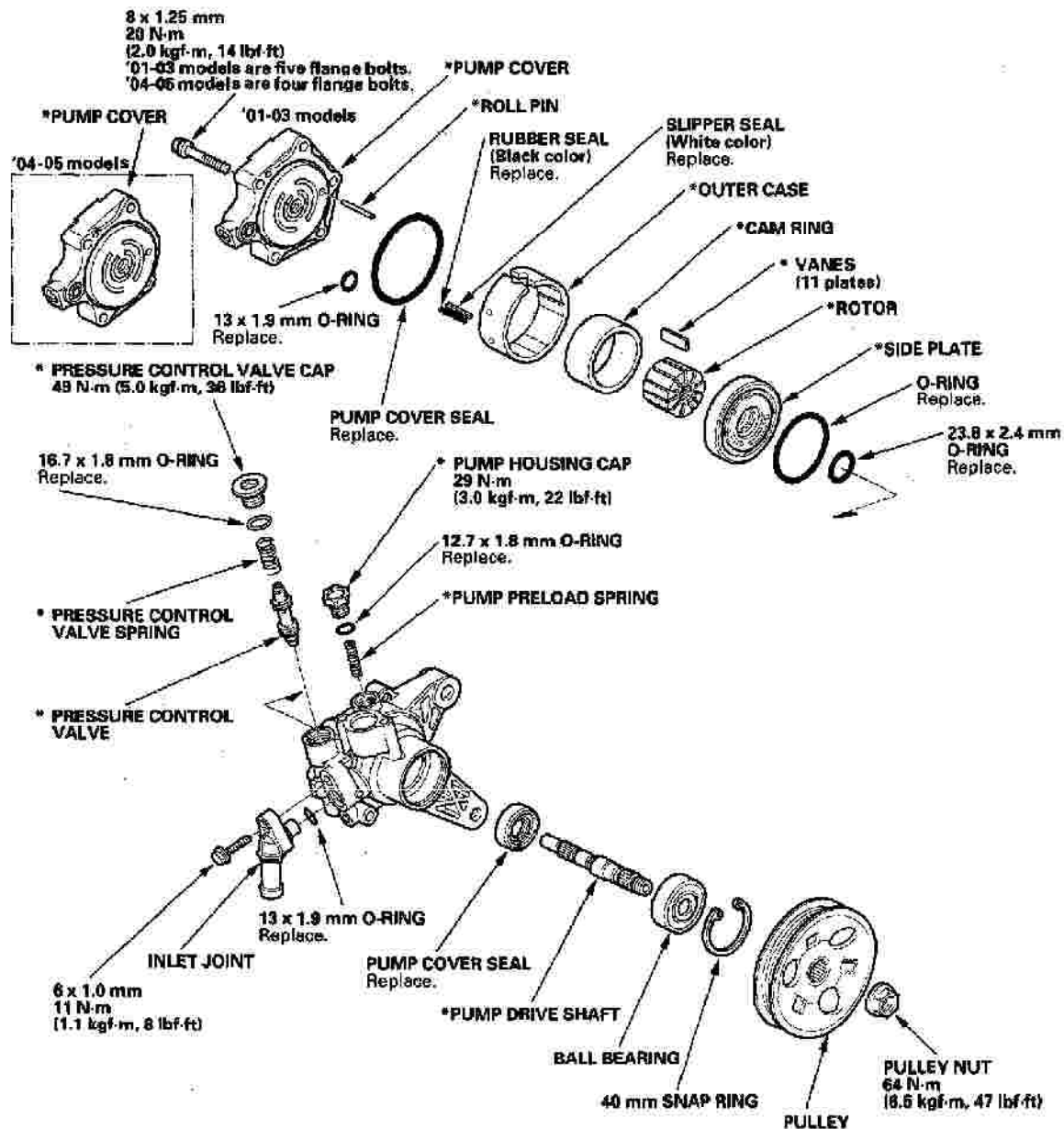


## Power Steering Pump: Service and Repair Overhaul



### Overhaul

Replace the pump as an assembly if the parts indicated with asterisk (\*) are worn or damaged.

