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Form No. 102413

Operating Instructions for:

4000	**H12**
41738	**P12**
41884	**Y-20**
201338-TID	

SINGLE STAGE, 2-WAY VALVE
HYDRAULIC HAND PUMP
Max. Capacity: 10,000 PSI

This unit is a single stage (single speed, single piston) hydraulic hand pump capable of developing pressures up to 10,000 PSI. The handle effort at 10,000 PSI is 75 lbs. The unit delivers .069 cu. in. of oil per full stroke and can be operated horizontally, or vertically with the pump head facing downward. The pressure control knob provides instant release or pumping action. The sealed reservoir has a volumetric capacity of 12.5 cu. in. (9 cu. in. of which is useable at sea level). The pump also features a high pressure safety relief valve.

NOTE:
- **These instructions should be read and carefully followed. Most problems with new equipment are caused by improper operation or installation.**

SAFETY PRECAUTIONS

WARNING
- **All WARNING statements must be carefully observed to help prevent personal injury.**

Hydraulic Hose
- **Before operating the pump, tighten all hose connections using the proper tools. Do not overtighten the connections. Connections need only be tightened securely and leak-free. Overtightening may cause premature thread failure or high pressure fittings to split at pressures lower than their rated capacities.**
- **Should a hydraulic hose ever burst, rupture, or need to be disconnected, immediately shut off the pump. Never attempt to grasp a leaking hose under pressure with your hands. The force of the escaping hydraulic fluid could cause serious injury.**
- **Do not subject the hose to potential hazard such as fire, extreme heat or cold, sharp surfaces, or heavy impact. Do not allow the hose to kink, twist, curl or bend so tightly that the oil flow within the hose is blocked or reduced. Periodically inspect the hose for signs of wear because any of these conditions can damage the hose and may result in personal injury.**
- **Do not use the hose to move attached equipment. Stress may damage the hose and cause personal injury.**
- **Hose material and coupler seals must be compatible with the hydraulic fluid used. Hoses also must not come in contact with corrosive materials such as creosote-impregnated objects and some paints. Consult the manufacturer before painting a hose. Never paint the couplers. Hose deterioration due to corrosive materials may result in personal injury.**

Pump
- **Do not exceed the PSI hydraulic pressure rating noted on the pump nameplate or tamper with the internal high relief valve. Creating pressure beyond rated capacities may result in personal injury.**
- **Before replenishing the oil level, retract all cylinders to prevent overfilling the pump reservoir. An overfill may cause personal injury due to excess reservoir pressure created when cylinders are retracted.**

Cylinder
- **Do not exceed rated capacities of the cylinders. Excess pressure may result in personal injury.**
- **Do not set poorly-balanced or off-center loads on a cylinder. The load may tip and cause personal injury.**

Issue Date: Rev. 4-15-93

PREPARATION & SET-UP

Hydraulic Connections

Clean areas around all oil ports of the pump and cylinders. Inspect all threads and fittings for signs of wear or damage and replace as needed. Clean all hose ends, couplers or union ends. Remove the thread protectors from the hydraulic oil outlets. Connect the hose assembly to the hydraulic oil outlet and couple the hose to the cylinder.

IMPORTANT: Seal all external pipe connections with a high quality, nonhardening sealant (such as Power Team HTS6). Teflon tape can be used to seal hydraulic connections if only one layer of tape is used. Apply the tape carefully, two threads back, to prevent it from being pinched by the coupler and broken off inside the system. Any loose pieces of tape could travel through the system and obstruct the flow of oil or cause jamming of precision-fit parts.

Installing A Gauge

An in-line hydraulic gauge (not included) is strongly recommended. To install a gauge, thread a tee adapter with gauge between the hose coupling and the pump hydraulic outlet port.

