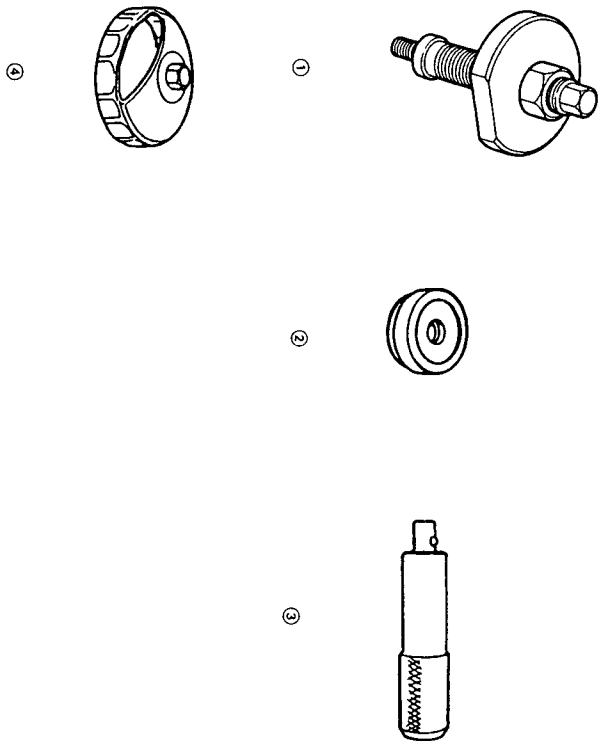




Engine Lubrication

Special Tools	8-2
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Ref. No.	Tool Number	Description	Qty	Page Reference
①	07LAC-PW50101	Extension Shaft Puller	1	8-8
②	07746-0010400	Driver Attachment, 52 x 55 mm	1	8-14
③	07749-0010000	Driver	1	8-14
④	07912-8110001	Oil Filter Wrench	1	8-5



Illustrated Index

NOTE:

- Use new O-rings when reassembling.
- Apply oil to O-rings before installation.
- Use liquid gasket, Part No. 08718-0001.
- Clean the oil control orifice when installing.

CAUTION: Do not overtighten the drain bolt.

OIL PUMP

Illustrated index, page 8-12.
Inspection, page 8-13.
Apply liquid gasket to the mating surface of the block.

6 x 1.0 mm
11 N·m (1.1 kg-m,
8 lb-ft)
Apply liquid gasket to the bolt threads.

6 x 1.0 mm
12 N·m (1.2 kg-m,
9 lb-ft)

SET PLATE

DOWEL PINS

GASKET
Replace.

DOWEL PIN

DRAIN BOLT
40 N·m (4.0 kg-m,
29 lb-ft)
Do not overtighten.

WASHER
Replace.

8 x 1.25 mm
24 N·m (2.4 kg-m,
17 lb-ft)

O-RINGS
Replace.

OIL CONTROL ORIFICE
Remove with 6 x 1.0 mm
bolt and clean.

O-RING
Replace.

CONNECTING
PIPE

OIL COOLER
BASE

OIL PRESSURE SWITCH
18 N·m (1.8 kg-m, 13 lb-ft)
Apply liquid gasket to the
threads when installing.

6 x 1.0 mm
12 N·m (1.2 kg-m,
9 lb-ft)

ENGINE OIL COOLER

OIL COOLER
CENTER BOLT
73 N·m (7.3 kg-m,
53 lb-ft)

ENGINE OIL FILTER

7/8 turn or 22 N·m
(2.2 kg-m, 16 lb-ft)
Replace every 7,500 miles
(12,000 km) or 6 months.

O-RINGS
Replace.
Clean when installing.

