

L2698 Rev. A 11/06

1.0 IMPORTANT RECEIVING INSTRUCTIONS

Visually inspect all components for shipping damage. Shipping damage is **not** covered by warranty. If shipping damage is found, notify carrier at once. The carrier is responsible for all repair and replacement costs resulting from damage in shipment.

SAFETY FIRST

2.0 SAFETY ISSUES



Read all instructions, warnings and cautions carefully. Follow all safety precautions to avoid personal injury or property damage during system operation. Enerpac cannot be responsible for damage or injury resulting from unsafe product use, lack of maintenance or incorrect product and/or system operation. Contact Enerpac when in doubt as to the safety precautions and operations. If you have never been trained on high-pressure hydraulic safety, consult your distribution or service center for a free Enerpac Hydraulic safety course.

Failure to comply with the following cautions and warnings could cause equipment damage and personal injury.

A **CAUTION** is used to indicate correct operating or maintenance procedures and practices to prevent damage to, or destruction of equipment or other property.

A **WARNING** indicates a potential danger that requires correct procedures or practices to avoid personal injury.

A **DANGER** is only used when your action or lack of action may cause serious injury or even death.



WARNING: Wear proper personal protective gear when operating hydraulic equipment.



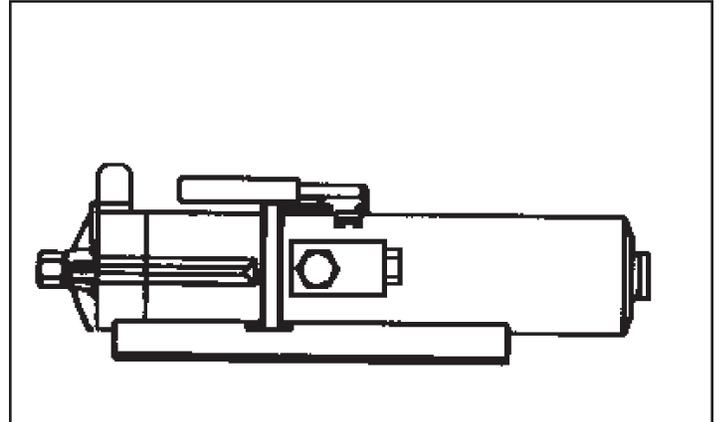
WARNING: Stay clear of loads supported by hydraulics. A cylinder, when used as a load lifting device, should never be used as a load holding device. After the load has been raised or lowered, it must always be blocked mechanically.



WARNING: USE ONLY RIGID PIECES TO HOLD LOADS. Carefully select steel or wood blocks that are capable of supporting the load. Never use a hydraulic cylinder as a shim or spacer in any lifting or pressing application.



DANGER: To avoid personal injury keep hands and feet away from cylinder and workpiece during operation.



This air-powered hydraulic pump is designed for use with single-acting cylinders and tools.



WARNING: Do not exceed equipment ratings. Never attempt to lift a load weighing more than the capacity of the cylinder. Overloading causes equipment failure and possible personal injury. The cylinders are designed for a max. pressure of 700 bar [10,000 psi]. Do not connect a jack or cylinder to a pump with a higher pressure rating.



Never set the relief valve to a higher pressure than the maximum rated pressure of the pump. Higher settings may result in equipment damage and/or personal injury.



WARNING: The system operating pressure must not exceed the pressure rating of the lowest rated component in the system. Install pressure gauges in the system to monitor operating pressure. It is your window to what is happening in the system.



CAUTION: Avoid damaging hydraulic hose. Avoid sharp bends and kinks when routing hydraulic hoses. Using a bent or kinked hose will cause severe back-pressure. Sharp bends and kinks will internally damage the hose leading to premature hose failure.



Do not drop heavy objects on hose. A sharp impact may cause internal damage to hose wire strands. Applying pressure to a damaged hose may cause it to rupture.



IMPORTANT: Do not lift hydraulic equipment by the hoses or swivel couplers. Use the carrying handle or other means of safe transport.



CAUTION: Keep hydraulic equipment away from flames and heat. Excessive heat will soften packings and seals, resulting in fluid leaks. Heat also weakens hose materials and packings. For optimum performance do not expose equipment to temperatures of 65°C [150°F] or higher. Protect hoses and cylinders from weld spatter.



DANGER: Do not handle pressurized hoses. Escaping oil under pressure can penetrate the skin, causing serious injury. If oil is injected under the skin, see a doctor immediately.



