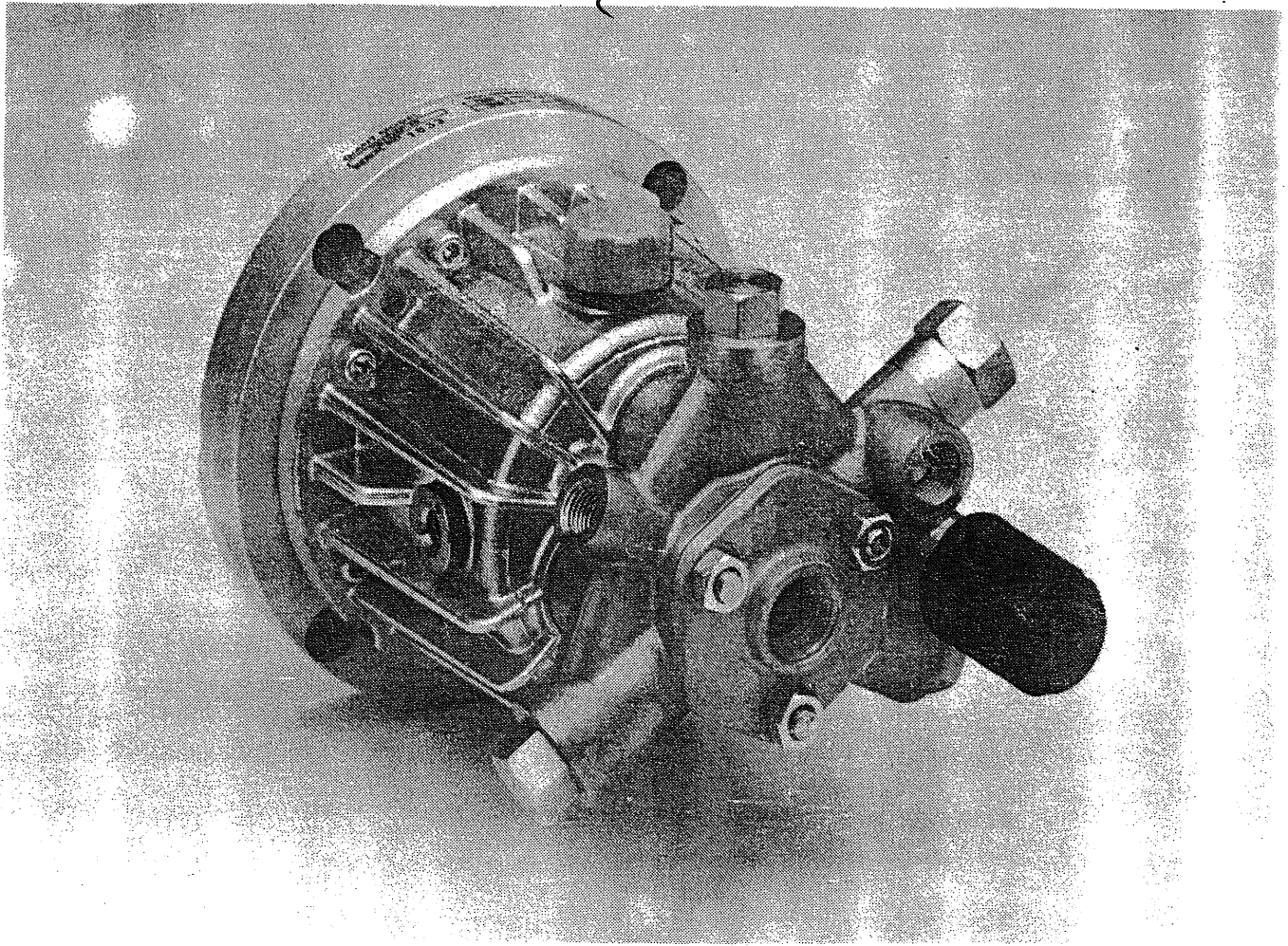


# Series R51000-3B

Direct Drive  
Triplex Plunger Pump  
Operating Instructions/  
Repair, and Service  
Manual



**GIANT**

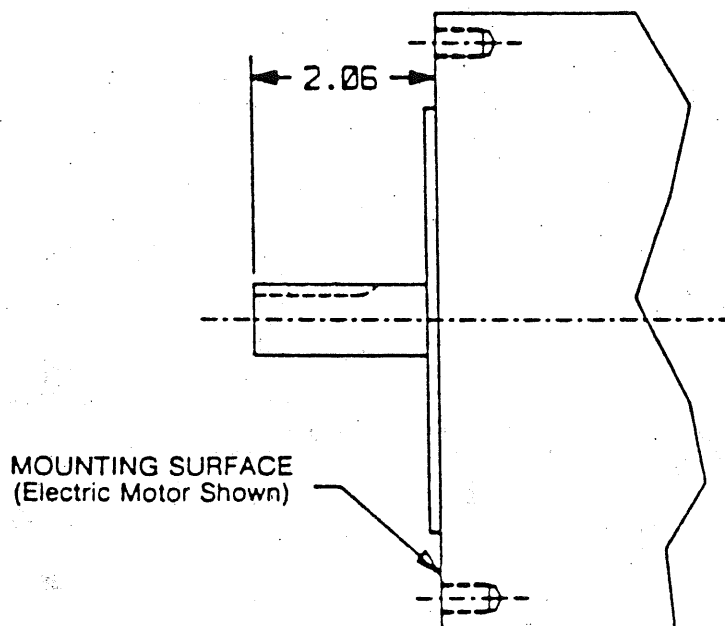
Contents:  
Installation Instructions  
Parts List  
Trouble Shooting  
Repair Instructions  
Dimensions and Weight  
Warranty Information