DOWEL PIN

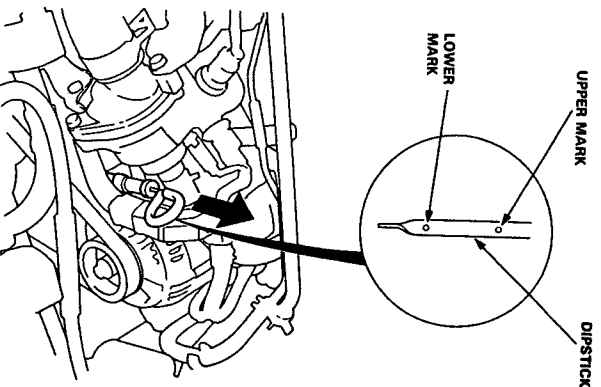
OIL PAN

OIL PAN
INNER PIPE
Clean when installing.

Engine Oil

Inspection

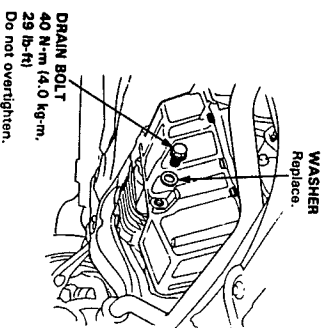
1. Check engine oil with the engine off and the car parked on level ground.
 2. Make certain that the oil level indicated on the dipstick is between the upper and lower marks.
 3. If the level has dropped close to the lower mark, add oil until it reaches the upper mark.
- CAUTION:** Insert the dipstick carefully to avoid bending it.



Replacement

CAUTION: Remove the drain bolt carefully. Hot oil may cause scalding.

1. Warm up the engine.
2. Drain the engine oil.

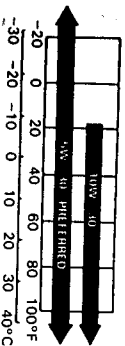


3. Reinstall the drain plug with a new washer, and refill with the recommended oil.

CAUTION: Do not overtighten the drain bolt.

Requirement	API Service Grade: Use "Energy Conserving II" SG grade oil SAE 5W-30 preferred
Capacity	4.3 l (4.5 US qt, 3.8 imp qt) at change, including filter, 5.2 l (5.5 US qt, 4.6 imp qt) after engine overhaul.
Change	Every 7,500 miles (12,000 km) or 6 months whichever comes first.

Engine Oil Viscosity for Outside Temperature Ranges.



NOTE:

- Oil filter should be replaced at each oil change.
4. After refilling the engine oil, install and tighten the oil filler cap.

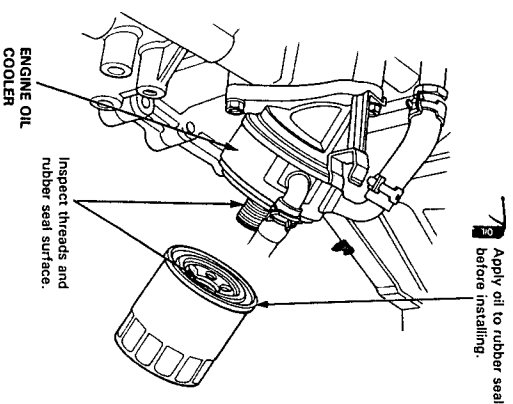
Engine Oil Filter

Replacement

CAUTION: After the engine has been run, the exhaust pipes will be hot; be careful when working around the exhaust manifold.

1. Remove the oil filter with the special oil filter socket.
2. Inspect the threads and rubber seal on the new filter. Wipe off seal on engine block, then apply a light coat of oil to the filter rubber seal.

NOTE: Use only filters with a built-in bypass system.

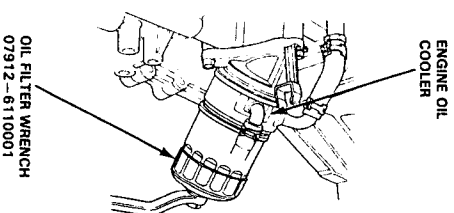


3. Install the oil filter by hand.
4. After the rubber seal is seated, tighten the oil filter clockwise with the special tool.

Tighten: 7/8 turn clockwise.

Tightening torque: 22 N·m (2.2 kg-m, 16 lb-ft)

CAUTION: Installation using other than the above procedure could result in serious engine damage due to oil leakage.



