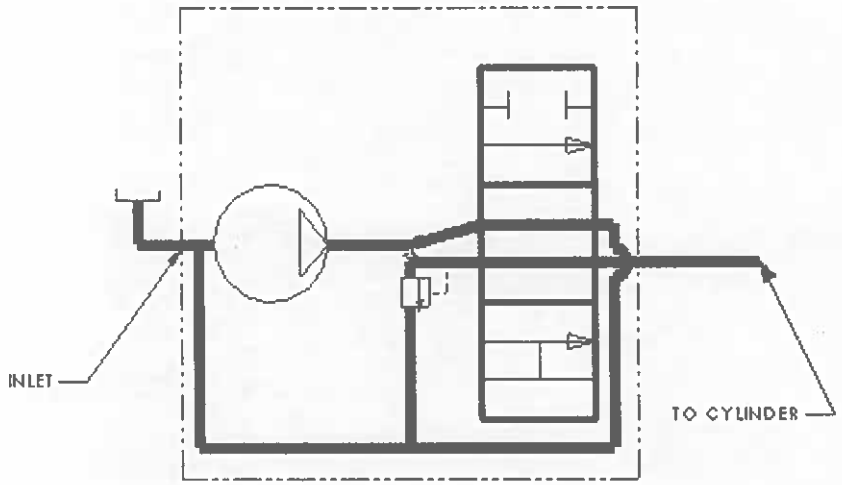
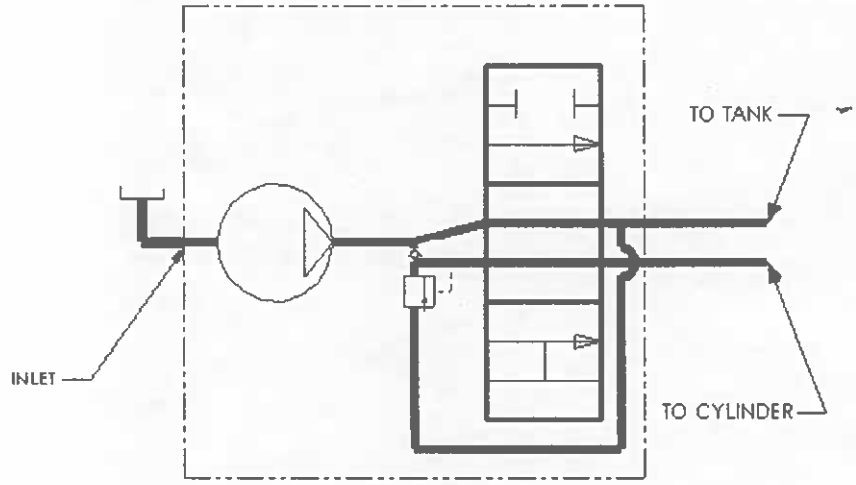
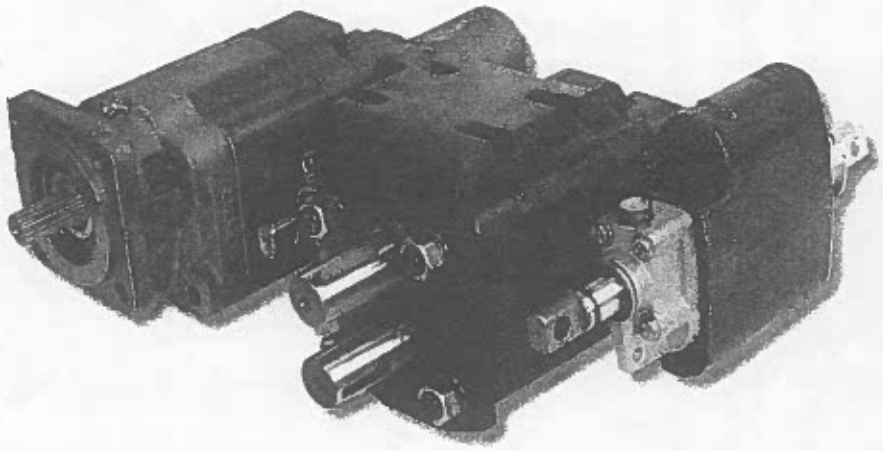


