

Model GP7128

Triplex Ceramic
Plunger Pump
Operating Instructions/
Repair and Service Manual



GIANT

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Updated 6/09

INSTALLATION INSTRUCTIONS

Installation of the Giant Industries, Inc., pump is not a complicated procedure, but there are some basic steps common to all pumps. The following information is to be considered as a general outline for installation. If you have unique requirements, please contact Giant Industries, Inc. or your local distributor for assistance.

1. The pump should be installed flat on a base to a maximum of a 15 degree angle of inclination to ensure optimum lubrication.

When operating in high humidity areas, or areas of wide temperature fluctuations, the oil must be changed immediately if condensate or frothy oil occurs in crankcase.

2. The inlet to the pump should be sized for the flow rate of the pump with no unnecessary restrictions that can cause cavitation. Teflon tape should be used to seal all joints. If pumps are to be operated at temperatures in excess of 140° F, it is important to insure a positive head to the pump to prevent cavitation.

3. The discharge plumbing from the pump should be properly sized to the flow rate to prevent line pressure loss to the work area. It is essential to provide a safety bypass valve between the pump and the work area to protect the pump from pressure spikes in the event of a blockage or the use of a shut-off gun.

Pump operation without a safety valve is not recommended. The safety valve must be regulated in accordance with the guidelines for liquid spraying units so that the admissible operating pressure cannot exceed 10%.

4. Use of a dampener is necessary to minimize pulsation at drive elements, plumbing, connections, and other system areas. The use of a dampener with Giant Industries, Inc. pumps is optional, although recommended by Giant Industries, Inc. to further reduce system pulsation. Dampeners can also reduce the

severity of pressure spikes that occur in systems using a shut-off gun. A dampener must be positioned downstream from the unloader.

5. Crankshaft rotation on Giant Industries, Inc. pumps should be made in the direction designated by the arrows on the pump crankcase. Reverse rotation may be safely achieved by following a few guidelines available upon request from Giant Industries, Inc. Required horsepower for system operation can be obtained from the chart on page 3.

6. During operation, all rotating parts, shaft(s) and coupling, must be covered with a protective guard. Plunger area must have cover plate (30) secured in place. Do not step on or place weight on the plate (30).

7. Before beginning operation of your pumping system, remember: Check that the crankcase and seal areas have been properly lubricated per recommended schedules. Do not run the pump dry for extended periods of time. Cavitation will result in severe damage. Always remember to check that all plumbing valves are open and that pumped media can flow freely to the inlet of the pump.

The service life of the seals is maximized if a minimal amount of leakage occurs (a few drops per minute from each plunger). Leakage must be checked every day. If leakage becomes a constant dripping, the plunger seals must be changed.

Finally, remember that high pressure operation in a pump system has many advantages. But, if it is used carelessly and without regard to its potential hazard, it can cause serious injury.

IMPORTANT OPERATING CONDITIONS **Failure to comply with any of these** **conditions invalidates the warranty**

1. Prior to initial operation, add oil to crankcase so that the oil level is between the two lines on the oil dipstick. **DO NOT OVERFILL.**

Use Giant # 01154 or equivalent
SAE 80 Industrial Gear oil.
(1.6 Gal / 6.0 liters)

2. Crankcase oil should be changed after the first 50 hours of operation, then at regular intervals of 200 hours or less depending on operating conditions. When operating in high humidity, or areas of wide temperature

fluctuations, the oil must be changed immediately if condensate or frothy oil occurs in crankcase.

3. Pump operation must not exceed rated pressure, volume, or RPM. A pressure relief device must be installed in the discharge of the system.

4. Acids, alkalines, or abrasive fluids cannot be pumped unless approval in writing is obtained before operation from Giant Industries, Inc.

