

## Power Steering System Service Procedures After Rack and Pinion or Steering Gear Replacement

### System Flushing

This procedure should only be performed if the power steering pump is in good working condition. If the power steering pump has failed, it will be necessary to replace it before flushing the remainder of the system.

1. It is necessary to disable the vehicle's ignition system to avoid possible damage to the engine module or computer. (This step will prevent the vehicle from starting while the engine is being cranked.) This step is not applicable for diesel engine applications. The diesel engine should be cranked without starting the engine. If the engine does start, it should be shut off immediately to avoid running the power steering pump dry.
2. The power steering system should be flushed with all of the existing components installed and connected, assuming the pump is in good working condition.
3. Disconnect the power steering return line at the pump and plug the return port on the pump. Care should be taken at all entry and exit points of the system to not introduce contaminants.

4. Place the disconnected return line end into a drain pan to catch all of the fluid being flushed through the system. (It may be necessary to add a section of rubber hose to the end of the return line in order for it to reach the drain pan.)
5. Simultaneously crank the engine without starting it for 10 seconds while replenishing the power steering fluid in the pump reservoir. (This step will pump fresh fluid from the pump through the hoses and gear assembly and then into the drain pan.)
6. Repeat Step 5 with the steering wheel turned all the way to one side and again turn to the other side. (This step will completely clear any contaminated fluid from the gear assembly.)
7. Repeat Steps 5 and 6 until fluid running out of return line runs clear.
8. Once the system is completely flushed, it is now safe to remove and replace any failed components (hoses and gear assembly). Caution should be taken when threading the hydraulic connections to the unit — avoid introducing contaminants into the hydraulic system which could result in premature failure.
9. Once all repairs are made, make sure to fill the system with the OEM recommended power steering fluid and bleed any air from the system. It is now safe to reconnect the coil power supply and start the engine.

## System Bleeding

Bleed air from the power steering system for the following:

- After replacing a steering component
  - In case of noise from steering system
  - After disconnecting any fluid lines
1. Be certain that fittings at pump and reservoir pressure sides are tight. A loose connection can allow air to enter the system.
  2. Make sure hoses do not contact any other parts of the vehicle – this may cause noise.
  3. Elevate the front wheels off the ground.
  4. Make sure the pump reservoir is filled full with manufacturer's recommended fluid. With the engine OFF, turn the steering wheel to full left lock position.
  5. Verify that fluid level is at FULL mark on reservoir cap dipstick.
  6. Have assistant check fluid level and condition, turn steering wheel from stop to stop (left and right) minimum 20 times, with the engine NOT running.



7. Recheck fluid level to be sure it is full and turn steering wheel stop to stop to check there are no air bubbles in fluid.
8. The following may cause air bubbles:
  - a. Return hose clamp not tight — tighten as required.
  - b. Return hose o-rings may be damaged — replace as required.
  - c. Pressing hose o-rings may be damaged — replace as required.
  - d. Tighten any loose fittings.
9. Repeat Steps 6-8 as required.
10. Start engine and let idle, check for correct fluid level and install reservoir cap.
11. Lower front wheels to the ground.
12. Keep engine idling for 2 minutes.
13. Turn the steering wheel left and right to verify correct function:
  - a. Smooth power assist
  - b. No Noise
  - c. Proper fluid level
  - d. No steering fluid leaks
  - e. No bubbles, foam or fluid discoloration