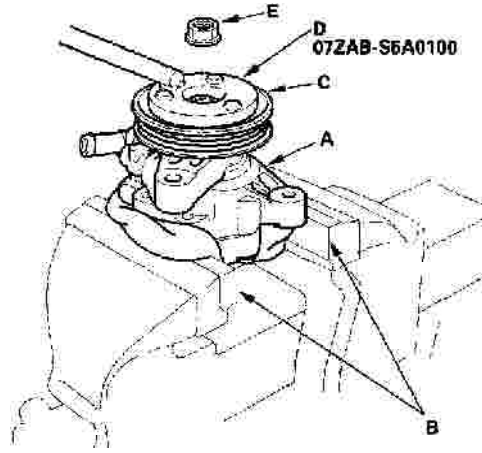
### Special Tools Required

- ^ Attachment, 32 x 35 mm 07746-0010100
- ^ Driver 07749-0010000
- ^ Pulley holder 07ZAB-S5A0100

### Disassembly

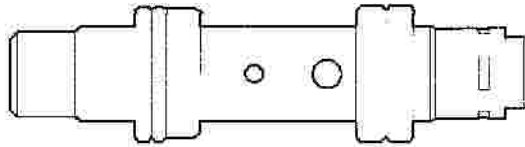
**NOTE:** Refer to the Exploded View as needed during the following procedure.

1. Remove the power steering pump.
2. Drain the fluid from the pump.

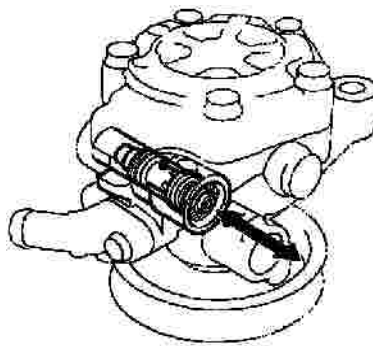


3. Hold the steering pump (A) in a vise with soft jaws (B), hold the pulley (C) with the special tool (D), and remove the pulley nut (E) and pulley. Be careful not to damage the pump housing with the jaws of the vise.
4. Remove the inlet joint and O-ring.
5. Remove the pressure control valve cap, O-ring, valve spring, and pressure control valve.
6. Remove the pump housing cap, O-ring, and pump preload spring.
7. Remove the pump cover, pump cover seal, and O-ring.
8. Pull out the roll pin.
9. Remove the outer case, cam ring, rotor, vanes, and side plate.
10. Remove the rubber seal and slipper seal from the outer case.
11. Remove the O-rings from the bottom of the housing.
12. Remove the snap-ring, then remove the drive shaft by tapping the shaft end with the plastic hammer.
13. Remove the seal from the pump housing.

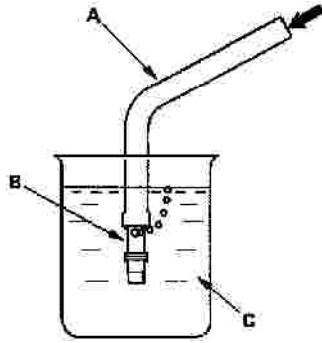
### Inspection



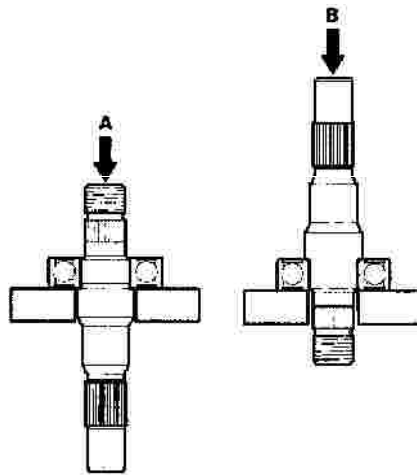
14. Check the pressure control valve for wear, burrs, and other damage to the edges of the grooves in the valve.
15. Inspect the bore of the pressure control valve on the pump housing for scratches and wear.



16. Slip the pressure control valve back in the pump housing, and check that it moves in and out smoothly. If OK, go to step 17; if not, replace the pump as an assembly. The pressure control valve is not available separately.

