Power Steering General Servicing

ALL MODELS

Chrysler Corp.
Dodge
Plymouth
Ford Motor Co.
General Motors
Chevrolet
GMC
International Harvester
Jeep

LUBRICATION

SERVICE INTERVALS

Chrysler Corp. – Check fluid level every oil change.

Ford Motor Co. – Check periodically or if leakage is observed.

General Motors – On all except motor home chassis, check fluid level every 6 months or 7,500 miles. On motor home chassis, check fluid level every 6 months or 6,000 miles.

International Harvester – Check fluid level periodically.

Jeep – Check fluid level every 5,000 miles.

CHECKING FLUID LEVEL

Chrysler Corp. – Check fluid level with engine stopped and fluid at ambient temperature (70-80°F). Fluid level must be to "FULL COLD" mark on dipstick.

Ford Motor Co. – With fluid at normal operating temperature and system properly bled, shut off engine. Fluid level on dipstick must show on cross hatching between bottom of stick and full mark. Do not overfill.

General Motors, International Harvester & Jeep – Check fluid level with engine stopped and fluid either hot or cold. Fluid level must be to "FULL HOT" or "FULL COLD" mark on dipstick.

RECOMMENDED FLUID

Application	Fluid Type
Chrysler Corp.	
M400, 500 & 600	①Hydroboost Fluid (4026411)
All Others	②Power Steering Fluid (2084329)
Ford Motor Co.	③Power Steering Fluid (D5AZ-14582-A)
General Motors	①Power Steering Fluid (1050017)
International Harvester	Dexron Auto. Trans. Fluid
Jeep	Dexron Auto. Trans. Fluid

① – Automatic transmission fluid (Dexron Type) may be used in an emergency.
② – Do not use automatic transmission fluid.
③ – 4-WD units operated in temperatures below 0°F may use low temperature power steering fluid (D3AZ-19582-A).

REFILLING & BLEEDING SYSTEM

Chrysler Corp. (Exc. M400, 500 & 600) – Fill pump reservoir with power steering fluid, start engine and check for leaks. Bleed system by turning wheels from stop to stop several times. Shut off engine and recheck fluid level.

Chrysler Corp. M400, 500 & 600 – 1) Fill pump reservoir with Hydroboost power steering fluid and allow fluid to remain undisturbed for two minutes. Start and run engine for ten seconds. Check fluid level and add fluid, if necessary. Repeat this procedure until fluid level remains constant. Raise front of vehicle until tires are clear of ground.

2) Start engine and run at 1500 RPM. Apply and release brake pedal several times while turning steering lightly to stops in both directions. Turn off engine and check fluid level, top up if necessary. Lower vehicle, run engine at 1500 RPM and again cycle brakes and steering several times. Turn off engine and recheck fluid level, top up if necessary. If fluid is very foamy, allow vehicle to stand for one hour with engine off. If fluid is low, repeat bleeding process.

Ford Motor Co. – Disconnect coil wire and fill pump reservoir with fluid. Crank engine with starter and add fluid until level remains constant. While cranking engine, turn steering wheel about 30° to each side and recheck fluid level. Connect coil wire, start engine and allow it to run for several minutes. Rotate steering wheel from stop to stop several times, stop engine and recheck fluid level.

General Motors – 1) Fill reservoir to correct level. Let oil settle for two minutes. Start engine and run for two seconds. Check reservoir and add oil if necessary. Repeat procedure until level in reservoir remains constant after running engine

2) Raise front of vehicle so that both wheels are off ground. Start engine and increase engine speed to 1500 RPM. Turn wheels right and left, lightly contacting stops. Check reservoir level and add oil if necessary.

3) If oil is foamy, allow vehicle to stand still for a few minutes with engine off. Repeat procedure with vehicle raised. Again check fluid level and for air in system. If level is low or there is air in system, repeat complete procedure.

International Harvester – Fill reservoir to correct level. With power steering pump belt removed, turn pulley backwards (counterclockwise viewed from front) until air bubbles no longer appear in reservoir.

Jeep – Fill reservoir to correct level. Turn wheels from right to left without hitting wheel stops. Maintain fluid level just above pump housing. Fluid with air will have a red or light tan appearance.