(cont'd)

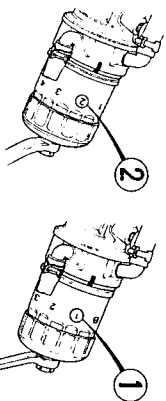
Engine Oil Filter

Replacement (cont'd)

Eight numbers (1 to 8) are printed on the surface of the filter.

The following explains the procedure for tightening filters using these numbers.

- 1) Make a mark on the cylinder block under the number that shows at the bottom of the filter when the rubber seal is seated.
- 2) Tighten the filter by turning it clockwise seven numbers from the marked point. For example, if a mark is made under the number 2, when the rubber seal is seated, the filter should be tightened until the number 1 comes up to the marked point.



Number when rubber seal is seated.

Number after tightening.

Number when rubber seal is seated	1	2	3	4	5	6	7	8
Number after tightening	8	1	2	3	4	5	6	7

5. 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 Pressure

Testing

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

1. Connect a tachometer.
2. Remove the oil pressure switch and install an oil pressure gauge.
3. Start the engine. Shut it off immediately if the gauge registers no oil pressure. Repair the problem before continuing.
4. Allow the engine to reach operating temperature (fan comes on at least twice). The pressure should be:

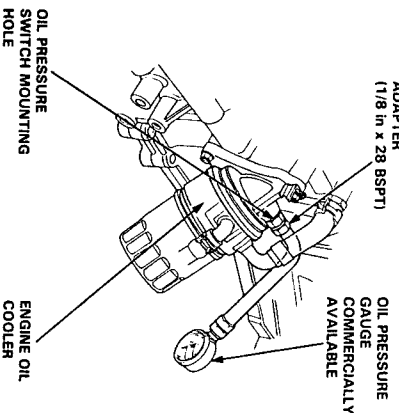
Engine Oil Temperature: 176°F (80°C)

Engine Oil Pressure:

At Idle: 70 kPa (0.7 kg/cm², 10 psi)

minimum
At 3,000 rpm: 350 kPa (3.5 kg/cm², 50 psi)
minimum

- If oil pressure is within specifications, replace the oil pressure switch and recheck.
- If oil pressure is NOT within specifications, inspect the oil pump (pages 8-13).



Oil Pan

Removal

Engine removal is not required in this procedure.

WARNING

- Make sure jacks and safety stands are placed properly and hoist brackets are attached to the correct positions on the engine (page 1-6).
- Apply parking brake and block rear wheels so the car will not roll off stands while you are working under it.

CAUTION:

- Use fender covers to avoid damaging painted surfaces.
- Disconnect wiring connectors carefully to avoid damage.
- Mark the wiring and hoses to avoid misconnection. Be sure they do not contact other wiring or hoses or interfere with other parts.

NOTE: Anti-theft radios have a coded theft protection circuit. Be sure to get the customer's code number before:

- Disconnecting the battery.
- Removing the No. 39 (10 A) fuse in the under-hood fuse/relay box.
- Removing the radio.

After service, reconnect power to the radio and turn it on.

When the word "CODE" is displayed, enter the customer's 5-digit code to restore radio operation.

1. Disconnect the battery negative terminal first then the positive terminal.

2. Remove the radiator cap.

3. **WARNING** Use care when removing the radiator cap to avoid scalding by hot engine coolant or steam.

3. Remove the front wheels.

4. Remove the damper forks.

5. Disconnect the suspension lower arm ball joints with the special tool. Refer to section 18 for the proper procedure.

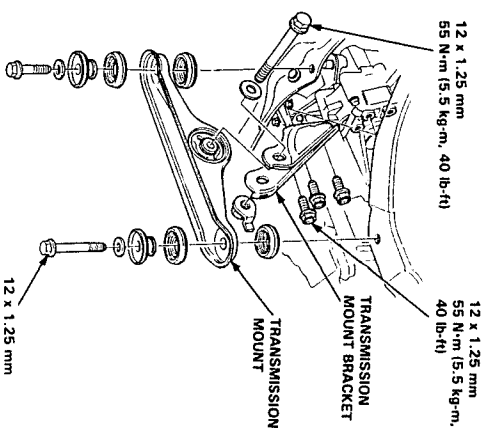
6. Remove the driveshafts.

