



4920 Rondo Drive
Fort Worth, TX 76106
817-626-9006
www.steerco.com

VENTING AIR FROM POWER STEERING SYSTEMS

These instructions are general guidelines for venting air from a liquid filled (hydraulic) power steering system.

Where applicable, consult a Factory, Haynes, or Chilton repair manual for vehicle specific information.

We recommend repeating this procedure ***as many times as required*** to ensure that the power steering system is properly vented.

DO NOT START THE ENGINE UNTIL THE SYSTEM IS COMPLETELY VENTED. COMPONENT INTERNALS ARE METAL-TO-METAL CONTACT.

Air present in the system can cause catastrophic damage to the power steering pump, steering gear box, and the hydroboost brake unit.

STEERCO, LLC recommends using a ***clear***, premium or race grade synthetic power steering fluid. Recommended products include Genuine GM PS Fluid PN 19329448, SWEPCO 715 PS Fluid, or Royal Purple.

**DO NOT USE AUTOMATIC TRANSMISSION FLUID WITH AGR PERFORMANCE PRODUCTS.
THE USE OF AUTOMATIC TRANSMISSION FLUID OR RED DYE FLUIDS WILL VOID STEERCO, LLC'S LIMITED WARRANTY**

Failed components that present evidence of residual air in the system are not covered by STEERCO, LLC's Limited Warranty.

WHY VENT AIR?

The critical reason for proper system venting is to prevent component damage and failure. The typical power steering system operates at pressure ranging from 1000-1500PSI. Since air compresses and hydraulic fluid does not, the presence of air in the system will spike system pressures up to three times above normal. These increases in pressure will almost always escape at the weakest point in the system, most often where an oil seal or sealing ring is located.

Air cannot lubricate the metal-to-metal internal surfaces of the power steering pump or steering gear box. Ensuring the system is properly vented will improve system efficiency and prolong the life expectancy of your AGR Performance steering components.



4920 Rondo Drive
Fort Worth, TX 76106
817-626-9006
www.steerco.com

WHEN SHOULD THE SYSTEM BE VENTED?

This procedure should always be followed when the system has been opened to replace any component (pump, steering gear box, hydraulic line replacement or upgrade the system to hydro-assist)

VENTING THE SYSTEM

Before beginning, carefully inspect all steering system hydraulic line assemblies:

- Line assemblies should not be touching any part of the vehicle such as the frame, body, or engine.
- All line connections must be properly tightened.
DO NOT OVER TORQUE FITTINGS.
Deformed or compromised sealing rings, damaged flare seats, or deformed steel tubing or fittings should be replaced.

PROCEDURE

1. Raise the front of the vehicle until the tires do not contact the ground or disconnect the Pitman arm from the sector shaft or disconnect the tie rods.
2. Turn the steering wheel **fully** to the left.
3. Fill fluid reservoir to "Full Cold" level. Leave the reservoir cap off.
4. Preferably with an assistant constantly monitoring fluid level and condition, turn the steering wheel slowly and smoothly from stop-to-stop until the fluid level decreases in the reservoir. If the fluid level remains unchanged, fluid has not moved through the system. Normally, this indicates that a large air pocket in the pump or reservoir. Until this air pocket passes, fluid will not circulate through the system.
 - a. Systems that include fluid coolers, hydraulic winches, or hydro-assist cylinders may need to cycle from stop-to-stop more than fifty (50) times.
 - b. Avoid rapid manipulation of the steering wheel. This may cause the fluid to overflow the reservoir or excessively churn the fluid creating more air in the system from "micro bubbling".
5. On vehicles without a hydroboost brake unit, disable the engine from starting by disconnecting the coil wire and grounding (consult a repair manual for vehicle specific information).
6. To pressurize the system, actuate (crank) the engine for 3-5 seconds. If the fluid level decreases this indicates that air is still present in the system. Repeat Step 4 until fluid level remains stable.
 - a. If fluid excessively foams during engine actuation, wait a minimum of 20-30 minutes to allow fluid to cool and bubbles to accumulate and vent.
7. Repeat Steps 4-6 until fluid level remains constant and air bubbles are no longer visible.



4920 Rondo Drive
Fort Worth, TX 76106
817-626-9006
www.steerco.com

For vehicles equipped with hydroboost brake systems, please read the following:



The presence of a hydroboost braking system requires special instructions since the power steering system is integrated at the hydroboost unit.

Failure to properly vent air from the hydroboost unit can cause catastrophic damage to AGR Performance power steering components.

Inspect the fluid for excessive metal particulates which will prevent the hydroboost unit from venting properly.

DO NOT TURN THE STEERING WHEEL DURING THIS PART OF THE PROCEDURE.

- Discharge the hydroboost brake unit by fully depressing the brake pedal three (3) times.
- Monitor power steering fluid reservoir for excessive foaming, bubbling, or burping. Allow 20-30 minutes minimum for air bubbles to accumulate and vent.
- Actuate the engine until it begins to start and immediately turn off.
- Discharge the hydroboost brake unit by fully depressing the brake pedal three (3) times.
- Repeat these steps as many times as required until foaming/bubbling is no longer visible in the reservoir. If the brake pedal feels soft, spongy, or otherwise abnormal this indicates that the hydroboost unit is not completely vented.



If the hydroboost brake unit needs to be replaced, STEERCO, LLC recommends replacing with a ported unit.

These can be sourced at:
[VANCO Power Brake Systems](#)
[Hydratech Brake Systems](#)



4920 Rondo Drive
Fort Worth, TX 76106
817-626-9006
www.steerco.com

8. Re-connect the ignition coil wire to enable the engine to start. With the engine idling, maintain fluid level in reservoir.
9. Install the reservoir cap.
10. Return the wheels to center and lower vehicle to the ground. If the Pitman arm or tie rods were disconnected, reinstall.
11. Continue to allow the engine to run. Turn steering wheel in both directions being careful to not hold the wheel against the stops.
12. Verify the following conditions:
 - a. Smooth power assist.
 - b. Noise free operation.
 - c. System is maintaining correct fluid level.
 - d. System is free of leaks.
 - e. Fluid condition shows no evidence of bubbles, foaming, discoloration, or excessive heat.

If all conditions are satisfied, then the venting procedure is complete. If any conditions are not satisfied, including:

1. Evidence of foaming or bubbles in the fluid reservoir.
2. An increase, or rise, of the fluid level in the reservoir.
3. Discolored, e.g. milky, opaque, fluid.
4. Compromised or loose-fitting connection on the pressure or return line assemblies.

Turn the engine off. Allow at least thirty (30) minutes for system to rest. Re-check all line assemblies for loose connections including hose clamps, sealing rings, and flare seats. Replace damaged or compromised items as necessary. Refill fluid reservoir and repeat venting procedure.

If the pump presents any abnormal noise, e.g. whining or growling, after the system is completely vented, check the following:

1. Check for stretched belts that may be slipping.
2. Verify that the pulley is not slipping on the pump drive shaft.
3. Verify that line assemblies are not contacting the vehicle frame, body, or engine.

Allow a minimum of thirty (30) minutes for the fluid to cool and repeat steps to pressurize the system. Start the engine, allow to reach operating temperature, and verify noise free operation.