

ENERPAC

A UNIT OF APPLIED POWER INC. 

Instruction Sheet

WA-510 WA-530 WA-560
Accumulators

L-1270 3/91

IMPORTANT RECEIVING INSTRUCTIONS: Visually inspect all components for shipping damage. If any shipping damage is found, notify carrier at once. Shipping damage is NOT covered by warranty. The carrier is responsible for all repair or replacement costs resulting from damage in shipment.

SAFETY FIRST

Carefully plan your system by selecting components designed to perform the intended operation and which will adequately perform with existing equipment. Always check the product limitations regarding pressure ranges, load capacities and set-up requirements. The system operating pressure must not exceed the pressure rating of the lowest rated component in the system. Read all CAUTIONS, WARNINGS, and INSTRUCTIONS included with, or attached to, each product. Follow all safety precautions to avoid personal injury or property damage during the system operation. ENERPAC CANNOT BE RESPONSIBLE FOR DAMAGE OR INJURY RESULTING FROM UNSAFE PRODUCT USE, LACK OF MAINTENANCE OR INCORRECT PRODUCT AND SYSTEM APPLICATION.

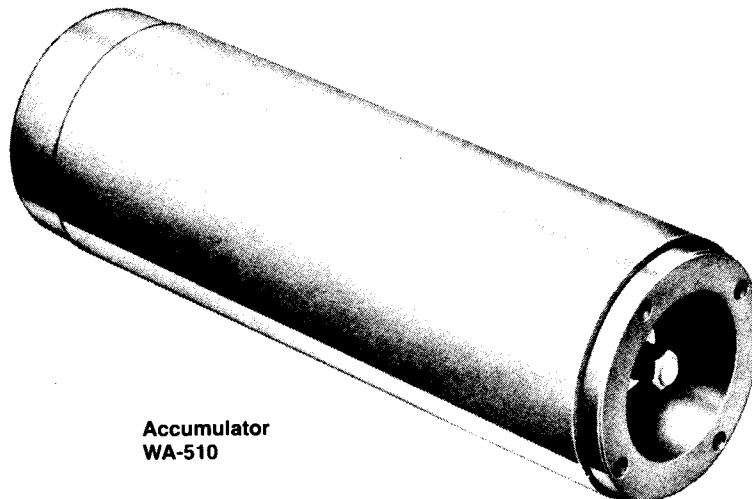
Contact ENERPAC ENGINEERING when in doubt as to safety precautions, or applications.

CAUTION: To avoid personal injury and equipment damage, do not overcharge the accumulator. Maximum charge is 5,000 psi. Do not use accumulators in systems which exceed 5,000 psi. Use only approved recharging equipment. Recharge using inert gas (such as nitrogen). Follow charging instructions.

CAUTION: To avoid internal seal damage, use only hydraulic oil in the accumulator oil chamber. Seals are not designed for water or other liquids.

CAUTION: Prior to performing maintenance on the accumulator or associated hydraulic lines, always discharge the hydraulic oil and the nitrogen gas.

NOTE: Accumulators are constantly charged and will supply fluid, under pressure, whenever hydraulic pressure is lowered. To prevent uncontrolled fluid flow, always install a shut-off valve in the line between the accumulator and the system components. The shut-off valve will permit lowering system pressure without discharging the accumulator.



Accumulator
WA-510

TO PROTECT YOUR WARRANTY, USE ONLY ENERPAC HYDRAULIC OIL.

DESCRIPTION

Three sizes of ENERPAC accumulators are covered by this instruction sheet they are WA-510 (10 cu. in.), WA-530 (30 cu. in.) and WA-560 (60 cu. in.). The cubic inches indicated within the parenthesis is the nitrogen capacity and the equal hydraulic fluid capacity.

Accumulators consist of a steel outer casing with two internal chambers. An aluminum piston, using seal rings, separates each chamber and prevents the oil and nitrogen from mixing together. The nitrogen chamber has a removable end cap and a filler valve. The hydraulic fluid chamber has a welded steel end cap with a 1/4" O.D., SAE straight thread oil port. (See Cross Section in Figure 1)

Functionally the accumulator provides hydraulic oil (under pressure) to the system whenever system operating pressure decreases. The accumulator operates when hydraulic oil is pumped into one chamber forcing the piston to move and compress the nitrogen gas in the other chamber. When hydraulic pressure decreases the nitrogen moves the piston and forces hydraulic fluid into the hydraulic system.

