

L1852 Rev. O 04/95

Service Instructions: These *Service Instructions* are intended for use by qualified personnel at Authorized Enerpac Service Centers. See the Spartan Torque Wrench Pump instruction sheet, L1851, for information on operation and installation.

Important: This procedure is intended for use with Spartan Pump Repair Parts Sheet L1849 (Models PMU 10422 and 10427) or L1850 (Models PMU 10022 and 10027).

To avoid any unnecessary service, test the pump before and during disassembly to determine the problem.

Items Needed for Testing:

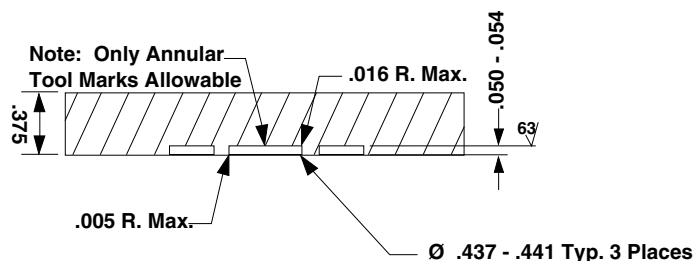
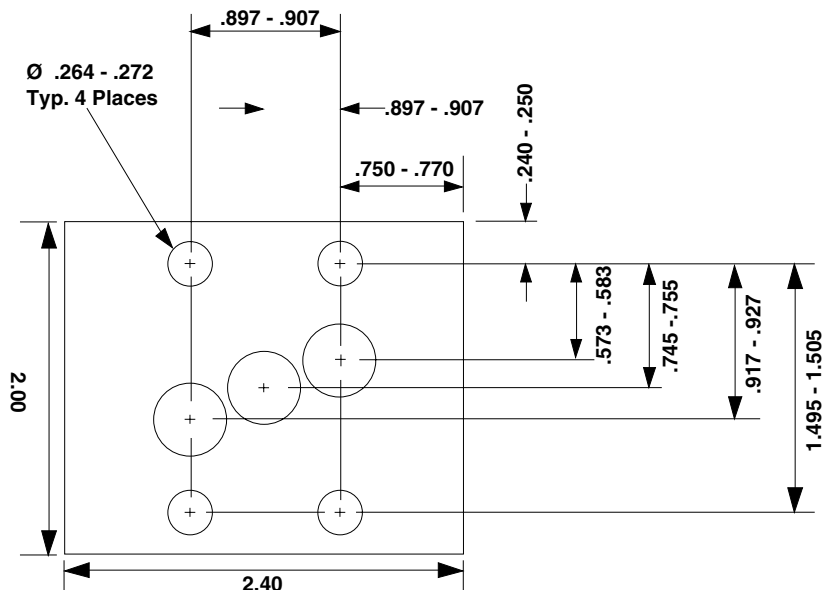
- ✓ Spartan Torque Wrench Pump Repair Parts Sheet L1849 (Models PMU 10422 & 10427) or L1850 (Models PMU 10022 & 10027)
- ✓ Blockoff plate
- ✓ Pressure gauge
- ✓ TX1061 installation tool

TESTING AND TROUBLESHOOTING

Test pump before and during disassembly to determine the problem. This will eliminate doing more disassembly than necessary to fix the pump.

1. If the pump is overheating, the nylon tubing (item 164) within the reservoir may be disconnected. If the nylon tubing is disconnected, the oil does not go through the heat exchanger. Reconnect the tubing. If you need to change the thermostat, be sure to use the proper part (Item 6, part number DA5135380). Torque wrench pumps have a different thermostat than standard pumps.
2. To isolate a problem to either the pump or the valve, remove the valve and put a blockoff plate where the valve was mounted.

NOTE: To prevent oil from coming out of the heat exchanger supply port while running the pump, cap off the fitting or remove the pumping unit from the reservoir and disconnect one end of the nylon tubing (item 164). To disconnect tubing, push up on the fitting ring while pulling the tubing out.



Material: Low Carbon CDS

Blockoff Plate

3. Put a pressure gauge in the pump outlet. If the pump builds pressure up to 10,000 psi and holds there, the valve is the most likely cause of the problem.
4. If the pump will not hold pressure, remove the shroud and observe the electric motor. If the motor spins backward after stopping, the high pressure piston block (item 107) should be examined.

