



PO Box 1376
Monroe, GA 30655
Phone: (770) 267-3787
Fax: (770) 267-3786
gpm@gpmhydraulic.com
www.gpmhydraulic.com

Hydraulic Reliability & Preventive Maintenance Report

The following is a report of the test, procedures and recommendations for the in-plant press. This information was recorded on May 10th and 11th, 2010. The oil temperature of the press hydraulic tank was 122^o F. The actual information you record may vary slightly dependent on this factor as well as the product being manufactured, type of temperature gun used, ambient temperature in the hydraulic room, etc. These tests should be recorded on a regular basis to determine the overall condition and reliability of the hydraulic system. This information should also be referred to when hydraulic issues such as speed, leakage, overheating, shock and board quality exist on the press.

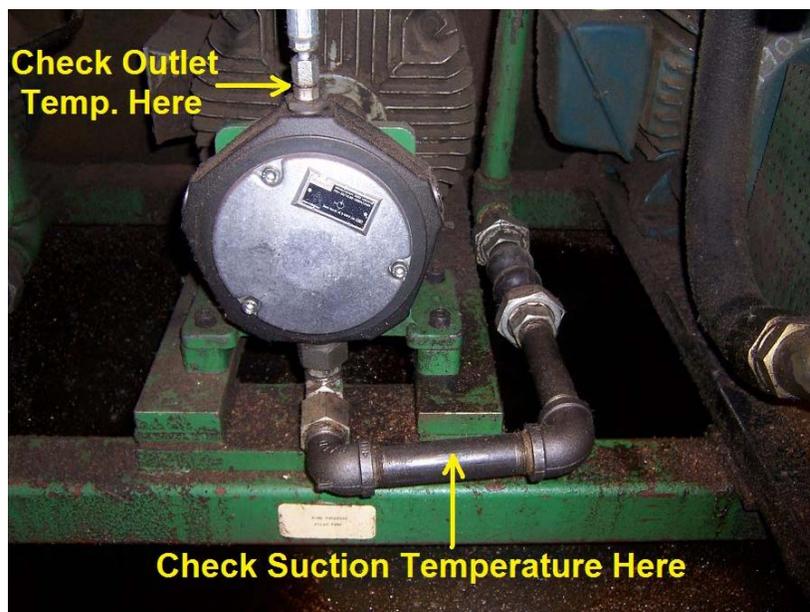
High Pressure Pilot Pump

1. Listen to the pump and verify that it is not vibrating or making an unusual sound. **A high pitched sound can be caused by cold oil, a plugged suction strainer or a restriction in the suction line. An erratic knocking sound can be the result of a leaky shaft seal, low fluid level or air entering the suction line.**

Good

2. Check the temperatures of the suction and outlet lines of the pump. **If the heat at the outlet port is significantly greater, then the pump is bypassing excessively.**

