

Proportioning System



Before performing any troubleshooting procedures:

1. Relieve pressure, page 27.

2. Turn main power OFF



3. Allow equipment to cool.

Problems

Try the recommended solutions in the order given for each problem, to avoid unnecessary repairs. Also, determine that all circuit breakers, switches, and controls are properly set and wiring is correct before assuming there is a problem.

PROBLEM	CAUSE	SOLUTION
Proportioning pump does not hold pressure when stalled.	Pump piston or intake valve leaking.	<ol style="list-style-type: none"> 1. Observe gauges to determine which pump is losing pressure. 2. Determine in which direction the pump has stalled by observing which directional valve indicator light is on. See Table 2, page 25 to isolate the problem. 3. Repair the valve; see pump manual 312068.
Material imbalance. See Pressure/Material Imbalance , page 25.	Restriction at the gun.	Clean the gun; see your separate gun manual.
	Inadequate flow from pump; cavitation.	Increase fluid supply to proportioning pump: <ul style="list-style-type: none"> • Use 2:1 supply pump • Use minimum 3/4 in. (19 mm) ID supply hose, as short as practical
		Fluid is too thick. Consult your material supplier for the recommended fluid temperature to maintain a viscosity of 250 to 1500 centipoise.
		Clean inlet strainer screen, page 44.
	Worn pump inlet valve ball/seat or gasket. Replace, see pump manual 312068.	
	Pressure relief/circulation valve leaking back to supply.	Remove return line and determine if flow is present while in SPRAY  mode.

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Troubleshooting

PROBLEM	CAUSE	SOLUTION
Pumps do not reverse direction or pumps do not move.	Bent or loose activator plate, rocker arm, or reversing switch.	See Pumps Do Not Reverse Direction , page 26.
	Loose piston packing bolt.	See Pumps Do Not Reverse Direction , page 26.
	Faulty directional valve.	See Pumps Do Not Reverse Direction , page 26.
Erratic pump movement.	Pump cavitation.	Feed pump pressure is too low. Adjust pressure to maintain 100 psi (0.7 MPa, 7 bar) minimum.
		Fluid is too thick. Consult your material supplier for recommended fluid temperature to maintain a viscosity of 250 to 1500 centipoise.
	Loose activator plate, rocker arm, or reversing switch.	See Pumps Do Not Reverse Direction , page 26.
	Faulty directional valve.	Replace directional valve.
Pump output low.	Obstructed fluid hose or gun; fluid hose ID too small.	Open, clear; use hose with larger ID.
	Worn piston valve or intake valve in displacement pump.	See pump manual 312068.
	Inadequate feed pump pressure.	Check feed pump pressure and adjust to 100 psi (0.7 MPa, 7 bar) minimum.
Fluid leak at pump rod seal.	Worn throat seals.	Replace. See pump manual 312068.
No pressure on one side.	Fluid leaking from pump outlet rupture disk (216).	Check if heater (2) and PRESSURE RELIEF/SPRAY valve (SA or SB) are plugged. Clear. Replace rupture disk (216) with a new one; do not replace with a pipe plug.
	Inadequate feed pump pressure.	Check feed pump pressure and adjust to 100 psi (0.7 MPa, 7 bar) minimum.