■ DISASSEMBLY

Remove the Heat Exchanger

1. Remove the upper (item 170) and the lower (item 171) tubes to the heat exchanger (item 168).
2. Unplug the power wire from the heat exchanger.
3. Remove the 4 screws that connect the heat exchanger to the mounting brackets. Retain washer and screws for reassembly. Set heat exchanger to the side.

Remove Valve and Manifold

4-way Valve Models (PMU10422 and PMU10427):

1. Disconnect solenoid cord from the valve (item 22).
2. Remove the coils from the 4-way valve. Do not remove the gauge (item 42) unless it is damaged. The gauge is torqued into the valve block.
3. Loosen the 4 screws (item 149) which hold the valve.
4. Remove the valve, taking care not to lose the ball, guide, and spring located in the bottom of the valve.

Dump Valve Models (PMU10022 and PMU10027):

1. Disconnect solenoid cords and wire assembly (item 13) from valve (item 22).
2. Remove the coil from the valve. Do not remove gauge (item 42) unless it is damaged. The gauge is torqued into the valve block.
3. Loosen the 4 screws (item 149) which hold the valve.
4. Remove the valve.

Remove the Shroud

1. Remove the 6 screw (item 18) holding the shroud (item 16) to the pump.
2. Carefully lift shroud. Disconnect the motor wires from the thermostat (item 6) and from the white pin housing (item 24).
3. Remove the foam around the motor.
4. Remove the hex nuts (item 15), lock washers, and ground wires from the electric motor bolts.
5. Set shroud aside.

5. Back pressure the pump. If the relief valve (item 121) is bottomed out and leaking back to tank, either the seat or the gasket is bad.

NOTE: The pumps have a foam washer inserted before the relief valve. This washer prevents the relief valve ball from falling down into the passageway when the adjusting screw on the relief valve is backed out.

Remove the Pumping Unit from the Reservoir

1. Remove the 8 BHC reservoir screws (item 5).
2. Lift coverplate from reservoir and carefully remove the pumping unit from the reservoir. You will have to turn the unit as you lift it out of the reservoir. It is helpful to have someone hold the reservoir while you remove the pumping unit.
3. Take care not to damage the intake screens.
4. Set unit aside or secure in a vise.

Disassemble the Pumping Unit

1. Remove tubing (item 143) from piston blocks (items 105 and 107).
2. Loosen the jam nut to allow unloading assembly (item 157) and fitting to turn, providing access to the 2 bolts holding the low pressure piston block (item 105).

CAUTION



Depending upon the position of the eccentric, the piston may be spring loaded.

3. Turn the gear (item 114) to remove the load from the spring before loosening piston block bolts.
4. Remove the piston block, being careful not to damage the inlet cage which protrudes from the bottom of the piston block.
5. Remove the unloading assembly (item 157). Do not remove fittings from unloading assembly unless necessary.
6. Back pressure test the unloading assembly through the top elbow to check for leakage and bad seals. The unloading assembly should withstand 10,000 psi without leakage of more than a few drops of oil.

Rebuilding the unloading assembly

NOTE: Repair parts for one unloading assembly are included in the repair kit. They may also be purchased separately. Be sure to use all repair kit items. Do not reinstall used seals and gaskets.

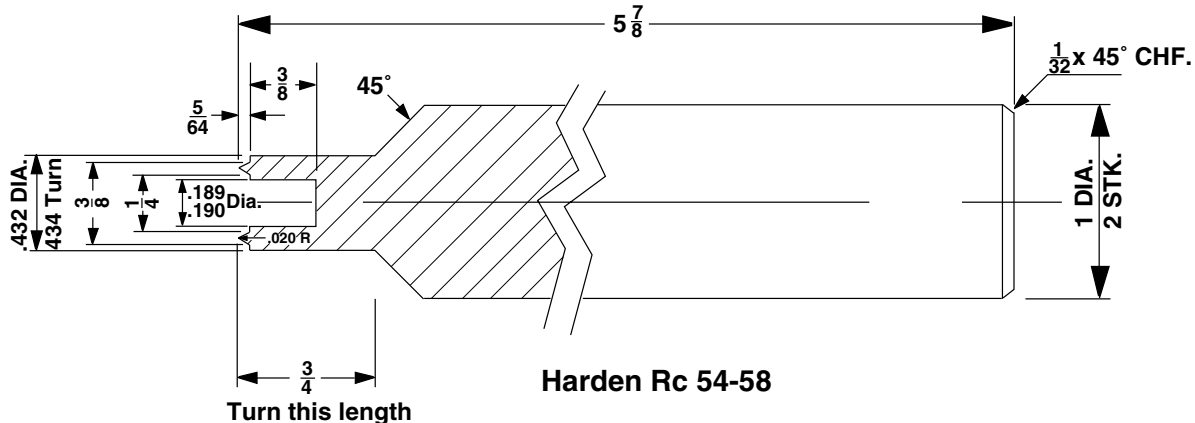
1. Begin with the adjustment side of the valve. Remove the adjustment screw, spring, ball retainer, and ball. Replace the valve body if the ball seat is damaged.
2. Remove cap from other end of the unloading body.
3. Take out the pin and use a pick to remove backups and seals.
4. Use new seals on the pin. Place the larger leather backup on the pin, soft (rough) side up. Slide the u-cup onto the pin. Place the smaller leather backup on the pin with the soft (rough) side to the u-cup. Use the TX1061 tool to seat the pin.