Suction 120^o F. Outlet 124^o F

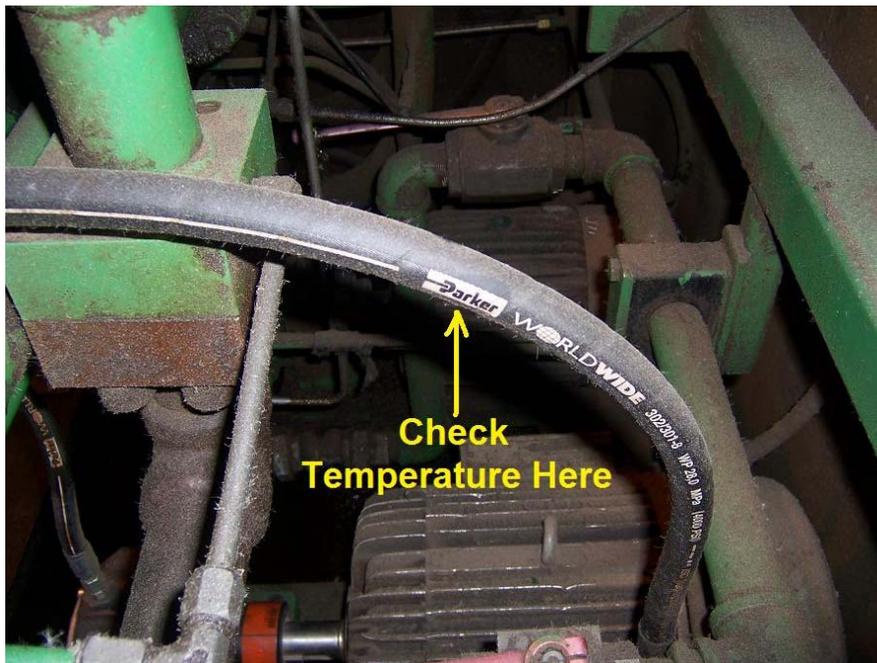


3. When was the last time the filter was changed? _____
The filter should be changed on a regular basis, which can be established by an oil analysis. The recommended ISO Cleanliness Level for this system is 16/13.



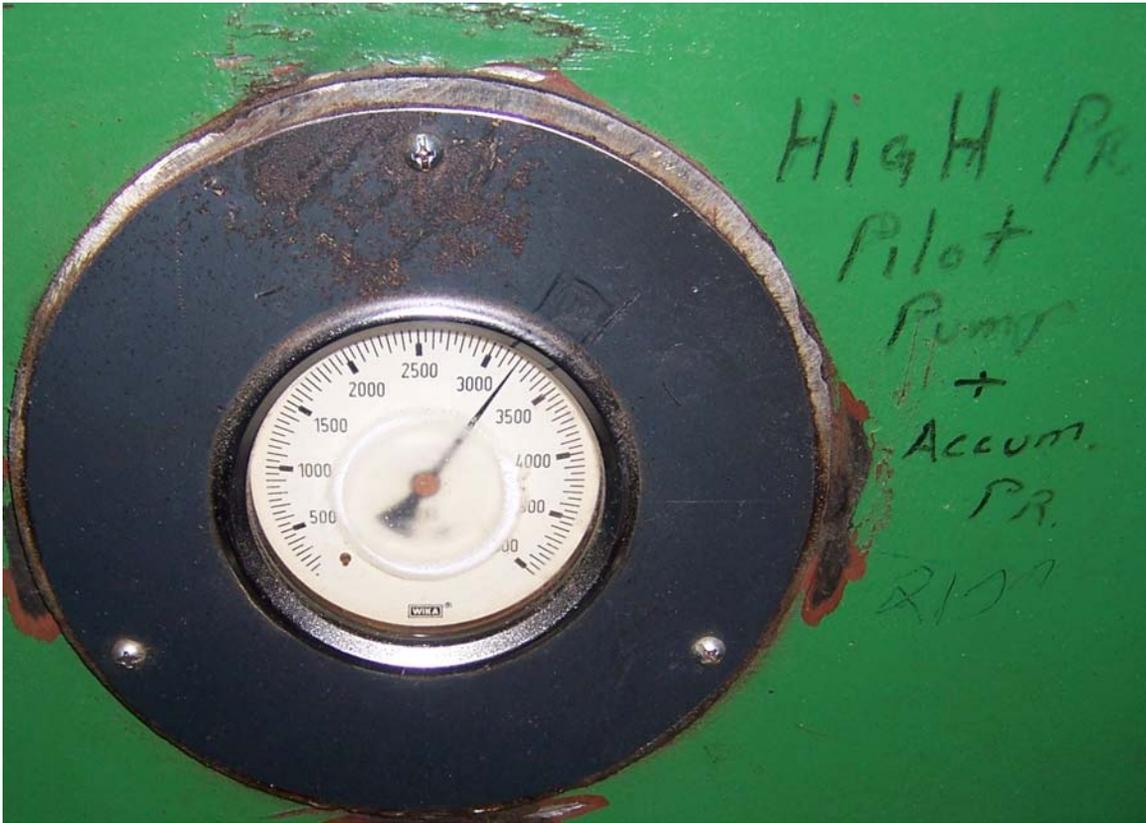
4. Check the tank line of the SOL3 and V84 valves for heat. Check at the “Parker” emblem on the hose. The line should be warm as the P1 pump volume recirculates through the line when SOL3 is de-energized.
If the line is hot then the check valve downstream of the valve may be stuck open allowing the accumulator volume to return to the tank through the SOL3 valve when de-energized. The relief valve downstream of the pump may also be stuck open.

