



Pressure Switches — Understanding the Different Types of Leaks

Types of Pressure Switch Leaks

Most users assume that if the pressure switch leaks, all that needs to be done is to change out the pressure switch and the problem will be fixed. This however, is not always the solution. It also **does not mean that your new pressure switch is bad.**

Type 1: One common reason the pressure switch leaks, is that over time, the diaphragm inside the switch has cracked or worn a hole. Air is blowing from inside the tank, through the hole in the diaphragm, and exiting the switch housing. If air is exiting the pressure switch cover, then it is most likely that the diaphragm has failed. In this scenario, replacing the pressure switch should solve the problem.

Type 2: The second reason a pressure switch may leak air is due to the unloader valve. Air leaking from an "unloader" valve on the pressure switch continuously (after the motor shuts off) is an indication of a leaking check valve, not a bad pressure switch. Air leaking from the unloader while the motor is running is an indication of a bad unloader valve.

About Unloader Valves and Check Valves

The **unloader valve** responds to the pressure switch as the switch reacts to the compressor tank pressure. It is designed to "unload" the pump and air lines after motor shutdown. The mechanical action which opens the contacts inside the switch to shut off the compressor motor opens the unloader valve. This unloader valve then releases the compressed air trapped over the compressor pistons to atmosphere, and allows that trapped air to escape, unloading the compressor.

You can hear this happen. When a compressor reaches the high pressure set point and stops, there is the characteristic hissing sound of air escaping. This is the sound of the compressor pump being unloaded. It should be a brief burst of air, normally less than a second or two.

The **check valve** is a totally different part, threaded into the tank and serves a completely different purpose.

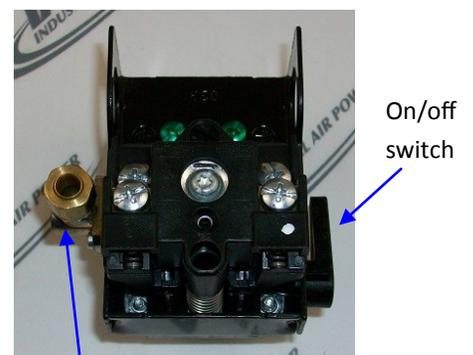
The check valve is a one way valve designed to permit air flow into the air tank, but not out of the tank. The pump producing the air pressure sends air into the tank through the check valve. Once the air is inside the tank, it should stay there unless some other fitting on the tank is leaking. If you have any air leaks around your pressure switch, the check valve should be checked, cleaned, or replaced.



How a Pressure Switch Works

As the name would imply, a pressure switch reacts to pressure. The pressure switch is typically plumbed so that the air from the compressor air tank can flow to the switch.

Compressed air pressure pushes equally in all directions at the same time. So, if the tank gauge reads 100 PSI, then 100 lbs. of force is pushing on each square inch of the diaphragm inside the pressure switch. The tank pressure pushing on the diaphragm inside the pressure switch causes it to trip.



Unloader Valve



Check Valve