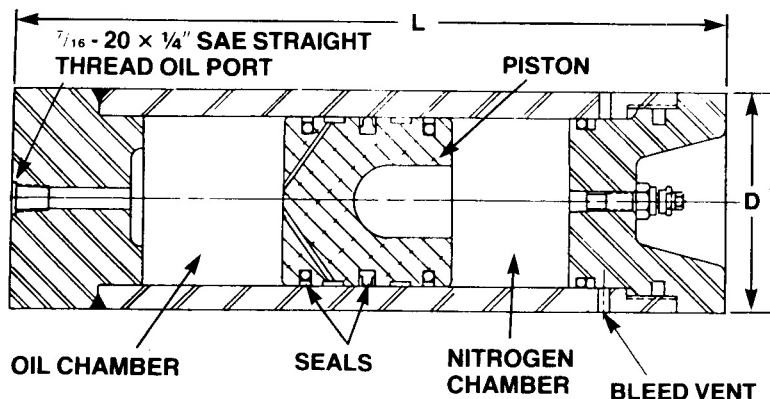


Figure 1

SPECIFICATIONS

Dry Weight	Dimension "D"	Dimension "L"
WA-510 — 8 lb.	2-5/8"	8-7/16"
WA-530 — 12 lb.	2-5/8"	14-13/16"
WA-560 — 18 lb.	2-5/8"	24-3/8"

Piston seals are replaceable. Contact your local ENERPAC Service Center.

Accumulators Can be Used For:

1. **Maintaining Pressure** — to compensate for leakage, load-holding without a pump.
2. **Supplement Pump Delivery** — to allow the pump to cycle on and off less frequently.
3. **Shock Absorbing** — to dampen system pulsations and "water hammer" effects.
4. **Limited Power Source** — for emergency use and remote or temporary power.

Contact ENERPAC for specific applications and recommendations.

INSTALLATION

1. Mount accumulators between the system hydraulic pump and the working component (i.e. cylinders, clamps, etc.) Standard "U" bolts or similar devices can be used for mounting. Use **CAUTION** when tightening mounting brackets so as not to distort or damage the accumulators outer shell. Also, mounting devices must not cover the entire shell and restrict normal thermal expansion due to temperature variations.
2. The accumulator can be mounted in any position providing the oil line and charging valve are accessible.
3. Install a shut-off valve in the oil line between the accumulator and the system working components. The valve is used to close the oil line from the accumulator, preventing uncontrolled fluid flow during system maintenance or anytime fluid pressure is undesirable.

CAUTION: Do not make or break hydraulic connections when the system is pressurized. Hydraulic oil at 5,000 psi could cause personal injury.

The following general instructions and guides will be helpful in determining if you have properly connected your hydraulic circuit:

- Be sure all hydraulic connections, hoses, fittings, etc., are of the proper pressure rating and are fully tightened. Always use hoses and fittings specified by the manufacturer to insure correct pressure rated connections.
- Seal all NPT pipe connections with a high-grade pipe thread sealer.

WARNING: Teflon tape is an excellent thread sealer; however, if not properly applied, pieces may enter the hydraulic system and cause malfunctioning or damage.

- **DO NOT** over-tighten connections. Connections need only be snug and leak free. Over-tightening can cause premature thread failure and may cause high pressure fittings or castings to split at lower than rated capacity.
 - Tighten all hydraulic couplers fully. Loose coupler connections will cause complete or partial blockage of oil flow from the pump to the cylinder.
 - Be sure all hydraulic hoses and fittings are connected to the proper inlet and outlet ports of the pump and cylinders.
4. Accumulator operating temperature range is -20° to +300°F at a maximum 5,000 psi.
 5. Accumulators are shipped uncharged. When the unit is installed and the hydraulic line is connected, charge with nitrogen gas to required precharge pressure (5,000 psi. maximum).

Precharge: Precharge is the initial gas pressure that is contained by the accumulator prior to the system activation. Typically precharge varies between 30% to 80% of system pressure depending on the type of application. Contact ENERPAC for more recommendations.

