

## Operating Instructions for:

PE30-HOGEN	PE304
PE302	PE304-2
PE302-2	PE304ML
PE302S-CODHE	PE302S-Tyco
PE303	PE302S-CODHE-115
PE303-2	PE302A-2-TRANS

## ELECTRIC HYDRAULIC PUMP

Max. Capacity: 10,000 PSI

Read and carefully follow these instructions before installation and use of this pump. Most problems with new equipment are caused by improper operation and installation.

### SAFETY PRECAUTIONS



#### WARNING

- All WARNING statements must be carefully observed to help prevent personal injury.

#### Hydraulic Hose

- Before operating this pump, tighten all hose connections using the proper tools. Do not overtighten the connections. Connections need only be tightened securely and leak-free. Overtightening may cause premature thread failure or high pressure fittings to split at pressures lower than their rated capacities.
- Should a hydraulic hose ever burst, rupture, or need to be disconnected, immediately shut off the pump. Never attempt to grasp a leaking hose under pressure with your hands. The force of the escaping hydraulic fluid could cause serious injury.
- Do not subject the hose to potential hazard such as fire, extreme heat or cold, sharp surfaces, or heavy impact. Do not allow the hose to kink, twist, curl or bend so tightly that the oil flow within the hose is blocked or reduced. Periodically inspect the hose for signs of wear because any of these conditions can damage the hose and may result in personal injury.
- Do not use the hose to move attached equipment. Stress may damage the hose and cause personal injury.
- Hose material and coupler seals must be compatible with the hydraulic fluid used. Hoses also must not come in contact with corrosive materials such as creosote-impregnated objects and some paints. Consult the manufacturer before painting a hose. Never paint the couplers. Hose deterioration due to corrosive materials may result in personal injury.

#### Pump

- Do not exceed the PSI hydraulic pressure rating noted on the pump nameplate or tamper with the internal high pressure relief valve. Creating pressure beyond rated capacities may result in personal injury.
- Before replenishing the oil level, retract the system to prevent overfilling the pump reservoir. An overfill may cause personal injury due to excess reservoir pressure created when cylinders are retracted.

#### Cylinder

- Do not exceed rated capacities of the cylinders. Excess pressure may result in personal injury.
- Do not set poorly-balanced or off-center loads on a cylinder. The load may tip and cause personal injury.

#### Electrical Supply

- Do not use an ungrounded (two-prong) extension cord.
- Avoid conditions which could create an electrical hazard.
- If the power cord is damaged or wiring exposed, replace or repair immediately.

## Safety Precautions (Continued)

### Electrical Supply

- Check the voltage rating on the pump motor name plate to be certain the outlet you are using is of the proper voltage.
- Correct voltage is required for pump to operate properly.
- Low voltage may cause the following:     ■ overheated motor;     ■ motor fails to start under load;     ■ motor surging when trying to start;     ■ motor stalls before maximum pressure is reached.
- Always check the voltage at the motor with the pump running at full pressure.
- Never run the motor on long, light gauge extension cords.

## SET-UP

### Electric Motor



#### WARNING

To help avoid possible personal injury

- Any electrical work must be done by a qualified electrician.
- Disconnect the power supply before removing the motor casing cover or performing repairs or maintenance.
- Changing the voltage on this unit is an involved, and if improperly performed, hazardous procedure. Consult the manufacturer for specific information before attempting any rewiring.

### Hydraulic Connections

1. Clean all areas around the oil ports of the pump and cylinders.
2. Inspect all threads and fittings for signs of wear or damage, and replace as needed.
3. Clean all hose ends, couplers or unions ends.
4. Remove the thread protectors from the hydraulic oil outlets. Connect the hose assembly to the hydraulic oil outlet , and couple the hose to the cylinder. **IMPORTANT: Seal all external pipe connections with a high quality, nonhardening pipe thread sealant.** PTFE tape can also be used to seal hydraulic connections if only one layer of tape is used. Apply the tape carefully, two threads back, to prevent it from being pinched by the coupler and broken off inside the system. Any loose pieces of tape could travel through the system and obstruct the flow of oil or cause jamming of precision-fit parts.

### Filling the Reservoir

**NOTE: This pump has been shipped without oil in the reservoir. High-grade Power Team hydraulic fluid has been shipped with the pump in separate containers. If additional oil is required, use only Power Team hydraulic fluids.**

1. Remove the filler cap and insert a funnel with a filter. Using the Power Team hydraulic fluid provided fill the reservoir to 1" from the fill hole. Remove funnel and replace the filler cap.

