

SECTION 3B1B**POWER STEERING PUMP
UNIT REPAIR**

NOTICE: When fasteners are removed, always reinstall them at the same location from which they were removed. If a fastener needs to be replaced, use the correct part number fastener for that application. If the correct part number fastener is not available, a fastener of equal size and strength (or stronger) may be used. Fasteners that are not reused and those requiring thread locking compound will be called out. The correct torque value must be used when installing fasteners that require it. If the above conditions are not followed, parts or system damage could result.

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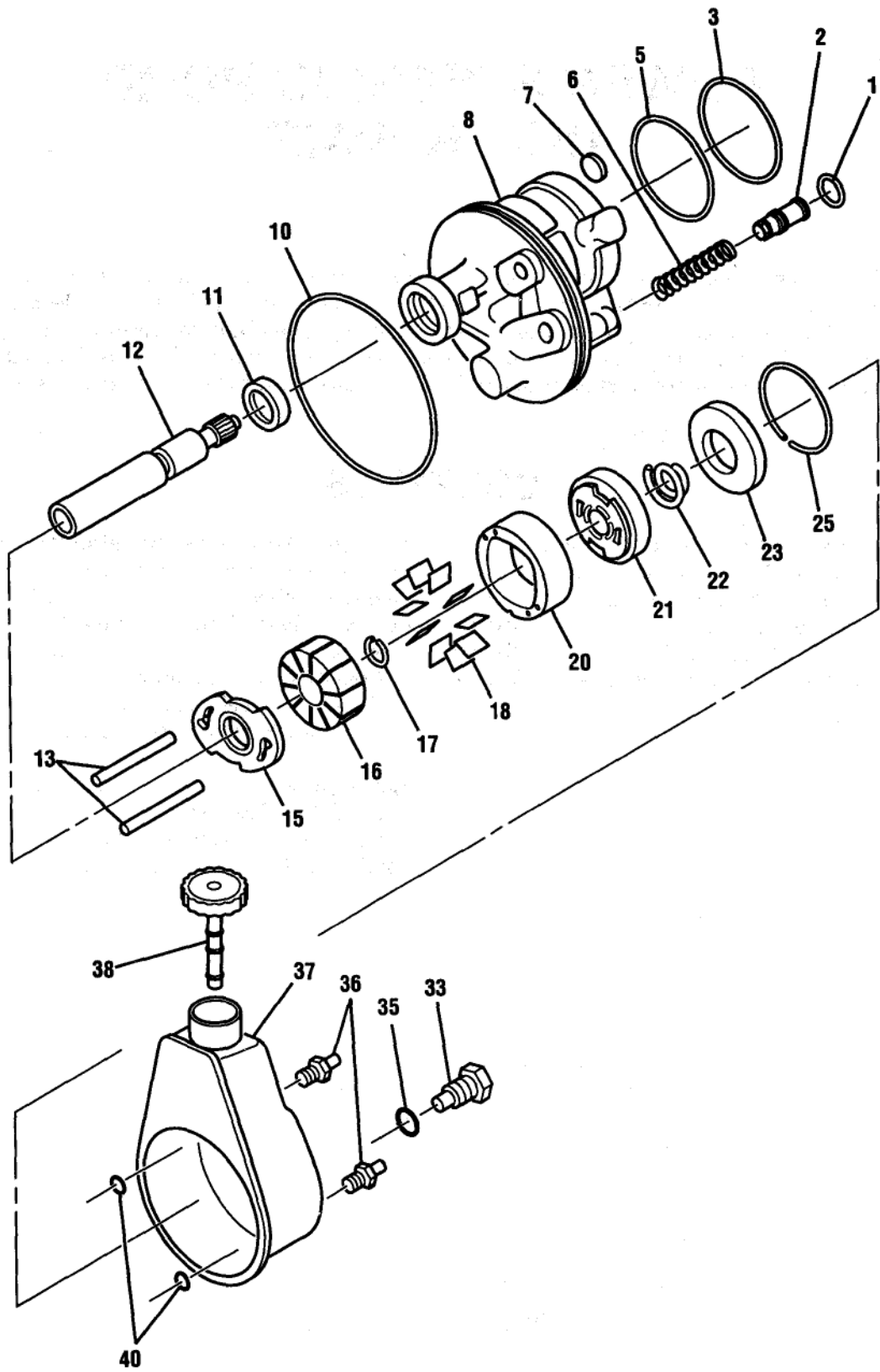


Figure 1 P Series Power Steering Pump

**Important**

- Use new seals when assembling pump.