NOTE: Coat all precision finished surfaces with clean engine oil or grease. The plastic bags over the driveshaft ends.

7. Remove the air cleaner housing.

8. Drain the engine oil. Reinstall the drain bolt using a new washer.

CAUTION: Do not overtighten the drain bolt.



9. Loosen the radiator drain plug and drain the coolant.

10. Drain the differential oil. Reinstall the drain plug using a new washer.

11. Raise the hoist to full height, then attach a chain hoist to the engine.

12. Remove the transmission mount and mount bracket.

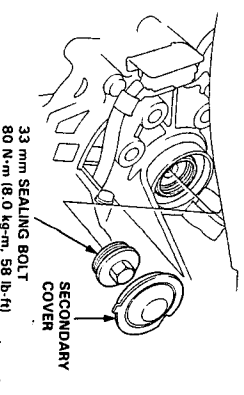
12 x 1.25 mm
55 N·m (5.5 kg-m, 40 lb-ft)

12 x 1.25 mm
55 N·m (5.5 kg-m, 40 lb-ft)

12 x 1.25 mm
65 N·m (6.5 kg-m, 47 lb-ft)
Replace.

13. Remove the secondary cover and 33 mm sealing bolt.

NOTE: Shift the manual transmission to 1st gear or automatic transmission to **P** position to lock the secondary shaft.

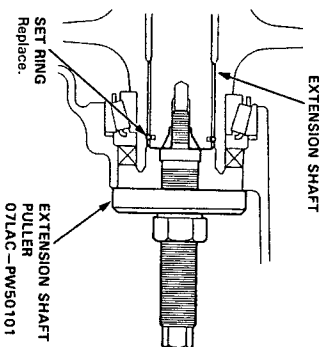


33 mm SEALING BOLT
80 N·m (8.0 kg-m, 58 lb-ft)

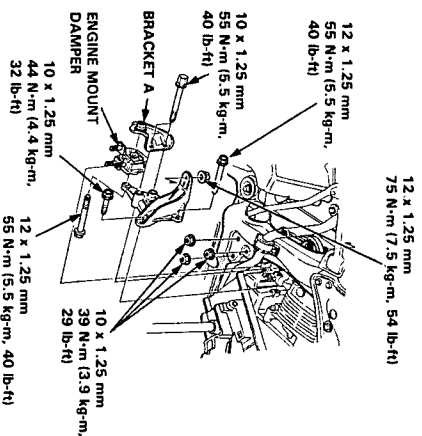
(cont'd)

Removal (cont'd)

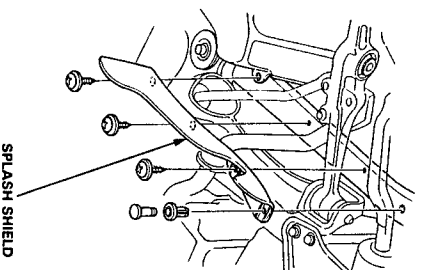
14. Disconnect the extension shaft from the differential with the special tool.



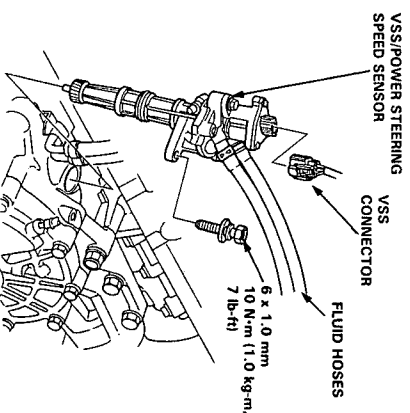
16. Remove the bracket A, the engine mount damper and the left front engine mount bracket.