WARNING: To help prevent personal injury,

- **Ensure that all hydraulic connections are secure and tight before building pressure in the system.**
- **The hydraulic gauge used must have the same pressure rating as the pump and cylinder.**

PUMP OPERATION

To Extend The Cylinder

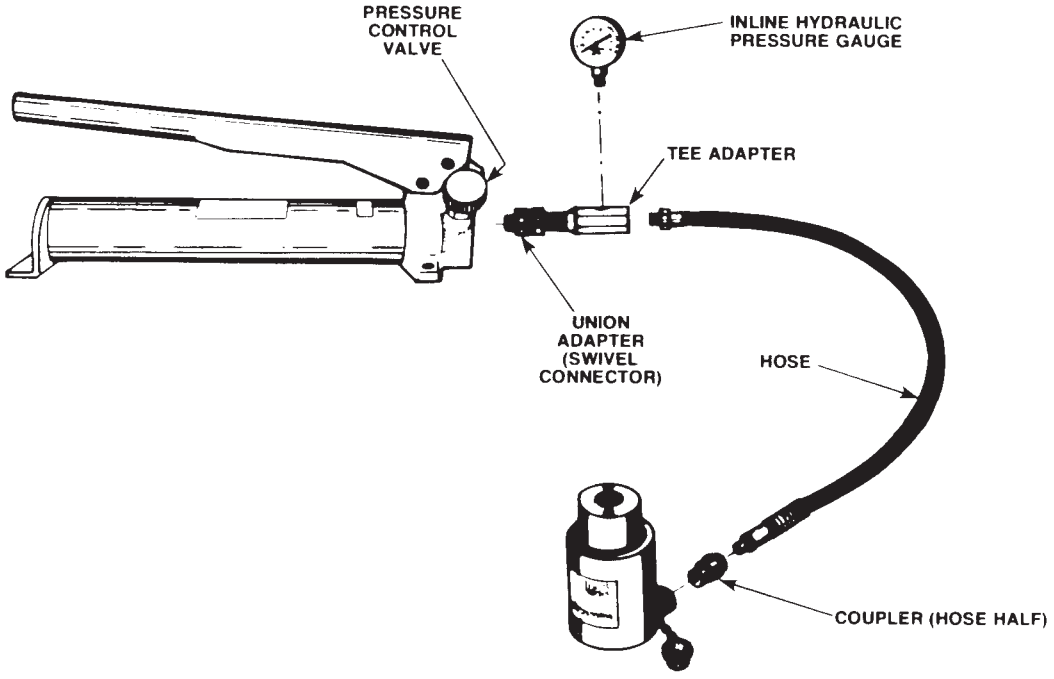
When the pump is coupled to the cylinder and ready to use, turn the pressure control knob clockwise until reaching its stop position. To build pressure and extend the cylinder, work the pump handle up and down. The pump will function in the horizontal or vertical position when the piston end is pointing downward.

To Sustain Pressure

Stop pumping; the pressure will remain steady.

To Release Pressure

Simply turn the pressure control knob counterclockwise to release pressure and allow the cylinder to fully retract.



PREVENTIVE MAINTENANCE

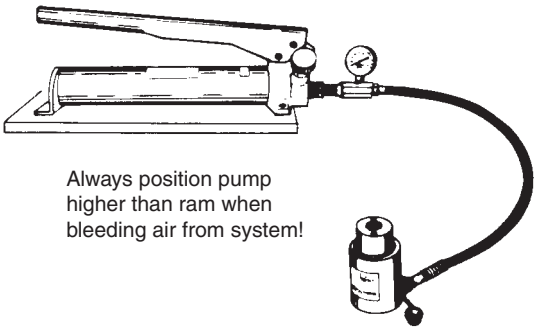
NOTE: Any repair or servicing that requires dismantling the pump must be performed in a dirt-free environment by a qualified service technician.

Lubrication

Apply lubricant regularly to all pivot and rubbing points. Use a good grade of No. 10 motor oil or grease. Do not use dry lubricants.

Bleeding Air from the System

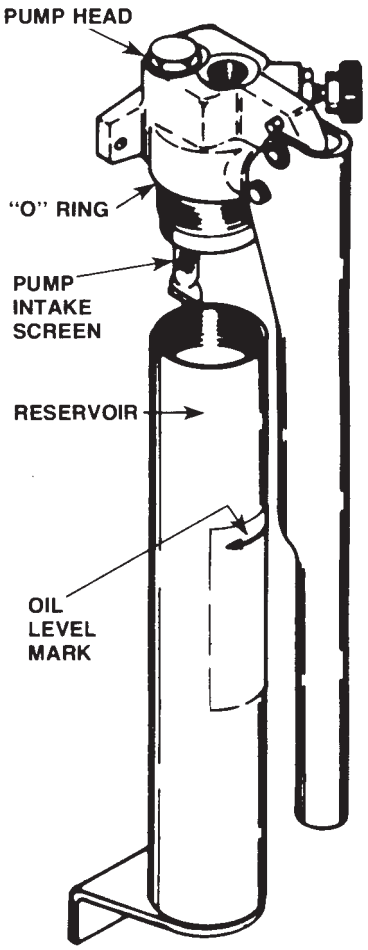
Upon initial startup or after prolonged use, a significant amount of air may accumulate within the hydraulic system. This entrapped air can cause the cylinder to respond slowly or behave in an unstable manner. To remove the air, run the system through several cycles (extending and retracting cylinders) free of any load. **NOTE: The cylinder must be at a lower level than the pump to allow air to be released through the pump reservoir.**



Always position pump higher than ram when bleeding air from system!