WARNING: Only use hydraulic cylinders in a coupled system. Never use a cylinder with unconnected couplers. If the cylinder becomes extremely overloaded, components can fail catastrophically causing severe personal injury.



WARNING: BE SURE SETUP IS STABLE BEFORE LIFTING LOAD. Cylinders should be placed on a flat surface that can support the load. Where applicable, use a cylinder base for added stability. Do not weld or otherwise modify the cylinder to attach a base or other support.



Avoid situations where loads are not directly centered on the cylinder plunger. Off-center loads produce considerable strain on cylinders and plungers. In addition, the load may slip or fall, causing potentially dangerous results.



Distribute the load evenly across the entire saddle surface. Always use a saddle to protect the plunger.



IMPORTANT: Hydraulic equipment must only be serviced by a qualified hydraulic technician. For repair service, contact the Authorized ENERPAC Service Center in your area. To protect your warranty, use only ENERPAC oil.



WARNING: Immediately replace worn or damaged parts by genuine ENERPAC parts. Standard grade parts will break causing personal injury and property damage. ENERPAC parts are designed to fit properly and withstand high loads.



Disconnect air supply when pump is not in use. NEVER remove swivel air connector while air line is pressurized.



The pump is equipped with an overload valve, preset for maximum operating pressure. DO NOT attempt to adjust the overload valve. If adjustment is required, contact an Enerpac Service Center. Adjustment by other than qualified personnel may cause malfunction, damage to the system, and/or personal injury.

3.0 SPECIFICATIONS

Model No.	PA133U103
Air Pressure	60 - 100 psi [4,1 - 6,9 bar]
Air Consumption	9 CFM [15 m ³ /h]
Oil Flow at 100 psi air	
	40 cu. in./min. at 0 psi [656 cu. cm/min at 0 bar] 8 cu. in./min. at 10,000 psi [131 cu. cm/min at 700 bar]
Usable Oil Capacity	36 cu. in. [590 cu. cm]
Weight	12 lb. [5,45 kg]
dBa	85 dBa

4.0 INSTALLATION

4.1 Adding Oil to the Reservoir

1. Hold pump on end as shown in Figure 1 and remove fill plug.
2. Fill to ½" [1 cm] below the fill opening with Enerpac hydraulic oil. Use of fluids other than Enerpac hydraulic oil may cause damage and will void your warranty.

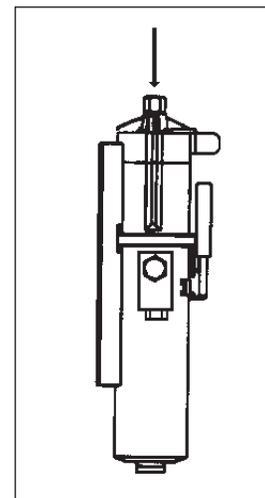


Figure 1

WARNING: Attempting to overfill the reservoir will cause the reservoir to become pressurized. If the reservoir is subjected to high pressure, the casing may rupture, causing personal injury and/or equipment damage.

3. Replace the fill plug and finger tighten.



CAUTION: DO NOT use a wrench. Over-tightening will tear the reservoir bladder.

4. Tip the pump and check for leakage. If leakage occurs, remove the plug and check the plug seal for cuts or nicks. Replace the seal if necessary.
5. Replace the fill plug making sure the seal is centered properly on the plug. If leakage still occurs, remove oil and take pump to your nearest Enerpac Service Center.

4.2 Connect Hydraulic Hose

1. Remove pipe plug from the female ½" NPTF hydraulic connector (see Figure 2) and install the male end of a ½" NPTF hydraulic fitting.

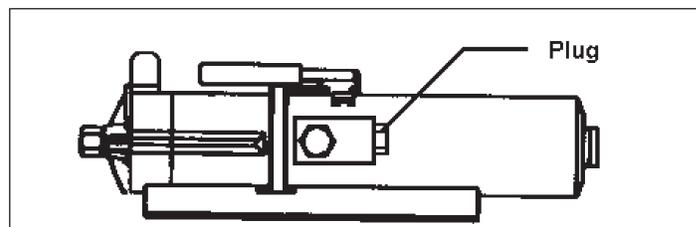


Figure 2

NOTE: Flow restrictor is loose and held in place by plug.

NOTE: Enerpac recommends installing a gauge in line to monitor hydraulic system pressure.