**Assemble**

- Lubricate O-ring seals (1, 10, 35 and 40) with power steering fluid.
1. Flow control spring (6) and control valve assembly (2) to housing (8). See Figure 1 for proper orientation.
 2. O-ring seals (1, 10, and 40) to housing (8).
 3. Magnet (7) to housing (8).
 4. Reservoir (37) to housing (8).
 5. O-ring seal (35) and fitting (33).

Notice: See "Notice" on page 3B1B-1 of this section.

6. Bolts (36).

**Tighten**

- Bolts (36) to 58 N•m (43 lb. ft.).
- Fitting (33) to 75 N•m (55 lb. ft.).

**Install or Connect**

- Power steering pump. Refer to "Power Steering Pump Replacement" in section 3B.

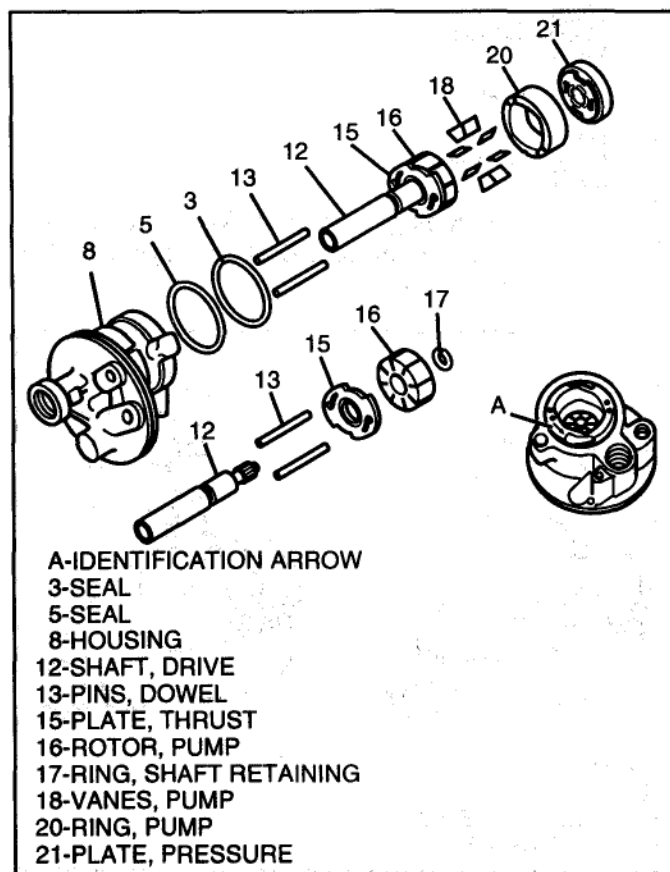


Figure 4 Rotating Group

END PLATE AND ROTATING GROUP REPLACEMENT*Figures 1, 2 and 4***Remove or Disconnect**

- Power steering pump from vehicle. Refer to "Power Steering Pump Replacement" in section 3B.

**Disassemble**

1. Pump reservoir. Refer to "Pump Reservoir Replacement" in this section.
2. Retaining ring (25).
3. End plate (23) and spring (22).

Notice: Examine exposed portion of pump drive shaft. If it is corroded, clean with crocus cloth before removing. This will prevent damage to the shaft bushing which might require replacement of the entire housing.

4. Pressure plate (21) by using a rubber mallet to tap lightly on the drive shaft (12).
5. Pump ring (20).
6. Pump vanes (18).
7. Shaft, rotor and thrust plate assembly.
8. Shaft retaining ring (17).
9. Pump rotor (16).
10. Thrust plate (15).
11. Drive shaft (12).
12. Dowel pins (13).
13. O-ring seals (3 and 5).

**Important**

- Use new seals and drive shaft retaining ring when assembling pump.

