

## PUMP TROUBLESHOOTING

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.	Check for restriction in discharge line. Check for proper nozzle size. Nozzle Selection Chart
	Ran without water.	Check for adequate water supply.
Pump Runs but Produces no Flow	Pump is not primed. Clogged inlet screen(s).	Flood suction then restart pump. Clean or replace screen(s).
Pump Fails to Prime	Air is trapped inside pump. Check valve(s) are stuck in closed position.	Disconnect discharge hose from pump. Flood suction hose, restart pump and run pump until all air has been evacuated. Clean or replace all check valves.
Pump Loses Prime, Chattering Noise, Pressure Thread Fluctuates	Air leak in suction hose or inlet fittings. Insufficient water supply.	Remove suction line and inspect it for a loose liner or debris lodged in hose. Avoid all unnecessary bends. Do not kink hose. Increase water supply.
	Clogged suction strainer.	Clean strainer and tank.
Low Pressure at Nozzle	Unloader valve is bypassing.	Make sure unloader is adjusted properly and bypass seat is not leaking.
	Incorrect or worn nozzle.	Make sure nozzle is matched to the flow and pressure of the pump. If the nozzle is worn, replace.
	Restricted intake.	Refer to above priming information.
Pump is Noisy	Pump sucking air. Inadequate chemical supply. Chemical line inlet above chemical level. Chemical line perforated.	Check suction manifold. Refill chemical supply. Place chemical inlet below chemical level. Replace chemical line.
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. Test pressure with gauge.
Pulsation	Faulty pulsation damper. Worn or blocked check valves	Check pre-charge; if low, recharge it or install a new one. Clean or replace check valves.

## PUMP TROUBLESHOOTING (cont.)

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Low Pressure	Worn nozzle.	Replace with nozzle of proper size.
	Belt slippage.	Tighten or replace with correct belt.
	Air leak in inlet plumbing.	Disassemble, reseal and reassemble.
	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.
Low Pressure (cont.)	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. Replace worn cup or cups.	Clean out foreign material. Replace worn valves.
Water Leakage From Under Manifold. Slight Leakage	Worn packing. Cracked plunger	Install new packing. Replace plunger.
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 packing.	Replace o-rings.
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.