Inspecting the Hydraulic Fluid Level

Check the oil level in the reservoir periodically. Place the pump in a vertical position with the pump head facing upward. Unscrew and remove the pump head from the reservoir. The oil level within the reservoir should come to the oil level mark indicated on the reservoir body decal. Before replacing the pump head, visually inspect the o-ring which seals the pump head/reservoir assembly. Replace this o-ring if it is worn or damaged. Reinstall pump head to reservoir and tighten securely. Check for leaks.



Maintenance Cleaning

1. Keep the outer surface of the pump as free from dirt as possible.
2. Protect all unused couplers.
3. Keep all hose connections free of dirt and grime.
4. Equipment connected to the pump must be kept clean.
5. Use only high-grade, approved hydraulic fluids in this pump. Change as recommended.

Draining and Cleaning the Reservoir

IMPORTANT: Clean the pump exterior first.

Drain, clean and replenish the reservoir with a high-grade, approved hydraulic fluid yearly or more often if necessary. The frequency of oil change will depend upon the general working conditions, severity of use and overall cleanliness and care given the pump.

1. Unthread and separate the pump head from the reservoir. Dispose of the used hydraulic fluid.
2. Flush out reservoir with a small amount of clean hydraulic fluid. Clean the pump intake filter.
3. Refill the reservoir and reassemble the pump head to the reservoir. Tighten securely. Check for leaks.
4. To help prevent contaminated oil from entering the pump, drain and clean the other system components (hoses, cylinders, etc.) before connecting them to the pump again.

Adding Oil to the Reservoir

1. Cylinder(s) must be fully retracted when adding oil to the reservoir.
2. Clean the entire area around the filler cap before removing the pump head.
3. Use a clean funnel with filter when adding oil.
4. Use only approved hydraulic fluids.
5. Fill reservoir to the oil level mark indicated on the reservoir body decal.
6. Reassemble the pump head to the reservoir (replacing o-ring if necessary) and tighten securely. Check for leaks.

TROUBLE-SHOOTING GUIDE

WARNING:To help prevent personal injury,

- **Repairs must be performed in a dirt-free environment by qualified personnel familiar with this equipment.**
- **Always release pump pressure and disconnect hose(s) from pump before making repairs.**

Refer to Parts List #100459 during trouble-shooting.

PROBLEMS	CAUSE	SOLUTION
Pump not delivering oil	1. Low oil level in reservoir. 2. Dirt in pump body. 3. Seats worn and not seating properly. 4. Too much oil in reservoir.	1. Check oil level per instructions. 2. Disassemble pump body and clean all parts. 3. Repair seats in casting. 4. Check oil level per reservoir instructions.
Pump losing pressure	1. Oil leaking past outlet ball seat(s) 2. Pressure control knob leaks, not adjusted properly.	1. Reseat ball seat(s). 2. Reseat or replace pressure control assembly.
Pump does not reach full pressure	1. Low oil level. 2. Too much oil in reservoir. 3. Relief valve set too low.	1. Check oil level per instructions. 2. Check oil level per instructions. 3. Take pump to an authorized hydraulic repair center.
Handle rises after each stroke	1. Oil leaking past outlet ball seat(s).	1. Check for dirt. Replace ball and/or reseat.
Pump handle can be pushed down (slowly) without raising the load	1. Inlet ball is not seating. 2. Damaged piston assembly. 3. Scored cylinder wall on pump body.	1. Check for dirt and/or reseat valve seat. 2. Replace piston assembly. 3. Replace pump body and piston assembly.
Pump handle operates with a spongy action	1. Air trapped in system. 2. Too much oil in reservoir.	1. Position cylinder lower than pump. Extend and return cylinder several times. 2. Check oil level per instructions.