**Assemble**

- Lubricate O-ring seals (3 and 5) with power steering fluid.
1. O-ring seals (3 and 5) to housing (8).
 2. Dowel pins (13) to housing (8).
 3. Thrust plate (15) and pump rotor (16) to drive shaft (12) and secure with retaining ring (17).
 4. Shaft, rotor and thrust plate assembly to housing (8).
 5. Pump vanes (18) to pump rotor (16).
 6. Pump ring (20) to housing (8) with identification arrow on top edge of ring (20) facing outward.
 7. Pressure plate (21).
 8. Spring (22) and end plate (23).
 9. Retaining ring (25).
 10. Pump reservoir (37). Refer to "Pump Reservoir Replacement" in this section.

**Install or Connect**

- Power steering pump. Refer to "Power Steering Pump Replacement" in section 3B.

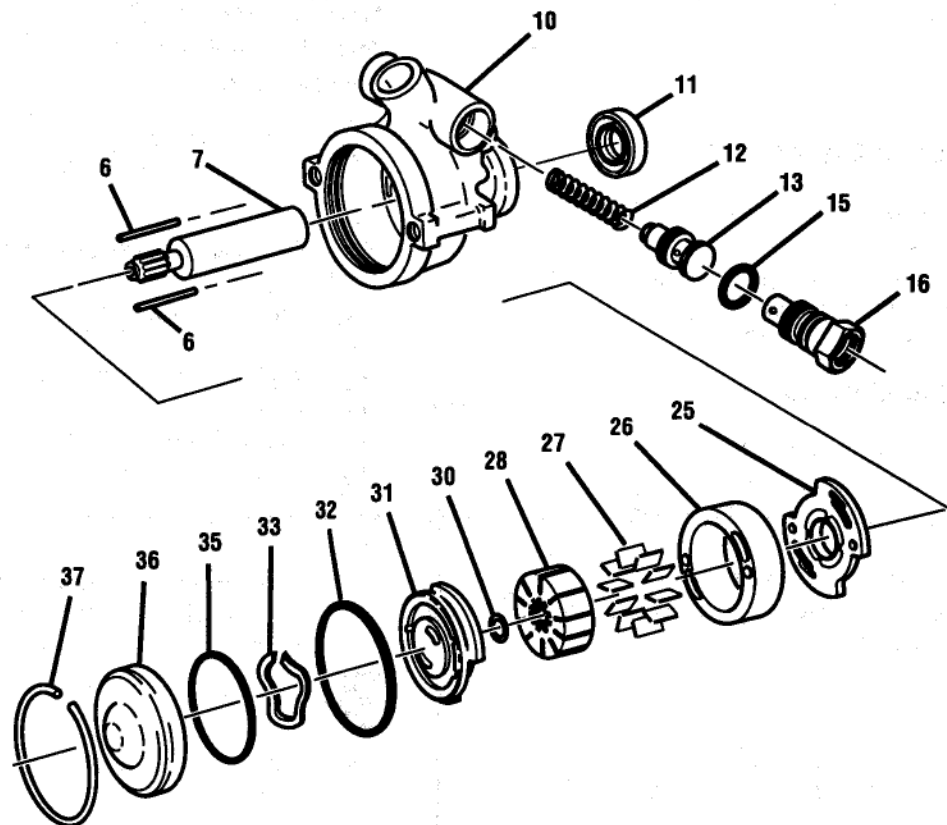


Figure 1 Power Steering Pump – Reverse Rotation

Key No.	Part Name
6 - PIN, PUMP RING DOWEL	
7 - SHAFT, DRIVE	
10 - HOUSING ASM, BUSHING &	
11 - SEAL, DRIVE SHAFT	
12 - SPRING, FLOW CONTROL	
13 - VALVE ASM, CONTROL	
15 - SEAL, O-RING	
16 - FITTING, O-RING UNION	
25 - PLATE, THRUST	

Key No.	Part Name
26 - RING, PUMP	
27 - VANE, PUMP	
28 - ROTOR, PUMP	
30 - RING, SHAFT RETAINING	
31 - PLATE, PRESSURE	
32 - SEAL, O-RING	
33 - SPRING, PRESSURE PLATE	
35 - SEAL, O-RING	
36 - COVER, END	
37 - RING, RETAINING	

Figure 2 Power Steering Pump – Reverse Rotation – Legend

CONTROL VALVE

Figure 1

Remove or Disconnect

1. Pump assembly from vehicle, if necessary for access.
2. O-ring union fitting (16) and O-ring (15).
3. Control valve assembly (13).
4. Flow control spring (12).

