

Power Steering Pump—Saginaw

**PART
13-52**

Applies to Ford, Mercury, Continental Mark V and Lincoln Continental

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DESCRIPTION

POWER STEERING PUMP

The power steering pump (Fig. 1) is a constant displacement vane type providing hydraulic pressure for the steering system and on some vehicles, the hydraulic brake booster and/or skid control. The housing and internal parts of the pump are inside the reservoir so the pump parts operate submerged in oil. The reservoir is sealed against the pump housing, leaving the housing face and the shaft hub exposed. The reservoir has a filler neck with a cap.

The drive shaft is fitted with a pulley and is belt driven from the crankshaft. The rotor is loosely splined to the drive shaft and secured with a retaining ring. Ten vanes are mounted in radial slots in the rotor.

An identification label showing the pump model number is located on the outboard side of the pump reservoir.

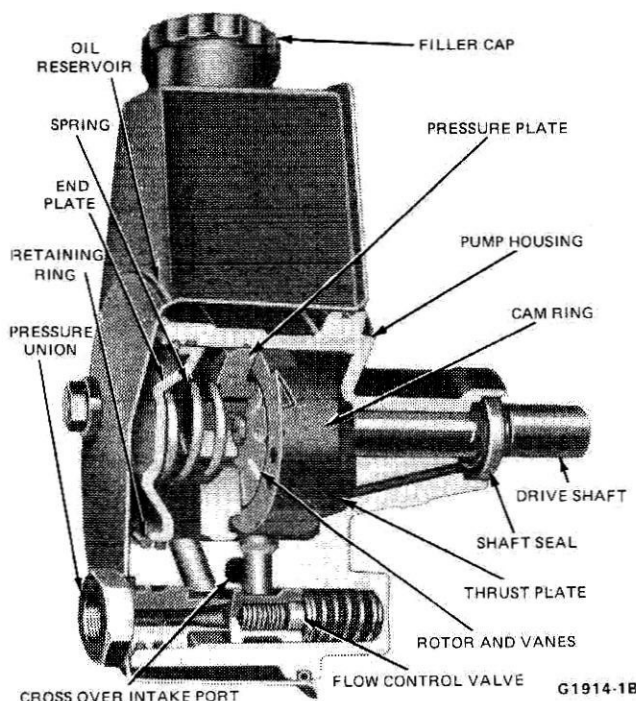


FIG. 1 Power Steering Pump—Sectional View

ADJUSTMENTS

PUMP BELT TENSION ADJUSTMENT

Pump drive belt tension cannot be checked accurately using the thumb pressure or belt deflection methods. The adjustment must be made with a belt tension gauge.

1. Check the belt tension with belt tension gauge Tool T63L-8620-A. For a new belt, or a belt that has been run for less than 15 minutes, tension should be 120 to 150 lbs. For a belt that has been run for longer than 15 minutes, tension should be 90 to 120 lbs.

2. Loosen the three (3) bolts covering the slotted holes in the engine mounting bracket (Figs. 2 and 3).
3. Increase belt tension by rotating the adjusting nut (Figs. 2 and 3) in a clockwise direction.
4. Decrease belt tension by rotating the adjusting nut in a counter-clockwise direction.
5. Tighten the three mounting bolts and check the belt tension. When tension is correct, torque the mounting bolts to 30-45 ft.-lb.

REMOVAL AND INSTALLATION

POWER STEERING PUMP

Removal

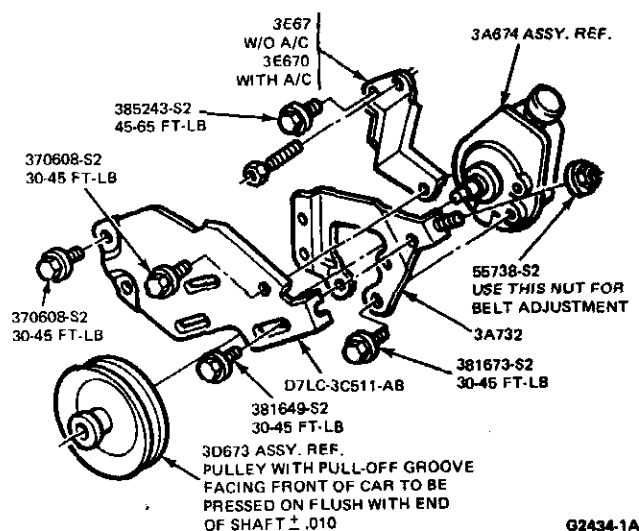


FIG. 2 Power Steering Pump Installation — Lincoln Continental, Continental Mark V, Ford and Mercury with 5.8L/6.6L (351/400 CID) V-8 Engines

1. Disconnect the pressure and return lines from the pump and plug them to prevent loss of fluid or entrance of dirt into the system (Figs. 2 and 3).
2. Loosen the belt tension adjusting nut all the way.
3. Remove the bolts attaching the pump mounting bracket to the air conditioning bracket (if equipped).
4. Remove the pump, mounting bracket, and pulley assembly.