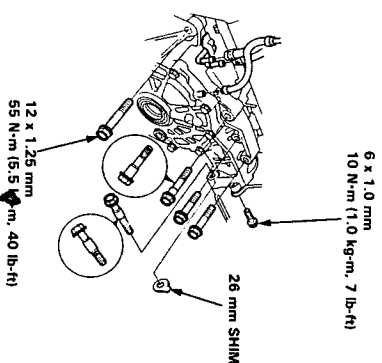
15. Remove the splash shield.



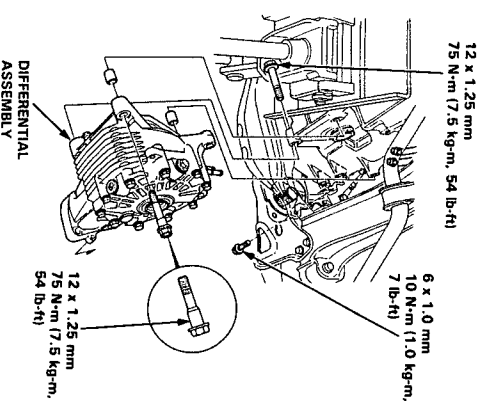
17. Remove the vehicle speed sensor (VSS)/power steering speed sensor.
 ● Do not disconnect the fluid hoses.



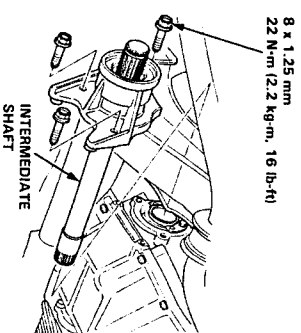
18. Disconnect the oil cooler hoses and the breather hose, then remove the differential mounting bolts and 26 mm shim.



19. Remove the differential mounting bolts, then remove the differential assembly.



20. Remove the intermediate shaft.

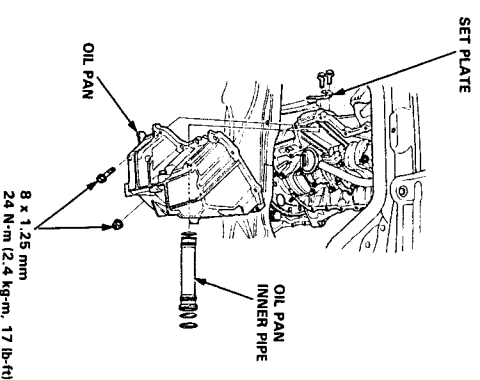


21. Remove the air conditioning (A/C) bracket.

NOTE: When installing the A/C bracket, tighten the bolts on the oil pan first, then those on the engine block (page 5-11).

23. Remove the set plate, then remove the oil pan inner pipe.

24. Remove the oil pan.



Oil Pan

Installation

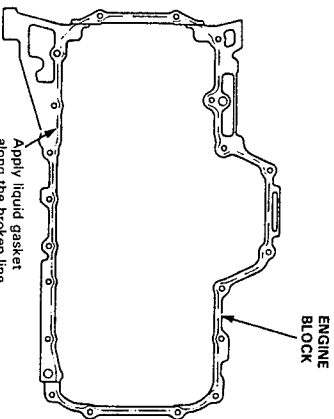
Install the oil pan in the reverse order of removal:

- Always use new O-rings.
- Oil pan and engine block mating surface must be clean.

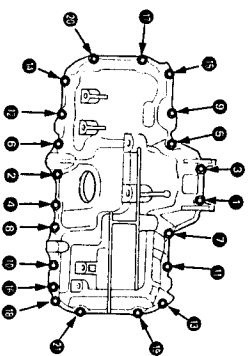
1. Apply liquid gasket to the engine block, then install the oil pan.

