

TSS Bulletin

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Purpose: Tips for Trouble Shooting a Pressure Washer.

This first chart shows basic trouble shooting tips. There is an advanced trouble shooting chart for technicians at the end of this bulletin and also an illustration of a Shark SGP pressure washer with component call outs.

Symptom	What to Check For
Motor dies after spraying	Unloader valve needs replaced
Hose wears out to soon	Replace with higher rated PSI hoses
Surge or Drop in water pressure	Inspect the nozzle for clogs or wear, replace nozzle if necessary
	Inspect the inlet hose and filter, clean or replace
	Inspect the discharge valve and spring, clean or replace
Pump is too noisy	Reduce incoming water temperature
	Check oil levels and add oil if necessary
	Inspect pump valves, clean or replace
	Inspect valve springs and bearings, replace if necessary
Water Pump "Chatters"	Inspect inlet line for damage, replace if necessary
	Increase water pressure
	Lower water temperature
	Purge air from the system
	Check for stuck float valve
Can't produce hot water	Check the Burner/Heat and Pump switches to make sure they are on
	Check the thermostat and make sure it is on
	Check your fuel and filter
	Make sure trigger gun is pulled on
Engine Won't Start	Check the spark plug wires (with engine turned off)
	Check Start switch position
	Do you have fresh fuel in the tank?
	Check fuel lines and filter
	Check Spark Plugs and gapping
Too much pressure	Check the air filter
	Spray nozzle is to small, replace with correct size
	Check pressure gage, replace if necessary
Low Pressure	If the above 2 items are okay, then it is probably the regulator or incorrectly adjusted unloader
	Check nozzle tip for clogs
	Check Inlet suction strainer for clogs
	Incorrect or worn nozzle
	Check inlet screen for clogs
	Pump GPM is to low

	Check discharge hose for leaks
	Air leak at inlet plumbing, reseal
	Unloader valve is stuck open due to debris under the check ball
	Customer installed shut-off type disconnects
	Hose is plugged
Leaks	May not be a problem, could be the thermal relief valve releasing water to prevent over-heating
	Check hoses and fittings, O-rings and worn piston guides
Unclogging a nozzle	See steps later in document
Pump Fails to Prime or Pump Runs with No Flow	Air is trapped inside pump. Disconnect discharge hose from pump. Flood suction hose, restart pump and run pump until all air has been evacuated.

Pressure Washer Unloader

A pressure washer unloader valve prevents the pressure from building to the breaking point when you aren't spraying water. A "diversion loop" is created to cycle the water back to the inlet valve and inlet part of the water pump. Unfortunately, the unloader valve is often a cause of trouble. Some power washer users report problems such as the pressure washer motor dying after spraying is done, minimal pressure, and sometimes even leaking sprayers. There are a variety of fixes to problems such as these, the simplest being the replacement of the unloader valve. If you need to do this kind of pressure washer repair, it's absolutely essential to replace the power washer valve with one that has equal or better gallons per minute (GPM) and PSI ratings. Failure to do this can result in additional pressure washer problems, including a safety hazard connected with the pressure of the unit overwhelming the unloader valve, compromising or even destroying it.

Pressure Washer Hoses

Pressure washer hoses are a vital part of the system, but there are a few tricks newcomers to power washers don't usually learn until later. Are your pressure washer hoses wearing out faster than you expected them to? On your next hose purchase, buy hoses rated at 500 PSI higher than your pressure washer system. This is not technically a pressure washer repair, but it could be considered preventive maintenance. Do your power washer hoses leave marks on the ground in the areas where you are using them? Ask your pressure washer dealer about hoses specifically sold as "non marking hose" or hose covers that are sold for the same purpose. This will eliminate the streaking and marking you notice your power washer hoses making on concrete and other surfaces.

A Surge or Drop in Water Pressure

If you experience constant surging or a drop in the pressure from your cold water pressure washer, it most likely has something to do with a blockage. This means that there is something partially blocking the spray coming from the nozzle, an obstruction in the hose, or possibly a damaged hose or valve.

Start by removing and inspecting the nozzle. Make sure it is clear and there is nothing present that might clog it and impede the flow of water. If the nozzle is worn it might be necessary to replace it. Check for soap or solvent build-up as well.

If all appears to be fine, move on to the hose. Check the inlet hose and filter to see if they need to be cleaned or replaced. Do the same for the discharge valves and valve spring. More than likely the problem you are having with the drop in pressure is due to a simple obstruction or worn nozzle or hose. If after cleaning and/or replacing these parts you still experience this problem, contact the manufacturer and ask them for assistance.

Pump Is Too Noisy

If you start to notice that your gas pressure washer is making too much noise when you use it, start with a few easy possibilities and work your way to the more complicated ones if they do not work out.

- One easy check is to reduce the incoming water's temperature. If the water coming in is too hot it can cause excessive noise. If you try this and it does not work, move on to the next thing.
- That would be low pump oil. If the oil levels are fine, check to see if there is air in the suction line. If this is the case, simply check your inlet water fittings.
- Next you want to try checking the pump valves to see if they are dirty. If so, clean or replace them.
- If you still have not figured it out, you might try checking to see if the valve springs or pump bearings are worn. Replace either if necessary.

