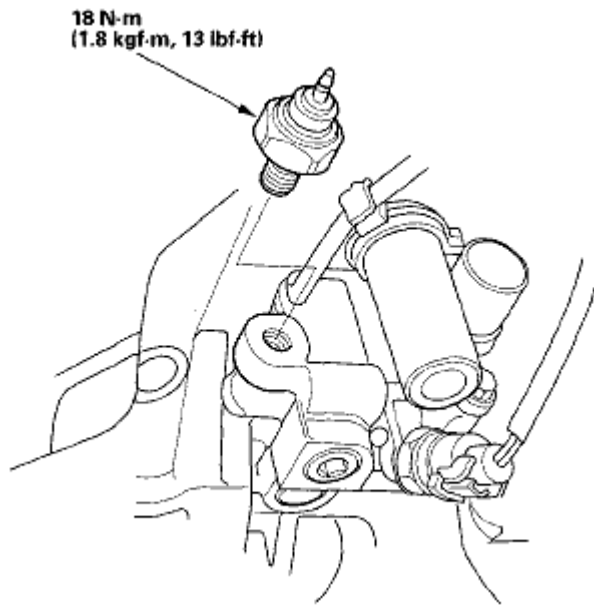


**Fig. 3: Identifying Oil Pressure Switch Connector**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Check for continuity between the positive terminal (B) and engine (ground). There should be continuity with the engine stopped. There should be no continuity with the engine running.

## OIL PRESSURE SWITCH REPLACEMENT

1. Disconnect the oil pressure switch connector, then remove the oil pressure switch.



**Fig. 4: Identifying Oil Pressure Switch With Torque Specifications**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Remove any old liquid gasket from the switch and switch mounting hole.
3. Apply a very small amount of liquid gasket to the new oil pressure switch threads, then install the new oil pressure switch.

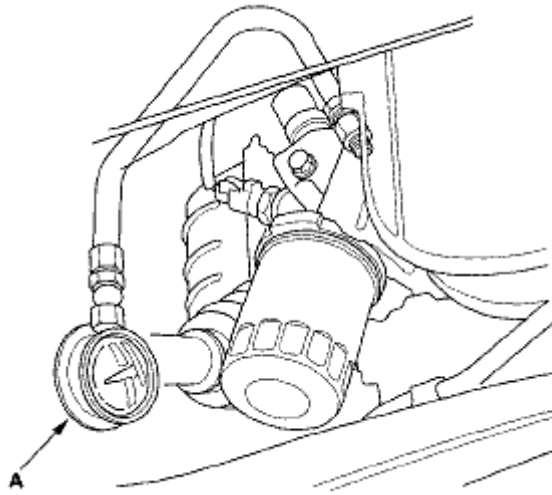
**NOTE:** Using too much liquid gasket may cause liquid gasket to enter the oil passage or the end of the new oil pressure switch.

4. Connect the oil pressure switch connector.

## OIL PRESSURE TEST

If the low oil pressure indicator stays on with the engine running, check the engine oil level. If the oil level is correct:

1. Remove the engine oil pressure switch, then install an oil pressure gauge (A).



**Fig. 5: Identifying Oil Pressure Gauge**

**Courtesy of AMERICAN HONDA MOTOR CO., INC.**

2. Start the engine. Shut it off immediately if the gauge registers no oil pressure. Repair the problem before continuing.
3. Allow the engine to reach operating temperature (fan comes on at least twice). The pressure should be:

**Engine Oil Temperature: 176°F (80°C)**

**Engine Oil Pressure:**

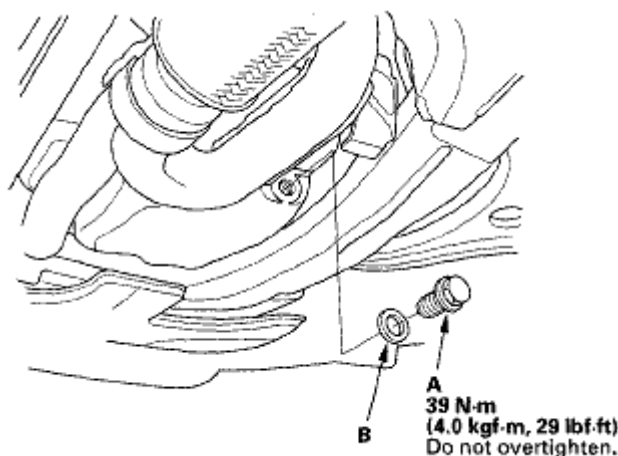
**At Idle: 70 kPa (0.7 kgf/cm<sup>2</sup> , 10 psi) min.**

