CENTRIFUGAL Pump Sprayer Troubleshooting

The most frequent cause of centrifugal pump failure is a "run dry" condition.

Verify that operating RPMs are correct for the engine and confirm that the pressure gauge is operating properly

If your flow is Reduced or Not Flowing at all

- ☑ Verify the isolation valve is open and operating properly
- ☑ Check suction strainer for debris or obstructions
- ☑ Inspect vortex plate, suction flange and suction hose for debris blockage or leaks

If Above is OK, then

- ☑ Determine pump is working correctly
  - Visually inspect the eye of the impeller for excessive wear or obstructions
  - Confirm that the pump has correct rotation
  - Inspect anti-cavitation tube and fittings for obstructions

If the Flow from pump is OK

- ☑ Check selector valves for proper settings
- ☑ Check accessory valves, flow control or pressure regulator valve, boom control valves for proper settings
- ☑ Verify that the desired output does not exceed the capacity of the pump

Additional things to Check

Clutch driven pumps

- ☑ Inspect the drive belt for proper alignment and tension
- ☑ Insure that clutch switch is functioning correctly and has adequate ground
- ☑ Check for burnt or discolored coil and wires on clutch

Engine driven pumps

- ☑ Verify correct engine RPMs
- ☑ Verify correct pulley sizing
- ☑ Confirm proper belt alignment and tension

Hydraulically driven pumps

- ☑ Verify that the hydraulic motor is correct for the application
- ☑ Confirm that the hydraulic motor is turning the pump at the correct RPM
- ☑ Confirm that the hydraulic system on the vehicle is operating properly

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DIAPHRAGM Pump Sprayer Troubleshooting

The two most frequent causes of diaphragm failure are starved suction and excessive RPM!

Verify that operating RPMs are correct for the engine and confirm that the pressure gauge is operating properly

If your flow is Reduced or Not Flowing at all

- ☑ Check for possible starved suction
- ☑ Verify the isolation valve is open
- ☑ Check suction strainer for debris or obstructions
- ☑ Inspect vortex plate, suction flange and suction hose for debris blockage or leaks

If Above is OK, then

- ☑ Determine pump is working correctly
  - Verify that pump is turning at a maximum of 550 RPM
  - Check oil sight gauge; if oil is white/milky you have a diaphragm failure

If the Flow from pump is OK

- ☑ Check selector valves for proper settings
- ☑ Check system pressure regulator valve (PRV), is pressure setting correct?
- ☑ Confirm return flow to tank
- ☑ If PRV is suspect, an easy test is to restrict the return flow to the tank. An increase in pressure indicates a bypass condition in the regulator valve
- ☑ Check accessory valves, flow control or pressure regulator valve, boom control valves for proper settings
- ☑ If equipped with Jet Agitation, check for missing orifice discs
- ☑ Verify that the desired output in gallons per minute does not exceed the capacity of the pump

Additional things to Check

Engine driven pumps

- ☑ Verify correct engine RPMs
- ☑ Verify correct pulley sizing
- ☑ Confirm proper belt alignment and tension

Hydraulically driven pumps

- ☑ Verify that the hydraulic motor is correct for the application
- ☑ Confirm that the hydraulic motor is turning the pump
- ☑ Confirm that the hydraulic pump on the vehicle is operating properly
- ☑ Verify pump RPMs

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