EAGLE PRO®
Worldwide Hydraulic Solutions

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INSTRUCTION SHEET FOR HYDRAULIC HAND PUMPS

Repair Parts Sheets for hydraulic hand pumps are available from your nearest authorized EAGLE PRO Service Center or EAGLE PRO Sales office.

NOTE
PLEASE READ AND FOLLOW THIS INSTRUCTION BEFORE YOU USE EAGLE PRO HAND PUMPS.

Carefully inspect all components for shipping damage, if shipping damage is found. Please notify carrier at once. The carrier is responsible for any damage resulting from shipment.

01 SAFETY

To avoid personal injury or property damage, please follow all safety precautions. EAGLE PRO cannot be responsible for injury or damage resulting from unsafe and incorrect products use or system operation, or lack of maintenance.

DANGER is only used when your action or lack of action may cause serious injury or even death.
WARNING indicates a potential danger that requires correct action to avoid personal injury.
IMPORTANT indicates correct action to prevent damage or equipment failure.

DANGER

- The hydraulic equipment operator must be a qualified operator must have correct training and work experience with hydraulic equipment. Lack of knowledge in any of these areas can lead to equipment damage or personal injury.

- Carefully inspect cylinder(s), coupler(s), hose(s) and hand pump before using hydraulic equipment, if you find any damage please contact with your nearest Authorized EAGLE PRO Service Center or Sales office. Any damage can cause personal injury when you use the hand pumps.
- To avoid personal injury, please do not modify or weld hydraulic equipment without approval of EAGLE PRO.
- Please never lift a more than the rated capacity of the cylinder(s), overloading causes equipment failure and serious personal injury.
- The cylinder is a load lifting device, not a load holding device. After the load has been raised or lowered, it must always be held mechanically, never work under a load supported by a hydraulic unit.
- Keep hands and feet away from cylinder(s) and workplace during operation to avoid personal injury.
- Do not put unbalanced or off-center loads on cylinders. The incorrect load can result in equipment failure and serious personal injury.

WARNING

- Wear safety glasses, helmet and other necessary personal protective equipment when operating hydraulic equipment.
- Cylinder(s) used to lift load must have solid footing for correct support. Please select steel or wood blocks that are capable of supporting the load.
- Install Pressure gauges in the system to monitor the operating pressure. The gauge must have the same pressure rating as the pump and cylinder(s). The wrong gauges may result in Personal injury.
- The system operating pressure must lower than the lowest rated pressure in the system.
- Carefully inspect the cylinder(s) and couplers before use cylinder(s). Never connect the cylinder(s) with damaged couplers or damaged port threads. The damaged coupler(s) or damaged port threads may cause equipment failure and possible personal injury.
- Install coupler(s) in a clean environment. Prevent dirt or other debris from entering into cylinder(s) body or tube. Dirt or other debris will damage the cylinder(s) and result in equipment failure and possible personal injury.
- Cylinder must be placed on a stable base, use EAGLE PRO cylinder base to improve stability.
- Before removing or tightening hose(s) or coupler(s), release hydraulic pressure in system.
- Never handle pressurized hoses; escaping oil under high pressure can penetrate the skin, causing serious injury. Seek medical aid immediately if injured.
- Please use EAGLE PRO or other approved hydraulic oil
- For hydraulic technical help or repair service. Please contact the authorized EAGLE PRO Service Center in your area. EAGLE PRO has no obligations under any warranty with respect to products that have been repaired by unauthorized personnel, modified, or damaged through misuse, abuse, accident, neglect, or mishandling.

IMPORTANT

- Keep the hand pump clean all the time.
- When the hand pump is not in use, release the valve, remove hose and use rubber cap to recover the port.
- Do not drop objects on hose.
- Do not lift and carry hydraulic equipment by the hoses or couplers, use the handle or other means.
- Use hydraulic equipment in normal operating temperatures. Do not use equipment in temperatures of 65 ℃(150°F) or higher. Overheating will soften seals and weakens hose materials, resulting in oil leaking or other equipment failure.