## PUMP OPERATION

### Priming the Pump

When operating the pump for the first time:

1. After filling the pump reservoir and checking that the hose connections are secure, place the valve in the neutral position, plug the electric motor into a sufficient power supply and start the pump by switching the toggle to the run position.
2. Disconnect a hose from the system and route it back to the pump reservoir. Run the pump until a steady flow of oil is observed free of suspended air bubbles. Reconnect the hose to the system.
3. Cycle the pump several times, extending and retracting the cylinder(s) fully to eliminate air from the system. For more complete instructions refer to the section titled "Bleeding Air from the System."
4. Retract the cylinder(s) and check the reservoir oil level. It should be 1" from the filler vent cap. Add Power Team hydraulic fluid if necessary.

Note: Shaded areas reflect last revision(s) made to this form.

## PREVENTIVE MAINTENANCE

**NOTE: Any repairs of servicing that requires dismantling the pump must be performed in a dirt-free environment by a qualified technician.**

### Bleeding Air from the System

Upon initial startup or after prolonged use, a significant amount of air may accumulate within the hydraulic system. This entrapped air can cause the cylinder to respond slowly or behave in an unstable manner. To remove the air, run the system through several cycles (extending and retracting cylinders) free of any load. **NOTE: The cylinder must be at a lower level than the pump to allow air to be released through the pump reservoir.**

### Inspecting the Hydraulic Fluid Level

Check the oil level in the reservoir periodically. With all cylinder(s) retracted, the oil level should be 1" from the filler cap. Drain, clean and replenish the reservoir with Power Team hydraulic fluid yearly or more often if necessary. The frequency of oil change will depend upon the general working conditions, severity of use and overall cleanliness and care given the pump.

### Maintenance Cleaning

1. Keep the outer surface of the pump as free from dirt as possible.
2. Protect all unused couplers.
3. Keep all hose connections free of dirt and grime.
4. Keep the filler cap clean and unobstructed at all times.
5. Equipment connected to the pump must be kept clean.
6. Use only Power Team hydraulic fluids in this pump. Change as recommended.

### Draining and Cleaning the Reservoir

**IMPORTANT: Clean the pump exterior before the pump interior is removed from the reservoir.**

1. Remove the screws that fasten the pump assembly to the reservoir. Remove the pump assembly from the reservoir. Do not damage the gasket, filter or relief valve.
2. Drain the reservoir of all fluid. Refill half full with clean Power Team hydraulic fluid.
3. Place the pump assembly back onto the reservoir and secure with two machine screws assembled on opposite corners of the housing.
4. Run the pump for several minutes. Remove the two cover screws and lift off the pump assembly again. Drain and wipe out the reservoir with a clean, lint-free cloth.
5. Fill the reservoir with Power Team hydraulic fluid to 1" from the filler cap. Place the pump assembly (with gasket) on the reservoir and install the screws. Tighten securely and evenly.

### Adding Oil to the Reservoir

1. Cylinder(s) must be fully retracted and the motor off when adding oil to the reservoir.
2. Clean the entire area around the filler cap before removing the filler cap.
3. Use a clean funnel with filter when adding oil.
4. Use only Power Team hydraulic fluids.
5. Fill to 1" from the filler cap.

## TROUBLE-SHOOTING GUIDE



### WARNING

- To help prevent personal injury, any repair work or trouble-shooting must be done by qualified personnel familiar with this equipment.
- Use the proper gauges and equipment when trouble-shooting.

### NOTE:

- It is best to check for leaks by using a hand pump and applying pressure to the suspect area without the motor running. Watch for leaking oil and follow it back to its source.
- Plug the outlet ports of the pump when checking for leakage to determine if the leakage is in the pump or in the cylinder or tool.