2. Seal connection with a high-grade pipe thread sealer, such as teflon tape.

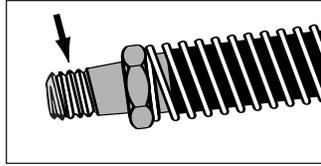


Figure 3

NOTE: Use 1½ wraps of teflon tape, leaving the first thread bare to prevent tape from shedding into the hydraulic system and causing damage. See Figure 3.

3. Tighten pipe connections securely, but DO NOT over-tighten.

4.3 Connect the Air Supply

Recommended air inlet pressure is 60-100 psi [4,1-6,9 bar].

1. Connect a 9 CFM [15 m³/h] (minimum) air supply source to the ¼" [0,5 cm] NPTF pump air inlet swivel connector (**B**) as shown in Figure 4. Use only ¼" [0,5 cm] hose or quick disconnect fittings. Larger, heavier fittings are not recommended. Use a high-grade pipe thread sealer to seal the connection.

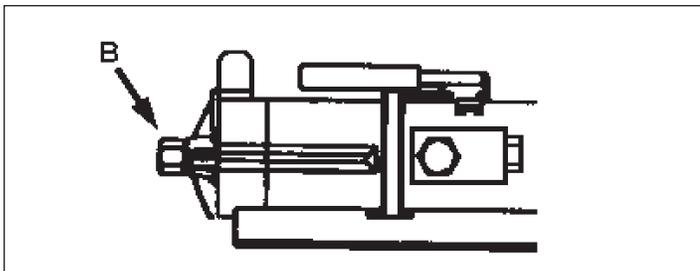


Figure 4

2. Tighten pipe connections securely, but DO NOT OVERTIGHTEN.

NOTE: To promote long, trouble free pump operation, install an Enerpac air filter regulator in the air line.

4.4 Adjust Hydraulic Pressure

The hydraulic pressure output of your air pump is controlled by the air pressure into the pump. Increasing the air inlet pressure will increase hydraulic output pressure, and decreasing air inlet pressure will decrease the hydraulic output pressure.



WARNING: NEVER remove swivel air connector while air line is pressurized. Removing a pressurized air line may lead to personal injury or equipment damage.

5.0 OPERATION

1. Check the oil level in the pump, and add oil if necessary.
2. Check to make sure all air and hydraulic connections are secure before operating pump.

5.1 To Activate the Pump

Depress the ADVANCE button as shown in Figure 5 and the air motor will be activated to pump hydraulic oil to the system.

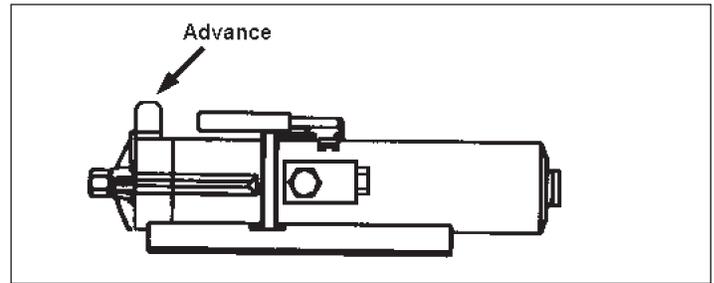


Figure 5

5.2 To Hold Load Pressure

The air motor will stop and hold load pressure when the handle is in the free NEUTRAL position. See Figure 6.

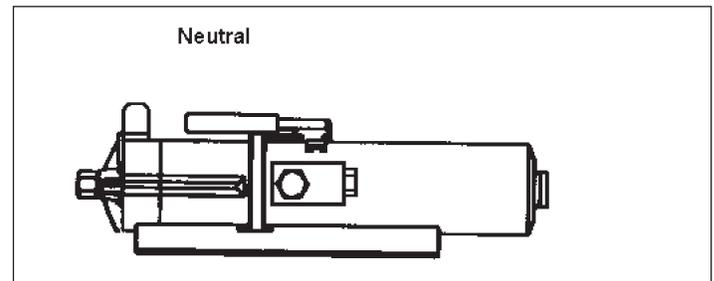


Figure 6

5.3 To Release Load Pressure

To release load pressure or retract a cylinder, depress the RELEASE handle as shown in Figure 7.

