

**Sleeved
Piston
Pump
Model**

624

HORSEPOWER REQUIREMENTS

| Flow | | PRESSURE | | | Pump RPM |
|--|-----|--|-------------|-------------|-------------|
| | | PSI 500 | PSI 2000 | PSI 3000 | |
| GPM | L/M | BAR | BAR | BAR | |
| 3.0 | — | 1.1 | 4.2 | 6.4 | 900 |
| 2.0 | — | .7 | 2.7 | 4.1 | 581 |
| 1.0 | — | .5 | 1.4 | 2.1 | 290 |
| DETERMINING THE PUMP R.P.M. | | $\frac{\text{Rated G.P.M.}}{\text{Rated R.P.M.}} = \frac{\text{"Desired" G.P.M.}}{\text{"Desired" R.P.M.}}$ | | | |
| DETERMINING THE REQUIRED H.P. | | $\frac{\text{GPM} \times \text{PSI}}{1460} = \frac{\text{Electric Brake H.P. Required}}{\text{H.P. Required}}$ | | | |
| DETERMINING MOTOR PULLEY SIZE | | $\frac{\text{Motor Pulley O.D.}}{\text{Pump R.P.M.}} = \frac{\text{Pump Pulley O.D.}}{\text{Motor R.P.M.}}$ | | | |

Note: Consult engine manufacturer when using gas or diesel engine

SPECIFICATIONS

| | U.S. Measure |
|------------------------------|-------------------|
| Volume | 3.0 GPM |
| Discharge Pressure | 3000 PSI |
| Max. Inlet Pressure | - 8.5 to + 40 PSI |
| RPM | 900 RPM |
| Bore | .551" |
| Stroke | 1.122" |
| Crankcase Capacity | 1-1/4 Qts. |
| Max. Fluid Temperature | 140°F |
| Inlet Ports (1) | 1/2" NPT |
| Discharge Ports (3) | 3/8" NPT |
| Pulley Mounting | Either side |
| Shaft Diameter | .984" |
| Weight | 35.4 Lbs. |
| Dimensions with Rail | 17.70" x 11.81" |

INLET CONDITION CHECK-LIST

Inadequate inlet conditions can cause serious malfunctions in the best designed pump. Surprisingly, the simplest of things can cause the most severe problems. Some of these conditions can go unnoticed to the unfamiliar or untrained eye. To help eliminate some of these costly headaches, we have put together a check list of probable cause areas which should be evaluated before operation of any system. Remember, no two systems are alike, so there can be no **ONE** best way to set-up a system. All factors must be carefully considered.

INLET SUPPLY should be adequate to accommodate the maximum flow being delivered by the pump.

- ☐ Avoid closed loop systems, especially at higher temperatures and larger volumes. By-pass should be returned to a holding tank.
- ☐ Low vapor pressure fluids, such as solvents, require a booster pump for adequate inlet supply.
- ☐ Higher viscosity fluids require a positive NPSH for adequate inlet supply.
- ☐ Higher temperature fluids tend to vaporize and require a positive NPSH for adequate supply.
- ☐ When using an inlet holding tank, size it to provide adequate fluid to accommodate the maximum output of the pump, generally a minimum of five times the GPM (however, a combination of system factors can change this requirement significantly); provide adequate baffling in the tank to eliminate air bubbles and turbulence; install diffusers on all return lines to the tank.

INLET LINE SIZE should be adequate to avoid starving the pump.

- ☐ The line should generally be 1-1/2 to 2 times the specified pump inlet port size.
- ☐ The line **MUST** be a FLEXIBLE hose, NOT a rigid pipe, and reinforced on SUCTION systems to avoid collapsing.
- ☐ The simpler the inlet plumbing the less the potential for problems. Keep the length to a minimum, the number of elbows and joints to a minimum (ideally no elbows) and the inlet accessories to a minimum.
- ☐ Use pipe sealant to assure air-tight, positive sealing pipe joints.

INLET PRESSURE should fall within the specifications of the pump. These conditions vary slightly from the plunger to the piston pumps.

- ☐ Higher temperatures require pressurized inlet.
- ☐ Optimum pump performance is achieved with a flooded or pressurized inlet, however, negative feed is possible under ideal conditions.

INLET ACCESSORIES are designed to protect against overpressurization, monitor inlet flow, control contamination, control temperature and provide ease of servicing.

- ☐ All accessories should be sized to avoid restricting the inlet flow.
- ☐ A pressure gauge is recommended to monitor the inlet pressure and should be mounted AS CLOSE TO THE PUMP INLET as possible.
- ☐ All accessories should be compatible with the solution being pumped to avoid malfunction.