5. Run the pump dry approximately 10 seconds to drain the water before exposure to freezing temperatures.

Specifications Model GP7128

| | | |
|---------------------------------------|-----------------------------|--------------------------------|
| Flow | 17.9 GPM | 67.7 L/M |
| Discharge Pressure | 5800 PSI ¹ | 400 Bar ¹ |
| Crankshaft Speed | | 750 RPM |
| Inlet Pressure (maximum) | -4.35 to 145 PSI | -0.3 to 10 Bar |
| Plunger Diameter | 1.1" | 28 mm |
| Plunger Stroke | 2.1" | 52 mm |
| Crankshaft Diameter | 1.9" | 48 mm |
| Key Width | 0.6" | 14 mm |
| Crankshaft Mounting | | Either side |
| Shaft Rotation | | Top of pulley towards manifold |
| Temperature of Pumped Fluids | 140 °F | 60 °C |
| Inlet Ports | | (2) 1-1/4" BSP |
| Discharge Ports | | (2) 3/4" BSP |
| Weight | 375 lbs. | 170 Kg |
| Crankcase Oil Capacity | 1.6 Gal. | 6.0 Liters |
| Fluid End Material | | Stainless Steel |
| Volumetric Efficiency @ 700 RPM | | 89% |
| Mechanical Efficiency @ 700 RPM | | 83% |

Consult the factory for special requirements that must be met if the pump is to operate beyond one or more of the limits specified above.

NOTES: ¹This specification for maximum pressure and maximum speed apply to intermittent duty. When the pump is used for continuous duty and/or with water warmer than 100°F, these values must be reduced by 10%.

| GP7128 HORSEPOWER REQUIREMENTS ELECTRIC MOTOR | | | | | |
|--|------------|-----------------|-----------------|-----------------|-----------------|
| RPM | GPM | 3000 PSI | 4000 PSI | 5000 PSI | 5800 PSI |
| 300 | 7.2 | 14.9 | 19.9 | 24.8 | 28.8 |
| 400 | 9.5 | 19.7 | 26.2 | 32.8 | 38.0 |
| 550 | 13.1 | 27.1 | 36.1 | 45.2 | 52.4 |
| 600 | 14.3 | 29.6 | 39.4 | 49.3 | 57.2 |
| 650 | 15.5 | 32.1 | 42.8 | 53.4 | 62.0 |
| 700 | 16.7 | 34.6 | 46.1 | 57.6 | 66.8 |
| 750 | 17.9 | 37.0 | 49.4 | 61.7 | 71.6 |