TWO LINE SYSTEM

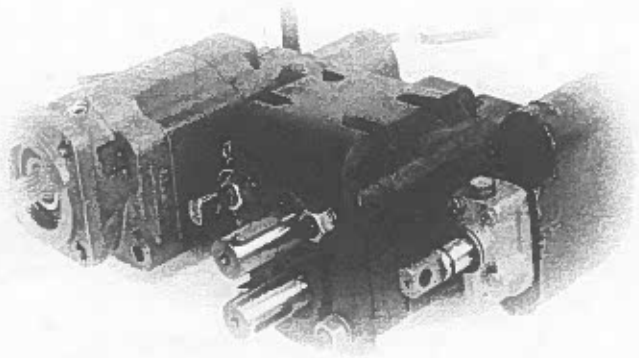


3 LINE SYSTEM

INSTRUCTION MANUAL for



DUMP PUMP



The Dump Pump you have received is a precision made hydraulic assembly. This unit consists of a pumping section, a hydraulic directional valve and a multifunction relief valve.

Depending on the unit you purchased the pumping section will have either 2.57 in^3 or 2.00 in^3 displacement, for each inch of gear width. There are two standards: for the 2.57 in^3 units it is 2 or 2 ½ inches of gear width. For the 2.0in^3 unit it is 2 inches of gear width.

Again, depending on the unit ordered it would be either a remote mount or a direct mount. The remote mount has two input shafts. This configuration requires a driveline to turn the pump. The correct rotation of the pump is determined by choosing the correct input shaft. (Oil flow in the inlet and around the outsides of the gears not through the center of the two gears) Caution! The driveline must be balanced to insure longevity of the unit. The other option is the direct mount having a 7/8-13 tooth input shaft and a four (4) bolt mount with a four (4) inch diameter-mounting pilot. This unit is mounted directly to the PTO. The direction of rotation of the pump must be matched to the PTO.

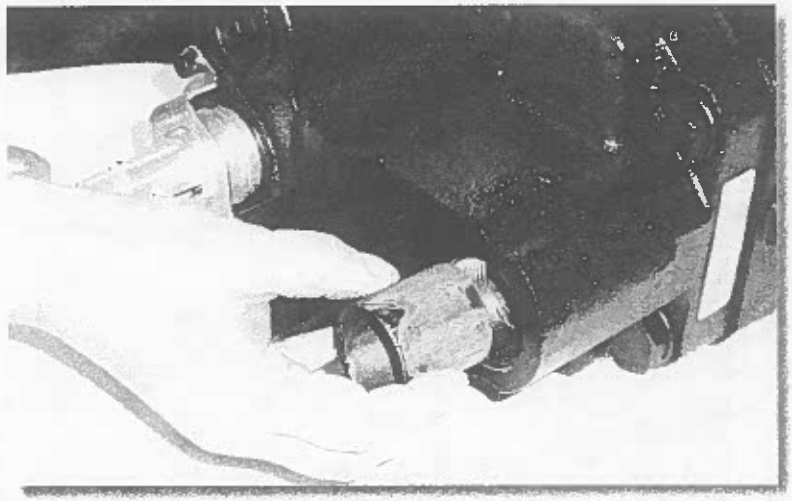
The directional hydraulic valve has three positions and can be operated either with a manual cable or by an air shifter. This again depends on the unit you purchased. If the unit came with a manual shift, an air shifter can be installed by removing the four (4) bolts that hold the shaft seal cover. Then, gently pulling off the cover. (The spool is detented so it may require removing the bolt which holds the detent spring) then install the air shifter using the directions contained in the box in which the air shift was packaged.

