

Operating Instructions for:

4008

4009

61137

D-01020AA

D-01024AA

P460 Series

TM29A Series

Y29A Series

**TWO-STAGE
HYDRAULIC HAND PUMP**

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

This two-stage hydraulic hand pump can produce up to 10,000 PSI maximum line pressure. The handle effort at 10,000 PSI is 90 lbs. when the lower third of the handle stroke is used. The **low pressure first stage** unloads at 325 PSI and delivers 7.35 cu. in. of oil per full stroke of the handle to provide fast cylinder approach. The **high pressure second stage** stage takes over when the pressure on the cylinder is more than 325 PSI. The second stage delivers .294 cu. in. of oil per full stroke of the handle.

SAFETY PRECAUTIONS**WARNING :** To help prevent personal injury,

Before operating the pump, all hose connections must be tighten with the proper tools. Do not overtighten. 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 rupture, burst, or need to be disconnected, immediately shut off the pump and shift the control valve twice to release all pressure. Never attempt to grasp a leaking hose under pressure with your hands. The force of escaping hydraulic fluid could cause serious injury.

Do not subject the hose to any potential hazard such as fire, extreme heat or cold, sharp surfaces, 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 wear because any of these conditions can damage the hose and 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 rating noted on the pump nameplate or tamper with internal high pressure relief valve. Creating pressure beyond rated capacities may result in personal injury.

Before adding oil, retract the system 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.

NOTE: Shaded areas reflect last revision(s) made to this form.

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SET-UP

Hydraulic Connections

IMPORTANT: Seal all hydraulic connections with a high grade, nonhardening thread sealant such as Power Team HTS6. Teflon tape may also 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 pipe end. Any loose pieces of tape could travel through the system and obstruct the flow of oil or cause jamming of precision-fit parts.

1. Clean all areas around the oil ports of the pump and cylinder. Clean all hose ends, couplers, and union ends. Remove thread protectors from the hydraulic oil outlets, and connect the hose assembly. Couple hose to cylinder.
2. The use of a hydraulic pressure or tonnage gauge (not included) is strongly recommended. Remove the pipe plug from the gauge port of the valve, and thread the gauge into this port.



WARNING : The gauge must have the same pressure rating as the pump and cylinder. Personal injury can result if the wrong gauge is used.

PREVENTIVE MAINTENANCE

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

Air can accumulate in the hydraulic system during the initial set-up or after prolonged use, causing the cylinder to respond slowly or in an unstable manner. To remove the air:

1. Position the cylinder at a lower level than the pump, and turn the cylinder upside down.
2. Extend and retract the cylinder several times without putting a load on the system. Air will be released through the pump reservoir.

Hydraulic Fluid Level



WARNING : The cylinder must be fully retracted before checking the oil level. Release all system pressure before breaking any hydraulic connection in the system.

Check the oil level in the reservoir after bleeding the cylinder and hose and after every 10 hours of use. Retract the cylinder, and remove the filler cap. The oil level should be one-half inch from the cover plate. Using a funnel with a filter, add an approved, high-grade hydraulic oil if necessary.

Draining and Flushing the Reservoir

The reservoir should be drained and flushed after every 300 hours of use.

IMPORTANT: Clean the exterior of the pump first.

After draining and flushing the reservoir, drain and clean the other hydraulic system components (hoses, cylinders, etc.) before connecting them to the pump again. This will help prevent contaminated oil from entering the pump.

1. Remove the ten screws fastening the reservoir cover to the reservoir, and lift the pump and valve assemblies off.
2. Drain all hydraulic oil and flush reservoir with a nonflammable cleaning fluid.
3. Remove the pump assembly filter, rinse it clean, and reassemble.
4. Fill the reservoir with an approved, high-grade hydraulic oil. Place the pump and valve assembly (with gasket) on the reservoir, and thread the ten screws. Tighten securely and evenly.

Periodic Cleaning

IMPORTANT: Dirt is the greatest single cause of failure in hydraulic pumps. Keep the pump and attached equipment clean to prevent foreign matter from entering the system.

1. Use only clean hydraulic oil.
2. Seal hydraulic oil outlets and unused couplers with thread protectors when the system is dismantled.

TROUBLE-SHOOTING



WARNING : It is dangerous to work on pressurized equipment. To help prevent personal injury, always release pump pressure and disconnect hoses(s) from pump before making repairs.

Refer to Parts List #100390 or #101271 during trouble-shooting. Repairs must be performed in a dirt-free environment by qualified personnel familiar with this equipment.

PROBLEM	CAUSE	SOLUTION
Pump not delivering oil	<ol style="list-style-type: none"> 1. Low oil level in reservoir 2. Dirt in pump body 3. Seats worn and not seating properly 	<ol style="list-style-type: none"> 1. Check oil level per instructions 2. Disassemble pump body and clean all parts 3. Repair seats in casting
Pump losing pressure	<ol style="list-style-type: none"> 1. Oil leaking past outlet poppet seat(s) 2. Directional control valve leaks, not adjusted properly 3. Leaking o-rings 	<ol style="list-style-type: none"> 1. Check for dirt. Reseat pump body and/or replace poppet(s) 2. Reseat or replace directional control assembly 3. Replace o-rings
Pump does not reach full pressure	<ol style="list-style-type: none"> 1. Oil leaking past outlet poppet seat(s) 2. Directional control valve leaks, not adjusted properly 3. Oil leaking past poppet at end of shifting spool. 	<ol style="list-style-type: none"> 1. Check oil level per instructions 2. Take pump to authorized hydraulic repair center 3. Replace poppet and spool
Handle rises after each stroke	<ol style="list-style-type: none"> 1. Oil leaking past outlet poppet seat(s) 	<ol style="list-style-type: none"> 1. Check for dirt. Reseat pump body and/or replace poppet(s).
Pump handle can be pushed down (slowly) without raising the load	<ol style="list-style-type: none"> 1. Inlet poppets are not seating 2. Damaged piston assembly 3. Scored cylinder wall on pump body 	<ol style="list-style-type: none"> 1. Check for dirt and/or reseat valve seats 2. Replace piston assembly 3. Replace pump body and piston assembly.
Pump handle operates with a spongy action	<ol style="list-style-type: none"> 1. Air trapped in system. 2. Too much oil in reservoir 	<ol style="list-style-type: none"> 1. Position cylinder lower than pump. Extend and return cylinder several times. 2. Check oil level per instructions.