

# Vane & Gear Pump 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.
- 7) Open the suction and return valves.
- 8) Lower the setting on the first relief valve in the system.
- 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) Run unit up to operational RPM. Relief settings can vary greatly from idle to maximum RPMs.
- 13) Increase relief valve setting to system pressure. Most vane and gear pump systems use open center valving and run at little to no system pressure until a function, such as a cylinder, is operated and held. The system will not build full pressure if any of the following occur:
  1. The circuit has individual reliefs set lower than system relief pressure.
  2. The cylinder is not bottomed out.
  3. The cylinder seals are bad.
  4. You are testing against most motors.
- 14) If the pump has multiple sections, set reliefs for each section.
- 15) 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.
- 16) Operate all functions of the unit and verify proper operation. Check for any excessive heat build up and correct the problems as needed.