NOTE:

- Use liquid gasket, Part No. 08718-0001.
- Check that the mating surfaces are clean and dry before applying liquid gasket.
- Apply liquid gasket as an even bead, centered between edges of the mating surface.
- To prevent leakage of oil, apply liquid gasket to the inner threads of the bolt holes.
- Do not install the parts if 20 minutes or more have elapsed since applying liquid gasket. Instead, reapply liquid gasket after removing old residue.
- After assembly, wait at least 30 minutes before filling the engine with oil.



Specified Torque: 24 N·m (2.4 kg-m, 17 lb-ft)



2. Install the oil pan inner pipe, then install the retainer.

6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)

RETAINER

O-RINGS
Replace.
Clean when installing.

Clean O-ring grooves when installing.

OIL PAN INNER PIPE
Clean when installing.

8 x 1.25 mm
24 N·m (2.4 kg-m, 17 lb-ft)

3. Apply Super High Temp Urea Grease (P/N 08798-9002) to the extension shaft splines.

4. Fill the opening of the drive pinion and extension shaft with Super High Temp Urea Grease (P/N 08798-9002), as shown.

DRIVE PINION

DIFFERENTIAL CARRIER

EXTENSION SHAFT

SUPER HIGH TEMP UREA GREASE (P/N 08798-9002)

3.5-4.5 g (0.12-0.16 oz)

SECONDARY GEAR

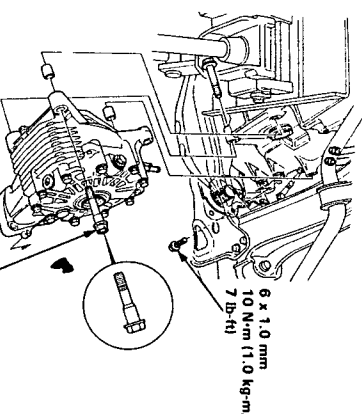
SUPER HIGH TEMP UREA GREASE (P/N 08798-9002)

Fill the opening flush with shaft surface.

5. Install the differential assembly.

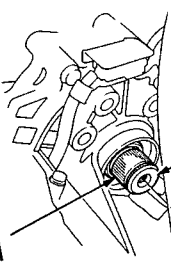
- Select the appropriate 26 mm shim whenever the oil pan or the cylinder block is replaced. Refer to section 15 for selection of the correct 26 mm shim.

DIFFERENTIAL MOUNT BOLT:
12 x 1.25 mm
75 N·m (7.5 kg-m, 54 lb-ft)



6. Apply grease to the spline of the extension shaft, then install the new set ring.

EXTENSION SHAFT
SET RING
Replace.



7. Fill the opening of the extension shaft and 33 mm sealing bolt with Super High Temp Urea Grease (P/N 08798-9002), as shown.
8. Apply liquid gasket (P/N 08718-0001) to the 33 mm sealing bolt threads.

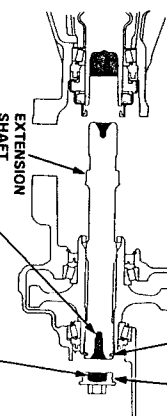
9. Install the extension shaft.

10. Shift the manual transmission to 1st gear or automatic transmission to P position.

11. Install the 33 mm sealing bolt and secondary cover on the transmission housing.

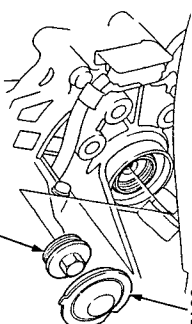
33 mm SEALING BOLT

SECONDARY GEAR
SET RING



SUPER HIGH TEMP UREA GREASE (P/N 08798-9002)

SECONDARY COVER



33 mm SEALING BOLT
80 N·m
(8.0 kg-m, 58 lb-ft)