Installation

1. Install the pump, bracket and pulley assembly and loosely attach the bolts that secure the pump mounting bracket to the air conditioning bracket (if equipped).
2. Install the drive belts on the pulley.
3. Loosely install the belt tension adjusting nut.
4. Torque the adjusting nut until the correct tension is acquired.

5. Torque all attaching bolts to specification.
6. Connect the pressure and return lines to the pump.
7. Fill the reservoir with the specified power steering fluid as described in Part 13-01. Bleed the air from the system by turning the steering wheel from left to right several times. Vehicles equipped with Hydro-Boost brake booster should be vacuum-filled as described in Part 13-01. Inspect for leaks.

POWER STEERING PUMP PULLEY

Removal

1. With the pump removed from the vehicle, drain as much fluid as possible through the filler tube.
2. Clamp the mounting bracket in a vise with the pump attached.
3. Install the pulley remover, Tool T75L-3733-A, on the pulley hub.

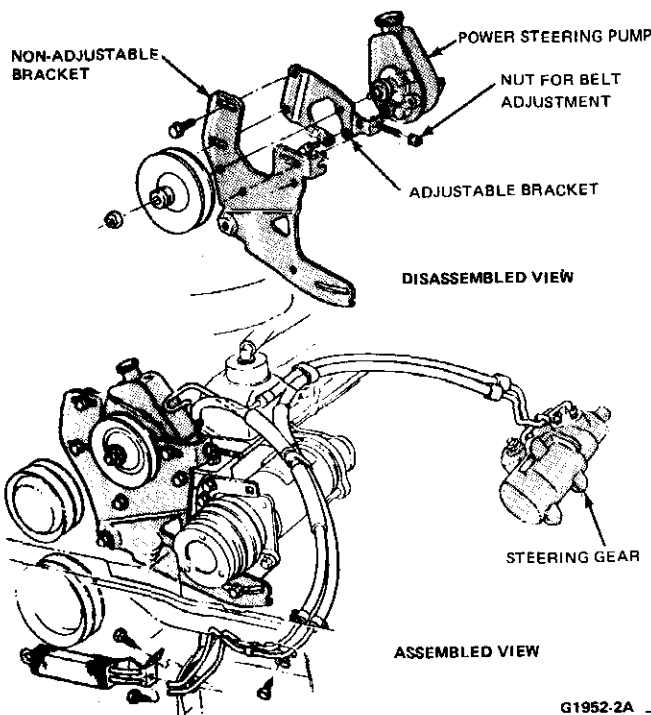


FIG. 3 Power Steering Pump Installation — Lincoln Continental, Continental Mark V, Ford, Mercury with 7.5L (460 CID) Engine and A/C

4. Rotate the tool nut counterclockwise to remove the pulley. **Do not hammer the tool. This could damage the pulley and the snap ring at the inner end of the shaft.** If the snap ring is damaged, disassemble the pump, as outlined in this Part, and replace the ring.

Installation

1. Install the pulley on the shaft using the Pulley Installer Tool T75L-3733-A.

ROTOR SHAFT SEAL

To replace the rotor shaft seal, remove the pump as outlined in this Part.

Removal

1. Drain as much fluid as possible through the filler tube.
2. Remove the pulley from the pump following the procedures described in this Part.
3. Insert a sharp tool between the rotor shaft seal and the pump housing. Pry out the seal. **Do not pry against the shaft or housing bore.**

Installation

1. Remove the pump and bracket from the vise and lay it flat on the workbench.
2. Place a **new** rotor shaft seal on the shaft with the metal backing facing the pulley end of the shaft.