The following are some of the operating parameters:

1) Max. Pressure 2500 PSI (Relief Valves are set at 2000PSI)
2) Max. Speed 2400 RPM
3) Approx. weight 80 pounds
4) Output:
   - 2.57 in^3 units
     - 2.0 inch wide gears @ 1000 RPM = 22 GPM
     - 2.5 inch wide gears @ 1000 RPM = 27 GPM
   - 2.00 in^3 units
     - 2.0 inch wide gears @ 1000 RPM = 17 GPM

The unit can be operated as either a two-line system or a three-line system. The "two-line system" consists of a suction line with a 1-¼ inch inside diameter hose. (This must be suction rated hose) running from the reservoir to the pump. And a pressure line that goes to the cylinder. When the PTO is engaged and the valve is in it's detented (Neutral) position the oil circulates internally in the pump. Caution! This oil can get very hot in a very short period of time. When the valve is pulled towards the shaft end of the pump the oil is then directed to the cylinder port causing the bed to rise. By pushing the valve all the way away from the shaft end of the pump the oil is then returned to the pump.

When the dump cycle is over disengage the PTO. The "three-line system" consists of the suction hose and cylinder hose as mentioned above but there is a third line that runs from the return port back to the reservoir. This is the preferred system for two reasons 1) the oil returns to the tank when the valve is in the detened position and 2) a filter can be installed to keep the oil clean. To use this system the sleeve that comes with the unit must be installed in the suction port.



This sleeve just slides into the suction port and is retained by the suction line fitting.

Start up of this unit is critical. Ensure that the reservoir is filled with clean oil.

The valve in the suction line must be open. It is not recommended to use a suction filter. Cavitation destroys more pumps than high operating pressures.

The fittings on the suction side of the unit must be tight and have no air leaks. If the fittings and hose clamps are not tight the pump will pull in small quantities of air, causing the unit to overheat and shortening the bearing life.

Once all lines are hooked up and all suction line valves are open then start the truck. DO NOT operate the engine above an idle. Loosen up the pressure line fitting. (On a two-line system it is best to now open the valve to the cylinder)

USE CAUTION AS THE BED MAY START TO RISE!!

Allow a small quantity of oil to escape, letting the line leak until all signs of air entrapment stops. Retighten the fitting. Return the valve back to neutral on a two-line system. Let the engine idle for a few minutes more. Then, activate the valve to raise the bed, continue to run the engine at an idle. The bed should rise smoothly. If the operation is jerky, lower the bed and again bleed the lines to get all of the air out of the system. Do not attempt to dump a load until the unit runs smoothly.

REPLACEMENT PUMP?

If you are replacing a failed pump in an existing system, please read and follow the instructions below.

1) Be sure that this replacement pump is of the correct displacement (flow rate) and pressure rating to operate your equipment. Substituting a larger pump for the smaller original pump may only compound your problems and result in early failure. If the replacement pump is smaller the operating speed of your equipment may be affected.
2) Be sure to completely clean the hydraulic system. The oil should be drained and the reservoir should be completely wiped clean. The filter should be changed and the hydraulic lines cleaned.
3) Fill the reservoir with clean new hydraulic oil of the correct viscosity for your operating environment.
4) If this is other than a dump pump, find the main relief valve and back it all the way out counter clockwise.
5) Install a 0 - 3,000 PSI pressure gauge tee'd into the outlet of the pump.
6) Make sure that the reservoir is full of oil and if there is a shut-off valve, insure that it is opened to allow full flow to the pump. Crack the fitting at the pump inlet until the oil reaches the pump then re-tighten fitting.
7) Start the engine and engage the PTO if so equipped. Gradually increase engine speed to the maximum engine RPMs that could be seen during equipment operation. While constantly monitoring the pressure gauge, engage control valve to move a cylinder. The cylinder should not move because the relief valve is completely open. While engaging the control valve, gradually turn relief valve in (clock-wise) while monitoring the pressure gauge until the cylinder moves. Wait until the cylinder reaches end of stroke before further adjustment of the relief valve. Now adjust the relief valve until you reach the correct maximum pressure for your system (see your equipment manufacturer's specifications). Remember, for a pressure relief valve to protect all the components in your system it must be set below the maximum rating of the lowest rated component in your system. Once you have reached the proper setting, lock the relief adjustment to.
8) Cycle all the cylinders and motors several times to flush all of the lines. Change the filter element again. Check the reservoir oil level and add oil if necessary.
9) Change the filter again after the first week of service and thereafter according to the indicator gauge on the filter.