Install or Connect

1. Flow control spring (12).
2. Control valve assembly (13).
3. Lubricate new O-ring (15) with power steering fluid.
 - O-ring (15) on fitting (16).
4. Fitting (16) into hydraulic pump housing assembly (10).

Tighten

- Fitting (16) to 75 N•m (55 lb. ft.).
5. Pump assembly to vehicle, if removed.

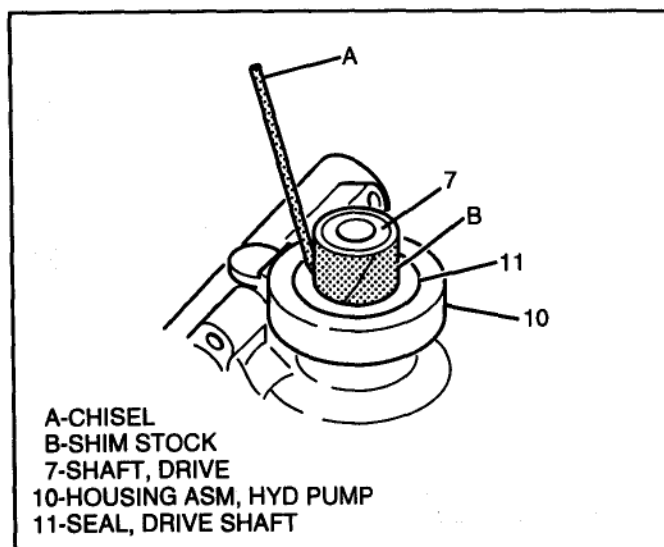


Figure 3 Shaft Seal Removal

DRIVE SHAFT SEAL

(without disassembly of pump)

Figures 3 and 4

Tool Required:

J 7728 Shaft Oil Seal Installer

Remove or Disconnect

1. Pump assembly from vehicle, if necessary for access.
2. Protect drive shaft (7) with shim stock (see Figure 3).
3. Seal (11) and discard. (Use small chisel to cut drive shaft seal.)

Install or Connect

1. New drive shaft seal (11), lubricated with power steering fluid, using tool J 7728 (see Figure 4).
2. Pump assembly to vehicle, if removed.

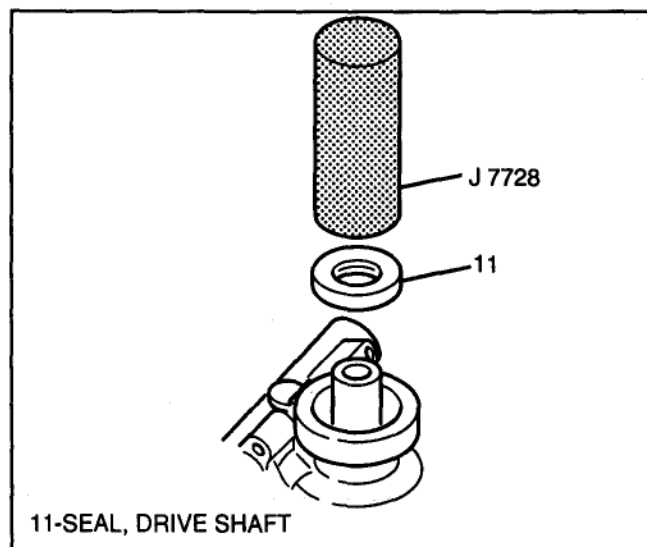


Figure 4 Seal Installation

HYDRAULIC PUMP ASSEMBLY**Figures 1, 4 thru 8**

Tool Required:

J 7728 Shaft Oil Seal Installer

**Disassemble**

1. Retaining ring (37) using punch in access hole (see Figure 5).
2. Internal components of pump from pump housing (10) by gently pushing on drive shaft (7). Components should include pressure plate sub-assembly consisting of:
 - End cover (36).
 - O-ring seal (35).
 - Pressure plate spring (33).
 - Pressure plate (31).
 Drive shaft sub-assembly consisting of:
 - Pump rotor (28).
 - Thrust plate (25).
 - Drive shaft (7).
 - Shaft retaining ring (30).
 Pump ring (26) and vanes (27).
3. O-ring (32) from pump housing (10).