BY-PASS TO INLET Care should be exercised when deciding the method of by-pass. It is recommended the by-pass be directed to a baffled reservoir tank, with at least one baffle between the by-pass line and the inlet line to the pump. Although not recommended, by-pass fluid may be returned to the inlet line of the pump if the system is properly designed to protect your pump. When using this method a PRESSURE REDUCING VALVE should be installed on the inlet line to avoid excessive pressure to the inlet of the pump. (**REDUCING VALVE SHOULD BE INSTALLED BETWEEN THE BY-PASS CONNECTION AND THE INLET TO THE PUMP**) It is also recommended that a TEMPERATURE SENSING VALVE be used to monitor the temperature build-up in the by-pass loop to avoid premature seal failure.

- ☐ A low-pressure, flexible cloth braid (not metal braid) hose should be used from the by-pass connection to the inlet of the pump.
- ☐ It is recommended to use a minimum 24" by-pass hose.
- ☐ On any new installation or during periodic maintenance or trouble-shooting, it is recommended that the pressure in the by-pass line be checked to avoid overpressurizing the inlet.

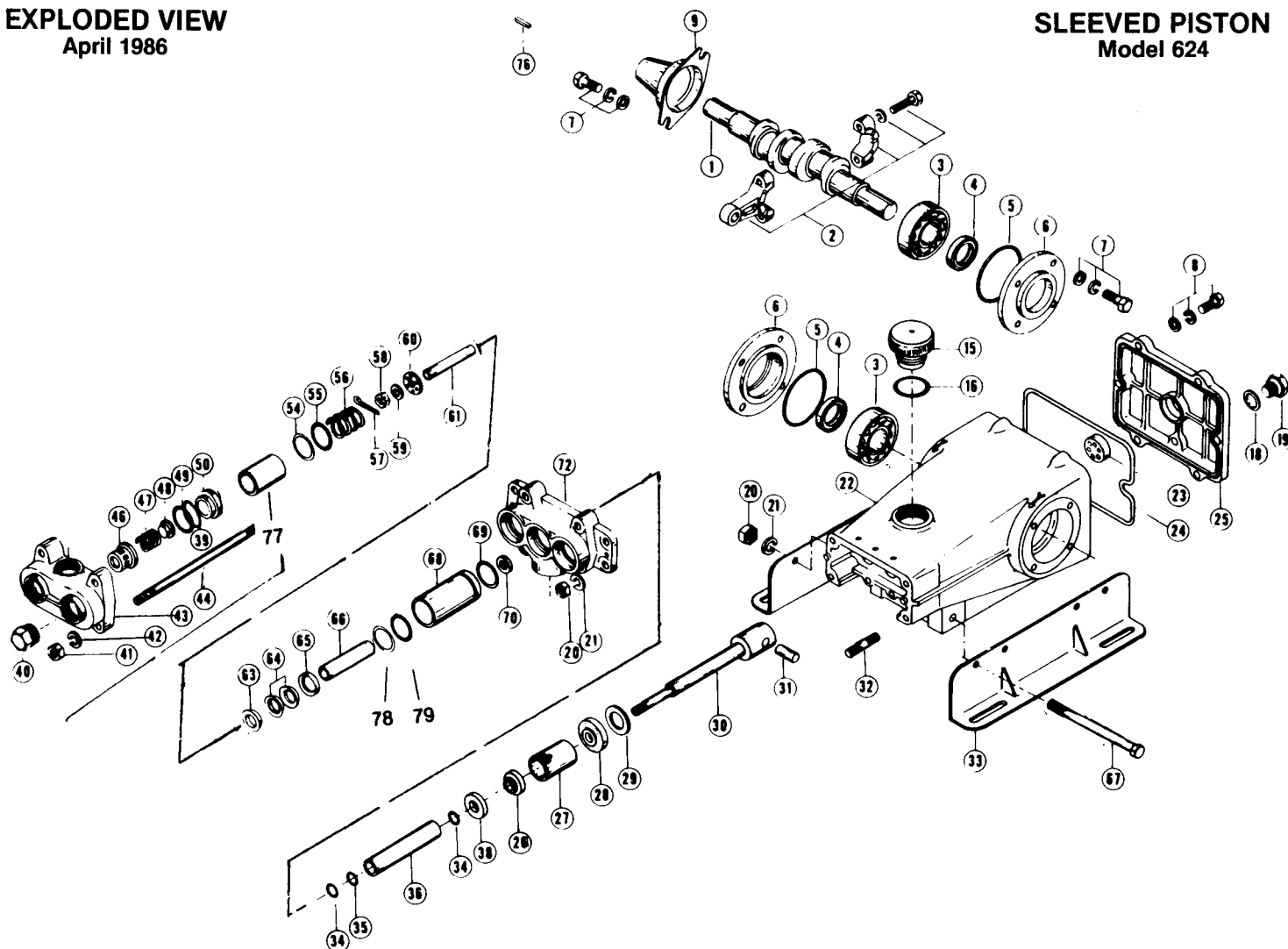
See High Pressure Guide for more information on pump protection and maintenance.