CHARGING ACCUMULATORS

Initial charging and recharging is accomplished with the accumulator installed in the system. Prior to charging, all holes and fittings should be inspected to ensure no leaks exist.

EQUIPMENT REQUIRED:

- (1) Nitrogen tank with gauges and hoses.
- (2) ENERPAC adaptor Model No. WAT-1 (Figure 2).

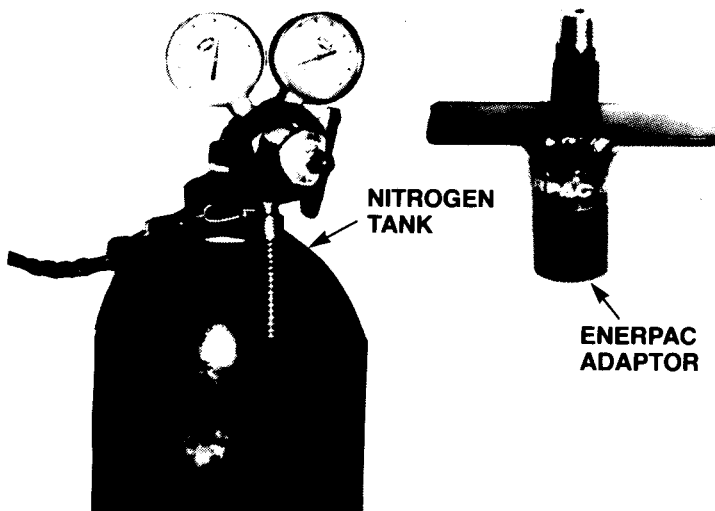


Figure 2

CONDITIONS:

- (1) Hydraulic pump turned "OFF"
- (2) Shut-off valve between accumulator and hydraulic system open, and free to tank.

CAUTION

TO AVOID PERSONAL INJURY, DO NOT USE OXYGEN OR ANY FLAMMABLE GAS TO CHARGE ACCUMULATORS. DO NOT EXCEED 5,000 PSI CHARGE PRESSURE. NITROGEN RECOMMENDED.

CHARGING PROCEDURES

1. Install the charging adaptor by removing the accumulator gas fill valve protective cap. Thread the adaptor onto the gas fill valve, hand tight.

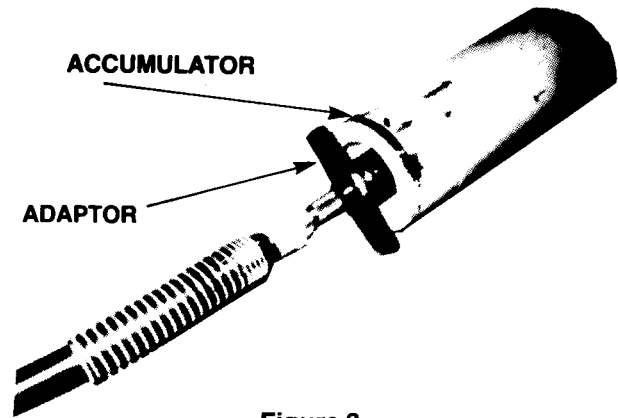


Figure 3

2. Attach the adapter stem (1/8 NPTF) to the charging regulator. Regulator must be fully relieved of pressure.
3. Slowly open the accumulator gas fill valve by turning adaptor "T" counterclockwise.

NOTE: Bleed down of residual pressure may occur.

4. Slowly increase the nitrogen tank regulator valve, charge the accumulator to the desired psi. Maximum 5,000 psi. Close the accumulator valve (turn "T" handle clockwise), firmly while under pressure.
5. Relieve all pressure to the accumulator using the regulator valve. Remove the adaptor, using caution not to open the gas fill valve on the accumulator. Replace the fill valve protective cap.
7. Check system performance.

MAINTENANCE

Normal maintenance consists of replacing seals using kit No. WA-500K. Servicing will be required if deterioration of performance is observed. Verify the system to be leak-free. If any of the following conditions exist contact your local ENERPAC Service Center.

1. Frequent re-charging of the accumulator required.
2. Oil found in the nitrogen chamber.
3. Oil becomes frothy only at the hydraulic port on the accumulator.
4. If being used to supplement pump delivery first verify there are no leaks and any load-holding valves are functioning properly.

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