3. Install the seal (Fig. 4).
4. Install the pulley.

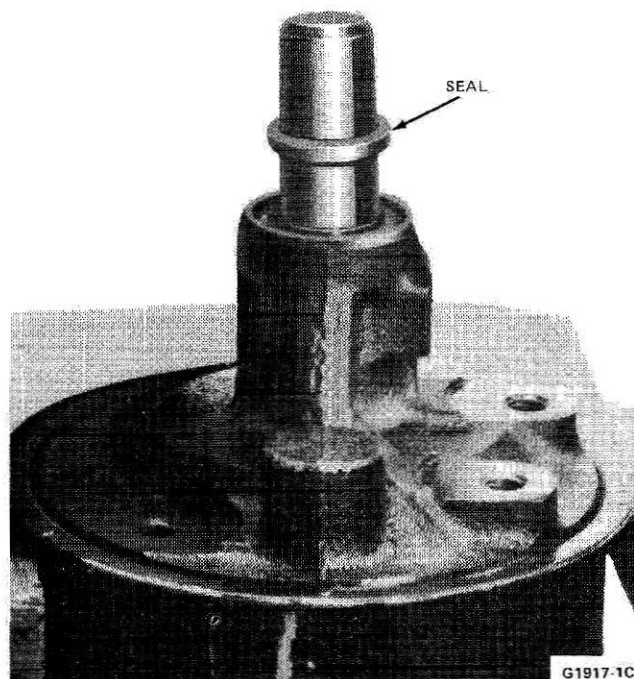


FIG. 4 Rotor Shaft Seal

DISASSEMBLY AND ASSEMBLY

POWER STEERING PUMP

Take the following precautions when servicing the power steering pump:

1. Use a clean work bench and tools.

2. Clean the exterior of the unit with solvent. Drain as much fluid as possible.
3. If only the rotor shaft seal is being replaced, follow the procedures under Rotor Shaft Seal Removal and Installation in this Part.

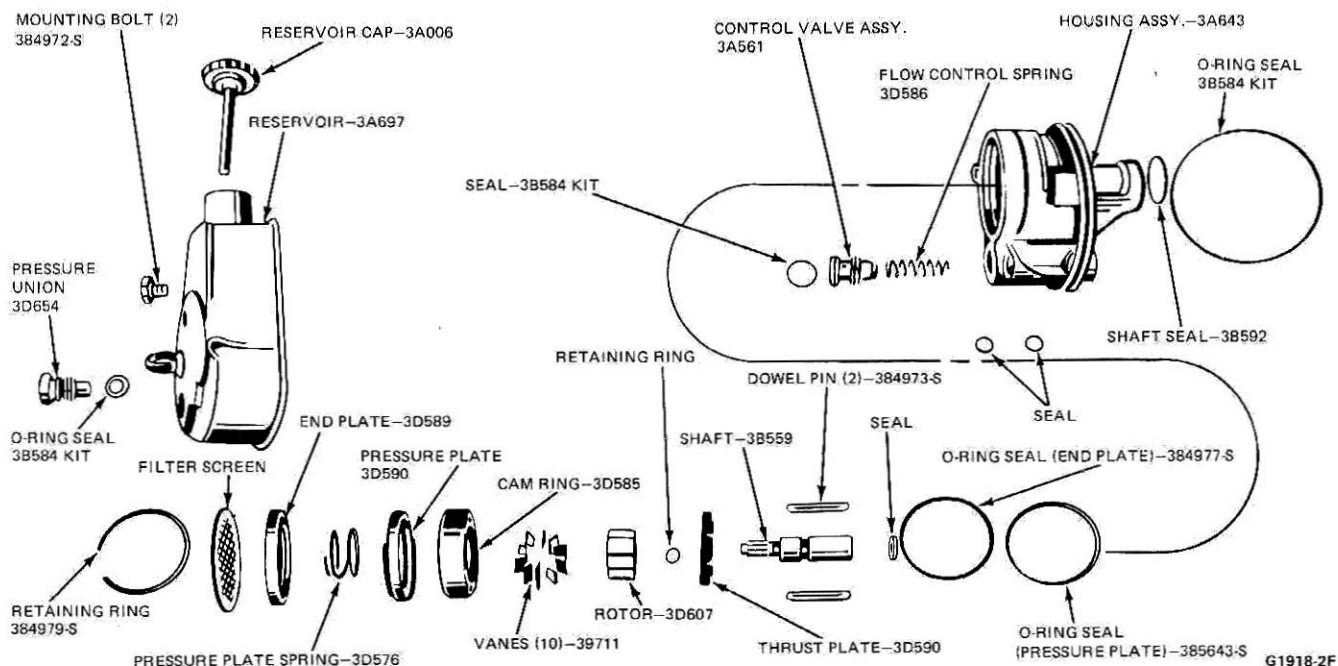
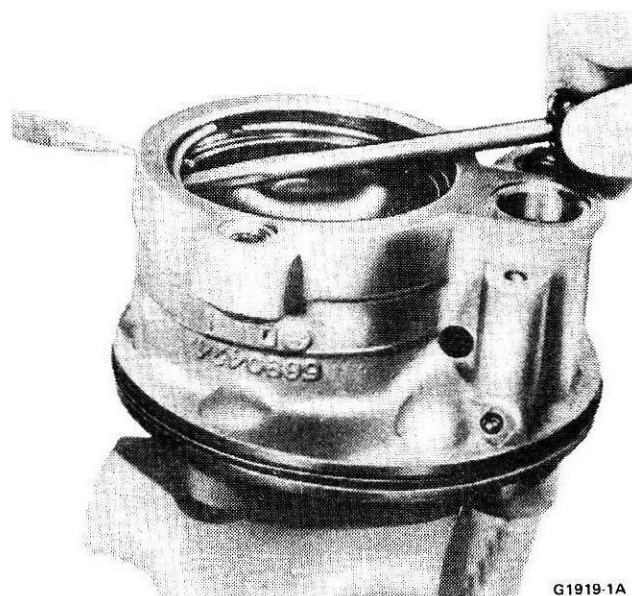