NOTE: *Some hydraulic valves contain one or more work sections that have work port reliefs. If you have difficulty in reaching the desired maximum relief valve setting once again back out the relief valve adjustment and engage another valve section that does not have a work port relief.*

Recommendations For Maximum Performance And Extended Pump Life

- Use a three line system with a return line filter (25 micron)
  NOTE: When selecting a filter you must take into account the oil being returned from the retracting cylinder. The following is a recommendation for sizing filters to systems.
  1-3 Stage Cylinder Use HFA2 Series
  4-5 Stage Cylinder Use HFA3 or HFA4 Series
- When replacing any major component, drain and thoroughly flush system with kerosene.
- Refill the system with fresh oil of correct grade, these are correct oils:
  Viscosity index at 100°F (37°C): 90 or higher;
  Viscosity SUS at 100°F (37° C): 150 to 300 (32-65 CST);
  Aniline point: 165 or higher;
  Anti-foam, anti-oxidant, and anti-wear additives)
- Never run pump in neutral longer than 5 minutes
- Check oil level in reservoir frequently
- The relief valve is preset at 2000 P.S.I. and should not be adjusted
- Suction line and return line should be 1-1/4" ID hose, pressure line should be 1" ID hose

Buyers Two And Three Line Operation

In applying the BUYERS BPC1010, an understanding of the 2-line and 3-line circuits is essential for proper operation and maximum unit life.

In the two line operation, one line is connected from the oil tank to the inlet of the pump and one line is connected from the cylinder port of the valve to the cylinder. With the pump engaged and the valve spool in the neutral position, oil will recirculate inside the unit. It has been determined through testing that the rise in temperature per every minute of operation in this mode is 7.5°F. If operation is allowed to continue beyond the recommended **5 minute time** interval, a reduction in clearances of the rotating group due to excessive heat and subsequent expansion will occur. The result may lead to the unit locking up and premature failure of the drive shaft or other internal components.

In a three line application, one line is connected from the oil tank to the inlet of the pump, one line is connected from the cylinder port to the cylinder and one line is connected from the pumps return port back to the oil tank. To connect this port, a 1" pipe plug must be removed for hose connection and a metal sleeve. BUYERS part number BRZ0206, must be inserted into the inlet port of the valve. By inserting the sleeve into the inlet port, flow from either the cylinder retracting or with the spool in neutral will be diverted directly back to the oil tank.

It should be noted that the operation of the BPC1010 with the 3-line circuit will reduce the possibility of premature failure due to excessive heating but will not eliminate it. It is therefore recommended that the unit be run in this mode of operation for no longer than **10 minutes.**

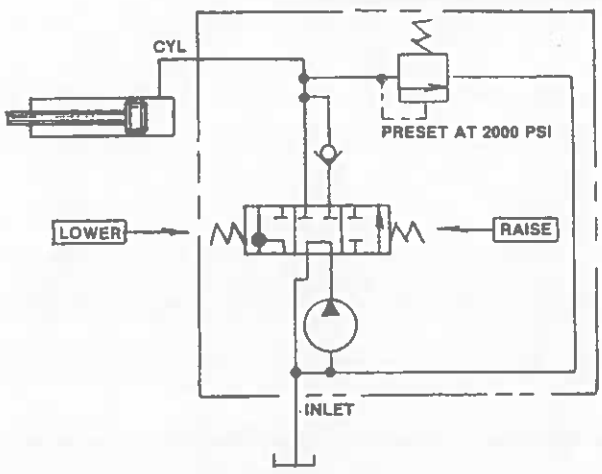
General Comments Concerning The Application And Operation Of The BPC1010