**At 3,000 rpm: 490 kPa (5.0 kgf/cm<sup>2</sup> , 71 psi) min.**

4. If oil pressure is not within specifications, inspect these items:
  - Inspect the oil pressure relief valve (see **OIL PUMP OVERHAUL** ).
  - Check the oil screen for clogging.
  - Inspect the oil pump (see **INSPECTION** ).

## **ENGINE OIL REPLACEMENT**

1. Warm up the engine.
2. Remove the drain bolt (A), and drain the engine oil.



**Fig. 6: Identifying Drain Bolt With Torque Specifications**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Reinstall the drain bolt with a new washer (B).
4. Refill with the recommended oil (see **LUBRICANTS AND FLUIDS** ).

### Capacity

#### At Oil Change:

**4.0 L (4.2 US qt)**

#### At Oil Change including Filter:

**4.3 L (4.5 US qt)**

#### After Engine Overhaul:

**5.0 L (5.3 US qt)**

5. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
6. Turn the ignition switch ON (II).
7. 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 (PART 2)** ).
8. Select BODY ELECTRICAL with the HDS.
9. Select ADJUSTMENT in the GAUGES MENU with the HDS.
10. Select RESET in the MAINTENANCE MINDER with the HDS.
11. Select RESETTNG THE ENGINE OIL LIFE with the HDS.

**NOTE:** If you changed the ATF at the same time with the engine oil, select **RESETTNG THE ENGINE OIL LIFE AND ATF** with the HDS instead.

12. Run the engine for more than 3 minutes, then check for oil leakage.

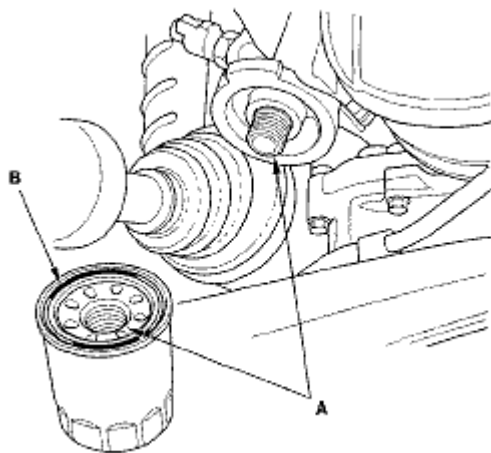
13. Reset the maintenance information display (see **RESETTING THE MAINTENANCE INFORMATION DISPLAY** ).

## ENGINE OIL FILTER REPLACEMENT

### Special Tools Required

Oil filter wrench 07AAA-PLCA100

1. Remove the oil filter with the oil filter wrench.
2. Inspect the filter to make sure the rubber seal is not stuck to the oil filter seating surface of the engine.
3. Inspect the threads (A) and rubber seal (B) on the new filter. Clean the seat on the engine block, then apply a light coat of new engine oil to the filter rubber seal. Use only filters with a built-in bypass system.



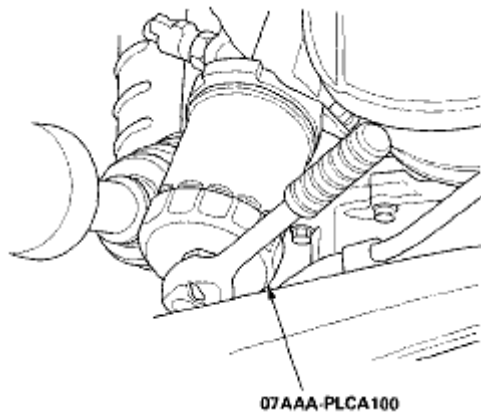
**Fig. 7: Identifying Engine Oil Filter**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the new oil filter by hand.
5. After the rubber seal seats, tighten the oil filter clockwise with the oil filter wrench.

