KNOWLEDGE BASE

Article Type: Instructions

Hydraulic Accumulators, Piston and Bladder types

Description:

Instructions on "How to" properly maintain your piston and bladder type hydraulic accumulators.

WARNING

Never work on, clean or service this unit, control panel or any machine or open or remove any protective cover, guard, grate, door, or maintenance panel until the power or energy sources has been turned off, locked out / tagged out, and all moving parts have come to a complete stop and or blocked to prevent movement. Machinery is dangerous – avoid personal injury and or death by following manufacture, Local, and OHSA safety procedures. Contact Columbia Machine for safety decals, guards, horns and beacons.

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Keeping your Hydraulic Accumulator in good working condition

The health of your hydraulic accumulator and the affects it can have on the operation of your machines, it can contribute to slow or poor performance. The hydraulic accumulators used on your hydraulic systems are used to smooth out your pump performance by offering extra oil when the system demands it.

There are two types of hydraulic accumulators that we have used. Older systems used a piston type, and in the early ninety's we changed to our current bladder type. In this service tip we will cover servicing both piston and bladder accumulators.

We will look at servicing the **piston type** accumulator first. The piston type accumulator needs the most maintenance due to its construction with a floating piston. Servicing your piston type accumulator is easy and should be performed once a year to keep it in tip top working condition.

Tools needed to service your piston type accumulator;

- Full bottle of Nitrogen (NEVER USE OXYGEN)
- Charging hose assembly and adapter if needed (part # 366.11.6 hose assembly and adapter) (Hose assembly only part # 366.11.5)
- 12" adjustable wrench
- clean five gallon bucket

With the pump turned off and locked out, attach the charging hose assembly to the accumulator gas valve (looks like a tire valve stem BUT they are NOT the same) only attach charging hose assembly to the gas valve at this time. Using the T-handle on the charging hose (and adapter if used). Turning the T-handle clockwise will open the gas valve and allow the nitrogen in the accumulator to exit. Once the nitrogen stops flowing it is time to drain the oil from off the top-side of the piston.

Draining the oil from the top-side of the piston is done by unlocking the pump. Now have one person holding the charging hose firmly above the 5-gallon bucket, this bucket will capture exiting oil from the open end of the hose. Using a second person at the push button station, this person will need to push the pump start button for two seconds then push the stop button, repeat this process until oil stops coming from the end of the hose. Once the oil stops flowing, let the pump run for 1-2 minutes, then turn the pump off. With the pump turned off and locked out wipe off the hose end and attach it to the nitrogen bottle valve.

Open the valve on the bottle first, now using the hand valve on the charging hose open it to allow nitrogen to flow into accumulator. Accumulators should never be charged to more then 65% (2/3) the pump operating pressure. For example if your system is operating at 900 psi the accumulator would be charged to 600 psi this is 65% or 2/3 system operating pressure. Once machine is returned to normal service it my be necessary to reduce nitrogen pressure to get system balanced, only lower by 50 psi at a time, but don't let the accumulator pressure drop below 33% or (1/3) operating pressure. If the accumulator is allowed to operate at less than 33% or 1/3 it could damage the accumulator internally.

Bladder type accumulators are simple to service.

First turn off the pump and lock it out. Next attach the charging hose assembly to the gas valve on the accumulator and the other end to the nitrogen bottle. Make sure all hand valves are closed.

Now open T-handles clockwise at accumulator, this will allow nitrogen to flow into the hose assembly and gage for reading. If the accumulator pressure is 65% or 2/3 operating pressure this good, however if the pressure is 33% or 1/3 or lower you can try putting nitrogen in the accumulator to bring it up to the correct pressure.

Note: accumulator pressure below 33% or 1/3 operating pressure could have damaged the bladder.

After the system has been operating for one week, the accumulator should be rechecked, if the pressure has dropped it maybe necessary to replace the bladder. This process can be used on any type of hydraulic systems using accumulators for extra boost in power**.**

If you have any questions please contact our service department at 1-800-628-4065 we will be glad to help in any way we can, your Columbia Machine Service team.