As discussed earlier with the 3-line operation, the metal sleeve inserted in the inlet port of the pump diverts flow back to the oil tank. **DO NOT USE SLEEVE WITH A TWO LINE SYSTEM.** With this sleeve installed in a 2-line system, only a minimal amount of oil will pass across it. The majority of the oil will be blocked from recirculating internally. If the pump is engaged and the spool is in the neutral position, flow will be directed back into the cylinder port and may extend the cylinder. **CAUTION: Operation with the sleeve installed in a 2-line application is potentially hazardous. Because the factory is unaware of which return line circuit the customer will choose, the sleeve is never installed at the factory.**

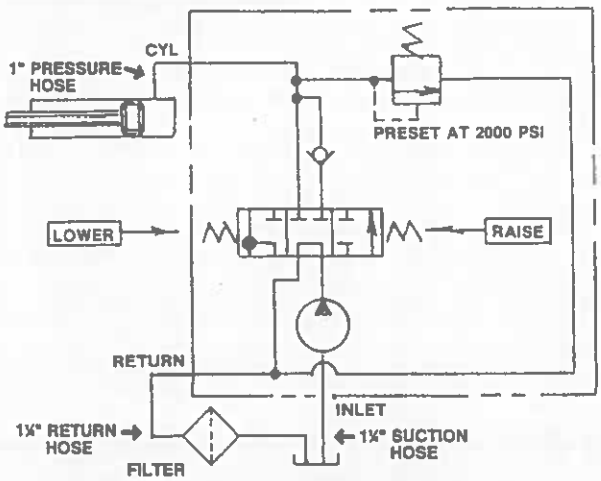
Like any control valve, there are inherent pressure drops within the BPC1010 due to internal core configurations. During cyclinder retraction, fluid velocities may increase to the point that excessive back pressures may be seen at the pump seal area. For this reason, BUYERS installs high pressure motor seals in all BPC1010 units to prevent premature seal failure. It is also suggested that movement of the valve spool from the neutral to the raise position in rapid succession be avoided as this may also contribute to the premature failure of the shaft seal.

Circuit Schematics Of 2-Line And 3-Line Operation

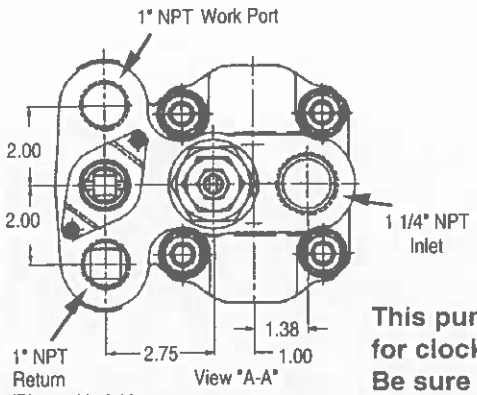
Return Line Filtration Can Only Be Used On A 3-Line System