106° F.



5. Check the max. and min. pressures on the hydraulic gauge when the press is not opening or closing and the prefill valves are not opening. If the max. pressure is not reached then the relief valve downstream of the pump may be set too low or stuck partially open. The manual accumulator dump valve may also be in the open position. The pump may also be badly worn and internally bypassing.

Max. 3400 PSI Min. 3100 PSI



6. Record the amount of time that the pressure drops from the max. to the min. settings in no. 5 when the press and prefill valves are not opening or closing. If the pressure is dropping rapidly then the accumulator may have lost its pre-charge, the manual dump valve may be open, the check valve downstream of SOL 3 may be contaminated, or the safety relief for the accumulator has failed open.

1 minute 20 seconds

7. How low does the pressure drop when:

Opening the Inlet Valve 2800 PSI Opening the Outlet Valve 2650 PSI

Pressure dropping below these levels usually indicates an accumulator problem. Install a charging rig and check the pre-charge pressure with the pump turned off. Once checked, turn the pump on, open the manual valve on the charging rig and drain any oil off the top of the piston. Oil may also be lost through the accumulator safety relief or manual dump valve. Check the tank lines of these valves for heat.

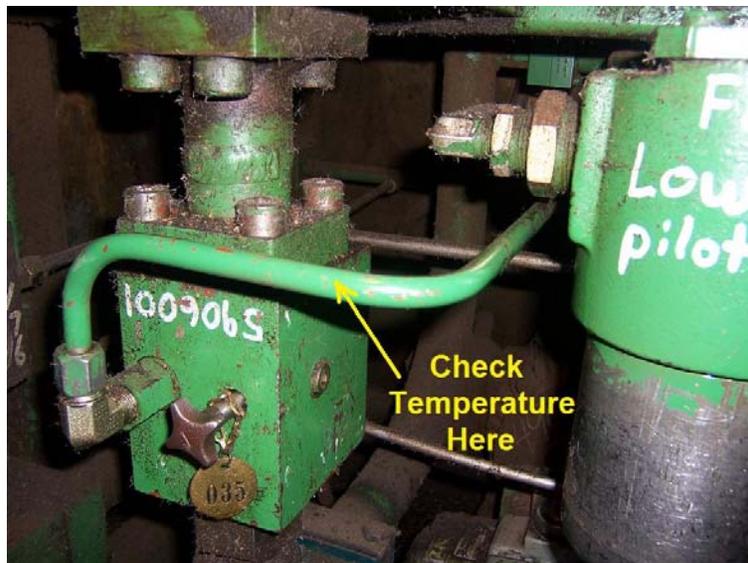
8. Record the amount of time required to refill the accumulator from the min. and max. pressures in no. 5.

4 seconds

If the time exceeds 4 seconds then verify that the pump is not badly worn by making the check listed in no. 2. Check the tank lines of the pump relief valve, the accumulator relief and dump valves for heat.

9. Check the tank line temperature of the V87A and V87B tank line. This line should be at ambient temperature as normally no oil should be ported through the line. If this line is hot then the accumulator relief or manual dump valve is stuck open.

107⁰ F.



10. Is the accumulator hotter in the lower 1/3rd of the shell than the top 2/3^{rds}?

Below bottom clamp __109⁰F.

By "A88" above bottom clamp __98⁰F.



If the shell is cool all over then the accumulator is over-charged, oil is on top of the piston or all the nitrogen has leaked out. If it is hot all the way to the top, the pre-charge is too low.

11. Install a charging rig and check the pre-charge in the accumulator. Make sure the hydraulic pressure is at 0 PSI. The recommended pre-charge is 1850 PSI.

_____ PSI

12. Attach a charging rig and drain the oil off the top of the piston. This should be done a minimum of once a quarter. **Failure to drain the oil off will reduce the volume the accumulator supplies to the pilot circuit.**

13. Is the outlet valve opening and closing smoothly?

Opening Yes, but quickly Closing Slower but 2nd Stage jerky

Adjust the “opening” flow control CW in ½ increments until the stem movement is slow and smooth. This will reduce shock and the eventual leakage. On a down day remove the “closing” flow control and check it for contamination.

