

Pump System Troubleshooting

When troubleshooting a pump system, the following will be helpful in the field:

- An accurate panel wiring diagram
- A set of jumper wires
- Voltage, ohm and amp meter
- Start-up report
- Spare panel control fuses
- Extra capacitors/relays for single phase systems
- Motor winding resistance values
- Pump performance and electrical data
- Troubleshooting check list

When working around electrical equipment, think safety. The wrong move can have dangerous consequences. Use the panel disconnects to remove system power. Use your voltage meter to verify that the system's power has been deactivated.

OBJECTIVE...DETERMINE WHERE THE PROBLEM LIES:

- With the pump
- In the panel
- With the float switches

The following steps will assist in efforts to isolate the problem area:

Step 1

Make a visual overview of the system Familiarize yourself with the system components. Verify the pump voltage to the system power source. Pump capability vs. system characteristics Verify that all electrical connections to the panel are correct. Inspect the system for abuse or damage. Inspect every inch of cordage for damage. Review the start-up report's installation check list.

Step 2

Check the supply voltage at the panel.

Step 3

Check the control voltage.

Step 4

Check the alarm circuit with test switch, jumper or float.

Step 5

Operate each pump by placing the selector switch in "hand" mode. Check the pump run light. Take an amp and voltage reading with the pump running. Check for proper rotation (3 phase system).

Step 6

Simulate float switch operation with jumper wires. Repeat numerous lead/lag cycles. Take a voltage reading with both pumps operating.

Step 7

Check motor windings. Must disconnect from panel. Check resistance through each winding. Check each motor lead to ground. There should be no continuity. Check insulation with megohmmeter, should be greater than 10 continuity. During the above steps, stop and investigate if you detect a malfunction. If all components operate correctly throughout the above steps, you may want to check the float switches and all junction box connections (if applicable).