

Troubleshooting a spraying system for lack of Pressure

The following are the steps that should be taken to troubleshoot a spray system if inadequate pressure is being obtained:

1. Make sure there is adequate liquid in the spray tank:

- If the spray tank is empty, put some liquid in it before proceeding.
- If the liquid in the spray tank is near the bottom, swirling at the bottom of the tank may allow air into the suction line which will cause the pressure to go up and down. Look inside the tank while running to see if this is happening.

2. Ensure that capacity of pump is not being exceeded:

- To check this it is necessary to determine the flow that is expected out of a single nozzle in your spray system by using method "A" or "B" below.

Method A: If flow specifications are available for the nozzles that are using, check the specifications for the flow from one nozzle at the pressure that you want to spray at.

Method B: If nozzle flow specifications are not available, the flow from a nozzle may be determined manually by collecting the spray from one nozzle in a container for one minute and measuring how much liquid was collected in the container. This gives the flow per minute for a single nozzle.

- Then multiply the flow for each individual nozzle by the number of nozzles that you are using. This gives the total required flow per minute.
- Compare the total required flow to the maximum flow that the pump is capable of. The total flow should be at least 20% less than the maximum pump flow. If not, then use fewer nozzles or use smaller nozzles or use a bigger pump.

3. Shut off all jet agitation (if fitted):

- If a jet agitator hose has blown off inside the spray tank, then all the pressure will be lost through the agitator line. If the sprayer works well only when the agitator is shut off, then this is the problem.

4. Look for overflow running back into the tank:

There is a hose running from the pressure regulator (the valve where you adjust your pressure) back to the spray tank. Look inside the tank when the pump is running and see if there is a substantial amount of liquid flowing back into the tank. If there is a lot of overflow and there is little or no pressure then the problem is that the seats in the pressure regulator worn out or something is caught in the regulator causing it to stick open. If there is no overflow then there is a problem with something other than the pressure regulator.

5. Check the suction line for blockage:

- The suction line is the hose that supplies the pump with liquid. Usually there is also a suction strainer in this line to protect the pump from foreign debris.
- Check for kinked or collapsed suction line. Note that the hose liner on an older suction hose may separate from the outer casing and could collapse without any visual indication from the outside of the hose. If in doubt, replace the hose being sure to use a hose with an embedded wire or plastic coil to prevent collapsing.
- Check that the suction strainer is clean and not clogged with dirt, debris or undissolved chemical.
- Check that the suction strainer shut-off valve is open (if fitted).

NOTE: If there is any restriction in the suction line, this will starve the pump. Pump starvation will rupture diaphragms in a diaphragm pump.

6. Check the suction line for air leaks:

- Make sure that the gasket on the suction strainer is in place and that it is not cracked or worn out.
- Make sure all the fittings between the spray tank and the pump are tight. If a fitting is dripping while the unit is not in use it is a sure sign that there is a suction leak. Keep in mind that there may be a suction leak that shows no sign of dripping while the unit is not in use.
- Make sure that the hose clamps on the hoses between the spray tank and the pump are in good shape and are tight.
- Make sure that there are no cracks or holes in the hoses between the spray tank and the pump. If hoses are getting old or if in doubt, replace hose being sure to use a hose with an embedded wire or plastic coil to prevent collapsing.

NOTE: If air gets into the suction line anywhere it will cause the spray system to work very badly. This is what causes most pump problems. There may be air getting into the suction line even if liquid is not leaking out of the suction line so this must be inspected very carefully.

7. Diaphragm, piston and plunger pumps:

- Check that the valves are in good condition. To check them, remove them from the pump and hold them up to the light. If you can see light peeking through the seating surfaces it would be a good idea to change them.

8. Roller pumps:

a) Check to see that the rollers inside the pump are not worn out.

b) A pump with a rusty or rough inside surface where the rollers roll around will wear rollers out in a matter of minutes. If this is the case, due to the relatively low cost of roller pumps, simply replace the pump.