4. Dowel pins (6).
5. Drive shaft seal (11).
6. End cover (36), pressure plate spring (33) and O-ring (35) from pressure plate (31).
7. Pump ring (26) and vanes (27) from drive shaft sub-assembly.
8. Shaft retaining ring (30) from drive shaft (7).
9. Pump rotor (28) and thrust plate (25) from drive shaft (7).

**Clean**

- All parts in power steering fluid.
- Dry parts.

**Inspect**

- Pressure plate (31).
- Pump ring (26).
- Rotor (28).
- Vanes (27).
- Thrust plate (25).
- Drive shaft (7).

For scoring, pitting or chatter marks. If noted, replace appropriate parts.

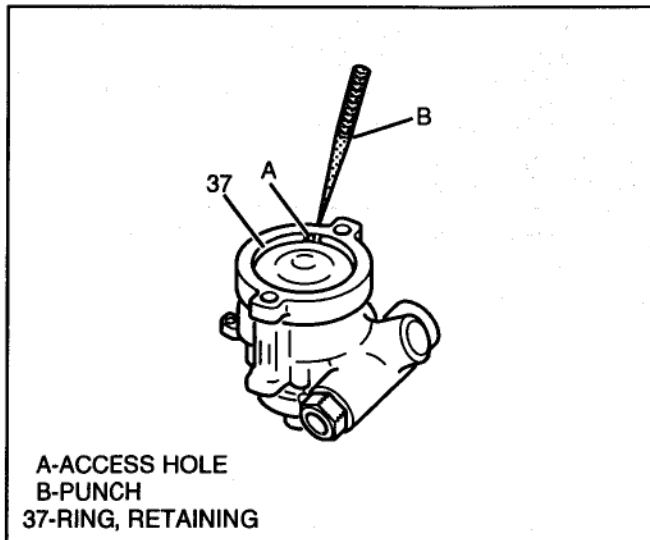


Figure 5 Retaining Ring Removal

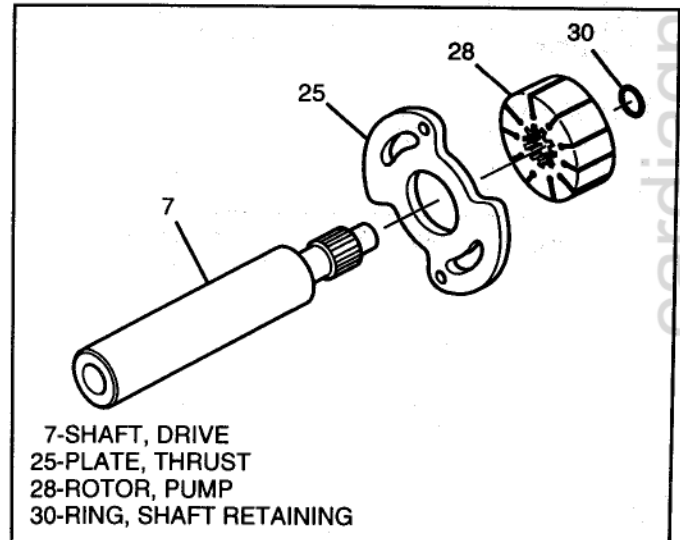


Figure 6 Retaining Ring Installation (Shaft)



Assembly

1. Lubricate new drive shaft seal (11) with power steering fluid.
 - Drive shaft seal (11) into pump housing (10) with tool J 7728 (see Figure 4).
2. Pump ring dowel pins (6) into pump housing (10).
3. Thrust plate (25) and pump rotor (28) to drive shaft (7) (see Figure 6).
4. New shaft retaining ring (30) onto drive shaft (7).
5. Drive shaft sub-assembly into pump housing (10).
6. Vanes (27) into pump rotor (28).