**Tighten: 3/4 Turn Clockwise**

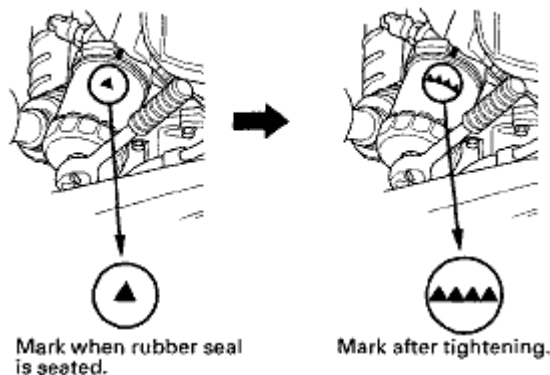
**Tightening Torque: 12 N.m (1.2 kgf.m, 8.8 lbf.ft)**



**Fig. 8: Installing Oil Filter**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. If four numbers or marks (1 to 4 or delta to deltadeltadeltadelta) are printed around the outside of the filter, you can use the following procedure to tighten the filter.
  - Spin the filter on until its seal lightly seats against the block, and note which number or mark is at the bottom.
  - Tighten the filter by turning it clockwise three numbers or marks from the one you noted. For example, if mark delta is at the bottom when the seal is lightly seated, tighten the filter until the mark deltadeltadeltadelta comes around to the bottom.



|                                           |                 |               |                |                 |
|-------------------------------------------|-----------------|---------------|----------------|-----------------|
| Number or Mark when rubber seal is seated | 1<br>or<br>▲    | 2<br>or<br>▲▲ | 3<br>or<br>▲▲▲ | 4<br>or<br>▲▲▲▲ |
| Number or Mark after tightening           | 4<br>or<br>▲▲▲▲ | 1<br>or<br>▲  | 2<br>or<br>▲▲  | 3<br>or<br>▲▲▲  |

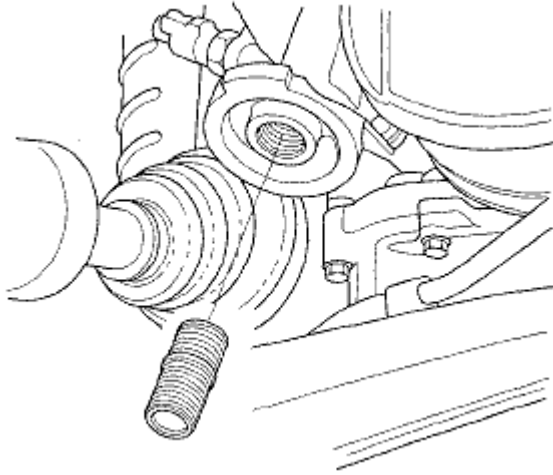
**Fig. 9: Tightening Engine Oil Filter**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. After installation, fill the engine with oil up to the specified level, run the engine for more than 3 minutes, then check for oil leakage.

## OIL FILTER FEED PIPE REPLACEMENT

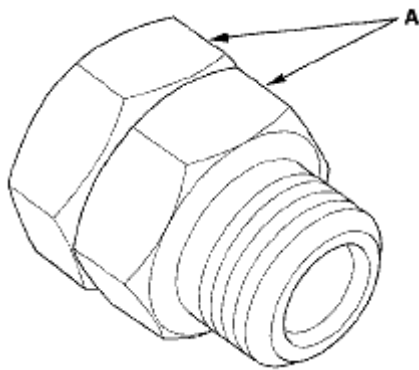
1. Remove the oil filter (see **ENGINE OIL FILTER REPLACEMENT** ).
2. Remove the oil filter feed pipe.