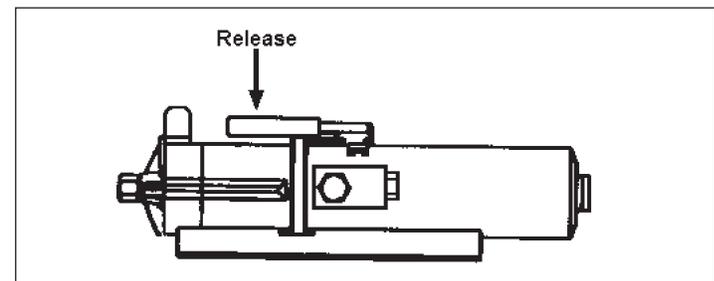


Figure 7

6.0 PRIMING THE PUMP

If pump does not operate properly, it may have lost its prime. Follow the procedure below to prime your pump, if necessary.

1. Fill pump with Enerpac hydraulic oil, if necessary. See filling instructions on page 2.
2. Place pump on horizontal surface.
3. Set air supply pressure to 30-40 psi [2,1 - 2,7 bar].
4. Depress the RELEASE handle.
5. Depress the ADVANCE button to activate pump. Operate pump in RELEASE position momentarily several times to allow oil to flow back into pump and fill passage ways.
6. To verify that pump is primed, operate as normal with cylinder attached. If cylinder does not advance, repeat step 5.

If pump still does not deliver oil, contact your Authorized Enerpac Service Center.

7.0 AIR FILTER REPLACEMENT

If the air motor does not perform as normal, check for a clogged air filter.

1. Shut off air pressure to the pump and release pressure in the line to the pump.



WARNING: NEVER remove swivel air connector while air line is pressurized.

2. Note the position of the retaining clip. It can only be secured by the smallest tang of the metal retainer. Grasp air line with one hand and pull the retaining clip with pliers.
3. Pull the swivel air connector out.
4. Carefully remove air filter.
5. Clean air filter with an air hose or replace with a new air filter.
6. Re-insert the air filter.
7. Put a thin film of grease on the o-ring of the swivel air connector.
8. Reassemble the swivel air connector and retaining clip. Be sure that clip is secured on the smallest tang of the metal retainer.
9. Check to make sure the swivel air connector is securely attached before turning the air pressure back on.

8.0 MAINTENANCE

1. Periodically check all hydraulic and air connections to be sure they are tight. Loose or leaking connections may cause erratic and/or total loss of operation. Replace or repair all defective parts promptly.
2. Periodically check the hydraulic oil level in your system. See filling instructions on page 2.
3. Change hydraulic oil after every 100 hours of operation. In dusty or dirty areas, it may be necessary to change the oil more frequently. To change the oil, drain used oil through the fill opening and fill reservoir to $\frac{1}{2}$ " [1 cm] below the fill opening with clean Enerpac hydraulic oil. Dispose of used oil in accordance with local regulations.



WARNING: The pump is equipped with an overload valve, preset for maximum operating pressure. DO NOT attempt to adjust the overload valve. If adjustment is required, contact an Enerpac Service Center. Adjustment by other than qualified personnel may cause malfunction, damage to the system, and/or personal injury.

8.1 Storage

When the unit will be stored for 30 days or more:

1. Wipe the entire unit clean.
2. Disconnect all air pressure and hydraulic lines to prevent accidental operation.
3. Cover the unit.
4. Store in a clean, dry environment. DO NOT expose equipment to extreme temperatures.

9.0 TROUBLESHOOTING

The following information is intended as an aid in determining if a problem exists. DO NOT disassemble the pump. For repair service, contact the Authorized Enerpac Service Center in your area.

Problem	Possible Cause	Solution
Pump fails to deliver oil.	<p>Low fluid level</p> <p>Lack of air pressure</p> <p>Pump has lost its prime.</p>	<p>Check the oil level and add oil according to instructions on page 2.</p> <p>Check air filter and replace if necessary (see page 4).</p> <p>Check air line and filter-regulator for obstructions or leaks.</p> <p>Check for damage to air motor.</p> <p>Prime the pump according to the instructions on page 3.</p>
Pump noise.	<p>Low fluid level.</p> <p>Lack of air pressure.</p> <p>Air motor section requires lubrication.</p>	<p>Check the oil level and add oil according to instructions on page 2.</p> <p>Check air filter and replace if necessary (see page 3).</p> <p>Check air line and filter-regulator for obstructions or leaks.</p> <p>Check for damage to air motor.</p> <p>Place a few drops of oil in the air inlet port and cycle the motor several times to distribute the oil.</p>
Oil leakage	<p>Worn or damaged parts.</p> <p>Loose connections.</p> <p>Reservoir bladder torn.</p>	<p>Contact your local Authorized Enerpac Service Center for repairs.</p> <p>Check that all connections are tight.</p> <p>Have reservoir bladder replaced by a qualified hydraulic technician.</p>

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