

Load Sense Pressure Compensated Piston Pump

for Open Loop Systems, Not Hydrostatics, Closed Center Valving

Installation Checklist

WARNING!

Testing of hydraulic systems can be extremely dangerous and should only be accomplished by an experienced hydraulic mechanic. Information in this checklist is for general information only. Equipment operators and maintenance manuals should be followed when servicing any equipment. Safety is the most important concern for everything we do. Oil under pressure is extremely dangerous. The mechanic doing this work should follow standard safety procedures for working with high pressure hydraulic systems.

- 1) Verify that the pump's maximum RPM and pressure capacity meets or exceeds system requirements. Install an accurate pressure gauge that exceeds the maximum pressure setting in the system pressure line or test port.
- 2) Clean the reservoir and suction strainer if installed.
- 3) Replace or properly filter oil. Verify the correct oil type and viscosity. Oil should normally be replaced every 1-3 years depending upon usage hours and operating temperatures and pressures. Milky looking oil should be replaced and drained from the system as much as possible. If possible, install a water absorption filter or use alternative means to remove the water from the system. Find and repair the water's access into the hydraulic system.
- 4) Replace system filters including the suction, pressure, and return filters, if installed.
- 5) Verify good suction line with no kinks. Verify connections and replace connection o-rings.
- 6) Properly install and align the pump. Fill pump case with clean oil using highest drain port. Fill to a minimum of 50%.
- 7) Open the suction and return valves.
- 8) Determine which adjustment on the pump is for compensator and which is for standby pressure. Lower the setting for the pump compensator on the pump or remote, if so equipped.
- 9) Bleed air from the pump at the lowest speed available. Bleed by cracking pressure lines and running pump at minimum speed until a good oil stream comes out of the loose connections. Shut down the unit and reseal and tighten the connections.
- 10) Restart the unit and check for leakage.
- 11) Run unit at light to no load for 5 minutes.
- 12) Adjust standby pressure to manufacturer's listed pressure and lock setting in place. Most standby pressures are 250-500 PSI but can be higher for special applications. Determine which function can be operated for an extended period of time, such as bottoming out a cylinder. Verify that its valve section does NOT have a pressure reducing valve of any kind. Operate that function to turn on the pressure compensator on the pump and bring pressure up. Slowly increase the compensator setting until the pressure comes up to 75% of maximum pressure. Run for 5 minutes. Then, run unit up to operational RPM. Most systems will have a system relief installed to control maximum system pressure. The setting for this relief should be 250-500 PSI above the compensator's pressure setting. If the relief setting is too close to the compensator's setting, the pump flow could be going through the relief valve. This would build heat and waste energy. The actual relief setting is to be determined by the equipment manufacturer. Raise the compensator on the pump up to the relief setting. Any further adjustment of the compensator should not increase system pressure. If it does, stop increasing the compensator and adjust the relief pressure down to its maximum setting. If the pump will not build to its required setting, attempt to adjust the relief valve upwards while counting turns of the relief valve. If pressure increases, bring the relief setting up to its maximum setting and then bring the compensator back down to its maximum setting. Lock down the compensator lock nut and the relief lock nut. If adjusting the relief does not increase the maximum pressure, return the relief valve back to its original setting and troubleshoot the system.
- 13) If the pump has multiple sections, set pressures for each section.
- 14) While unit is running with no load, visually inspect oil reservoir for bubbles and oil level. Bubbles would indicate cavitation of pump. If bubbles are found, shut down the system and locate the source of the problem, then correct and retest system pressure.
- 15) Operate all functions of the unit and verify proper operation. Check for any excessive heat build up and correct the problems as needed.