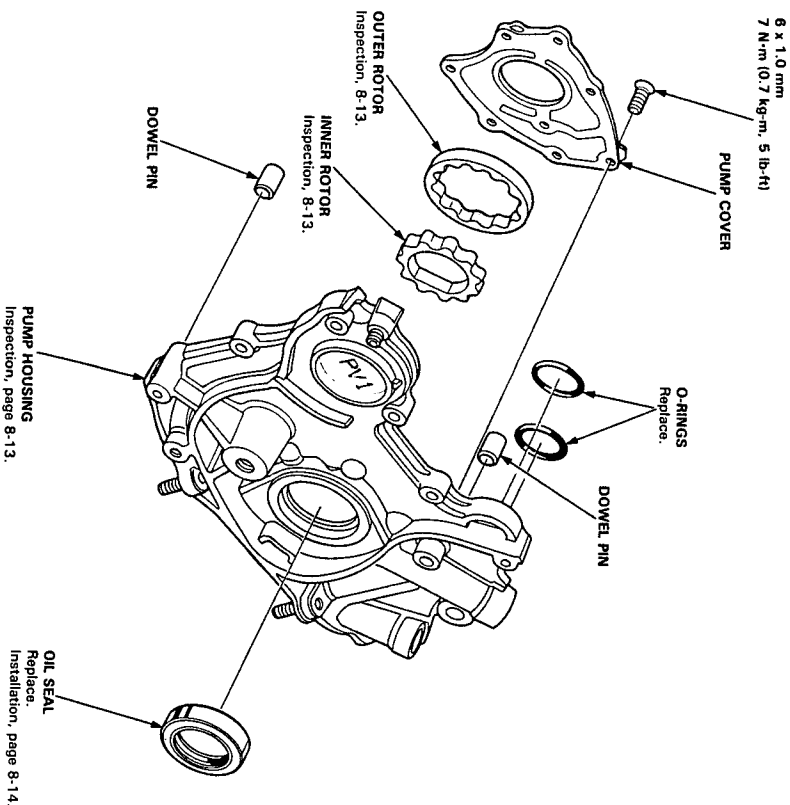
12. Check the following items after reassembly.
- Refill the differential with hypoid gear oil.
 - Refill the engine with oil.
 - Refill the cooling system with coolant.
 - Make sure the set rings on the driveshafts are completely inserted into the groove of the differential or intermediate shaft.

Oil Pump

Illustrated Index

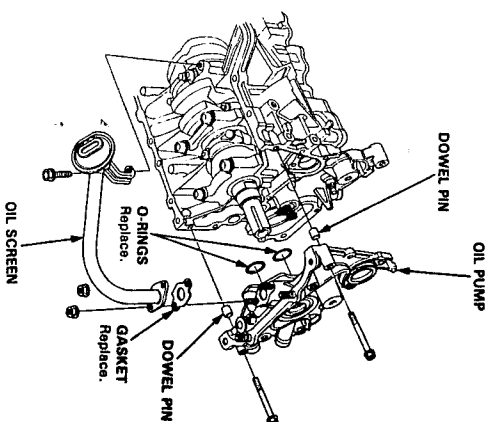
NOTE:

- Use new O-rings when reassembling.
- Apply oil to O-rings before installation.

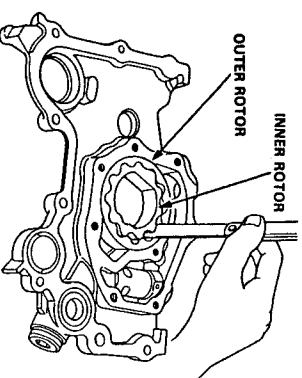


Removal/Inspection/Installation

1. Drain the engine oil and the differential oil.
2. Turn the crankshaft to TDC.
3. Remove the timing belt (page 6-29).
4. Remove the oil pan (page 8-7).
5. Remove the oil screen, then remove the oil pump.



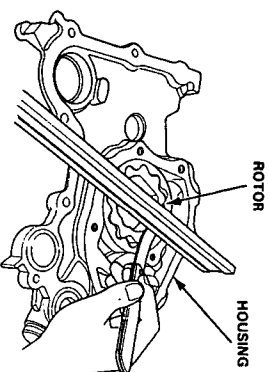
6. Remove the seven screws from the pump housing, then separate the housing and cover.
7. Check the inner-to-outer rotor clearance on the pump rotor.