# WARNING

THE R51000 SERIES PUMP  
IS CONSTRUCTED TO BE MOUNTED TO:

- a) A GAS ENGINE HAVING A MAXIMUM SHAFT LENGTH\* OF 2.43"  
(MINIMUM SHAFT LENGTH OF 2.0").
  - b) AN ELECTRIC MOTOR HAVING A MAXIMUM SHAFT LENGTH OF 2.06"  
(MINIMUM SHAFT LENGTH OF 1.62").
- USING A MOTOR OR ENGINE HAVING A SHAFT LONGER (OR SHORTER)  
THAN STATED ABOVE WILL RESULT IN

**SEVERE CRANKCASE DAMAGE**



\*Gas Engine Shaft length of 2.43" is based on using Giant Products Co. Small Engine Mounting Kit #09103 to adapt the R51000 Series Pump to a gas engine. Allowable shaft length may vary if using an adapting kit other than Giant Products #09103.

**NOTE:** The shaft key used on your motor/engine must be kept as long as possible but must not extend past the end of the shaft. We recommend using a key which utilizes at least 90% of the available keyway on the motor/engine shaft.  
Example: If available keyway on engine shaft is 1.5" use a key which is at least 1.35" long.

# **MODEL R51026P-3B & R51026C-3B SPECIFICATIONS** **3 PLUNGER AXIAL PUMP W/** **ELECTRIC MOTOR OR GAS ENGINE MOUNTING†**

|  |                                    |
|--|------------------------------------|
| Volume .....                           | See rating chart below             |
| Max. Discharge Pressure .....          | See rating chart below             |
| Max. Inlet Pressure (R51026P-3B) ..... | 40 PSIG **                         |
| (R51026C-3B) .....                     | 90 PSIG **                         |
| RPM .....                              | See rating chart below             |
| Plunger Diameter .....                 | 18mm                               |
| Stroke .....                           | 5.0mm (6.3° angle)                 |
| Crankcase Capacity .....               | 4.5 fl. oz.                        |
| Temperature of Pumped Fluids .....     | 160° Max. *                        |
| Inlet Port .....                       | 1/2" NPT                           |
| Discharge Port .....                   | (2) 3/8" NPT                       |
| Shaft Rotation .....                   | Either Direction ***               |
| Weight .....                           | 11.7 lbs. (12.7 lbs. w/#09103 Kit) |
| Length .....                           | 9" (9-3/8" w/Kit #09103)           |
| Width .....                            | 6-9/16"                            |
| Height .....                           | 6-9/16"                            |
| Swash Plate Bore .....                 | 3/4" x 3/16" Keyway ****           |
| Valve Type (R51026P-3B) .....          | Polyamide Plastic                  |
| (R51026C-3B) .....                     | Stainless Steel                    |

\* See important operating conditions on page 2.

\*\* 25 PSIG minimum inlet pressure is required.

\*\*\*The pump itself can be driven in either direction of rotation, however, the cooling fan on TEFC motors must always be positioned so that cooling air is drawn from the non-drive end of the motor towards the pump.

\*\*\*\*For applications requiring swash plate bore sizes other than 3/4", consult factory.

## † Special Notes for Gasoline Engine Mounting:

A gasoline engine adapting kit, part #09103, is available from Giant Products Co. and is required when mounting pump to gasoline engines. The adapting plate is constructed to fit engines having a 1-5/8" pilot diameter, 3-5/8" bolt circle, and a 3/4" shaft diameter. The maximum allowable distance from the engine mounting surface to the end of the shaft (and shaft key) is 2-7/16" using Giant Products Kit #09103. SEVERE DAMAGE TO THE CRANKCASE WILL OCCUR IF THE SHAFT OR SHAFT KEY EXTENDS TOO FAR INTO THE CRANKCASE.

## Special Notes for Electric Motor Mounting:

1. The pump is constructed to fit a NEMA 56, C face, motor frame having a special 3/4" shaft diameter with a 3/16" wide key. Maximum shaft length from motor mounting surface is 2-1/16". SEVERE DAMAGE TO THE CRANKCASE WILL OCCUR IF THE SHAFT OR SHAFT KEY EXTENDS TOO FAR INTO THE CRANKCASE.

| R51026P-3B & R51026C-3B HORSEPOWER REQUIREMENTS |     |            |            |            |             |             |             |
|---|-----|------------|------------|------------|-------------|-------------|-------------|
| RPM   | GPM | 500<br>PSI | 700<br>PSI | 900<br>PSI | 1100<br>PSI | 1300<br>PSI | 1500<br>PSI |
| 3000  | 2.7 | 0.9        | 1.3        | 1.7        | 2.0         | 2.4         | 2.8         |
| 3200  | 2.9 | 1.0        | 1.4        | 1.8        | 2.2         | 2.6         | 3.0         |
| 3450  | 3.1 | 1.1        | 1.5        | 1.9        | 2.3         | 2.8         | 3.2         |

Note: Above brake horsepower ratings shown are the pump requirements. For applications using gas engines, the power output of the engine will be greater than the brake horsepower listed. Consult with engine manufacturer for recommendation.

We recommend a 1.1 service factor be specified when selecting an electric motor as the power source.

