

Problem	Probable Cause	Remedy
<p>A. Pump does not deliver or output hydraulic fluid to the circuit</p>	1. Pump may contain large pockets of air and is low on priming fluid in its case	1. Add fluid to pump case and purge the air from the system
	2. The level of hydraulic fluid in the tank is low	2. Add fluid to the reservoir and verify the suction line is fully submerged
	3. Suction resistance is too high due to plugged inlet filter or clogged screen or strainer in the tank	3. Replace or remove filter and clean the screen or strainer. Verify the suction line is not clogged by foreign objects
	4. There is an air leak in the suction line	4. Verify integrity of o-rings. Verify integrity of the suction conduit. Tighten connections
	5. Viscosity of the hydraulic fluid is very high	5. Use lighter-viscosity hydraulic fluid. If operating the system in cold conditions, raise tank temperature by heating strips
	6. Wrong direction of rotation of the shaft	6. Correct direction immediately to prevent damage to the pump
	7. Pump ingested solid particles, dirt or contaminants	7. Flush clean system. Consult factory for further actions
	8. Pump attempts to prime against too high back pressure	8. Reduce system load and prime the pump correctly
<p>B. Pump does not generate pressure in the circuit</p>	1. Pump does not output hydraulic fluid to the circuit	1. Follow the remedies in A.
	2. System relief valve is not functioning properly	2. Re-adjust, repair or replace the relief valve
	3. The system bypasses hydraulic fluid freely back to the tank	3. Close directional valve or other return-line components that might be unintentionally set in an "open" position
	4. Circuit elements leak internally at an excessive rate	4. Block off sequentially various parts of the circuit to identify culprit and repair the problem
<p>C. Pump is making abnormal noise</p>	1. Pump starves or suffocates due to kinked or plugged inlet-line, or clogged inlet filter, screen or strainer	1. Verify the suction line is open. Clean inlet components. Replace or remove inlet filter
	2. Pump takes in air from the inlet line	2. Identify culprit by applying grease to the various sections and joints and listening to the change in sound of operation. Tighten connections

Problem	Probable Cause	Remedy
<p style="text-align: center;">C. Pump making abnormal noise (Cont.)</p>	3. Pump takes in air from the tank: a. via suction line b. via case drain line	3a. Add fluid to the reservoir. Verify the suction line is fully submerged 3b. Add fluid to the reservoir. Verify the case drain line loops above the pump and is fully submerged
	4. The air vent in the reservoir is either plugged or clogged	4. Ambient air pressure in the tank is required to balance suction intake of hydraulic fluid into the pump. Clean or replace air breather
	5. Pump shaft speed is too high	5. Check prime mover and/or PTO speed. Do not exceed the maximum rpm permitted
	6. Pump is inadequately mounted on a prime mover or into a foot bracket (Pedestal)	6. Make sure the pump is not <i>force-brute</i> situated into the mounting pad. Verify the bolts are properly tightened
	7. Coupling misalignment	7. Realign shafts and/or mounts as necessary. Verify integrity of coupling mating parts and replace as necessary. Secure the mating parts onto their respective shaft ends
	8. Pump swallowed debris or ingested contaminants	8. Flush clean system. Consult factory for further action
	9. Pump was stopped incorrectly and restarted rapidly thereafter	9. Stop pump. Restart system and evaluate status. Consult fluid power expert and/or factory for further action
	10. Pump shaft is rotated in the wrong direction	10. Correct direction of rotation immediately to prevent likely damage to the pump
	11. Viscosity of the hydraulic fluid is too low	11. Test working fluid per guidelines of its manufacturer. Augment proper additives as necessary
	12. Viscosity of the hydraulic fluid is too high for a non-boosted inlet. Pump cavitates or is starving	12. Test working fluid per guidelines of its manufacturer. Augment proper additives as necessary
	13. Pump is damaged	13. Repair the pump at an authorized facility or at the factory itself

