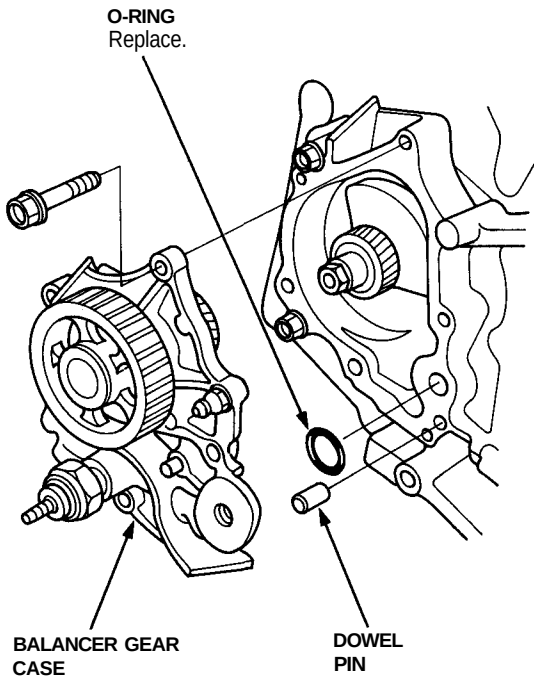




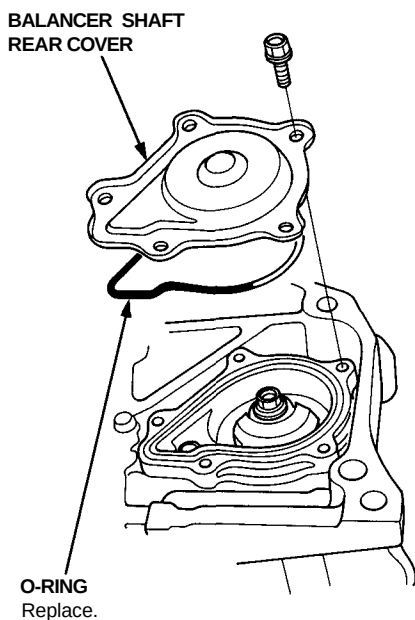
Removal/Inspection/Installation

NOTE: To remove the oil pump, the engine must be removed from the vehicle and separated from the transmission.

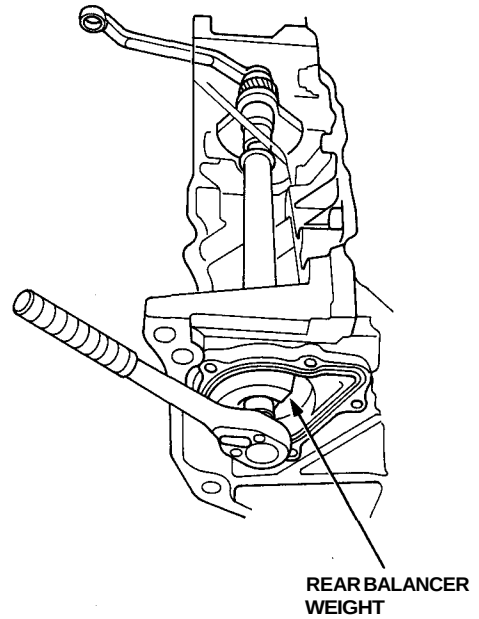
1. Remove the balancer gear case.



2. Remove the balancer shaft rear cover.

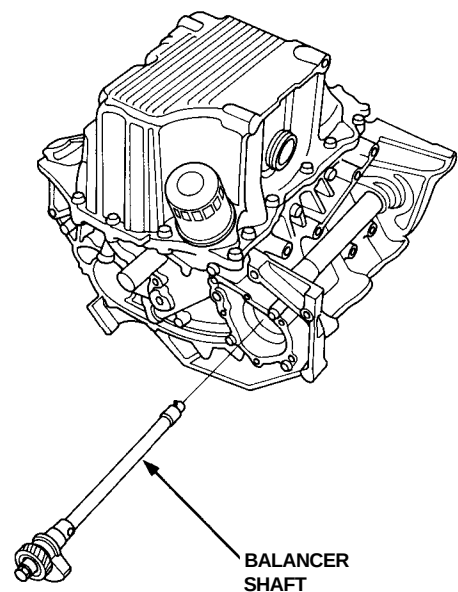


3. Hold the balancer shaft as shown below, then remove the rear balancer weight.



4. Pull out the balancer shaft.

NOTE: Take care not to damage the journals when removing the balancer shaft.