To compute specific pump horsepower requirements use the following formula:

$$\frac{\text{GPM} \times \text{PSI}}{1460} = \text{hp}$$

## MODEL R51036C-3B SPECIFICATIONS

### 3 PLUNGER AXIAL PUMP w/ELECTRIC MOTOR FLANGE

|                                    |                         |
|------------------------------------|-------------------------|
| Volume .....                       | 2.3 GPM                 |
| Max. Discharge Pressure .....      | 1500 PSI                |
| Max. Inlet Pressure .....          | 90 PSIG* *              |
| RPM .....                          | 1725                    |
| Plunger Diameter .....             | 18mm                    |
| Stroke .....                       | 7.1mm (9.0° angle)      |
| Crankcase Capacity .....           | 4.5 fl. oz.             |
| Temperature of Pumped Fluids ..... | 160° Max.*              |
| Inlet Port .....                   | 1/2" NPT                |
| Discharge Port .....               | (2) 3/8"NPT             |
| Shaft Rotation .....               | Either Direction***     |
| Weight .....                       | 11.7 lbs.               |
| Length .....                       | 9"                      |
| Width .....                        | 6-9/16"                 |
| Height .....                       | 6-9/16"                 |
| Swash Plate Bore .....             | 3/4 "x 3/16" Keyway**** |
| Valve Type .....                   | Stainless Steel         |

\*See important operating conditions on page 2.

\*\*For vacuum inlet pressures, consult factory.

\*\*\*The pump itself can be driven in either direction of rotation, however, the cooling fan on TEFC motors must always be positioned so that cooling air is drawn from the non-drive end of the motor towards the pump.

\*\*\*\*For applications requiring swash plate bore sizes other than 3/4", consult factory.

#### Special Notes:

1. The R51036C-3B pump is constructed to fit a modified NFMA 56, C face, motor frame having a special 3/4" shaft diameter with a 3/16" wide key. Maximum shaft length from motor mounting surface is 2-1/16". SEVERE DAMAGE TO THE CRANKCASE WILL OCCUR IF THE SHAFT OR SHAFT KEY EXTENDS TOO FAR INTO THE CRANKCASE.

2. Positive inlet pressures are recommended.

| R51036C-3B HORSEPOWER REQUIREMENTS |     |            |            |            |             |             |             |
|------------------------------------|-----|------------|------------|------------|-------------|-------------|-------------|
| RPM                                | GPM | 500<br>PSI | 700<br>PSI | 900<br>PSI | 1000<br>PSI | 1200<br>PSI | 1500<br>PSI |
| 1725                               | 2.3 | 0.8        | 1.1        | 1.4        | 1.6         | 1.9         | 2.4         |

Note: Above brake horsepower ratings shown are the pump requirements. For applications using gas engines, the power output of the engine will be greater than the brake horsepower listed. Consult with engine manufacturer for recommendation.

We recommend a 1.1 service factor be specified when selecting an electric motor as the power source. To compute specific pump horsepower requirements use the following formula:

$$\frac{\text{GPM} \times \text{PSI}}{1460} = \text{hp}$$

# **MODEL R51076C-3B SPECIFICATIONS** **3 PLUNGER AXIAL PUMP W/** **ELECTRIC MOTOR OR GAS ENGINE MOUNTING†**

|                                    |                                    |
|------------------------------------|------------------------------------|
| Volume .....                       | See rating chart below             |
| Max. Discharge Pressure .....      | See rating chart below             |
| Max. Inlet Pressure .....          | 90 PSIG **                         |
| RPM .....                          | See rating chart below             |
| Plunger Diameter .....             | 18mm                               |
| Stroke .....                       | 6.2mm (7.8° angle)                 |
| Crankcase Capacity .....           | 4.5 fl. oz.                        |
| Temperature of Pumped Fluids ..... | 160° Max. *                        |
| Inlet Port .....                   | 1/2" NPT                           |
| Discharge Port .....               | (2) 3/8" NPT                       |
| Shaft Rotation .....               | Either Direction ***               |
| Weight .....                       | 11.7 lbs. (12.7 lbs. w/#09103 Kit) |
| Length .....                       | 9" (9-3/8" w/Kit #09103)           |
| Width .....                        | 6-9/16"                            |
| Height .....                       | 6-9/16"                            |
| Swash Plate Bore .....             | 3/4" x 3/16" Keyway ****           |
| Valve Type .....                   | Stainless Steel                    |

\*See important operating conditions on page 2.

\*\*25 PSIG minimum inlet pressure is required.

\*\*\*The pump itself can be driven in either direction of rotation, however, the cooling fan on TEFC motors must always be positioned so that cooling air is drawn from the non-drive end of the motor towards the pump.

\*\*\*\*For applications requiring swash plate bore sizes other than 3/4", consult factory.

† Special Notes for Gasoline Engine Mounting:

A gasoline engine adapting kit, part #09103, is available from Giant Products Co. and is required when mounting pump to gasoline engines. The adapting plate is constructed to fit engines having a 1-5/8" pilot diameter, 3-5/8" bolt circle, and a 3/4" shaft diameter. The maximum allowable distance from the engine mounting surface to the end of the shaft (and shaft key) is 2-7/16" using Giant Products Kit #09103. **SEVERE DAMAGE TO THE CRANKCASE WILL OCCUR IF THE SHAFT OR SHAFT KEY EXTENDS TOO FAR INTO THE CRANKCASE.**

Special Notes for Electric Motor Mounting:

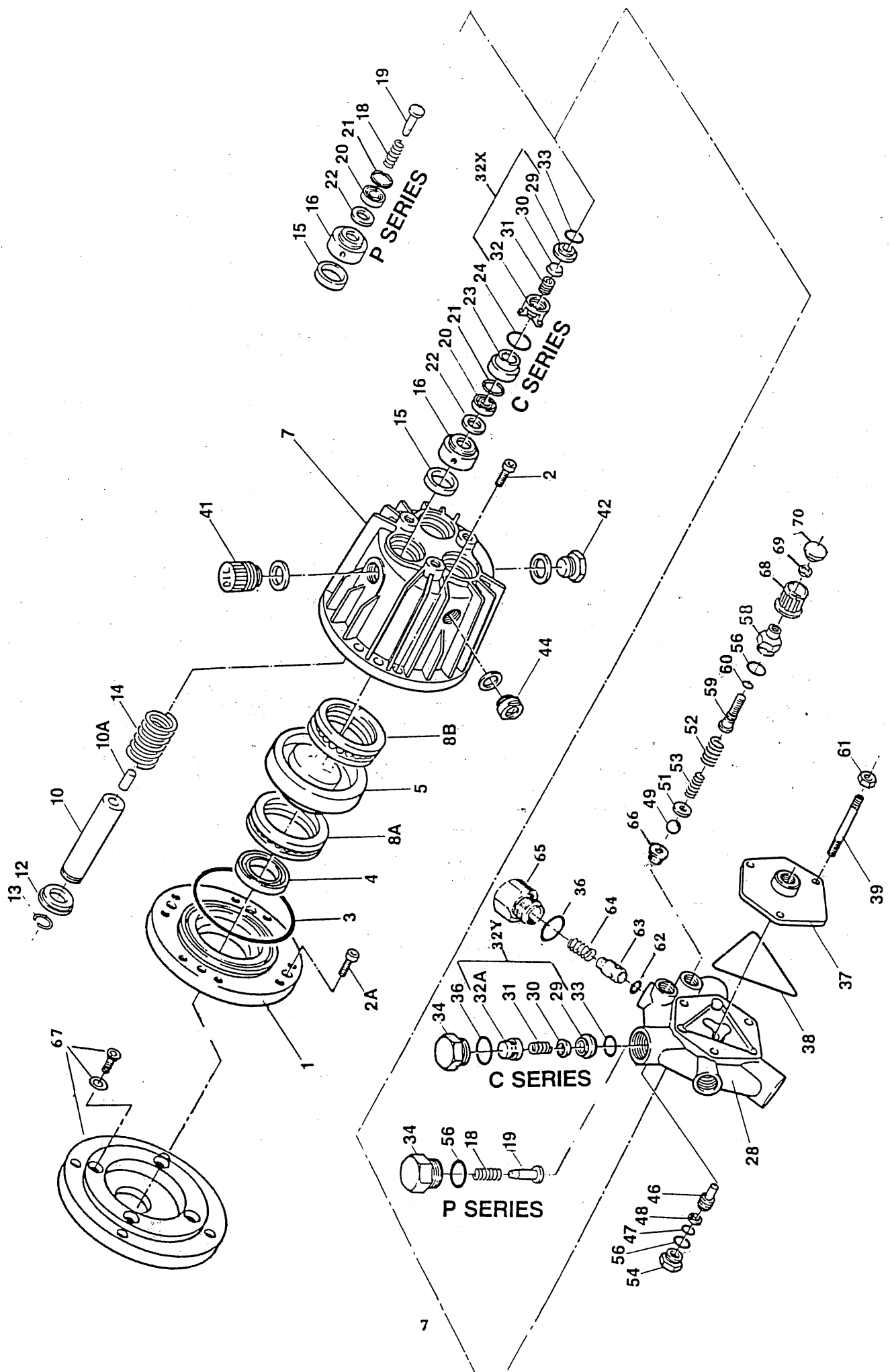
1. The pump is constructed to fit a NEMA 56, C face, motor frame having a special 3/4" shaft diameter with a 3/16" wide key. Maximum shaft length from motor mounting surface is 2-1/16". **SEVERE DAMAGE TO THE CRANKCASE WILL OCCUR IF THE SHAFT OR SHAFT KEY EXTENDS TOO FAR INTO THE CRANKCASE.**

| R51076C-3B HORSEPOWER REQUIREMENTS |     |            |            |            |             |             |             |
|------------------------------------|-----|------------|------------|------------|-------------|-------------|-------------|
| RPM                                | GPM | 500<br>PSI | 700<br>PSI | 900<br>PSI | 1100<br>PSI | 1300<br>PSI | 1500<br>PSI |
| 1725                               | 1.9 | 0.7        | 0.9        | 1.2        | 1.4         | 1.7         | 2.0         |
| 3100                               | 3.5 | 1.2        | 1.7        | 2.2        | 2.6         | 3.1         | 3.6         |

Note: Above brake horsepower ratings shown are the pump requirements. For applications using gas engines, the power output of the engine will be greater than the brake horsepower listed. Consult with engine manufacturer for recommendation.  
 We recommend a 1.1 service factor be specified when selecting an electric motor as the power source.