Problem	Probable Cause	Remedy
<p>D. Hydraulic fluid leakage shows on and/or around the pump</p>	1. Shaft seal is compromised	1. Verify case pressure \leq 15 psi. Replace seal
	2. Some or all of the O-rings on the stackable controls are compromised	2. Replace O-rings
	3. Case drain line plumbed loosely or inadequately	3. Tighten and/or secure conduit connections
	4. Pump body formed a crack, "opened" a porous spot or incurred damage	4. Repair the pump at an authorized facility or at the factory
<p>E. Pump exhibits excessive heating</p>	1. Pump is not properly primed. An air bubble is trapped inside the case	1. Stop operation. Add prime via case drain port
	2. Pump takes in air from the tank	2. Verify sufficient fluid level in the reservoir and add if necessary. Verify inlet and case drain lines are properly submerged in hydraulic fluid
	3. Suction resistance is too high, and the pump cavitates or starves for fluid	3. Remove unnecessary bends, screens and obstructions in the suction line. Review pump inlet characteristics. Consult fluid power expert for further action(s)
	4. Pump operates above its specified pressure ratings	4. Consult pump specifications for rated flow and pressures. Consult fluid power expert for further action(s)
	5. Insufficient cooling provisions in the system for the operating fluid	5. Review existing heat exchanger capacity and add/revise as necessary. Remove non-essential "tap-ons"
	6. Pump remains dead-headed for long periods of time	6. Consult factory for pump flushing options with cold fluid
	7. The reservoir is too small for the pump in question or is shared by too many pumps	7. Provide each pump with a separate tank. Consult fluid power expert for possible add-on option(s)
	8. Pump is damaged or has worn out parts	8. Repair the pump at an authorized facility or at the factory itself
	9. Faulty element in the system leaks or blows fluid at an elevated pressure	9. Replace faulty component. Eliminate all leaks in the system. Verify relief valve(s) setting is well above pump pre-set compensation level

Problem	Probable Cause	Remedy
<p>F. Pump pressure unstable during full compensation (deadhead)</p>	1. Pressure settings of system relief valve and pump compensating control are too close	1. Reset relief valve pressure level to 250 psi above top control setting
	2. Top-control spool is contaminated or sticky	2. Open spool-cavity plug and remove spool. Flush cavity and cleanse spool. Restore the spool in its place
	3. Top control spool and/or its cavity have excessive wear	3. Replace control
	4. Off-stroke control piston and/or stem are substantially worn out	4. Check for excessive case drain flow and possibly an elevated case pressure. Repair the pump at an authorized facility or at the factory itself
	5. O-rings on the off-stroke control are compromised and leak under pressure into pump case	5. Check for excessive case drain flow and possibly an elevated case pressure. Repair the pump at an authorized facility or at the factory itself
	6. Pump lost its null due to a worn out on-stroke roller. The swash-plate is most likely stopping over the center	6. Consult factory for an interim solution. Repair the pump at An authorized facility or at the factory itself
<p>G. Pump does not fully compensate (deadhead)</p>	1. Top-control spool contaminated or sticky	1. Open spool-cavity plug and remove spool. Flush cavity and cleanse spool. Restore the spool in its place
	2. Swash-plate controls jammed	2. Consult factory for proper diagnostic procedures. Repair pump at an authorized facility or at the factory itself
	3. Pump lost its null. On-stroke control is most likely pushed too far inward	3. Consult factory for a proper diagnostic procedure and set the control to its required position
	4. System relief valve is set too low or does not function properly	4. Re-adjust, repair or replace the relief valve
	5. Pump is damaged or has worn out parts	5. Repair the pump at an authorized facility or at the factory itself

Problem	Probable Cause	Remedy
<p>H. Pump de-strokes at low pressure</p>	1. Top-control is set incorrectly	1. Adjust setting to the desired level
	2. Top-control spool contaminated and stuck in a "destroyed mode"	2. Open cavity plug and retrieve the spool. Flush cavity and cleanse spool. Restore the spool in its place
	3. Top control spring is missing	3. Open cavity plug and verify spring status
	4. The spool is situated in the wrong way in top control	4. Open cavity plug, retrieve the spool and reverse its direction
<p>I. Pump volumetric output is below rated output</p>	1. Top-control spool contaminated or sticky	1. Open spool-cavity plug and remove spool. Flush cavity and cleanse spool. Restore the spool in its place
	2. Swash-plate controls jam at a partially open position	2. Consult factory for proper diagnostic procedures. Repair pump at an authorized facility or at the factory itself
	3. Off-stroke control is most likely adjusted incorrectly (too far inward)	3. Unjam securing nut and turn the screw counter-clock wise (CCW) as far as needed. Re-jam securing nut
	4. Top-control setting level is too close To pump full-flow operating pressure	4. Adjust control setting higher to remove the pump from its compensated status
	5. Pump shaft speed is too low for an effective intake of fluid	5. Consult pump specifications and performance data. Increase shaft speed
	6. Pump rotating group has excessively worn parts	6. Consult factory for proper diagnostic procedures. Repair pump at an authorized facility or at the factory itself