PROBLEM	CAUSE	SOLUTION
<p><b>Pump is not delivering oil or delivers only enough oil to advance cylinder(s) partially or erratically.</b></p>	<ol style="list-style-type: none"> <li>1. Oil level too low.</li> <li>2. Loose-fitting coupler to cylinder.</li> <li>3. Air in system.</li> <li>4. Air leak in suction line.</li> <li>5. Dirt in pump or filter plugged.</li> <li>6. Oil is bypassing through a double-acting cylinder.</li> <li>7. Cold oil or oil is too heavy (Hydraulic oil is of a higher viscosity than necessary).</li> <li>8. Relief valve or low pressure unloading valve out of adjustment.</li> <li>9. Reservoir capacity is too small for the size of the cylinder(s) used.</li> <li>10. Defective directional valve.</li> <li>11. Sheared drive shaft key(s).</li> <li>12. Vacuum in reservoir.</li> </ol>	<ol style="list-style-type: none"> <li>1. With all cylinders retracted, fill reservoir to 1" of fill hole.</li> <li>2. Check quick-disconnect couplings to cylinders. Inspect couplers to ensure that they are completely coupled. Occasionally couplers have to be replaced because the ballcheck does not stay open due to wear.</li> <li>3. Bleed the system.</li> <li>4. Check and tighten suction line.</li> <li>5. Pump filter should be cleaned and, if necessary, pump should be dismantled and all parts inspected and cleaned.</li> <li>6. By removing the cylinder and capping the hoses, the pump and valve can be checked. Observe if pump holds pressure.</li> <li>7. Change to lighter oil.</li> <li>8. Adjust as needed.</li> <li>9. Use smaller cylinder(s) or larger reservoir.</li> <li>10. Inspect all parts carefully and replace if necessary.</li> <li>11. Replace.</li> <li>12. Check for plugged vent in breather cap.</li> </ol>

<b>PROBLEM</b>	<b>CAUSE</b>	<b>SOLUTION</b>
<b>Pump builds pressure but cannot maintain pressure.</b>	<ol style="list-style-type: none"> <li>1. Check to see if there are any external leaks. If no oil leakage is visible, the problem is internal. If using a double-acting cylinder, remove it from the system to ensure that the leak is not in the cylinder.</li> <li>2. To test for a leaking control valve lift the pump from the reservoir but keep the filter in the oil. Remove the drain line to see if the oil is leaking from the valve. If the valve is not leaking, the internal check valve could be leaking. Refer to the note concerning checking for oil leaks at the beginning of this Trouble-shooting Guide.</li> </ol>	<ol style="list-style-type: none"> <li>1. Seal leaking pipe fittings with pipe sealant.</li> <li>2. Clean, reseal or replace flow control valve parts. If the internal check valve(s) are leaking, the pump must be dismantled and the seat areas repaired, poppets replaced, etc.</li> </ol>
<b>Pump will not build full pressure</b>	<ol style="list-style-type: none"> <li>1. Check for external leakage.</li> <li>2. Check the relief valve setting.</li> <li>3. Look for internal leakage in double-acting cylinders.</li> <li>4. Check for leaks in the flow control valve.</li> <li>5. Inspect the pump for internal leakage. Check high pressure pump inlet or outlet ball checks.</li> <li>6. Sheared key(s).</li> </ol>	<ol style="list-style-type: none"> <li>1. Seal faulty pipe fitting with pipe sealant.</li> <li>2. Lift the pump from the reservoir, but keep the filter immersed in oil. Note the pressure reading when the relief valve begins to open. If functioning normally, it should start to leak off at relief valve pressure.</li> <li>3. Remove the cylinder from the pump. If the pump builds full pressure, the cylinder is defective.</li> <li>4. Clean and reseal or replace parts.</li> <li>5. Same procedure as above, but look for leaks around the entire inner mechanism. If there are no visible leaks, the high pressure pump subassembly may be leaking. Remove all parts. Check the valve head assembly body for any damage to the seat area. Clean and reseal if necessary. Inspect for damage and replace parts if necessary, then reassemble.</li> <li>6. Replace.</li> </ol>

PROBLEM	CAUSE	SOLUTION
Cylinder(s) will not retract.	<ol style="list-style-type: none"> <li>1. Check the system pressure; if the pressure is zero, the control valve is releasing pressure and the problem may be in the cylinder(s), mechanical linkage connected to cylinder(s), or quick disconnect couplings.</li> <li>2. Defective valve.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the cylinders for broken return springs, and check couplers to ensure that they are completely coupled. Occasionally couplers have to be replaced because one check does not stay open in the coupled position.</li> <li>2. Check valve operation and inspect parts. Replace if necessary.</li> </ol>
Pump delivers excess oil pressure	<ol style="list-style-type: none"> <li>1. Relief valve not properly set.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust the relief valve.</li> </ol>

### HYDRAULIC SCHEMATIC