EXPLODED VIEW

April 1986

SLEEVED PISTON

Model 624



PARTS LIST

| ITEM | PART NO. | DESCRIPTION | QTY. | ITEM | PART NO. | DESCRIPTION | QTY. |
|------|----------|---------------------------------------|------|------|----------|------------------------------|------|
| 1 | 27329 | Crankshaft | 1 | 42 | 30908 | Lockwasher, (1/2") | 4 |
| 2 | 27334 | Connecting Rod | 3 | 43* | 43060 | Discharge Manifold | 1 |
| 3 | 47080 | Bearing | 2 | 44 | 85364 | Cylinder Bolt (M12) | 4 |
| 4 | 27330 | Oil Seal | 2 | 46 | 43135 | Retainer, Valve Spring | 3 |
| 5 | 26965 | O-ring, Oil Seal Case | 2 | 47 | 28682 | Valve Spring | 3 |
| 6 | 27331 | Oil Seal Case | 2 | 48 | 28681 | Discharge Valve | 3 |
| 7 | 92519 | Hex Head Screw (M6 x 16) | 8 | 49 | 28820 | O-ring, Discharge Valve Seat | 3 |
| 8 | 92520 | Comb Head Screw, 3 pc. Sems (M6 x 20) | 6 | 50* | 43061 | Discharge Valve Seat | 3 |
| 9 | 43139 | Shaft Protector | 1 | 54 | 28675 | Back-up Ring | 3 |
| 15 | 43211 | Cap, Oil Filler | 1 | 55 | 14200 | O-ring | 3 |
| 16 | 14177 | O-ring, Cap | 1 | 56 | 28919 | Spring | 3 |
| 18 | 23170 | O-ring, Drain | 1 | 57 | 14158 | Cotterpin-S.S. (M1.5 x 10) | 3 |
| 19 | 25625 | Drain Plug | 1 | 58 | 27986 | Hex Nut-S.S. (M5) | 3 |
| 20 | 81048 | Hex Nut (M10) Reg Thread | 6 | 59 | 15845 | Split Lockwasher-S.S. (M8) | 3 |
| 21 | 12503 | Split Lockwasher (M10) | 6 | 60 | 28924 | Retainer, Piston | 3 |
| 22 | 27325 | Crankcase | 1 | 61 | 28923 | Spacer, Piston | 3 |
| 23 | 43987 | Oil Gauge, Bubble Style | 1 | 63 | 28918 | Male Adapter | 3 |
| | 44428 | Flat Flex Gasket, Oil Gauge | 1 | 64 | 26573 | V-Packing | 6 |
| 24 | 27418 | O-ring, Rear Cover | 1 | 65 | 28917 | Female Adapter | 3 |
| 25 | 43847 | Rear Cover, Crankcase | 1 | 66 | 28922 | Piston (Sleeve-type) | 3 |
| 26 | 30315 | Seal | 3 | 67 | 30903 | Hex Cap Screw (3/8 x 5 1/2) | 2 |
| 27 | 27341 | Seal Retainer | 3 | 68** | 43264 | Cylinder | 3 |
| 28 | 27339 | Oil Seal | 3 | 69** | 27536 | O-ring | 3 |
| 29 | 26952 | Seal Washer | 3 | 70 | 28921 | Inlet Valve | 3 |
| 30* | 29640 | Piston Rod | 3 | 72 | 28915 | Inlet Manifold | 1 |
| 31 | 20251 | Piston Pin | 3 | — | 30284 | Hub & Key | 1 |
| 32 | 85234 | Stud (M10 x 45) | 4 | — | 30267 | Pulley Assembly | 1 |
| 33 | 30635 | Angle Rail | 2 | 76 | 50146 | Key | 1 |
| 34 | 21549 | O-ring, Piston Sleeve | 6 | 77 | 28920 | Spacer | 3 |
| 35 | 20160 | Back-up Ring, Sleeve | 3 | 78** | 43263 | Back-up Ring | 3 |
| 36 | 25299 | Sleeve | 3 | 79 | 14200 | O-ring | 3 |
| 38 | 25327 | Barrier Slinger | 3 | | | | |
| 39 | 43059 | Back-up Ring | 3 | | | | |
| 40 | 22187 | Plug, 3/8" | 1 | | | | |
| 41 | 81060 | Hex Nut (M12) Reg Thread | 4 | | | | |

* Effective with S/N 6770201

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