Inner-to-Outer Rotor Clearance
 Standard (New): 0.04–0.16 mm
 (0.002–0.006 in)
 Service Limit: 0.20 mm (0.008 in)

8. Check the housing-to-rotor axial clearance on the pump rotor.

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)



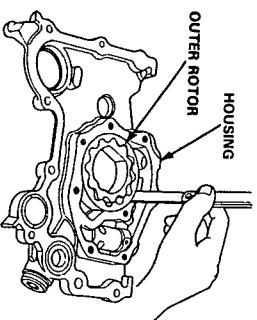
(cont'd)

Oil Pump

Removal/Inspection/Installation (cont'd)

9. Check the housing-to-outer rotor clearance.

Housing-to-Outer Rotor Clearance
Standard (New): 0.10—0.18 mm
 (0.004—0.007 in)
Service Limit: 0.20 mm (0.008 in)

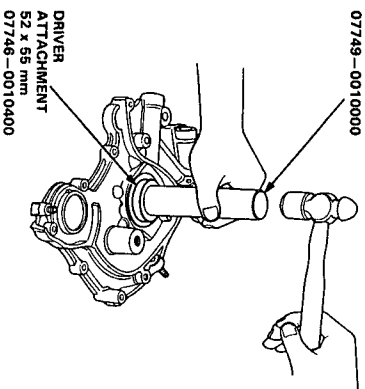


10. Inspect both rotors and pump housing for scoring or other damage. Replace parts if necessary.

11. Remove the old oil seal from the oil pump.

12. Gently tap in the new crankshaft oil seal until the special tool bottoms on the pump.

DRIVER
 07749-0010000



13. Reassemble the oil pump, applying liquid gasket to the pump housing screws.

14. Check that the oil pump turns freely.

15. Apply a light coat of oil to the seal lip.

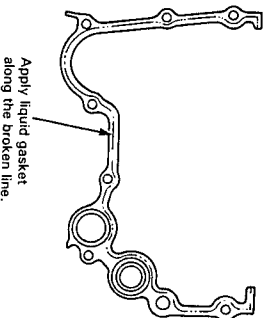
16. Install the two dowel pins and new O-ring on the cylinder block.

17. Apply liquid gasket to the cylinder block mating surface of the oil pump.

NOTE:

- Use liquid gasket, Part No. 08718-0001.
- Check that the mating surfaces are clean and dry before applying liquid gasket.
- Apply liquid gasket as an even bead, centered between edges of the mating surface.
- Do not apply liquid gasket to the O-ring grooves.
- To prevent leakage of oil, apply liquid gasket to the inner threads of the bolt holes.

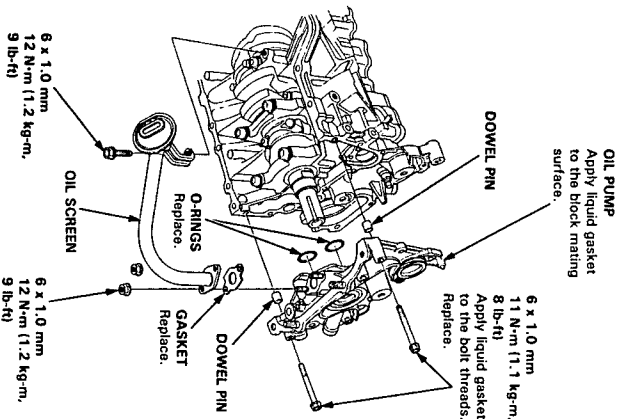
OIL PUMP HOUSING



Apply liquid gasket along the broken line.

- Do not install the parts if 20 minutes or more have elapsed since applying liquid gasket. Instead, reapply liquid gasket after removing old residue.
- After assembly, wait at least 30 minutes before filling the engine with oil.

18. Install the oil pump to the cylinder block.



19. Install the oil screen.

20. Install the oil pan (page 8-10).

21. Install the timing belt (page 6-31).