**Fig. 10: Identifying Oil Filter Feed Pipe**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install two 20 x 1.5 mm nuts (A) onto the new oil filter feed pipe, and hold one nut with a wrench, then tighten the other nut.



**Fig. 11: Identifying Oil Filter Feed Pipe Nut**

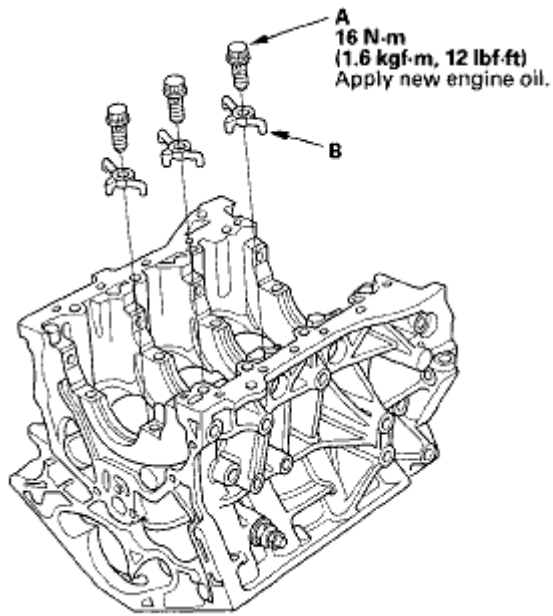
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Tighten the oil filter feed pipe to 50 N.m (5.0 kgf.m, 37 lbf.ft), then remove the nuts from the oil filter feed pipe.

## OIL JET REPLACEMENT

### J35A8 ENGINE

1. Remove the crankshaft from the engine block (see **CRANKSHAFT AND PISTON REMOVAL** ).
2. Remove the oil jet bolt (A), then remove the oil jet (B).



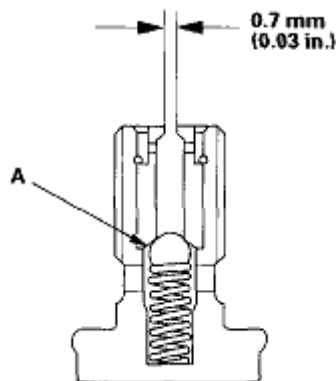
**Fig. 12: Identifying Oil Jet Bolt With Torque Specifications**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Carefully install the new oil jet and tighten the oil jet bolt.
4. Install the crankshaft (see **CRANKSHAFT AND PISTON INSTALLATION** ).