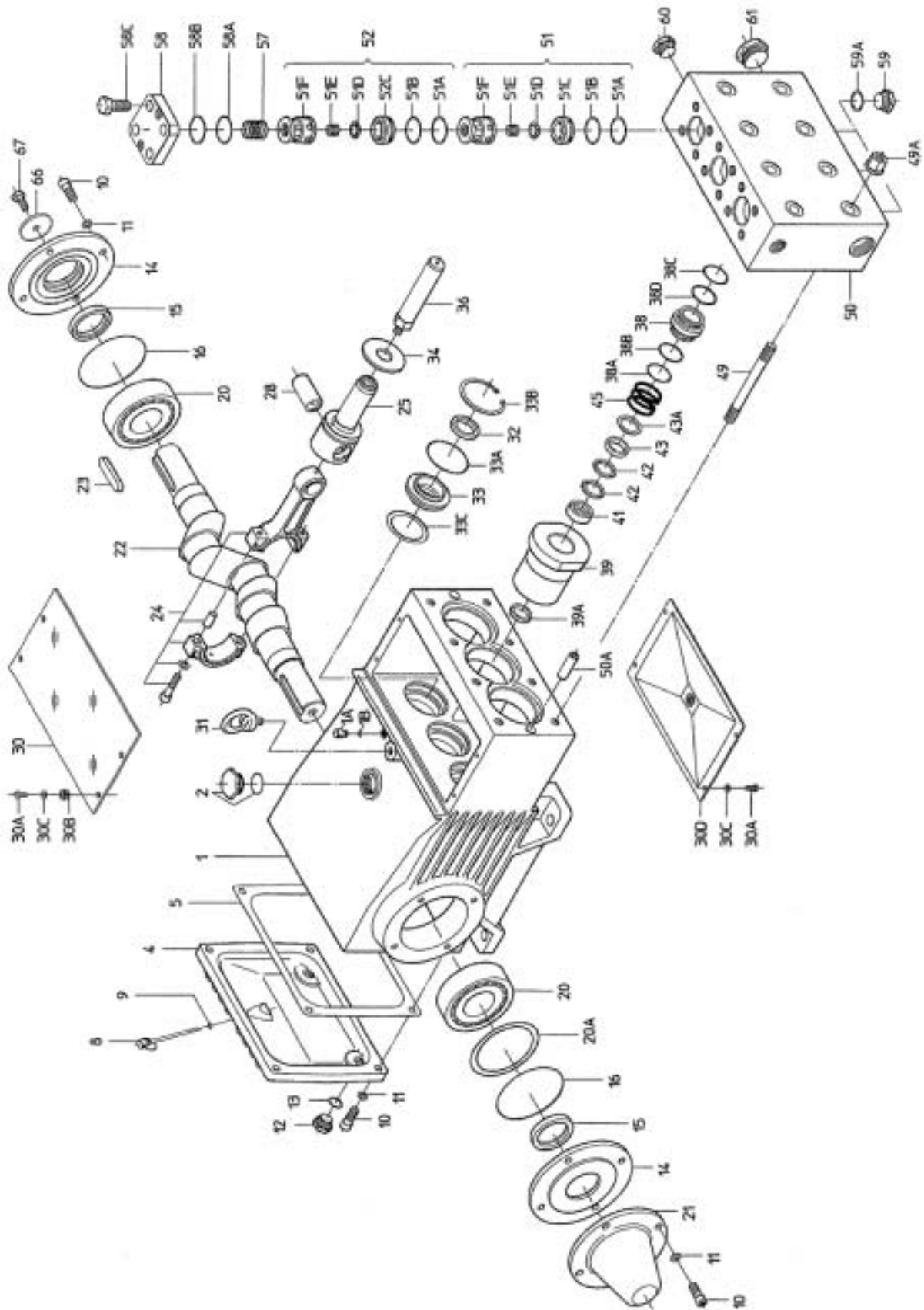
HORSEPOWER RATINGS:

The ratings shown in the chart above reflect the horsepower requirements for electric motors. We recommend motors with a 1.15 service factor.

To compute specific pump horsepower requirements, use the following formula:

$$\frac{\text{GPM} \times \text{PSI}}{1450} = \text{hp}$$

Exploded View - GP7128 Pump



GP7128 PARTS LIST

| ITEM | PART | DESCRIPTION | QTY. | ITEM | PART | DESCRIPTION | QTY. |
|------|------------|--------------------------|------|------|-------|---|------|
| 1 | 07600 | Crankcase | 1 | 38A | 12055 | O-Ring, Seal Case | 3 |
| 1A | 05525 | Head for Oil Dipstick | 1 | 38B | 07693 | Support Ring for 38A | 3 |
| 1B | 01009 | O-Ring, Dipstick | 1 | 38C | 07354 | O-Ring for 39 | 3 |
| 2 | 13000 | Oil Filler Plug Assembly | 1 | 38D | 12056 | Support Ring for 38C | 3 |
| 4 | 07601 | Crankcase Cover | 1 | 39 | 06426 | Seal Sleeve | 3 |
| 5 | 07602 | Seal for Cover | 1 | 39A | 13228 | Grooved Ring | 3 |
| 8 | 07603 | Oil Dip Stick | 1 | 41 | 13417 | Pressure Ring | 3 |
| 9 | 01009 | O-Ring, Dip Stick | 1 | 42 | 13369 | V-Sleeve | 6 |
| 10 | 22706 | Inner Hexagon Screw | 12 | 43 | 06862 | Sleeve Support Ring | 3 |
| 11 | 06725 | Spring Washer | 12 | 43A | 05355 | Spacer Ring | 3 |
| 12 | 07109 | Drain Plug | 2 | 45 | 07173 | Tension Spring | 3 |
| 13 | 07182 | Gasket, Drain Plug | 2 | 49 | 13159 | Stud Bolt | 8 |
| 14 | 07607 | Bearing Cover | 2 | 49A | 13160 | Hexagon Nut | 8 |
| 15 | 07608 | Radial Shaft Seal | 2 | 50 | 06099 | Valve Casing | 1 |
| 16 | 07184 | O-Ring, Bearing cover | 2 | 50A | 13162 | Cylinder Stud | 2 |
| 20 | 07610 | Taper Roller Bearing | 2 | 51 | 13146 | Inlet Valve Assy. | 3 |
| 20A | 07611 | Fitting Disc (Shim) | 1-5 | 51A | 12056 | Support Ring | 6 |
| 21 | 07612 | Shaft Protector | 1 | 51B | 07354 | O-Ring | 6 |
| 22 | 13405 | Crankshaft | 1 | 51C | 13131 | Inlet Valve Seat | 3 |
| 23 | 07614 | Key | 1 | 51D | 13130 | Valve Plate | 6 |
| 24 | 13182 | Connecting Rod Assy. | 3 | 51E | 07062 | Valve Spring | 6 |
| 25 | 13183 | Crosshead Assy. | 3 | 51F | 13147 | Spacer Pipe | 6 |
| 28 | 13184 | Crosshead Pin | 3 | 52 | 13148 | Discharge Valve Assy. | 3 |
| 30 | 07619 | Cover Plate | 1 | 52C | 13149 | Discharge Valve Seat | 3 |
| 30A | 07225-0100 | Hexagon Screw | 8 | 57 | 06078 | Compression Spring | 3 |
| 30B | 13136 | Grommet | 4 | 58 | 07699 | Plug | 3 |
| 30C | 08280 | Disc | 8 | 58A | 07700 | O-Ring | 3 |
| 30D | 13154 | Cover | 1 | 58B | 07693 | Support Ring | 3 |
| 31 | 07623 | Eye Bolt | 1 | 58C | 07702 | Hexagon Screw | 12 |
| 32 | 07624 | Radial Shaft Seal | 3 | 59 | 07703 | Plug, 3/4" | 3 |
| 33 | 07626 | Seal Retainer | 3 | 59A | 07704 | Copper Ring for 59 | 3 |
| 33A | 07627 | O-Ring for 33 | 3 | 60 | 13150 | Plug, 3/4" BSP | 1 |
| 33B | 07628 | Circlip for 33 | 3 | 61 | 13151 | Plug, 1-1/4" BSP | 1 |
| 33C | 07249 | Shim | 3 | 66 | 13362 | Disc for Crankshaft | 1 |
| 34 | 13137 | Flinger | 3 | 67 | 13358 | Hexagon Screw | 1 |
| 36 | 06427 | Plunger | 3 | | 07662 | Tool for valve assembly | |
| 38 | 05354 | Seal Case | 3 | | 17212 | Crankcase Assembly (1-34/49/49A/50A/66/67) | |

GP7128 Pump Repair Kits

Plunger Packing Kit - 09464

| Item | Part # | Description | Qty. |
|------|--------|---------------------|------|
| 38A | 12055 | O-Ring, Seal Case | 3 |
| 38B | 07693 | Support Ring | 3 |
| 38C | 07354 | O-Ring | 3 |
| 38D | 12056 | Support Ring | 3 |
| 39A | 13228 | Grooved Ring | 3 |
| 42 | 13369 | V-Sleeve | 6 |
| 43 | 06862 | Sleeve Support Ring | 3 |

Oil Seal Kit # 09221

| Item | Part # | Description | Qty. |
|------|--------|-------------------|------|
| 32 | 07624 | Radial Shaft Seal | 3 |
| 33A | 07627 | O-Ring | 3 |