To compute specific pump horsepower requirements use the following formula:

$$\frac{\text{GPM} \times \text{PSI}}{1460} = \text{hp}$$



# PARTS LIST R51000 SERIES

| ITEM # | PART #     | DESCRIPTION  | QTY. | ITEM # | PART # | DESCRIPTION   | QTY. |
|--------|------------|--|------|--------|--------|---|------|
| 1      | 07874      | Adapting Plate, Sold Only w/Part #08120*                         | 1    | 32     | 07492  | Inlet Valve Spring Retainer (C-Series Pumps)        | 3    |
| 2      | 07881      | Socket Head Cap Screw 1/4"                                       | 8    | 32A    | 07907  | Discharge Valve Spring Retainer (C-Series Pumps)    | 3    |
| 2A     | 07435      | Socket Head Cap Screw 3/8"                                       | 4    | 32X    | 07841  | Inlet Valve Assembly, Complete (C-Series Pumps)     | 3    |
| 3      | 07344      | O-Ring   | 1    | 32Y    | 07946  | Discharge Valve Assembly, Complete (C-Series Pumps) | 3    |
| 4      | 07805      | Radial Shaft Seal  | 1    | 33     | 07853  | O-Ring (C-Series Pumps)                             | 6    |
| 5      | 07891      | Swash Plate, Sold Only w/Part #08123** (R51026P-JB & R51026C-JB) | 1    | 34     | 07379  | Valve Plug (P-Series Pumps)                         | 3    |
| 5      | 07951      | Swash Plate, Sold Only w/Part #08123** (R51036C-JB)              | 1    | 34     | 07928  | Valve Plug (C-Series Pumps)                         | 3    |
| 5      | 07947      | Swash Plate, Sold Only w/Part #08123** (R51016P-JB & R51016C-JB) | 1    | 36     | 07913  | O-Ring (C-Series Pumps)                             | 4    |
| 5      | 07949      | Swash Plate, Sold Only w/Part #08123** (R51076C-JB)              | 1    | 36     | 07913  | O-Ring (P-Series Pumps)                             | 1    |
| 5      | 07889      | Swash Plate, Sold Only w/Part #08123** (R51046C-JB)              | 1    | 37     | 07909  | Suction Flange                                      | 1    |
| 5      | 07894      | Swash Plate, Sold Only w/Part #08123** (R51056C-JB)              | 1    | 38     | 07910  | O-Ring  | 1    |
| 7      | 08251      | Crankcase  | 1    | 39     | 07911  | Threaded Stud (P-Series Pump)                       | 1    |
| 8A     | 07927      | Rear Bearing, Complete   | 1    | 39     | 07921  | Threaded Stud (C-Series Pump)                       | 3    |
| 8B     | 07930      | Front Bearing, Complete  | 1    | 41     | 07912  | Oil Fill Plug w/Gasket                              | 3    |
| 10     | 08257      | Plunger (R51026P-JB)   | 1    | 42     | 07428  | Oil Drain Plug w/Gasket                             | 1    |
| 10     | 08258      | Plunger (R51026C-JB)   | 3    | 44     | 08250  | Oil Sight Glass w/Gasket, 1/2" Thread ***           | 1    |
| 10     | 08258      | Plunger (R51036C-JB)   | 3    | 46     | 07914  | Piston (Sold only w/Item #54)                       | 1    |
| 10     | 08258      | Plunger (R51046C-JB)   | 3    | 47     | 07915  | O-Ring  | 1    |
| 10     | 07925      | Plunger (R51016P-JB)   | 3    | 48     | 07916  | Back-up Ring  | 1    |
| 10     | 07925      | Plunger (R51016C-JB)   | 3    | 49     | 07416  | Ball, By-pass Valve                                 | 1    |
| 10     | 08258      | Plunger (R51076C-JB)   | 3    | 51     | 07917  | Washer  | 1    |
| 10     | 07924      | Plunger (R51056C-JB)   | 3    | 52     | 08194  | Adjusting Spring                                    | 1    |
| 10A    | 07486      | Insert, Plunger (P-Series Pumps)                                 | 3    | 53     | 07919  | Pressure Spring                                     | 1    |
| 12     | 07821      | Spring Disc  | 3    | 54     | 07920  | Guide Plug (Sold only w/Item #46)                   | 1    |
| 13     | 07822      | Retaining Ring   | 3    | 56     | 12007  | O-Ring (P-Series Pumps)                             | 5    |
| 14     | 07873      | Plunger Spring   | 3    | 58     | 07936  | O-Ring (C-Series Pumps)                             | 2    |
| 15     | 08356-0010 | Viton Oil Seal   | 3    | 59     | 07938  | Plug, Adjusting Screw                               | 1    |
| 16     | 07899      | Spacer Ring  | 3    | 60     | 07937  | Adjusting Screw                                     | 1    |
| 18     | 07374      | Valve Spring (P-Series Pumps)                                    | 3    | 61     | 07939  | O-Ring  | 1    |
| 19     | 07375      | Valve Cone (P-Series Pumps)                                      | 3    | 62     | 12326  | Nut   | 3    |
| 20     | 08252      | V-Sleeve, Must order w/ #10011                                   | 6    | 63     | 12325  | O-Ring  | 1    |
| 21     | 10011      | O-Ring   | 6    | 64     | 12328  | Kick-Back Valve Cone                                | 1    |
| 22     | 07904      | Pressure Ring  | 3    | 65     | 12340  | Kick-Back Valve Spring                              | 1    |
| 23     | 07900      | Stuffing Box (C-Series Pumps)                                    | 3    | 66     | 07935  | Kick-Back Valve Spring Retainer                     | 1    |
| 24     | 07901      | O-Ring (C-Series Pumps)  | 3    | 67     | 09103  | By-pass Valve Seat                                  | 1    |
| 28     | 07905      | Manifold (P-Series Pumps)  | 3    | 68     | 07045  | Small Engine Mounting Kit (Sold Separately)         | 1    |
| 28     | 07908      | Manifold (C-Series Pumps)  | 3    | 69     | 07044  | Handwheel   | 1    |
| 29     | 07849      | Valve Seat (C-Series Pumps)                                      | 1    | 70     | 07046  | Locknut   | 1    |
| 30     | 07491      | Valve Plate (C-Series Pumps)                                     | 6    |        |        | Cover   | 1    |
| 31     | 07906      | Valve Spring (C-Series Pumps)                                    | 6    |        |        |   |      |

