

A mechanic with dark hair and a beard, wearing a light blue button-down shirt, is focused on working on a car's engine. He is using a green fluid flushing machine, which has a white top panel with a digital display and several buttons. A red hose is connected to the machine and the engine. The background shows a workshop setting with a blue lift and a cardboard box with a red arrow and the word 'ここ' (koko) written on it. The overall scene is brightly lit, and the mechanic's concentration is evident.

Power Steering Fluid Flushing

Don't ignore the often-forgotten power steering system. It needs inspection, maintenance and service, too.

The power steering system is not the first thing we tend to inspect when checking a vehicle's mechanical systems. In fact, we don't pay much attention to this very important system at all. Sure, we take the top off the reservoir, look at the fluid and, if it appears filled, plop the cap back on and move along to more important things.

How often do you take a sample of the power steering fluid and compare it to fresh fluid? Unless you're "tuned in" to power steering service, the answer is probably "never." We just take the system for granted, unless it is leaking, steering hard, or making noises.

In the last few years, however, the best minds in the automotive service industry have begun to realize that the power steering system needs routine inspection, maintenance and service.

The fluid, hoses and connections undergo physical changes from years of pumping under pressure and temperature extremes. When the fluid begins to break down from age and usage, it loses the ability to lubricate and stand up to heat.

Over time, the molecular structure of the hoses begins to desiccate and tiny bits of the rubber or neoprene mix into the fluid, adding contamination. Metallic connectors and pipes

may corrode if moisture enters the system, thereby compounding the problem.

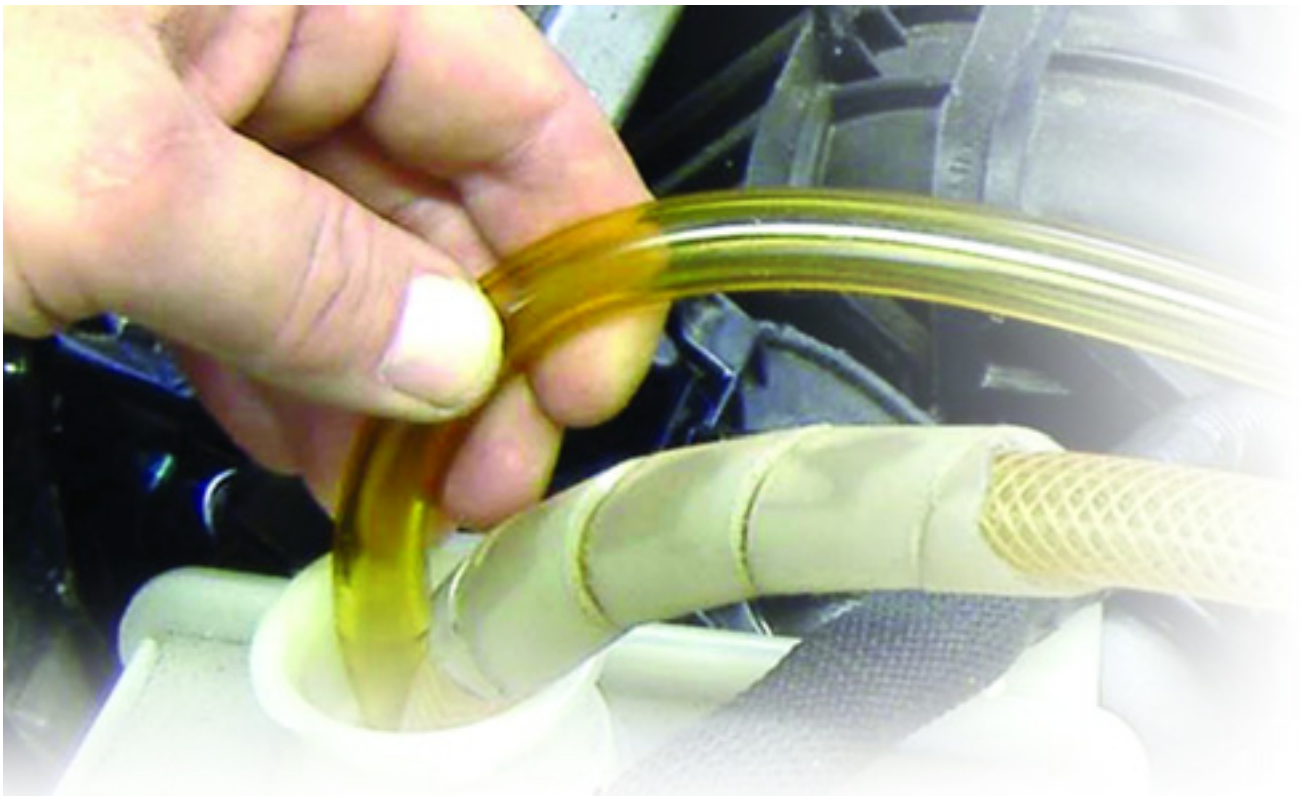
The contaminants form a varnish-like substance, which imbeds in tiny nooks and crannies of the system. Just changing the fluid will not remove these deposits; flushing the system with a chemical to soften, dissolve and remove these deposits is required.

