



## Hydraulic Submersible Pump Troubleshooting Guide

Pump Series: HPU, HST

Symptoms	Causes	Corrections
<b>Pump fails to pump water – power unit problem</b>	Hydraulic pump intake ball valve closed Power unit needle valve not fully engaged Engine speed too low Hydraulic oil too thick Reservoir suction screen clogged Air leak on suction side of hydraulic pump Bypassing hydraulic oil Hydraulic pump worn	Open ball valve Fully engage needle valve Increase engine speed Allow to warm before engaging system Clean as necessary Check for leaks & fix Check hydraulic relief valve Repair/replace
<b>Pump fails to pump water – submersible pump problem</b>	Hydraulic hoses not fully connected Submersible pump not fully submerged Submersible pump air locked Submersible pump strainer clogged Obstruction in impeller Discharge head too high Impeller/wear plate worn Hydraulic motor worn	Connect & tighten hydraulic hoses Check submergence Vent air Clean strainer Clear any obstructions Lower if possible or select larger piping Repair/replace Repair/replace

<b>Reduced performance</b>	Speed too low Discharge head too high Submersible pump strainer partially clogged Submersible pump not fully submerged Worn impeller or wearplate Worn hydraulic pump Worn hydraulic motor	Increase within recommended limits Lower if possible or select larger piping Clear obstructions Check submergence Repair/replace Repair/replace Repair/replace
<b>Power unit overheating</b>	Hydraulic hoses not fully connected Excessive hydraulic hose length/# of fittings Incorrect hydraulic oil Submersible pump cooler out of water Power unit hydraulic cooler fins clogged Pressure relief valve malfunctioning	Connect & tighten hydraulic hoses Position power unit closer to sub pump Verify that correct oil is being used Check sub pump submergence Clean as necessary Verify relief valve operation
<b>Power unit shut down unexpectedly</b>	Left in auto start/stop model Low hydraulic oil level High hydraulic oil temperature High engine water temperature Low engine oil pressure	Check run position Check hydraulic oil level Check hydraulic oil temp Check engine Check engine
<b>Excessive pump vibration or noise</b>	Material lodged in impeller (out of balance) Discharge head too high Strainer clogged Worn bearings	Clear any obstructions Lower if possible or select large piping Clear obstructions Check and replace bearings

<b>Premature mechanical seal failure</b>	Hydraulic oil too thick Water hammer Hydraulic hoses disconnected from power unit but left connected to submersible pump  Strainer clogged	Allow to warm before engaging system Start at idle and adjust speed slowly  Always disconnect hyd hoses from sub pump prior to disconnecting from power unit  Clear obstructions
<b>Contaminated hydraulic oil</b>	Incompatible oils mixed in tank Fill port or inspection cover loose Clogged return filter & oil bypassing	Drain, flush and replace with new oil  Check covers and tighten  Replace filter

To determine if the problem is with the power unit or submersible pump, disconnect the hydraulic hoses to the power unit and then start the engine and engage the needle valve. Increase the speed of the engine to the maximum setting and take note of the pressure reading on the hydraulic pressure gauge. If the gauge reads 2500 psi or higher, then the power unit is operating normally and the problem is with the submersible pump. If the gauge reading does not come up to 2500 psi, the problem is with the power unit.