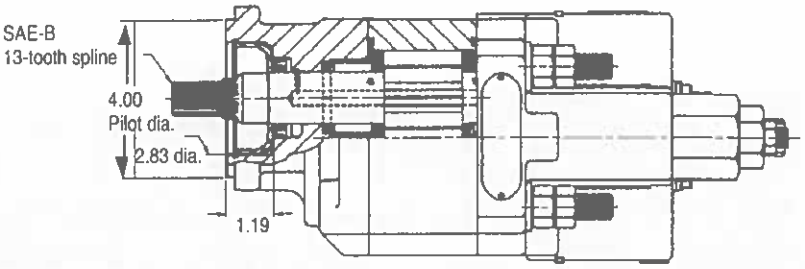


2 LINE OPERATION

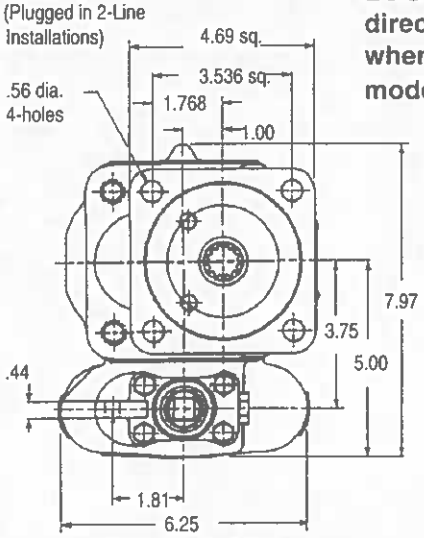


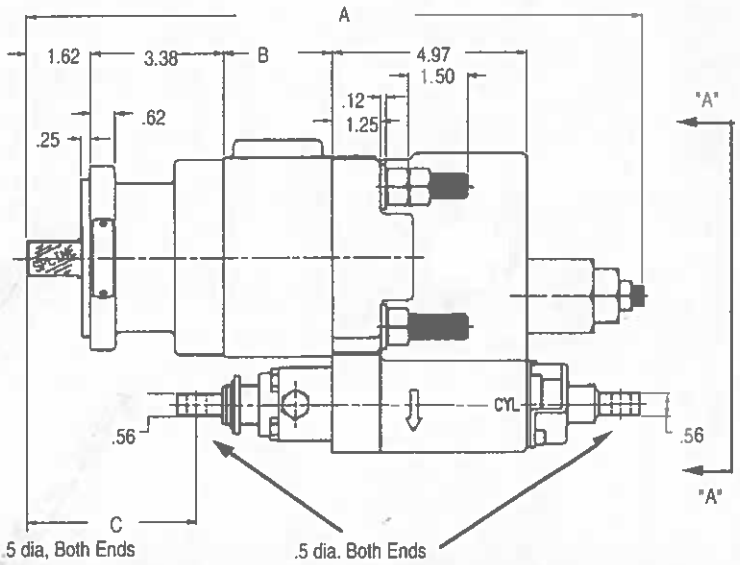
3 LINE OPERATION





This pump is assembled for clockwise rotation. Be sure to specify the direction of rotation when ordering models.





These Warnings Apply to All Pump / Valve Units

• A device to lock the control lever in the neutral position must be installed. Pump / valve units without a lockable control lever may allow the dump bed to rise unintentionally while in transit. Failure to provide such a lock may lead to loss of vehicle control, accidental injury and/or property damage.

• Failure to disengage the PTO from driving the pump/valve when in transit may allow the dump bed to rise unintentionally. This may lead to loss of vehicle control, accidental injury and/or property damage.

• pump/valves are equipped with a neutral stop device for those applications using a pull-out cable. This device allows the pull-out cable to move the valve spool from the raise to the neutral position only. Since shock loading in the cable is possible, **it is essential that a spring** Failure to do so could result in breakage of the neutral stop device and could lead to injury. We recommend that the cable be fully enclosed and directly in line with the spool.

• Never work under a raised dump bed without first securely blocking the bed to prevent its accidental lowering.

• 3-line installations are recommended whenever possible. 3-line circuits consist of a pump inlet line, a line to the cylinder and a return line to tank. A sleeve must be installed in the pump's inlet to allow oil to circulate through the unit and return to tank when running in neutral. Lower operating temperatures and the ability to install a return-line filter are two advantages of a 3-line circuit. Be sure the return line is always below the oil level in the reservoir. 2-line installations are for intermittent operation only.