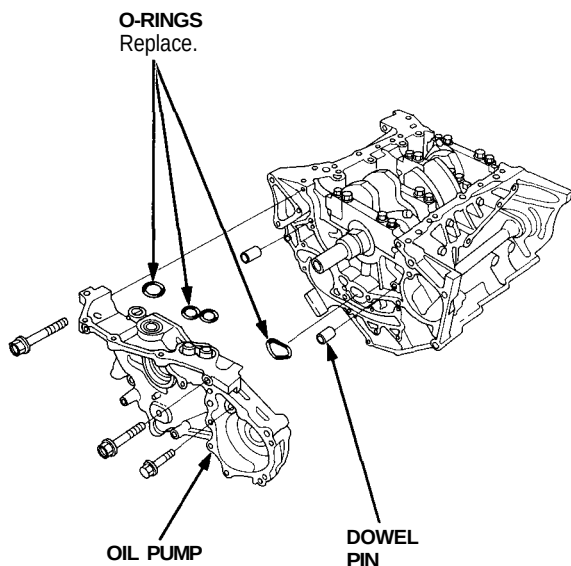


(cont'd)

Oil Pump

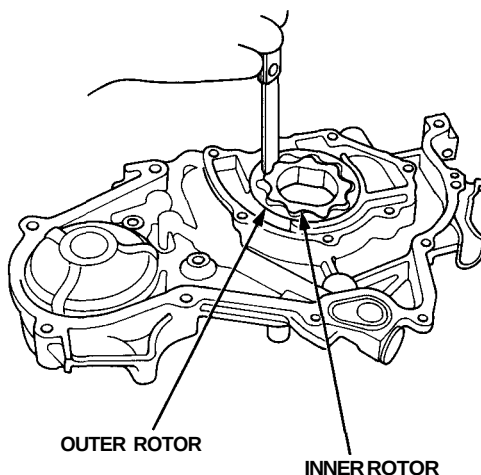
Removal/Inspection/Installation (cont'd)

5. Remove the balancer shaft holder (see page 7-3).
6. Remove the oil pan assembly.
7. Remove the oil pump.



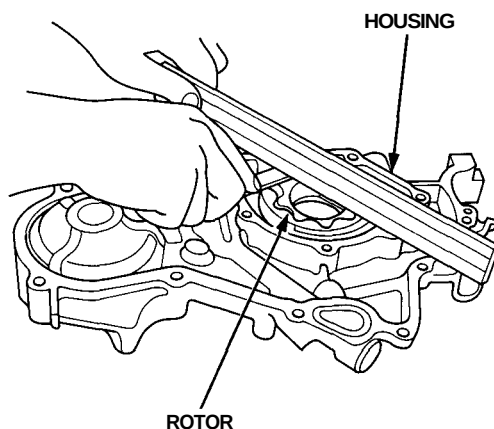
8. Remove the screws from the pump housing, then separate the housing and cover.
9. Check the inner-to-outer rotor radial clearance on the pump rotor. If the inner-to-outer rotor clearance exceeds the service limit, replace the inner and outer rotors.

Inner Rotor-to-Outer Rotor Radial Clearance
Standard (New): 0.02 - 0.16 mm
 (0.001 - 0.006 in)
Service Limit: 0.20 mm (0.008 in)



10. Check the housing-to-rotor axial clearance on the pump rotor. If the housing-to-rotor axial clearance exceeds the service limit, replace the set of inner and outer rotors and/or the pump housing.

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)





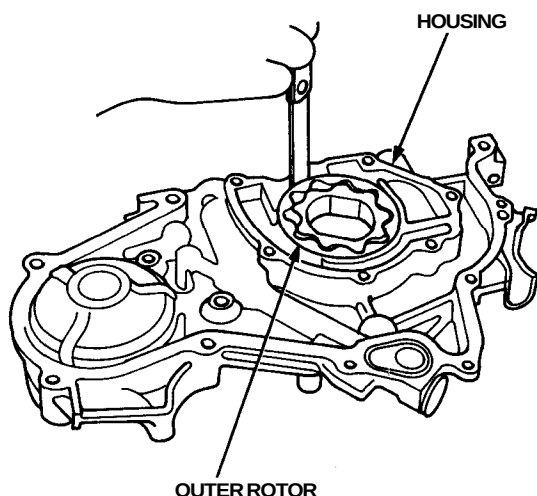
11. Check the housing-to-outer rotor radial clearance. If the housing-to-outer rotor radial clearance exceeds the service limit, replace the set of inner and outer rotors and/or the pump housing.