Valve Assembly Kit - #09520

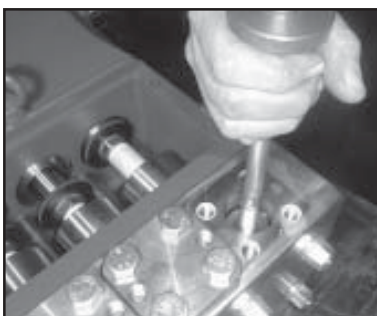
| Item | Part # | Description | Qty. |
|------|--------|----------------------|------|
| 51A | 12056 | Support Ring | 6 |
| 51B | 07354 | O-Ring | 6 |
| 51C | 13131 | Inlet Valve Seat | 3 |
| 51D | 13130 | Valve Plate | 6 |
| 51E | 07062 | Valve Spring | 6 |
| 52C | 13149 | Discharge Valve Seat | 3 |
| 58A | 07700 | O-Ring | 3 |
| 58B | 07693 | Support Ring | 3 |

GP7128 Repair Instructions

NOTE: Always take time to lubricate all metal and non-metal parts with a light film of oil before reassembling. This step will help ensure proper fit, at the same time protecting the pump non-metal parts (elastomers) from cutting and scoring.



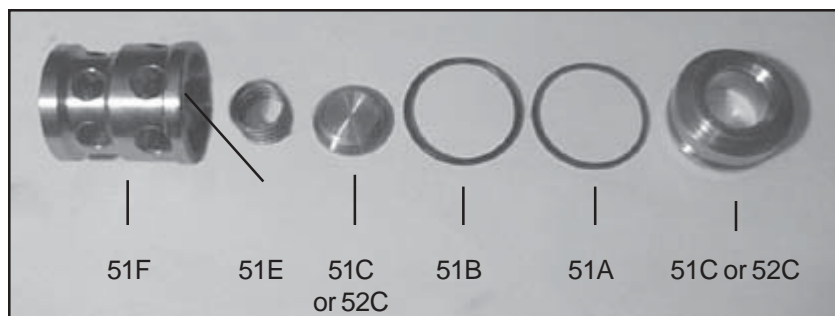
1. Loosen screws (58C), press plugs (58) out of valve casing with two screws - using them like "jack screws".



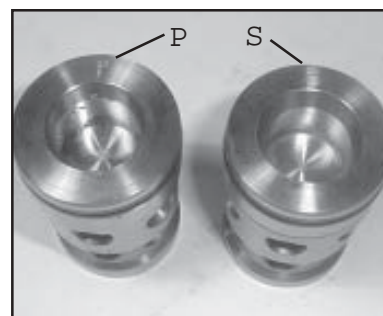
2. Remove tension spring (57) and complete valve assemblies (51 and 52) using either tool (part #07662) or stud bolt.



3. Valve seats (51C and 52C) are pressed out of spacer pipe (51F) by hitting the valve plate (51D) with a bolt.

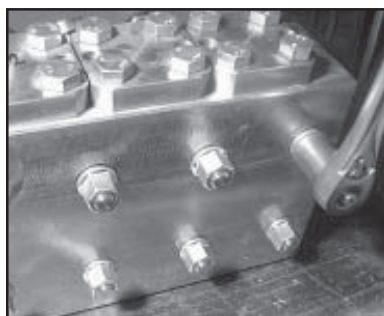


4. Check surfaces of valve plate, valve seat, O-rings (51B, 58A) and replace worn parts.



5. When reassembling: The suction valve seat (51C) is 1mm smaller in diameter than the discharge valve seat (52C). Suction valve seats are marked "S" and always have to be installed first. Discharge valve seats are marked "P" and are always to be installed on top of suction valve. Plugs (58) are to be tensioned down evenly with screws (58C) and crosswise at 156 ft-lbs. (210 NM).