02 SPECIFICATIONS

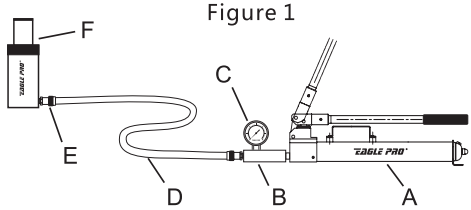
Model	Speed	Oil Volume (In^3 / cm^3)	Type **	Pressure Rating (Mpa)		Oil output per stroke (in3/cm3)		Handle Force (lbf / kgf)	Output Oil Thread	Weight (lbs/kg)
				1st stage	2st stage	1st stage	2st stage			
EPA-10521	Two	20/330	S	1.4	70	0.48/7.8	0.05/0.8	77/35	NPT3/8	4.8/2.2
EPA-10921A	Two	55/900	S	2.5	70	2.03/33.4	0.2/3.3	108/49	NPT3/8	16/7.3
EPA-12321A	Two	140/2300	S	2.5	70	2.03/33.4	0.2/3.3	108/49	NPT3/8	22/8.8
EPA-10922A	Two	55/900	D	2.5	70	2.03/33.4	0.2/3.3	108/49	NPT3/8	19/10.1
EPA-12322A	Two	140/2300	D	2.5	70	2.03/33.4	0.2/3.3	108/49	NPT3/8	25/11.6
EPA-11621	Two	98/1600	S	2.5	70	1.93/31.7	0.19/3.16	95/43	NPT3/8	24/11
EPA-14521	Two	275/4500	S	2.5	70	1.59/26	0.18/2.9	112/51	NPT3/8	49.5/22.5
EPA-14522	Two	275/4500	D	2.5	70	1.59/26	0.18/2.9	112/51	NPT3/8	49.5/22.5
EPA-17521	Two	458/7500	S	1.5	70	7.6/125	0.35/5.75	112/51	NPT3/8	66/30
EPA-17522	Two	458/7500	D	1.5	70	7.6/125	0.35/5.75	112/51	NPT3/8	66/30
EPA-21621	Two	98/1600	S	2.0	150	1.95/32	0.1/1.6	93/42	1/4 BSP	20.9/9.5

Note: Type**: S = Single Acting D = Double Acting

03 SET UP

Before using hand pumps, visually check all units, to make sure there is no damage to pump or other hydraulic equipment. Ensure that no oil is leaking or missing parts. If you find any problems please contact with your nearest authorized EAGLE PRO Service Center or Sales office.

Figure 1



A. Hand Pump
B. Gauge adapter
C. Pressure Gauge
D. Hose
E. Coupler
F. Cylinder

To connect the hand pump, please refer to Figure 1 and follow the steps below.

Step1: Clean all hose ends, couplers and other areas around oil ports of pump and cylinder. Remove thread protectors from the hydraulic oil outlets.

Stap2: Thread a pressure gauge and gauge adapter into hand pump.

Step3: Thread hose into gauge adapter.

Stap4: Connect the hose(s) to cylinder or tool.

NOTE:

- For single-acting hand pump, connect one hose from the pump to the cylinder.
- For double acting pump, connect one hose from the advance port of the pump to the advance port of the cylinder, connect another hose from the retract port of the pump to the retract port of the cylinder.
- For double acting pump, pressure gauge should install in the advance port of the pump.

IMPORTANT

To fully seal the connections, use of Teflon tape or sealing compound is necessary. Please leave first complete thread free to prevent tape particles from entering into the hydraulic system. Any tape particles in the hydraulic system may jam the oil flow.

04 BLEEDING AIR FROM THE CYLINDER

Air may accumulate within a hand pump during shipment or after refilling the hydraulic oil. This trapped air can cause the hand pump feel weak. Use the steps below to bleed the air from cylinder.

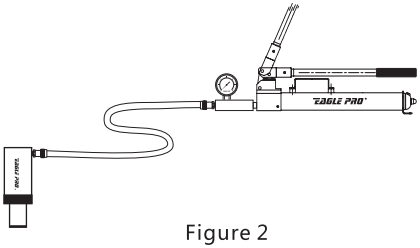


Figure 2

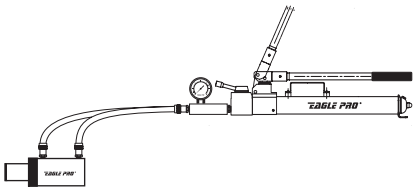


Figure 3

- Single-acting cylinders:

Position the cylinder as figure 2 shows, so that the piston rod is extended down and the cylinder lower than the pump. Fully extend and retract the cylinder 1 or 2 times. It may be necessary to repeat the above steps several times.