Pressure Washer Pump "Chatter"

A "chattering" pressure washer pump can be caused by many things. You could have a bent or damaged inlet line, or the water supply might be too low. Fixing these is simple, but checking on the water supply is critical. Never let the water supply run low for any extended period of time. Other causes of a chattering pump include water that is too hot. You may have air in the pump system or a stuck float valve. A power washer pump that is vibrating, but not chattering could be the result of air in the system or debris stuck in the valves. Catching these pressure washer problems early and knowing what causes them will save you a trip to the repair shop, especially when it comes to the low-water issue.

Pressure Washer Won't Produce Hot Water

What should you do if your steam cleaner pressure washer or standard hot water washer will not produce hot water like it should? First things first. Check your switches. Make sure that the burner switch is in the "On" position and so is the pump switch. Often times it is as simple as one of these being turned off.

If the switches are all in the correct position it might be the thermostat. Check to make sure it is also turned on. Then take a look at your fuel situation. Either you do not have enough fuel or you have a clogged filter. Check the level and add fuel if needed. If the fuel filter is clogged, just replace it. And make sure the trigger gun is pulled on.

Engine Won't Start

If you are experiencing pressure washer problems because the engine won't start, turn the engine off before attempting an inspection of the unit. The simplest cause of your problem could be that the high-tension lead wire to the engine's spark plug has come loose. Wearing a pair of gloves, (again, with the engine off) push down on the connector end to make sure the wire is actually touching the spark plug. This simple procedure should have your power washer up and running again unless the problem is elsewhere. Another simple and common problem is the age of the fuel in your tank. Assuming that the pressure washer's tank isn't empty, you could have a water build up in the gas lines of a gasoline-powered pressure washer engine. Another cause is dirty or contaminated fuel, which can clog up the fuel line.

Pressure Washer Engine Trouble? Check Your Air Filter

If you have engine trouble with your power washer, double check the air filter. A dirty filter reduces the flow of air to the carburetor which reduces performance over time. There are different kinds of air filter systems for pressure washers and the symptoms of a dirty filter may vary. One thing that's consistent in all pressure washers is the need to inspect the entire air filtration system, including the seals. Excess dirt or debris around the seals and on the filter itself are good indications that some maintenance is needed. Power washer repair is often as simple as taking care of routine issues like these.

Too Much Pressure

Too much pressure from a power washer can have a variety of causes, but one of the most common is a spray nozzle that is too small. Pressure washer repair in this case is a matter of using the right sized nozzle, simple as that. Another common problem is a broken pressure gauge, which can show no pressure, too much pressure, or any combination of false readings. Check these two areas first when trying to diagnose a pressure problem with your power washer. If those two problems are ruled out, you could have a faulty regulator or an improperly adjusted unloader.

Low Nozzle Pressure

Low nozzle pressure is a common complaint generally caused by one of the following:

1. Plugged nozzle tip.
2. Inlet screen plugged.
3. Insufficient flow in gallons per minute (not pressure) to the pump.
4. Unloader valve stuck open due to debris lodged under the check valve ball.
5. Customer use of shutoff-type quick connectors.
6. Plugged hose.

Leaking

Seeing water spewing out of your pressure washer can be a distressing sight. But don't panic. This might just mean that a thermal relief valve has been installed on your pump to prevent overheating. The thermal relief valve is usually preset to discharge water when it reaches 195 degrees. Until you pull the trigger, your pressure washer is in by-pass mode. The water is trapped in a loop, which means fresh cool water cannot come in. The water in the loop takes on heat generated by the pump, which can cause damage to the

pumps internal components. To prevent this, you'll need to pull the trigger about every minute, more or less. If you won't be using the pressure washer for a while, just turn it off. Or you can set up your unloader to discharge back to your main tank. This is the best way to protect your pump. If you have a high pressure soap set up you can't do this because your tank will fill with soap. Change to downstream and you won't have to worry about an overheated pump.

Clogged Nozzle

1. Always disconnect your spray wand from the gun before cleaning your nozzles!
2. Clear the nozzle with a small rigid piece of wire such as a paper clip.
3. Flush the nozzle backwards with water.
4. Reconnect the wand to the gun
5. Restart the pressure washer and depress the trigger on the spray gun.

If the nozzle is still plugged or partially plugged, repeat number 1-6. If the previous procedure does not clear the nozzle, replace with a new nozzle.

Piston Guide Problems

When your piston guides go on the fritz, you won't be taking care of business until you fix this problem. The following symptoms and solutions should help you diagnose the source of the piston guide malfunction and put your pressure washer back in circulation in no time.

Symptom - Excessive pressure due to partially plugged or damaged tip.

Solution • Clean or replace tip.

Symptom - Pump running dry.

Solution • Do not run pump without water.

Symptom - Pump running too long without spraying.

Solution • Never run pump more than 2 minutes without spraying.

Symptom - Inlet water temperature too high.

Solution • Check water temperature; it may not exceed 100 degrees Fahrenheit

Symptom - Abrasive material entering pump

Solution • Clean inlet filter. Use recommended chemicals. Make sure water source is clean.