## OIL JET BOLT INSPECTION

### J35A8 ENGINE

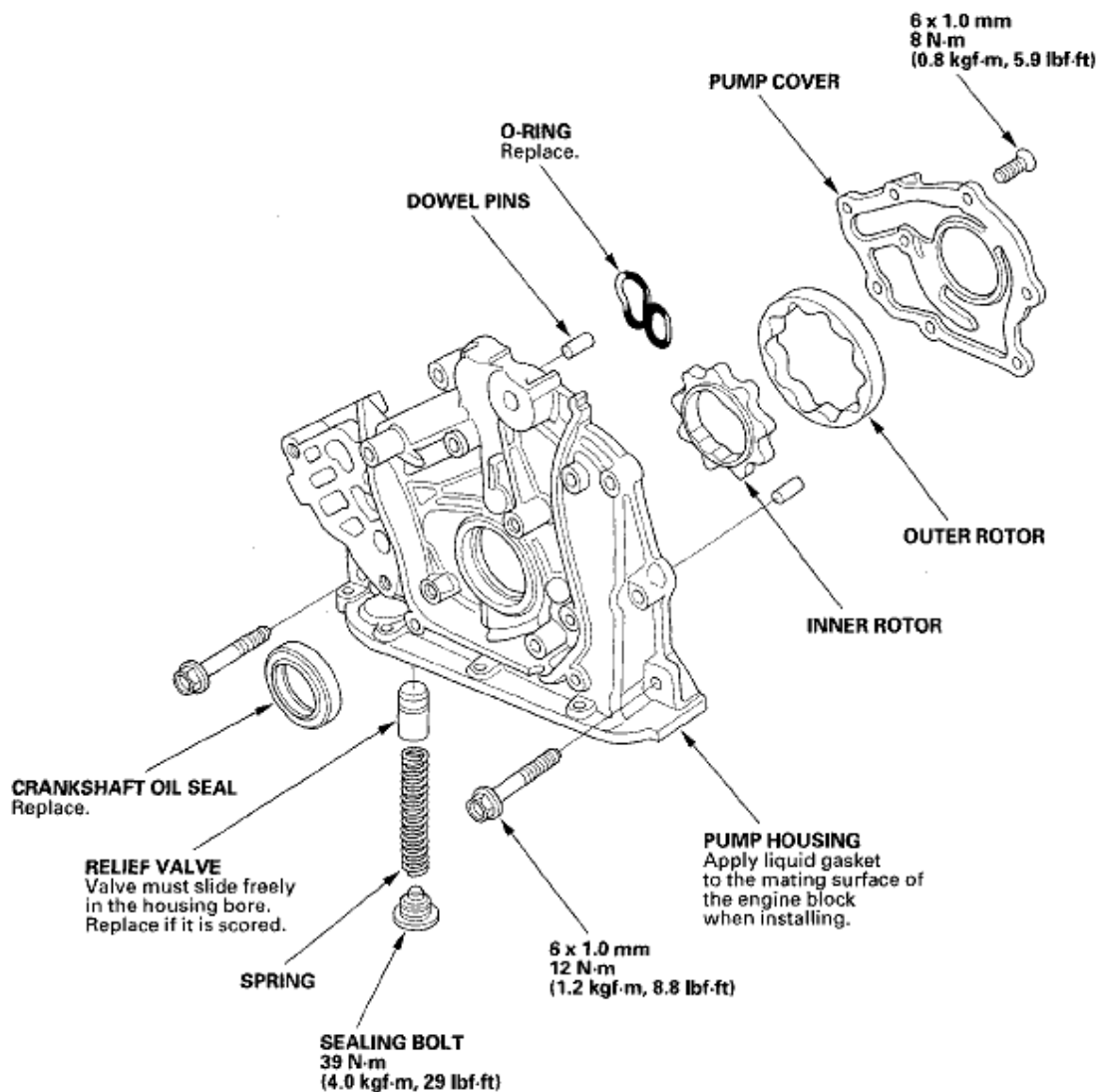
1. Remove the oil jet bolt (see **OIL JET REPLACEMENT** ).
2. Inspect the oil jet bolt as follows.
  - Make sure that a 0.6 mm (0.02 in.) diameter drill will go through the oil intake (0.7 mm [0.03 in.] diameter). Make sure the check ball (A) moves smoothly and has a stroke of about 4.0 mm (0.16 in.)
  - Check the oil jet bolt operation with an air nozzle. It should take at least 120 kPa (1.2 kgf/cm, 17 psi) to unseat the check ball.



**Fig. 13: Identifying Check Ball**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

## OIL PUMP OVERHAUL

### EXPLODED VIEW



**Fig. 14: Exploded View Of Oil Pump Overhaul With Torque Specifications**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

### Special Tools Required

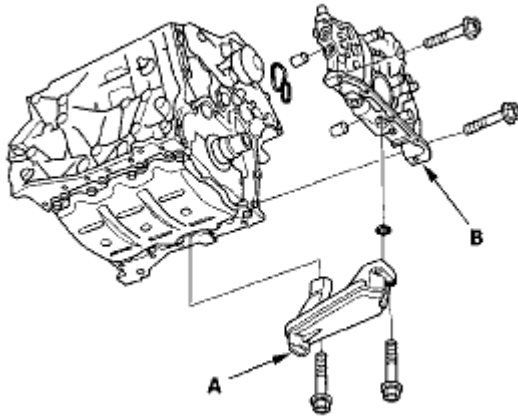
- Oil seal driver, 64 mm 070AD-RCAA100
- Engine support hanger, A and Reds AAR-T-12566
- Engine hanger balance bar VSB02C000019

These special tools are available through Acura Tool and Equipment Program, 1-888-424-6857.

