



Power Steering Pumps & Gears (troubleshooting & installation tips)

Keep Your System Clean!

We recommend when replacing a power steering pump or gear

- Inspect all hoses and fittings
- Flush and replace fluid
- Change filter

Symptom	Potential Causes	Solution
Oil leaking from gear box output shaft	Damaged shaft seal	Replace seal and shaft if necessary
Fluid is leaking out of reservoir or foaming	Clogged oil filter	Change fluid and filter
	Air in system	Bleed system, inspect suction side of supply pump for air leak
	Poppets of steering gear not adjusted properly causing high temperatures	Adjust poppets
	Pump cavitating	Inspect pump supply line for restriction
	Fluid overheating	Inspect steering gear return line for restriction
Hard turning in one or both directions	Bind in steering column	Inspect column drag
	Dirt or debris trapped in piston relief	Inspect piston relief
	Bent or damaged king pins and tie rods	Repair or replace king pins and tie rods
	Front end load too great	Lighten load
	Low fluid level in steering system	Fill reservoir as needed
	Air in system	Bleed system and inspect for cause
Steering radius restricted	Poppets not adjusted properly	Adjust poppets
Hard steering	Defective supply pump	Inspect pump flow
	Steering out of alignment	Align front end
	Fluid overheating	Find and correct overheating cause
High operating temperature	Fluid flow restriction	Inspect back pressure
		Check maximum oil flow
Road wander/over steering	Oil flow too high	Pump not to specifications
	Air trapped in gear	Bleed system
	Looseness worn front end parts	Inspect and repair as required
	Front end alignment not correct	Align front end
	Overloaded	Reduce loads
	Rear axle not parallel	Inspect and repair as needed
	Tight tie rod ends and drag link sockets	Inspect rotational torque and replace as needed

Initial Poppets / Plunger Setting Procedure

Note: This procedure is for new and remanufactured gears from Haldex or your vehicle manufacturer. All steering gears from Haldex have had their poppet/plunger seats replaced and reset.

Caution: System must be flushed prior to installing new gear. This will ensure any debris or foreign matter that is in system does not damage your new gear.

- Inspect axle stop bolts to ensure they are set to vehicle manufacturer's wheel cut or clearance specifications.
- Jack up front end so tires are off the ground.
- Start engine and let it die.
- Turn steering wheel to full left until you contact axle stop; pull hard on the steering wheel.
- Turn steering wheel to full right until you contact axle stops; pull hard on the steering wheel.
- Turn vehicle off.

Flushing Instructions - Pump

When replacing PUMP only:

- Lift front axle off the ground and support with axle stands. Be sure and block rear tires.
- Install pump. Do not reconnect return hose from gear to reservoir. Place hose into a five gallon container. Use a plug on reservoir to contain fluid.
- Select proper fluid as recommended for steering gear or linkage system. Note: A good rule of thumb is to use twice the amount of fluid as the capacity of the entire system.
- When possible, disconnect the ignition so the engine won't start. An assistant is required to crank over the engine and to rotate steering wheel at the same time. **Caution:** Avoid hitting or holding against axle stop or damage will occur. At the same time fill reservoir with fluid and make attempt at not letting the pump run dry. This can be difficult at best. This allows the valve to open and the piston to force clean fluid through the pressure hose, valve, piston area and out of the return hose into five gallon container. Flush until clean fluid comes out.
- Now re-attach return line to reservoir, top off reservoir, re-connect ignition system start engine and move wheel to one side. Stop engine and re-inspect fluid. **Caution:** Do not over fill!
- Start engine and turn steering wheel stop to stop approximately 6 times. Let run until system at running temp and repeat turning steering wheel stop to stop six times. **Caution:** Do not hold against axle stops. **Note:** Many steering systems use a manual bleed procedure. Determine gear type to see if it has a manual bleed screw to remove residual air from the system.

Flushing Instructions - Gear Box

When replacing GEAR only:

- Lift front axle off the ground and support with axle stands. Be sure and block rear tires.
- Install gear. Do not reconnect pressure and return hoses from gear to reservoir. Place hose into five gallon container. Use plug on reservoir to contain fluid.
- Select proper fluid as recommended for steering gear or linkage system. **Note:** A good rule of thumb is to use twice the amount of fluid as the capacity of entire system.
- When possible, disconnect the ignition so the engine won't start. An assistant is required to crank over the engine and to rotate steering wheel at same time. **Caution:** Avoid hitting or holding against axle stop or damage will occur. At the same time fill reservoir with fluid and make attempt at not letting the pump run dry. This can be difficult at best. This will allow the valve to open and the piston to force clean fluid through the pressure hose. Flush until clean fluid comes out.
- Remove return hose from reservoir, clean with solvent and air blow dry. Reinstall.
- After re-connecting hoses, fill reservoir and crank over engine 5 seconds. Now turn steering wheel stop to stop without cranking engine. Top off reservoir.
- Start engine and turn steering wheel stop to stop approximately 6 times. Let run until system at running temp and repeat turning steering wheel stop to stop six times. **Caution:** Do not hold against axle stops. **Note:** Many steering systems use a manual bleed procedure. Determine gear type to see if it has a manual bleed screw to remove residual air from the system.
- Lower to ground and inspect fluid level