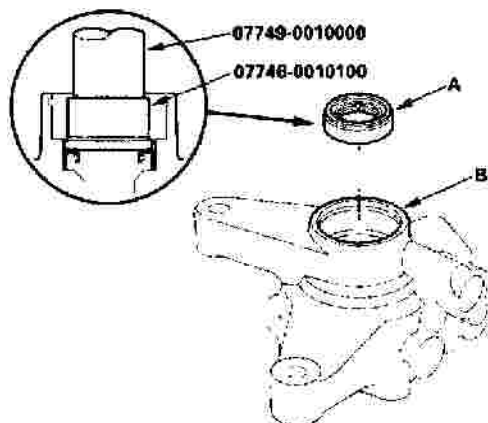


17. Attach a hose (A) to the end of the pressure control valve (B) as shown. Then submerge the pressure control valve in a container of power steering fluid or solvent (C), and blow in the hose.
  - ^ If air bubbles leak through the valve at **less than 98 kPa (1.0 kgf/cm<sup>2</sup>, 14.2 psi)**, replace the pump as an assembly. The pressure control valve is not available separately.
  - ^ If the pressure control valve is OK, set it aside for reassembly later.

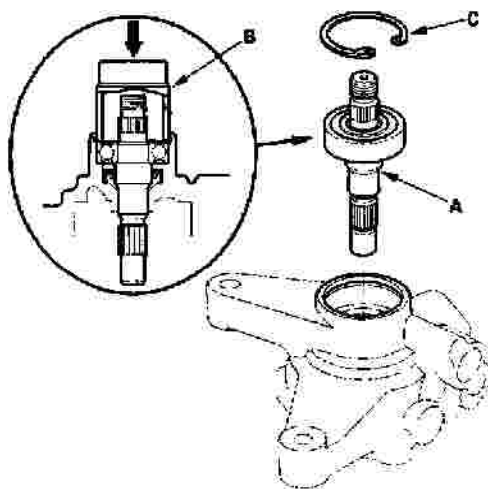


18. Inspect the ball bearing by rotating the outer race slowly. If you feel any play (axial or radial) or roughness, remove the faulty ball bearing (A), and install a new one (B).
19. Inspect each part shown with an asterisk in the Exploded View; if any of them are worn or damaged, replace the pump as an assembly.

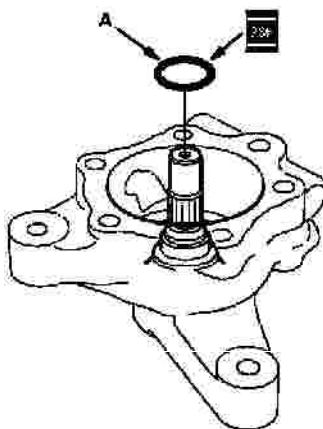
### Reassembly



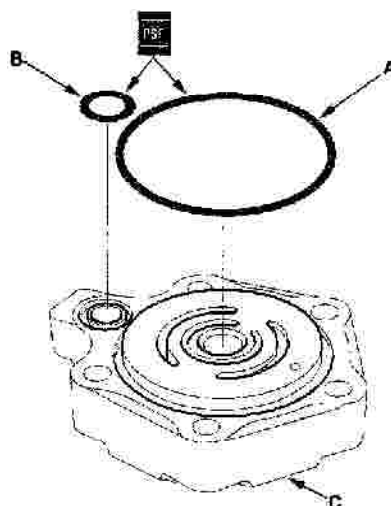
20. Install the new pump seal (A) (with its grooved side facing in) into the pump housing (B) by hand first, then drive it in using the special tools until the seal is fully seated in the pump housing.



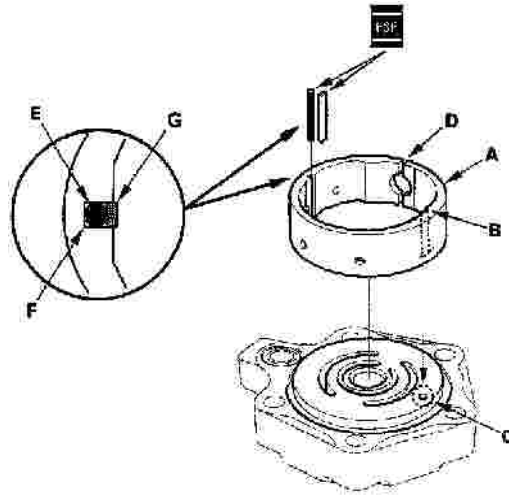
21. Position the pump drive shaft (A) in the pump housing, then drive it in with the appropriate size socket wrench (B) as shown.
22. Install the 40 mm snap ring (C) with its radiused side facing out.