### REMOVAL

1. Drain the engine oil (see **OIL PRESSURE TEST** ).

2. Remove the timing belt (see **TIMING BELT REMOVAL** ).
3. Remove the crankshaft position (CKP) sensor (see **CKP SENSOR REPLACEMENT** ).
4. Remove the rocker arm oil control solenoid/oil filter assembly (see **ROCKER ARM OIL CONTROL SOLENOID REPLACEMENT** ).
5. Remove the oil pan (see **OIL PAN REMOVAL** ).
6. Remove the oil screen (A).



**Fig. 15: Identifying Oil Screen, Mounting Bolts And Oil Pump Assembly**  
**Courtesy of AMERICAN HONDA MOTOR CO., INC.**

7. Remove the mounting bolts and the oil pump assembly (B).

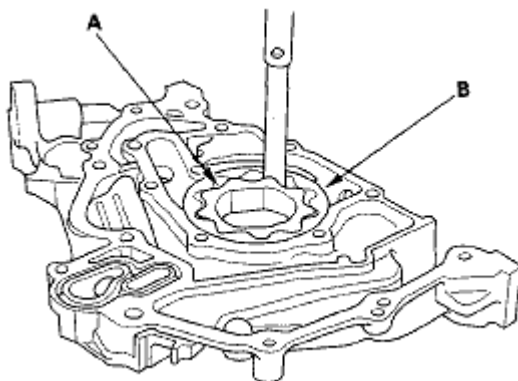
## INSPECTION

1. Remove the screws from the pump housing, then separate the housing and cover.
2. Check the inner-to-outer rotor radial clearance between the inner rotor (A) and outer rotor (B). If the inner-to-outer rotor clearance exceeds the service limit, replace the oil pump assembly.

### Inner Rotor-to-Outer Rotor Radial Clearance

**Standard (New): 0.04-0.16 mm (0.002-0.006 in.)**

**Service Limit: 0.20 mm (0.008 in.)**



**Fig. 16: Checking Inner-To-Outer Rotor Radial Clearance Between Inner Rotor And Outer**

**Rotor**

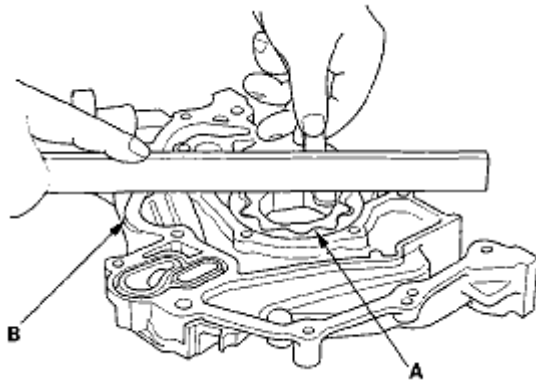
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Check the housing-to-rotor axial clearance between the rotors (A) and pump housing (B). If the housing-to-rotor axial clearance exceeds the service limit, replace the oil pump assembly.

**Housing-to-Rotor Axial Clearance**

Standard (New): 0.02-0.07 mm (0.001-0.003 in.)

Service Limit: 0.12 mm (0.005 in.)



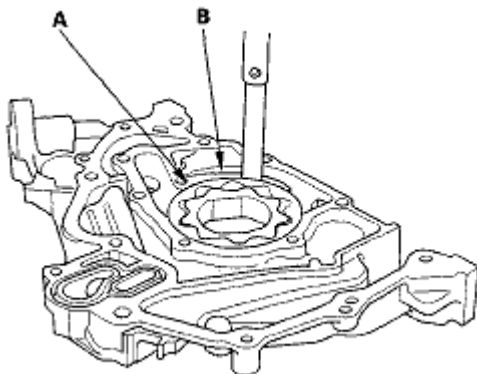
**Fig. 17: Checking Housing-To-Rotor Axial Clearance Between Rotors And Pump Housing**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Check the housing-to-outer rotor radial clearance between the outer rotor (A) and pump housing (B). If the housing-to-outer rotor radial clearance exceeds the service limit, replace the oil pump assembly.