7. Pump ring (26), with holes positioned correctly onto dowel pins (6), in pump housing (10) (see Figure 7).
8. Lubricate new O-ring (32) with power steering fluid.
 - O-ring (32) into groove in pump housing (10).
9. Pressure plate (31).
10. Pressure plate spring (33).
11. Lubricate new O-ring (35) with power steering fluid.
 - O-ring (35) into end cover (36).
12. Lubricate outer edge of end cover (36) with power steering fluid.
13. Press end cover (36) into pump housing (10).
14. Retaining ring (37) into groove in pump housing (10), with ring opening near access hole in pump housing (see Figure 8).

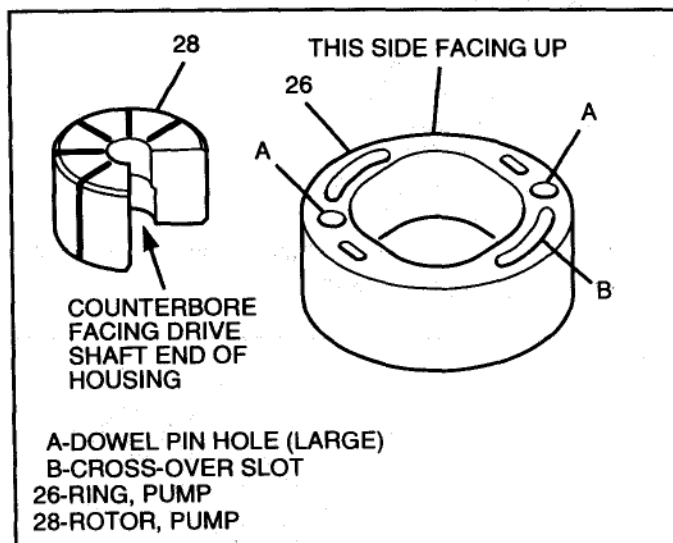


Figure 7 Rotor or Pump Ring Installation

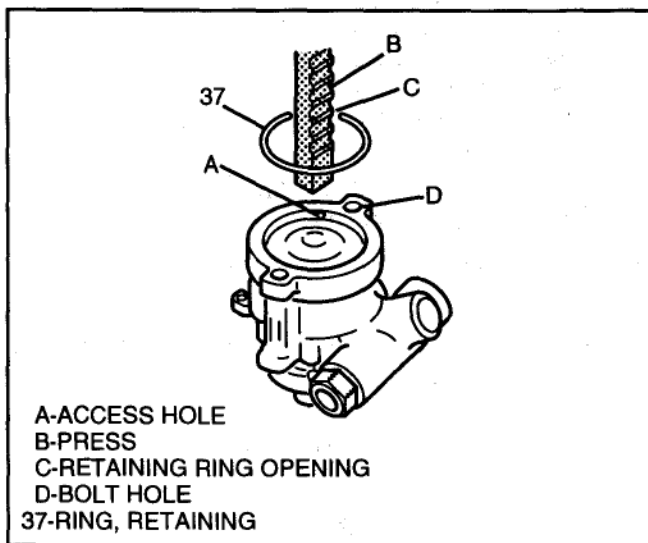


Figure 8 Retaining Ring Installation (Housing)

SPECIFICATIONS

FLUID CAPACITIES

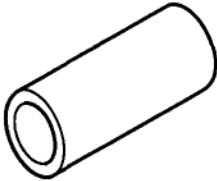
Lubricant	GM Power Steering Fluid Part No. 1050017 or Equivalent meeting GM Specification 9985010
Capacity Complete System	0.75 liter (1-1/2 pints)
Pump Only	0.5 liter (1 pint)

FASTENER TORQUES

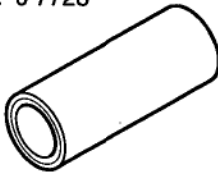
P Series Power Steering Pump		
(33)	Connector and Fitting Assembly	75.0 N•m (55 lb. ft.)
(36)	Pump Mounting Bolt	58.0 N•m (43 lb. ft.)
Reverse Rotation Power Steering Pump		
(16)	O-ring Union Fitting	75.0 N•m (55 lb. ft.)

SPECIAL TOOLS

1. J 22670



2. J 7728



1. SHAFT OIL SEAL INSTALLER (P SERIES PUMP)

2. SHAFT OIL SEAL INSTALLER (REVERSE ROTATION PUMP)

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