|    |         |                                |   |    |       |                                 |   |
|----|---------|--------------------------------|---|----|-------|---------------------------------|---|
| 14 | 01013   | Plunger Spring                 | 3 | 58 | 07936 | Plug, Adjusting Screw           | 1 |
| 15 | 56-0010 | Viton Oil Seal                 | 3 | 59 | 07938 | Adjusting Screw                 | 1 |
|    |         |                                |   | 60 | 07937 | O-Ring                          | 1 |
| 16 | 07899   | Spacer Ring                    | 3 | 61 | 07939 | Nut                             | 3 |
| 18 | 07374   | Valve Spring (P-Series Pumps)  | 3 | 62 | 12326 | O-Ring                          | 1 |
| 19 | 07375   | Valve Cone (P-Series Pumps)    | 6 | 63 | 12325 | Kick-Back Valve Cone            | 1 |
| 20 | 08252   | V-Sleeve, Must order w/ #10011 | 6 | 64 | 12328 | Kick-Back Valve Spring          | 1 |
| 21 | 10011   | O-Ring                         | 3 | 65 | 12340 | Kick-Back Valve Spring Retainer | 1 |
| 22 | 07904   | Pressure Ring                  | 3 | 66 | 07935 | By-pass Valve Seat              | 1 |
| 23 | 07900   | Stuffing Box (C-Series Pumps)  | 3 | 67 | 09103 | Small Engine Mounting Kit       | 1 |
| 24 | 07901   | O-Ring (C-Series Pumps)        | 3 |    |       | (Sold Separately)               |   |
| 28 | 07905   | Manifold (P-Series Pumps)      | 3 | 68 | 07045 | Handwheel                       | 1 |
| 28 | 07908   | Manifold (C-Series Pumps)      | 1 | 69 | 07044 | Locknut                         | 1 |
| 29 | 07849   | Valve Seat (C-Series Pumps)    | 1 | 70 | 07046 | Cover                           | 1 |
| 30 | 07491   | Valve Plate (C-Series Pumps)   | 6 |    |       |                                 |   |
| 31 | 07906   | Valve Spring (C-Series Pumps)  | 6 |    |       |                                 |   |

\* Part #08120 consists of two pieces (front race & cage) of a three piece bearing assy. The third piece of this assembly (rear race) is pressed into the flange.

\*\* Part #08123 consists of two pieces (front race & cage) of a three piece bearing assembly. The third piece of this assembly (rear race) is pressed into the swash plate.

\*\*\* Pumps manufactured prior to 5/91 require sight glass p/n 07846.

RS1000 REPAIR KITS

|  |                               |                              |
|--|-------------------------------|------------------------------|
| Part #09121                                | Part #09125                   | Part #09128                  |
| Plunger Packing Kit                        | Valve Assembly Kit (P Series) | Unloader Repair Kit          |
| 3-08252 V-Sleeve                           | 6-07374 Valve Spring          | 3-12007 O-Ring, Adapter      |
| 3-10011 O-Ring                             | 6-07375 Valve Cone            | 1-12326 O-Ring               |
| 3-07904 Pressure Ring                      |                               | 1-07915 O-Ring, Piston       |
| Part #09122                                | Part # 09144                  | 1-07916 Back-Up Ring, Piston |
| Valve Assembly Kit (C Series)              | Oil Seal Kit                  | 1-07416 Ball, By-Pass Valve  |
| 3-07841 Inlet Valve Assembly, Complete     | 3-08356-0010 Oil Seal         | 1-07935 Seat, By-Pass Valve  |
| 3-07946 Discharge Valve Assembly, Complete |                               | 1-07937 O-Ring               |
| 6-07853 O-Ring, Valve Seat                 |                               | 1-07913 O-Ring               |



## PUMP SYSTEM MALFUNCTION

| <u>MALFUNCTION</u>                                 | <u>CAUSE</u>  | <u>REMEDY</u>   |
|--|---|---|
| The Pressure and/<br>or the Delivery<br>Drops      | Worn packing seals<br>Broken valve spring<br>Belt slippage<br>Worn or Damaged nozzle<br>Fouled discharge valve<br>Fouled inlet strainer<br>Worn or Damaged hose<br>Worn or Plugged relief valve on pump<br>Cavitation<br><br>Unloader | Replace packing seals<br>Replace spring<br>Tighten or Replace belt<br>Replace nozzle<br>Clean valve assembly<br>Clean strainer<br>Repair/Replace hose<br>Clean, Reset, and Replace worn parts<br>Check suction lines on inlet of<br>pump for restrictions<br>Check for proper operation |
| Water in crankcase                                 | High humidity<br>Worn seals   | Reduce oil change interval<br>Replace seals   |
| Noisy Operation                                    | Worn bearings<br><br>Cavitation   | Replace bearings, Refill crankcase<br>oil with recommended lubricant<br>Check inlet lines for restrictions<br>and/or proper sizing  |
| Rough/Pulsating<br>Operation with<br>Pressure Drop | Worn packing<br>Inlet restriction<br><br>Accumulator pressure<br>Unloader<br>Cavitation   | Replace packing<br>Check system for stoppage, air<br>leaks, correctly sized inlet<br>plumbing to pump<br>Recharge/Replace accumulator<br>Check for proper operation<br>Check inlet lines for restrictions<br>and/or proper size   |
| Pressure Drop at<br>Gun                            | Restricted discharge plumbing   | Re-size discharge plumbing to<br>flow rate of pump  |
| Excessive Leakage                                  | Worn plungers<br>Worn packing/seals<br>Excessive vacuum<br>Cracked plungers<br>Inlet pressure too high  | Replace plungers<br>Adjust or Replace packing seals<br>Reduce suction vacuum<br>Replace plungers<br>Reduce inlet pressure   |
| High Crankcase<br>Temperature                      | Wrong Grade of oil<br>Improper amount of oil in crankcase   | Giant oil is recommended<br>Adjust oil level to proper amount   |

# REPAIR INSTRUCTIONS R51000 SERIES

**NOTE:** If replacing the high pressure water seals (20), take time to first soak the seals in warm water for thirty minutes. This is necessary to ensure proper sealing upon start-up of the pump.