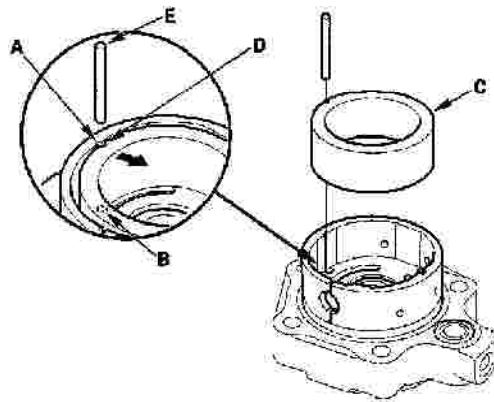
23. Coat the new 23.8 mm O-ring (A) with power steering fluid, then position it into the groove on the bottom of the pump housing.



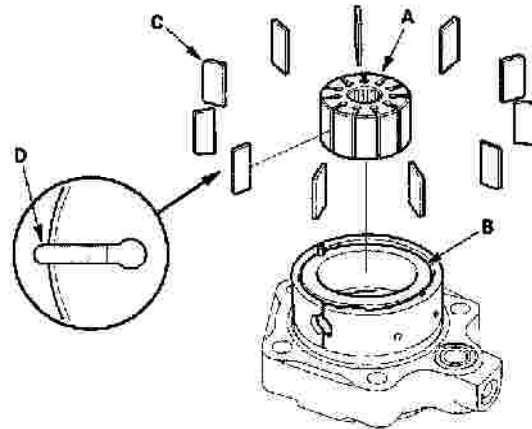
24. Coat the new cover seal (A) and 13 mm O-ring (B) with the power steering fluid, then position them into the grooves on the cover (C).



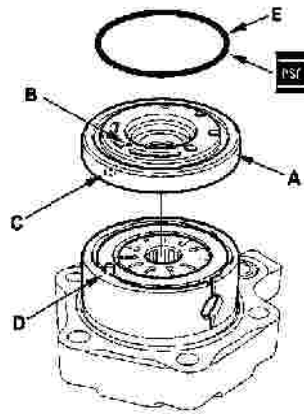
25. Install the outer case (A) by aligning the slot (B) inside the outer case with the cover roll pin hole (C). Be sure that the slit (D) on the outer case faces this direction shown.
26. Apply the power steering fluid to the rubber seal (E) black, and install it in the slot (F) of the outer case.
27. Apply power steering fluid to the slipper seal (G) (white), and install it on top of the rubber seal you just installed.



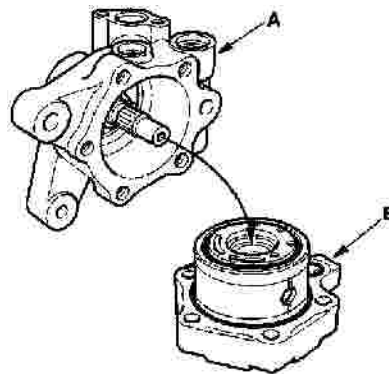
28. Align the slot (A) in the outer case with the roll pin hole (B) on the cover.
29. Install the cam ring (C) by aligning the slot (D) with the slot (A) in the outer case.
30. Insert the roll pin (E) into the slots between the cam ring and outer case, then push the roll pin into the set hole.



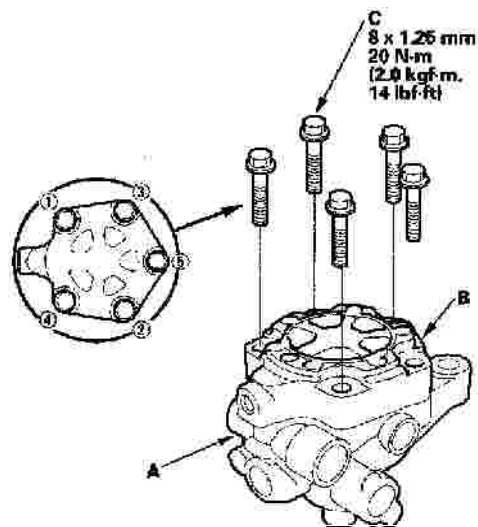
31. Install the rotor (A) in the cam ring (B).
32. Set the 11 vanes (C) in the grooves in the rotor. Make sure that the round ends (D) of the vanes are in contact with the sliding surface of the cam ring.



