



# HYDRAULIC TECHNOLOGIES

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Form No. 103519

Operating Instructions  
for:

PG4104S

## GAS HYDRAULIC PUMP SAFETY PRECAUTIONS

### WARNING

- Before operating the pump, all hose connections must be tightened 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 hydraulic pressure 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 replenishing the oil level, 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.

### IMPORTANT:

- Clean the areas around the oil ports of the pump and hydraulic cylinders.
- Inspect all threads and fittings for signs of wear or damage and replace as needed. Clean all hose ends, couplers, or union ends.
- Seal all pipe connections with a high quality, nonhardening thread sealant. 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 parts.

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Rev. Date: 27 July 2000

## OPERATING PROCEDURE

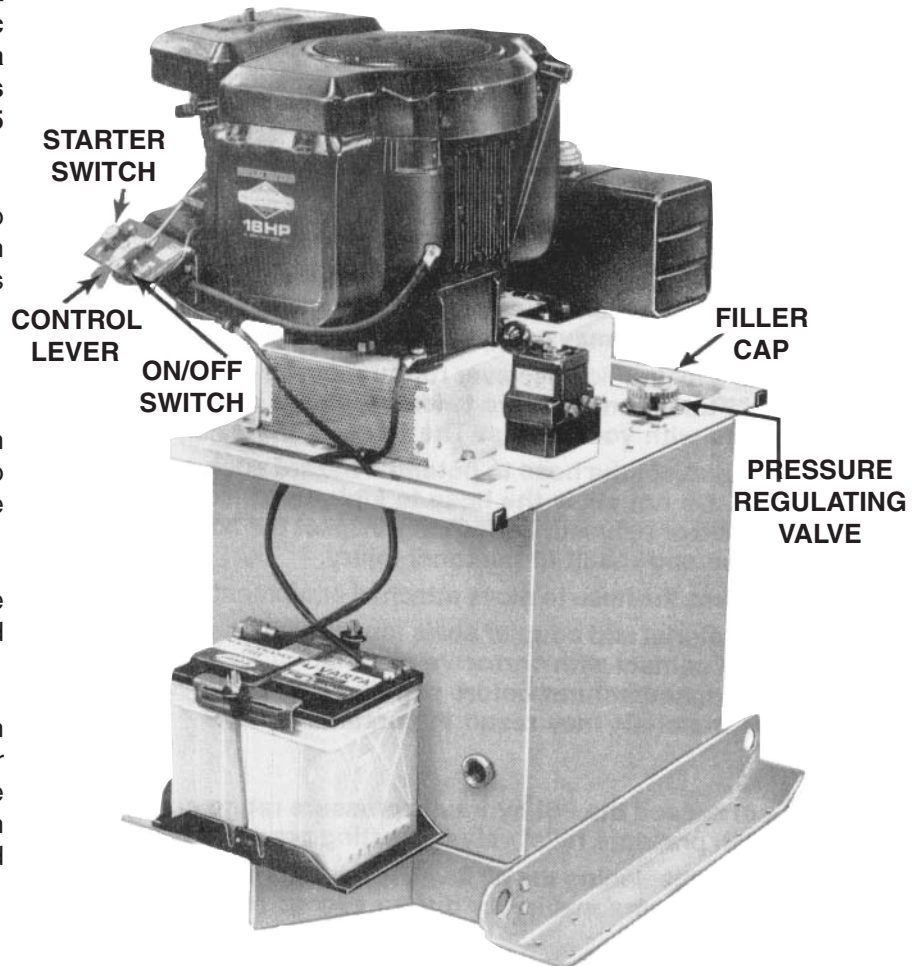
### Setup

1. Remove the thread protector(s) from the external hydraulic connection(s) on the valve. Apply a high quality, nonhardening thread sealant or teflon tape to any external threads and install the hose(s) into the hydraulic ports.

### Hydraulic Fluid

**NOTE:** The pump has been shipped without oil in the reservoir, but a high-grade hydraulic oil has been shipped with the pump in a separate container. If additional oil is required, use Power Team hydraulic oil (215 SSU @100°F).

