## Multi Stage Pump Troubleshooting Guide

**Series Pump: MS**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Causes</th>
<th>Corrections</th>
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</thead>
<tbody>
<tr>
<td>Pump fails to prime</td>
<td>Air leaks on suction side of system.</td>
<td>Check suction hoses for leaks.</td>
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<td></td>
<td>Discharge valves open or leaking.</td>
<td>Close/replace discharge valves.</td>
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<tr>
<td></td>
<td>Worn packing.</td>
<td>Tighten/replace as necessary.</td>
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<td></td>
<td>Air compressor too small or not performing</td>
<td>Check air compressor (185 cfm)</td>
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<tr>
<td></td>
<td>Suction lift too high.</td>
<td>Check and lower pump if possible.</td>
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<tr>
<td></td>
<td>Worn venturi.</td>
<td>Replace.</td>
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<td></td>
<td>Air lock.</td>
<td>Loosen vent plugs to purge air.</td>
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<tr>
<td>Pump takes a long time to prime</td>
<td>High suction lift and/or long hose length</td>
<td>Reduce if possible.</td>
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<tr>
<td></td>
<td>Air leak on suction side</td>
<td>Fix leaks.</td>
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<tr>
<td></td>
<td>Worn packing.</td>
<td>Tighten/replace as necessary.</td>
</tr>
<tr>
<td>Unit shut down</td>
<td>Engine ran out of fuel</td>
<td>Refill with fuel.</td>
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<td></td>
<td>Clogged fuel filter.</td>
<td>Change filter &amp; bleed off air.</td>
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<td></td>
<td>Low engine oil pressure or high temperature.</td>
<td>Check engine. Do not bypass shutdown.</td>
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<tr>
<td>Reduced performance - excessive</td>
<td>Obstruction in suction hose/foot valve.</td>
<td>Check suction hose/foot valve.</td>
</tr>
<tr>
<td>vacuum</td>
<td>Suction lift too high.</td>
<td>Check and lower pump if possible.</td>
</tr>
</tbody>
</table>
| Reduced performance – low vacuum | Air leaks on suction side of system.  
Excessive discharge head  
Worn packing.  
Speed too low.  
Pump internals worn. | Correct leaks.  
Reduce or select larger piping.  
Tighten/replace as necessary.  
Increase within recommended limits.  
Check and adjust/repair as required. |
|-----------------------------|----------------------------------------------------------------------------------|
| **Pump won’t rotate**       | Damaged drive coupling.  
Obstruction in pump.  
Rotating parts locked up. | Replace.  
Remove obstruction.  
Disassemble and apply rust preventative. |
| Pump overheating             | Footvalve clogged.  
Cavitation (improper suction design)  
Discharge head too high  
Air lock | Clear any obstructions  
Correct suction problems  
Lower if possible or select large piping  
Loosen vent plugs to purge air. |
| Premature bearing failure    | Inadequate lubrication  
Piping not properly supported  
Cavitation (improper suction design)  
Misalignment  
Water or contaminants entering bearings | Regrease with proper grease  
Provide suitable bracing and supports  
Correct suction problems  
Align all rotating parts  
Check/replace lip seals as required |
| Premature drive coupling failure | Piping not properly supported  
Misalignment | Provide suitable bracing and supports  
Align all rotating parts |
| Excessive vibration          | Air in fuel line or clogged fuel filter.  
Misalignment of pump and engine.  
Suction or discharge pipe not supported.  
Cavitation (Improper suction design).  
Worn bearings. | Purge air and replace filter.  
Align.  
Correct supports.  
Correct suction design.  
Check and replace bearings. |