SERVICE

BELT TENSION

Tension (Lbs.) Using Strand Tension Gauge

Application	New Belt	Used Belt
Chrysler Corp.	120	70
Ford Motor Co.		
1/4" Belt	80	60
All Other Belts	140	140
General Motors	125±5	75±5
International Harvester	①	①
Jeep	125-155	90-115

① – Belt Deflection should be 3/8".

ALL MODELS (Cont.)

TROUBLE SHOOTING

RATTLE OR CHUCKLE NOISE

Loose steering gear mountings. Worn steering linkage. Loose pitman shaft. Incorrect overcenter adjustment. Pressure hose touching body or frame.

SQUAWK IN GEAR WHEN TURNING

Worn spool valve damper "O" ring.

CHIRP OR SQUEAL AT FULL WHEEL TRAVEL

Loose drive belt tension.

WHINE OR GROWL NOISES

Low fluid level. Hose restriction or kink. Pressure hose touching body or frame. Worn or damaged pump.

GROANING NOISE

Low fluid level. Air in system. Worn or damaged pump.

POOR STEERING RETURN

Binding in steering column or linkage. Incorrect tire pressure. Incorrect wheel alignment. Power cylinder damaged. Defective spool valve. Steering gear damaged or adjusted too tight. Bent power cylinder rod (non-integral steering only). Hose restriction or kink.

STEERING WANDER

Incorrect tire pressure. Incorrect wheel bearing adjustment. Defective valve body. Incorrect steering gear adjustment. Incorrect wheel alignment. Loose steering gear mountings.

HARD STEERING OR LACK OF ASSIST

Incorrect tire pressure. Loose drive belt tension. Low fluid level. Sticking flow control valve. Low pump pressure. Internal steering gear leakage. Steering column misalignment. Incorrect wheel alignment. Hose restriction or kink.

KICKBACK OR LOOSE STEERING

Air in system. Loose steering gear mountings. Loose flexible coupling. Steering linkage worn. Incorrect wheel bearing adjustment. Worn poppet valve. Excessive overcenter lash. Loose steering gear preload.

STEERING WHEEL JERKS

Low fluid level. Loose drive belt tension. Low pump pressure. Steering linkage hitting chassis or engine at turn wheel travel.

LOW PUMP PRESSURE

Defective flow control valve. Defective pressure plate. Worn cam ring. Scored pressure plate, thrust plate or rotor. Defective or mis-assembled vanes (vane type pump).

TESTING

PRESSURE TEST

All Except Ford Motor Co. – 1) With belt tension correct, disconnect power steering pump press hose, keeping hose end raised to prevent excess fluid loss. Connect pressure hose of suitable power steering pressure gauge to power steering pump fitting. Connect a second pressure hose from valve side of tester to steering gear inlet. Open valve fully and run engine until fluid obtains normal operating temperature. Check fluid level and add fluid if necessary.

2) On all models except Chrysler Corp., note pressure reading with valve open and engine idling. This pressure should be 80-125 psi. If pressure is in excess of 200 psi, check hoses for restrictions and poppet valve (in gear) for proper assembly. On all models, close tester valve fully and re-open three times. Record highest pressure noted each time. **CAUTION** – *Do not hold valve closed for more than five seconds as pump damage may result.* If pressures are within specifications and range of readings is within 50 psi, pump is operating satisfactory.

3) If pressures recorded are high, but do not repeat within 50 psi, flow control valve is sticking. If pump performance is to specifications, turn steering wheel to both stops with valve open and note highest pressures. Compare readings with maximum pump output. **CAUTION** – *Do not hold wheel against stops over 5 seconds as pump may be damaged.* If pump output cannot be met in either side of gear, gear is leaking internally. Shut off engine and remove tester. Reconnect all hoses and recheck fluid level.