1. Clean the area around the filler cap to remove all dust and grit. Any dirt or dust in the oil can damage the polished surfaces and precision parts of this pump.
2. Retract all cylinders to the return position.
3. Remove the filler cap and insert a clean funnel with a filter. Fill with hydraulic oil to the bottom of the filler screen. Replace the filler cap, leaving the breather-hole open.
4. Cycle the pump several times with the cylinders attached. Retract the cylinders and check the oil level in the pump reservoir.
5. Drain, flush and refill the reservoir with an approved, high-grade hydraulic oil after approximately every 300 hours of use. The frequency of oil changes will depend upon the general working conditions, usage and maintenance given the pump.



### Operation

**⚠ WARNING:** To help prevent personal injury, the shield must be in place while the engine is running.

1. Read the instruction manual for the gasoline engine.
2. All valve and hose fitting connections must be tight. The oil level in the reservoir should be at the bottom of the filler screen.
3. Place the valve in the neutral position. Start the gasoline engine according to the manual instructions.  
**NOTE:** The **ON/OFF switch must be in the ON position to start the engine.** Let the pump idle for a few minutes.
4. Run the cylinder out to its full travel several times to eliminate air from the system.

**NOTE:** If using a large cylinder, it may be necessary to refill the reservoir after eliminating the air from the system. Retract the cylinder and fill the reservoir to the bottom of the filler screen.

5. To increase engine speed, move the control lever in the direction of the starter switch.

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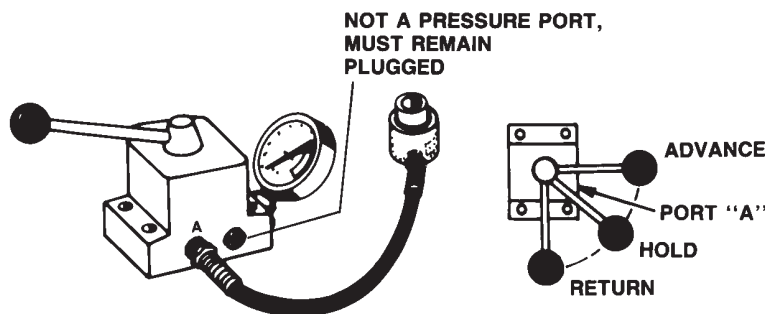
## Pressure Regulating Valve

A pressure regulating valve can be adjusted to bypass oil at a desired pressure setting while the pump motor continues to run.

### IMPORTANT:

- For easy adjustment of the pressure regulating valve, always adjust the pressure by **INCREASING** it to a desired pressure setting. The pressure range for this unit is from 1,000 PSI to 10,000 PSI.
1. Loosen the locknut on the pressure regulating valve, and turn the adjusting screw a few turns counterclockwise (CCW) to decrease the pressure setting to a lower than desired pressure.
  2. With the engine running, shift the valve into the operating position.
  3. Slowly turn the adjusting screw in a clockwise (CW) direction to gradually increase the pressure setting. When the desired pressure setting is reached, lock the adjusting screw into position by tightening the locknut.

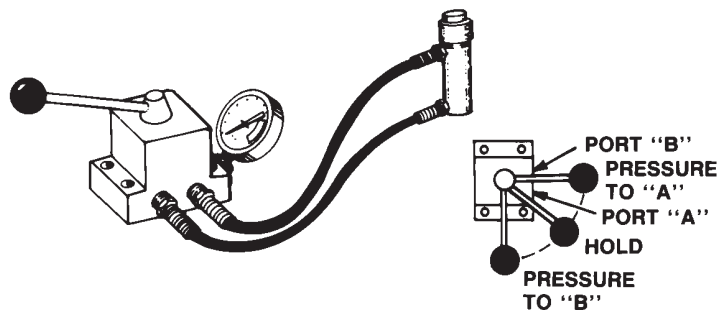
### Valve Operation



#### 3-Way Manual Valve

- Neutral (Hold):** Pressure to tank - cylinder port blocked.
- Advance:** Pressure to cylinder port "A".
- Return:** Pressure and cylinder port to tank.

Pressure holds without loss when shifted from cylinder port to "hold" position.



#### 4-Way Manual Valve

- Neutral (Hold):** Pressure to tank, ports "A" and "B" blocked.
- Position "A":** Pressure to port "A", port "B" to tank.
- Position "B":** Pressure to "B", port "A" to tank.

Pressure holds without loss when shifted from either cylinder port to "hold" position.

## HYDRAULIC SCHEMATIC