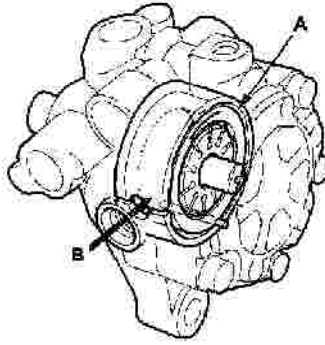
33. Place the side plate (A) on the cam ring with its "Λ" mark (B) facing upward, and align the roll pin set hole (C) in the side plate with the roll pin end (D).
34. Coat the new O-ring (F) with the power steering fluid, then position it into the groove on the side plate.



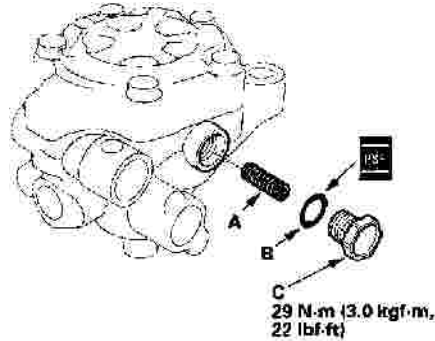
35. Install the pump housing (A) over the cover assembly (B).



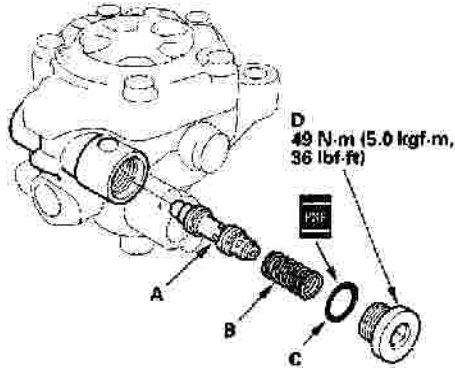
36. Align the bolt holes in the cover (B) with the threaded holes in the pump housing. Install the five flange bolts (C) loosely first, then torque the flange bolts in 2 or more steps with sequence shown.



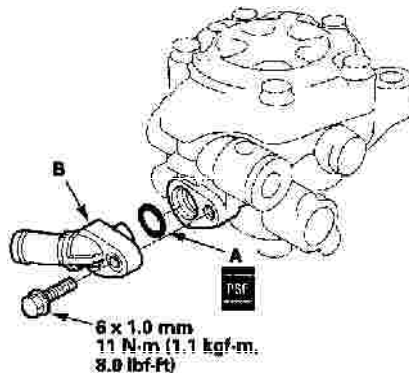
37. Push in the cam ring (A) from the pump housing cap hole (B) with a flat blade screwdriver, to make sure the cam ring is fully seated against the outer case.



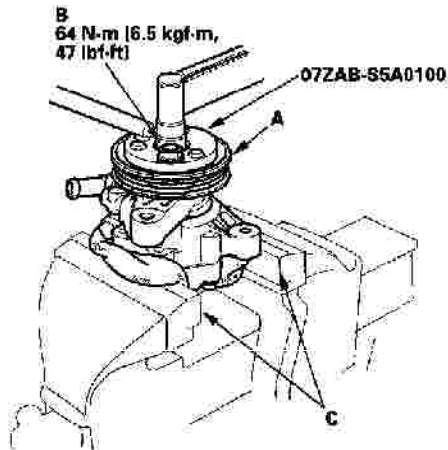
38. Install the pump preload spring (A) in the pump housing.  
 39. Coat the new 12.7 mm O-ring (B) with power steering fluid, and install it on the pump housing cap (C).  
 40. Install the pump housing cap (C) on the pump housing, and tighten it to the specified torque.



41. Coat the pressure control valve (A) with power steering fluid, and install pressure control valve and spring (B) on the pump housing.  
 42. Coat the new 16.7 mm O-ring (C) with power steering fluid, and install it on the flow control valve cap (D).  
 43. Install the pressure control valve cap (D) on the pump housing, and tighten it to the specified torque.



44. Coat the new O-ring (A) with power steering fluid, and install it on the inlet joint (B).
45. Install the inlet joint (B) on the pump housing.



46. Install the pulley (A), then loosely install the pulley nut (B). Hold the steering pump in a vise with soft jaws (C). Be careful not to damage the pump housing with the jaws of the vise.
47. Hold the pulley with the special tool, and tighten the pulley nut.
48. Check that the pump turns smoothly by turning the pulley. If it turns hard, loosen the five flange bolts ('01-03 models) or four flange bolts ('04 model) on the cover, then try retightening them again in the same manner as in the step 36.