Housing-to-Outer Rotor Radial Clearance

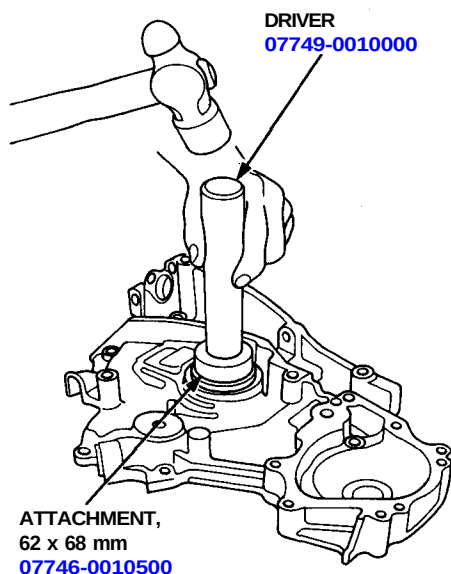
Standard (New): 0.10-0.18 mm

(0.004-0.007 in)

Service Limit: 0.20 mm (0.008 in)



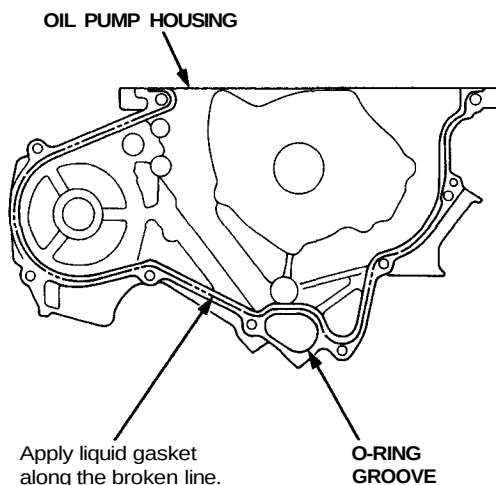
12. Inspect both rotors and the pump housing for scoring or other damage. Replace parts if necessary.
13. Remove the old oil seal from the oil pump.
14. Using the special tool, gently tap in the new crankshaft oil seal until the tool bottoms on the pump.



15. Reassemble the oil pump, applying liquid thread lock to the pump housing screws.
16. Check that the oil pump turns freely.
17. Apply a light coat of oil to the seal lip.
18. Install the two dowel pins and new O-ring on the cylinder block.
19. Apply liquid gasket to the cylinder block mating surface of the oil pump.

NOTE:

- Use liquid gasket, Part No. 08718 - 0001 or 08718 - 0003.
- Check that the mating surfaces are clean and dry before applying liquid gasket.
- Apply liquid gasket evenly, in a narrow bead centered on the mating surface.
- Do not apply liquid gasket to the O-ring grooves.
- To prevent leakage, apply liquid gasket to the inner threads of the bolt holes.
- Do not install the parts if five 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.

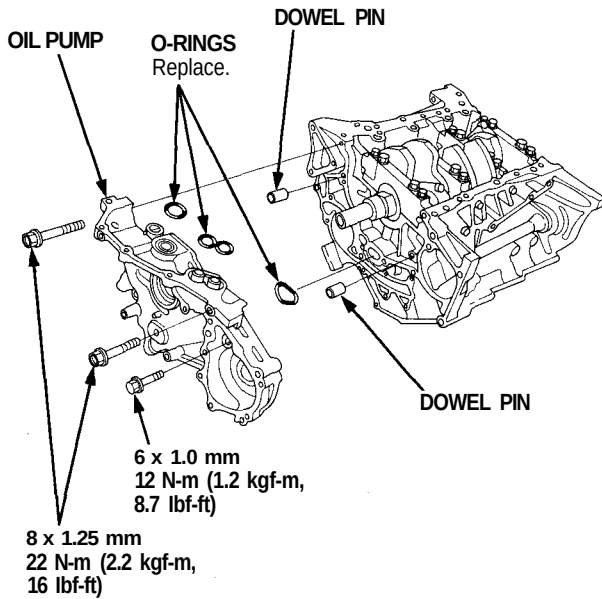


(cont'd)

Oil Pump

Removal/Inspection/Installation (cont'd)

