

TROUBLESHOOTING TABLE

<i>Problem</i>	<i>Probable Cause</i>	<i>Remedy</i>
No liquid delivered.	<ol style="list-style-type: none"> 1. Pump not primed. 2. Discharge valve closed. 3. Suction line clogged. 4. Wrong direction of rotation. 5. Total head is too high. 6. Driver is not operating at rated speed. 7. Pump is vapor bound 8. Foot valve or suction pipe opening not submerged enough. 9. Suction lift too high. 	<ol style="list-style-type: none"> 1. Reprime pump, check that pump and suction line are full of liquid. 2. Check discharge valve. 3. Remove obstructions. 4. Change rotation to concur with direction indicated on bearing housing or pump casing. 5. Re-evaluate head conditions. 6. Check electric motor voltage;check engine rpm 7. Provide additional pressure on liquid being pumped by elevating liquid source. 8. Consult factory for proper depth. Use baffle to eliminate vortices. 9. Shorten suction pipe.
Pump not producing rated flow or head.	<ol style="list-style-type: none"> 1. Air leak through gasket. 2. Air leak through stuffing box. 3. Impeller partly clogged. 4. Worn suction side plate or wear rings. 5. Pump is not properly primed. 6. Suction lift is too high. 7. Driver is not operating at rated speed. 8. Pump is vapor bound 9. Insufficient suction head. 10. Worn or broken impeller. 	<ol style="list-style-type: none"> 1. Replace gasket. 2. Replace or adjust packing/mechanical seal. 3. Back flush pump to clean impeller. 4. Replace defective parts as required. 5. Reprime pump, check that pump and suction line are full of liquid. 6. Shorten suction pipe. 7. Check electric motor voltage;check engine rpm 8. Provide additional pressure on liquid being pumped by elevating liquid source. 9. Ensure that suction line shutoff valve is fully open and line is unobstructed. 10. Inspect and replace if necessary.
Pump starts then stops pumping.	<ol style="list-style-type: none"> 1. Improperly primed pump 2. Excessive air in liquid. 3. Suction lift too high. 4. Defective packing or seal. 5. Pump is vapor bound. 6. Air or vapor pockets in suction line. 7. Air leak in suction line. 	<ol style="list-style-type: none"> 1. Reprime pump. 2. Clean and tighten all suction connections; relocate suction inlet in liquid source. 3. Re-evaluate pump requirements and correct suction conditions. 4. Replace packing or seal. 5. Provide additional pressure on liquid being pumped by elevating liquid source. 6. Rearrange piping to eliminate air pockets. 7. Repair leak.
Bearings run hot.	<ol style="list-style-type: none"> 1. Improper alignment. 2. Improper lubrication. 3. Lube cooling. 	<ol style="list-style-type: none"> 1. Re-align pump and drive. 2. Check lubricate for suitability and level. 3. Check cooling system.
Pump is noisy or vibrates.	<ol style="list-style-type: none"> 1. Improper pump/driver alignment. 2. Partly clogged impeller causing imbalance. 3. Broken or bent impeller or shaft. 	<ol style="list-style-type: none"> 1. Align shafts. 2. Back-flush pump to clean impeller. 3. Replace as required.

Problem	Probable Cause	Remedy
Pump is noisy or vibrates (cont.).	<ol style="list-style-type: none"> 4. Foundation not rigid. 5. Worn bearings. 6. Suction or discharge piping not anchored or properly supported. 7. Pump is cavitating. 	<ol style="list-style-type: none"> 4. Tighten bolts of pump and motor or adjust stilts. 5. Replace. 6. Anchor per Hydraulic Institute Standards Manual recommendation. 7. System problem.
Excessive leakage from stuffing box/seal chamber.	<ol style="list-style-type: none"> 1. Packing gland improperly adjusted. 2. Stuffing box improperly packed. 3. Worn mechanical seals. 4. Overheating mechanical seal. 5. Shaft sleeve scored. 	<ol style="list-style-type: none"> 1. Tighten gland nuts. 2. Check packing and repack box. 3. Replace worn parts. 4. Check lubrication and cooling lines. 5. Remachine or replace as required.
Motor requires excessive power.	<ol style="list-style-type: none"> 1. Head lower than rating; pumps too much liquid. 2. Speed is too high. 3. Wrong direction of rotation. 4. Impeller is clogged. 5. Impeller is binding. 6. Driver and pump are misaligned. 7. Power frame shaft is bent. 8. Worn suction side plate or wear rings. 9. Liquid heavier than expected. 10. Stuffing box too tight. 11. Rotating parts bind. 	<ol style="list-style-type: none"> 1. Consult factory. Install throttle valve, trim impeller diameter. 2. Electric motor wiring is wrong. Replace motor. 3. Check wiring diagram. 4. Back flush pump to clean impeller. 5. Relieve strain on casing; adjust impeller clearance. 6. Realign driver with pump. 7. Replace shaft. 8. Replace defective parts as required. 9. Check specific gravity and viscosity. 10. Readjust packing. Replace if worn. 11. Check internal wearing parts for proper clearances.
Pump fails to prime or loses its prime.	<ol style="list-style-type: none"> 1. Air leaks in suction line. 2. Suction strainer is clogged. Suction lift is too high. 3. Defective priming valve. 4. Defective packing or seal. 5. <i>Self-Priming Pump</i> 	<ol style="list-style-type: none"> 1. Clean and tighten all suction connections; relocate suction inlet in liquid source. 2. Clean debris from strainer. Re-evaluate pump requirements and correct suction conditions. 3. Replace valve. 4. Replace packing or seal. 5. Fill pump housing with liquid. Open the discharge gate valves to evacuate air.
Insufficient pressure.	<ol style="list-style-type: none"> 1. Excessive air in liquid. 2. Driver is not operating at rated speed. 3. Wrong direction of rotation. 4. Total head is too high. 5. Worn suction side plate or wear rings. 6. Broken or bent impeller or shaft. 7. Air leak through gasket. 	<ol style="list-style-type: none"> 1. Clean and tighten all suction connections; relocate suction inlet in liquid source. 2. Check electric motor voltage; check engine rpm 3. Change rotation to concur with direction indicated on bearing housing or pump casing. 4. Re-evaluate head conditions. 5. Replace defective parts as required. 6. Replace as required. 7. Replace gasket.

<i>Problem</i>	<i>Probable Cause</i>	<i>Remedy</i>
	8. Liquid is vaporizing	8. Provide additional pressure on liquid being pumped by elevating liquid source.