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SERVICE INSTRUCTIONS: These *Service Instructions* are intended to be used by qualified personnel at Authorized Enerpac Service Centers. Users of Enerpac equipment should see the pump Instruction Sheet for installation, operation, and maintenance information.

Before repairing the pump, see trouble-shooting guide on page 3 to isolate possible pump malfunctions.

YOU MAY NEED:

- | | |
|--|-------------------------|
| ✓ Repair Parts Sheet L-1771 | ✓ torque wrench |
| ✓ Repair Kit P-391K2 | ✓ Allen wrenches |
| ✓ 10 ton single-acting cylinder
rated to 10,000 psi | ✓ box and wrenches |
| ✓ 0-15,000 psi pressure gauge | ✓ o-ring pick |
| ✓ high pressure hose (10,000 psi rating) | ✓ roller bearing grease |
| | ✓ Enerpac hydraulic oil |

■ Disassembly

Before disassembly, remove oil from pump. (DISPOSE OF USED OIL PROPERLY)

- 1. Remove reservoir:**
 - Remove acorn nut, gasket, end cap, and reservoir gasket from reservoir.
 - Remove the reservoir, round reservoir gasket, and tie rod from the pump base.
- 2. Remove handle and plunger assembly:**
 - Remove plunger cross pin and plunger clip. Remove handle assembly from the base.
Note: Older solid plungers have a plunger clip and cross pin. The new two-piece flex design has a cylindrical cross pin only.
 - Remove the plunger assembly from the pump base.
- 3. Remove release valve assembly:**

Unscrew the machine screw underneath the spindle with a 5/32" Allen wrench. Remove the spindle and the 7/32" check ball.
- 4. Remove check assemblies:**

Unscrew the large pipe plugs from the pump base. Remove the spring cap, spring, 5/16" check ball, and 7/32" check ball from the respective high and low pressure check assemblies.
Note: The P-392, 1005 has two check assemblies and the P-391, 1004 has one check assembly.
- 5. Inspect oil filter to determine if it is clogged with debris or needs replacement.**
- 6. If relief valves need to be reset or removed, do so at this point.**

Pump is now disassembled. Clean all parts and flush out the base to remove contaminants from pump.

■ Assembly

Refer to Repair Parts Sheet L-1771 and use Repair Kit number P-391K2.

Important: Set relief valves before assembling pump. Use new parts from the pump repair kit when assembling pump.

FLEX PLUNGER STYLE: The old, solid style plunger has been replaced by the flex plunger. With the flex plunger style, the P-391, 1004 and P-392, 1005 use the same type of base. When servicing the P-392, 1005, you will install a bypass valve in the base and put a 7/32" check ball in the low-pressure check assembly. When servicing the P-391, 1004, the 7/32" inlet check ball is not used and a pipe plug is installed in place of the bypass valve. Refer to NOTE in Repair Parts Sheet L-1771.

1. Replace relief valve(s) inside the pump base.
 - a. Older, solid plunger pumps require replacement gasket(s) from kit. Torque to 60 to 70 in-lbs.
 - b. Newer, two-piece flex plunger pumps have relief valves with 1/8" NPT threads. Gaskets are not required. Torque to 10 to 12 ft-lbs.
2. Replace oil filter screen if necessary.
3. To install check assemblies, replace the 7/32" and 5/16" check balls, spring, and spring cap from the repair kit. Reseat check balls if necessary. Torque the pipe plugs to 28 to 34 ft-lbs.
4. Before installing the release valve assembly, remove and replace the spindle o-ring and the 7/32" check ball. Reseat ball if necessary. Put roller bearing grease on the o-ring before installing. Tighten the machine screw with a 5/32" Allen wrench.
5. When you re-assemble the reservoir, install a new round reservoir o-ring when you position reservoir onto the pump base. Be sure reservoir is properly placed on the location pin.
 - a. Drop cap assembly chain through reservoir fill port. Loop chain around the tie rod and thread tie rod into pump base.
 - b. Replace end cap gasket and put end cap onto end of reservoir.
 - c. Using new copper gasket, tighten the acorn nut to 15 ft-lbs.
6. Install plunger assembly. For two stage plungers (P-392, 1005), replace the o-ring and back-up rings on both small and large pistons. For single stage plungers (P-391, 1004), replace the oil seal back-up ring and the o-ring.

Note: Put roller bearing grease on the plunger before replacing oil seal and installing the piston into the bore.

7. Install handle by inserting the new beam pin into the beam pin hole on the pump base and through the beam and handle assembly. Secure the beam pin with new retaining ring.
 - a. For older solid plunger pumps, install plunger clip and cross pin, with the flat of the cross pin against the top of the plunger. Apply bearing grease at this location.
 - b. For newer two-piece flex plunger pumps, apply roller bearing grease to the cylindrical shaped cross pin. Insert the cross pin into the beam pin hole of the pump base, and through the plunger and handle.
8. Refill the reservoir with the appropriate volume of Enerpac hydraulic oil.

Pump is now assembled. Follow Testing Procedure below to verify operation.

■ Testing Procedure

Test setup: connect (1) high-pressure hose, (1) 0-15,000 psi gauge, and (1) 10-ton single-acting cylinder to the hand pump.

1. Single stage pump: (P-391, 1004) set high-pressure relief valve to 10,000-10,500 psi.
2. Two stage pump: (P-392, 1005) set the low-pressure relief valve to 200-275 psi; set high-pressure relief valve to 10,000-10,500 psi.
3. Test for loss of pressure. Operate the pump to build pressure to 9,000-9,500 psi and watch pressure gauge to see if pump maintains pressure. The maximum drift or pressure drop allowable is 250 psi in 10 seconds.

■ Troubleshooting Guide

IMPORTANT: To remove system variables and isolate pump for testing, connect test circuit of a known good hose, a 0-15,000 psi gauge, and a 10 ton single-acting cylinder to the pump.

Problem	Probable Cause	Remedy
Pump does not hold pressure	Leak in the release check. Leaking at hose and/or coupler connection.	Inspect and clean ball and seat. Reseat check ball. Check for leak. Reseal with appropriate sealant.
Pump loses pressure and the handle rises.	Outlet check seat leaking.	Inspect and clean ball and check seat. Reseat check ball.
Pump does not build pressure.	Inlet check balls leaking. Damaged seals on the pump plunger. Oil filter screen clogged with debris. Relief setting too low or leaking valve gasket. Low or no oil in reservoir.	Inspect spring ball and seat. Reseat check ball. Inspect and replace seals if necessary. Flush pump, replace oil and screen. Inspect valve, check pressure setting, and replace gasket. Fill reservoir with Enerpac oil.
Pump does not create flow.	Debris in pump. Pump not vented. Coupler checked. Low or no oil in reservoir.	Inspect all components for contamination, then flush. Open vent cap. Correctly couple together. Fill reservoir with Enerpac oil.

To protect warranties, use only Enerpac Hydraulic Oil.

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