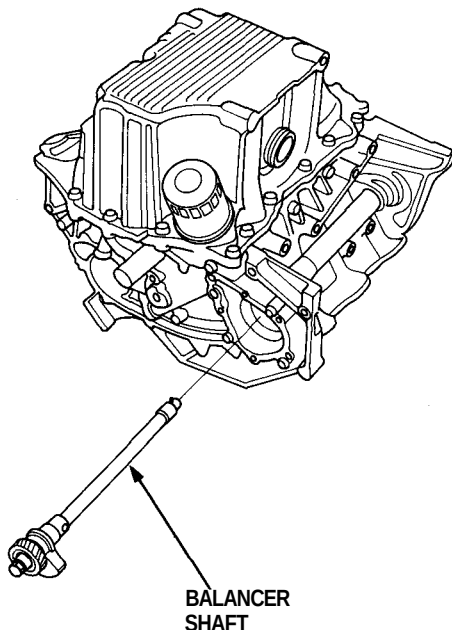
20. Install the oil pump to the cylinder block.



21. Install the oil pan (see page 8-10).

22. Apply engine oil to the balancer shaft, then insert the balancer shaft.

NOTE: Take care not to damage the journals when installing the balancer shaft.

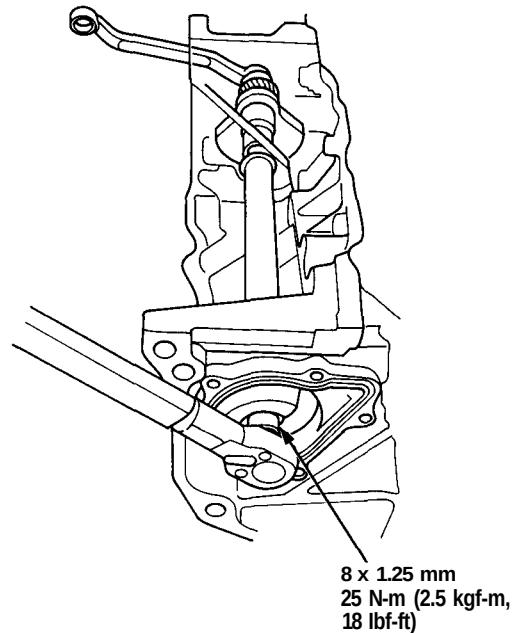


23. Install the balancer shaft holder (see page 7-3).

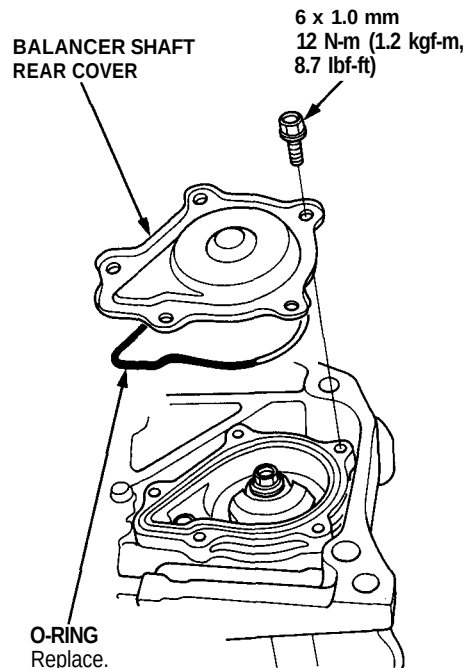
NOTE: Apply liquid gasket around the oil hole to the block mating surface.