FIG. 5 Power Steering Pump Disassembled

4. Do not use solvent on seals.

Disassembly

1. Remove the bracket and pulley from the pump.
2. Clamp the front hub of the pump in a vise so the extending portion of the shaft points down. **Do not clamp the pump too tightly or bearing damage may result.**
3. Remove the pressure union, O-ring assembly, and both mounting bolts from the back of the reservoir. Discard all seals and O-rings.
4. Rock the reservoir slightly back and forth to unseat the O-ring seal. Remove the O-ring and discard. Remove the reservoir.
5. Remove the mounting bolt and pressure union seals from the counterbored spaces in the pump housing. Discard the seals.
6. Rotate the end plate retaining ring so that one end of the ring is over the hole in the housing. Insert a small punch in the 1/8 inch diameter hole in the housing side opposite the flow control valve hole. Compress the retaining ring with the punch and remove the ring by twisting a screwdriver under the ring (Fig. 6).



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FIG. 6 Removing the End Plate Retaining Ring

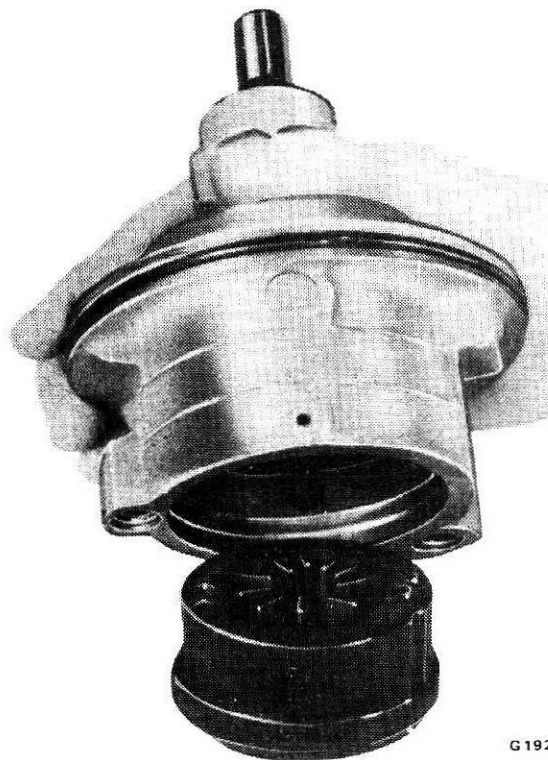
7. Remove the end plate. The end plate is spring loaded and will generally sit above the housing level for easy removal. If the plate sticks, rock it back and forth lightly to free it.
8. Remove the pressure plate spring.
9. Remove the pump from the vise and turn it over allowing the flow control valve and its spring to fall out. Do not disassemble the flow control valve. Service it as a unit.
10. With the end plate O-ring removed, tap very lightly on the end of the shaft until the pressure plate falls free.
11. Remove the cam ring, vanes and rotor (Fig. 7).
12. Remove the cam ring and vanes from the rotor.
13. Remove the retaining ring by clamping the shaft in a soft-jawed vise and prying the ring off the shaft

with a pair of long nose pliers or a screwdriver. Do not damage the shaft with the vise jaws. Discard the retaining ring.

14. Remove the rotor and thrust plate from the shaft.
15. Remove both dowel pins from the housing.
16. Remove the pressure plate and end plate O-ring seals from the housing bore and discard them.
17. Remove the shaft seal only if it is defective. Removal will destroy the seal.

Assembly

1. Clean all metal parts with solvent.
2. If the shaft seal was removed, install a **new** seal following the instructions under Rotor Shaft Seal Removal and Installation in this Part.
3. Lubricate a **new** pressure plate O-ring seal with power steering fluid and install it in the third groove from the rear of the housing.
4. Clamp the end hub of the housing in a vise so the extending portion of the shaft points down. Do not clamp the bearing too tightly or damage may occur.
5. Insert both dowel pins.
6. Install the thrust plate on the drive shaft with the ported face toward the splined end of the shaft.
7. Install the rotor on the shaft with the counterbored end toward the thrust plate.
8. Clamp the shaft in a soft-jawed vise. Install a new retaining ring on the splined end of the shaft by prying the ring open and sliding it down over the shaft until it seats in the ring groove. **Do not damage the shaft.**
9. Insert the shaft in the housing, making certain the thrust plate slides properly on the dowel pins.



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FIG. 7 Removing the Cam Ring, Vanes and Rotor