- Double-acting cylinders:

Lay the cylinder as figure 3 shows, to make sure the couplers facing up. Fully extend and retract the cylinder1 or 2 times. It may be necessary to repeat the above steps several times.

05 OPERATION

EPA -123**, 145**,175**,11621,21621 series hand pumps have air vent screw. Please loosen it before use hand pump. To avoid the oil leak from oil reserve, please tighten the air vent screw when not in use.

5.1 Single acting hand pump

Single acting hand pump use two-way valve.

- Turn the hand pump's release valve clockwise to close the valve. Operate the pump handle up and down to produce the pressure to the cylinder, causing the piston to extend to the work position.
- Monitor the pressure gauge while completing the application.
- Slowly turn the hand pump's release valve counterclockwise to release the pressure; the release speed is controlled by how fast the valve is opened.

5.2 Double acting hand pump

Double acting hand pump use four-way valve.
Extending a cylinder depends on the connection between the double acting hand pump and double acting cylinder (please see Figure 4).

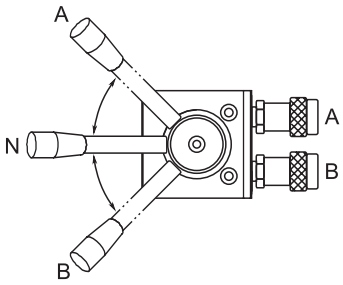


Figure 4

- Positing handle to (A): Flow to Port "A"; oil output "B" returns flow to the hand pump.
- Posting handle to (N) Neutral; ports "A" and "B" are both blocked.
- Posting handle to (B) Flow to port "B"; port "A" returns flow to the Hand pump.

WARNING

- Hand tighten the valve only, applying too much force to the valve may damage the valve stem
- Always release the pressure slowly
- Do not use an extension handle, an extension handle will damage the pump.

06 MAINTENANCE

6.1 Adding/changing hydraulic oil

When oil level in hand pump is low, please add hydraulic oil. With cylinder full retract, set hand pump in its normal level position, remover oil filler screw. Fill until oil is within the oil filler screw hole opening, reinstall oil filler screw. For best performance and increased system life, replace the complete hydraulic oil at least once per year.

IMPORTANT

Please always use clean EAGLE PRO oil or other approved hydraulic oil, use other unapproved oil or dirty oil will damage the hand pump.

6.2 Lubrication

A coating of light lubricating oil to pivot points, axles and hinges will help to prevent rust and assure that pump assemblies move freely.

6.3 Storage

Always keep hand pump and other attachments clean, use dust cap to protect couplers. When not in use, cylinder and hand pump piston must be fully retracted and stored in the clean place.

07 TROUBLE SHOOTING

EAGLE PRO hand pumps should be repaired only by a qualified operator or Authorized EAGLE PRO Service Centers. Repair hand pumps without special tools and knowledge may result in personal injury. Please release pressure and disconnect hose(s) before making repair.

Problem	Cause	Solution
Hand pump cannot produce pressure	1.Pump release valve not fully closed 2.Couplers not fully tightened 3.Oil level in pump reservoir is low 4.Pump or valve malfunctioning	1.Fully tighten pump release valve 2.Fully tighten couplers 3.Fill oil in pump 4.Contact with your nearest Authorized EAGLE PRO Service Center for repairing
Hand pump can not maintain pressure	1.Leaky connection 2.Cylinder seals leaking 3.Release valve not fully closed 4.Pump or valve malfunctioning	1.Clean and reseal thread, tighten connection 2.Replace worn seals. Clean inside cylinder and use clean hydraulic oil 3.Fully tightening the release valve. 4.Contact with your nearest Authorized EAGLE PRO Service Center for repairing
Cylinder extends slower than normal	1. Leaky connection. 2. Coupler not fully tightened. 3. Pump malfunctioning.	1.Clean and reseal thread, tighten connection 2.Fully tighten couplers 3.Repair, or use another pump and valve
Cylinder will not retract or Retract slower than normal	1. Pump release valve closed. 2. Couplers are not fully tightened. 3. Pump reservoir is full 4. Hose is blocked 5. Return spring is damaged 6. Cylinder damaged.	1.Open release valve 2.Tighten the couplers 3.Drain hydraulic oil to correct level 4.Clean or change hose 5.Change return spring 6.Contact your nearest Authorized EAGLE PRO Hydraulic Service Center for repairing