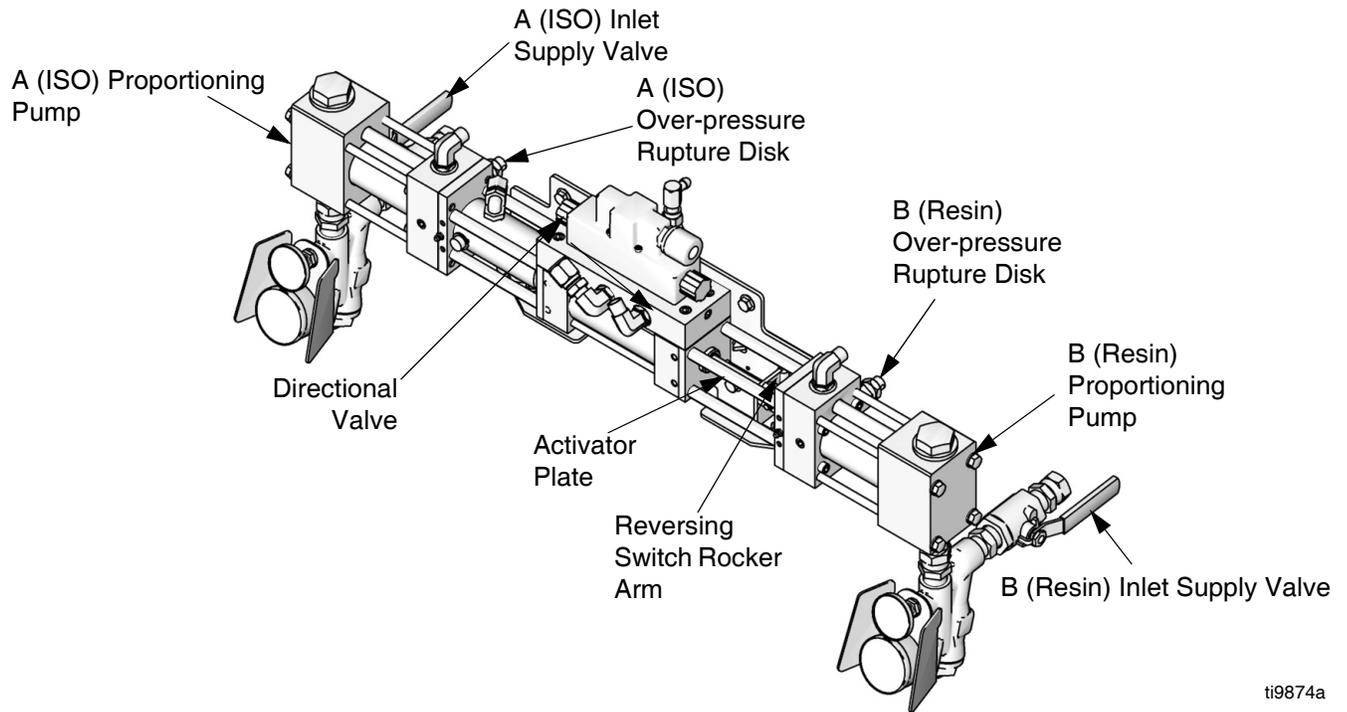


FIG. 1. Proportioning System

Table 2. Directional Valve Indicator Status

Left Pump Directional Indicator Lighted	Right Pump Directional Indicator Lighted
B-side pump piston valve dirty or damaged	B-side pump inlet valve dirty or damaged
A-side pump inlet valve dirty or damaged	A-side pump piston valve dirty or damaged

Pressure/Material Imbalance

To determine which component is out of balance, check the color of some sprayed material. Two-component materials are usually a mix of light and dark fluids, so the under-proportioned component can often be readily determined.

When you have determined which component is under-proportioned, spray off-target, focusing on the pressure gauge for that component.

For example: if component B is under-proportioned, focus on the B-side pressure gauge. If the B gauge reads considerably higher than the A gauge, the problem is at the gun. If the B gauge reads considerably lower than the A gauge, the problem is at the pump.

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Troubleshooting

Pumps Do Not Reverse Direction

1. For the proportioning pumps to reverse direction, the activator plate (219) must contact the rocker arm to activate the reversing switch (210). Check for a bent or loose activator plate, rocker arm, or reversing switch. See FIG. 1 on page 25, and the parts drawing on page 59.
2. Check the function of the directional valve. Direction indication lights should switch on and off based on the reversing switch (210) position. LEDs D19 and D20 (near J5 reversing switch connector on motor board) should alternately illuminate based on the reversing switch position.

There are two possible problems with the directional valve:

- a. If D19 and D20 do not alternately illuminate, the possible causes include:
 - faulty reversing switch wiring,
 - faulty reversing switch, or
 - faulty motor board.

To resolve this problem:

- verify the continuity of each reversing switch wire. Replace faulty wires.
- verify reversing switch. Unplug the J5 reversing switch connector. Verify that continuity alternates between NC2 to com and N03 to com by toggling the reversing switch (see Electrical Diagrams manual 312064). If continuity does not alternate, replace the reversing switch and reconnect the J5 reversing switch connector.
- if the reversing switch and wiring are not the cause, and D19 and D20 will not alternately illuminate, replace the motor board.

- b. If D19 and D20 do illuminate but the direction indication lights do not, the possible causes include:

- faulty motor board,
- faulty directional valve wiring, or
- faulty directional valve.

To resolve this problem:

- verify the motor board output voltages at the J18 directional valve connector. When the reversing switch is toggled one direction, there should be 230V output between pins 1 and 2 (A+ and A-). When it is toggled the other direction, there should be 230V output between pins 3 and 4 (B+ and B-). If output voltages are not present, replace the motor board.
- verify continuity of each directional valve wire and verify wiring connections (see Electrical Diagrams manual 312064).
- if motor board and wiring are not the cause, replace the directional valve.



For diagnostic purposes, it is possible to manually override the directional valve by using a small screwdriver to depress the button in the center of either directional valve end cap. Depressing the button in the right end cap should cause the pump to travel to the right. Depressing the left button should cause the pump to travel to the left.

3. If you have determined that the cause is none of the above, check for a loose piston packing retaining bolt. This causes the piston to contact the inner face of the pump inlet flange before the activator plate contacts the rocker arm. Shut down the unit and disassemble the appropriate pump for repair.