15. To reassemble, replace the plunger assemblies (10, 10A and 11) and plunger springs (14) into the crankcase (7), making sure the plunger springs are properly seated against the spring disc retainers (11).

**NOTE:** When mounting the swash plate (5) onto the adapting plate (1), be certain to lubricate both the shaft seal (4) and the ring which is pressed onto the swash plate. Take care not to damage the lips of the shaft seal when mounting.

16. Next, place the adapting plate (1) flat on a table. Place the o-ring (3) around the pilot on the adapting plate. Position the rear bearing (8A), swash plate (5) with race, and front bearings (8B) on top of the adapting plate. Make certain that the plunger assemblies (10, 10A, and 11) and the plunger springs (14) are pushed into the crankcase (7) as far as possible. Then wrap a rubber band tightly around the plungers (on the manifold (28) side) to secure them in place, as the next step is to turn the crankcase upside down and position it on the adapting plate and bearings. Press down firmly on the crankcase to secure the crankcase on the adapting plate, making certain that the swash plate (5) is properly positioned against the adapting plate. Replace the socket head screws (2) and tighten securely in a sequential pattern to 100 in.-lbs. Remove the rubber band used to hold the plungers in place.
17. Replace the oil seals (15), making sure the lips of the seal face the crankcase (7). Place the flingers (74) over the plungers (10).
18. Replace the spacer rings (16) over the plungers (10) and seat into the crankcase (7). Make certain that the weep holes are facing towards the oil drain plug (42).
- 19A. For "P" Series, insert the valve spring (18) and valve cone (19) into the plungers (10).
- 19B. For "C" Series, place the v-sleeve (20) with the grooved sides pointing down into the stuffing box (23). Place the pressure rings (22) on the plungers against the spacers (16). Place the o-ring (24) on stuffing box. Grease the end of the plungers (10). Press the stuffing box with the seals onto the plungers and seat firmly against the spacer ring (16). Next replace the o-ring (33). Reassemble the suction valve assembly (32X) with the tapered surface of the valve seat (29) facing up and the tapered surface of the valve plate (30) facing down. Position the spring (31) and snap the valve seat into the valve spring retainer (32). Position the assembly into the suction valve housing making certain that the leg of the valve spring retainer is not blocking the liquid passages in the manifold (28).
20. Assemble the adjusting screw (59) with o-ring (60) into the adjusting screw plug (58). Assemble the o-ring (56) onto the adjusting screw plug.
21. Replace the bypass valve seat (66) using a 7/32" Allen wrench. (A sealing compound such as Loctite 572 should be applied to the threads to ensure a proper seal.) Drop the ball (49) onto the seat. Replace the washer (51) with the concave side toward the ball. Next, replace both springs (53 and 52). Replace the adjusting screw assembly (from the above) and tighten down with a 19mm wrench.
22. Insert the piston (46) with o-ring (47) and backup rings (48) into the manifold (28). Screw in the guide plug (54) with o-ring (56) and tighten.
23. Replace the kickback valve cone (63) with o-ring (62) and kickback valve spring (64) in place. Assemble the o-ring (36) onto the kickback valve spring retainer (65). Screw the kickback valve spring retainer into the manifold (28) and tighten.
- 24A. For "P" Series, place the valve cones (19) and valve springs (18) into the discharge bores. Replace the valve plugs (34) with o-rings (56) and tighten.
- 24B. For "C" Series, replace the o-ring (33) into the discharge valve bore. Next, assemble the discharge valve assembly (32Y) as described above in step 19B. Position the assembly into the discharge valve housing. Replace the valve plug (34) with o-ring (36) and tighten.
25. Grease the end of the plungers (10). Replace the manifold (28) over the plungers (10) and seat firmly against the spacer rings (16). If necessary, gently tap manifold with a rubber mallet.
27. Grease the suction flange o-ring (38) and place it into the groove on the suction flange (37). Replace the stud bolts (39) and washers (72) and tighten bolts to 220 in.-lbs.
29. Fill the crankcase with 4.5 fluid ounces of oil. The pump is now ready for operation.

## R51000 SERIES TORQUE SPECIFICATIONS

| <u>Position</u> | <u>Item#</u> | <u>Description</u>    | <u>Torque Amount (ft.-lbs)</u> |
|-----------------|--------------|-----------------------|--------------------------------|
| 2               | 07881A       | Socket Head Cap Screw | 100 in.-lbs.                   |
| 39              | 06200        | Stud Bolt             | 220 in.-lbs.                   |

## To Disassemble Gear End

1. Loosen Inner Hexagon Screws (49) for the Valve Casing (43) with an allen wrench. Carefully remove Valve Casing from the Crankcase (1).
2. Loosen Inner Hexagon Screws (10) for the Crankcase Cover (4) with an allen wrench and remove Crankcase Cover.
3. Loosen Hexagon Screws (17) for the Bearing Covers (14) with a wrench and remove Bearing Cover.
4. Drain oil from the Crankcase (1) by removing Drain Plug (12) with a 3/4" wrench.
5. Loosen Connecting Rod Screws (24) with an allen wrench. Push the stems of the connecting rods as far as possible into the crosshead guides. Carefully push out the Radial Shaft Seals (31).

