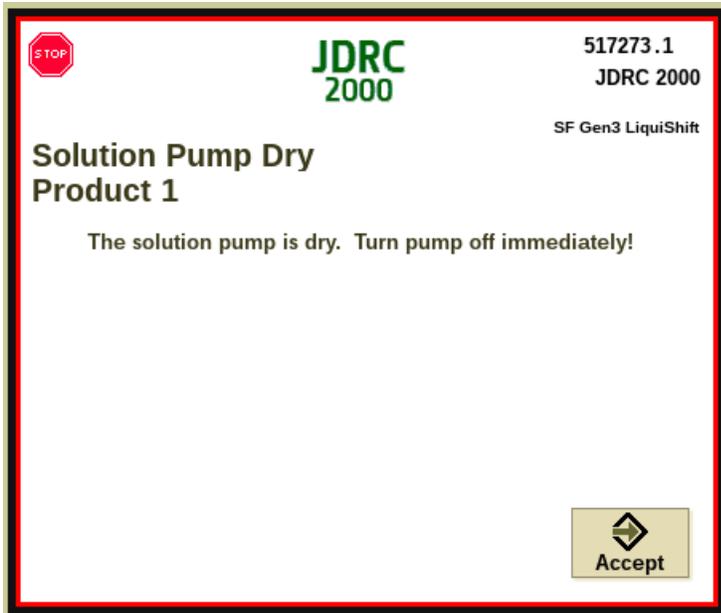


Solution Pump Dry

If you've run a John Deere Rate Controller for very long, you've probably seen "Solution Pump Dry", along with the warning, "Turn pump off immediately!"



This warning is programmed by Deere to come on if flow is not detected for a couple of seconds. In some cases, the system will be shut down completely a few seconds later.

The warning and shutdown are probably necessary if you are running a centrifugal pump where running dry for a few seconds could burn up the seals or otherwise damage the pump.

Don't worry, though. This is NOT a problem with SureFire pumps. The SureFire PumpRight hydraulic pump and the SureFire 12- volt diaphragm pumps used on SureFire Tower systems will NOT be damaged by running dry.

Besides that, the message doesn't actually mean that the pump is not pumping liquid. It means that the controller does not detect liquid flow through the system. Those may be two different things.

On the GreenStar Rate Controller set in Liquid Fert Tool mode this means that the controller is not receiving a signal from the flowmeter indicating that liquid is flowing at a time that the controller is expecting to see flow.

But, on the Rate Controller 2000, the controller looks for evidence of flow from the flowmeter, as well as from a pressure sensor assigned to that product. If the controller doesn't see flow from the flowmeter or pressure from the pressure sensor, it declares SOLUTION PUMP DRY.

The message could mean one of several things:

- (1) You may have a bad flowmeter or bad wiring or connectors from flowmeter to rate controller. You actually do have liquid flowing.
- (2) The pump has stopped. On an electric pump system, check the lights on the EPD module. Four quick flashes, followed by a pause, means there has been a low voltage condition from the battery to the EPD.
- (3) The pump is not getting any liquid (tank is empty, strainer is plugged,...)
- (4) The section valves or A-B LiquiShift valves are not opening.

(5) If this occurs fairly regularly at the start of a pass, consider the following:

(a) On a Rate Controller 2000, increase the PWM Startup setting, and this should go away.

On a GreenStar Rate Controller:

(1) Raise the PWM Low Limit. This will get the pump pumping sooner.

(2) Close recirculation as much as possible. With recirculation open, it's easier for the first liquid pumped to recirculate instead of going to the rows.

(3) Increase the first 2 digits of the Valve Cal number. (May have to set the last 2 digits at 32).

If these don't fix it, you might consider installing a Flow Return valve and letting the pump run while you turn around.

Repeated Solution Pump Dry warnings either at the beginning of the pass or at the end of a pass:

(A) If the hydraulic pump is plumbed in series with the CCS fan, the pump will start and stop with the planter. If the fertilizer is set to start with a Height Switch and the planter is operating from another Height Switch, and these two switches are out of sync, the pump, say, at the end of the pass would shut off when the planter switch signaled shutoff, but if the fertilizer height switch has not shut off, the controller is still expecting flow. In this case, sync the height switches or plumb the hydraulics differently to the pump.

Hopefully, this will cut down some of the Solution Pump Dry warnings. Just remember, though, if you do see that message, your SureFire pump is going to be OK>

Sometimes, the pump stops or flow stops, but the SOLUTION PUMP DRY warning does not show up. This means that the controller is not expecting flow at that time. That's another issue.