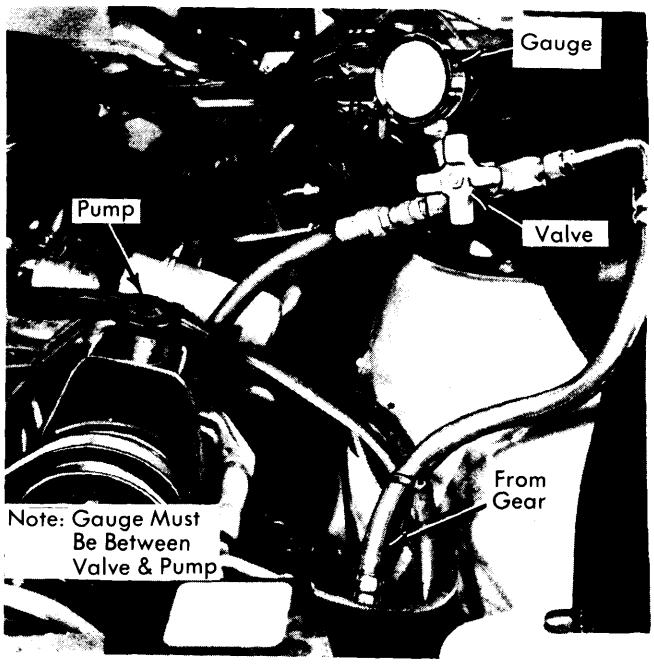

Fig. 1 Test Connections for Pressure Test (All Exc. Ford Motor Co.)

ALL MODELS (Cont.)

Ford Motor Co. – 1) With belt tension correctly adjusted, check that correct pump and pulleys are installed on vehicle being tested. Disconnect pressure and return lines at power steering pump and connect line of testing tool as shown in illustration. Make sure both valves "A" and "B" are fully open. Connect tachometer, start engine and make sure engine is idling at specified idle speed. Run engine until reservoir fluid temperature reaches 165-175°F. This temperature must be maintained throughout the test. Valve "B" may be partially closed to create a back pressure up to 350 psi to hasten temperature rise. Make sure fluid is at specified level.

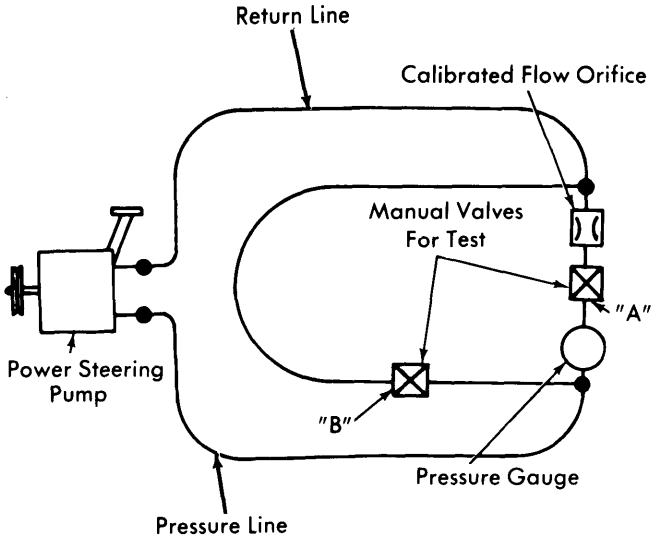

Fig. 2 Test Connections for Pressure Test (Ford Motor Co.)

2) With engine at specified idle speed, close valve "B" and make sure pressure is to idle specifications. If pressure is low, pump is faulty. Open valve "B" fully and proceed with test.

3) With engine still at specified idle speed, close valve "A" and then close valve "B". With valves fully closed, gauge should read specified relief pressure. **CAUTION** – *Do not keep both valves closed for more than 5 seconds at a time to prevent pump damage.* If pressure is below specifications, pump is faulty. If pressure is at specified value and steering is still not functioning correctly, problem is in steering gear or control valve.

PRESSURE TEST SPECIFICATIONS

Application	Pump Output Pressure (psi) Idle Pressure	Relief Pressure
Chrysler Corp.	900	1350-1450
Ford Motor Co.		
F-100, F-250 & F-350		
Saginaw Pump	900	1200
All Other Models		
Ford Thompson Pump	620	1350
Saginaw Pump	900	1350
General Motors		
"G" Models (Exc. 30)	80-125	900-1000
P30 MHC & "K" Models	80-125	1350-1450
GMC Motor Home	80-125	1250-1350
All Remaining Models	80-125	1200-1300
International Harvester	80-125	800-900
Jeep		
CJ Models	80-125	1100-1200
All Other Models	80-125	1400-1500