5. Install ball, ball retainer, and spring in other end of the unloading valve body.
6. Replace the cap on the unloading valve. The end cap port must be at 90 degrees to the ports in the body.
7. Reinstall fittings if necessary.
8. When installing the elbow (item 163) which connects to the nylon tubing (item 164), use care to ensure that the elbow is not screwed in too far as this will inhibit piston movement. Use Loctite 545 on threads and turn fitting in approximately 3 turns.



CAUTION

The fitting must not extend into the ball chamber of the unloading body or the unloading spring will be damaged.



ASSEMBLY

Assembling the pumping unit

NOTE: Enerpac recommends using all the components in the Repair Kit and discarding used parts. Reinstalling used "soft" parts leads to leakage and poor performance.

1. Install the low pressure piston block (item 105). Do not fully tighten screws.
2. Replace the tubing (item 143), connecting the shorter end to the high pressure piston block and the longer end to the low pressure piston block.
3. Install the unloading assembly. Tighten the jam nut.
4. If the unloading assembly was rebuilt, the unloading valve must be reset. Run the pump and adjust the valve to .47 GPM at 750 to 800 psi.
5. Install nylon tubing (item 164). You will feel a click when the tubing is properly installed.
5. Place new gasket (item 2) on reservoir. No sealant is required.
6. Position the cover plate on the reservoir. Make certain that the gasket is visible all the way around the cover plate. The gasket has a tendency to slip down into the reservoir opening, especially at smaller curves.
7. Put RTV sealant on the 4 bolt holes where the heat exchanger mounting brackets will be installed.
8. Install reservoir bolts (item 5) and mounting brackets. Use nylon washers on all bolts except those for the heat exchanger. Use Loctite 242 on bolts and torque to 36-42 in-lbs.
9. Place foam baffle (item 19) around electric motor (item 102).

Installing the pumping unit

Installing the shroud

1. Connect motor wires to thermostat (item 6) and to pin housing (item 24) inside the shroud.
2. Connect ground wires to hex nuts (item 15) on top of electric motor. Torque nuts to 27-31 in-lbs.
3. Place the shroud (item 16) over the motor. Make sure that the wires lie straight down the side of the motor. Push the foam down past the horizontal airway on the shroud to allow ventilation.
4. Install shroud screws (item 18) and torque to 12-18 in-lbs.

Installing the heat exchanger

1. Position the heat exchanger (item 168) on the mounting brackets. Do not bolt in.
2. Loosely connect the upper (item 170) and lower (item 171) tubing assemblies from the heat exchanger to the fittings. This will ensure that tubing is properly positioned before the heat exchanger is bolted down.
3. Connect the power wire to the fan on the heat exchanger.
4. Put lock washers and nuts on heat exchanger and tighten. Tighten upper and lower tubing

Attaching the valve to the pump

4-Way Valve Models:

1. Put ball, guide, and spring into valve body and attach valve (item 22) to pump. Torque 4 screws (item 149) to 8-10 ft-lbs.
2. Put solenoid coils on valve and hand tighten.
3. Attach solenoid cable assemblies to valve.

Dump Valve Models:

1. Attach valve (item 22) to pump. Torque 4 screws (item 149) to 8-10 ft-lbs.
2. Replace solenoid coil and tighten down.
3. Attach solenoid cable assembly and wire assembly (item 13) to valve assemblies.

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