### **Important!!**

**Connecting Rods (24) are marked for identification. Do not twist Connecting Rod halves. Connecting Rods must be reinstalled in the same position on the Crankshaft (22) journals.**

6. While slightly turning the Crankshaft (22), hit it out carefully to one side with a rubber hammer.

### **Important!!**

**Do not bend Connecting Rod (24) shank.**

7. Check the surfaces of the Crankshaft (22), Connecting Rods (24), Crosshead Assemblies (25) as well as the Radial Shaft Seals (15 and 31) and Taper Roller Bearings (20).

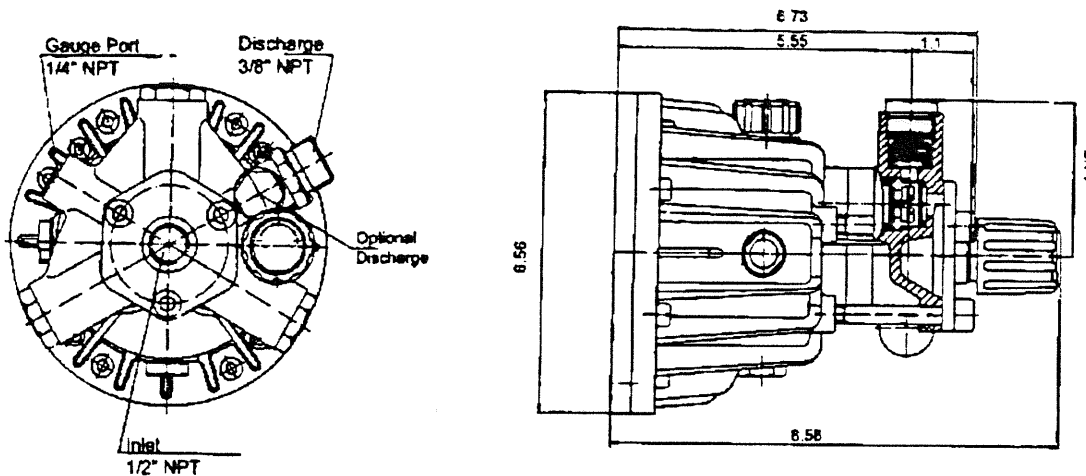
## To Reassemble Gear End

1. Using a soft tool, such as brass or wooden dowel, press in the outer bearing ring until it lines up with the outer edge of the bearing hole. Assemble the Bearing Cover (14) together with the Shaft Seal (15) and O-Ring (16).
2. Fit the Crankshaft (22) with pressed-on bearing parts through the bearing hole on the opposite side. Press in outer bearing ring and push it inwards with the Bearing Cover (14) while keeping the Crankshaft in the vertical position and turning it slowly so that the taper rollers of the bearings touch the edge of the outer bearing ring.
3. Adjust axial bearing clearance with Fitting Discs (20A) which are 0.1mm each. The Crankshaft (22) should turn easily with very little clearance. Tighten Inner Hexagon Screws on the Connecting Rods (24) to 26 ft.-lbs..

### **Important!!**

**There should be enough clearance for the Connecting Rods (24) to move sideways a little on the journals.**

## R51000 Dimensions (inches)



### GIANT INDUSTRIES LIMITED WARRANTY

Giant Industries, Inc. pumps and accessories are warranted by the manufacturer to be free from defects in workmanship and material as follows:

1. For portable pressure washers and car wash applications, the discharge manifolds will never fail, period. If they ever fail, we will replace them free of charge. Our other pump parts, used in portable pressure washers and in car wash applications, are warranted for five years from the date of shipment for all pumps used in NON-SALINE, clean water applications.
2. One (1) year from the date of shipment for all other Giant industrial and consumer pumps.
3. Six (6) months from the date of shipment for all rebuilt pumps.
4. Ninety (90) days from the date of shipment for all Giant accessories.

This warranty is limited to repair or replacement of pumps and accessories of which the manufacturer's evaluation shows were defective at the time of shipment by the manufacturer. The following items are NOT covered or will void the warranty:

1. Defects caused by negligence or fault of the buyer or third party.
2. Normal wear and tear to standard wear parts.
3. Use of repair parts other than those manufactured or authorized by Giant.
4. Improper use of the product as a component part.
5. Changes or modifications made by the customer or third party.
6. The operation of pumps and or accessories exceeding the specifications set forth in the Operations Manuals provided by Giant Industries, Inc.

Liability under this warranty is on all non-wear parts and limited to the replacement or repair of those products returned freight prepaid to Giant Industries which are deemed to be defective due to workmanship or failure of material. A Returned Goods Authorization (R.G.A.) number and completed warranty evaluation form is required prior to the return to Giant Industries of all products under warranty consideration. Call (419)-531-4600 or fax (419)-531-6836 to obtain an R.G.A. number.

Repair or replacement of defective products as provided is the sole and exclusive remedy provided hereunder and the MANUFACTURER SHALL NOT BE LIABLE FOR FURTHER LOSS, DAMAGES, OR EXPENSES, INCLUDING INCIDENTAL AND CONSEQUENTIAL DAMAGES DIRECTLY OR INDIRECTLY ARISING FROM THE SALE OR USE OF THIS PRODUCT.

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