True, these problems usually only occur in older vehicles after years on the road, but can be found in newer cars and trucks too. The higher power steering fluid pressures found in newer systems can cause a rapid breakdown if inferior materials are used or contamination occurs. If a replacement part has been installed or contaminated fluid has been added, deterioration can quickly cause problems.

While the job can be done without it, a flushing machine makes it more efficient.



Power Steering Fluid Flushing



With a flushing machine, one hose extracts the old fluid from the bottom of the reservoir while the other supplies the fresh load.

Inspecting the Power Steering System

1. Check the entire power steering system for leaks.
2. Inspect the power steering fluid. Observe the color — it should match the color of the specific fluid for the vehicle you are servicing. It should be clear, not cloudy or dark. Smell the fluid for any “burnt” odor, which would normally be accompanied by a dark color. Rub the fluid between your finger and thumb for any gritty feel, which would indicate contaminants or breakdown of hoses or seals. Or, worse, mechanical wear of the moving metal parts in the rack & pinion unit, or the pump.
3. Road test the vehicle. Steer the vehicle through several tight and wide turns at various speeds and listen for any noises emanating from the power steering system. Note any vibrations, jerks or hesitations in the steering wheel. These problems will indicate a malfunction calling for further inspection and probable repair.
4. Once any needed repairs are completed or if no repair is required, flush the system.
5. After repairing and/or flushing, road test the vehicle again.

Machine vs. Manual

You don't have to own a power steering fluid flushing machine — although they can be invaluable if you do a lot of power steering service. If done properly, flushing the power steering system by hand can be almost as effective as using a machine.

Most aftermarket shops don't do a lot of PS fluid flushing, so you may never have considered making the investment in a flusher. If you do purchase one, it will certainly pay for itself — if you make power steering inspection a routine item on your maintenance checklist. It's easy to perform a flush and can be a good source of profit, plus you'll be helping your customers avoid the cost of a complete power steering system rebuild. *Preventive maintenance* is the point.

Power steering flushing machines vary by manufacturer, but most systems consist of a mobile cabinet encasing pumps, hoses and reservoirs or bottles for new and waste fluids. Most systems are sold by manufacturers who also sell the flushing and conditioning fluids used in the process.

They are simple to use and function quickly to install the flushing chemical, remove the old contaminated fluid, fill the system with new fluid and add a system conditioner, if so desired. Conditioner helps revitalize the seals and hoses.

Always follow the flushing machine manufacturer's instructions for flushing procedures.

The Manual Method

Several brands of power steering flushing chemicals are available from your local supplier. Follow the instructions on the bottle for best results. Here are some general guidelines:

1. Raise the front wheels so you can turn the steering wheel easily.
2. Disconnect the return line to the steering pump. This line will be drained into a receptacle to hold the discharged fluid.
3. Disable the ignition system so you can crank the engine to operate the power steering pump and circulate the fluid through the system.
4. Remove the cap of the power steering reservoir and add a power steering flushing chemical.
5. Have an assistant add fresh power steering fluid to the reservoir while you crank the engine and turn the wheels back and forth to thoroughly flush the entire system. Make sure the reservoir is always full during this process to avoid air bubbles in the system. Do not let the system run dry as damage to the system can occur.

6. Flush until fresh, clean fluid flows out of the return hose into the collection receptacle.
7. Reattach the return hose and check the system for leaks.
8. Top off the reservoir with fresh power steering fluid.

Along with most other manufacturers, Subaru doesn't give recommended power steering fluid flushing intervals in its maintenance schedules. That doesn't make it a bad idea, however, and it is **mandatory** to flush the system when any component is replaced — rack, hoses, pump, etc. After installing a new part or component, you'll want the entire system to be in the best shape possible. By the way, some manufacturers — mostly those who make exotic high-performance vehicles — have begun to include power steering system flushing and fluid exchange as part of their recommended maintenance intervals, so that should tell you something.

Finally, Subaru recommends the use of Dexron III in most of its vehicles. The exceptions are 2007 WRX, STi and Turbo models, which specify Subaru Genuine Parts ATF HP. ■