**Housing-to-Outer Rotor Radial Clearance**

Standard (New): 0.10-0.19 mm (0.004-0.007 in.)

Service Limit: 0.20 mm (0.008 in.)

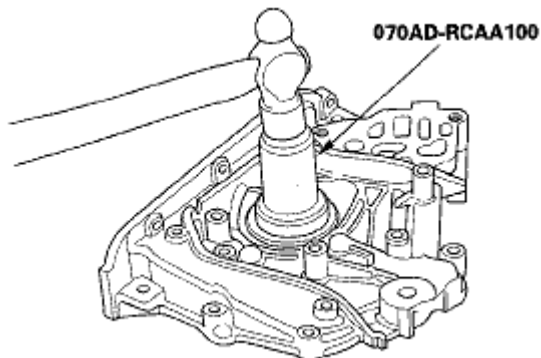


**Fig. 18: Checking Housing-To-Outer Rotor Radial Clearance Between Outer Rotor And Pump Housing**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Inspect both rotors and pump housing for scoring or other damage. Replace the parts, if necessary.
6. Apply liquid thread lock to the pump housing screws, then install the oil pump cover.
7. Check that the oil pump turns freely.

## INSTALLATION

1. Remove the old oil seal from the oil pump.
2. Gently tap in the new oil seal until the oil seal driver bottoms on the pump.



**Fig. 19: Tapping Oil Seal**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Remove any old liquid gasket from the oil pump mating surfaces, bolts, and bolt holes.
4. Clean and dry the oil pump mating surfaces.
5. Apply liquid gasket, P/N 08717-0004, 08718-0001, 08718-0003, or 08718-0009, evenly to the engine block mating surface of the oil pump. Install the component within 5 minutes of applying the liquid gasket.

### NOTE:

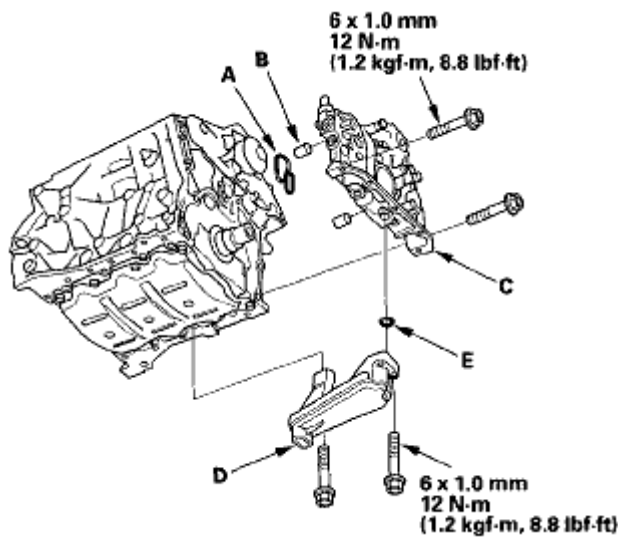
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply the new liquid gasket.



**Fig. 20: Identifying Liquid Gasket Applying Area**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Grease the lip of the oil seal, and apply new engine oil to the new O-ring (A).



**Fig. 21: Identifying Dowel Pins And Oil Pump With Torque Specifications**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Install the dowel pins (B), then align the inner rotor with the crankshaft, and install the oil pump (C).
8. Clean the excess grease off the crankshaft, and check the seal for distortion.
9. Install the oil screen (D) with new O-ring (E).
10. Install the oil pan (see **OIL PAN INSTALLATION** ).
11. Install the rocker arm oil control solenoid/oil filter assembly, with a new rocker arm oil control solenoid filter (see **ROCKER ARM OIL CONTROL SOLENOID REPLACEMENT** ).
12. Install the CKP sensor (see **CKP SENSOR REPLACEMENT** ).
13. Install the timing belt (see **TIMING BELT INSTALLATION** ).
14. After assembly, wait at least 30 minutes before filling the engine with oil.