To Check Seals and Plungers

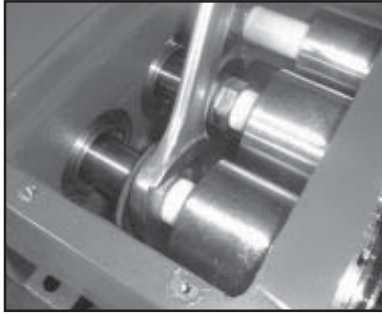


6. Loosen nuts (49A)



7. Remove pump head.

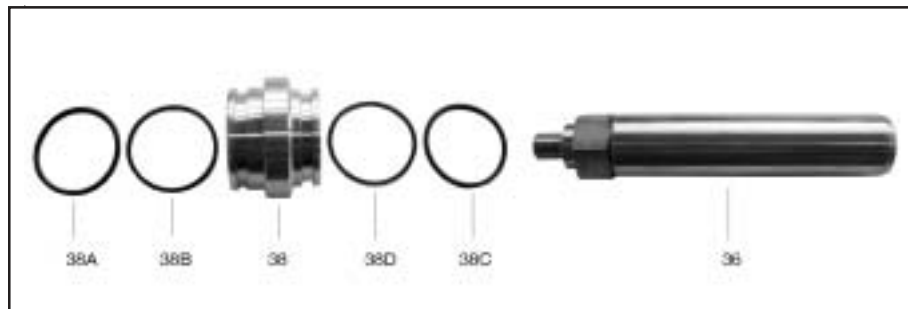
GP7128 Repair Instructions



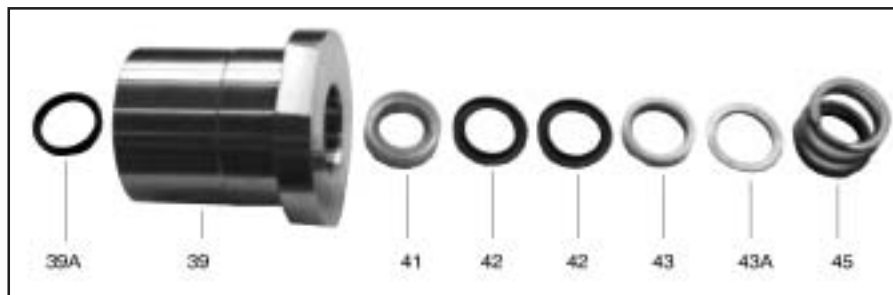
8. Separate plunger (36) from crosshead (25) by means of an open-end wrench (27mm).



9. Pull seal sleeves (39) out of their fittings in the crankcase. Take seal case (38) out of seal sleeve (39).



10. If o-rings (38A and 38C) or support rings (38B and 38D) are damaged, replace with new parts. Examine plunger (36) for wear.



11. Remove tension spring (45). Take a thin screw driver and pry out the grooved ring (39A). **Note: This seal (39A) will not be reusable, so replace with a new part.** For the seal-pack (41-43A), remove with either a socket wrench or use a screw driver to push against the rear lip of the pressure ring (41) or v-sleeves (42). You will need to remove seals evenly out of the seal sleeve (39). **Be careful not to score the sleeve or metal parts (41 & 43).**

GP7128 Repair Instructions

CAUTION: Don't loosen the (3) plungers (36) before the valve casing has been removed otherwise the plunger (36) could hit against the spacer pipe (51F) when the pump is being turned.

Seal life can be increased if the pretensioning allows for a little leakage. This assists lubrication and keeps the seals cool. It is therefore not necessary to replace seals before the leakage becomes too heavy and causes output and operating pressure to drop.

MOUNTING VALVE CASING

NOTE: Replace worn parts; grease seals with silicone before installing.

12. Check O-rings (38A) and support rings (38B) on seal case (38). Clean surfaces of seal sleeves in gear box and sealing surfaces of valve casing. Reassemble seal sleeve (39) by placing plunger (36) in seal sleeve; place pressure ring (41), v-sleeves (42), sleeve support ring (43), spacer ring (43A) and tension spring (45) over plunger (36). Place the seal case onto the seal sleeve and press into the crankcase, making sure that the weep hole on the seal sleeve is facing down. Tighten plunger onto crosshead (25) with a 27mm open end wrench to 33 ft-lbs. (45NM)
13. Push valve casing carefully onto O-rings of seal case and centering studs (50A). Tighten nuts (49A) to 103 ft-lbs. (140NM).

