

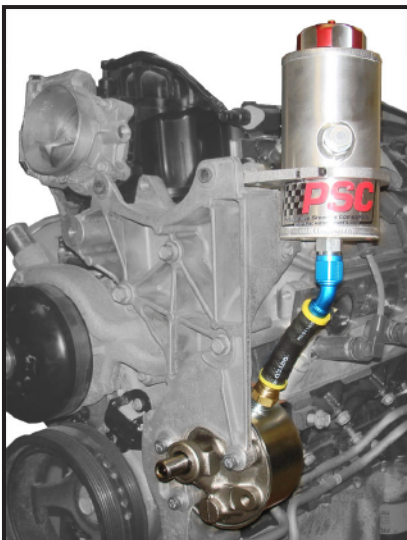


Installation Tips

Reservoir Placement

Reservoir placement is the most likely cause of many power steering woes. The pump works remarkably well at pushing fluid out but not so great at pulling it in. Since the pump is fed by the reservoir mainly through gravity, reservoir placement is critical. Things like vehicle position and attitude while driving must be considered when mounting the reservoir. Generally, the higher the reservoir the greater the chance of having a trouble free system. But, there is more to it than just the height. For example, a reservoir mounted high on the firewall will work fine most of the time, but when making a steep climb the pump is likely to starve. Also, the feed line between reservoir and pump should be as short as possible. The greater the distance between the pump and reservoir, the more work the pump has to do bringing the fluid in and the greater the effect of vehicle attitude on the system.

Air in the fluid can wreak havoc on a power steering system. Since the air can compress, whereas the steering fluid does not, much of the force from the pump can be absorbed by the air instead of being properly transferred to the steering box or cylinder. In addition, air can lead to pump destruction. Air causes cavitation in the pump which will greatly increase wear and dramatically shorten the life and performance of the pump.

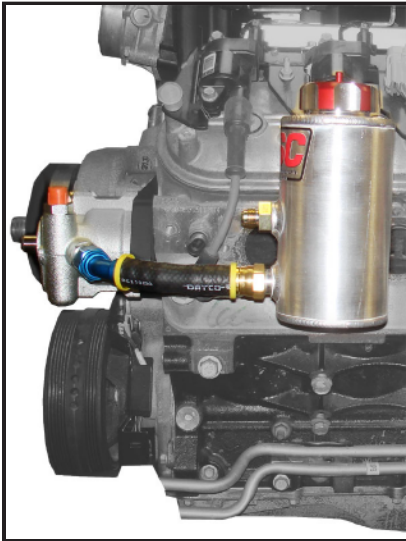


An example of the proper way to mount a reservoir

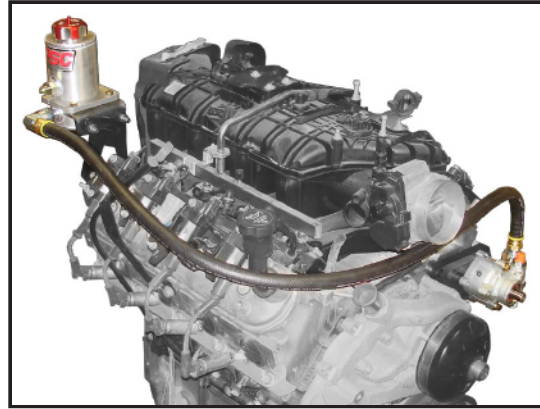
Reservoir Installation Checklist:

1. Keeping in mind the pump is gravity fed, the reservoir should be the highest point in the power steering system. This will help ensure the pump gets all the fluid it needs as easily as possible, greatly extending the life and performance of the pump. If the reservoir is too low some components may drain back into the reservoir upon engine is shut off. This can cause leaking or, worse, allow air into the system. Another problem with a reservoir mounted low is that the pump will be working overtime, all the time.
2. It is preferable to mount the reservoir directly over the pump. If this is not possible, in front of the pump is typically better than behind it.
3. If the reservoir must mount to the frame, body, etc (anywhere not directly tied to the engine) take special care that the feed line will not become stressed during engine torque over or other twisting and flexing maneuvers.
4. Use a baffled reservoir. A properly baffled reservoir will help keep air out of the system. A non-baffled, or poorly baffled reservoir can introduce air simply by allowing air to mix with the fluid as it enters the reservoir.
5. The feed line should be kept as short and straight as possible. It should not have any dips or sharp bends and should never run below the level of the pump. The feed line should never be crimped, looped, or run horizontal – it should always be flowing downhill into the pump, the steeper the better. The longer the feed line, the harder it is for the pump to draw fluid in. It should not exceed 16 inches. The feed line should also be of sufficient size to meet the demands of the pump, #10 is the recommended minimum. Do not use the supplied -6 pressure line as the feed line, use the -10 feed line. When attaching the feed line to the pump, do not over tighten! The wrench used is typically long providing a great deal of leverage, it is not uncommon to see these fittings twisted off.
6. The reservoir should be vented, and this vent must remain open. The reservoir cap can be drilled and tapped to accept a 90 degree fitting if this helps with clearance issues. If the vent is spitting fluid, it is a sure sign that air is in the system and needs to be bled.
7. Do not bend any fittings. Example: bending a 90 into a 120. This will result in restricted flow.
8. The reservoir should be filled to 1" below the top of the reservoir (see illustration). On single ended cylinder applications this should be measured with the cylinder collapsed.

The following are examples of what NOT to do.



In this example the feed line is quite short which is a big plus. But, the fact that it is running horizontally negates any benefit.



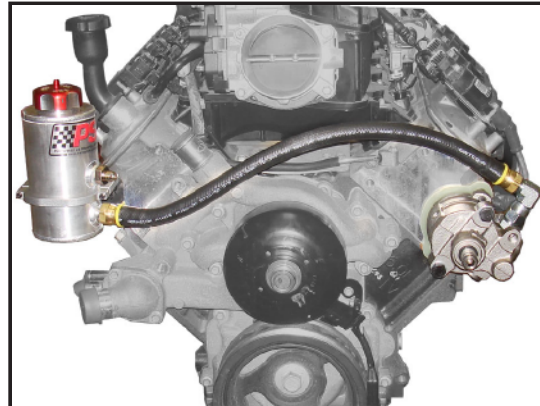
This image shows multiple violations. It is obvious that the feed line is entirely too long. The slope of the feed line is not great enough. It appears to run flat in some places and even runs uphill in others.



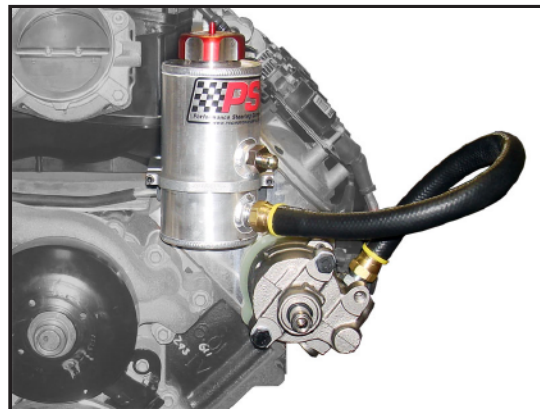
Here the feed line is kinked, cutting off flow to the pump.



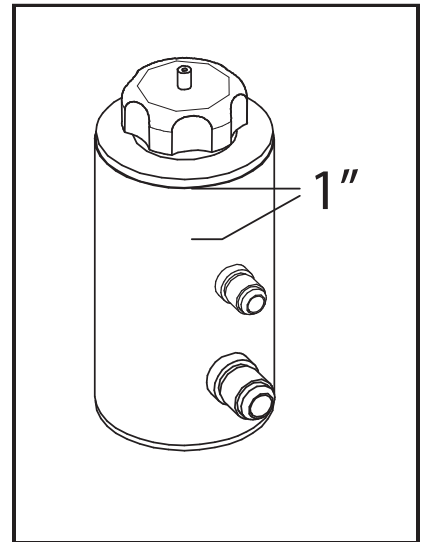
This picture shows another hose that has collapsed from using a bend that is too tight. It also shows a big dip in the hose which will cause pump starvation.



Here the feed line starts out just above the center line of the pump and must go uphill to meet the inlet of the pump.



In addition to a loop, this picture illustrates a bend that is too tight resulting in a collapsed hose.



Fill Level should be 1" below the top of the reservoir. On single ended cylinder applications this should be measured with the cylinder collapsed. Your reservoir may differ from that pictured here.