24. Install the rear balancer weight.

25. Hold the balancer shaft as shown below, then tighten the bolt.

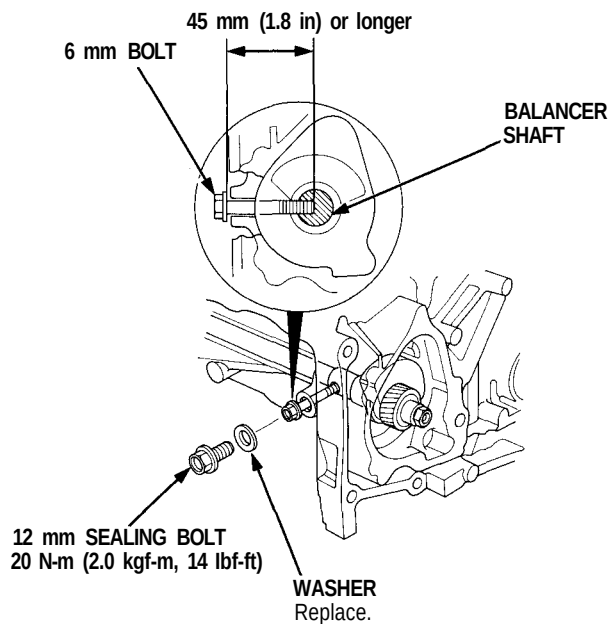


26. Install the balancer shaft rear cover.

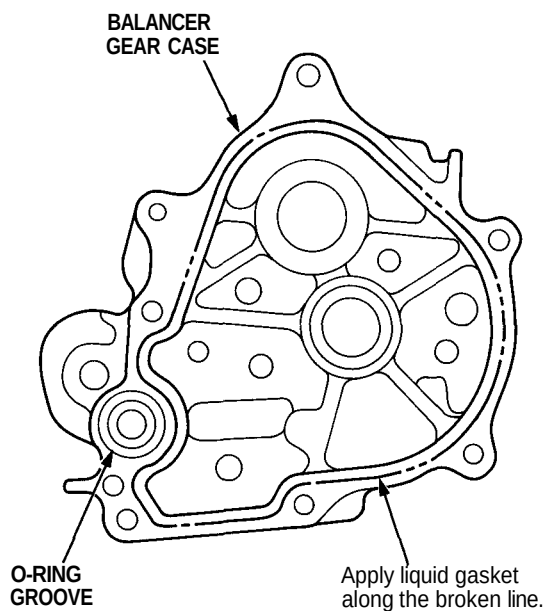




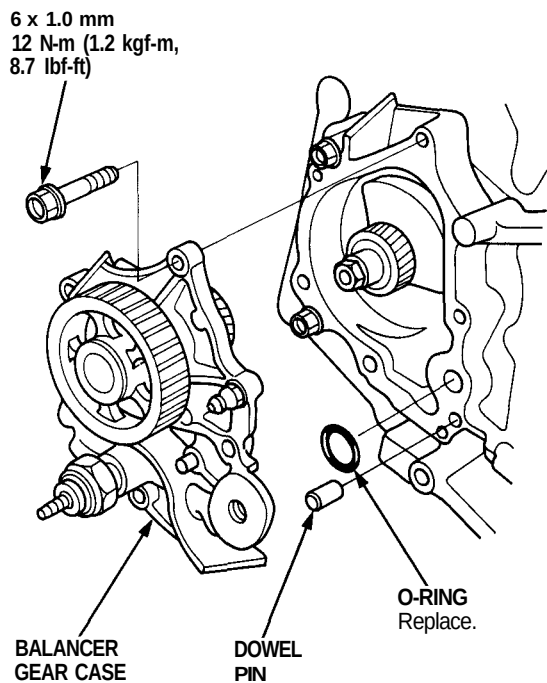
27. Align the maintenance hole and the balancer shaft hole. Insert a 6 mm bolt that is at least 45 mm (1.8 in) long into the balancer shaft.



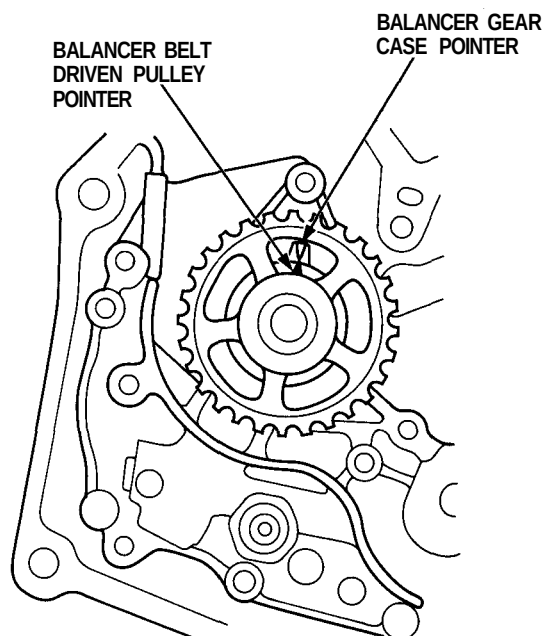
28. Apply liquid gasket to the oil pump mating surface of the balancer gear case.



29. Install the balancer gear case.



30. Check alignment of the pointers after installing the balancer gear case.



31. Remove the 6 mm bolt. Install the sealing bolt in the maintenance hole. Use a new washer.