TO DISASSEMBLE GEAR

14. Take out plunger (36) and seal sleeves (39) as described above. Drain oil.
15. After removing the circlip ring (33B), lever out seal retainer (33) with a screwdriver. Check seals (32,33A) and surfaces of crosshead.
16. Remove crankcase cover (4). Loosen inner hexagon screws on the connecting rods (24) and push conn rod halves as far into the crosshead guide as possible.

CAUTION: Connecting rods are marked for identification. Do not twist conn rod halves. Conn rod is to be reinstalled in the same position on crankshaft journals.

17. Check surfaces of connecting rod and crankshaft (22). Take out bearing cover (14) to one side and push out crankshaft taking particular care that the connecting rod (24) doesn't bend.

CAUTION: Seal (32) must always be installed so that the seal-lip on the inside diameter faces the oil. Reassemble in reverse order: Regulate axial bearing clearance - minimum 0.1mm, maximum 0.15mm-by means of fitting disc (20A). The crankshaft (22) should turn easily with little clearance. Tighten connecting rod bolts to 30 ft.-lbs.(40 NM)

CAUTION: Connecting rod (24) has to be able to be slightly moved sidewise at the stroke journals.

PUMP SYSTEM MALFUNCTIONS

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

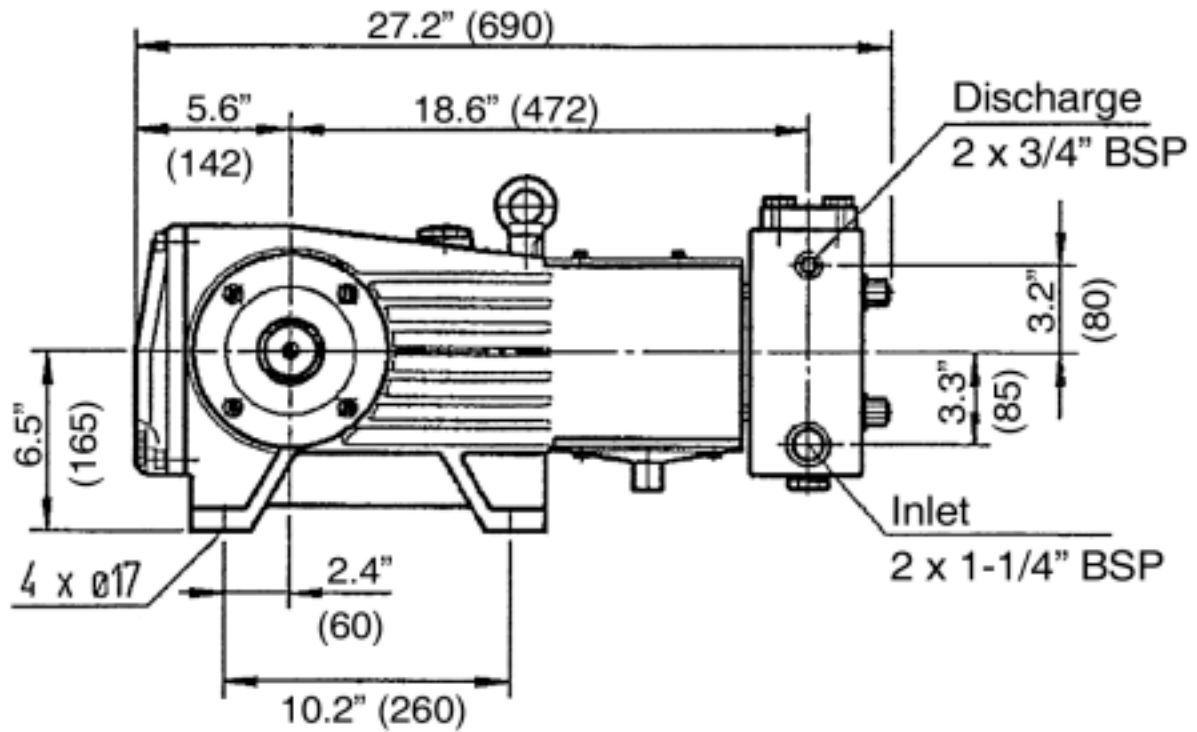
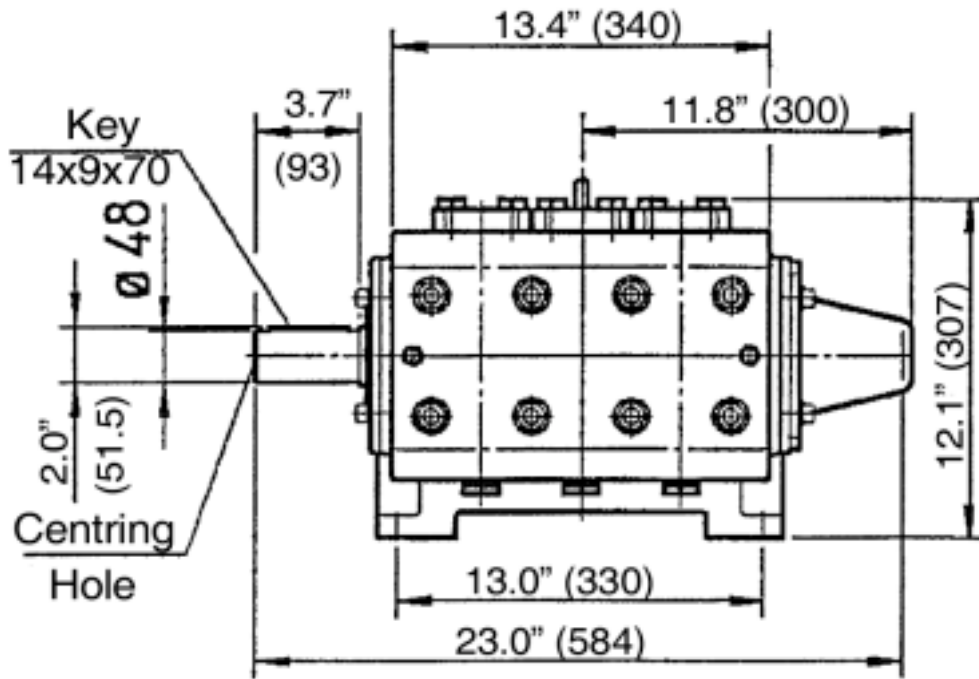
Preventative Maintenance Check-List & Recommended Spare Parts List