Starting an Uncooperative Gasoline Pressure Washer

If your gasoline powered pressure washer doesn't start, there are usually very simple reasons why. Here are a few common symptoms and solutions you can use the next time your unit doesn't feel like firing up.

- No gas in fuel tank or carburetor. Fill tank with gasoline, open fuel shut-off valve. Check fuel line and carburetor.
- Low oil. Check oil level. Fill if necessary.
- Start/Stop switch in "stop" position Move switch to "start" position
- Water in gasoline or old fuel. Drain fuel tank and carburetor. Use new fuel and dry spark plug
- Dirty air filter - Remove and clean
- Spark plug dirty, wrong gap or type Clean, adjust gap or replace

- Spray gun closed Trigger spray gun
- Other causes See engine owner's manual

Pressure Problems

If your gas or electric pressure washer seems to have lost a lot of its pep, don't worry. Check out the following probable causes and solutions that can get your unit back into tip-top shape:

- Nozzle is in low PSI position. Pull back nozzle to high pressure position.
- Nozzle worn. Replace nozzle.
- Unloader valve seat dirty or worn. Clean or replace valve.
- Inlet or outlet valves dirty, stuck, or worn. Clean or replace valve (s).
- Worn piston guides. Install new piston guides.

Advanced Trouble Shooting for Technicians		
Problem	Probable Cause	Solution
Oil Leak Between Crankcase and Pumping Section	Worn crankcase piston rod seals.	Replace crankcase piston rod seals.
	O-rings on plunger retainer worn.	Replace o-rings.
Frequent or Premature Failure Of the Packing	Scored, damaged or worn plunger.	Replace plungers.
	Overpressure to inlet manifold.	Reduce inlet pressure.
	Abrasive material in the fluid being pumped.	Install proper filtration on pump inlet plumbing.
	Excessive pressure and/or temperature of fluid being pumped.	Check pressures and fluid inlet temperature; be sure they are within specified range.
	Over pressure of pumps.	Reduce pressure.
	Ran without water.	Do not run pump without water.
Pump Loses Prime, Chattering Noise, Pressure Thread Fluctuates	Air leak in suction hose or inlet fittings.	Remove suction line and inspect it for a loose liner or debris lodged in hose. Avoid all unnecessary bends. Do not kink hose.
	Clogged suction strainer.	Clean strainer.
Pump is Noisy	Pump sucking air.	Check suction manifold.
Pressure Gauge Fluctuates	Valves worn or blocked by foreign bodies.	Clean or replace valves.
	Packing worn.	Replace packing.
	Pumped liquid temperature too high.	Reduce temperature of pumped liquid.
Over Pressure When Gun is Closed .	Leaking in unloader valve and incorrect setting.	Control the valve and set new pressure level.
Pulsation	Faulty pulsation damper.	Check pre-charge; if low, recharge it or install a new one.

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Low Pressure	Belt slippage.	Tighten or replace with correct belt.
	Relief valve stuck, partially plugged or improperly adjusted valve seat worn.	Clean and adjust relief valve; check for worn or dirty valve seats. Kit available.
	Inlet suction strainer clogged or improperly sized.	Clean. Use adequate size. Check more frequently.
	Worn Packing. Abrasives in pumped in cavitation. Inadequate water.	Install proper filter. Suction at inlet manifold must be limited to lifting less than 20 feet of water or 8.5 psi vacuum.
	Fouled or dirty inlet or discharge valves.	Clean inlet and discharge valve assemblies.
	Worn inlet, discharge valve blocked or dirty.	Replace worn valves, valve seats and/or discharge hose.
	Leak in the discharge line.	Repair leak.
Pump Runs Extremely Rough, Pressure Very Low	Restricted inlet or air entering the inlet plumbing. Proper size inlet plumbing;	Check for air tight seal.
	Inlet restrictions and/or air leaks. Stuck inlet or discharge valve.	Clean out foreign material. Replace worn valves. Replace worn cup or cups.
Water Leakage From Under Manifold. Slight Leakage	Worn packing.	Install new packing.
Oil Leaking in the Area of Crankshaft	Worn crankshaft seal or improperly installed oil seal o-ring.	Remove oil seal retainer and replace damaged o-ring and/or seals.
	Bad bearing.	Replace bearing.
Excessive Play in the End of the Crankshaft Pulley	Worn main bearing from excessive tension on drive belt.	Replace crankcase bearing and/or tension drive belt.
Water in Crankcase	Humid air condensing into water inside the crankcase.	Change oil intervals. Use any high grade automotive 30 weight non-detergent oil.
	Worn packing and/or piston rod sleeve, o-rings on plunger retainer worn.	Replace o-rings. Replace packing.
Oil Leaking from Underside of Crankcase	Worn crankcase piston rod seals.	Replace seals.
Oil Leaking at the Rear Portion of the Crankcase	Worn crankcase piston rod seals.	Replace seals.
Loud Knocking Noise in Pump	Pulley loose on crankshaft.	Check key and tighten set screw.
	Broken or worn bearing.	Replace bearing.

