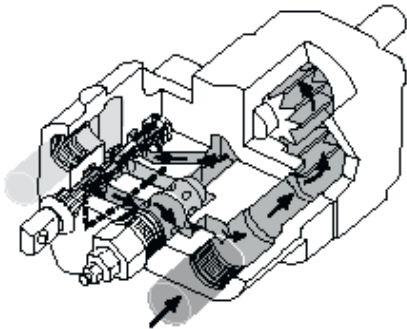
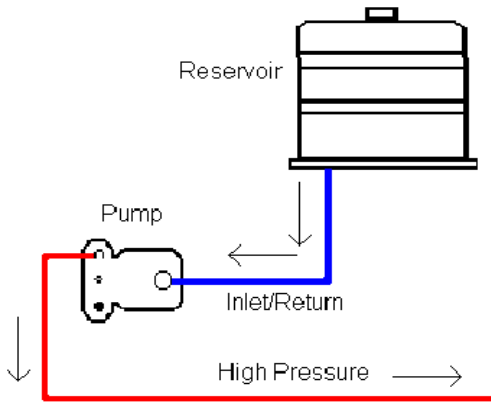
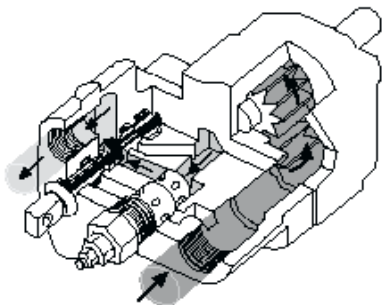


## Two-line Installation

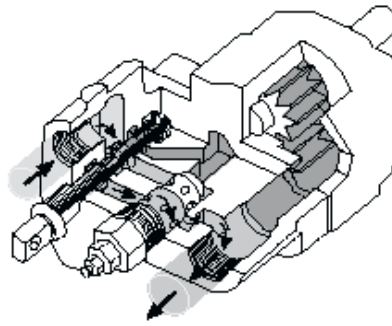
One line to the cylinder, one line to the reservoir.  
*Do not install sleeve in inlet port.*  
 For intermittent operation only.



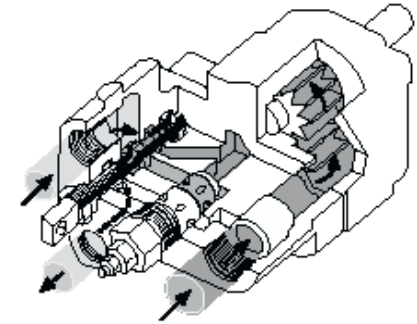
Spool in Neutral:  
Oil recirculates internally.



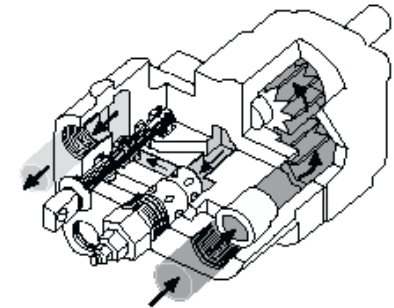
Raise Position:  
Oil is routed through work port to raise the cylinder.



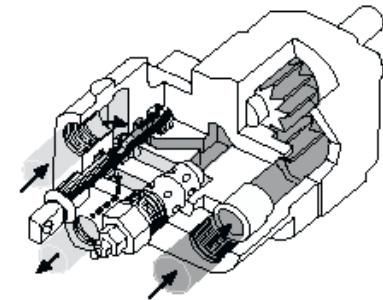
Lower Position:  
Oil flows from the cylinder through the relief valve to return to tank.



Spool in Neutral:  
Oil circulates through the pump and returns to tank.



Raise Position:  
Oil is routed through work port to raise the cylinder.

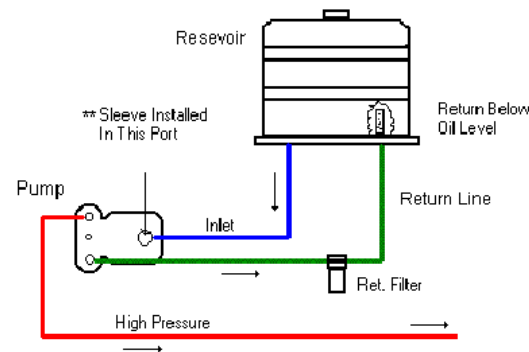


Lower Position:  
Oil flows from the cylinder, through the bottom port and returns to tank.

- Never run pump in neutral longer than 5 minutes with a two line system
- With the pump engaged and the spool valve in the neutral position, oil will recirculate inside the pump. Oil temperature will rise about 8 °F (5°C) every minute. If oil temperature rises above 185 °F (85°C), a reduction in clearances of the rotating parts may cause the unit to lock up. The result may lead to premature failure of the drive shaft or other components.

## Three-line Installation

One line to the cylinder, two lines to the reservoir.  
*Sleeve must be installed in inlet port.*  
 For intermittent operation.



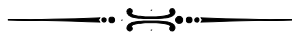
Raise Position:  
Oil is routed through work port to raise the cylinder.

In a three line system, a metal sleeve must be inserted in the inlet port of the pump. By inserting the sleeve into the inlet port, flow from either the cylinder retracting or with the spool valve in the neutral position will be diverted directly back to the oil reservoir.

- It should be noted that using the three line system will reduce the possibility of premature failure due to excessive heat, but will not eliminate it. It is recommended that the unit be run in this mode of operation for no longer than 10 minutes

### **Recommendations for maximum performance and extended pump life**

- ☑ Use a three line system with a 25 micron return line filter
- ☑ When replacing any major component, drain and thoroughly flush system with kerosene. Refill the system with fresh oil of the 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 and anti-oxidant additives. For extended operation at temperatures below 20° F (-7° C) always use a low-pour-point oil of top quality NEVER use low-viscosity naphtha-base oils, aircraft hydraulic fluids, or automotive brake fluids
- ☑ Temperature of oil should never exceed 185°F (85°C.)
- ☑ Check oil in reservoir frequently
- ☑ Suction and return line should be 1-1/4" ID hose, pressure line should be 1" ID hose.
- Like any control valve, there are inherent pressure changes inside the unit, During loaded cylinder retraction, fluid velocities may increase to the point that excessive back pressures may cause seal failures.
- It is also possible that rapid movement of the spool valve from the neutral to the raise position may contribute to premature failure of the shaft seals.
- Speed should never exceed 2400 R.P.M.



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## DUMP PUMPS