| Check | Daily | Weekly | 50hrs | Every 500 hrs | Every 1500 hrs | Every 3000 hrs |
|--|-------|--------|-------|------------------|-------------------|-------------------|
| Oil Level/Quality | X | | | | | |
| Oil Leaks | X | | | | | |
| Water Leaks | X | | | | | |
| Belts, Pulley | | X | | | | |
| Plumbing | | X | | | | |
| Recommended Spare Parts | | | | | | |
| Oil Change (1 Gallon) p/n 1154 | | | X | X | | |
| Plunger Packing Kits (1 kit/pump) (See page 5 for kit list) | | | | | X | |
| Valve Assembly Kit (1 kit/pump) (See page 5 for kit list) | | | | | | X |
| Oil Seal Kit (1 kit/pump) (See page 5 for kit list) | | | | | X | |

GP7128 Torque Specifications

| <u>Position</u> | <u>Item#</u> | <u>Description</u> | <u>Torque Amount</u> |
|-----------------|---------------|--------------------|----------------------|
| 36 | 07664 | Tensioning Screw | 33 ft.-lbs. (45NM) |
| 49A | 13160 | Nut | 103 ft.-lbs.(140NM) |
| 58 | 07699 | Plug | 156 ft.-lbs.(210NM) |
| Connecting Rod | Fitting Screw | | 30 ft.-lbs. (40 NM) |

GP7128 Dimensions - Inches (mm)



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 self-service 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.

THE LIMITED WARRANTY SET FORTH HEREIN IS IN LIEU OF ALL OTHER WARRANTIES OR REPRESENTATION, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND ALL SUCH WARRANTIES ARE HEREBY DISCLAIMED AND EXCLUDED BY THE MANUFACTURER.



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